

molex[®]

Brad[®] automation catalog



Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Table of Contents

Passive Media

| | |
|--|------------|
| Ultra-Lock[®] (US) | 19 |
| Cordsets | 20 to 24 |
| Receptacles | 25 to 26 |
| Field Attachable Connectors | 27 |
| Splitter Cordsets | 28 |
| Distribution Boxes | 29 to 36 |
| Micro-Change[®] (M12) (US) | 37 |
| Cordsets | 38 to 48 |
| Receptacles | 49 to 50 |
| Field Attachable Connectors | 51 |
| Solid Body Splitter and Tees | 52 |
| Splitter Cordsets | 53 |
| Distribution Boxes | 54 to 61 |
| Dual Key Cordsets | 62 to 65 |
| Dual Key Receptacles | 66 to 67 |
| Dual Key Field Attachables | 68 |
| Nano-Change[®] (M8) (US) | 69 |
| Cordsets | 70 to 72 |
| Receptacles | 73 to 74 |
| Field Attachable Connectors | 75 |
| Distribution Boxes | 76 to 78 |
| Snap Cordsets | 79 |
| Ultra-Lock (EUROPE) | 81 |
| Cordsets | 82 to 86 |
| Receptacles | 87 to 88 |
| Field Attachable Connectors | 89 |
| Splitter Cordsets | 90 |
| Distribution Boxes | 91 to 98 |
| Micro-Change (M12) (EUROPE) | 99 |
| Cordsets | 100 to 110 |
| Receptacles | 111 to 112 |
| Field Attachable Connectors | 113 |
| Solid Body Splitter and Tees | 114 |
| Splitter Cordsets | 115 |
| Distribution Boxes | 116 to 123 |
| Nano-Change (M8) (EUROPE) | 125 |
| Cordsets | 126 to 128 |
| Receptacles | 129 to 130 |
| Field Attachable Connectors | 131 |
| Distribution Boxes | 132 to 134 |
| Snap Cordsets | 135 |

| | |
|--|------------|
| Mini-Change® | 137 |
| A-Size | |
| Cordsets | 138 to 143 |
| Receptacles | 144 to 148 |
| Bulkheads | 149 |
| Field Attachable Connectors | 150 |
| Plugs | 151 |
| Tee Connectors | 152 |
| Adaptors | 153 |
| Accessories | 153 |
| Distribution Boxes | 154 to 157 |
| B-Size | |
| Cordsets | 158 to 160 |
| Receptacles | 161 to 162 |
| Accessories | 163 |
| C-Size | |
| Cordsets | 164 to 166 |
| Receptacles | 167 to 168 |
| 19-Pole Single and Double-Ended Cordsets | 169 |
| 19-Pole Receptacles | 170 |
| Accessories | 171 |
| M23 | 173 |
| Signal | |
| Connectors | 174 to 175 |
| Receptacles | 176 to 179 |
| Cordsets | 180 |
| Power | |
| Connectors | 181 to 182 |
| Receptacles | 183 to 184 |
| Tools and Accessories | 185 |
| mPm® DIN | 187 |
| Field Attachables | 188 to 192 |
| Molded Cables | 193 to 197 |
| Technical Features | 198 |
| Available Circuit Sizes | 199 |

Power Products

| | |
|--|------------|
| NFPA 79-2012 Compliant | 204 |
| Trunk/Feeder | |
| Cordsets | 205 to 207 |
| Tees | 208 |
| Reducers | 209 |
| Receptacles | 210 |
| Field Attachable Connectors | 211 |
| Drop/Branch | |
| Cordsets | 212 to 214 |
| Receptacles | 215 |
| Field Attachable Connectors | 216 |
| Accessories | |
| Closure Caps and Locking Clips | 217 |
| Emergency Stop Cordsets and Tees | 218 |
| Emergency Stop Receptacles and Terminators | 219 |

Network Solutions

| | |
|--|------------|
| DeviceNet* | 224 to 225 |
| Remote Scanners | 226 |
| Diagnostic Tools | 227 |
| Interface Cards | 228 |
| Interface Modules | 229 to 230 |
| Common Industrial Safety Software Kits | 231 |
| I/O Modules | 232 to 233 |
| Bulk Cables | 234 to 237 |
| Mini-Change[®] | |
| Cordsets | 238 to 244 |
| Receptacles | 245 to 247 |
| Field Attachable Connectors | 248 |
| Terminator Resistors | 249 |
| Tees and Adapters | 250 to 253 |
| Passive Multi-Ports | 254 to 255 |
| Micro-Change[®] (M12) | |
| Cordsets | 256 to 261 |
| Receptacles | 262 to 263 |
| Field Attachable Connectors | 264 |
| Terminators | 265 |
| Tees and Splitters | 266 |
| Passive Multi-Ports | 267 to 268 |
| Open Style | |
| Cordsets | 269 to 270 |
| Receptacle Assemblies | 271 |
| Nano-Change[®] (M8) | |
| Cordsets | 272 to 276 |
| Passive Multi-Ports | 277 |
| Auxiliary Power Media | |
| Mini-Change[®] | |
| Cordsets | 278 |
| Adapters | 279 |
| Field Attachable Connectors | 280 |
| Power Taps | 281 |
| Machine Stop Tees | 282 |
| Micro-Change[®] (M12) and Ultra-Lock[®] | |
| Cordsets | 283 to 284 |
| Receptacles | 285 |
| Field Attachable Connectors | 286 |
| PROFIBUS[†] | 288 |
| Adapters | 290 |
| Interface Cards | 290 to 297 |
| Communication Modules | 298 to 299 |
| Industrial Gateway | 300 |
| I/O Modules | 301 to 302 |
| Cables | 303 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).

† PROFIBUS is a trademark of PROFIBUS International

| | |
|--|------------|
| Micro-Change® (M12) | |
| Cordsets | 304 to 306 |
| Receptacles | 307 to 309 |
| Field Attachable Connectors | 310 |
| Terminators | 311 |
| Tees | 312 |
| D-Sub | |
| Field Attachable Connectors | 313 |
| Cordsets | 314 to 318 |
| Auxiliary Power Media | |
| Mini-Change® | |
| Cordsets | 319 |
| Receptacles | 320 |
| Field Attachable Connectors | 321 |
| Tees | 322 |
| Micro-Change® (M12) and Ultra-Lock® | |
| Cordsets (US) | 323 to 324 |
| Cordsets (Europe) | 325 to 326 |
| Receptacles (US) | 327 |
| Receptacles (Europe) | 328 |
| Field Attachable Connectors | 329 |
| Ethernet | 330 |
| Development Kits | 332 to 333 |
| Windows* Compatible Drivers | 334 to 335 |
| Network Interface Cards | 336 to 337 |
| Communication Modules | 338 |
| I/O Modules | 339 to 340 |
| Common Industrial Safety Software Kits | 341 |
| Ethernet Switches | 342 to 343 |
| RJ-Lnxx® RJ-45 and Standard RJ-45 | |
| Cordsets | 344 to 348 |
| Receptacles | 349 to 353 |
| Field Attachable Connectors | 354 |
| Accessories | 354 |
| Sealed RJ-45 | |
| Cordsets | 355 to 357 |
| Receptacles | 358 |
| Field Wireable Connectors | 359 |
| Dust Caps | 359 |
| Micro-Change® (M12) | |
| Cordsets | 360 to 363 |
| Field Attachable Connectors | 364 |
| Ultra-Lock® | |
| Cordsets | 365 to 366 |
| Receptacles | 367 to 370 |
| Micro-Change® (M12) | |
| Adapters | 371 |
| Circular Hybrid Technology Connector | 372 |
| X-Coded | 373 to 374 |

*Windows is a registered trademark of Microsoft Corporation.

| | |
|--|------------|
| Other Networks | 376 |
| Communication Modules | 378 |
| Network Interface Cards | 379 to 381 |
| Windows Compatible Protocol Drivers | 382 |
| I/O Modules | 383 |
| PICS Simulation Software | 384 |
| NMEA 2000* | 385 |
| Bulk Cables | 386 |
| Micro-Change[®] (M12) | |
| Cordsets | 387 to 389 |
| Receptacles | 390 |
| Field Attachable Connectors | 391 |
| Terminator Resistors | 392 |
| Tees | 393 to 394 |
| Junction Boxes | 395 |
| Mini-Change[®] | |
| Cordsets | 396 |
| Field Attachable Connectors | 397 |
| Terminator Resistors | 398 |
| Tees | 399 |
| Power Tap | 400 |
| Auxiliary Power Media Cordsets | 401 |
| Micro-Change[®] (M12) and Mini-Change[®] | |
| Receptacles | 402 |
| Closure Caps | 402 |
| Industrial USB | 403 |
| Cordsets | 404 to 405 |
| Receptacles | 406 |
| Dust Cap | 407 |
| Cable Chemical Resistance Chart/Specifications and Wire Diameters | 408 |
| Stranded Wire Cross-Reference | 409 |
| Approval Codes | 410 to 412 |
| Glossary | 413 to 418 |
| Series No. Index | i |
| Order No. Index | ii to xiii |
| Engineering No. Index | xiv to xxv |

*NMEA 2000 is a trademark of the National Marine Electronics Association

Product Page Overview

Features and Benefits

Specifications

Trade Name → **Brad® Micro-Change® (M12)**

Application/Product Type → **Single-Ended Cordsets (US)**

Series Number → **120065**

Product Description → **Male, Pigtail Straight, Right Angle**

Photo →



- Features and Benefits**
- M12 Single Keyway (A-Coded) IEC compliant cordset assemblies
 - 3, 4, and 5-pole versions are interchangeable for added flexibility
 - IP67/68 rated for harsh environments
 - Patented anti-vibration feature to prevent loosening under high vibration applications
 - Wide selection of cables to fit applications
 - PVC cables for light, cost sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton (EPDM for A09 cables)
 Coupling Nut: Nickel-plated Brass (Teflon coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

UL File No.: E152210 (A09 and K05 cable assemblies)
 CSA File No.: LR6837 (A09 and K05 cable assemblies)

Ordering Information →

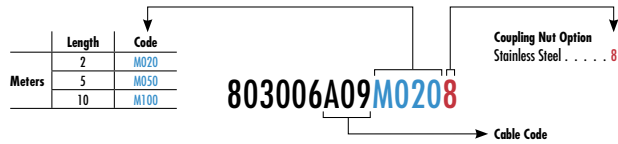
| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|---|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 803006A09M020 | 120065-0200 | 803007A09M020 | 120065-1497 |
| | | | PLTC-ER | TPE (K05) | | | 803006K05M020 | 120065-1114 | 803007K05M020 | 120065-1501 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 804006A09M020 | 120065-0414 | 804007A09M020 | 120065-1662 |
| | | | PLTC-ER | TPE (K05) | | | 804006K05M020 | 120065-1129 | 804007K05M020 | 120065-1691 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 805006A09M020 | 120065-0523 | 805007A09M020 | 120065-1724 |

Important Notes →

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code Build-a-Part-Number (allows for creation of unique engineering numbers if an order number doesn't already exist)

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Link to website → www.molex.com



Find the Latest Innovations and Information at Molex.com

For the most in-depth and up-to-date information on all our products, visit Molex.com. It's designed to help you get more done in less time with advanced search capabilities, 3D models, product specifications, easy sample ordering and more.



▶ MOLEX.COM

Molex.com provides a first stop for comprehensive overviews of our industrial products. Some of the tools you'll find are:

Capabilities Videos

Short online videos highlight key industry products, as well as our unique cross-functional design and manufacturing capabilities.

Featured Products

To find out about new products that can take your design to the next level, look no further than this convenient product spotlight.

Other Time-Saving Site Features

Monthly E-ouncements

Electronic newsletter keeps you up-to-date on our latest innovations

Favorite Products Feature

Lets you select and save up to 200 products as you browse

Electrical Testing Models and Data

Available on an array of products in our "Signal Integrity" section

New Videos, Webinars, Articles and More
Available right from our home page

Detailed Application Pages

Instant Access to Product Specs

total system solution



Molex is a leading one-source supplier of interconnect products. Our team of highly skilled experts is focused on the design, development and distribution of innovative product solutions that touch virtually every walk of life. The Molex product portfolio is among the world's most extensive, with over 100,000 reliable products. Because our product line includes automation products for passive media, network media and power applications, Molex can interconnect an entire automation infrastructure—one total system solution from a global company dedicated to meeting your total system needs. Molex utilizes extensive worldwide resources to meet customer needs on a local, regional and global level. Molex offers well-established sales, product development, manufacturing and logistics resources in Asia, Europe and the Americas.

molex[®]

design



If you're designing or engineering an automation infrastructure, Molex will provide a system that includes passive media, network solutions and power products bearing the Brad® name.

install



If you're installing an automation infrastructure, you'll appreciate how simply and precisely the Brad components go together—and stay together—thanks to quick-connect convenience, including our exclusive Ultra-Lock® Connection System.

maintain



If system maintenance is your responsibility, Brad products are built to help—and endure. Features like epoxy-coated couplings, palladium/nickel plating, female contacts that maintain constant pressure on the male contacts, moisture-resistant design and seal construction, ultra-tough cable materials, anti-vibration technology, quick-connects, and many others help maintain system performance, minimize downtime, maximize product life, even simplify maintenance.

Brad® Components are Everywhere

With Brad components, you only need one convenient source to spec all of your industrial connectors and applications. Standardize with Brad products and watch your design, installation, and maintenance processes become vastly simplified—a total system solution.

SERVING THESE AND OTHER MARKETS

Industrial Device
Manufacturing

Automotive

Robotics

Food/Beverage

Material Handling

Alternative Energy
(e.g. solar, wind)

Commercial Vehicle



connectivity

Connectors, cordsets and distribution boxes for sensor, actuator and bus network applications



power

Modular, flexible wiring systems for machine power distribution and motor control



control

Network I/O for on-machine and in-cabinet applications



communications

Network interface cards, PLC backplanes, switches, gateways, simulation software and diagnostic tools

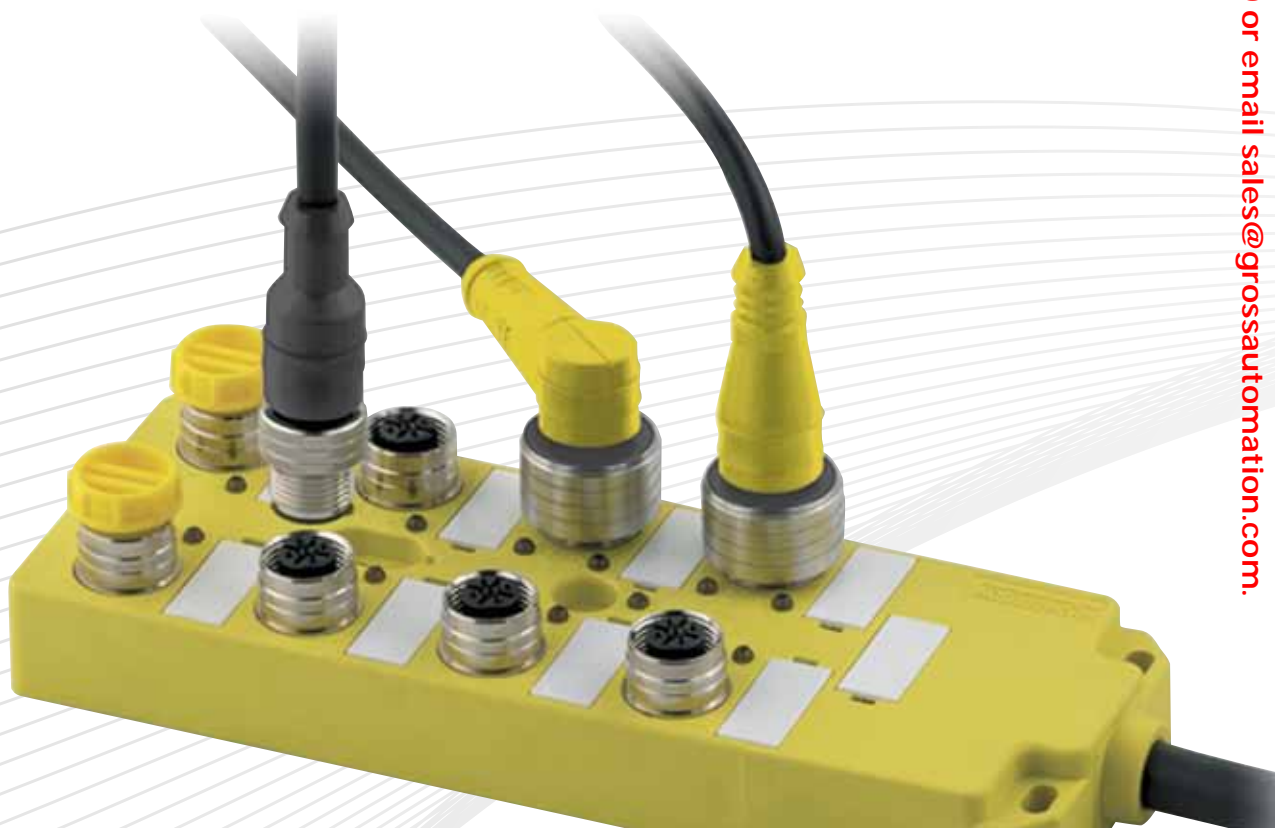
Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Passive Media

| | | | |
|--|------------|--|------------|
| Ultra-Lock® (US) | 19 | Mini-Change® | 137 |
| Cordsets | 20 to 24 | A-Size | |
| Receptacles | 25 to 26 | Cordsets | 138 to 143 |
| Field Attachable Connectors | 27 | Receptacles | 144 to 148 |
| Splitter Cordsets | 28 | Bulkheads | 149 |
| Distribution Boxes | 29 to 36 | Field Attachable Connectors | 150 |
| Micro-Change® (M12) (US) | 37 | Plugs | 151 |
| Cordsets | 38 to 48 | Tee Connectors | 152 |
| Receptacles | 49 to 50 | Adaptors | 153 |
| Field Attachable Connectors | 51 | Accessories | 153 |
| Solid Body Splitter and Tees | 52 | Distribution Boxes | 154 to 157 |
| Splitter Cordsets | 53 | B-Size | |
| Distribution Boxes | 54 to 61 | Cordsets | 158 to 160 |
| Dual Key Cordsets | 62 to 65 | Receptacles | 161 to 162 |
| Dual Key Receptacles | 66 to 67 | Accessories | 163 |
| Dual Key Field Attachables | 68 | C-Size | |
| Nano-Change® (M8) (US) | 69 | Cordsets | 164 to 166 |
| Cordsets | 70 to 72 | Receptacles | 167 to 168 |
| Receptacles | 73 to 74 | 19-Pole Single and Double-Ended Cordsets | 169 |
| Field Attachable Connectors | 75 | 19-Pole Receptacles | 170 |
| Distribution Boxes | 76 to 78 | Accessories | 171 |
| Snap Cordsets | 79 | M23 | 173 |
| Ultra-Lock (EUROPE) | 81 | Signal | |
| Cordsets | 82 to 86 | Connectors | 174 to 175 |
| Receptacles | 87 to 88 | Receptacles | 176 to 179 |
| Field Attachable Connectors | 89 | Cordsets | 180 |
| Splitter Cordsets | 90 | Power | |
| Distribution Boxes | 91 to 98 | Connectors | 181 to 182 |
| Micro-Change (M12) (EUROPE) | 99 | Receptacles | 183 to 184 |
| Cordsets | 100 to 110 | Tools and Accessories | 185 |
| Receptacles | 111 to 112 | mPm® DIN | 185 |
| Field Attachable Connectors | 113 | Field Attachables | 188 to 192 |
| Solid Body Splitter and Tees | 114 | Molded Cables | 193 to 197 |
| Splitter Cordsets | 115 | Technical Features | 198 |
| Distribution Boxes | 116 to 123 | Available Circuit Sizes | 199 |
| Nano-Change (M8) (EUROPE) | 125 | | |
| Cordsets | 126 to 128 | | |
| Receptacles | 129 to 130 | | |
| Field Attachable Connectors | 131 | | |
| Distribution Boxes | 132 to 134 | | |
| Snap Cordsets | 135 | | |

Passive media

Molex® provides a wide variety of passive media products and solutions under the Brad® name. Every connector can be trusted to perform in the most rugged, harsh-duty industrial application. Each component is designed with you in mind: field connections, quick-connect speed and simplicity, unlimited combinations of performance/power/speed/size, engineering part number system, simplified wire management products, and so much more. Molex can also provide the network and power products you need for a total system solution, each bearing the trusted Brad logo. When the infrastructure is done, you'll be glad you chose Brad, the world's leading industrial connector brand.



Built to meet the toughest industry codes and standards

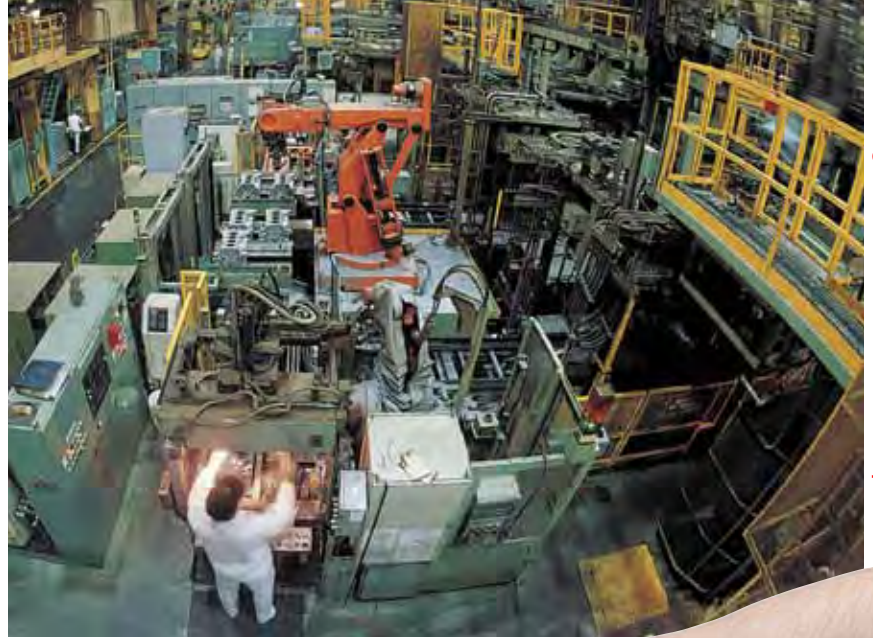
Choose from five circular form factors and over four hundred application-specific cables. A three-tiered cable material solution provides welcome choices, with each material designed to meet specific application requirements. Quick-connect features save valuable time, yet fasten securely. You also have the flexibility to custom-design your own cordsets using our configuration code or standard order numbering. Our product breadth offers a complete passive media solution that includes cordsets, connectors, and distribution boxes for sensors, actuators, and bus network applications.

Performance right where it should be

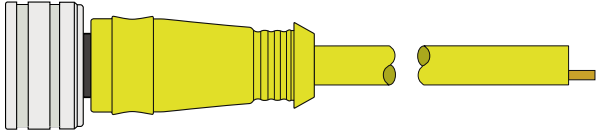
The average, harsh-duty industrial environment is no place for average connectivity solutions. All Brad® automation products are designed for maximum performance and reliability in ultra-tough environments. And they're backed by the knowledge, experience and support of Molex Incorporated, a 75-year-old global manufacturer of innovative industrial communication, control and connectivity solutions.

Six circular form factors that are used globally:

- Brad Ultra-Lock® Connection System (M12)
- Brad Micro-Change® (M12)
- Brad Nano-Change® (M8)
- Brad Mini-Change® (A, B and C sizes)
- Brad M23
- Brad DIN Connectors

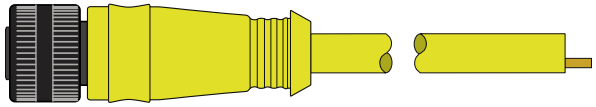


Brad® Ultra-Lock® (M12)



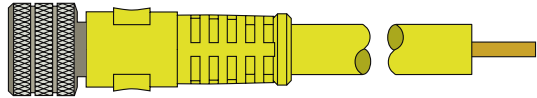
The standard for compact, push-to-lock, IP69 sealed connections for signal and communication applications

Brad Micro-Change® (M12)



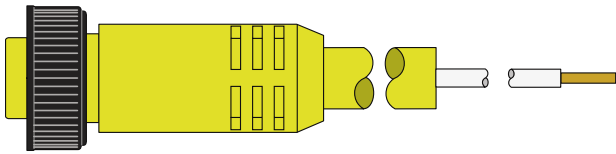
Rugged Micro-Change® connectors and receptacles provide a high-pin-density M12 solution and are ideal for use in harsh commercial and industrial environments

Brad Nano-Change® (M8)



For extremely compact, rigorous connection requirements. 3, 4 and 5 pole available

Brad Mini-Change® (A, B and C sizes)



The industry standard for rugged, sealed, signal and low-power applications. 2 to 12 and 19 poles

Brad M23



Tough, metal shelled connectors for signal and power

Brad mPm® DIN Cordset Family



Field attachable and Molded cable versions

Ultra

Micro

Nano

Mini

M23





DIN

The Right Cable For Your Application

Selecting the right cable for your application is very important to ensure a reliable, problem-free installation. Careful consideration of mechanical abrasion, fluid/chemical exposure, flexibility (drag chain, C-track, torsion), temperature rating and flame retardancy is required to select the cable that will provide performance and reliability in service. The Brad® line offers a complete range of cables, including five standard cable types satisfying most applications as well as 400+ application-specific cables for special performance requirements. In all cases, Brad cordsets are available in standard and non-standard lengths.

Brad PVC, PUR and TPE cordsets are manufactured with high performance materials and include UL/CSA approvals to ensure compatibility with both European and North American market requirements.

If you need assistance selecting the right cable, please contact our technical support team at your local Molex office.

| APPLICATION AREA | CHARACTERISTICS |
|---|---|
| <p>PVC LIGHT INDUSTRIAL ENVIRONMENT  For use in static, less demanding environments, such as: light assembly equipment, packaging machines, conveyors</p> | <ul style="list-style-type: none"> - UL/CSA approved - Good chemical resistance - Fair resistance to abrasion - Fair oil and lubricants resistance - Inexpensive cable solution |
| <p>PUR/PVC MORE ROBUST ENVIRONMENT For use in assembly and production lines such as machine tools and metal-cutting production requiring higher cut, abrasion and chemical resistance</p> | <ul style="list-style-type: none"> - Good abrasion resistance - Good resistance to oils and chemicals - Flexible use in several areas - Limited usability in drag chains |
| <p>PUR DEMANDING ENVIRONMENTS  For use in machine tools, swivel tables and metal-cutting production with harsh fluid, mechanical or continuous flex requirements</p> | <ul style="list-style-type: none"> - UL/CSA approved - Very good resistance to oils, chemicals and coolants - High abrasion resistance - Halogen free, flame retardant - Drag chain suitability (slower motion) |
| <p>TPE CONTINUOUS FLEX/DEMANDING AREAS  For use in robots, special welding equipment, high speed drag chains, machine tools, assembly lines, metal cutting manufacturing</p> | <ul style="list-style-type: none"> - UL/CSA approved - Very good weld slag resistance - High temperature resistance (+105° C) - High abrasion resistance - High flex life, min. 10 million cycles bend and torsion - TC-ER, PLTC-ER or ITC-ER rated |
| <p>EXTRA HARD Service Cord HIGH ABUSE/PORTABLE/OUTDOOR  For use in outdoor lighting, portable tools, multi-use plant equipment, portable power and control systems</p> | <ul style="list-style-type: none"> - 105° C temperature rating - UV, ozone and water resistant - Crush and abrasion resistant - Non-wicking construction - UL/CSA type ST00W, S00W or TC-ER |

Brad® Ultra-Lock® Connection System

UNITED STATES (also includes Canada, Mexico and South America)

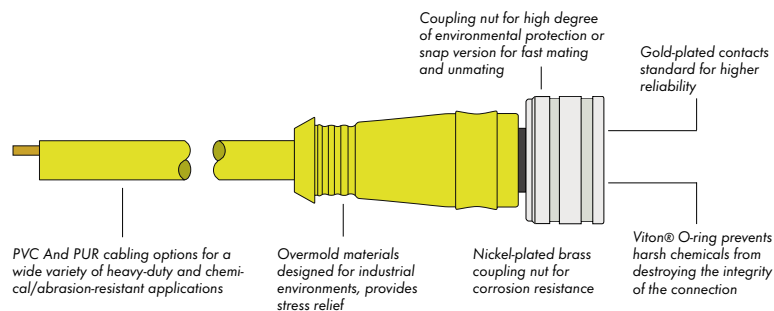
The performance and reliability of the revolutionary new Ultra-Lock® connection system surpass those of traditional threaded connectors, delivering increased productivity and cost savings.

Ultra-Lock connectors incorporate a unique radial seal and mechanical-locking design that deliver unsurpassed performance. The patented push-to-lock technology provides a fast, simple and secure operator-independent connection.

Ultra-Lock connectors are designed to eliminate connector-related intermittent signals in the harshest environments. Fewer intermittent signals mean less downtime and better productivity.

Ultra-Lock technology can be used on Ultra-Lock connectors as well as threaded connectors, including Brad M12 connectors from Molex and Micro-Push® (IP64) connections.

Molex offers Ultra-Lock in 3-, 4-, 5-, 8- and 12-pin configurations for an extensive assortment of cordsets, receptacles, and molded junction boxes. The Ultra-Lock receptacles and multiports can be used with conventional threaded M12 and Micro-Push products to provide backward compatibility to legacy screw-down connectors.



Features and Benefits

- Push-to-lock technology provides a simple, secure, operator-independent connection for fast mating and reduced installation time
- Radial O-ring provides an IP69K seal to protect against moisture
- Receptacles accept either the Ultra-Lock connector or standard M12 threaded cordsets, giving users a variety of connection options

Applications

- Proximity switches, photo eyes, safety switches and other I/O connectivity
- Connector interface for IP69-rated devices
- Connectivity for devices in high-vibration environments
- Connections requiring blind-mating

Brad® Ultra-Lock® (M12) Single-Ended Cordsets (US)

120079

Female Pigtail
Straight, Right Angle



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push to lock mechanism reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant

Physical

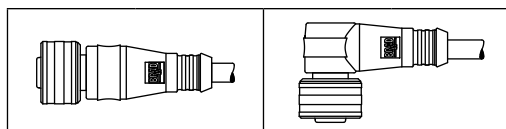
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass
 (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V, 80C
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80C UL AWM20549

Environmental

Protection: IP67/IP68/IP69K
 NEMA rating: NEMA 6

Reference Information

CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)



| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--------------------|--------------------------|---------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 2.0m | W03000A09M020 | 120079-0138 | W03001A09M020 | 120079-0216 |
| | | | PLTC-ER | TPE (K05) | | | W03000K05M020 | 120079-0130 | W03001K05M020 | 120079-0211 |
| 4 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 2.0m | W04000A09M020 | 120079-0164 | W04001A09M020 | 120079-0232 |
| | | | PLTC-ER | TPE (K05) | | | W04000K05M020 | 120079-0149 | W04001K05M020 | 120079-0221 |
| 5 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 2.0m | W05000A09M020 | 120079-0109 | W05001A09M020 | 120079-0223 |
| 8 Pole | 2.0A | 30V AC/36V DC | | PUR/PVC (P02) | 24 | 2.0m | W08000P02M020 | 120079-5113 | W08001P02M020 | 120079-5114 |
| 12 Pole | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 2.0m | W0C000H45M020 | 120079-5001 | W0C001H45M020 | 120079-5117 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Single-Ended Cordsets (US)

120079

Male, Pigtail
Straight, Right Angle



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanism reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant

Physical

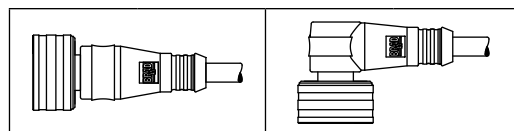
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V, 80C
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80C UL AWM20549

Environmental

Protection: IP67/IP68/IP69K
 NEMA rating: NEMA 6

Reference Information

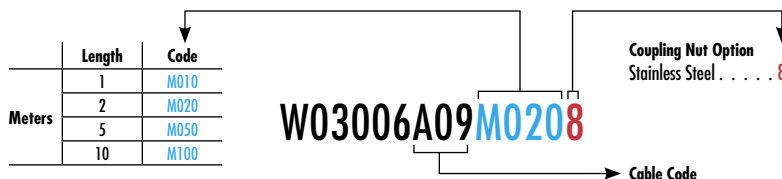
CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)



| Poles (Male View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | | Male Right Angle | |
|-------------------|--------------------------|---------------|------------|---------------------------|-----------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 2.0m | W03006A09M020 | 120079-0175 | W03007A09M020 | 120079-0220 |
| | | | PLTC-ER | TPE (K05) | | | W03006K05M020 | 120079-0155 | W03007K05M020 | 120079-0226 |
| 4 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 2.0m | W04006A09M020 | 120079-0107 | W04007A09M020 | 120079-0187 |
| | | | PLTC-ER | TPE (K05) | | | W04006K05M020 | 120079-0156 | W04007K05M020 | 120079-0192 |
| 5 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 2.0m | W05006A09M020 | 120079-0092 | W05007A09M020 | 120079-0239 |
| 8 Pole | 2.0A | 30V AC/36V DC | | PUR/PVC (P02) | 24 AWG | 2.0m | W08006P02M020 | 120079-5115 | W08007P02M020 | 120079-5116 |
| 12 Pole | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 2.0m | W0C006H45M020 | 120079-5006 | W0C007H45M020 | 120079-5118 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Double-Ended Cordsets (US)

120080

**Female Straight-to-Male Straight,
Female Right Angle-to-Male
Straight**



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanism reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant

Reference Information

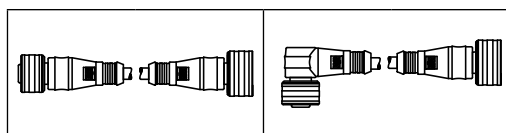
CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass
 (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V, 80C
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80C UL AWM20549

Environmental

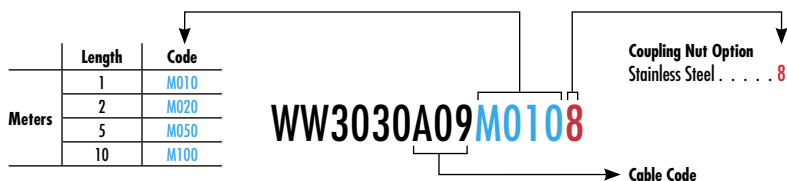
Protection: IP67/IP68/IP69K
 NEMA rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------------|-----------------------------|---------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 1.0m | WW3030A09M010 | 120080-0276 | WW3031A09M010 | 120080-0429 |
| | | | PLTC-ER | TPE (K05) | | | WW3030K05M010 | 120080-0414 | WW3031K05M010 | 120080-0286 |
| 4 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 1.0m | WW4030A09M010 | 120080-0403 | WW4031A09M010 | 120080-0337 |
| | | | PLTC-ER | TPE (K05) | | | WW4030K05M010 | 120080-0417 | WW4031K05M010 | 120080-0300 |
| 5 Pole | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 | 1.0m | WW5030A09M010 | 120080-0325 | WW5031A09M010 | 120080-0382 |
| 8 Pole | 2.0A | 30V AC/36V DC | | PUR/PVC (P02) | 24 | 1.0m | WW8030P02M010 | 120080-5083 | WW8031P02M010 | 120080-5084 |
| 12 Pole | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 1.0m | WWC030H45M010 | 120080-5088 | WWC031H45M010 | 120080-5089 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Double-Ended Cordsets (US)

120080

**Female Straight-to-Male Right Angle,
Female Right Angle-to-Male Right Angle**



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanism reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant

Physical

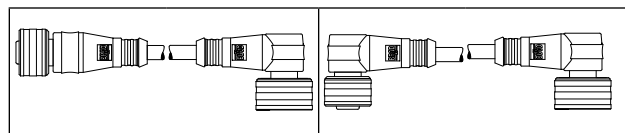
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V, 80C
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80C UL AWM20549

Environmental

Protection: IP67/IP68/IP69K
 NEMA rating: NEMA 6

Reference Information

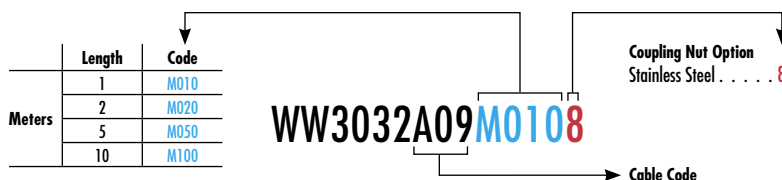
CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---------------------|--------------------------|---------------|------------|---------------------------|-----------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 1.0m | WW3032A09M010 | 120080-0419 | WW3033A09M010 | 120080-0351 |
| | | | PLTC-ER | TPE (K05) | | | WW3032K05M010 | 120080-0281 | WW3033K05M010 | 120080-0364 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 1.0m | WW4032A09M010 | 120080-0347 | WW4033A09M010 | 120080-0391 |
| | | | PLTC-ER | TPE (K05) | | | WW4032K05M010 | 120080-0306 | WW4033K05M010 | 120080-0396 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (A09) | 22 AWG | 1.0m | WW5032A09M010 | 120080-0378 | WW5033A09M010 | 120080-0431 |
| | 2.0A | 30V AC/36V DC | | PUR/PVC (P02) | 24 AWG | 1.0m | WW8032P02M010 | 120080-5085 | WW8033P02M010 | 120080-5086 |
| | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 1.0m | WWC032H45M010 | 120080-5090 | WWC033H45M010 | 120080-5023 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Single and Double-Ended Shielded Cordsets (US)

120079/120083

Female Straight, Male Straight,
Female Straight-to-Male Straight



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanism reduces fatigue and user errors when a high number of connections need to be made
- Shielding thru coupling offer complete EMI protection to electrical noise
- IP67/68/69K rated for harsh environments

Physical

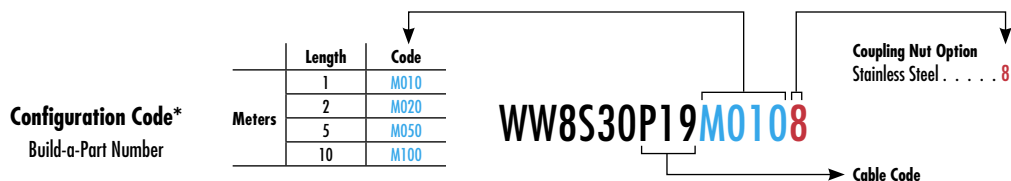
Connector Body: PUR
Contact Carries: Polyamide
O-ring: Viton®
Coupling: Nut Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Shielding: Braid shield on cable connected to coupler, providing complete shielding thru connector interface
Cables: P19—Black PUR jacket with braid shield, 85% coverage, 24 AWG PVC conductors, 300V, 90C
P45—Black PUR jacket with braid shield, 80% coverage, 26 AWG PVC conductors, 300V, 80C, UL AWM 20549

Environmental

Protection: IP67/IP68/IP69K
NEMA rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Male Straight | | Female Straight-to-Male Straight | |
|------------------------|-----------------------------|---------------|---------------|-----------------------------------|------------------|--------|-----------------|-----------------------|-----------------|-----------------------|----------------------------------|-----------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | Female Straight | | Male Straight | | Female Straight-to-Male Straight | |
| | 2.0A | 30V AC/36V DC | | PUR with Braid Shield (P19) | 24 | 1.0m | | | | | WW8S30P19M010 | 120083-5183 |
| | | | | | | 2.0m | W08S00P19M020 | 120079-5029 | W08S06P19M020 | 120079-5033 | | |
| | 1.5A | 30V AC/DC | UL 20549 | PUR with Braid Shield (P45) | 26 | 1.0m | | | | | WWCS30P45M010 | 120083-5044 |
| | | | | | | 2.0m | W0CS00P45M020 | 120083-5010 | W0CS06P45M020 | 120083-5015 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Receptacles (US)

120084
Female
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles with Ultra-Lock feature
- Mates with standard threaded M12 and Ultra-Lock cordsets
- Available in 4-, 5-, 8- and 12-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Reference Information

cSAus Certified LR6837 (4- to 5-pole)

Physical

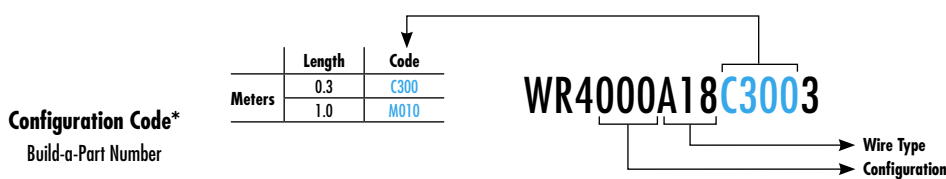
Shell Material: Nickel-plated Brass
 Contact Carries: Polyamide
 O-Ring: M12—Red Viton®
 Panel—Black Viton
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1061
 4-, 5-pole—22 AWG
 8-pole—24 AWG
 12-pole—26 AWG

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Pole (Female View) | Max. Current per Contact | Max. Voltage | Configuration | | Wire Type | | Wire Size | | Length | |
|--------------------|--------------------------|-----------------|------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------|--------------------|-------------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | 1/2-14NPT, Front Panel Mount | M16x1.5, Front Panel Mount | M16x1.5, Back Panel Mount | M16x1.5, Back Panel Mount | PVC leads, UL1061 | PVC leads, UL1061 | PVC leads, UL1061 | PCB Pins |
| | | | 22 AWG | 24 AWG (8-pole), 26 AWG (12-pole) | 24 AWG (8-pole), 26 AWG (12-pole) | 24 AWG (8-pole), 26 AWG (12-pole) | 0.3m | 0.3m | 0.3m | |
| | | | 0.3m | 0.3m | 0.3m | 0.3m | 0.3m | 0.3m | 0.3m | |
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | WR4000A18C300 | 120084-0007 | | | | | WR4W400003 | 120084-5175 |
| | 2.0A | 30V AC / 36V DC | | | WR8U20E02C3003 | 120084-5095 | WR8W40E02C300 | 120084-5191 | WR8W400003 | 120084-0048 |
| | 1.5A | 30V AC/DC | | | WRCU20E01C3003 | 120084-5013 | WRCW40E01C300 | 120084-5192 | WRCW400003 | 120084-5176 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Receptacles (US)

120084

Male
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles with Ultra-Lock feature
- Mates with standard threaded M12 and Ultra-Lock cordsets
- Available in 4-, 5-, 8- and 12-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Reference Information

cCSAus Certified LR6837 (4- to 5-pole)

Physical

Shell Material: Nickel-plated Brass
 Contact Carries: Polyamide
 O-Ring: Panel—Black Viton®
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1061
 4-, 5-pole—22 AWG
 8-pole—24 AWG
 12-pole—26 AWG

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Configuration | 1/2-14NPT, Front Panel Mount | | M16x1.5, Front Panel Mount | | M16x1.5, Back Panel Mount | | M16x1.5, Back Panel Mount | | | |
|---------------|------------------------------|-----------------|----------------------------|-----------------------------------|---------------------------|-----------------------------------|---------------------------|--------------------|-----------------|--------------------|
| | Wire Type | Wire Size | Wire Type | Wire Size | Wire Type | Wire Size | Wire Type | Wire Size | | |
| | PVC leads, UL1061 | 22 AWG | PVC leads, UL1061 | 24 AWG (8-pole), 26 AWG (12-pole) | PVC leads, UL1061 | 24 AWG (8-pole), 26 AWG (12-pole) | | PCB Pins | | |
| | Length | 0.3m | Length | 0.3m | Length | 0.3m | | | | |
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 Pole | 4.0A | 250V AC/DC | WR4006A18C300 | 120084-0008 | | | | | WR4W460003 | 120084-5180 |
| 5 Pole | 4.0A | 250V AC/DC | WR5006A18C300 | 120084-0017 | | | | | WR5W460003 | 120084-5181 |
| 8 Pole | 2.0A | 30V AC / 36V DC | | | WR8U26E02C3003 | 120084-5096 | WR8W46E02C300 | 120084-5187 | WR8W460003 | 120084-0047 |
| 12 Pole | 1.5A | 30V AC/DC | | | WRCU26E01C3003 | 120084-5015 | WRCW46E01C300 | 120084-5188 | WRCW460003 | 120084-5182 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

WR4006A18C3003

Wire Type
 Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Ultra-Lock® (M12) Field Attachable Connectors (US)

120085

**Female, Male
Straight, Right Angle**



Features and Benefits

- Allows field termination of cables to Ultra-Lock, push-to-lock connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- Available in 4- and 5-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief

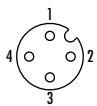
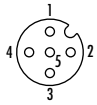
Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)

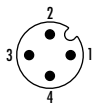
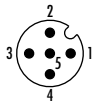
Environmental

Protection: IP67/IP68/IP69K
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|---|---------------------|--------------------|--------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | WA4000-31 | 120085-0011 | WA4001-31 | 120085-0015 |
| | | | 4.10-8.10mm (.161-.319") | WA4000-32 | 120085-0013 | | |
|  | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | WA5000-31 | 120085-0012 | WA5001-31 | 120085-0016 |
| | | | 4.10-8.10mm (.161-.319") | WA5000-32 | 120085-0014 | | |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|---|---------------------|--------------------|--------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | WA4006-31 | 120085-0003 | WA4007-31 | 120085-0007 |
| | | | 4.10-8.10mm (.161-.319") | WA4006-32 | 120085-0005 | | |
|  | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | WA5006-31 | 120085-0004 | WA5007-31 | 120085-0008 |
| | | | 4.10-8.10mm (.161-.319") | WA5006-32 | 120085-0006 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Ultra-Lock® (M12) Splitter Cordsets (US)

120080

Female Straight-to-Male Straight Female Right Angle-to-Male Straight



Features and Benefits

- Splitters permit the connection of two I/O devices to a Brad Ultra-Lock port on dual-wired distribution boxes
- Push-to-lock technology assures fast, reliable connections every time
- IP67/68 rated for harsh environments
- Reliable performance in high-vibration environments due to positive locking mechanism
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)

Contact Carries: Polyamide

O-ring: Viton® (EPDM for A09 cables)

Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)

Contacts: Copper alloy with Gold over Nickel plating

Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661

K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

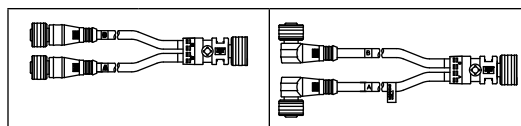
Environmental

Protection: IP67

NEMA Rating: NEMA 6

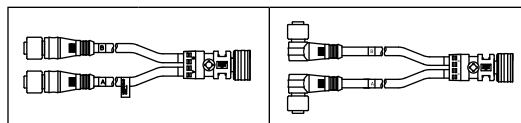
Ultra-Lock-to-Ultra-Lock Splitters

| Wiring Schematic | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|--------------------------|--------------|------------|---------------------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 0.3m | WW4A30A09M003 | 120080-0001 | WW4A31A09M003 | 120080-0005 |
| | | | PLTC-ER | TPE (K05) | | | WW4A30K05M003 | 120080-0081 | WW4A31K05M003 | 120080-0089 |



Ultra-Lock-to-Micro-Change® Splitters

| Wiring Schematic | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|--------------------------|--------------|------------|---------------------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 0.3m | 8W4A30A09M003 | 120080-0033 | 8W4A31A09M003 | 120080-0037 |
| | | | PLTC-ER | TPE (K05) | | | 8W4A30K05M003 | 120080-0108 | 8W4A31K05M003 | 120080-0116 |



Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code†
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1.0 | M010 |
| 3.0 | M030 |
| 5.0 | M050 |

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

8W4A31K05M0038

Coupling Nut Option
Stainless Steel 8

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119/130008

Top Mount, Single-Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-Change home run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

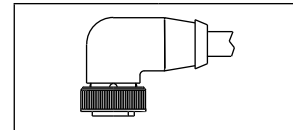
Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY401P-FBB | 120119-0002 |
| | | 6 | Yes | PNP | BKY601P-FBB | 120119-0010 |
| | | 8 | Yes | PNP | BKY801P-FBB | 120119-0017 |



Suggested Home Run Cordset Mini-Change 12-pole Female Cordset

| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|---|--------|-----------------|--------------------|
| 4-port block | PUR | 7 | 4 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 302301P80M100 | 130008-8009 |
| 6-port block | | 8 | 6 × 0.34mm ² + 3 × 0.75mm ² | | 302201P80M100 | 130008-8006 |
| 8-port block | | 9 | 8 × 0.34mm ² + 3 × 0.75mm ² | | 302101P80M100 | 130008-0476 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

302301P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119/130008

Top Mount, Dual-Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-Change home run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

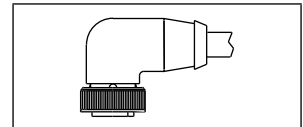
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY403P-FBB | 120119-0005 |
| | | 6 | Yes | PNP | BKY603P-FBB | 120119-0013 |
| | | 8 | Yes | PNP | BKY803P-FBB | 120119-0020 |

Suggested Home Run Cordset Brad Mini-Change 19-pole Female Cordset

| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|----------------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4- and 6-port blocks | PUR | 15 | 12 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 303201P80M100 | 130008-5006 |
| 8-port block | PUR | 19 | 16 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 303001P80M100 | 130008-0316 |

Note: Sales drawings for all standard order numbers are available on molex.com



Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

303001P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120094

Top Mount, Single-Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 home run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

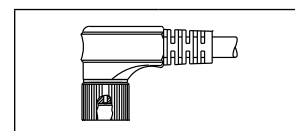
Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY401P-FBC | 120119-0003 |
| | | 6 | Yes | PNP | BKY601P-FBC | 120119-0011 |
| | | 8 | Yes | PNP | BKY801P-FBC | 120119-0018 |

Suggested Home Run Cable Assemblies M23 12-pole Female Cordset and Field Attachable Connector



| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|----------|--------------|-------------------------------------|---|--------|-----------------|--------------------|
| 4-port | PUR | 7 | 4 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | K02301P80M100 | 120094-5023 |
| 6-port | | 9 | 6 × 0.34mm ² + 3 × 0.75mm ² | | K02201P80M100 | 120094-8013 |
| 8-port | | 11 | 8 × 0.34mm ² + 3 × 0.75mm ² | | K02101P80M100 | 120094-0125 |
| All | | M23 12p Female Field Attachable Kit | | | KASCS00-025 | 120230-0032 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

K02101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119/120055

Top Mount, Dual-Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 home run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

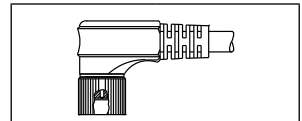
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | No | | BKY4030-FBC | 120119-0038 |
| | | 8 | | | BKY8030-FBC | 120055-0925 |
| | | 4 | Yes | PNP | BKY403P-FBC | 120119-0006 |
| | | 8 | | | BKY803P-FBC | 120119-0021 |

Suggested Home Run Cable Assemblies M23 19-pole Female Cordset and Field Attachable Connector

| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|----------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4-port | PUR | 11 | $8 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | 10.0m | K03301P80M100 | 120094-8045 |
| 6-port | | 15 | $12 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | | K03201P80M100 | 120094-8027 |
| 8-port | | 19 | $16 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | | K03001P80M100 | 120094-0044 |

Note: Sales drawings for all standard order numbers are available on molex.com



Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | M050 |
| | 10 | M100 |
| | 15 | M150 |

K03301P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119

Top Mount, Dual-Wired Ports with Field Attachable HR Terminal Strip



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Home run terminal strip provides greatest flexibility for cable choices and trimming to length on machine

Electrical

Voltage: 10-30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Home Run Connector: Terminal strip
 Wiring Configuration: Dual I/O, M12 5-pole female

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| <p>I/O(1) V(+)* I/O(2) GRN V(-)* Ground* *common</p> | | 4 | Yes | PNP | BKY403P-FBA | 120119-0004 |
| | | 6 | Yes | PNP | BKY603P-FBA | 120119-0012 |
| | | 8 | Yes | PNP | BKY803P-FBA | 120119-0019 |

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119

Top Mount, Single-Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Single I/O, M12 4-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—4 × 0.34mm² + 3 × 0.75 mm²
6-port—6 × 0.34mm² + 3 × 0.75 mm²
8-port—8 × 0.34mm² + 3 × 0.75 mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|--------------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | 5.0m | BKY400P-FBP-05 | 120119-0001 |
| | | 6 | Yes | PNP | 5.0m | BKY600P-FBP-05 | 120119-0009 |
| | | 8 | Yes | PNP | 5.0m | BKY800P-FBP-05 | 120119-0016 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BKY800P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119

Dual-Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10-30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Wiring Configuration: Dual I/O, M12 5-pole female port
 Home Run Cable: Black PUR cable, conductors:
 4-port— $8 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$
 6-port— $12 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$
 8-port— $16 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|--------------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | 5.0m | BKY405P-FBP-05 | 120119-0007 |
| | | 6 | Yes | PNP | 5.0m | BKY605P-FBP-05 | 120119-0015 |
| | | 8 | Yes | PNP | 5.0m | BKY805P-FBP-05 | 120119-0023 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BKY405P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (US)

120119

Top Mount, Dual-Wired Ports with Molded Brad® Mini-Change® HR Cordset



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cordset with Mini-Change 19-pole male connector provides easy replacement

Electrical

Voltage: 10-30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Wiring Configuration: Dual I/O, M12 5-pole female port
 Home Run Cable: Black PUR cable, conductors:
 4-port— $8 \times 0.34\text{mm}^2 + 3 \times 0.75 \text{mm}^2$
 6-port— $12 \times 0.34\text{mm}^2 + 3 \times 0.75 \text{mm}^2$
 8-port— $16 \times 0.34\text{mm}^2 + 3 \times 0.75 \text{mm}^2$

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|--------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | No | 5.0m | BKY4120-FBP-01 | 120119-0008 |
| | | 8 | No | 5.0m | BKY8120-FBP-01 | 120119-0025 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 01 |
| | 10 | 10 |
| | 15 | 15 |

BKY4010-FBP-01

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Connectors

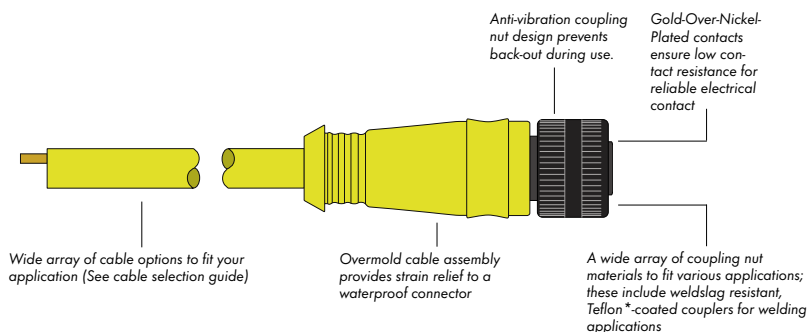
UNITED STATES (also includes Canada, Mexico and South America)

Rugged Micro-Change® connectors provide a high-pin-density, M12 solution that is ideal for use in industrial and harsh commercial environments.

Brad Micro-Change products are Molex's offering of rugged, high-circuit density, industry-standard M12 circular connectors for industrial automation applications.

Micro-Change connectors are designed to withstand harsh industrial environments and their superior quality assures a very reliable connection for control elements in automated equipment. These IEC 61076-2-101 compliant connectors allow fast and simple connections to 12.00 and 18.00mm sensors, encoders, switches and other input and output devices in industrial machinery.

Brad's complete line of M12 connectivity provides a quick-connect wiring system that eliminates field-install cabinets and minimizes field wiring termination errors.



Features and Benefits Cordsets

- Available in 3-, 4-, 5-, 8- and 12-poles; in single and dual-key configurations; with or without LEDs; in straight and 90°; and with different coupling nut materials to provide a wide variety of options to meet application requirements
- Intermates with industry standard M12 devices that comply with IEC 61076-2-101
- Rugged, IP68 rated watertight connector is well suited for harsh, wet environments
- Patented, anti-vibration feature prevents back-out in applications that experience high vibration and mechanical shock
- Gold-over-nickel-plated contacts provide a durable, corrosion-resistant plating that maintains low electrical resistance throughout the life of the connector

Receptacles, Field Attachables and Accessories

- Large selection of configurations to fit your panel or device design, including front- and back-panel-mount receptacles in a variety of materials, with PCB or wire leads
- Epoxy potted receptacles are IP67- and IP68-rated, and are ideal for rugged industrial environments

- 3- to 5-pole field-attachable connectors with screw-down terminals for easy field installation, allow users to make their own cable assemblies for a custom fit to a machine or application

Distribution Boxes

- Available in 4-, 6- and 8-port distribution boxes; single and dual I/O versions. These pre-wired junction boxes comprise the Molex quick-connect wiring system for I/O devices. They eliminate the need for field-installed junction boxes, providing improved wire management
- Fully potted housing ensures performance in high-vibration and wet environment applications
- Rugged and compact to allow placement in tight places

Applications

- Proximity switches, photo eyes, safety switches and other I/O connectivity
- Connector interface for IP69-rated devices
- Connectivity for devices in high-vibration environments
- Connections requiring blind-mating

Teflon® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (US)

120065

Female, Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for A09 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

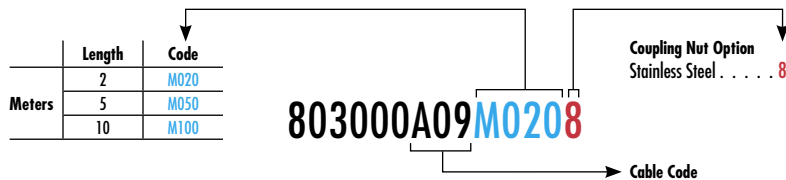
Reference Information

UL File No.: E152210
 CSA File No.: LR6837

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 803000A09M020 | 120065-0129 | 803001A09M020 | 120065-1444 |
| | | | PLTC-ER | TPE (K05) | | | 803000K05M020 | 120065-1108 | 803001K05M020 | 120065-1489 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 804000A09M020 | 120065-0255 | 804001A09M020 | 120065-1551 |
| | | | PLTC-ER | TPE (K05) | | | 804000K05M020 | 120065-1121 | 804001K05M020 | 120065-1639 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 805000A09M020 | 120065-0471 | 805001A09M020 | 120065-1697 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (US)

120065
Female, Pigtail
Straight, Right Angle



Features and Benefits

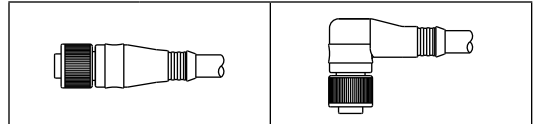
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, UL AWM20549

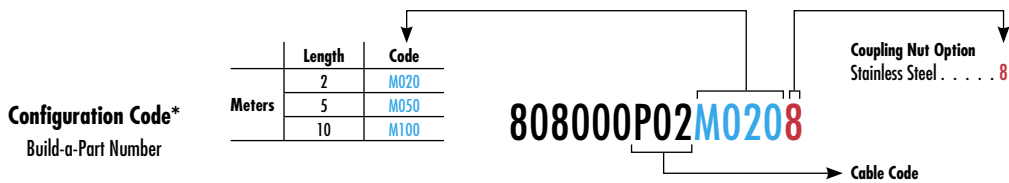
Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|---|--------------------------|-----------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC / 36V DC | | PUR/PVC (P02) | 24 | 2.0m | 808000P02M020 | 120065-0951 | 808001P02M020 | 120065-0960 |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 2.0m | 80C000H45M020 | 120065-5040 | 80C001H45M020 | 120065-5099 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (US)

120065

Male, Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

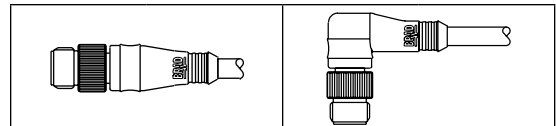
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for A09 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

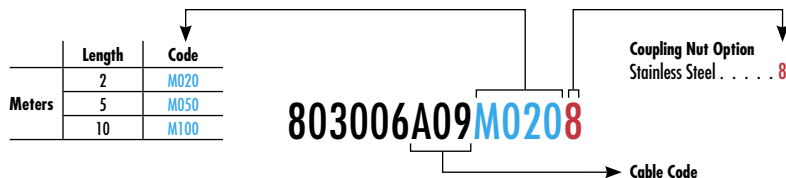
UL File No.: E152210 (A09 and K05 cable assemblies)
 CSA File No.: LR6837 (A09 and K05 cable assemblies)



| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 803006A09M020 | 120065-0200 | 803007A09M020 | 120065-1497 |
| | | | PLTC-ER | TPE (K05) | | | 803006K05M020 | 120065-1114 | 803007K05M020 | 120065-1501 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 804006A09M020 | 120065-0414 | 804007A09M020 | 120065-1662 |
| | | | PLTC-ER | TPE (K05) | | | 804006K05M020 | 120065-1129 | 804007K05M020 | 120065-1691 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 805006A09M020 | 120065-0523 | 805007A09M020 | 120065-1724 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (US)

120065

Male, Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, UL AWM20549

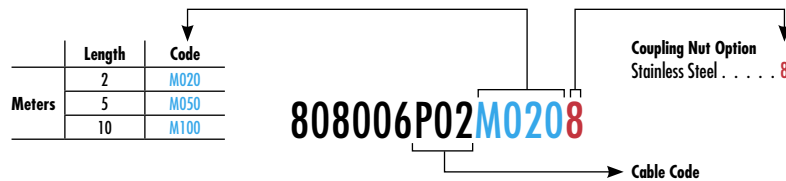
Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|--------------------------|-----------------|------------|---------------------------|---------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>8 Pole</p> <p>1 - White 2 - Brown 3 - Green 4 - Yellow 5 - Gray 6 - Pink 7 - Blue 8 - Red</p> | 2.0A | 30V AC / 36V DC | | PUR,PVC (P02) | 24 | 2.0m | 808006P02M020 | 120065-0964 | 808007P02M020 | 120065-1800 |
| <p>12 Pole</p> <p>1-White 2-Brown 3-Green 4-Yellow 5-Gray 6-Pink 7-Blue 8-Red 9-Black 10-Violet 11-Gray-Pink 12-Red-Blue</p> | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 2.0m | 80C006H45M020 | 120065-5045 | 80C007H45M020 | 120065-5109 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120066

Female Straight-to-Male Straight,
Female Right Angle-to-Male Straight



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

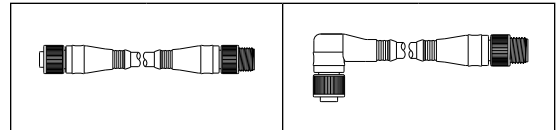
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for A09 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

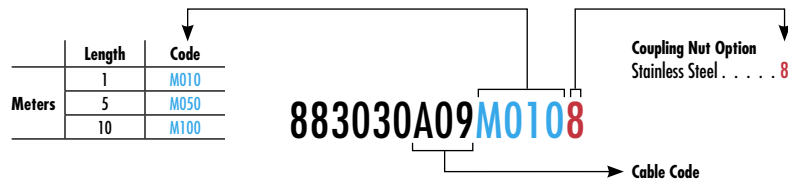
UL File No.: E152210
 CSA File No.: LR6837



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|--------------------------|--------------|------------|---------------------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue 2 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 883030A09M010 | 120066-0166 | 883031A09M010 | 120066-1137 |
| | | | PLTC-ER | TPE (K05) | | | 883030K05M010 | 120066-0676 | 883031K05M010 | 120066-0222 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 884030A09M010 | 120066-0266 | 884031A09M010 | 120066-1262 |
| | | | PLTC-ER | TPE (K05) | | | 884030K05M010 | 120066-0687 | 884031K05M010 | 120066-0376 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 885030A09M010 | 120066-0427 | 885031A09M010 | 120066-1389 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120066

Female Straight-to-Male Straight,
Female Right Angle-to-Male Straight



Features and Benefits

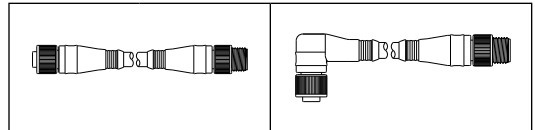
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, UL AWM20549

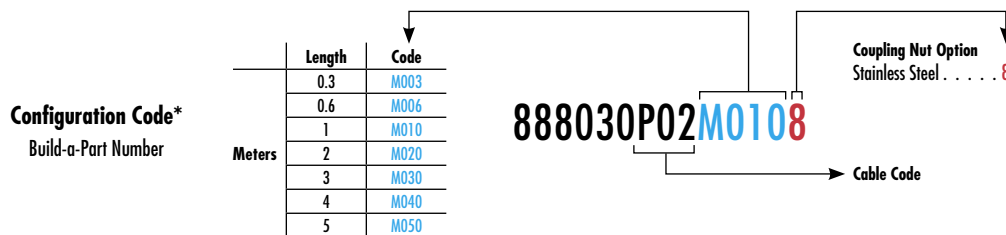
Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|--------------------------|-----------------|------------|---------------------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>8 Pole</p> <p>1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red</p> | 2.0A | 30V AC / 36V DC | | PUR/PVC (P02) | 24 | 1.0m | 888030P02M010 | 120066-0579 | 888031P02M010 | 120066-1626 |
| <p>12 Pole</p> <p>1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue</p> | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 1.0m | 88C030H45M010 | 120066-5404 | 88C031H45M010 | 120066-5405 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120066

Female Straight-to-Male Right Angle, Female Right Angle-to-Male Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

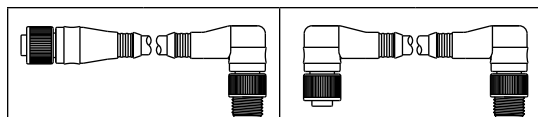
Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton® (EPDM for A09 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

UL File No.: E152210
 CSA File No.: LR6837



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|------------|---------------------------|---------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 883032A09M010 | 120066-1177 | 883033A09M010 | 120066-1199 |
| | | | PLTC-ER | TPE (K05) | | | 883032K05M010 | 120066-0231 | 883033K05M010 | 120066-1223 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 884032A09M010 | 120066-1307 | 884033A09M010 | 120066-1336 |
| | | | PLTC-ER | TPE (K05) | | | 884032K05M010 | 120066-0400 | 884033K05M010 | 120066-1382 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 885032A09M010 | 120066-1399 | 885033A09M010 | 120066-1634 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120066

Female Straight-to-Male Right Angle, Female Right Angle-to-Male Right Angle



Features and Benefits

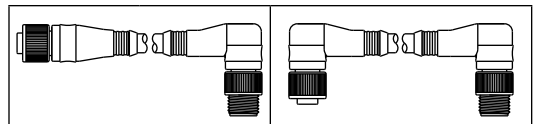
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 24 AWG PVC conductors, 300V
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, UL AWM20549

Environmental

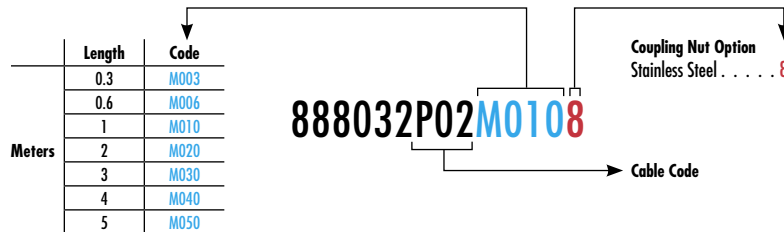
Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---|--------------------------|-----------------|------------|---------------------------|---------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC / 36V DC | | PUR/PVC (P02) | 24 | 1.0m | 888032P02M010 | 120066-5403 | 888033P02M010 | 120066-0479 |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 | 1.0m | 88C032H45M010 | 120066-5406 | 88C033H45M010 | 120066-5407 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (US)

120067

Female, Pigtail
Straight, Right Angle
With LEDs



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
B03—Black PUR jacket, 22 AWG PVC conductors, 300V, UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|---|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Poles/1 LED 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 8030P0A09M020 | 120067-0185 | 8030P1A09M020 | 120067-0227 |
| | | | UL 21198 | PUR (B03) | | | 8030P0B03M020 | 120067-0192 | 8030P1B03M020 | 120067-0241 |
| | | | PLTC-ER | TPE (K05) | | | 8030P0K05M020 | 120067-5228 | 8030P1K05M020 | 120067-0198 |
| 4 Poles/1 LED 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 8040P0A09M020 | 120067-0027 | 8040P1A09M020 | 120067-0257 |
| | | | UL 21198 | PUR (B03) | | | 8040P0B03M020 | 120067-5229 | 8040P1B03M020 | 120067-5231 |
| | | | PLTC-ER | TPE (K05) | | | 8040P0K05M020 | 120067-5230 | 8040P1K05M020 | 120067-5232 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120067

Female Straight-to-Male Straight with LEDs, Female Right Angle-to-Male Straight with LEDs



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

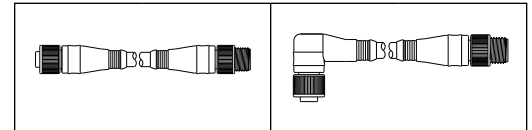
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
B03—Black PUR jacket, 22 AWG PVC conductors, 300V, UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|---|--------------------------|--------------|------------|---------------------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 poles/1 LED 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 8830P6A09M010 | 120067-0037 | 8830P7A09M010 | 120067-0046 |
| | | | UL 21198 | PUR (B03) | | | 8830P6B03M010 | 120067-5233 | 8830P7B03M010 | 120067-0058 |
| | | | PLTC-ER | TPE (K05) | | | 8830P6K05M010 | 120067-0040 | 8830P7K05M010 | 120067-0065 |
| 3 poles/1 LED 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 8840P6A09M010 | 120067-0095 | 8840P7A09M010 | 120067-0107 |
| | | | UL 21198 | PUR (B03) | | | 8840P6B03M010 | 120067-5240 | 8840P7B03M010 | 120067-0112 |
| | | | PLTC-ER | TPE (K05) | | | 8840P6K05M010 | 120067-0101 | 8840P7K05M010 | 120067-0117 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 1 | M010 |
| 5 | M050 |
| 10 | M100 |

8830P6A09M0108

Coupling Nut Option
Stainless Steel 8

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (US)

120067

Female Straight-to-Male Right Angle with LEDs, Female Right Angle-to-Male Right Angle with LEDs



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

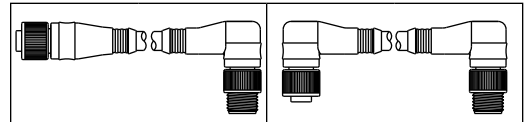
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
B03—Black PUR jacket, 22 AWG PVC conductors, 300V, UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---|--------------------------|--------------|------------|---------------------------|---------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 poles/1 LED 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 8830P8A09M010 | 120067-5235 | 8830P9A09M010 | 120067-0074 |
| | | | UL 21198 | PUR (B03) | | | 8830P8B03M010 | 120067-5236 | 8830P9B03M010 | 120067-5239 |
| | | | PLTC-ER | TPE (K05) | | | 8830P8K05M010 | 120067-0072 | 8830P9K05M010 | 120067-0079 |
| 4 poles/1 LED 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 8840P8A09M010 | 120067-5242 | 8840P9A09M010 | 120067-5246 |
| | | | UL 21198 | PUR (B03) | | | 8840P8B03M010 | 120067-5243 | 8840P9B03M010 | 120067-5247 |
| | | | PLTC-ER | TPE (K05) | | | 8840P8K05M010 | 120067-0122 | 8840P9K05M010 | 120067-5249 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1 | M010 |
| 2 | M020 |
| 3 | M030 |
| 4 | M040 |
| 5 | M050 |

Coupling Nut Option
Stainless Steel 8

8830P8A09M0108

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Receptacles (US)

120070/120011

Female
Front Panel Mount, Back Panel Mount



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant panel mount receptacles
- Available in 3-, 4-, 5- and 8-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical





Shell Material: Nickel-plated Brass (PG9 style)
Zinc/Nickel-plated (1/2" style)
Anodized Alum (1/4" style)
Contact Carries: Polyamide
O-Ring: M12—Red Viton®
Panel—Black Viton
Contacts: Copper alloy with Gold over Nickel plating
Wire PVC Insulation: 300V, 80C, UL1061, 22 AWG (3-5 pole) and 24 AWG (8 pole)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Reference Information

UL File No.: E152210
CSA File No.: LR6837

| | | 1/2-14NPT, Front Panel Mount | | 1/4-18NPT, Front Panel Mount | | PG9, Front Panel Mount | | PG9, Back Panel Mount | | |
|---|--------------------------|------------------------------|-----------------|------------------------------|-----------------|------------------------|-----------------|-----------------------|-----------------|--------------------|
| | | PVC leads, UL1061 | | PVC leads, UL1061 | | PVC leads, UL1061 | | PCB Pins | | |
| | | 22 AWG | | 22 AWG | | 24 AWG | | | | |
| | | 12" | | 12" | | 0.3m | | | | |
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole  | 4.0A | 250V AC/DC | 8R3000A18A120 | 120070-5200 | 8R3A00A18A120 | 120070-0056 | | | 8R3J400013 | 120070-5203 |
| 4 Pole  | 4.0A | 250V AC/DC | 8R4000A18A120 | 120070-0173 | 8R4A00A18A120 | 120070-0114 | | | 8R4J400013 | 120011-0237 |
| 5 Pole  | 4.0A | 250V AC/DC | 8R5000A18A120 | 120070-5206 | 8R5A00A18A120 | 120070-0201 | | | 8R5J400013 | 120011-0238 |
| 8 Pole  | 2.0A | 30V AC / 36V DC | | | | | 8R8J20E02C3003 | 120070-5208 | 8R8J400013 | 120070-5210 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Feet | 1.0 | A120 |
| | 3.0 | F030 |
| Meters | 0.3 | C300 |
| | 1.0 | M010 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Receptacles (US)

120070/120011

Male
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant panel mount receptacles
- Available in 3-, 4-, 5- and 8-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical

Shell Material: Nickel-plated Brass (PG9 style)
Anodized Alum (1/2" style)

Contact Carries: Polyamide

O-Ring: Panel—Black Viton®

Contacts: Copper alloy with Gold over Nickel plating

Wire PVC Insulation: 300V, 80° C, UL1061, 22 AWG (3-5 pole) and 24 AWG (8 pole)

Environmental

Protection: IP67

NEMA Rating: NEMA 6

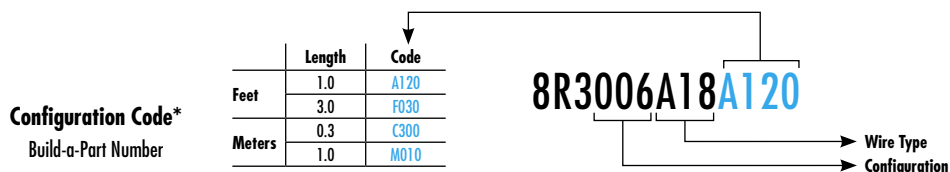
Reference Information

UL File No.: E152210

CSA File No.: LR6837

| Configuration | 1/2-14NPT, Front Panel Mount | | PG9, Front Panel Mount | | PG9, Back Panel Mount | | | |
|------------------|------------------------------|-----------------|------------------------|--------------------|-----------------------|--------------------|-----------------|--------------------|
| | Wire Type | Wire Size | Wire Type | Wire Size | PCB Pins | | | |
| | PVC leads, UL1061 | 22 AWG | PVC leads, UL1061 | 24 AWG | | | | |
| | Length 12" | | Length 0.3m | | | | | |
| Pole (Male View) | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 250V AC/DC | 8R3006A18A120 | 120070-0093 | | | 8R3J460003 | 120070-5204 |
| 4 Pole | 4.0A | 250V AC/DC | 8R4006A18A120 | 120070-0184 | | | 8R4J460003 | 120011-0281 |
| 5 Pole | 4.0A | 250V AC/DC | 8R5006A18A120 | 120070-0252 | | | 8R5J460003 | 120070-0235 |
| 8 Pole | 2.0A | 30V AC / 36V DC | | | 8R8J26E02C3003 | 120070-5209 | 8R8J460003 | 120070-5180 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Field Attachable Connectors (US)

120071

Female, Male
Straight, Right Angle



Features and Benefits

- Allows field termination of cables to IEC compliant M12 A-Coding connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- Available in 4 and 5-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|-------|---------------------|------------------|--------------------------|-----------------|--------------------|--------------------|--------------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") |
| | | | 4.10-8.10mm (.161-.319") | 8A4000-32 | 120071-0036 | | |
| | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | 8A5000-31 | 120071-0041 | 8A5001-31 | 120071-0044 |
| | | | 4.10-8.10mm (.161-.319") | 8A5000-32 | 120071-0043 | | |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|-------|---------------------|------------------|--------------------------|-----------------|--------------------|--------------------|--------------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") |
| | | | 4.10-8.10mm (.161-.319") | 8A4006-32 | 120071-0039 | | |
| | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | 8A5006-31 | 120071-0045 | 8A5007-31 | 120071-0049 |
| | | | 4.10-8.10mm (.161-.319") | 8A5006-32 | 120071-0047 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Micro-Change® (M12) A-Code Solid Body Splitter and Tees (US)

120068



Features and Benefits

- Solid body splitters allow you to create a customized wiring scheme, either by combining two 3-conductor cables into a 5-conductor cable or implementing a trunk-and-drop wiring topology
- Splitters permit the connection of two I/O devices to a port on dual-wired distribution boxes
- Parallel wired tees allows for tapping into a cable run or implementing a trunk and drop wiring scheme

Electrical

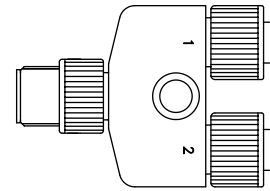
Voltage: 30V
Amperage: 4.0A

Physical

Connector Body: PUR (PVC for grey or yellow splitters)
Contact Carries: PUR
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating

Environmental

Protection: IP67
NEMA Rating: NEMA 6



M12 Splitters

| Wiring Schematic | Color | Engineering No. | Standard Order No. |
|----------------------------|--------|------------------|--------------------|
| <p>Without LEDs</p> | Yellow | 81594R | 120068-0170 |
| <p>Grey</p> | Grey | 81590R | 120068-0169 |
| <p>Black</p> | Black | 0812-05EMF-00000 | 120068-0139 |
| <p>With LEDs</p> | Clear | 884AP0 | 120068-5035 |

Paralled Wired Tees/Splitters

| Wiring Schematic | Color | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|------------------|-------|------------------|--------------------|------------------|--------------------|
| | Black | 0812-051FJ-00000 | 120068-8009 | 0812-05EMF-00001 | 120068-0137 |

Note: Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Splitter Cordsets (US)

120068

Female Straight-to-Male Straight,
Female Right Angle-to-Male
Straight



Features and Benefits

- Features and Benefits
- Splitters permit the connection of two I/O devices to an Ultra-Lock® port on dual-wired distribution boxes
- Push-to-lock technology assures fast, reliable connections every time
- IP67/68 rated for harsh environments
- Reliable performance in high-vibration environments due to positive locking mechanism
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Wiring Schematic | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|---------------------|--------------|------------|---------------------------|---------------|--------|----------------------------------|-------------|-------------------------------------|-------------|
| | | | | | | | Engineering No. | Order No. | Engineering No. | Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 0.3m | 884A30A09M003 | 120068-0175 | 884A31A09M003 | 120068-0199 |
| | | | PLTC-ER | TPE (K05) | | | 884A30K05M003 | 120068-0195 | 884A31K05M003 | 120068-0211 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code†
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1.0 | M010 |
| 3.0 | M030 |
| 5.0 | M050 |

884A30A09M0038

Coupling Nut Option
Stainless Steel 8

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120114

Top Mount, Single Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-change home run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4010-FBB | 120114-0027 |
| | | 8 | | | BTY8010-FBB | 120114-0079 |
| | | 4 | Yes | NPN | BTY401N-FBB | 120114-0014 |
| | | 8 | | | BTY801N-FBB | 120114-0059 |
| | | 4 | Yes | PNP | BTY401P-FBB | 120114-0019 |
| | | 6 | | | BTY601P-FBB | 120114-0055 |
| | | 8 | | | BTY801P-FBB | 120114-0065 |

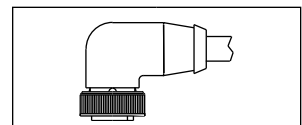
Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

Brad® Mini-Change® 12-pole Female Cordsets

| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|---|--------|-----------------|--------------------|
| 4-port block | PUR | 7 | 4 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | 302301P80M100 | 130008-8009 |
| 6-port block | | 9 | 6 x 0.34mm ² + 3 x 0.75mm ² | | 302201P80M100 | 130008-8006 |
| 8-port block | | 11 | 8 x 0.34mm ² + 3 x 0.75mm ² | | 302101P80M100 | 130008-0476 |

Note: Sales drawings for all standard order numbers are available on molex.com



Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

302101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120055/120114

Top Mount, Single Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 home run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

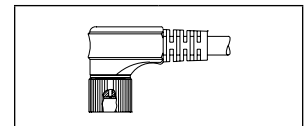
Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4010-FBC | 120055-0308 |
| | | 8 | | | BTY8010-FBC | 120055-0321 |
| | | 4 | Yes | NPN | BTY401N-FBC | 120114-0211 |
| | | 8 | | | BTY801N-FBC | 120114-0060 |
| | | 4 | Yes | PNP | BTY401P-FBC | 120114-0020 |
| | | 8 | | | BTY801P-FBC | 120114-0066 |

Note: Sales drawings for all standard order numbers are available on molex.com



Suggested Home Run Cable Assemblies

M23 12-pole Female Cordsets and Field Attachable Connector

| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|---|---|--------|-----------------|--------------------|
| 4-part block | PUR | 7 | 4 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | K02301P80M100 | 120094-5023 |
| 6-part block | | 9 | 6 x 0.34mm ² + 3 x 0.75mm ² | | K02201P80M100 | 120094-8013 |
| 8-part block | | 11 | 8 x 0.34mm ² + 3 x 0.75mm ² | | K02101P80M100 | 120094-0125 |
| All | | M23 12-pole Female Field Attachable Kit | | | KASCS00-025 | 120230-0032 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

K02101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120114

Top Mount, Dual Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-change home run connector for easy replacement

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.

Amperage: Module—12.0A max.

Port—4.0A max.

Physical

Housing: PBT

Port Shell Material: Nickel-plated Brass

Contacts: Copper alloy with Gold over Nickel plating

Home Run Connector: Mini-Change 19-pole male connector

Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

Protection: IP67

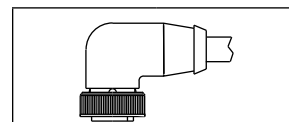
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBB | 120114-0035 |
| | | 8 | | | BTY8030-FBB | 120114-0087 |
| | | 4 | Yes | PNP | BTY403P-FBB | 120114-0030 |
| | | 8 | | | BTY803P-FBB | 120114-0083 |

Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

Brad® Mini-Change® 19-pole Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4-port block | PUR | 15 | 12 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | 303201P80M100 | 130008-5006 |
| 8-port block | | 19 | 16 x 0.34mm ² + 3 x 0.75mm ² | | 303001P80M100 | 130008-0316 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

303001P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120055/120114

Top Mount, Dual Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 home run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

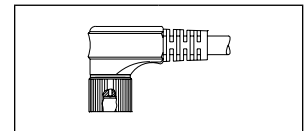
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBC | 120055-0313 |
| | | 8 | | | BTY8030-FBC | 120055-0328 |
| | | 4 | Yes | PNP | BTY403P-FBC | 120114-0031 |
| | | 8 | | | BTY803P-FBC | 120114-0084 |

Note: Sales drawings for all standard order numbers are available on molex.com

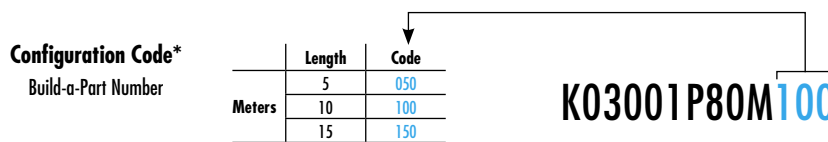
Suggested Home Run Cable Assemblies

M23 19-pole Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4-part block | PUR | 11 | 8 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | K03301P80M100 | 120094-8045 |
| 6-part block | | 15 | 12 x 0.34mm ² + 3 x 0.75mm ² | | K03201P80M100 | 120094-8027 |
| 8-part block | | 19 | 16 x 0.34mm ² + 3 x 0.75mm ² | | K03001P80M100 | 120094-0044 |

Note: Sales drawings for all standard order numbers are available on molex.com



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120055/120114

Top Mount, Dual Wired Ports With Field Attachable HR Terminal Strip



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Home run terminal strip provides greatest flexibility for cable choices and trimming to length on machine

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Terminal strip
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBA | 120114-0034 |
| | | 6 | | | BTY6030-FBA | 120114-0057 |
| | | 8 | | | BTY8030-FBA | 120114-0086 |
| | | 4 | Yes | NPN | BTY403N-FBA | 120055-0669 |
| | | 6 | | | BTY603N-FBA | 120055-0670 |
| | | 8 | | | BTY803N-FBA | 120055-0672 |
| | | 4 | Yes | PNP | BTY403P-FBA | 120114-0029 |
| | | 6 | | | BTY603P-FBA | 120114-0056 |
| | | 8 | | | BTY803P-FBA | 120114-0082 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120055/120114

Top Mount, Single Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10-30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Wiring Configuration: Single I/O, M12 4-pole female port
 Home Run Cable: Black PUR cable, conductors:
 4-port—4 x 0.34mm² + 3 x 0.75mm²
 6-port—6 x 0.34mm² + 3 x 0.75mm²
 8-port—8 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 4 | No | | 5.0m | BTY4000-FBP-05 | 120055-0586 |
| | | 8 | | | | BTY8000-FBP-05 | 120055-0583 |
| | | 4 | Yes | NPN | 5.0m | BTY400N-FBP-05 | 120114-8008 |
| | | 8 | | | | BTY800N-FBP-05 | 120114-8020 |
| | | 4 | Yes | PNP | 5.0m | BTY400P-FBP-05 | 120114-8011 |
| | | 8 | | | | BTY800P-FBP-05 | 120114-8022 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY800P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120114

Top Mount, Dual Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cable eliminates need for purchase of additional component for installing

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.

Amperage: Module—12.0A max.

Port—4.0A max.

Physical

Housing: PBT

Port Shell Material: Nickel-plated Brass

Contacts: Copper alloy with Gold over Nickel plating

Wiring Configuration: Dual I/O, M12 5-pole female port

Home Run Cable: Black PUR cable, conductors:

4-port—8 x 0.34mm² + 3 x 0.75mm²

6-port—12 x 0.34mm² + 3 x 0.75mm²

8-port—16 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67

NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 4 | No | | 5.0m | BTY4050-FBP-05 | 120114-0042 |
| | | 8 | | | | BTY8050-FBP-05 | 120114-0092 |
| | | 4 | Yes | NPN | 5.0m | BTY405N-FBP-05 | 120114-0037 |
| | | 8 | | | | BTY805N-FBP-05 | 120114-0202 |
| | | 4 | Yes | PNP | 5.0m | BTY405P-FBP-05 | 120114-0039 |
| | | 8 | | | | BTY805P-FBP-05 | 120114-0089 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY805P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (US)

120114

Top Mount, Dual Wired Ports with Molded Brad® Mini-Change® HR Cordset



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Single input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral home run cordset with Mini-change 19-pole male connector provides easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M12 5-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8 x 0.34mm² + 3 x 0.75mm²
6-port—12 x 0.34mm² + 3 x 0.75mm²
8-port—16 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 4 | No | | 5.0m | BTY4120-FBP-05 | 120114-0048 |
| | | 8 | | | | BTY8120-FBP-050 | 120114-0099 |
| | | 4 | Yes | NPN | 5.0m | BTY412N-FBP-05 | 120114-0192 |
| | | 8 | | | | BTY812N-FBP-05 | 120114-0095 |
| | | 4 | Yes | PNP | 5.0m | BTY412P-FBP-05 | 120114-0045 |
| | | 8 | | | | BTY812P-FBP-05 | 120114-0097 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY812P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Single-Ended Cordsets (US)

120072

**Female, Pigtail
Straight, Right Angle**



Features and Benefits

- Dual-Key connectors with 1/2-20 UNF threaded couplers
- Traditionally used with AC powered sensors
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications:
 - Oil resistant PVC with metallic braid for added mechanical robustness
 - Oil resistant PVC with 18 AWG conductors

Reference Information

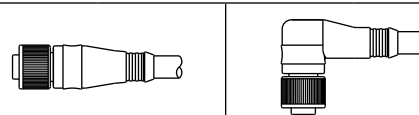
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PVC
Contact Carries: Nylon
O-ring: Viton®
Coupling Nut : Zinc diecast, black epoxy coated,
1/2-20 UNF thread
Contacts: Copper alloy with Gold over Nickel plating
Cables: D02—Yellow PVC jacket with 70% metallic braid
and 22 AWG PVC conductors, 300V,
UL AWM2661
A03—Yellow PVC jacket and 18 AWG PVC
conductors, 300V, UL AWM2661
Operating Temperature: -20 to +105° C

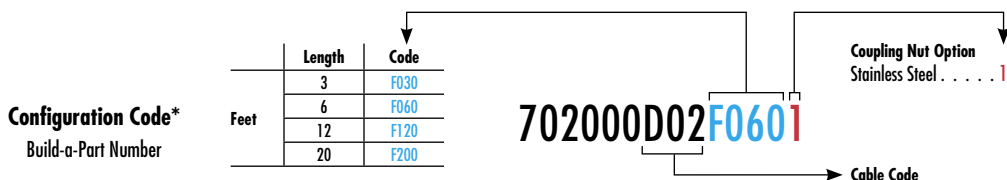
Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--|-----------------------------|---------------|------------|------------------------------|------------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2 Pole 1 - Brown 2 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 6' | 702000D02F060 | 120072-0061 | 702001D02F060 | 120072-0085 |
| 3 Pole 1 - Green gnd 3 - Red-white 2 - Red-black | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 703000A03F060 | 120072-0130 | 703001A03F060 | 120072-0219 |
| | | | UL 2661 | PVC (D02) | 22 | | 703000D02F060 | 120072-0171 | 703001D02F060 | 120072-0250 |
| 4 Pole 1 - Red-black 3 - Red 2 - Red-white 4 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 704000A03F060 | 120072-0334 | 704001A03F060 | 120072-0387 |
| | | | UL 2661 | PVC (D02) | 22 | | 704000D02F060 | 120072-0356 | 704001D02F060 | 120072-0402 |
| 5 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 705000A03F060 | 120072-0459 | 705001A03F060 | 120072-0508 |
| | | | UL 2661 | PVC (D02) | 22 | | 705000D02F060 | 120072-0471 | 705001D02F060 | 120072-0515 |
| 6 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd 6 - Red-blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 6' | 706000D02F060 | 120072-0568 | 706001D02F060 | 120072-0595 |

Note: Sales drawings for all standard order numbers are available on molex.com



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Single-Ended Cordsets (US)

120072

**Male, Pigtail
Straight, Right Angle**



Features and Benefits

- Dual-Key connectors with 1/2-20 UNF threaded couplers
- Traditionally used with AC powered sensors
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications:
 - Oil resistant PVC with metallic braid for added mechanical robustness
 - Oil resistant PVC with 18 AWG conductors

Reference Information

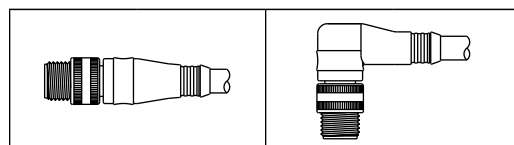
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PVC
Contact Carries: Nylon
O-ring: Viton®
Coupling Nut : Zinc diecast, black epoxy coated,
1/2-20 UNF thread
Contacts: Copper alloy with Gold over Nickel plating
Cables: D02—Yellow PVC jacket with 70% metallic braid
and 22 AWG PVC conductors, 300V,
UL AWM2661
A03—Yellow PVC jacket and 18 AWG PVC
conductors, 300V, UL AWM2661
Operating Temperature: -20 to +105° C

Environmental

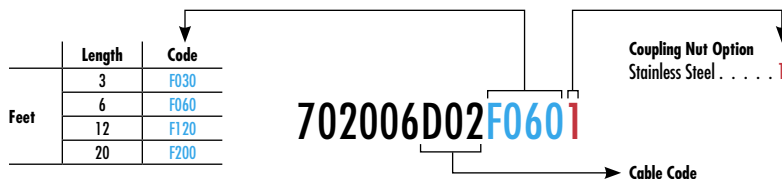
Protection: IP67
NEMA Rating: NEMA 6



| Poles (Male View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|-----------------------------|--------------|------------|------------------------------|------------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2 Pole 1 - Brown 2 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 6' | 702006D02F060 | 120072-0108 | 702007D02F060 | 120072-0118 |
| 3 Pole 1 - Green gnd 3 - Red-white 2 - Red-black | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 703006A03F060 | 120072-0292 | 703007A03F060 | 120072-0315 |
| | | | UL 2661 | PVC (D02) | 22 | | 703006D02F060 | 120072-0302 | 703007D02F060 | 120072-0318 |
| 4 Pole 1 - Red-black 3 - Red 2 - Red-white 4 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 704006A03F060 | 120072-0435 | 704007A03F060 | 120072-5019 |
| | | | UL 2661 | PVC (D02) | 22 | | 704006D02F060 | 120072-0445 | 704007D02F060 | 120072-1022 |
| 5 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 6' | 705006A03F060 | 120072-0546 | 705007A03F060 | 120072-1010 |
| | | | UL 2661 | PVC (D02) | 22 | | 705006D02F060 | 120072-0551 | 705007D02F060 | 120072-0558 |
| 6 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd 6 - Red-blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 6' | 706006D02F060 | 120072-0616 | 706007D02F060 | 120072-0626 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Double-Ended Cordsets (US)

120073

**Female Straight-to-Male Straight,
Female Right Angle-to-Male
Straight**



Features and Benefits

- Dual-Key connectors with 1/2-20 UNF threaded couplers
- Traditionally used with AC powered sensors
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications:
 - Oil resistant PVC with metallic braid for added mechanical robustness
 - Oil resistant PVC with 18 AWG conductors

Reference Information

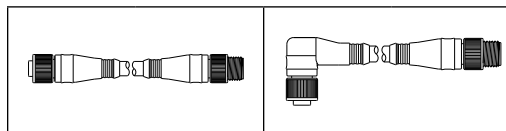
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PVC
Contact Carries: Nylon
O-ring: Viton®
Coupling Nut : Zinc diecast, black epoxy coated,
1/2-20 UNF thread
Contacts: Copper alloy with Gold over Nickel plating
Cables: D02—Yellow PVC jacket with 70% metallic braid
and 22 AWG PVC conductors, 300V,
UL AWM2661
A03—Yellow PVC jacket and 18 AWG PVC
conductors, 300V, UL AWM2661
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

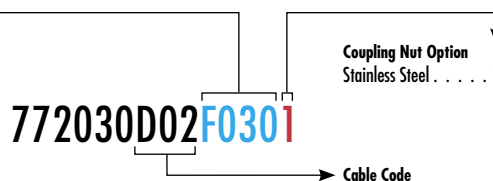


| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|-----------------------------|--------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2 Pole 1 - Brown 2 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 3' | 772030D02F030 | 120073-0057 | 772031D02F030 | 120073-5009 |
| 3 Pole 1 - Green gnd 3 - Red-white 2 - Red-black | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 773030A03F030 | 120073-0085 | 773031A03F030 | 120073-0140 |
| | | | UL 2661 | PVC (D02) | 22 | | 773030D02F030 | 120073-0100 | 773031D02F030 | 120073-0151 |
| 4 Pole 1 - Red-black 3 - Red 2 - Red-white 4 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 774030A03F030 | 120073-0391 | 774031A03F030 | 120073-0237 |
| | | | UL 2661 | PVC (D02) | 22 | | 774030D02F030 | 120073-0215 | 774031D02F030 | 120073-0241 |
| 5 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 775030A03F030 | 120073-0272 | 775031A03F030 | 120073-5012 |
| | | | UL 2661 | PVC (D02) | 22 | | 775030D02F030 | 120073-0293 | 775031D02F030 | 120073-0335 |
| 6 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd 6 - Red-blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 3' | 776030D02F030 | 120073-0357 | 776031D02F030 | 120073-0376 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 3 | F030 |
| 6 | F060 |
| 12 | F120 |
| 20 | F200 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Double-Ended Cordsets (US)

120073

Female Straight-to-Male Right Angle, Female Right Angle-to-Male Right Angle



Features and Benefits

- Dual-Key connectors with 1/2-20 UNF threaded couplers
- Traditionally used with AC powered sensors
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications:
 - Oil resistant PVC with metallic braid for added mechanical robustness
 - Oil resistant PVC with 18 AWG conductors

Reference Information

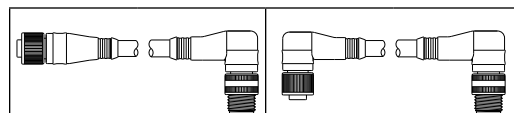
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PVC
Contact Carries: Nylon
O-ring: Viton®
Coupling Nut : Zinc diecast, black epoxy coated, 1/2-20 UNF thread
Contacts: Copper alloy with Gold over Nickel plating
Cables: D02—Yellow PVC jacket with 70% metallic braid and 22 AWG PVC conductors, 300V, UL AWM2661
A03—Yellow PVC jacket and 18 AWG PVC conductors, 300V, UL AWM2661
Operating Temperature: -20 to +105° C

Environmental

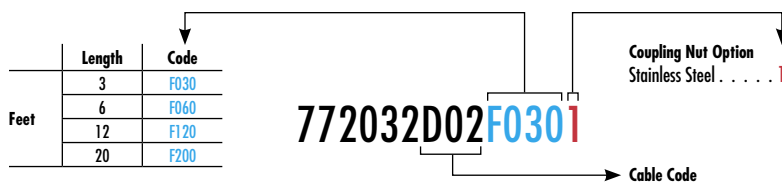
Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---|-----------------------------|--------------|------------|------------------------------|------------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2 Pole 1 - Brown 2 - Blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 3' | 772032D02F030 | 120073-5010 | 772033D02F030 | 120073-0068 |
| 3 Pole 1 - Green gnd 2 - Red-black 3 - Red-white | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 773032A03F030 | 120073-0172 | 773033A03F030 | 120073-0185 |
| | | | UL 2661 | PVC (D02) | 22 | | 773032D02F030 | 120073-0178 | 773033D02F030 | 120073-0190 |
| 4 Pole 1 - Red-black 2 - Red-white 3 - Red 4 - Green gnd | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 774032A03F030 | 120073-0246 | 774033A03F030 | 120073-0390 |
| | | | UL 2661 | PVC (D02) | 22 | | 774032D02F030 | 120073-0250 | 774033D02F030 | 120073-5011 |
| 5 Pole 1 - Red-white 2 - Red 3 - Green gnd 4 - Red-yellow 5 - Red-black | 4.0A | 250V AC/DC | UL 2464 | PVC (A03) | 18 | 3' | 775032A03F030 | 120073-0346 | 775033A03F030 | 120073-0351 |
| | | | UL 2661 | PVC (D02) | 22 | | 775032D02F030 | 120073-5013 | 775033D02F030 | 120073-0354 |
| 6 Pole 1 - Red-white 2 - Red 3 - Green gnd 4 - Red-yellow 5 - Red-black 6 - Red-blue | 4.0A | 250V AC/DC | UL 2661 | PVC (D02) | 22 | 3' | 776032D02F030 | 120073-0577 | 776033D02F030 | 120073-5014 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Receptacles (US)

120074

Female
Front Panel Mount



Features and Benefits

- Dual-Key receptacles with 1/2"-20 UNF threaded couplers
- Available in 2 to 5-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Receptacles with wired leads to be used in control panels, junction boxes and sensors. Other configurations also available.

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Shell Material: Anodized Alum
Contact Carries: Nylon 6/6
O-Ring: M12—Red Viton®
Panel—Black Viton
Contacts: Copper alloy with Gold over Nickel plating
Wire PVC insulation: 300V, 80C, UL1061, 22 AWG

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | |
|---------------|------------------------------|
| | |
| Configuration | 1/4-18NPT, Front Panel Mount |
| Wire Type | PVC leads, UL1061 |
| Wire Size | 22 AWG |
| Length | 12" |

| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. |
|--|--------------------------|--------------|-----------------|--------------------|
| <p>2 Pole</p> <p>1 - Brown 2 - Blue</p> | 4.0A | 250V AC/DC | 7R2A00A19A120 | 120074-0014 |
| <p>3 Pole</p> <p>1 - Green gnd 3 - Red-white 2 - Red-black</p> | 4.0A | 250V AC/DC | 7R3A00A19A120 | 120074-0058 |
| <p>4 Pole</p> <p>1 - Red-black 3 - Red 2 - Red-white 4 - Green gnd</p> | 4.0A | 250V AC/DC | 7R4A00A19A120 | 120074-0122 |
| <p>5 Pole</p> <p>1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd</p> | 4.0A | 250V AC/DC | 7R5A00A19A120 | 120074-0178 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|------|--------|------|
| Feet | 1.0 | A120 |
| | 3.0 | F030 |

7R2A00A19A120

Wire Type
Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Receptacles (US)

120074

**Male
Front Panel Mount**



Features and Benefits

- Dual-Key receptacles with 1/2"-20 UNF threaded couplers
- Available in 2- to 5-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Receptacles with wired leads to be used in control panels, junction boxes and sensors. Other configurations also available.

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Shell Material: Anodized Aluminum
Contact Carries: Nylon 6/6
O-Ring: Panel—Black Viton®
Contacts: Copper alloy with Gold over Nickel plating
Wire PVC insulation: 300V, 80C, UL1061, 22 AWG

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | | |
|---|------------------------------|------------------------------|
| Configuration Wire Type Wire Size Length | | |
| | 1/2-14NPT, Front Panel Mount | 1/4-18NPT, Front Panel Mount |
| | PVC leads, UL1061 | PVC leads, UL1061 |
| | 22 AWG | 22 AWG |
| | 12" | 12" |

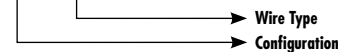
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|--|--------------------------|--------------|-----------------|--------------------|-----------------|--------------------|
| 2 Pole 1 - Brown 2 - Blue | 4.0A | 250V AC/DC | 7R2006A19A120 | 120074-0042 | 7R2A06A19A120 | 120074-0030 |
| 3 Pole 1 - Green gnd 3 - Red-white 2 - Red-black | 4.0A | 250V AC/DC | 7R3006A19A120 | 120074-0106 | 7R3A06A19A120 | 120074-0079 |
| 4 Pole 1 - Red-black 3 - Red 2 - Red-white 4 - Green gnd | 4.0A | 250V AC/DC | 7R4006A19A120 | 120074-0160 | 7R4A06A19A120 | 120074-0140 |
| 5 Pole 1 - Red-white 4 - Red-yellow 2 - Red 5 - Red-black 3 - Green gnd | 4.0A | 250V AC/DC | 7R5006A19A120 | 120074-0222 | 7R5A06A19A120 | 120074-0190 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|------|--------|------|
| Feet | 1.0 | A120 |
| | 3.0 | F030 |

7R2006A19A120



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® Dual Key (1/2"-20 UNF) Field Attachable Connectors (US)

120075

Female, Male
Straight, Right Angle



Features and Benefits

- Allows field termination of cables to 1/2-20 UNF—Dual Key Connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|-------|---------------------|--------------------|--------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | 7A3000-31 | 120075-0014 | 7A3001-31 | 120075-0016 |
| | 4.0A | 250V AC 300V DC | 4.10-8.10mm (.161-.319") | 7A3000-32 | 120075-0015 | | |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|-------|---------------------|--------------------|--------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | 7A3006-31 | 120075-0017 | 7A3007-31 | 120075-0019 |
| | 4.0A | 250V AC 300V DC | 4.10-8.10mm (.161-.319") | 7A3006-32 | 120075-0018 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Nano-Change® (M8) Connectors

Nano

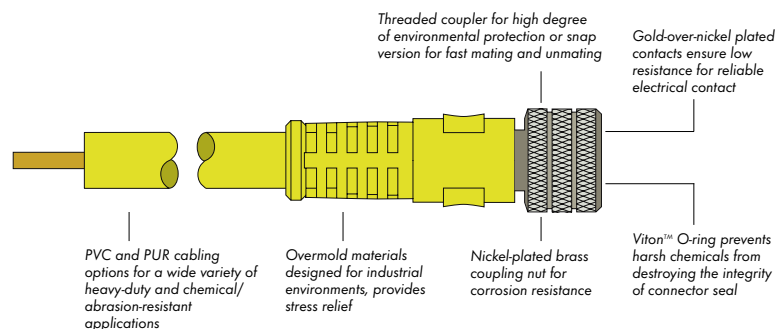
UNITED STATES (also includes Canada, Mexico and South America)

Brad® Nano-Change® (M8) compact connectors and cordsets from Molex are part of a broad selection of rugged, space-saving cordsets, receptacles, inserts, splitters and molded junction boxes.

Nano-Change connectors meet IEC 61076-2-104 standards and are built "industrial tough" to ensure flexibility, interoperability and rugged performance in tight spaces while minimizing downtime, maintenance and wiring time.

Molex Nano-Change offerings include 3-, 4- and 5-pin designs. The cordsets are available with threaded and snap coupling options. A wide array of cable types provides flexibility to accommodate multiple applications.

The molded junction boxes feature a compact, space-saving design that allows simplification of control wiring systems, providing the opportunity for machine builders to design more modular devices. The Nano-Change cable system provides a way to reduce cable bundling expenses by reducing field install cabinets and field wire terminations.



Features and Benefits

Cordsets

- Available with snap or threaded coupler; single- and double-ended cordsets; 3-, 4- and 5-pole configurations; straight and 90°; with and without LED to give users a wide variety of options to meet their requirements
- Compliant with IEC 61076-2-104, allowing intermating with industry-standard M8 devices
- IP67 (threaded) and IP65 (snap)-rated connector interfaces provide rugged, watertight connectors that are suited for harsh, wet environments
- Patented anti-vibration feature prevents backout in high-vibration and mechanical shock applications
- Gold-over-nickel-plated contacts feature a durable, corrosion-resistant plating that maintains low electrical resistance through the mate/unmate cycles

Receptacles, Field Attachables and Accessories

- Wide array of configurations, including front and back panel mount; with leads or PCB pins, give users a wide variety of options to meet their requirements
- Epoxy-potted, IP67-rated receptacles are ideal for rugged industrial environments

- Field attachable connectors with solder cup terminals allow users to customize their application

Distribution Boxes

- Available in 4-, 6-, 8- and 10-port distribution boxes. Single and dual I/O versions with vertical or horizontal mounting available, giving users a wide variety of options to meet application requirements.
- Fully potted housing ensures performance in vibration and fluid environments by providing rugged IP67 (IP68 cabled) rating
- Rugged, compact design allows placement in tight places anywhere on the machine

Applications

- 8.00mm proximity switches
- Miniature photo eyes
- Reed and Hall effect switches
- Other miniature I/O devices and sensors
- Robotic end-of-arm tooling
- Specialty sensors semiconductor assembly equipment

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Nano-Change® (M8) Single-Ended Cordsets (US)

120086

Female, Pigtails
Straight, Right Angle
Threaded



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- LED version provide power and signal trigger indication for PNP sensors (NPN versions available upon request)
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Physical

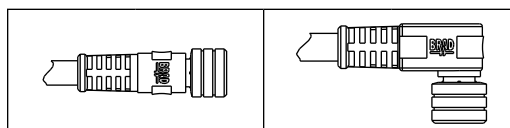
Connector Body: TPE (PVC for LED version)
Contact Carries: PBT
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Cables: A10—Yellow PVC jacket, 24 AWG PVC conductors, 300V, UL AWM2661
B09—Black PUR jacket, 24 AWG PVC conductors, 300V, 80° C, UL AWM 20549 (3 conductor) / AWM 21198 (5 conductor)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Reference Information

UL File No.: E152210



Cordset without Indicating LEDs

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|--|---------------------|-----------------|------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 403000A10M020 | 120086-0102 | 403001A10M020 | 120086-0119 |
| | | | UL 20549 | PUR (B09) | | | 403000B09M020 | 120086-0336 | 403001B09M020 | 120086-0022 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 404000A10M020 | 120086-0144 | 404001A10M020 | 120086-0175 |
| | | | | PUR (B09) | | | 404000B09M020 | 120086-0171 | 404001B09M020 | 120086-0042 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 405000A10M020 | 120086-0191 | 405001A10M020 | 120086-0200 |
| | | | UL 21198 | PUR (B09) | | | 405000B09M020 | 120086-0196 | 405001B09M020 | 120086-0386 |

Cordset with Indicating LEDs

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Right Angle | |
|---|---------------------|--------------|------------|---------------------------|-----------|--------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 3 Pole with 1 LED 1 - Brown 4 - Black 3 - Blue | 4.0A | 30V AC/DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 4030P1A10M020 | 120086-0421 |
| | | | UL 20549 | PUR (B09) | | | 4030P1B09M020 | 120086-0009 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Single-Ended Cordsets (US)

120086

**Male, Pigtails
Straight, Right Angle
Threaded**



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Physical

Connector Body: TPE
 Contact Carries: PBT
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A10—Yellow PVC jacket, 24 AWG PVC conductors, 300V, UL AWM2661
 B09—Black PUR jacket, 24AWG PVC conductors, 300V, 80° C, UL AWM 20549 (3 conductor)/AWM 21198 (5 conductor)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

UL File No.: E152210

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | | Male Right Angle | |
|--|---------------------|-----------------|------------|---------------------------|-----------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 403006A10M020 | 120086-0132 | 403007A10M020 | 120086-0139 |
| | | | UL 20549 | PUR (B09) | | | 403006B09M020 | 120086-0027 | 403007B09M020 | 120086-0033 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 404006A10M020 | 120086-0183 | 404007A10M020 | 120086-0186 |
| | | | | PUR (B09) | | | 404006B09M020 | 120086-0048 | 404007B09M020 | 120086-0052 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 405006A10M020 | 120086-0206 | 405007A10M020 | 120086-0210 |
| | | | UL 21198 | PUR (B09) | | | 405006B09M020 | 120086-0387 | 405007B09M020 | 120086-0390 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Double-Ended Cordsets (US)

120087

Female Straight-to-Male Straight,
Female Right Angle-to-
Male Straight,
Female Straight-to-Male
Right Angle,
Female Right Angle-to-Male
Right Angle
Threaded



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Reference Information

UL File No.: E152210

Physical

Connector Body: TPE
Contact Carries: PBT
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Cables: A10—Yellow PVC jacket, 24 AWG PVC conductors, 300V, UL AWM2661
B09—Black PUR jacket, 24 AWG PVC conductors, 300V, 80° C, UL AWM 20549 (3-conductor)/AWM 21198 (5-conductor)

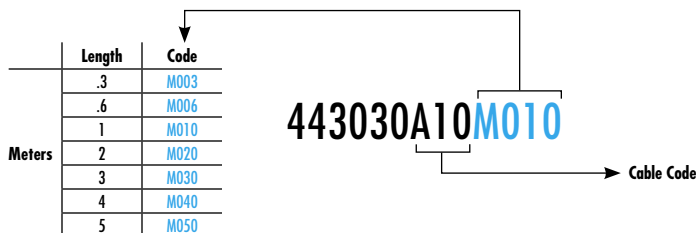
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to- Male Straight | | Female Right Angle-to- Male Straight | | Female Straight-to- Male Right Angle | | Female Right Angle-to- Male Right Angle | |
|---|---------------------------|-------------------|---------------|------------------------------|---------------------|--------|--------------------------------------|-----------------------|---|-----------------------|---|-----------------------|--|-----------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC/ 75V DC | UL 2661 | PVC (A10) | 24 | 1.0m | 443030A10M010 | 120087-0074 | 443031A10M010 | 120087-0243 | 443032A10M010 | 120087-0253 | 443033A10M010 | 120087-0088 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC/ 75V DC | UL 2661 | PVC (A10) | 24 | 1.0m | 444030A10M010 | 120087-0093 | 444031A10M010 | 120087-0103 | 444032A10M010 | 120087-0281 | 444033A10M010 | 120087-0108 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 60V AC/ 75V DC | UL 2661 | PVC (A10) | 24 | 1.0m | 445030A10M010 | 120087-0112 | 445031A10M010 | 120087-0287 | 445032A10M010 | 120087-0290 | 445033A10M010 | 120087-0117 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Receptacles (US)

120031/120090

Female
Front Panel Mount,
Back Panel Mount



Features and Benefits

- IEC compliant M8 panel mount receptacles
- Available in 3-, 4-, and 5-pole versions
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical

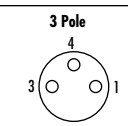
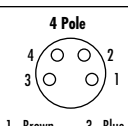
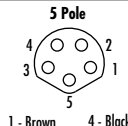
Shell Material: Nickel-plated Brass
 Contact Carries: PBT
 O-Ring: M8—Red Viton®
 Panel—Black Viton
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1007/1569, 24 AWG

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

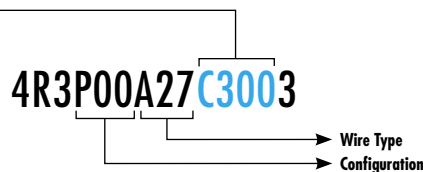
UL File No.: E152210

| Poles | Max. Current per Contact | Max. Voltage | Configuration | | Wire Type | | Wire Size | | Length | |
|--|--------------------------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|--------|--|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | | |
|  1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | 4R3P00A27C300 | 120090-0016 | 4R3H40E02C3003 | 120031-0046 | 4R3H400013 | 120090-5001 | | |
|  1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | 4R4P00A27C300 | 120090-0029 | 4R4H40E02C3003 | 120031-0022 | 4R4H400013 | 120031-0118 | | |
|  1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 60V AC / 75V DC | 4R5P00A27C300 | 120090-0037 | 4R5H40E02C3003 | 120031-0050 | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Receptacles (US)

120090
Male
Front Panel Mount



Features and Benefits

- IEC compliant M8 panel mount receptacles
- Mates with threaded and snap M8 cordsets
- Available in 3-, 4-, and 5-pole versions
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Receptacles with wired leads to be used in control panels, junction boxes and sensors. Other configurations also available.

Reference Information

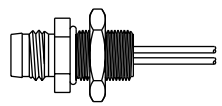
UL File No.: E152210




Physical

Shell Material: Nickel-plated Brass
 Contact Carries: PBT
 O-Ring: Panel—Black Viton®
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1007/1569, 24 AWG

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| |
|---|
|  |
| Configuration |
| Wire Type |
| Wire Size |
| Length |

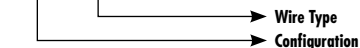
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. |
|---|--------------------------|-----------------|-----------------|--------------------|
| <p>3 Pole</p>  <p>1 - Brown 4 - Black 3 - Blue</p> | 4.0A | 60V AC / 75V DC | 4R3P06A27C300 | 120090-0020 |
| <p>4 Pole</p>  <p>1 - Brown 3 - Blue 2 - White 4 - Black</p> | 4.0A | 60V AC / 75V DC | 4R4P06A27C300 | 120090-0032 |
| <p>5 Pole</p>  <p>1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue</p> | 3.0A | 60V AC / 75V DC | 4R5P06A27C300 | 120090-0038 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

4R3P06A27C3003



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Nano-Change® (M8) Threaded Field Attachable Connectors (US)

120091

Female, Male
Straight, Right Angle



Features and Benefits

- Allows field termination of cables to IEC compliant, M8 circular connector
- Preassembled contact carrier with solder cup contacts for easy conductor termination
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3- and 4-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carriers: PA
O-ring/Gaskets: NBR
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Contacts with solder cups, accepts conductors up to 24 AWG (0.25mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|------------|---------------------|------------------|------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N03FA03124 | 120091-0001 | N03FA04124 | 120091-0003 |
| 4 Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N04FA03124 | 120091-0007 | N04FA04124 | 120091-0009 |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|------------|---------------------|------------------|------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N03MA03124 | 120091-0004 | N03MA04124 | 120091-0006 |
| 4 Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N04MA03124 | 120091-0010 | N04MA04124 | 120091-0012 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Nano-Change® (M8) Distribution Boxes (US)

120113 Single Wired Ports with M16 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- M16 Home Run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M16 14-pole male connector
Wiring Configuration: Single I/O, M8 3-pole female port
Operating Temperature: -25 to +90° C

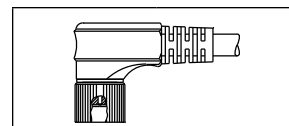
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | for Sensor | Engineering No | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|----------------|--------------------|
| | | 4 | Yes | PNP | BNY401P-FBC | 120113-0023 |
| | | 6 | Yes | PNP | BNY601P-FBC | 120113-0026 |
| | | 8 | Yes | PNP | BNY801P-FBC | 120113-0029 |
| | | 10 | Yes | PNP | BNYA01P-FBC | 120113-0020 |

Suggested Home Run Cable Assemblies

M16 14-pole Female Cordsets



| Use With | Cable Jacket | No. conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|---------------|--------------|----------------|-----------------------------------|--------|-----------------|--------------------|
| 4-port Block | PUR | 6 | Black PUR, 6x0.34mm ² | 10.0m | L04301M78M100 | 130023-0063 |
| 6-port Block | | 8 | Black PUR, 8x0.34mm ² | | L04201M78M100 | 130023-0059 |
| 8-port Block | | 10 | Black PUR, 10x0.34mm ² | | L04101M78M100 | 130023-0055 |
| 10-port Block | | 12 | Black PUR, 12x0.34mm ² | | L04A01M78M100 | 130023-0068 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Nano-Change® (M8) Distribution Boxes (US)

120113 Single Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Integral Home Run cable eliminates need for purchase of additional component for installing

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Single I/O, M8 3-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—4x0.34mm² + 2x0.75mm²
6-port—6x0.34mm² + 2x0.75mm²
8-port—8x0.34mm² + 2x0.75mm²
10-port—10x0.34mm² + 2x0.75mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | HR Cable Exit | Ports | LED Indicator | for Sensor | Length | Engineering No | Standard Order No |
|--------------------|-------------------|---------------|-------|---------------|------------|--------|----------------|-------------------|
| | | End Exit | 4 | Yes | PNP | 5.0m | BEY401P-FBP-05 | 120113-0006 |
| | | | 6 | Yes | PNP | 5.0m | BEY601P-FBP-05 | 120113-0011 |
| | | | 8 | Yes | PNP | 5.0m | BEY801P-FBP-05 | 120113-0014 |
| | | | 10 | Yes | PNP | 5.0m | BEYA01P-FBP-05 | 120113-0002 |
| | | Top Exit | 4 | Yes | PNP | 5.0m | BNY401P-FBP-05 | 120113-0025 |
| | | | 8 | Yes | PNP | 5.0m | BNY801P-FBP-05 | 120113-0032 |
| | | | 10 | Yes | PNP | 5.0m | BNYA01P-FBP-05 | 120113-0022 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BNYA01P-FBP-05

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Distribution Boxes (US)

120054/120113
Dual Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Integral Home Run cable eliminates need for purchase of additional component for installing

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M8 4-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8x0.34mm² + 2x0.75mm²
6-port—12x0.34mm² + 2x0.75mm²
8-port—16x0.34mm² + 2x0.75mm²
10-port—20x0.25mm² + 2x0.50mm²

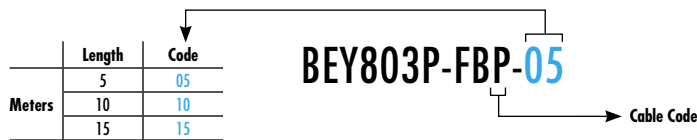
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | HR Cable Exit | Ports | LED Indicator | for Sensor | Length | Engineering No | Standard Order No |
|--------------------|-------------------|---------------|-------|---------------|------------|--------|----------------|-------------------|
| | | End Exit | 4 | Yes | PNP | 5.0m | BEY403P-FBP-05 | 120054-0034 |
| | | | 6 | Yes | PNP | 5.0m | BEY603P-FBP-05 | 120054-0043 |
| | | | 8 | Yes | PNP | 5.0m | BEY803P-FBP-05 | 120113-0017 |
| | | | 10 | Yes | PNP | 5.0m | BEYA03P-FBP-05 | 120054-0045 |
| | | Top exit | 4 | Yes | PNP | 5.0m | BNY403P-FBP-05 | 120113-5100 |
| | | | 6 | Yes | PNP | 5.0m | BNY603P-FBP-05 | 120054-0044 |
| | | | 8 | Yes | PNP | 5.0m | BNY803P-FBP-05 | 120054-0004 |
| | | | 10 | Yes | PNP | 5.0m | BNYA03P-FBP-05 | 120054-0046 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Suggested Tee Splitter to Connect Two I/O per Port in Above Boxes

| Wiring Schematic | Description | Engineering No | Standard Order No. |
|------------------|-------------------------------|----------------|--------------------|
| | Brad Nano-Change 'Y' Splitter | 444A30 | 120089-5002 |

Brad® Nano-Change® (M8) Single-Ended Cordsets (US)

120088

**Female, Male Pigtails
Straight, Right Angle
Snap**



Features and Benefits

- IEC compliant M8 cordset assemblies with friction fit coupler design (snap design)
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3 and 4 pole versions
- Push on to make connection, friction fit of snap feature keeps connection
- IP67 rated for harsh environments
- LED version provide power and signal trigger indication for PNP sensors (NPN versions available upon request)
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Physical

Connector Body: TPE (PVC for LED version)
 Contact Carries: PBT
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass (male only)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: A10—Yellow PVC jacket, 24 AWG PVC conductors, 300V, UL AWM2661
 B09—Black PUR jacket, 24 AWG PVC conductors, 300V, 80° C, UL AWM 20549 (3 conductor)/AWM 21198 (5 conductor)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Female Pigtails

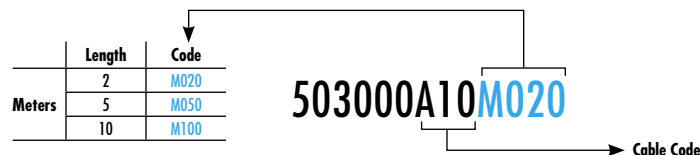
| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | | Female Right Angle with LEDs | |
|--|---------------------|-----------------|------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 503000A10M020 | 120088-0022 | 503001A10M020 | 120088-0032 | 5030P1A10M020 | 120088-0099 |
| | | | UL 20549 | PUR (B09) | | | 503000B09M020 | 120088-0002 | 503001B09M020 | 120088-0040 | 5030P1B09M020 | 120088-0001 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (E03) | 24 AWG | 2.0m | | | 504001A10M020 | 120088-0054 | | |
| | | | | PUR (B09) | | | 504000B09M020 | 120088-0116 | 504001B09M020 | 120088-0130 | | |

Male Pigtails

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | |
|--|---------------------|-----------------|------------|---------------------------|-----------|--------|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (A10) | 24 AWG | 2.0m | 503006A10M020 | 120088-0042 |
| | | | UL 20549 | PUR (B09) | | | 503006B09M020 | 120088-0112 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2661 | PVC (E03) | 24 AWG | 2.0m | 504006A10M020 | 120088-0059 |
| | | | | PUR (B09) | | | 504006B09M020 | 120088-0014 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Ultra-Lock® Connection System

EUROPE

Ultra

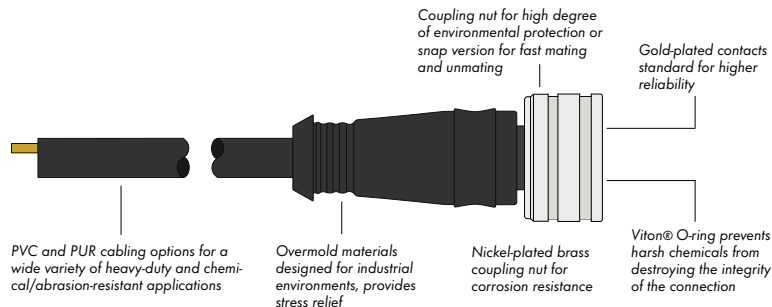
The performance and reliability of the revolutionary new Ultra-Lock® connection system surpass those of traditional threaded connectors, delivering increased productivity and cost savings.

Ultra-Lock connectors incorporate a unique radial seal and mechanical-locking design that deliver unsurpassed performance. The patented push-to-lock technology provides a fast, simple and secure operator-independent connection.

Ultra-Lock connectors are designed to eliminate connector-related intermittent signals in the harshest environments. Fewer intermittent signals mean less downtime and better productivity.

Ultra-Lock technology can be used on Ultra-Lock connectors as well as threaded connectors, including Brad M12 connectors from Molex and Micro-Push® (IP64) connections.

Molex offers Ultra-Lock in 3-, 4-, 5-, 8- and 12-pin configurations for an extensive assortment of cordsets, receptacles, and molded junction boxes. The Ultra-Lock receptacles and multiports can be used with conventional threaded M12 and Micro-Push products to provide backward compatibility to legacy screw-down connectors.



Features and Benefits

- Push-to-lock technology provides a simple, secure, operator-independent connection for fast mating and reduced installation time
- Radial O-ring provides an IP69K seal to protect against moisture
- Receptacles accept either the Ultra-Lock connector or standard M12 threaded cordsets, giving users a variety of connection options

Applications

- Proximity switches, photo eyes, safety switches and other I/O connectivity
- Connector interface for IP69-rated devices
- Connectivity for devices in high-vibration environments
- Connections requiring blind-mating

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Ultra-Lock® (M12) Single-Ended Cordsets (Europe)

120079

Female, Pigtail
Straight, Right Angle



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environment due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push to lock mechanisms reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for moderate flex applications. Also ideal for welding cells, cable is weld slag resistant

Reference Information

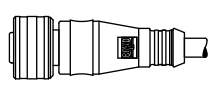
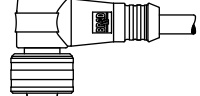





CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-Ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P03/P02—Black PUR/PVC jacket, 0.34mm² (P03) or 0.25mm² (P02) PVC conductors, 300V, 80° C
 H09/H08—Black PUR jacket, 0.34mm² (H09) or 0.25mm² (H08) PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C UL AWM 20549

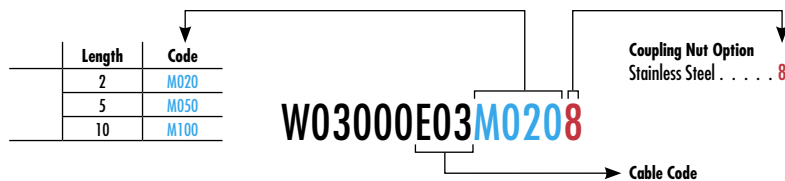
Environmental

Protection: IP67/IP68/IP69K
 NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Length | Female Straight | | Female Right Angle | |
|--|--------------------------|-------------------|----------------|---------------|---------------------|--------|--|--------------------|---|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | |  | |  | |
| 3 Pole  | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W03000E03M020 | 120079-5102 | W03001E03M020 | 120079-5048 |
| | | | PUR/PVC (P03) | W03000P03M020 | | | 120079-5103 | W03001P03M020 | 120079-5104 | |
| | | | LSOH, UL 21198 | PUR (H09) | | | W03000H09M020 | 120079-8042 | W03001H09M020 | 120079-8047 |
| | | | PLTC-ER | TPE (K05) | | | W03000K05M020 | 120079-0130 | W03001K05M020 | 120079-0211 |
| 4 Pole  | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W04000E03M020 | 120079-0266 | W04001E03M020 | 120079-0269 |
| | | | PUR/PVC (P03) | W04000P03M020 | | | 120079-8012 | W04001P03M020 | 120079-8013 | |
| | | | LSOH, UL 21198 | PUR (H09) | | | W04000H09M020 | 120079-8054 | W04001H09M020 | 120079-8051 |
| | | | PLTC-ER | TPE (K05) | | | W04000K05M020 | 120079-0149 | W04001K05M020 | 120079-0221 |
| 5 Pole  | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W05000E03M020 | 120079-0277 | W05001E03M020 | 120079-0281 |
| | | | PUR/PVC (P03) | W05000P03M020 | | | 120079-5110 | W05001P03M020 | 120079-5088 | |
| | | | LSOH, UL 21198 | PUR (H09) | | | W05000H09M020 | 120079-8045 | W05001H09M020 | 120079-8048 |
| 8 Pole  | 2.0A | 30V AC/ 36V DC | | PUR/PVC (P02) | 0.25mm ² | 2.0m | W08000P02M020 | 120079-5113 | W08001P02M020 | 120079-5114 |
| | | | LSOH, UL 21198 | PUR (H08) | | | W08000H08M020 | 120079-5023 | W08001H08M020 | 120079-8043 |
| 12 Pole  | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 2.0m | W0C000H45M020 | 120079-5001 | W0C001H45M020 | 120079-5117 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Single-Ended Cordsets (Europe)

120079

Male, Pigtail
Straight, Right Angle



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environment due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to Improved sealing design
- Ergonomic push-to-lock mechanisms reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for moderate flex applications. Also ideal for welding cells, cable is weld slag resistant

Reference Information

CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-Ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P03/P02—Black PUR/PVC jacket, 0.34mm² (P03) or 0.25mm² (P02) PVC conductors, 300V, 80° C
 H09/H08—Black PUR jacket, 0.34mm² (H09) or 0.25mm² (H08) PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C UL AWM 20549

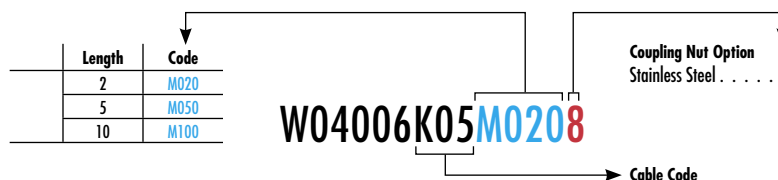
Environmental

Protection: IP67/IP68/IP69K
 NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Length | Male Straight | | Male Right Angle | |
|-------|--------------------------|-------------------|----------------|---------------|---------------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W03006E03M020 | 120079-5105 | W03007E03M020 | 120079-5107 |
| | | | | PUR/PVC (P03) | | | W03006P03M020 | 120079-5106 | W03007P03M020 | 120020-0002 |
| | | | LSOH, UL 21198 | PUR (H09) | | | W03006H09M020 | 120079-8049 | W03007H09M020 | 120079-8041 |
| | | | PLTC-ER | TPE (K05) | | | W03006K05M020 | 120079-0155 | W03007K05M020 | 120079-0226 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W04006E03M020 | 120079-0263 | W04007E03M020 | 120079-5108 |
| | | | | PUR/PVC (P03) | | | W04006P03M020 | 120079-8006 | W04007P03M020 | 120079-5109 |
| | | | LSOH, UL 21198 | PUR (H09) | | | W04006H09M020 | 120079-8053 | W04007H09M020 | 120079-8052 |
| | | | PLTC-ER | TPE (K05) | | | W04006K05M020 | 120079-0156 | W04007K05M020 | 120079-0192 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | W05006E03M020 | 120079-0273 | W05007E03M020 | 120079-5111 |
| | | | | PUR/PVC (P03) | | | W05006P03M020 | 120079-5055 | W05007P03M020 | 120079-5112 |
| | | | LSOH, UL 21198 | PUR (H09) | | | W05006H09M020 | 120079-8046 | W05007H09M020 | 120079-8050 |
| | 2.0A | 30V AC/ 36V DC | | PUR/PVC (P02) | 0.25mm ² | 2.0m | W08006P02M020 | 120079-5115 | W08007P02M020 | 120079-5116 |
| | | | LSOH, UL 21198 | PUR (H08) | | | W08006H08M020 | 120079-5026 | W08007H08M020 | 120079-8044 |
| | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 2.0m | W0C006H45M020 | 120079-5006 | W0C007H45M020 | 120079-5118 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Double-Ended Cordsets (Europe)

120080

Female Straight-to-Male Straight,
Female Right Angle-to-Male
Straight



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environment due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanisms reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for moderate flex applications. Also ideal for welding cells, cable is weld slag resistant

Reference Information

CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-Ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P03/P02—Black PUR/PVC jacket, 0.34mm² (P03) or 0.25mm² (P02) PVC conductors, 300V, 80° C
 H09/H08—Black PUR jacket, 0.34mm² (H09) or 0.25mm² (H08) PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C UL AWM 20549

Environmental

Protection: IP67/IP68/IP69K
 NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | | |
|------------------------|-----------------------------|-----------------|-------------------|-----------------|---------------|---------------------|----------------------------------|--------------------|-------------------------------------|--------------------|-------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | | | | | | | | | 4.0A | 250V AC/DC | UL 2464 |
| | | PUR/PVC (P03) | WW3030E03M010 | 120080-5058 | WW3031E03M010 | 120080-5060 | | | | | |
| | | LSOH, UL 21198 | PUR (H09) | WW3030P03M010 | 120080-5059 | WW3031P03M010 | 120080-5061 | | | | |
| | | PLTC-ER | TPE (K05) | WW3030H09M010 | 120080-8026 | WW3031H09M010 | 120080-8030 | | | | |
| | | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 1.0m | | | | |
| | | | | PUR/PVC (P03) | WW4030E03M010 | | | 120080-0469 | WW4031E03M010 | 120080-5066 | |
| | | | | LSOH, UL 21198 | PUR (H09) | | | WW4030P03M010 | 120080-5045 | WW4031P03M010 | 120080-5067 |
| | | | | PLTC-ER | TPE (K05) | | | WW4030H09M010 | 120080-8031 | WW4031H09M010 | 120080-8027 |
| | | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 1.0m | | | | |
| | | | | PUR/PVC (P03) | WW5030E03M010 | | | 120080-5076 | WW5031E03M010 | 120080-5077 | |
| | | | | LSOH, UL 21198 | PUR (H09) | | | WW5030P03M010 | 120080-5050 | WW5031P03M010 | 120080-5078 |
| | | 2.0A | 30V AC/ 36V DC | | PUR/PVC (P02) | 0.25mm ² | 1.0m | | | | |
| | | | | LSOH, UL 21198 | PUR (H08) | | | WW8030P02M010 | 120080-5083 | WW8031P02M010 | 120080-5084 |
| | | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 1.0m | WWC030H45M010 | 120080-5088 | WWC031H45M010 | 120080-5089 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Double-Ended Cordsets (Europe)

120080

**Female Straight-to-Male Right Angle,
Female Right Angle-to-Male Right Angle**



Features and Benefits

- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environment due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanisms reduces fatigue and user errors when a high number of connections need to be made
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68/69K rated for harsh environments
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for moderate flex applications. Also ideal for welding cells, cable is weld slag resistant

Reference Information

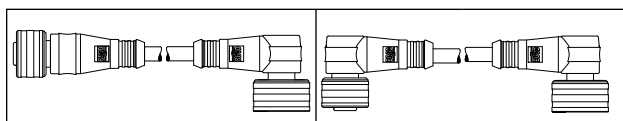
CSA File No.: LR6837 (3-, 4-, and 5-pole assemblies)

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-Ring: Viton® (EPDM for E03 cables)
 Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P03/P02—Black PUR/PVC jacket, 0.34mm² (P03) or 0.25mm² (P02) PVC conductors, 300V, 80° C
 H09/H08—Black PUR jacket, 0.34mm² (H09) or 0.25mm² (H08) PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C UL AWM 20549

Environmental

Protection: IP67/IP68/IP69K
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---------------------|--------------------------|-------------------|----------------|---------------|---------------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 1.0m | WW3032E03M010 | 120080-5062 | WW3033E03M010 | 120080-5064 |
| | | | | PUR/PVC (P03) | | | WW3032P03M010 | 120080-5063 | WW3033P03M010 | 120080-5065 |
| | | | LSOH, UL 21198 | PUR (H09) | | | WW3032H09M010 | 120080-8029 | WW3033H09M010 | 120080-8025 |
| | | | PLTC-ER | TPE (K05) | | | WW3032K05M010 | 120080-0281 | WW3033K05M010 | 120080-0364 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 1.0m | WW4032E03M010 | 120080-5068 | WW4033E03M010 | 120080-5070 |
| | | | | PUR/PVC (P03) | | | WW4032P03M010 | 120080-5069 | WW4033P03M010 | 120080-5071 |
| | | | LSOH, UL 21198 | PUR (H09) | | | WW4032H09M010 | 120080-8036 | WW4033H09M010 | 120080-8037 |
| | | | PLTC-ER | TPE (K05) | | | WW4032K05M010 | 120080-0306 | WW4033K05M010 | 120080-0396 |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 1.0m | WW5032E03M010 | 120080-5079 | WW5033E03M010 | 120080-5081 |
| | | | | PUR/PVC (P03) | | | WW5032P03M010 | 120080-5080 | WW5033P03M010 | 120080-5082 |
| | | | LSOH, UL 21198 | PUR (H09) | | | WW5032H09M010 | 120080-8038 | WW5033H09M010 | 120080-8040 |
| | 2.0A | 30V AC/ 36V DC | | PUR/PVC (P02) | 0.25mm ² | 1.0m | WW8032P02M010 | 120080-5085 | WW8033P02M010 | 120080-5086 |
| | | | LSOH, UL 21198 | PUR (H08) | | | WW8032H08M010 | 120080-8035 | WW8033H08M010 | 120080-8032 |
| | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 1.0m | WWC032H45M010 | 120080-5090 | WWC033H45M010 | 120080-5023 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Single and Double-Ended Shielded Cordsets (Europe)

120079/120083

Female Straight, Male Straight,
Female Straight-to-Male Straight



Features and Benefits

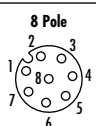
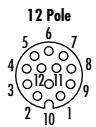
- Push-to-lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environment due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push-to-lock mechanisms reduces fatigue and user errors when a high number of connections need to be made
- Shielding thru coupling offer complete EMI protection to electrical noise
- IP67/68/69K rated for harsh environments

Physical

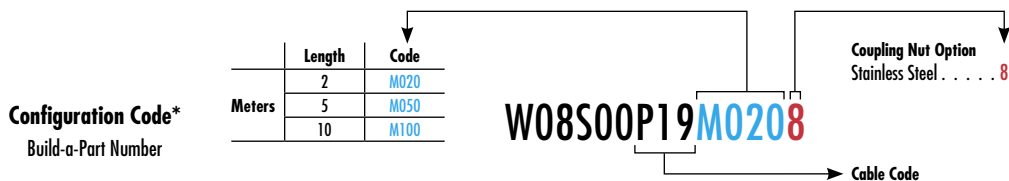
Connector Body: PUR
Contact Carries: Polyamide
O-Ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Shielding: Braid Shield on cable connected to coupler, providing complete shielding thru connector interface
Cables: P19—Black PUR jacket with Braid Shield, 85% coverage, 0.34mm² PVC conductors, 300V, 90C
P45—Black PUR jacket with Braid Shielded, 80% coverage, 26 AWG PVC conductors, 300V, 80C, UL AWM 20549

Environmental

Protection: IP67/IP68/IP69K
NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Male Straight | | Female Straight-to-Male Straight | |
|--|--------------------------------|-----------------|---------------|------------------------------|-----------|---------------|---|--------------------|-----------------|--------------------|----------------------------------|---------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | |  | 2.0A | 30V AC/36V DC | UL 20327 | PUR/PVC (P19) | 0.25mm ² |
| 2.0m | W08S00P19M020 | 120079-5029 | W08S06P19M020 | 120079-5033 | | | | | | | | |
|  | 1.5A | 30V AC/DC | UL 1581 | PUR (P45) | 26 AWG | 1.0m | | | | | WWCS30P45M010 | 120083-5044 |
| 2.0m | | | | | | W0CS00P45M020 | 120083-5010 | W0CS06P45M020 | 120083-5015 | | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Receptacles (Europe)

120084
Female
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles with Ultra-Lock feature
- Mates with standard threaded M12 and Ultra-Lock cordsets
- Available in 4-, 5-, 8- and 12-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Reference Information

cCSAus Certified LR6837 (4- to 5-pole version)

Physical

Shell Material: Nickel-plated Brass

Contact Carries: Polyamide

O-Ring: M12—Red Viton®
 Panel—Black Viton

Contacts: Copper alloy with Gold over Nickel plating

Wire PVC Insulation: 300V, 80° C, UL1061
 4-, 5-poles—0.34mm²
 8-poles—0.25mm²
 12-poles—0.14mm²

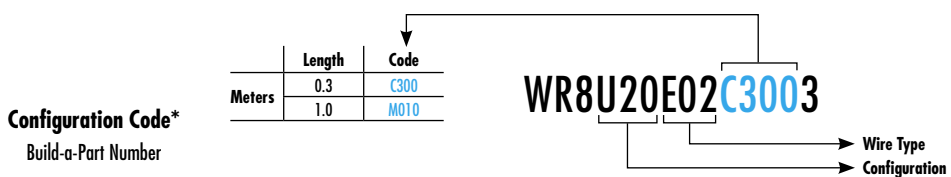
Environmental

Protection: IP67

NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Configuration | | Wire Type | | Wire Size | | Length | |
|-------------|--------------------------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 Pole | 4.0A | 250V AC/DC | WR4J20E03C3003 | 120084-5154 | WR4U20E03C3003 | 120084-5107 | WR4W40E03C3003 | 120084-5189 | WR4W400003 | 120084-5175 |
| 5 Pole | 4.0A | 250V AC/DC | WR5J20E03C3003 | 120084-5159 | WR5U20E03C3003 | 120084-5113 | WR5W40E03C3003 | 120084-5190 | WR5W400003 | 120084-5179 |
| 8 Pole | 2.0A | 30V AC / 36V DC | | | WR8U20E02C3003 | 120084-5095 | WR8W40E02C300 | 120084-5191 | WR8W400003 | 120084-0048 |
| 12 Pole | 1.5A | 30V AC/DC | | | WRCU20E01C3003 | 120084-5013 | WRCW40E01C300 | 120084-5192 | WRCW400003 | 120084-5176 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Receptacles (Europe)

120084

Male

Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles with Ultra-Lock feature
- Mates with standard threaded M12 and Ultra-Lock cordsets
- Available in 4-, 5-, 8- and 12-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Reference Information

cCSAus Certified LR6837 (4- to 5-pole version)

Physical

Shell Material: Nickel-plated Brass
 Contact Carries: Polyamide
 O-Ring: Panel—Black Viton®
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1061
 4, 5-poles—0.34mm²
 8-poles—0.25mm²
 12-poles—0.14mm²

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Configuration | PG9, Front Panel Mount | M16x1.5, Front Panel Mount | M16x1.5, Back Panel Mount | M16x1.5, Back Panel Mount |
|---------------|------------------------|--|--|---------------------------|
| Wire Type | PVC leads, UL1061 | PVC leads, UL1061 | PVC leads, UL1061 | PCB Pins |
| Wire Size | 0.34mm ² | 0.34mm ² (4- to 5-pole), 0.25mm ² (8-pole), 0.14mm ² (12-pole) | 0.34mm ² (4- to 5-pole), 0.25mm ² (8-pole), 0.14mm ² (12-pole) | |
| Length | 0.3m | 0.3m | 0.3m | |

| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|-------------|--------------------------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 4 Pole | 4.0A | 250V AC/DC | WR4J26E03C3003 | 120084-5103 | WR4U26E03C3003 | 120084-5108 | WR4W46E03C3003 | 120084-5183 | WR4W460003 | 120084-5180 |
| 5 Pole | 4.0A | 250V AC/DC | WR5J26E03C3003 | 120084-5109 | WR5U26E03C3003 | 120025-0007 | WR5W46E03C3003 | 120084-5185 | WR5W460003 | 120084-5181 |
| 8 Pole | 2.0A | 30V AC / 36V DC | | | WR8U26E02C3003 | 120084-5096 | WR8W46E02C300 | 120084-5187 | WR8W460003 | 120084-0047 |
| 12 Pole | 1.5A | 30V AC/DC | | | WRCU26E01C3003 | 120084-5015 | WRCW46E01C300 | 120084-5188 | WRCW460003 | 120084-5182 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

WR4J26E03C3003

Wire Type
 Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Field Attachable Connectors (Europe)

120085

**Female, Male
Straight, Right Angle**



Features and Benefits

- Allows field termination of cables to Ultra-Lock, push-to-lock connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- Available in 4- and 5-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief



Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)



Environmental

Protection: IP67/IP68/IP69K
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|--|---------------------|--------------------|--------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | WA4000-31 | 120085-0011 | WA4001-31 | 120085-0015 |
| | | | 4.10-8.10mm (.161-.319") | WA4000-32 | 120085-0013 | | |
|  | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | WA5000-31 | 120085-0012 | WA5001-31 | 120085-0016 |
| | | | 4.10-8.10mm (.161-.319") | WA5000-32 | 120085-0014 | | |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|---|---------------------|--------------------|--------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | WA4006-31 | 120085-0003 | WA4007-31 | 120085-0007 |
| | | | 4.10-8.10mm (.161-.319") | WA4006-32 | 120085-0005 | | |
|  | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | WA5006-31 | 120085-0004 | WA5007-31 | 120085-0008 |
| | | | 4.10-8.10mm (.161-.319") | WA5006-32 | 120085-0006 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Ultra-Lock® (M12) Splitter Cordsets (Europe)

120080

Female Straight-to-Male Straight, Female Right Angle-to-Male Straight



Features and Benefits

- Splitters permit the connection of two I/O devices to a Brad Ultra-Lock port on dual-wired distribution boxes
- Push-to-lock technology assures fast, reliable connections every time
- IP67/68 rated for harsh environments
- Reliable performance in high-vibration environments due to positive locking mechanism
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information (K05 cable assemblies)

UL File No.: E152210

CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K05)

Contact Carries: Polyamide

O-ring: Viton® (EPDM for E03 cables)

Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)

Contacts: Copper alloy with Gold over Nickel plating

Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464

P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C

H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198

K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67

NEMA Rating: NEMA 6

Ultra-Lock-to-Ultra-Lock Splitters

| Wiring Schematic | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|--------------------------|--------------|----------------|---------------------------|---------------------|---------------------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | | | | |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 0.3m | WW4A30E03M003 | 120080-5072 | WW4A31E03M003 | 120080-5074 |
| | | | | PUR/PVC (P03) | 0.34mm ² | 0.3m | WW4A30P03M003 | 120080-5073 | WW4A31P03M003 | 120080-5075 |
| | | | LSOH, UL 21198 | PUR (H09) | 0.34mm ² | 0.3m | WW4A30H09M003 | 120080-8048 | WW4A31H09M003 | 120080-8049 |
| | | | | PLTC-ER | TPE (K05) | 0.34mm ² | 0.3m | WW4A30K05M003 | 120080-0081 | WW4A31K05M003 |

Ultra-Lock-to-Micro-Change® Splitters

| Wiring Schematic | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|--------------------------|--------------|----------------|---------------------------|---------------------|---------------------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | | | | |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 0.3m | 8W4A30E03M003 | 120080-5092 | 8W4A31E03M003 | 120080-5094 |
| | | | | PUR/PVC (P03) | 0.34mm ² | 0.3m | 8W4A30P03M003 | 120080-5093 | 8W4A31P03M003 | 120080-5095 |
| | | | LSOH, UL 21198 | PUR (H09) | 0.34mm ² | 0.3m | 8W4A30H09M003 | 120082-8004 | 8W4A31H09M003 | 120080-8024 |
| | | | | PLTC-ER | TPE (K05) | 0.34mm ² | 0.3m | 8W4A30K05M003 | 120080-0108 | 8W4A31K05M003 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code†
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1.0 | M010 |
| 3.0 | M030 |
| 5.0 | M050 |

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119/130008

Top Mount, Single-Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-Change home run connector for easy replacement

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

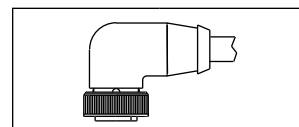
Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY401P-FBB | 120119-0002 |
| | | 6 | Yes | PNP | BKY601P-FBB | 120119-0010 |
| | | 8 | Yes | PNP | BKY801P-FBB | 120119-0017 |

Suggested Home Run Cordset Brad Mini-Change 12-pole Female Cordset



| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|---|--------|-----------------|--------------------|
| 4-port block | PUR | 7 | 4 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 302301P80M100 | 130008-8009 |
| 6-port block | | 8 | 6 × 0.34mm ² + 3 × 0.75mm ² | | 302201P80M100 | 130008-8006 |
| 8-port block | | 9 | 8 × 0.34mm ² + 3 × 0.75mm ² | | 302101P80M100 | 130008-0476 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

302301P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119/130008

Top Mount, Dual-Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-Change Home Run connector for easy replacement

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change® 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

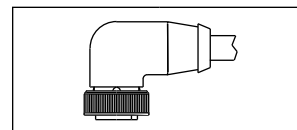
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY403P-FBB | 120119-0005 |
| | | 6 | Yes | PNP | BKY603P-FBB | 120119-0013 |
| | | 8 | Yes | PNP | BKY803P-FBB | 120119-0020 |

Suggested Home Run Cordset Brad Mini-Change 19-pole Female Cordset

| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|---------------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4 and 6-port blocks | PUR | 15 | 12 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 303201P80M100 | 130008-5006 |
| 8-port block | PUR | 19 | 16 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | 303001P80M100 | 130008-0316 |

Note: Sales drawings for all standard order numbers are available on molex.com



Configuration Code*
Build-a-Part Number

| Meters | Length | Code |
|--------|--------|------|
| | 5 | 050 |
| 10 | 100 | |
| 15 | 150 | |

303001P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119/120094/120230
Top Mount, Single-Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 Home Run connector for easy replacement

Electrical

Voltage: 10 to 30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

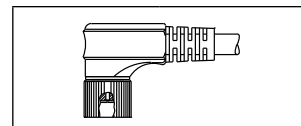
Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Home Run Connector: M23 12-pole male connector
 Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY401P-FBC | 120119-0003 |
| | | 6 | Yes | PNP | BKY601P-FBC | 120119-0011 |
| | | 8 | Yes | PNP | BKY801P-FBC | 120119-0018 |

Suggested Home Run Cable Assemblies M23 12-pole Female Cordset and Field Attachable Connector



| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|----------|--------------|-------------------------------------|---|--------|-----------------|--------------------|
| 4-port | PUR | 7 | 4 × 0.34mm ² + 3 × 0.75mm ² | 10.0m | K02301P80M100 | 120094-5023 |
| 6-port | | 9 | 6 × 0.34mm ² + 3 × 0.75mm ² | | K02201P80M100 | 120094-8013 |
| 8-port | | 11 | 8 × 0.34mm ² + 3 × 0.75mm ² | | K02101P80M100 | 120094-0125 |
| All | | M23 12p Female Field Attachable Kit | | | KASC500-025 | 120230-0032 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
 Build-a-Part Number

| Length | Code |
|--------|------|
| 5 | 050 |
| 10 | 100 |
| 15 | 150 |

K02101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119/120055

Top Mount, Dual-Wired Ports
With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 Home Run connector for easy replacement

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | No | | BKY4030-FBC | 120119-0038 |
| | | 8 | | | BKY8030-FBC | 120055-0925 |
| | | 4 | Yes | PNP | BKY403P-FBC | 120119-0006 |
| | | 8 | | | BKY803P-FBC | 120119-0021 |

Suggested Home Run Cable Assemblies M23 19-pole Female Cordset and Field Attachable Connector

| Use With | Cable Jacket | No. of Conductors | Construction | Length | Engineering No. | Standard Order No. |
|----------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4-port | PUR | 11 | $8 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | 10.0m | K03301P80M100 | 120094-8045 |
| 6-port | | 15 | $12 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | | K03201P80M100 | 120094-8027 |
| 8-port | | 19 | $16 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$ | | K03001P80M100 | 120094-0044 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Meters | Length | Code |
|--------|--------|------|
| | 5 | M050 |
| 10 | M100 | |
| 15 | M150 | |

K03301P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119

Top Mount, Dual-Wired Ports with Field Attachable HR Terminal Strip



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Home Run terminal strip provides greatest flexibility for cable choices and trimming to length on machine

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Terminal strip
Wiring Configuration: Dual I/O, M12 5-pole female

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | BKY403P-FBA | 120119-0004 |
| | | 6 | Yes | PNP | BKY603P-FBA | 120119-0012 |
| | | 8 | Yes | PNP | BKY803P-FBA | 120119-0019 |

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119

Top Mount, Single-Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Single I/O, M12 4-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—4 × 0.34mm² + 3 × 0.75 mm²
6-port—6 × 0.34mm² + 3 × 0.75 mm²
8-port—8 × 0.34mm² + 3 × 0.75 mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|--------------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | 5.0m | BKY400P-FBP-05 | 120119-0001 |
| | | 6 | Yes | PNP | 5.0m | BKY600P-FBP-05 | 120119-0009 |
| | | 8 | Yes | PNP | 5.0m | BKY800P-FBP-05 | 120119-0016 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BKY800P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119
Dual-Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M12 5-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port— $8 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$
6-port— $12 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$
8-port— $16 \times 0.34\text{mm}^2 + 3 \times 0.75\text{mm}^2$

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|------------|--------------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | 4 | Yes | PNP | 5.0m | BKY405P-FBP-05 | 120119-0007 |
| | | 6 | Yes | PNP | 5.0m | BKY605P-FBP-05 | 120119-0015 |
| | | 8 | Yes | PNP | 5.0m | BKY805P-FBP-05 | 120119-0023 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BKY405P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Ultra-Lock® (M12) Distribution Boxes (Europe)

120119

Top Mount, Dual-Wired Ports with Molded Brad® Mini-Change® HR Cordset



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Accepts Ultra-Lock and threaded M12 cordsets
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cordset with Mini-Change® 19-pole male connector provides easy replacement

Electrical

Voltage: 10 to 30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M12 5-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8 × 0.34mm² + 3 × 0.75 mm²
6-port—12 × 0.34mm² + 3 × 0.75 mm²
8-port—16 × 0.34mm² + 3 × 0.75 mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | Cable Length | Top Mount | |
|--------------------|-------------------|-------|---------------|--------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| | | 4 | No | 5.0m | BKY4120-FBP-01 | 120119-0008 |
| | | 8 | No | 5.0m | BKY8120-FBP-01 | 120119-0025 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 01 |
| | 10 | 10 |
| | 15 | 15 |

BKY4010-FBP-01

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Connectors

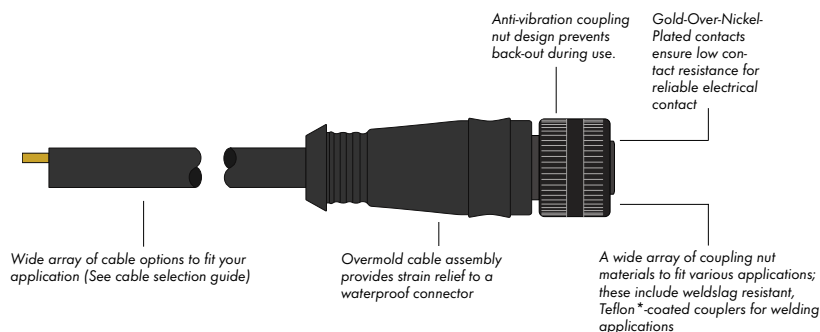
EUROPE

Rugged Micro-Change® connectors provide a high-pin-density, M12 solution that is ideal for use in industrial and harsh commercial environments.

Brad Micro-Change products are Molex's offering of rugged, high-circuit density, industry-standard M12 circular connectors for industrial automation applications.

Micro-Change connectors are designed to withstand harsh industrial environments and their superior quality assures a very reliable connection for control elements in automated equipment. These IEC 61076-2-101-compliant connectors allow fast and simple connections to 12.00 and 18.00mm sensors, encoders, switches and other input and output devices in industrial machinery.

Brad's complete line of M12 connectivity provides a quick-connect wiring system that eliminates field-install cabinets and minimizes field wiring termination errors.



Features and Benefits

Cordsets

- Available in 3-, 4-, 5-, 8- and 12-poles; in single and dual-key configurations; with or without LEDs; in straight and 90°; and with different coupling nut materials to provide a wide variety of options to meet application requirements
- Intermates with industry standard M12 devices that comply with IEC 61076-2-101
- Rugged, IP68 rated watertight connector is well suited for harsh, wet environments
- Patented, anti-vibration feature prevents back-out in applications that experience high vibration and mechanical shock
- Gold-over-nickel-plated contacts provide a durable, corrosion-resistant plating that maintains low electrical resistance throughout the life of the connector

Receptacles, Field Attachables and Accessories

- Large selection of configurations to fit your panel or device design, including front- and back-panel-mount receptacles in a variety of materials, with PCB or wire leads
- Epoxy potted receptacles are IP67- and IP68-rated, and are ideal for rugged industrial environments

- 3- to 5-pole field-attachable connectors with screw-down terminals for easy field installation, allow users to make their own cable assemblies for a custom fit to a machine or application

Distribution Boxes

- Available in 4-, 6- and 8-port distribution boxes; single and dual I/O versions. These pre-wired junction boxes comprise the Molex quick-connect wiring system for I/O devices. They eliminate the need for field-installed junction boxes, providing improved wire management
- Fully potted housing ensures performance in high-vibration and wet environment applications
- Rugged and compact to allow placement in tight places

Applications

- Proximity switches, photo eyes, safety switches and other I/O connectivity
- Connector interface for IP69-rated devices
- Connectivity for devices in high-vibration environments
- Connections requiring blind-mating

Teflon® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (Europe)

120006/120065

Female, Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for E03 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

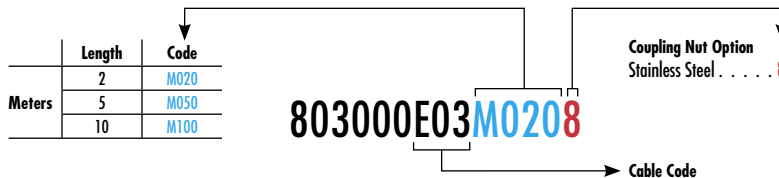
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|--|--------------------------|--------------|----------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | LSOH, UL 21198 | PVC (E03) | 0.34mm² | 2.0m | 803000E03M020 | 120006-0001 | 803001E03M020 | 120006-0007 |
| | | | | PUR/PVC (P03) | | | 803000P03M020 | 120006-0004 | 803001P03M020 | 120006-0011 |
| | | | | PUR (H09) | | | 803000H09M020 | 120065-8175 | 803001H09M020 | 120065-8715 |
| | | | | PLTC-ER TPE (K05) | | | 803000K05M020 | 120065-1108 | 803001K05M020 | 120065-1489 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | LSOH, UL 21198 | PVC (E03) | 0.34mm² | 2.0m | 804000E03M020 | 120006-0014 | 804001E03M020 | 120006-0021 |
| | | | | PUR/PVC (P03) | | | 804000P03M020 | 120006-0018 | 804001P03M020 | 120006-0024 |
| | | | | PUR (H09) | | | 804000H09M020 | 120065-8178 | 804001H09M020 | 120065-8513 |
| | | | | PLTC-ER TPE (K05) | | | 804000K05M020 | 120065-1121 | 804001K05M020 | 120065-1639 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | LSOH, UL 21198 | PVC (E03) | 0.34mm² | 2.0m | 805000E03M020 | 120006-0634 | 805001E03M020 | 120006-0652 |
| | | | | PUR/PVC (P03) | | | 805000P03M020 | 120006-0647 | 805001P03M020 | 120006-0663 |
| | | | | PUR (H09) | | | 805000H09M020 | 120065-8172 | 805001H09M020 | 120065-8296 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (Europe)

120006/120065

Female, Pigtail Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

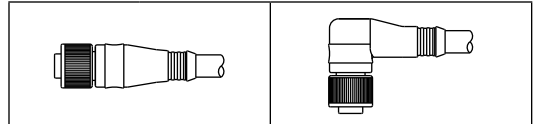
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR
Contact Carries: Polyamide
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Cables: P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
H08—Black PUR jacket, 0.25mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C, UL AWM 20549

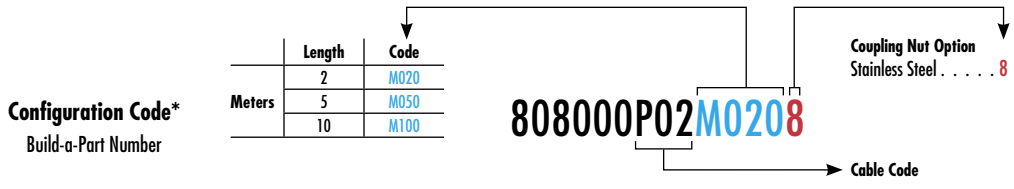
Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|---|--------------------------|---------------|----------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC/36V DC | LSOH, UL 21198 | PUR/PVC (P02) | 0.25mm² | 2.0m | 808000P02M020 | 120065-0951 | 808001P02M020 | 120065-0960 |
| | | | | PUR (H08) | | | 808000H08M020 | 120065-8644 | 808001H08M020 | 120065-8649 |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 2.0m | 80C000H45M020 | 120065-5040 | 80C001H45M020 | 120065-5099 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (Europe)

120006/120065

Male, Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E1 52210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

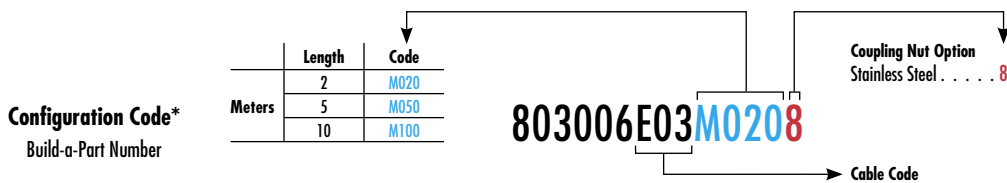
Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Male View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | | Male Right Angle | |
|--|--------------------------|--------------|----------------|---------------------------|---------------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | 803006E03M020 | 120006-0240 | 803007E03M020 | 120006-0273 |
| | | | | PUR/PVC (P03) | | | 803006P03M020 | 120006-0257 | 803007P03M020 | 120006-0288 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 803006H09M020 | 120065-8655 | 803007H09M020 | 120065-8722 |
| | | | PLTC-ER | TPE (K05) | | | 803006K05M020 | 120065-1114 | 803007K05M020 | 120065-1501 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | 804006E03M020 | 120006-0560 | 804007E03M020 | 120006-1975 |
| | | | | PUR/PVC (P03) | | | 804006P03M020 | 120006-0570 | 804007P03M020 | 120006-0592 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 804006H09M020 | 120065-8729 | 804007H09M020 | 120065-8736 |
| | | | PLTC-ER | TPE (K05) | | | 804006K05M020 | 120065-1129 | 804007K05M020 | 120065-1691 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 2.0m | 805006E03M020 | 120006-0667 | 805007E03M020 | 120065-8096 |
| | | | | PUR/PVC (P03) | | | 805006P03M020 | 120006-0680 | 805007P03M020 | 120006-0697 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 805006H09M020 | 120065-8743 | 805007H09M020 | 120065-8750 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® is a registered trademark of E.I. DuPont De Nemours and Company.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (Europe)

120006/120065
Male, Pigtail
Straight, Right Angle



Features and Benefits

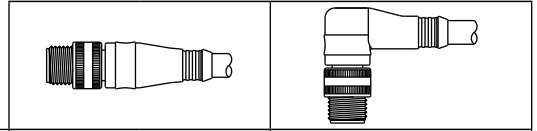
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
 H08—Black PUR jacket, 0.25mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C, UL AWM 20549

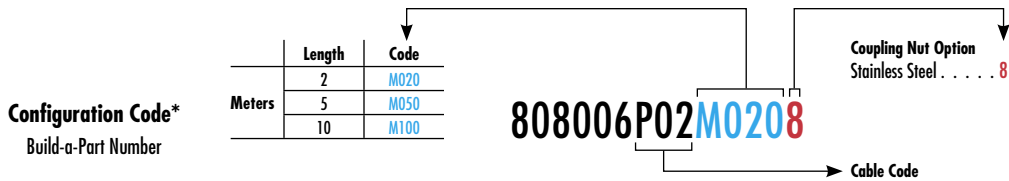
Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Male View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | | Male Right Angle | |
|---|-----------------------------|---------------|---------------|------------------------------|---------------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC/36V DC | PUR/PVC (P02) | PUR (H08) | 0.25mm ² | 2.0m | 808006P02M020 | 120065-0964 | 808007P02M020 | 120065-1800 |
| LSOH, UL 21198 | | | 808006H08M020 | | | | 120065-8660 | 808007H08M020 | 120065-8757 | |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 2.0m | 80C006H45M020 | 120065-5045 | 80C007H45M020 | 120065-5109 |

Note: Sales drawings for all standard order numbers are available on molex.com



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120006/120007/120066

Female Straight-to-Male Straight, Female Right Angle-to-Male Straight



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for E03 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

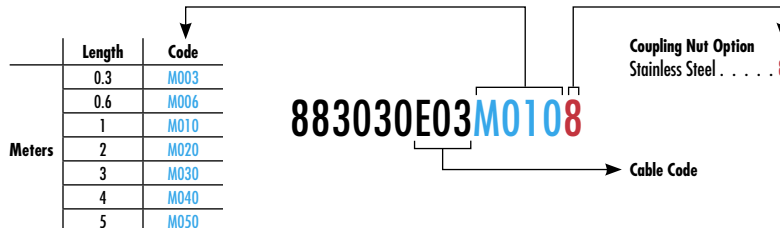
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|--------------------------|--------------|----------------|---------------------------|-----------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 883030E03M010 | 120007-0083 | 883031E03M010 | 120007-0119 |
| | | | | PUR/PVC (P03) | | | 883030P03M010 | 120066-0498 | 883031P03M010 | 120007-0142 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 883030H09M010 | 120066-8374 | 883031H09M010 | 120065-8763 |
| | | | PLTC-ER | TPE (K05) | | | 883030K05M010 | 120066-0676 | 883031K05M010 | 120066-0222 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 884030E03M010 | 120007-0473 | 884031E03M010 | 120007-0509 |
| | | | | PUR/PVC (P03) | | | 884030P03M010 | 120007-0488 | 884031P03M010 | 120006-0056 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 884030H09M010 | 120066-8379 | 884031H09M010 | 120066-8484 |
| | | | PLTC-ER | TPE (K05) | | | 884030K05M010 | 120066-0687 | 884031K05M010 | 120066-0376 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 885030E03M010 | 120007-0906 | 885031E03M010 | 120066-8189 |
| | | | | PUR/PVC (P03) | | | 885030P03M010 | 120066-8084 | 885031P03M010 | 120066-8188 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 885030H09M010 | 120066-8497 | 885031H09M010 | 120066-8496 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120006/120007/120066

Female Straight-to-Male Straight, Female Right Angle-to-Male Straight



Features and Benefits

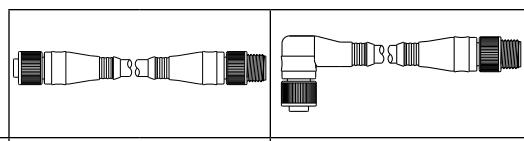
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR (TPE for K05)
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
 H08—Black PUR jacket, 0.25mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C, UL AWM 20549

Environmental

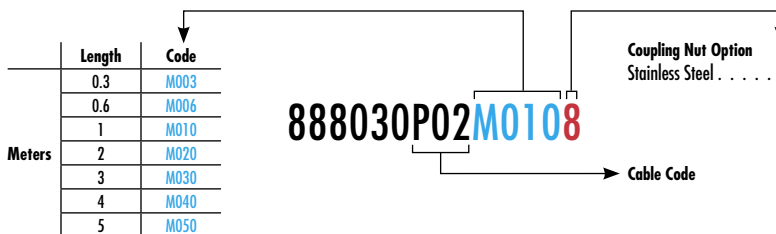
Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|---|--------------------------|---------------|----------------|---------------------------|-----------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC/36V DC | LSOH, UL 21198 | PUR/PVC (P02) | 0.25mm² | 1.0m | 888030P02M010 | 120066-0579 | 888031P02M010 | 120066-1626 |
| | | | | PUR (H08) | | | 888030H08M010 | 120066-8491 | 888031H08M010 | 120065-8909 |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 1.0m | 88C030H45M010 | 120066-5404 | 88C031H45M010 | 120066-5405 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120007/120066

Female Straight-to-Male Right Angle, Female Right Angle-to-Male Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are interchangeable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

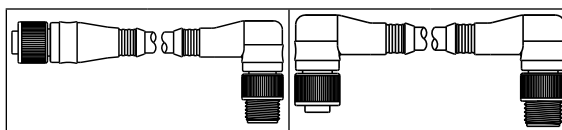
UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for E03 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

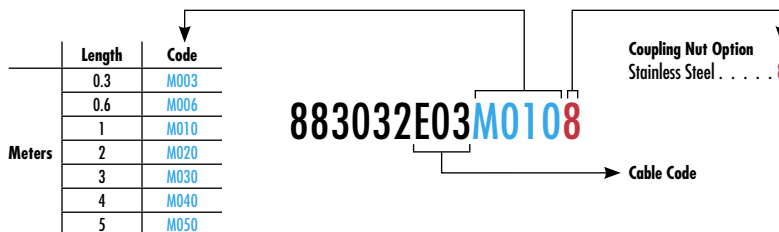


| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|----------------|---------------------------|-----------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 883032E03M010 | 120007-0160 | 883033E03M010 | 120066-5399 |
| | | | | PUR/PVC (P03) | | | 883032P03M010 | 120007-0172 | 883033P03M010 | 120007-0216 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 883032H09M010 | 120007-2879 | 883033H09M010 | 120066-8498 |
| | | | | PLTC-ER | | | TPE (K05) | 883032K05M010 | 120066-0231 | 883033K05M010 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 884032E03M010 | 120066-8073 | 884033E03M010 | 120007-0554 |
| | | | | PUR/PVC (P03) | | | 884032P03M010 | 120007-1407 | 884033P03M010 | 120007-1523 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 884032H09M010 | 120066-8494 | 884033H09M010 | 120066-8492 |
| | | | | PLTC-ER | | | TPE (K05) | 884032K05M010 | 120066-0400 | 884033K05M010 |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 885032E03M010 | 120007-1271 | 885033E03M010 | 120066-5402 |
| | | | | PUR/PVC (P03) | | | 885032P03M010 | 120066-5401 | 885033P03M010 | 120066-8094 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 885032H09M010 | 120066-8493 | 885033H09M010 | 120066-8499 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120007/120066

Female Straight-to-Male Right Angle, Female Right Angle-to-Male Right Angle



Features and Benefits

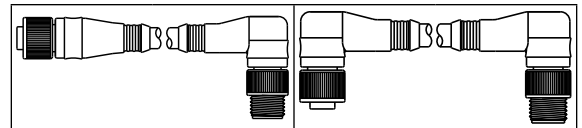
- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 3-, 4-, and 5-pole versions are intermatable for added flexibility
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Physical

Connector Body: PUR
 Contact Carries: Polyamide
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
 H08—Black PUR jacket, 0.25mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
 H45—Black PUR jacket, 26 AWG PVC conductors, 300V, 80° C, UL AWM 20549

Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|---|--------------------------|---------------|----------------|---------------------------|-----------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 8 Pole 1 - White 5 - Gray 2 - Brown 6 - Pink 3 - Green 7 - Blue 4 - Yellow 8 - Red | 2.0A | 30V AC/36V DC | | PUR/PVC (P02) | 0.25mm² | 1.0m | 888032P02M010 | 120066-5403 | 888033P02M010 | 120066-0479 |
| | | | LSOH, UL 21198 | PUR (H08) | | | 888032H08M010 | 120066-8495 | 888033H08M010 | 120065-8908 |
| 12 Pole 1-White 5-Gray 9-Black 2-Brown 6-Pink 10-Violet 3-Green 7-Blue 11-Gray-Pink 4-Yellow 8-Red 12-Red-Blue | 1.5A | 30V AC/DC | UL 20549 | PUR (H45) | 26 AWG | 1.0m | 88C032H45M010 | 120066-5406 | 88C033H45M010 | 120066-5407 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Single-Ended Cordsets (Europe)

120006/120067

Female, Pigtail Straight, Right Angle With LEDs



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton®
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|---|--------------------------|--------------|----------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>3-Pole/1 LED</p> <p>1 - Brown 4 - Black 3 - Blue</p> | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 2.0m | 8030PE03M020 | 120067-5227 | 8030PE03M020 | 120067-5067 |
| | | | | PUR/PVC (P03) | | | 8030PP03M020 | 120067-5008 | 8030PP03M020 | 120067-5069 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8030PH09M020 | 120067-8328 | 8030PH09M020 | 120067-8308 |
| | | | PLTC-ER | TPE (K05) | | | 8030PK05M020 | 120067-5228 | 8030PK05M020 | 120067-0198 |
| <p>4-Pole/1 LED</p> <p>1 - Brown 3 - Blue 2 - White 4 - Black</p> | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 2.0m | 8040PE03M020 | 120067-5094 | 8040PE03M020 | 120067-5014 |
| | | | | PUR/PVC (P03) | | | 8040PP03M020 | 120067-5063 | 8040PP03M020 | 120067-0618 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8040PH09M020 | 120067-8327 | 8040PH09M020 | 120067-8309 |
| | | | PLTC-ER | TPE (K05) | | | 8040PK05M020 | 120067-5230 | 8040PK05M020 | 120067-5232 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120067

Female Straight-to-Male Straight, Female Right Angle-to-Male Straight



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

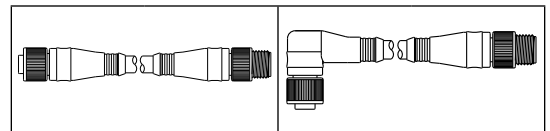
UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton®
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|-----------------------------|--------------|----------------|------------------------------|-----------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole/1 LED 1 - Brown 3 - Blue 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 8830P6E03M010 | 120067-8064 | 8830P7E03M010 | 120067-8068 |
| | | | | PUR/PVC (P03) | | | | | 8830P7P03M010 | 120067-5078 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8830P6H09M010 | 120067-8331 | 8830P7H09M010 | 120067-8295 |
| | | | PLTC-ER | TPE (K05) | | | 8830P6K05M010 | 120067-0040 | 8830P7K05M010 | 120067-0065 |
| 4-Pole/1 LED 1 - Brown 2 - White 3 - Blue 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 8840P6E03M010 | 120067-5241 | 8840P7E03M010 | 120067-5090 |
| | | | | PUR/PVC (P03) | | | | | 8840P7P03M010 | 120067-5040 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8840P6H09M010 | 120067-8333 | 8840P7H09M010 | 120067-8332 |
| | | | PLTC-ER | TPE (K05) | | | 8840P6K05M010 | 120067-0101 | 8840P7K05M010 | 120067-0117 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1 | M010 |
| 2 | M020 |
| 3 | M030 |
| 4 | M040 |
| 5 | M050 |

8830P6E03M0108

Coupling Nut Option
Stainless Steel 8

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Double-Ended Cordsets (Europe)

120067

Female Straight-to-Male Right Angle with LEDs, Female Right Angle-to-Male Right Angle with LEDs



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- LEDs for power and signal trigger indicator for PNP sensors (for NPN sensors also available)
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous-flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information

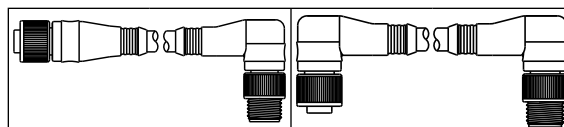
UL File No.: E152210 (K05 cable assemblies)
CSA File No.: LR6837 (K05 cable assemblies)

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton®
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
LEDs: Green—Power
Yellow—Sensor/output trigger
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|----------------|---------------------------|-----------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole/1 LED 1 - Brown 4 - Black 3 - Blue | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 8830P8E03M010 | 120067-5237 | 8830P9E03M010 | 120067-5088 |
| | | | | PUR/PVC (P03) | | | 8830P8P03M010 | 120067-5238 | 8830P9P03M010 | 120067-8087 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8830P8H09M010 | 120067-8334 | 8830P9H09M010 | 120067-8329 |
| | | | PLTC-ER | TPE (K05) | | | 8830P8K05M010 | 120067-0072 | 8830P9K05M010 | 120067-0079 |
| 4-Pole/1 LED 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm² | 1.0m | 8840P8E03M010 | 120067-5244 | 8840P9E03M010 | 120067-5248 |
| | | | | PUR/PVC (P03) | | | 8840P8P03M010 | 120067-5245 | 8840P9P03M010 | 120067-8211 |
| | | | LSOH, UL 21198 | PUR (H09) | | | 8840P8H09M010 | 120067-8335 | 8840P9H09M010 | 120067-8330 |
| | | | PLTC-ER | TPE (K05) | | | 8840P8K05M010 | 120067-0122 | 8840P9K05M010 | 120067-5249 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Receptacles (Europe)

120070/120011

Female
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles
- Available in 3-, 4-, 5- and 8-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical

Shell Material: Nickel-plated Brass
 Contact Carries: Polyamide
 O-Ring: M12—Red Viton®
 Panel—Black Viton
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1061,
 0.34mm² (3- to 5-poles) and
 0.25mm² (8-poles)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Configuration | | Engineering No. | | Standard Order No. | | | | | | | |
|--------|--------------------------|-----------------|------------------------|-------------------|--|-----------------|--------------------|-----------------|-----------------------|------------|-------------|-------------|------------|-------------|
| | | | Wire Type | Wire Size | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | | | | | |
| | 4.0A | 250V AC/DC | PG9, Front Panel Mount | PVC leads, UL1061 | 0.34mm ² /0.25mm ² | 0.3m | 8R3J20E03C3003 | 120070-5201 | PG9, Back Panel Mount | 8R3J400013 | 120070-5203 | | | |
| | | | PCB Pins | | | | | | | | | | | |
| | | | 4 Pole | | | | | | 8R4J20E03C3003 | | | 120070-5205 | 8R4J400013 | 120011-0237 |
| | | | 5 Pole | | | | | | 8R5J20E03C3003 | | | 120070-5207 | 8R5J400013 | 120011-0238 |
| 8 Pole | 2.0A | 30V AC / 36V DC | 8R8J20E02C3003 | 120070-5208 | 8R8J400013 | 120070-5210 | | | | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

8R3J20E03C3003

Wire Type
 Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Receptacles (Europe)

120070/120011

Male
Front Panel Mount,
Back Panel Mount



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles
- Available in 3-, 4-, 5- and 8-pole configurations
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical

Shell Material: Nickel-plated Brass
 Contact Carries: Polyamide
 O-Ring: Panel—Black Viton®
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1061,
 0.34mm² (3- to 5-poles) and
 0.25mm² (8-poles)

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Configuration | PG9, Front Panel Mount | | PG9, Back Panel Mount | | | |
|---------------|--|-----------------|-----------------------|--------------------|-----------------|--------------------|
| | PVC leads, UL1061 | | PCB Pins | | | |
| | 0.34mm ² /0.25mm ² | | | | | |
| | 0.3m | | | | | |
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 4.0A | 250V AC/DC | 8R3J26E03C3003 | 120070-5202 | 8R3J460003 | 120070-5204 |
| 4 Pole | 4.0A | 250V AC/DC | 8R4J26E03C3003 | 120011-0019 | 8R4J460003 | 120011-0281 |
| 5 Pole | 4.0A | 250V AC/DC | 8R5J26E03C3003 | 120011-0036 | 8R5J460003 | 120070-0235 |
| 8 Pole | 2.0A | 30V AC / 36V DC | 8R8J26E02C3003 | 120070-5209 | 8R8J460003 | 120070-5180 |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

8R3J26E03C3003

Wire Type
 Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) A-Code Field Attachable Connectors (Europe)

120071

Female, Male
Straight, Right Angle



Features and Benefits

- Allows field termination of cables to IEC compliant M12 A-Coding connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- Available in 4- and 5-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|-------|---------------------|--------------------|--------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | 8A4000-31 | 120071-0035 | 8A4001-31 | 120071-0037 |
| | | | 4.10-8.10mm (.161-.319") | 8A4000-32 | 120071-0036 | | |
| | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | 8A5000-31 | 120071-0041 | 8A5001-31 | 120071-0044 |
| | | | 4.10-8.10mm (.161-.319") | 8A5000-32 | 120071-0043 | | |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|-------|---------------------|--------------------|--------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC 300V DC | 3.30-6.60mm (.130-.260") | 8A4006-31 | 120071-0038 | 8A4007-31 | 120071-0040 |
| | | | 4.10-8.10mm (.161-.319") | 8A4006-32 | 120071-0039 | | |
| | 4.0A | 30V AC 36V DC | 3.30-6.60mm (.130-.260") | 8A5006-31 | 120071-0045 | 8A5007-31 | 120071-0049 |
| | | | 4.10-8.10mm (.161-.319") | 8A5006-32 | 120071-0047 | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Micro-Change® (M12) A-Code Solid Body Splitter and Tees (Europe)

120068



Features and Benefits

- Solid body splitters allow you to create a customized wiring scheme, either by combining two 3-conductor cables into a 5-conductor cable or implementing a trunk-and-drop wiring topology
- Splitters permit the connection of two I/O devices to a port on dual-wired distribution boxes
- Parallel wired tees allow for tapping into a cable run or implementing a trunk and drop wiring scheme

Electrical

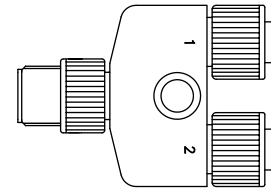
Voltage: 30V
Amperage: 4.0A

Physical

Connector Body: PUR (PVC for grey or yellow splitters)
Contact Carries: PUR
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating

Environmental

Protection: IP67
NEMA Rating: NEMA 6



M12 Splitters

| Wiring Schematic | Color | Engineering No. | Standard Order No. |
|----------------------------|--------|------------------|--------------------|
| <p>Without LEDs</p> | Yellow | 81594R | 120068-0170 |
| <p>With LEDs</p> | Grey | 81590R | 120068-0169 |
| | Black | 0812-05EMF-00000 | 120068-0139 |
| | Clear | 884AP0 | 120068-5035 |

Paralled Wired Tees/Splitters

| Wiring Schematic | Color | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|------------------|-------|------------------|--------------------|------------------|--------------------|
| | Black | 0812-051FJ-00000 | 120068-8009 | 0812-05EMF-00001 | 120068-0137 |

Note: Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Micro-Change® (M12) A-Code Splitter Cordset (Europe)

120068/120009

Female Straight-to-Male Straight,
Female Right Angle-to-Male
Straight



Features and Benefits

- Splitters permit the connection of two I/O devices to a port on dual-wired distribution boxes
- IP67/68 rated for harsh environments
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - TPE cables for continuous flex applications. Also ideal for welding cells; cable is weld slag resistant

Reference Information (K05 cable assemblies)

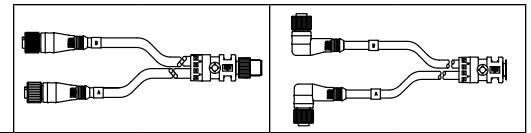
UL File No.: E152210
CSA File No.: LR6887

Physical

Connector Body: PUR (TPE for K05)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for E03 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K05)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Black PVC jacket, 0.34mm² PVC conductors, 300V, 80° C, UL AWM 2464
P03—Black PUR/PVC jacket, 0.34mm² PVC conductors, 300V, 80° C
H09—Black PUR jacket, 0.34mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198
K05—Yellow TPE jacket, 22 AWG PVC conductors, 300V, UL PLTC-ER, +10M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Wiring Schematic | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|------------------|--------------------------|--------------|----------------|---------------------------|---------------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2464 | PVC (E03) | 0.34mm ² | 0.3m | 884A30E03M003 | 120068-8096 | 884A31E03M003 | 120068-5031 |
| | | | | PUR/PVC (P03) | | | 884A30P03M003 | 120009-0091 | | |
| | | | LSOH, UL 21198 | PUR (H09) | | | 884A30H09M003 | 120068-8138 | 884A31H09M003 | 120068-8137 |
| | | | PLTC-ER | TPE (K05) | | | 884A30K05M003 | 120068-0195 | 884A31K05M003 | 120068-0211 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

Configuration Code†
Build-a-Part Number

| Length | Code |
|--------|------|
| 0.3 | M003 |
| 0.6 | M006 |
| 1.0 | M010 |
| 3.0 | M030 |
| 5.0 | M050 |

884A30E03M0038

Coupling Nut Option
Stainless Steel 8

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120114

Top Mount, Single Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-change Home Run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-change 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

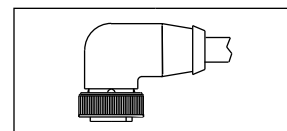
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4010-FBB | 120114-0027 |
| | | 8 | | | BTY8010-FBB | 120114-0079 |
| | | 4 | Yes | NPN | BTY401N-FBB | 120114-0014 |
| | | 8 | | | BTY801N-FBB | 120114-0059 |
| | | 4 | Yes | PNP | BTY401P-FBB | 120114-0019 |
| | | 6 | | | BTY601P-FBB | 120114-0055 |
| | | 8 | | | BTY801P-FBB | 120114-0065 |

Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

Brad® Mini-Change® 12-pole Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|---|--------|-----------------|--------------------|
| 4-port block | PUR | 7 | 4 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | 302301P80M100 | 130008-8009 |
| 6-port block | | 9 | 6 x 0.34mm ² + 3 x 0.75mm ² | | 302201P80M100 | 130008-8006 |
| 8-port block | | 11 | 8 x 0.34mm ² + 3 x 0.75mm ² | | 302101P80M100 | 130008-0476 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

302101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120114

Top Mount, Dual Wired Ports With Brad® Mini-Change® HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Mini-Change Home Run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Mini-Change 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

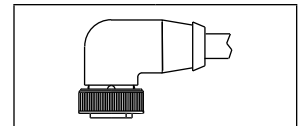
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBB | 120114-0035 |
| | | 8 | | | BTY8030-FBB | 120114-0087 |
| | | 4 | Yes | PNP | BTY403P-FBB | 120114-0030 |
| | | 8 | | | BTY803P-FBB | 120114-0083 |

Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

Brad® Mini-Change® 19-pole Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 4-port block | PUR | 15 | 12 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | 303201P80M100 | 130008-5006 |
| 8-port block | | 19 | 16 x 0.34mm ² + 3 x 0.75mm ² | | 303001P80M100 | 130008-0316 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| Meters | Length | Code |
|--------|--------|------|
| | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

303001P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120055/120114

Top Mount, Single Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- M23 Home Run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 12-pole male connector
Wiring Configuration: Single I/O, M12 4-pole female port

Environmental

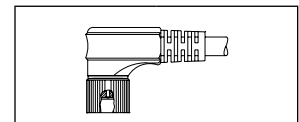
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4010-FBC | 120055-0308 |
| | | 8 | | | BTY8010-FBC | 120055-0321 |
| | | 4 | Yes | NPN | BTY401N-FBC | 120114-0211 |
| | | 8 | | | BTY801N-FBC | 120114-0060 |
| | | 4 | Yes | PNP | BTY401P-FBC | 120114-0020 |
| | | 8 | | | BTY801P-FBC | 120114-0066 |

Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

M23 12-pole Female Cordsets and Field Attachable Connector



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------------------------|---|--------|-----------------|--------------------|
| 4-port block | PUR | 7 | 4 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | K02301P80M100 | 120094-5023 |
| 8-port block | | 11 | 8 x 0.34mm ² + 3 x 0.75mm ² | | K02101P80M100 | 120094-0125 |
| All | | M23 12p Female Field Attachable Kit | | | KASCS00-025 | 120230-0032 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

K02101P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120055/120114

Top Mount, Dual Wired Ports With M23 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- versions available for use with PNP and NPN sensors
- M23 Home Run connector for easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M23 19-pole male connector
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

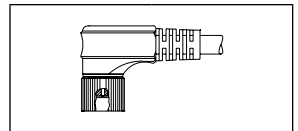
Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBC | 120055-0313 |
| | | 8 | | | BTY8030-FBC | 120055-0328 |
| | | 4 | Yes | PNP | BTY403P-FBC | 120114-0031 |
| | | 8 | | | BTY803P-FBC | 120114-0084 |

Note: Sales drawings for all standard order numbers are available on molex.com

Suggested Home Run Cable Assemblies

M23 19-pole Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--|--------|-----------------|--------------------|
| 6-port block | PUR | 15 | 12 x 0.34mm ² + 3 x 0.75mm ² | 10.0m | K03201P80M100 | 120094-8027 |
| 8-port block | | 19 | 16 x 0.34mm ² + 3 x 0.75mm ² | | K03001P80M100 | 120094-0044 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

K03001P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120055/120114

Top Mount, Dual Wired Ports With Field Attachable HR Terminal Strip



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Home Run terminal strip provides greatest flexibility for cable choices and trimming to length on-machine

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: Terminal strip
Wiring Configuration: Dual I/O, M12 5-pole female port

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | No | | BTY4030-FBA | 120114-0034 |
| | | 6 | | | BTY6030-FBA | 120114-0057 |
| | | 8 | | | BTY8030-FBA | 120114-0086 |
| | | 4 | Yes | NPN | BTY403N-FBA | 120055-0669 |
| | | 6 | | | BTY603N-FBA | 120055-0670 |
| | | 4 | Yes | PNP | BTY403P-FBA | 120114-0029 |
| | | 6 | | | BTY603P-FBA | 120114-0056 |
| | | 8 | | | BTY803P-FBA | 120114-0082 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120055/120114

Top Mount, Single Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cable eliminates need for purchase of additional component for installation

Electrical

Voltage: 10-30V DC max.
 Amperage: Module—12.0A max.
 Port—4.0A max.

Physical

Housing: PBT
 Port Shell Material: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Wiring Configuration: Single I/O, M12 4-pole female port
 Home Run Cable: Black PUR cable, conductors:
 4-port—4 x 0.34mm² + 3 x 0.75mm²
 6-port—6 x 0.34mm² + 3 x 0.75mm²
 8-port—8 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 8 | No | | 5.0m | BTY8000-FBP-05 | 120055-0583 |
| | | 4 | Yes | NPN | 5.0m | BTY400N-FBP-05 | 120114-8008 |
| | | 8 | | | | BTY800N-FBP-05 | 120114-8020 |
| | | 4 | Yes | PNP | 5.0m | BTY400P-FBP-05 | 120114-8011 |
| | | 8 | | | | BTY800P-FBP-05 | 120114-8022 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY800P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120114

Top Mount, Dual Wired Ports With PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- Two input/outputs per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cable eliminates need for purchase of additional component for installing

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M12 5-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8 x 0.34mm² + 3 x 0.75mm²
6-port—12 x 0.34mm² + 3 x 0.75mm²
8-port—16 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 4 | No | | 5.0m | BTY4050-FBP-05 | 120114-0042 |
| | | 8 | | | | BTY8050-FBP-05 | 120114-0092 |
| | | 4 | Yes | NPN | 5.0m | BTY405N-FBP-05 | 120114-0037 |
| | | 8 | | | | BTY805N-FBP-05 | 120114-0202 |
| | | 4 | Yes | PNP | 5.0m | BTY405P-FBP-05 | 120114-0039 |
| | | 8 | | | | BTY805P-FBP-05 | 120114-0089 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY805P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Micro-Change® (M12) Distribution Boxes (Europe)

120114

Top Mount, Dual Wired Ports with Molded Brad® Mini-Change® HR Cordset



Features and Benefits

- Fully potted, factory assembled boxes simplify on-machine wiring installations
- Single input/output per port
- Indicating LEDs for power and sensor trigger indication
- Versions available for use with PNP and NPN sensors
- Integral Home Run cordset with Mini-change 19-pole male connector provides easy replacement

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 10-30V DC max.
Amperage: Module—12.0A max.
Port—4.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M12 5-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8 x 0.34mm² + 3 x 0.75mm²
6-port—12 x 0.34mm² + 3 x 0.75mm²
8-port—16 x 0.34mm² + 3 x 0.75mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | For Sensor | Length | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|--------|-----------------|--------------------|
| | | 4 | No | | 5.0m | BTY4120-FBP-05 | 120114-0048 |
| | | 8 | | | | BTY8120-FBP-050 | 120114-0099 |
| | | 4 | Yes | NPN | 5.0m | BTY412N-FBP-05 | 120114-0192 |
| | | 8 | | | | BTY812N-FBP-05 | 120114-0095 |
| | | 4 | Yes | PNP | 5.0m | BTY412P-FBP-05 | 120114-0045 |
| | | 8 | | | | BTY812P-FBP-05 | 120114-0097 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 050 |
| | 10 | 100 |
| | 15 | 150 |

BTY812P-FBP-05

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Nano-Change® (M8) Connectors

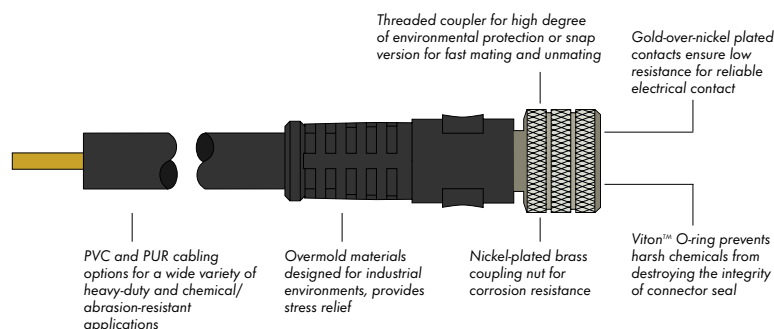
EUROPE

Brad® Nano-Change® (M8) compact connectors and cordsets from Molex are part of a broad selection of rugged, space-saving cordsets, receptacles, inserts, splitters and molded junction boxes.

Nano-Change connectors meet IEC 61076-2-104 standards and are built "industrial tough" to ensure flexibility, interoperability and rugged performance in tight spaces while minimizing downtime, maintenance and wiring time.

Molex Nano-Change offerings include 3-, 4- and 5-pin designs. The cordsets are available with threaded and snap coupling options. A wide array of cable types provides flexibility to accommodate multiple applications.

The molded junction boxes feature a compact, space-saving design that allows simplification of control wiring systems, providing the opportunity for machine builders to design more modular devices. The Nano-Change cable system provides a way to reduce cable bundling expenses by reducing field install cabinets and field wire terminations.



Features and Benefits

Cordsets

- Available with snap or threaded coupler; single- and double-ended cordsets; 3-, 4- and 5-pole configurations; straight and 90°; with and without LED to give users a wide variety of options to meet their requirements
- Compliant with IEC 61076-2-104, allowing intermating with industry-standard M8 devices
- IP67 (threaded) and IP65 (snap)-rated connector interfaces provide rugged, watertight connectors that are suited for harsh, wet environments
- Patented anti-vibration feature prevents backout in high-vibration and mechanical shock applications
- Gold-over-nickel-plated contacts feature a durable, corrosion-resistant plating that maintains low electrical resistance through the mate/unmate cycles

Receptacles, Field Attachables and Accessories

- Wide array of configurations, including front and back panel mount; with leads or PCB pins, give users a wide variety of options to meet their requirements
- Epoxy-potted, IP67-rated receptacles are ideal for rugged industrial environments

- Field attachable connectors with solder cup terminals allow users to customize their application

Distribution Boxes

- Available in 4-, 6-, 8- and 10-port distribution boxes. Single and dual I/O versions with vertical or horizontal mounting available, giving users a wide variety of options to meet application requirements.
- Fully potted housing ensures performance in vibration and fluid environments by providing rugged IP67 (IP68 cabled) rating
- Rugged, compact design allows placement in tight places anywhere on the machine

Applications

- 8.00mm proximity switches
- Miniature photo eyes
- Reed and hall effect switches
- Other miniature I/O devices and sensors
- Robotic end-of-arm tooling
- Specialty sensors semiconductor assembly equipment

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Nano-Change® (M8) Single-Ended Cordsets (Europe)

120027/120086

Female, Pigtail
Straight, Right Angle
Threaded



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- LED version provide power and signal trigger indication for PNP sensors (NPN versions available upon request)
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Physical

Connector Body: PUR
 Contact Carries: PUR
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E02—Black PVC jacket, 0.25mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
 H08—Black PUR jacket, 0.25mm² TPM conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198

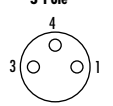
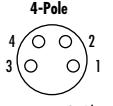
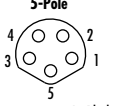
Environmental

Protection: IP67
 NEMA Rating: NEMA 6

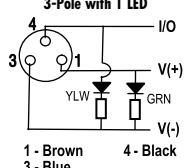
Reference Information

UL File No.: E152210 (PVC versions)

Cordset without Indicating LEDs

| Pole | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|---|---------------------|-----------------|------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole  1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 403000E02M020 | 120027-0066 | 403001E02M020 | 120027-0090 |
| | | | | PUR/PVC (P02) | | | 403000P02M020 | 120086-8001 | 403001P02M020 | 120086-8155 |
| 4-Pole  1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 404000E02M020 | 120027-0127 | 404001E02M020 | 120027-0152 |
| | | | | PUR/PVC (P02) | | | 404000P02M020 | 120086-8156 | 404001P02M020 | 120086-8159 |
| 5-Pole  1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 405000E02M020 | 120086-8099 | 405001E02M020 | 120086-8178 |
| | | | | PUR/PVC (P02) | | | 405000P02M020 | 120027-0709 | 405001P02M020 | 120086-8391 |

Cordset with Indicating LEDs

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Right Angle | |
|--|---------------------|--------------|------------|---------------------------|-----------|--------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 3-Pole with 1 LED  1 - Brown 4 - Black 3 - Blue | 4.0A | 30V AC/DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 4030P1E02M020 | 120027-0115 |
| PUR/PVC (P02) | | | | 4030P1P02M020 | | | 120086-8337 | |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

443000E02M020

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Single-Ended Cordsets (Europe)

120027/120086

Male, Pigtail
Straight, Right Angle
Threaded



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Reference Information

UL File No.: E152210 (PVC versions)

Physical

Connector Body: PUR
 Contact Carries: PUR
 O-ring: Viton®
 Coupling Nut: Nickel-plated Brass
 Contacts: Copper alloy with Gold over Nickel plating
 Cables: E02—Black PVC jacket, 0.25mm² PVC conductors, 300V, 80° C, UL AWM 2464
 P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
 H08—Black PUR jacket, 0.25mm² TPM conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198

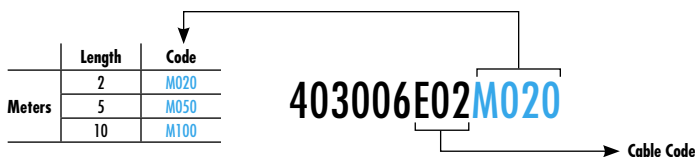
Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | | Male Right Angle | |
|---|---------------------|-----------------|---------------|---------------------------|-------------|--------|--|--------------------|------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | <p>3-Pole 1 - Brown 2 - Black 3 - Blue 4 - Black</p> | 4.0A | 60V AC / 75V DC | UL 2464 |
| | PUR/PVC (P02) | 403006P02M020 | 120027-0911 | 403007P02M020 | 120086-8329 | | | | | |
| <p>4-Pole 1 - Brown 2 - White 3 - Blue 4 - Black</p> | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 404006E02M020 | 120086-8368 | 404007E02M020 | 120027-0483 |
| | | | PUR/PVC (P02) | 404006P02M020 | | | 120086-8373 | 404007P02M020 | 120086-8382 | |
| <p>5-Pole 1 - Brown 2 - White 3 - Blue 4 - Black 5 - Gray</p> | 3.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 405006E02M020 | 120086-8173 | 405007E02M020 | 120086-8083 |
| | | | PUR/PVC (P02) | 405006P02M020 | | | 120027-0752 | 405007P02M020 | 120086-8061 | |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Double-Ended Cordsets (Europe)

120028/120087

Female Straight-to-Male Straight,
Female Right Angle-to-Male Straight,
Female Straight-to-Male Right Angle,
Female Right Angle-to-Male
Right Angle
Threaded



Features and Benefits

- IEC compliant M8 cordset assemblies with threaded couplers
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3-, 4-, and 5-pole versions
- Patented anti-vibration feature to prevent loosening under high-vibration applications
- IP67 rated for harsh environments
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Reference Information

UL File No.: E152210 (PVC versions)

Physical

Connector Body: PUR
Contact Carries: PUR
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Cables: E02—Black PVC jacket, 0.25mm² PVC conductors, 300V, 80° C, UL AWM 2464
P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
H08—Black PUR jacket, 0.25mm² TPM conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198

Environmental

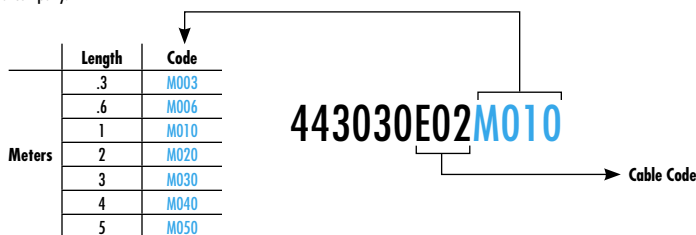
Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Straight | |
|--|---------------------|-----------------|------------|---------------------------|---------------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm ² | 1.0m | 443030E02M010 | 120087-8258 | 443031E02M010 | 120028-0016 |
| | | | | PUR/PVC (P02) | | | 443030P02M010 | 120087-8140 | 443031P02M010 | 120087-8316 |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm ² | 1.0m | 444030E02M010 | 120087-8349 | 444031E02M010 | 120087-8365 |
| | | | | PUR/PVC (P02) | | | 444030P02M010 | 120087-8359 | 444031P02M010 | 120087-8372 |

| Poles (Female View) | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Right Angle | |
|--|---------------------|-----------------|------------|---------------------------|---------------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm ² | 1.0m | 443032E02M010 | 120087-8321 | 443033E02M010 | 120087-8329 |
| | | | | PUR/PVC (P02) | | | 443032P02M010 | 120087-8324 | 443033P02M010 | 120087-8502 |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm ² | 1.0m | 444032E02M010 | 120087-8503 | 444033E02M010 | 120087-8507 |
| | | | | PUR/PVC (P02) | | | 444032P02M010 | 120087-8504 | 444033P02M010 | 120087-8380 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Receptacles (Europe)

120031/120090

Female
Front Panel Mount,
Back Panel Mount



Features and Benefits

- IEC compliant M8 panel mount receptacles
- Available in 3-, 4-, and 5-pole versions
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Available in an array of configurations to fit your needs:
 - Various mounting thread sizes, including pipe threads for direct mounting on pipe fittings
 - Front panel mounts for installing from the outside of the enclosure
 - Back panel mount from inside the enclosure
 - Wire leads for terminating to terminal strips or PCB tails to incorporate with electronics

Physical

Shell Material: Nickel-plated Brass
 Contact Carries: PBT
 O-Ring: M8—Red Viton®
 Panel—Black Viton
 Contacts: Copper alloy with Gold over Nickel plating
 Wire PVC Insulation: 300V, 80° C, UL1007/1569, 0.25mm²

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

Reference Information

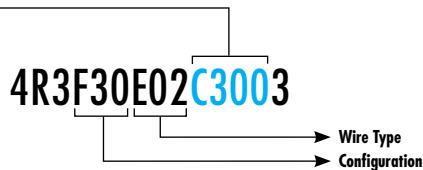
UL File No.: E152210

| Poles | Max. Current per Contact | Max. Voltage | Configuration | | Wire Type | | Wire Size | | Length | |
|--|--------------------------|--------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|--------|--|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | | |
| 3-Pole 1 - Brown 4 - Black 3 - Blue | 3.0A | 60V AC/DC | 4R3F30E02C3003 | 120031-0015 | 4R3H40E02C3003 | 120031-0046 | 4R3L40001 | 120149-0016 | | |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 3.0A | 30V AC/DC | 4R4F30E02C3003 | 120031-0049 | 4R4H40E02C3003 | 120031-0022 | 4R4L40001 | 120149-0064 | | |
| 5-Pole 1 - Brown 4 - Black 2 - White 5 - Gray 3 - Blue | 3.0A | 30V AC/DC | 4R5F30E02C3003 | 120031-0028 | 4R5H40E02C3003 | 120031-0050 | 4R5L40001 | 120149-0095 | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
 Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
 Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Receptacles (Europe)

120090

Male
Front Panel Mount



Features and Benefits

- IEC compliant M8 panel mount receptacles
- Mates with threaded and snap M8 cordsets
- Available in 3-, 4-, and 5-pole versions
- Fully potted assemblies provide IP67/68 protection for harsh environments
- Receptacles with wired leads to be used in control panels, junction boxes and sensors. Other configurations also available

Reference Information

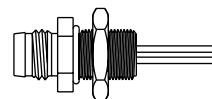
UL File No.: E152210

Physical

Shell Material: Nickel-plated Brass
Contact Carries: PBT
O-Ring: Panel—Black Viton®
Contacts: Copper alloy with Gold over Nickel plating
Wire PVC Insulation: 300V, 80° C, UL1007/1569, 0.25mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6



Configuration
Wire Type
Wire Size
Length

M8x0.5, Front Panel Mount
PVC Lead, UL1007/1569
0.25mm²
0.3m

| Pole | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. |
|--|--------------------------|-----------------|-----------------|--------------------|
| <p>3-Pole</p> <p>1 - Brown 3 - Blue 4 - Black</p> | 4.0A | 60V AC / 75V DC | 4R3F06E02C3003 | 120031-0004 |
| <p>4-Pole</p> <p>1 - Brown 2 - White 3 - Blue 4 - Black</p> | 4.0A | 60V AC / 75V DC | 4R4F06E02C3003 | 120031-0006 |
| <p>5-Pole</p> <p>1 - Brown 2 - White 3 - Blue 4 - Black 5 - Gray</p> | 3.0A | 60V AC / 75V DC | 4R5F06E02C3003 | 120031-0027 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

4R3F06E02C3003

Wire Type
Configuration

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Nano-Change® (M8) Threaded Field Attachable Connectors (Europe)

120091

Female, Male
Straight, Right Angle



Features and Benefits

- Allows field termination of cables to IEC compliant, M8 circular connector
- Preassembled contact carrier with solder cup contacts for easy conductor termination
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3- and 4-pole versions
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carries: PA
O-ring/Gaskets: NBR
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Contacts with solder cups, accepts conductors up to 24 AWG (0.25mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Female Right Angle | |
|------------|---------------------|------------------|------------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N03FA03124 | 120091-0001 | N03FA04124 | 120091-0003 |
| 4-Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N04FA03124 | 120091-0007 | N04FA04124 | 120091-0009 |

Male Connectors

| Poles | Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Male Right Angle | |
|------------|---------------------|------------------|------------------------|-----------------|--------------------|------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N03MA03124 | 120091-0004 | N03MA04124 | 120091-0006 |
| 4-Pole | 4.0A | 60V AC 75V DC | 3.5-5.0mm (.137-.197") | N04MA03124 | 120091-0010 | N04MA04124 | 120091-0012 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Nano-Change® (M8) Distribution Boxes (Europe)

120113 Single Wired Ports with M16 HR Connector



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- M16 Home Run connector for easy replacement

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Home Run Connector: M16 14-pole male connector
Wiring Configuration: Single I/O, M8 3-pole female port
Operating Temperature: -25 to +90° C

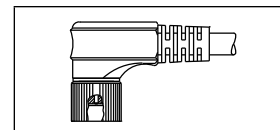
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | Ports | LED Indicator | for Sensor | Engineering No. | Standard Order No. |
|--------------------|-------------------|-------|---------------|------------|-----------------|--------------------|
| | | 4 | Yes | PNP | BNY401P-FBC | 120113-0023 |
| | | 6 | Yes | PNP | BNY601P-FBC | 120113-0026 |
| | | 8 | Yes | PNP | BNY801P-FBC | 120113-0029 |
| | | 10 | Yes | PNP | BNYA01P-FBC | 120113-0020 |

Suggested Home Run Cable Assemblies

M16 14-pole Female Cordsets



| use with | Cable Jacket | No. conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|----------------|-----------------------------------|--------|-----------------|--------------------|
| 4port Block | PUR | 6 | Black PUR, 6x0.34mm ² | 10.0m | L04301M78M100 | 130023-0063 |
| 6port Block | | 8 | Black PUR, 8x0.34mm ² | | L04201M78M100 | 130023-0059 |
| 8port Block | | 10 | Black PUR, 10x0.34mm ² | | L04101M78M100 | 130023-0055 |
| 10port Block | | 12 | Black PUR, 12x0.34mm ² | | L04A01M78M100 | 130023-0068 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Nano-Change® (M8) Distribution Boxes (Europe)

120113
Single Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Integral Home Run cable eliminates need for purchase of additional component for installing

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Single I/O, M8 3-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—4x0.34mm² + 2x0.75mm²
6-port—6x0.34mm² + 2x0.75mm²
8-port—8x0.34mm² + 2x0.75mm²
10-port—10x0.34mm² + 2x0.75mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | HR Cable Exit | Ports | LED Indicator | for Sensor | Length | Engineering No | Standard Order No |
|--------------------|-------------------|---------------|-------|---------------|------------|----------------|----------------|-------------------|
| | | End Exit | 4 | Yes | PNP | 5.0m | BEY401P-FBP-05 | 120113-0006 |
| | | | 6 | Yes | PNP | 5.0m | BEY601P-FBP-05 | 120113-0011 |
| | | | 8 | Yes | PNP | 5.0m | BEY801P-FBP-05 | 120113-0014 |
| | | | 10 | Yes | PNP | 5.0m | BEYA01P-FBP-05 | 120113-0002 |
| | | Top Exit | 4 | Yes | PNP | 5.0m | BNY401P-FBP-05 | 120113-0025 |
| | | | 8 | Yes | PNP | 5.0m | BNY801P-FBP-05 | 120113-0032 |
| | 10 | | Yes | PNP | 5.0m | BNYA01P-FBP-05 | 120113-0022 | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BNYA01P-FBP-05

→ Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Nano-Change® (M8) Distribution Boxes (Europe)

120054/120113
Dual Wired Ports with PUR HR Cable



Features and Benefits

- Fully potted, factory assembled boxes simplify on machine wiring installations
- Compact—small footprint for tight spaces
- Can be mounted in two orientations for added flexibility
- One input/output per port
- Indicating LEDs for power and sensor trigger indication
- Integral Home Run cable eliminates need for purchase of additional component for installing

Electrical

Voltage: 10-30V DC max.
Amperage: Module—6.0A max.
Port—2.0A max.

Physical

Housing: PBT
Port Shell Material: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Wiring Configuration: Dual I/O, M8 4-pole female port
Home Run Cable: Black PUR cable, conductors:
4-port—8x0.34mm² + 2x0.75mm²
6-port—12x0.34mm² + 2x0.75mm²
8-port—16x0.34mm² + 2x0.75mm²
10-port—20x0.25mm² + 2x0.50mm²

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Port Configuration | Box Configuration | HR Cable Exit | Ports | LED Indicator | for Sensor | Length | Engineering No | Standard Order No |
|--------------------|-------------------|---------------|-------|---------------|------------|--------|----------------|-------------------|
| | | End Exit | 4 | Yes | PNP | 5.0m | BEY403P-FBP-05 | 120054-0034 |
| | | | 6 | Yes | PNP | 5.0m | BEY603P-FBP-05 | 120054-0043 |
| | | | 8 | Yes | PNP | 5.0m | BEY803P-FBP-05 | 120113-0017 |
| | | | 10 | Yes | PNP | 5.0m | BEYA03P-FBP-05 | 120054-0045 |
| | | Top exit | 4 | Yes | PNP | 5.0m | BNY403P-FBP-05 | 120113-5100 |
| | | | 6 | Yes | PNP | 5.0m | BNY603P-FBP-05 | 120054-0044 |
| | | | 8 | Yes | PNP | 5.0m | BNY803P-FBP-05 | 120054-0004 |
| | | | 10 | Yes | PNP | 5.0m | BNYA03P-FBP-05 | 120054-0046 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 5 | 05 |
| | 10 | 10 |
| | 15 | 15 |

BEY803P-FBP-05

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Nano-Change® (M8) Single-Ended Cordsets (Europe)

120029/120086/120088

Female, Male Pigtails
SNAP
Straight, Right Angle



Features and Benefits

- IEC compliant M8 cordset assemblies with friction fit coupler design ('SNAP' design)
- Small, compact design for miniature sensors and space sensitive applications
- Available in 3- and 4-pole versions
- Push on to make connection, friction fit of snap feature keeps connection
- IP67 rated for harsh environments
- Wide selection of cables to fit applications:
 - PVC cables for light, cost-sensitive industrial applications
 - PUR cables for moderate flexing and for environments encountering cutting fluids and oils
 - Other types available upon request

Physical

Connector Body: PUR
Contact Carries: PUR
O-ring: Viton®
Coupling Nut: Nickel-plated Brass (male only)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E02—Black PVC jacket, 0.25mm² PVC conductors, 300V, 80° C, UL AWM 2464
P02—Black PUR/PVC jacket, 0.25mm² PVC conductors, 300V, 80° C
H08—Black PUR jacket, 0.25mm² PVC conductors, 300V, 80° C, Low Smoke/Zero Halogen (LSOH), UL AWM 21198

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Female Pigtails

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|--|---------------------|-----------------|----------------|---------------------------|-----------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 503000E02M020 | 120088-8001 | 503001E02M020 | 120088-8086 |
| | | | | PUR/PVC (P02) | | | 503000P02M020 | 120088-8083 | 503001P02M020 | 120088-8090 |
| | | | LSOH, UL 21198 | PUR (H08) | | | 503000H08M020 | 120088-8122 | 503001H08M020 | 120088-8128 |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 504000E02M020 | 120088-8095 | 504001E02M020 | 120088-8124 |
| | | | | PUR/PVC (P02) | | | 504000P02M020 | 120088-8123 | 504001P02M020 | 120088-8125 |
| | | | LSOH, UL 21198 | PUR (H08) | | | 504000H08M020 | 120088-8121 | 504001H08M020 | 120088-8126 |

Male Pigtails

| Poles | Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Male Straight | |
|--|---------------------|-----------------|----------------|---------------------------|-----------|--------|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 3-Pole 1 - Brown 4 - Black 3 - Blue | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 503006E02M020 | 120088-8093 |
| | | | | PUR/PVC (P02) | | | 503006P02M020 | 120088-8130 |
| | | | LSOH, UL 21198 | PUR (H08) | | | 503006H08M020 | 120088-8129 |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 4.0A | 60V AC / 75V DC | UL 2464 | PVC (E02) | 0.25mm² | 2.0m | 504006E02M020 | 120088-8120 |
| | | | | PUR/PVC (P02) | | | 504006P02M020 | 120088-8131 |
| | | | LSOH, UL 21198 | PUR (H08) | | | 504006H08M020 | 120088-8127 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

503000E02M020

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Mini-Change® Connectors

Mini

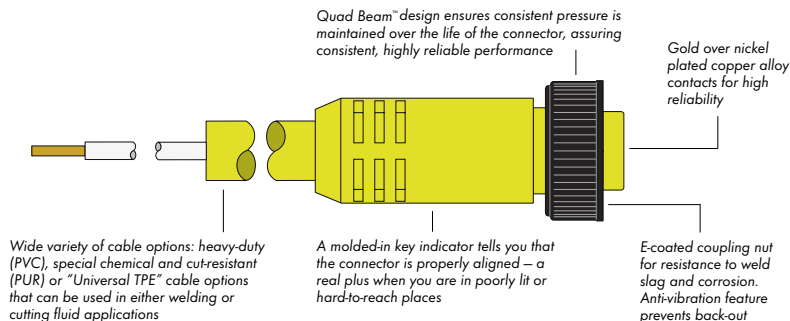
The Brad® Mini-Change® connector family from Molex is the standard by which all industrial sealed connectors are measured.

With the introduction of the Mini-Change in 1968, Brad pioneered miniature connectors by offering the first quick-connect alternative to hardwiring. Today, Brad connectors from Molex continue to be recognized as the industry's leading connectors for their quality, durability and the widest selection in the market.

The Brad Mini-Change connector family from Molex includes molded cordsets and receptacles available in 2- through 12-pole and 19-pole configurations, straight or right angle. Field-installed connectors are available in 3-, 4- and 5-pole configurations. Hardware choices include epoxy-coated zinc die-cast, stainless steel and nylon. A large selection of custom configurations is also available.

To ensure a reliable, low-resistance connection, Molex uses the patented Quad Beam™ female contact with gold-over-nickel plating and a stainless steel sleeve. The sealed construction provides IP67 protection. An anti-vibration feature prevents the coupler from loosening, even under extreme conditions.

Brad Mini-Change connectors from Molex continue to evolve, providing the best, most cost-effective solution for tough connector applications.



Features and Benefits

- Patented, Quad Beam™ socket contact with stainless steel sleeve maintains consistent pressure on the male pin to ensure optimum conductivity
- Gold-over-nickel-plated contacts are corrosion-resistant and help maintain low electrical resistance through high mate/unmate cycles
- Molded key indicator allows for quick and easy alignment and mating of the connector
- Integral strain relief provides 100 pounds minimum cable strain relief and radiates stress in side-loaded conditions
- Sealed to an IP67 rating to prevent the entry of water during temporary submersion

Applications

- 24V DC and 120V AC auxiliary power distribution on automated equipment
- Commercial and industrial lighting
- Industrial heaters
- Controls on Power Grid switchgear
- Power connector to WiLAN and WiMax transmitters
- Power connector to Smart Grid receiver stations
- Power connector to street light accessories
- Sump pump power and control
- Limit switches
- Proximity switches
- Photoelectric sensors
- Load cells
- Solenoid operated valves
- Valve position indicators
- Test equipment
- Portable/mobile light towers
- Solar panel power systems (from inverter to control panel)

Brad® Mini-Change® A-Size Single-Ended Cordsets

130006

**Female
Straight, Right Angle
Internal Thread**



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

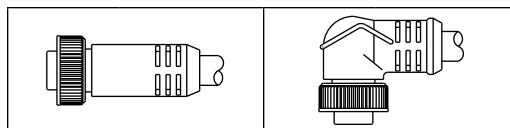
UL File No.: E152210
CSA File No.: LR6837

Environmental

Protection: IP67

Physical

Connector Face: PVC
Connector Body: PVC
Contacts: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01, A02—UL Type STOOW, Hard Service Cord
A03, A05, A06, A07—UL 2661, AWM
C01—UL Type SOOW, Hard Service Cord
Cable Jacket Color: Yellow
Operating Temperature: A03, A05, A06, A07—
-20 to +80° C
A01, A02, C01— -20 to +105° C



| Poles (Female View) | Current | Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Cable Length | Female Straight | | Female Right Angle | |
|--|---------|------------|------------|------------------------------|------------------|--------------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2-Pole 1 - White 2 - Black | 13.0A | 600V AC/DC | STOOW | PVC (A01) | 16 | 6' | 102000A01F060 | 130006-0091 | 102001A01F060 | 130006-0137 |
| 3-Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | 600V AC/DC | STOOW | PVC (A01) | 16 | 6' | 103000A01F060 | 130006-0221 | 103001A01F060 | 130006-0426 |
| 3-Pole 1 - Green-gnd 2 - Red w/ #2 3 - Red w/ #3 | 13.0A | 600V AC/DC | STOOW | PVC (A02) | 16 | 6' | 103000A02F060 | 130006-0279 | 103001A02F060 | 130006-0452 |
| 3-Pole 1 - Green-gnd 2 - Red with black trace 3 - Red with white trace | 10.0A | 300V AC/DC | UL 2661 | PVC (A03) | 18 | 6' | 103000A03F060 | 130006-0302 | | |
| 3-Pole 1 - Green/Yellow-gnd 2 - Brown 3 - Blue | 10.0A | 300V AC/DC | UL 2661 | PVC (A06) | 18 | 2.0m | 103000A06M020 | 130006-0339 | | |
| 3-Pole 1 - Green-gnd 2 - Red with black trace 3 - Red with white trace | 13.0A | 600V AC/DC | SOOW | Rubber (C01) | 16 | 6' | 103000C01F060 | 130006-0377 | | |

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Feet | 3 | F030 |
| | 6 | F060 |
| | 12 | F120 |
| | 20 | F200 |
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

102000A01**F060**1

Coupling Nut Option
Stainless Steel. 1
Nonmetallic 2

Cable Code
Orientation Code
Straight female. 000
Right angle female. 001

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Single-Ended Cordsets

130006

Female

Straight, Right Angle
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

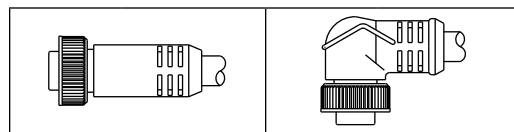
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: PVC
Connector Body: PVC
Contacts: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01, A02—UL Type ST00W, Hard Service Cord
A03, A05, A06, A07—UL 2661, AWM
C01—UL Type S00W, Hard Service Cord
Cable Jacket Color: Yellow
Operating Temperature: A03, A05, A06, A07—
-20 to +80° C
A01, A02, C01— -20 to +105° C

Environmental

Protection: IP67



| Poles (Female View) | Current | Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Cable Length | Female Straight | | Female Right Angle | |
|---|---------|------------|------------|------------------------------|------------------|--------------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4-Pole 1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | 600V AC/DC | ST00W | PVC (A01) | 16 | 6' | 104000A01F060 | 130006-0728 | 104001A01F060 | 130006-0902 |
| 4-Pole 1 - Red with black trace 2 - Red with white trace 3 - Red 4 - Green-gnd | 7.0A | 300V AC/DC | UL 2661 | PVC (A03) | 18 | 6' | 104000A03F060 | 130006-0813 | | |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 5.6A | 300V AC/DC | UL 2661 | PVC (A05) | 18 | 2.0m | 104000A05M020 | 130006-0833 | | |
| 4-Pole 1 - Black 2 - White 3 - Red 4 - Green-gnd | 10.0A | 600V AC/DC | S00W | Rubber (C01) | 16 | 6' | 104000C01F060 | 130006-0868 | | |
| 5-Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd | 8.0A | 600V AC/DC | ST00W | PVC (A01) | 16 | 6' | 105000A01F060 | 130006-1163 | 105001A01F060 | 130006-1349 |

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Feet | 3 | F030 |
| | 6 | F060 |
| | 12 | F120 |
| | 20 | F200 |
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

102000A01F0601

Coupling Nut Option
Stainless Steel..... 1
Nonmetallic..... 2

Cable Code
Orientation Code
Straight female..... 000
Right angle female... 001

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Single-Ended Cordsets

130006

Female Straight, Right Angle Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

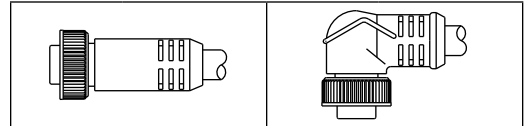
UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: PVC
Connector Body: PVC
Contacts: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01, A02—UL Type STOOW, Hard Service Cord
A03, A05, A06, A07—UL 2661, AWM
C01—UL Type SOOW, Hard Service Cord
Cable Jacket Color: Yellow
Operating Temperature: A03, A05, A06, A07—
-20 to +80° C
A01, A02, C01— -20 to +105° C

Environmental

Protection: IP67

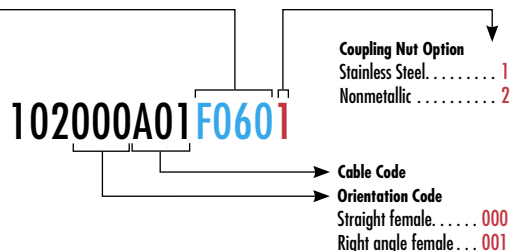


| Poles (Female View) | Current | Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Cable Length | Female Straight | | Female Right Angle | |
|--|---------|------------|------------|------------------------------|------------------|--------------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5-Pole 1 - Red with #1 4 - Red with #4 2 - Red with #2 5 - Red with #5 3 - Green-gnd | 8.0A | 600V AC/DC | STOOW | PVC (A02) | 16 | 6' | 105000A02F060 | 130006-1240 | 105001A02F060 | 130006-1382 |
| 5-Pole 1 - Red with white trace 2 - Red 3 - Green-gnd 4 - Red with yellow trace 5 - Red with black trace | 5.6A | 300V AC/DC | UL 2661 | PVC (A03) | 18 | 6' | 105000A03F060 | 130006-1257 | | |
| 5-Pole 1 - Black 4 - Brown 2 - Blue 5 - White 3 - Green/Yellow-gnd | 4.0A | 300V AC/DC | UL 2661 | PVC (A07) | 20 | 2.0m | 105000A07M020 | 130006-1275 | 105001A07M020 | 130006-1404 |
| 5-Pole 1 - Red with white trace 2 - Red 3 - Green-gnd 4 - Red with orange trace 5 - Red with black trace | 8.0A | 600V AC/DC | SOOW | Rubber (C01) | 16 | 6' | 105000C01F060 | 130006-1312 | | |
| 6-Pole 1 - White 2 - Red 3 - Green/Yellow-gnd 4 - Orange 5 - Black 6 - Blue | 8.0A | 600V AC/DC | STOOW | PVC (A01) | 16 | 6' | 106000A01F060 | 130006-1583 | 106001A01F060 | 130006-1653 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Feet | 3 | F030 |
| | 6 | F060 |
| | 12 | F120 |
| | 20 | F200 |
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Single-Ended Cordsets

130006

Male

Straight, Right Angle
Internal Thread



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating
- Epoxy-coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

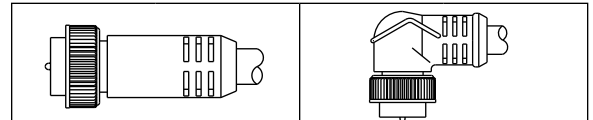
Wire Size: 16 AWG
Cable Type: UL Type STOOW

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: UL Type STOOW, 105C
Hard Service Cord (A01)
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles (Male View) | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|---------|------------|------------------------------|------------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2 Pole 1 - White 2 - Black | 13.0A | STOOW | PVC (A01) | 16 | 6' | 102002A01F060 | 130006-0159 | | |
| 3 Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | STOOW | PVC (A01) | 16 | 6' | 103002A01F060 | 130006-0534 | 103003A01F060 | 130006-0647 |
| 4 Pole 1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | STOOW | PVC (A01) | 16 | 6' | 104002A01F060 | 130006-0995 | 104003A01F060 | 130006-1087 |
| 5 Pole 1 - Red/White 4 - Red/Yel 2 - Red 5 - Red/Blk 3 - Green/Yellow-gnd | 8.0A | STOOW | PVC (A01) | 16 | 6' | 105002A01F060 | 130006-1438 | 105003A01F060 | 130006-1518 |
| 6 Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd 6 - Blue | 8.0A | STOOW | PVC (A01) | 16 | 6' | 106002A01F060 | 130006-1675 | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 3 | F030 |
| 6 | F060 |
| 12 | F120 |
| 20 | F200 |

102002A01F0601

Coupling Nut Option
Stainless Steel 1
Nonmetallic 2

Cable Code
Orientation Code
Straight male 002
Right angle male 003

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Double-Ended Cordsets

130010
Female-to-Male
Straight
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

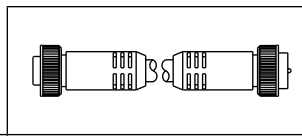
Voltage: 600V AC/DC

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type STOOW, Hard Service Cord
C01—UL Type SOOW, Hard Service Cord
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

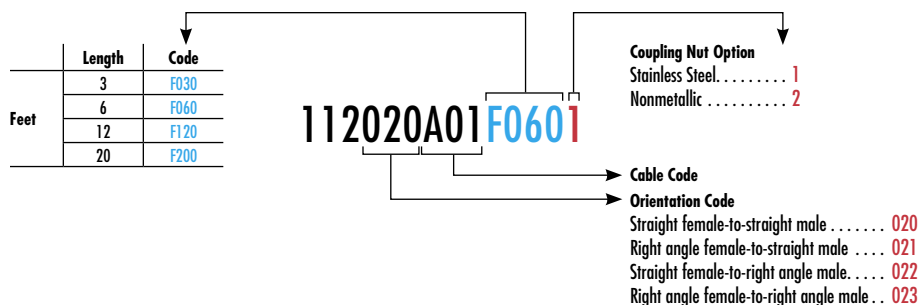
Protection: IP67



| Poles (Female View) | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female-to-Male Straight | |
|------------------------|---------|------------|------------------------------|------------------|--------|-------------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 2-Pole | 13.0A | STOOW | PVC (A01) | 16 | 6' | 112020A01F060 | 130010-0147 |
| 3-Pole | 13.0A | STOOW | PVC (A01) | 16 | 6' | 113020A01F060 | 130010-0221 |
| | 13.0A | SOOW | Rubber (C01) | 16 | 6' | 113020C01F060 | 130010-0307 |
| 4-Pole | 10.0A | STOOW | PVC (A01) | 16 | 6' | 114020A01F060 | 130010-0525 |
| 5-Pole | 8.0A | STOOW | PVC (A01) | 16 | 6' | 115020A01F060 | 130010-1005 |
| 6-Pole | 8.0A | STOOW | PVC (A01) | 16 | 6' | 116020A01F060 | 130010-1316 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Double-Ended Cordsets

130010

External Thread Male-to-Internal Thread Female



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy-coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

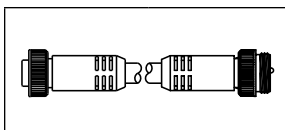
Wire Size: 16 AWG

Physical

Connector Face: PVC or TPE
Connector Body: PVC or TPE
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: K12, K13—UL TC-ER Continuous-flex rated
A38—UL Type ST00W, Hard Service Cord
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

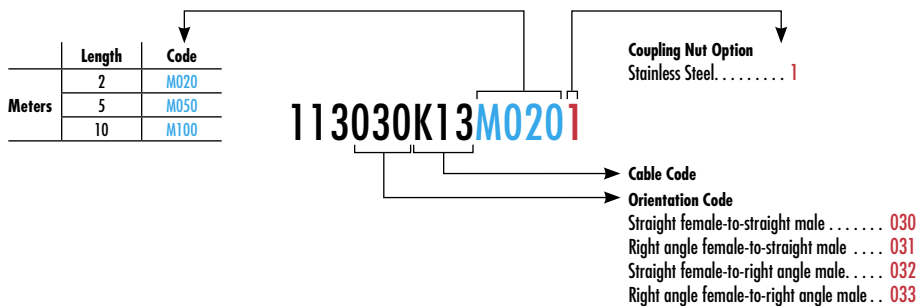
Protection: IP67



| Poles (Female View) | Current | Cable Type | Cable Jacket (Cable Code) | Female-to-Male Straight | |
|------------------------|---------|------------|------------------------------|-------------------------|--------------------|
| | | | | Engineering No. | Standard Order No. |
| 3-Pole | 13.0A | TC-ER | TPE (K13) | 113030K13M020 | 130010-0488 |
| 4-Pole | 10.0A | ST00W | PVC (A38) | 114030A38M020 | 130010-0795 |
| | | TC-ER | TPE (K12) | 114030K12M020 | 130010-0865 |
| 5-Pole | 8.0A | TC-ER | TPE (K13) | 115030K13M020 | 130010-0103 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Receptacles With Leads

130013
Female
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

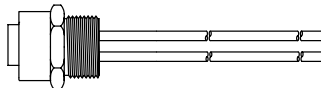
Wire Size: 16 AWG
Wire Type: UL 1015

Physical

Connector Face: PVC
Shell Material: Zinc with Nickel plate
Mounting Thread Size: 1/2" - 14 NPT
Cable Length: 2.0m (6.56')
Panel Mount: Front
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles | Current | Engineering No. | Standard Order No. |
|--|---------|-----------------|--------------------|
| 3 Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | 1R3000A20M020 | 130013-0112 |
| 4 Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 8.0A | 1R4000A39M020 | 130013-0301 |
| 5 Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd | 8.0A | 1R5000A20M020 | 130013-0426 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Meters | 2 | M020 |

1R3000A20M0201

Coupling Nut Option
Stainless Steel 1

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Mini-Change® A-Size Receptacles With Leads

130013

**Female Straight, Right Angle
Front Mount
External Thread**



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: PVC

Shell Material:

Zinc with black epoxy coat or anodized Aluminum

Contact: Brass with Gold over Nickel plate

Operating Temperature: -20° to +105° C

Environmental

Protection: IP67

| | | | |
|----------------------|------------------------------------|---------------------------------------|-------------------------------|
| | | | |
| Configuration | Straight, Front Mount, 1/2-14" NPT | Right Angle, Front Mount, 1/2-14" NPT | Straight, Front Mount, Flange |
| Wire Type | PVC, UL1061 | PVC, UL1061 | PVC, UL1061 |
| Wire Size AWG | 16 | 16 | 16 |
| Length | 12" | 12" | 12" |

| Poles (Female View) | Current | Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|--|---------|------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 2-Pole 1 - White 2 - Black | 13.0A | 600V AC/DC | 1R2004A20A120 | 130013-0060 | 1R2005A20A120 | 130013-0074 | 1R2G04A20A120 | 130013-0093 |
| 3-Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | 600V AC/DC | 1R3004A20A120 | 130013-0135 | 1R3005A20A120 | 130013-0184 | 1R3G04A20A120 | 130013-0273 |
| 4-Pole 1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | 600V AC/DC | 1R4004A20A120 | 130013-0314 | 1R4005A20A120 | 130013-0337 | 1R4G04A20A120 | 130013-0402 |
| 5-Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd | 8.0A | 600V AC/DC | 1R5004A20A120 | 130013-0442 | 1R5005A20A120 | 130013-0482 | 1R5G04A20A120 | 130013-0550 |
| 6-Pole 1 - White 2 - Red 3 - Green/Yellow-gnd 4 - Orange 5 - Black 6 - Blue | 8.0A | 600V AC/DC | 1R6004A20A120 | 130013-0567 | 1R6005A20A120 | 130013-0589 | 1R6G04A20A120 | 130013-0614 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |

1R2004A20A120

Coupling Nut Option
Stainless Steel1†
Nonmetallic2‡

Orientation Code
Straight female 004
Right angle female 005
Straight flange mount female shell G04

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

†Stainless steel available only with straight, 1/2"-14 NPT shell or flange shell.

‡Nonmetallic available only with straight, 1/2"-14 NPT shell.

Brad® Mini-Change® A-Size Receptacles With Leads

130013

**Male
Straight, Right Angle
External Thread**



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Connector Face: PVC

Shell Material:

Zinc with black epoxy coat or anodized Aluminum

Contact: Brass with Gold over Nickel plate

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67

| Poles (Male View) | Current | Voltage | Wire Size AWG | Configuration | | | Wire Type | | Length | |
|--|---------|------------|------------------|--------------------|-------------|---------------|-------------|---------------|-------------|--|
| | | | | Engineering No. | | | PVC, UL1061 | | 12" | |
| | | | | Standard Order No. | | | PVC, UL1061 | | 12" | |
| | | | | Standard Order No. | | | PVC, UL1061 | | 12" | |
| 1 - White 2 - Black | 13.0A | 600V AC/DC | 16 | 1R2006A20A120 | 130013-0076 | 1R2007A20A120 | 130013-0090 | 1R2G06A20A120 | 130013-0099 | |
| 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | 600V AC/DC | 16 | 1R3006A20A120 | 130013-0202 | 1R3007A20A120 | 130013-0247 | 1R3G06A20A120 | 130013-0280 | |
| 1 - Green/Yellow-gnd 2 - Red with #2 3 - Red with #3 | 13.0A | 600V AC/DC | 16 | 1R3006A24A120 | 130013-0229 | | | | | |
| 1 - Green/Yellow-gnd 2 - Red with black trace 3 - Red with white trace | 10.0A | 300V AC/DC | 18 | 1R3006A17A120 | 130013-0193 | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |
| Meters | 2 | M020 |

1R2006A20A1201

Coupling Nut Option

Stainless Steel 1[†]
Nonmetallic 2[‡]

Cable Code

Straight male 006
Right angle male 007
Straight flange mount male shell. G06

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

[†]Stainless steel available only with straight, 1/2"-14 NPT shell or flange shell.

[‡]Nonmetallic available only with straight, 1/2"-14 NPT shell.

Brad® Mini-Change® A-Size Receptacles With Leads

130013

Male

**Straight, Right Angle
External Thread**



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Connector Face: PVC

Shell Material:

Zinc with black epoxy coat or anodized Aluminum

Contact: Brass with Gold over Nickel plate

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67

| Configuration | Straight, Front Mount, 1/2-14" NPT | | | | Right Angle, Front Mount, 1/2-14" NPT | | | | Straight, Front Mount, Flange | | | | Straight, Front Mount, PG13.5 | | | |
|--|------------------------------------|------------|---------------|-----------------|---------------------------------------|-----------------|--------------------|-----------------|-------------------------------|-----------------|--------------------|-----------------|-------------------------------|--|--|--|
| | PVC, UL1061 | | | | PVC, UL1061 | | | | PVC, UL1061 | | | | PVC, UL1061 | | | |
| Wire Type | 12" | | | | 12" | | | | 12" | | | | 12" | | | |
| Length | 12" | | | | 12" | | | | 12" | | | | 12" | | | |
| Poles (Male View) | Current | Voltage | Wire Size AWG | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | | | |
| 3-Pole 1 - Green/Yellow-gnd 2 - Brown 3 - Blue | 10.0A | 300V AC/DC | 18 | 1R3006A25A120 | 130013-0238 | | | | | | | 1R3D06A25A120 | 130013-0268 | | | |
| 4-Pole 1 - Black 3 - Red 2 - White 4 - Green/Yellow-gnd | 10.0A | 600V AC/DC | 16 | 1R4006A20A120 | 130013-0353 | 1R4007A20A120 | 130013-0386 | 1R4G06A20A120 | 130013-0409 | | | | | | | |
| 4-Pole 1 - Brown 3 - Blue 2 - White 4 - Black | 7.0A | 300V AC/DC | 18 | 1R4006A16A120 | 130013-0341 | | | | | | | 1R4D06A16A120 | 130013-0396 | | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |
| Meters | 2 | M020 |

1R2006A20A1201

Coupling Nut Option
Stainless Steel.....¹
Nonmetallic.....²

Cable Code
Orientation Code
Straight male..... 006
Right angle male..... 007
Straight male with PG13.5 mount thread... D06
Straight flange mount male shell..... G06

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

¹Stainless steel available only with straight, 1/2"-14 NPT shell or flange shell.

²Nonmetallic available only with straight, 1/2"-14 NPT shell.

Brad® Mini-Change® A-Size Receptacles With Leads

130013

**Male Straight, Right Angle
External Thread**

Features and Benefits

- Low-resistance contact design with Gold over Nickel plating

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: PVC

Shell Material:

Zinc with black epoxy coat or anodized Aluminum

Contact: Brass with Gold over Nickel plate

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Configuration | Wire Type | Wire Size AWG | Length |
|---------------------------------------|-------------|---------------|--------|
| Straight, Front Mount, 1/2-14" NPT | PVC, UL1061 | 16 | 12" |
| Right Angle, Front Mount, 1/2-14" NPT | PVC, UL1061 | 16 | 12" |
| Straight, Front Mount, Flange | PVC, UL1061 | 16 | 12" |
| Straight, Front Mount, PG13.5 | PVC, UL1061 | 18 | 12" |

| Pole (Male View) | Current | Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|---|---------|------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 5-Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd | 8.0A | 600V AC/DC | 1R5006A20A120 | 130013-0493 | 1R5007A20A120 | 130013-0534 | 1R5006A20A120 | 130013-0557 | | |
| 5-Pole 1 - Red with #1 4 - Red with #4 2 - Red with #2 5 - Red with #5 3 - Green/Yellow-gnd | 8.0A | 600V AC/DC | 1R5006A24A120 | 130013-0515 | | | | | | |
| 5-Pole 1 - Red with white trace 4 - Red with yellow trace 2 - Red 5 - Red with black trace 3 - Green/Yellow-gnd | 5.6A | 300V AC/DC | 1R5006A17A120 | 130013-0489 | | | | | | |
| 5-Pole 1 - Black 4 - Brown 2 - Blue 5 - White 3 - Green/Yellow-gnd | 5.6A | 300V AC/DC | | | | | | 1R5006A25A120 | 130013-0548 | |
| 6-Pole 1 - White 4 - Orange 2 - Red 5 - Black 3 - Green/Yellow-gnd 6 - Blue | 8.0A | 600V AC/DC | 1R6006A20A120 | 130013-0593 | 1R6007A20A120 | 130013-0612 | 1R6006A20A120 | 130013-0620 | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |
| Meters | 2 | M020 |

1R2006A20A1201

Coupling Nut Option

Stainless Steel 1[†]
Nonmetallic 2[‡]

Cable Code

Orientation Code
 Straight male 006
 Right angle male 007
 Straight male with PG13.5 mount thread.. D06
 Straight flange mount male shell. G06

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

[†]Stainless steel available only with straight, 1/2"-14 NPT shell or flange shell.

[‡]Nonmetallic available only with straight, 1/2"-14 NPT shell.

Brad® Mini-Change® A-Size Bulkhead Pass-Through Receptacles

130013
Straight



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Allows through-panel quick connection

Reference Information

CSA File No.: LR6837

Mechanical

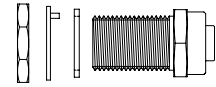
Voltage: 600V AC/DC

Physical

Connector Face: PVC
Contacts: Brass with Gold over Nickel plating
Shell: Nickel-plated Brass

Environmental

Protection: IP67



| Poles (Female View) | Mounting Thread Size | Current | Straight | |
|------------------------|----------------------|---------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. |
| <p>4-Pole</p> | 7/8" - 16 UN-2A | 10.0A | 1R4030 | 130013-0388 |
| <p>5-Pole</p> | 7/8" - 16 UN-2A | 8.0A | 1R5030 | 130013-0541 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Mini-Change® A-Size Field Attachable Connectors With Screw Termination

130017
Female, Male
Straight
Internal/External Thread



Features and Benefits

- Patented Quad-Beam™ contact design for reliability and low resistance
- Allows easy conversion to quick-connect or the repair of damaged, molded connectors

Reference Information

CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 15 to 24 AWG

Cable Range: 5.08 to 11.43mm (.200 to .450")

Physical

Connector Face: Polyurethane

Connector Body: Nylon

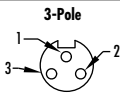
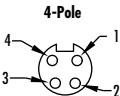
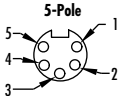
Contact: Brass with Gold over Nickel plating

Coupling Nut: Nickel-plated Brass

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Poles (Female View) | Coupling Type | Current | Female Straight | | Male Straight | | Male Straight | |
|---|-----------------|---------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  3-Pole | Internal Thread | 13.0A | 1A3000-34 | 130017-0004 | | | 1A3002-34 | 130017-0008 |
| | External Thread | | | | 1A3006-34 | 130017-0011 | | |
|  4-Pole | Internal Thread | 10.0A | 1A4000-34 | 130017-0015 | | | 1A4002-34 | 130017-0018 |
| | External Thread | | | | 1A4006-34 | 130017-0020 | | |
|  5-Pole | Internal Thread | 8.0A | 1A5000-34 | 130017-0023 | | | 1A5002-34 | 130017-0026 |
| | External Thread | | | | 1A5006-34 | 130017-0029 | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

1A3000-348

Coupling Nut Option
Stainless Steel 8

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® A-Size Plugs for Liquid-Tight Conduit

130006/130018
Female, Male



Features and Benefits

- Patented Quad Beam™ contact design for reliability and low resistance
- Fits standard 1/2" liquid-tight conduit

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

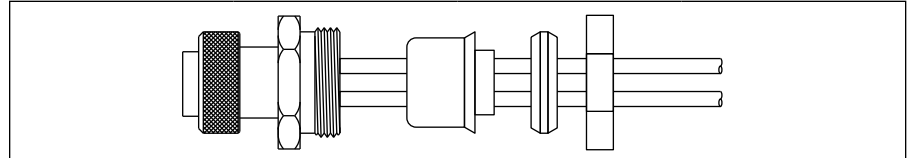
Wire Size: 16 AWG
Wire Type: UL 1015

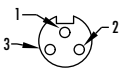

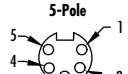
Physical

Connector Face: PVC
Contact: Brass with Gold over Nickel plating
Connector Body: Zinc-plated Steel
Coupling Nut: Anodized Aluminum
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67



| Poles (Female View) | Current | Female | | Male | |
|--|---------|-----------------|--------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3-Pole  1 - Green-gnd 3 - White 2 - Black | 13.0A | 40925 | 130006-2099 | 41037 | 130006-2102 |
| 4-Pole  1 - Black 3 - Red 2 - White 4 - Green-gnd | 10.0A | 41132 | 130006-2103 | 51149 | 130018-0184 |
| 5-Pole  1 - White 4 - Orange 2 - Red 5 - Black 3 - Green-gnd | 8.0A | 41344 | 130006-2107 | 41593 | 130006-2109 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Mini-Change® A-Size Tee Connectors

120101/130006/130035
Female, Male



Features and Benefits

- Patented Quad Beam™ contact design for reliability and low resistance

Reference Information

UL File No.: E152210

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: PVC

Connector Body: TPE

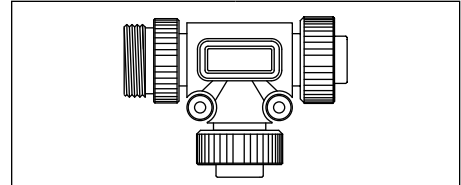
Contact: Brass with Gold over Nickel plating

Coupling Nut: Zinc with black epoxy coat

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles (Female View) | Current | Female | |
|------------------------|---------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
| 3-Pole | 10.0A | 61056 | 130018-0217 |
| 4-Pole | 8.0A | DNETAUXPT | 130035-0085 |
| 5-Pole | 8.0A | PBAPT | 120101-0001 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Mini-Change® A-Size Adaptors

130018
Right Angle



Features and Benefits

- Patented Quad Beam™ contact design for reliability and low resistance

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

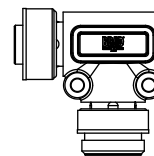
Wire Size: 16 AWG

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass Gold over Nickel plating
Coupling Nut: Zinc with black epoxy coat
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles (Female View) | Max. Current per Contact | Engineering No. | Standard Order No. |
|---------------------|--------------------------|-----------------|--------------------|
| <p>2-Pole</p> | 13.0A | 40761 | 130018-0204 |
| <p>3-Pole</p> | 13.0A | 41048 | 130018-0206 |
| <p>4-Pole</p> | 10.0A | 41212 | 130018-0207 |
| <p>5-Pole</p> | 8.0A | 41481 | 130018-0210 |

Brad® Mini-Change® A-Size Accessories

130201
Caps and Threaded Unions

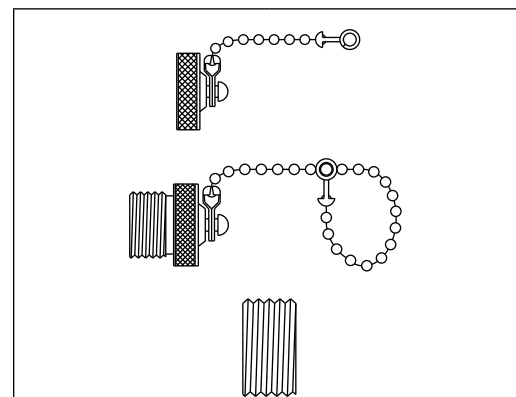


Features and Benefits

- Protects connector from dust and moisture

Physical

Material: Anodized Aluminum
Chain: Zinc-plated Steel



Closure Caps and Threaded Union

| Type | Description | Engineering No. | Standard Order No. |
|----------------|--|-----------------|--------------------|
| Closure Cap | A-size with 7/8"-16UN-2B Internal Thread | 65-0086 | 130201-1111 |
| | A-size with 7/8"-16UN-2A External Thread | 65-0085 | 130201-1109 |
| Threaded Union | Adapter 7/8" External Thread | 55-0426 | 130201-1224 |

Brad® Mini-Change® A-Size MPIS Distribution Boxes

130060

Side Mount
Single-Wired Ports



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Fully potted, factory assembled boxes simplify on machine wiring installations
- One input or output per port
- Brad® Mini-Change Home-run connector for easy replacement

Reference Information

UL Recognized—E152210
CSA Certified—LR6837

Electrical

Voltage: 600V AC/DC
Current: Module—7.0A max.
Port—10.0A max.

Physical

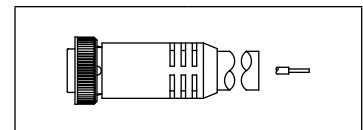
Housing: PET
Port Shell Material: Epoxy-coated Zinc
Connector Face: PVC
Contacts: Brass with Gold over Nickel plating
Home Run Connector: Brad Mini-Change male connector
Wiring Configuration: Single I/O, Brad Mini-Change 3-pole female port
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Port Configuration | Ports | Box Configuration | Wiring Schematic | LED Indicator | Engineering No. | Standard Order No. |
|---|-------|-------------------|------------------|---------------|-----------------|--------------------|
| | 4 | | | No | 409P401 | 130060-0001 |
| <p>3 Pole</p> <p>1 - Ground 3 - Common (L1) 2 - Load (L2)</p> | 6 | | | No | 409P601 | 130060-0012 |
| | 8 | | | No | 409P801 | 130060-0017 |

For connection to ports, see Brad Mini-Change 3-pole female-male internal double-ended cordsets



Suggested Home Run Cable Assemblies Brad Mini-Change Female Cordsets

| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--------------------|--------|-----------------|--------------------|
| 4-port block | PVC | 6 | 6 x 16 AWG | 12' | 106000A01F120 | 130006-1590 |
| 6-port block | PVC | 8 | 8 x 16 AWG | 12' | 208000A01F120 | 130007-0145 |
| 8-port block | PVC | 10 | 10 x 16 AWG | 12' | 301000A01F120 | 130008-0028 |

Brad® Mini-Change® A-Size MPIS Distribution Boxes

130006

Side Mount
Single-Wired Ports with LEDs



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Fully potted, factory assembled boxes simplify on machine wiring installations
- One input or output per port
- Indicating LEDs for power and sensor trigger indication
- Brad Mini-Change Home-run connector for easy replacement

Reference Information

UL Recognized—E152210
CSA Certified—LR6837

Electrical

Voltage: 600V AC/DC
Current: Module—7.0A max.
Port—10.0A max.

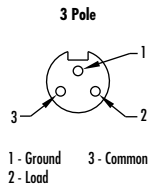
Physical

Housing: PET
Port Shell Material: Epoxy-coated Zinc
Connector Face: PVC
Contacts: Brass with Gold over Nickel plating
Home Run Connector: Brad Mini-Change male connector
Wiring Configuration: Single I/O, Brad Mini-Change 3-pole female port
Operating Temperature: -20 to +80° C

Environmental

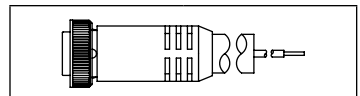
Protection: IP67

| Port Configuration | Ports | Box Configuration | Wiring Schematic | LED Indicator | Engineering No. | Standard Order No. |
|--------------------|-------|-------------------|------------------|---------------|-----------------|--------------------|
| | 4 | | | Yes | 410P401 | 130060-0023 |
| | 6 | | | Yes | 410P601 | 130060-0024 |
| | 8 | | | Yes | 410P801 | 130060-0026 |



For connection to ports, see Brad Mini-Change 3-pole female-male internal double-ended cordsets

Suggested Home Run Cable Assemblies Brad Mini-Change Female Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--------------------|--------|-----------------|--------------------|
| 4-port block | PVC | 7 | 7 x 16 AWG | 12' | 207000A01F120 | 130007-0076 |
| 6-port block | PVC | 9 | 9 x 16 AWG | 12' | 309000A01F120 | 130008-0329 |
| 8-port block | PVC | 12 | 12 x 16 AWG | 12' | 302000A01F120 | 130008-0161 |

Brad® Mini-Change® A-Size MPIS Distribution Boxes

130060

Side Mount Series-Wired Ports



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Fully potted, factory assembled boxes simplify on machine wiring installations
- Series wired ports for AND or NOR wiring logic
- Brad Mini-Change Home-run connector for easy replacement

Reference Information

UL Recognized—E152210
CSA Certified—LR6837

Electrical

Voltage: 600V AC/DC
Amperage: Module—7.0A max.
Port—10.0A max.

Physical

Housing: PET
Port Shell Material: Epoxy-coated Zinc
Connector Face: PVC
Contacts: Brass with Gold over Nickel plating
Home Run Connector: Brad Mini-Change male connector
Wiring Configuration: Single I/O, Brad Mini-Change 3-pole female port
Operating Temperature: -20 to +80° C

Environmental

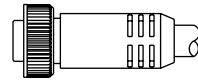
Protection: IP67

| Port Configuration | Ports | Box Configuration | Wiring Schematic | LED Indicator | Engineering No. | Standard Order No. |
|--|-------|-------------------|--|---------------|-----------------|--------------------|
| <p>3 Pole</p> <p>1 - Ground 3 - Common 2 - Load (L2)</p> | 4 | | <p>J1: PIN 1 GROUND, PIN 2 LOAD, PIN 3 POWER J2: PIN 1 GROUND, PIN 2 LOAD, PIN 3 POWER J3: PIN 1 GROUND, PIN 2 LOAD, PIN 3 POWER J4: PIN 1 GROUND, PIN 2 LOAD, PIN 3 POWER Wiring: PIN 1 GREEN GROUND, PIN 2 BLACK (LOAD (L2)), PIN 3 WHITE POWER (L1)</p> | No | 409P403 | 130060-0002 |

For connection to ports, see Brad Mini-Change 3-pole female-male internal double-ended cordsets

Suggested Home Run Cable Assemblies Brad Mini-Change Female Cordsets

| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--------------------|--------|-----------------|--------------------|
| 4-port block | PVC | 3 | 3 x 16 AWG | 12' | 103000A01F120 | 130006-0232 |



Brad® Mini-Change® A-Size MPIS Distribution Boxes

130060

Side Mount
Parallel-Wired Ports



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Fully Potted, factory assembled boxes simplify on machine wiring installations
- Each pole parallel-wired throughout the block for easy power or signal distribution
- Brad Mini-Change Home-Run connector for easy replacement

Electrical

Current: 3-pole—13.0A
4-pole—10.0A
Voltage: 600V AC/DC

Physical

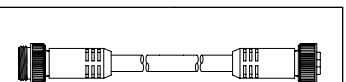
Housing: PET
Port Shell Material: Epoxy-coated Zinc
Connector Face: PVC
Contacts: Brass with Gold over Nickel plating
Home Run Connector: Brad Mini-Change male connector
Wiring Configuration: Parallel-wired
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Port Configuration | Ports | Box Configuration | Wiring Schematic | LED Indicator | Engineering No. | Standard Order No. |
|--------------------|-------|-------------------|------------------|---------------|-----------------|--------------------|
| <p>3-Pole</p> | 4 | | | No | ACAUX4000 | 130060-0067 |
| | 8 | | | No | ACAUX8000 | 130060-0068 |
| <p>4-Pole</p> | 4 | | | No | DNAUX4000 | 130060-0065 |
| | 8 | | | No | DNAUX8000 | 130060-0066 |

Suggested Port and Home Run Cable Assemblies Brad Mini-Change Female-Male Double Ended Cordsets



| Use With | Cable Jacket | No. of Conductors | Cable Construction | Length | Engineering No. | Standard Order No. |
|--------------|--------------|-------------------|--------------------|--------|-----------------|--------------------|
| 4-port block | TPE | 3 | 3 x 16 AWG | 2.0m | 113030K13M020 | 130010-0488 |
| 8-port block | TPE | 4 | 4 x 16 AWG | 2.0m | 114030K12M020 | 130010-0865 |

Brad® Mini-Change® B-Size Single-Ended Cordsets

130007

Female
Straight
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

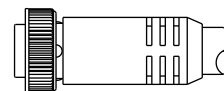
Wire Size: 16 AWG
Cable Type: UL Type ST00W

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type ST00W, Hard Service Cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

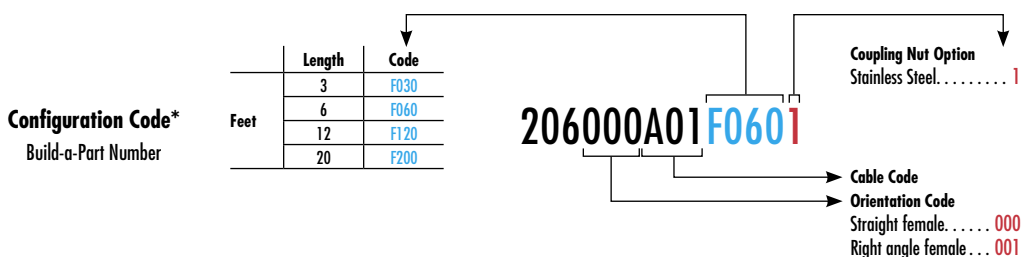
Environmental

Protection: IP67



| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | |
|---|---------|------------|---------------------------|---------------|--------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| <p>6 Pole</p> <p>1 - Orange 4 - White 2 - Blue 5 - Red 3 - Black 6 - Green/Yellow-gnd</p> | 8.0A | ST00W | PVC (A01) | 16 | 6' | 206000A01F060 | 130007-0024 |
| <p>7 Pole</p> <p>1 - White-Black Trace 4 - Red 2 - Black 5 - Orange 3 - White 6 - Blue 7 - Green/Yellow-gnd</p> | 8.0A | ST00W | PVC (A01) | 16 | 6' | 207000A01F060 | 130007-0073 |
| <p>8 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - White-Black trace 7 - Green/Yellow-gnd 4 - Black 8 - Red-Black trace</p> | 7.0A | ST00W | PVC (A01) | 16 | 6' | 208000A01F060 | 130007-0142 |

Note: Sales drawings for all standard order numbers are available on molex.com



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Mini-Change® B-Size Single-Ended Cordsets

130007

Male
Straight
Internal Thread



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

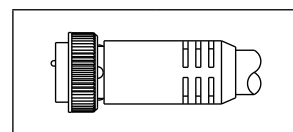
Wire Size: 16 AWG
Cable Type: UL Type ST00W

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type ST00W, Hard Service Cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

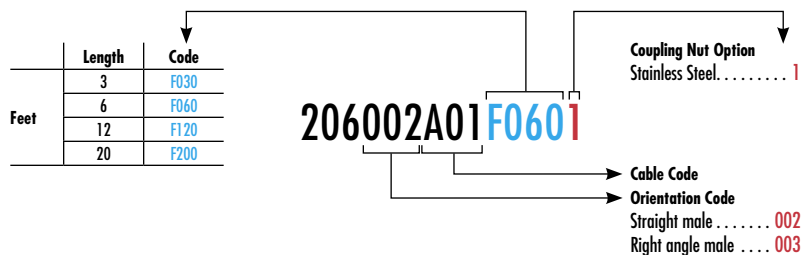
Protection: IP67



| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | |
|--|---------|------------|---------------------------|---------------|--------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| <p>6 Pole</p> <p>1 - Orange 4 - White 2 - Blue 5 - Red 3 - Black 6 - Green/Yellow-gnd</p> | 8.0A | ST00W | PVC (A01) | 16 | 6' | 206002A01F060 | 130007-0051 |
| <p>7 Pole</p> <p>1 - White-black trace 4 - Red 2 - Black 5 - Orange 3 - White 6 - Blue 7 - Green/Yellow-gnd</p> | 8.0A | ST00W | PVC (A01) | 16 | 6' | 207002A01F060 | 130007-0115 |
| <p>8 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - White-black trace 7 - Green/Yellow-gnd 4 - Black 8 - Red-black trace</p> | 7.0A | ST00W | PVC (A01) | 16 | 6' | 208002A01F060 | 130007-0199 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® B-Size Double-Ended Cordsets

130011

Female Straight-to-Male Straight Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy-coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

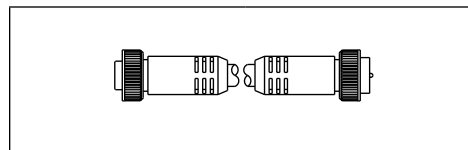
Wire Size: 16 AWG
Cable Type: UL Type ST00W

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type ST00W hard service cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



Female Straight-to-Male Straight

| Pole (Female View) | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Engineering No. | Order No. |
|--------------------|---------|------------|---------------------------|---------------|--------|-----------------|-------------|
| | 8.0A | ST00W | PVC (A01) | 16 | 6' | 226020A01F060 | 130011-0010 |
| | 8.0A | ST00W | PVC (A01) | 16 | 6' | 227020A01F060 | 130011-0051 |
| | 7.0A | ST00W | PVC (A01) | 16 | 6' | 228020A01F060 | 130011-0119 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 3 | F030 |
| 6 | F060 |
| 12 | F120 |
| 20 | F200 |

Feet

226020A01F0601

Coupling Nut Option
Stainless Steel 1

Cable Code

Orientation Code

- Straight female-to-straight male 020
- Right angle female-to-straight male 021
- Straight female-to-right angle male 022
- Right angle female-to-right angle male . . 023

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Mini-Change® B-Size Receptacles With Leads

130014

**Female
External Thread**



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and lower resistance

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 16 AWG

Wire Type: UL 1015

Physical

Connector Face: PVC

Shell Material: Zinc with black epoxy coat

Mounting Thread Size: 1/2" - 14 NPT

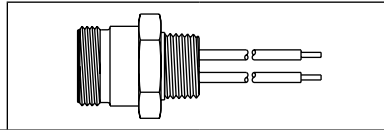
Panel Mount: Front

Cable Length: 0.305m (1.0')

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles | Current | Engineering No. | Standard Order No. |
|--|---------|-----------------|--------------------|
| <p>6 Pole</p> <p>1 - Orange 4 - White 2 - Blue 5 - Red 3 - Black 6 - Green/Yellow-gnd</p> | 8.0A | 2R6004A20A120 | 130014-0015 |
| <p>7 Pole</p> <p>1 - White-Black trace 4 - Red 2 - Black 5 - Orange 3 - White 6 - Blue 7 - Green/Yellow-gnd</p> | 8.0A | 2R7004A20A120 | 130014-0037 |
| <p>8 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - White-Black trace 7 - Green/Yellow-gnd 4 - Black 8 - Red-Black trace</p> | 7.0A | 2R8004A20A120 | 130014-0061 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |

2R6004A20A1201

Coupling Nut Option

Stainless Steel 1

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® B-Size Receptacles With Leads

130014

**Male
External Thread**



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 16 AWG

Wire Type: UL 1015

Physical

Connector Face: PVC

Shell Material: Zinc with black epoxy coat

Mounting Thread Size: 1/2" - 14 NPT

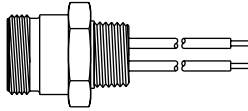
Panel Mount: Front

Cable Length: 0.305m (1.0')

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles | Current | Engineering No. | Standard Order No. |
|---|---------|-----------------|--------------------|
| <p>6 Pole</p> <p>1 - Orange 4 - White 2 - Blue 5 - Red 3 - Black 6 - Green/Yellow-gnd</p> | 8.0A | 2R6006A20A120 | 130014-0025 |
| <p>7 Pole</p> <p>1 - White with Black trace 4 - Red 2 - Black 5 - Orange 3 - White 6 - Blue 7 - Green/Yellow-gnd</p> | 8.0A | 2R7006A20A120 | 130014-0050 |
| <p>8 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - White with Black trace 7 - Green/Yellow-gnd 4 - Black 8 - Red with Black trace</p> | 7.0A | 2R8006A20A120 | 130014-0078 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |

2R6006A20A120

Coupling Nut Option
Stainless Steel..... 1

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

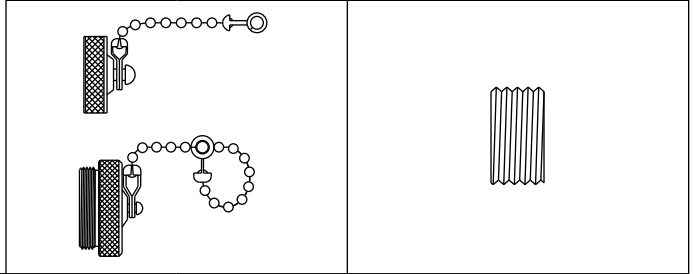
Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Mini-Change® B-Size Accessories

- Features and Benefits**
- Protects connector from dust and moisture

Physical
Material: Anodized Aluminum
Chain: Zinc-plated Steel

130201
Threaded



| Product Name | Description | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|----------------|---|-----------------|--------------------|-----------------|--------------------|
| Closure Cap | 1"-16UN-2B Internal Thread, Anodized Aluminum with Steel Bead Chain | 65-0103 | 130201-1116 | | |
| | 1"-16UN-2B External Thread, Anodized Aluminum with Steel Bead Chain | 65-0102 | 130201-1115 | | |
| Threaded Union | Adapter, 1"-16UN-2A External Thread, Anodized Aluminum | | | 55-0466 | 130201-1226 |

Brad® Mini-Change® C-Size Single-Ended Cordsets

130008

Female
Straight, Right Angle
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

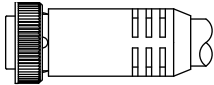
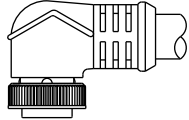
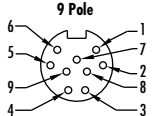
Wire Size: 16 AWG
Cable Type: UL Type ST00W

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type ST00W hard service cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67

| | | | | | |  Female Straight | |  Female Right Angle | |
|--|---------|------------|---------------------------|---------------|--------|--|-------------|--|-------------|
| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Engineering No. | Order No. | Engineering No. | Order No. |
| 9 Pole  1 - Orange 5 - White 2 - Blue 6 - Red 3 - Red-Black trace 7 - Green/Yellow-gnd 4 - Green-Black trace 8 - White-Black trace 9 - Black | 7.0A | ST00W | PVC (A01) | 16 | 6' | 309000A01F060 | 130008-0325 | 309001A01F060 | 130008-0351 |
| 10 Pole  1 - Orange 6 - Orange-Black trace 2 - Blue 7 - Red 3 - White-Black trace 8 - Green/Yellow-gnd 4 - Red-Black trace 9 - Black 5 - Green-Black trace 10 - White | 7.0A | ST00W | PVC (A01) | 16 | 6' | 301000A01F060 | 130008-0025 | 301001A01F060 | 130008-0098 |
| 12 Pole  1 - Orange 7 - Blue-Black trace 2 - Blue 8 - Black-White trace 3 - White-Black trace 9 - Green/Yellow-gnd 4 - Red-Black trace 10 - Red 5 - Green-Black trace 11 - White 6 - Orange-Black trace 12 - Black | 5.0A | ST00W | PVC (A01) | 16 | 6' | 302000A01F060 | 130008-0157 | 302001A01F060 | 130008-0212 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 3 | F030 |
| 6 | F060 |
| 12 | F120 |
| 20 | F200 |

309000A01**F060**1

Coupling Nut Option
Stainless Steel 1

Cable Code
Orientation Code
Straight female 000
Right angle female ... 001

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size Single-Ended Cordsets

130008

Male
Straight
Internal Thread



Features and Benefits

- Low-resistance contact design with Gold over Nickel plating
- Epoxy coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

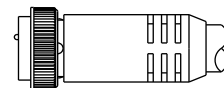
Wire Size: 16 AWG
Cable Type: UL Type STOOW

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type STOOW hard service cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



Male Straight

| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Engineering No. | Order No. |
|---|---------|------------|---------------------------|---------------|--------|-----------------|-------------|
| <p>9 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - Red-Black trace 7 - Green/Yellow-gnd 4 - Green-Black trace 8 - White-Black trace 9 - Black</p> | 7.0A | STOOW | PVC (A01) | 16 | 6' | 309002A01F060 | 130008-0366 |
| <p>10 Pole</p> <p>1 - Orange 6 - Orange-Black trace 2 - Blue 7 - Red 3 - White-Black trace 8 - Green/Yellow-gnd 4 - Red-Black trace 9 - Black 5 - Green-Black trace 10 - White</p> | 7.0A | STOOW | PVC (A01) | 16 | 6' | 301002A01F060 | 130008-0117 |
| <p>12 Pole</p> <p>1 - Orange 7 - Blue-Black trace 2 - Blue 8 - Black-White trace 3 - White-Black trace 9 - Green/Yellow-gnd 4 - Red-Black trace 10 - Red 5 - Green-Black trace 11 - White 6 - Orange-Black trace 12 - Black</p> | 5.0A | STOOW | PVC (A01) | 16 | 6' | 302002A01F060 | 130008-0231 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| Length | Code |
|--------|------|
| 3 | F030 |
| 6 | F060 |
| 12 | F120 |
| 20 | F200 |

309002A01F0601

Coupling Nut Option
Stainless Steel. 1

Cable Code
Orientation Code
Straight male 002
Right angle male 003

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size Double-Ended Cordsets

130012

Female Straight-to-Male Straight Internal Thread



Features and Benefits

- Patented Quad Beam™ provides high reliability and low resistance
- Epoxy-coated coupling nut is corrosion and weld slag resistant
- Cable is oil, water and abrasion resistant

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

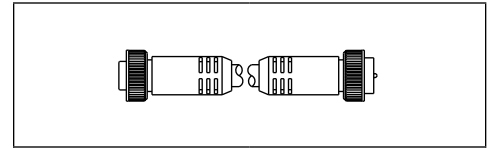
Wire Size: 16 AWG
Cable Type: UL Type ST00W

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable: A01—UL Type ST00W extra hard service cord
Cable Jacket: PVC
Cable Jacket Color: Yellow
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67

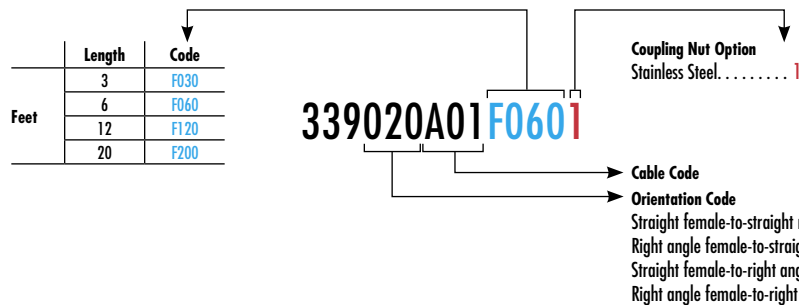


Female Straight-to-Male Straight

| Pole (Female View) | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Engineering No. | Order No. |
|--------------------|---------|------------|---------------------------|---------------|--------|-----------------|-------------|
| <p>9 Pole</p> | 7.0A | ST00W | PVC (A01) | 16 | 6' | 339020A01F060 | 130012-0385 |
| <p>10 Pole</p> | 7.0A | ST00W | PVC (A01) | 16 | 6' | 331020A01F060 | 130012-0009 |
| <p>12 Pole</p> | 5.0A | ST00W | PVC (A01) | 16 | 6' | 332020A01F060 | 130012-0113 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size Receptacles With Leads

130015
Female
External Thread



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

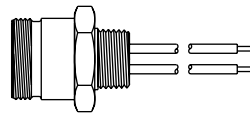
Wire Size: 16 AWG
Wire Type: UL 1015

Physical

Connector Face: PVC
Shell Material: Zinc with black epoxy coat
Mounting Thread Size: 1/2" - 14 NPT
Panel Mount: Front
Cable Length: 0.305m (1.0')
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles | Current | Engineering No. | Standard Order No. |
|--|---------|-----------------|--------------------|
| <p>9 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - Red-Black trace 7 - Green/Yellow-gnd 4 - Green-Black trace 8 - White-Black trace 9 - Black</p> | 7.0A | 3R9004A20A120 | 130015-0117 |
| <p>10 Pole</p> <p>1 - Orange 6 - Orange-Black trace 2 - Blue 7 - Red 3 - White-Black trace 8 - Green/Yellow-gnd 4 - Red-Black trace 9 - Black 5 - Green-Black trace 10 - White</p> | | 3R1004A20A120 | 130015-0024 |
| <p>12 Pole</p> <p>1 - Orange 7 - Blue-Black trace 2 - Blue 8 - Black-White trace 3 - White-Black trace 9 - Green/Yellow-gnd 4 - Red-Black trace 10 - Red 5 - Green-Black trace 11 - White 6 - Orange-Black trace 12 - Black</p> | 5.0A | 3R2004A20A120 | 130015-0054 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |

3R9004A20A1201

Coupling Nut Option
Stainless Steel..... 1

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size Receptacles With Leads

130015

**Male
External Thread**



Features and Benefits

- Low resistance contact design with Gold over Nickel plating

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

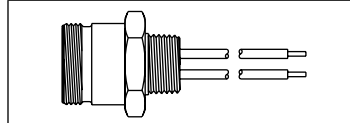
Wire Size: 16 AWG
Wire Type: UL 1015

Physical

Connector Face: PVC
Shell Material: Zinc with black epoxy coat
Mounting Thread Size: 1/2" - 14 NPT
Panel Mount: Front
Cable Length: 0.305m (1.0')
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles | Current | Engineering No. | Standard Order No. |
|---|---------|-----------------|--------------------|
| <p>9 Pole</p> <p>1 - Orange 5 - White 2 - Blue 6 - Red 3 - Red with Black trace 7 - Green/Yellow-gnd 4 - Green with Black trace 8 - White with Black trace 9 - Black</p> | 7.0A | 3R9006A20A120 | 130015-0137 |
| <p>10 Pole</p> <p>1 - Orange 6 - Orange with Black trace 2 - Blue 7 - Red 3 - White with Black trace 8 - Green/Yellow-gnd 4 - Red with Black trace 9 - Black 5 - Green with Black trace 10 - White</p> | | 3R1006A20A120 | 130015-0044 |
| <p>12 Pole</p> <p>1 - Orange 7 - Blue with Black trace 2 - Blue 8 - Black with White trace 3 - White with Black trace 9 - Green/Yellow-gnd 4 - Red with Black trace 10 - Red 5 - Green with Black trace 11 - White 6 - Orange with Black trace 12 - Black</p> | 5.0A | 3R2006A20A120 | 130015-0076 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |

3R9006A20A120

Coupling Nut Option
Stainless Steel..... 1

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size 19-Pole Single and Double-Ended Cordsets

130008/130012

**Female Straight, Right Angle
(Single-Ended)**

**Female Straight-to-Male Straight
(Double-Ended)**

Threaded

Features and Benefits

- 18 AWG power and 22 AWG control conductors
- Oil and abrasion-resistant polyurethane (PUR) jacket

Electrical

Current per Contact: 3.0A/2.0A
Voltage: 300V AC/DC

Mechanical

Wire Size: 18/22 AWG

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable Jacket Color: Black
Cable Jacket Material: PUR
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67



| 19 Pole (Female View) | Female Straight | | Female Right Angle | |
|--------------------------|-----------------|--------------------|--------------------|--------------------|
| | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | 303000P80M050 | 130008-0303 | 303001P80M050 |

| 19 Pole (Female View) | Straight-to-Straight | |
|--------------------------|----------------------|--------------------|
| | Engineering No. | Standard Order No. |
| | | 333030P80M050 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

303000P80M0501

Coupling Nut Option
Stainless Steel 1

Orientation Code

- Straight female 000
- Right angle female 001
- Straight male 006
- Right angle male 007
- Straight female-to-straight male 030
- Right angle female-to-straight male 031
- Straight female-to-right angle male 032
- Right angle female-to right angle male 033

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® C-Size 19-pole Receptacles

130015
Female, Male
Threaded



Features and Benefits

- 18 AWG power and 22 AWG control conductors
- Oil and abrasion resistant polyurethane (PUR) jacket

Electrical

Current per Contact: 3.0A/2.0A
Voltage: 300V AC/DC

Mechanical

Wire Size: 18/22 AWG

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable Jacket Color: Black
Cable Jacket Material: PUR
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

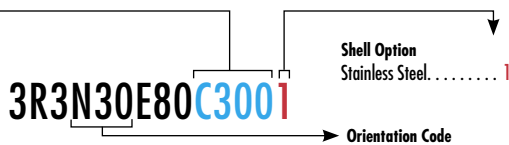
| 19 Pole (Female View) | Straight | |
|--------------------------|-----------------|--------------------|
| | Engineering No. | Standard Order No. |
| | 3R3N30E80C300 | 130015-0098 |

| 19 Pole (Male View) | Straight | |
|------------------------|-----------------|--------------------|
| | Engineering No. | Standard Order No. |
| | 3R3N36E80C300 | 130015-0109 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|-------------|--------|------|
| Centimeters | 30 | C300 |
| Meters | 2 | M020 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

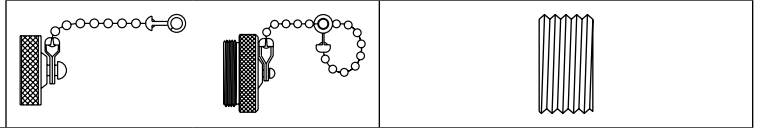
Brad® Mini-Change® C-Size Accessories

- Features and Benefits**
- Protects connector from dust and moisture

Environmental
Protection: IP67

130201

Closure Cap and Threaded Union



| Product Name | Description | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|----------------|--|-----------------|--------------------|-----------------|--------------------|
| Closure Cap | 1 1/8"-16UN-2B Internal Thread, Anodized Aluminum, with Steel Bead Chain | 65-0105 | 130201-1120 | | |
| | 1 1/8"-16UN-2A External Thread, Anodized Aluminum, with Steel Bead Chain | 65-0104 | 130201-1118 | | |
| Threaded Union | Adapter, 1 1/8"-16UN-2A External Thread, Anodized Aluminum | | | 55-0496 | 130201-1228 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Signal and Power Connectors

M23

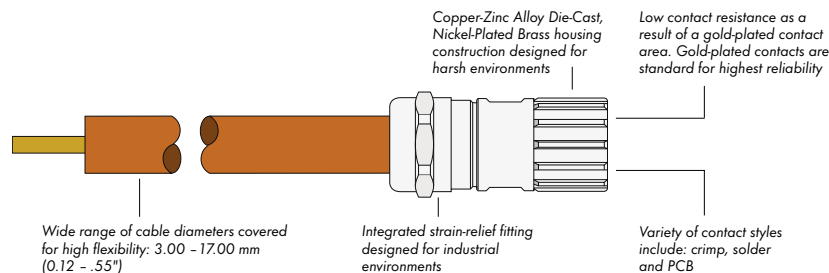
Brad® M23 connectors and receptacles for signal and power applications meet stringent requirements for reliability and performance in the harshest of industrial environments.

M23 Signal Connectors include field-attachable, male and female cable connectors and receptacles from 6-pole to 19-pole in both straight and right-angled versions. Designed to accommodate a broad range of cable outer diameters and receptacles, M23 connectors guarantee high flexibility in front- and back-mounting applications.

Inserts are available with solder or crimp contacts. The integrated locking clip secures the contacts in the inserts. Assembly and disassembly are easily performed without the need for special assembly tools.

M23 Power Connectors are designed for power applications up to 28.0A. Molex offers field-attachable cable connectors and receptacles in 6-pole (5+PE) and 8-pole (4+3+PE) versions. Applying the same modular design as the signal connectors, both pole counts can be used in straight and right-angled versions that are easy to assemble and disassemble with no special tools required.

Crimp contacts are available with different crimp ranges. Female contacts with integrated springs assure exceptional electrical performance with ultimate contact reliability in both signal and power product ranges.



Features and Benefits

Signal Connector

- Cable assembly and shielding are performed in one simple step for user-friendly assembly
- Clipped-on, strain-relief insert prevents cable rotation
- Flexible, EMC O-ring guarantees reliable EMC protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows for easy assembly and disassembly

Power Connector

- Modular design means the same insert is used for all housings
- Integrated locking clip allows for quick assembly and disassembly
- Plug-and-play design allows complete assembly and disassembly without special tools
- Gold-plated contact area features durable, corrosion-resistant plating that maintains low electrical resistance through the mate/unmate cycles
- Integrated strain-relief fitting prevents cable rotation

Applications

- Servo drives
- Encoders
- Resolvers
- Active and passive I/O boxes
- Safety applications
- Safety switches
- Safety door handles
- Harsh commercial
- Solar panel wiring systems
- Home Run connectivity for MPIS

Brad[®] M23 Signal Field Attachable Connectors

120230 Female Crimp-Style Contacts Straight, Right Angle



Features and Benefits

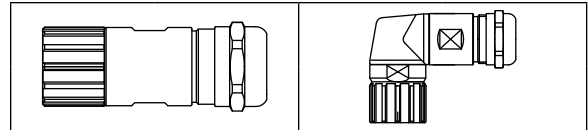
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

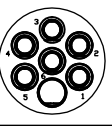
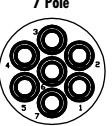
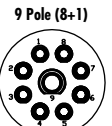
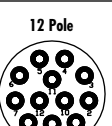
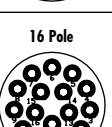
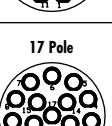
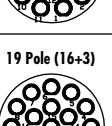
Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
 Inserts (for contacts):
 Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class V-0
 Contacts: Brass alloy
 Contact Type: Crimp, solder, dip-solder (PCB)
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: 4x



| Poles | Max. Current per Contact | Max. Voltage | Cable Diameter* | Crimp Range | Female Straight | | Female Right Angle | |
|---|--------------------------|--------------|------------------------------|--|-----------------|--------------------|--------------------|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 6 Pole  | 20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.75-2.5mm ² | KAS6S00-405 | 120230-0005 | | |
| 7 Pole  | 20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.75-2.5mm ² | KAS7S00-405 | 120230-0014 | | |
| | 8.0A | | | | | KAS7S01-405 | 120230-0072 | |
| 9 Pole (8+1)  | 8=8.0A, 1=20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.34-1.00mm ² /0.75-2.5mm ² | KAS9S00-425 | 120230-0023 | KAS9S01-425 | 120230-0078 |
| 12 Pole  | 8.0A | 300V | 7.00-12.00mm (.276-.472") | 0.34-1.00mm ² | KASC00-025 | 120230-0032 | KASC01-025 | 120230-0084 |
| 16 Pole  | 8.0A | 150V | 7.00-12.00mm (.276-.472") | 0.34-1.00mm ² | KASH00-025 | 120230-0041 | KASH01-025 | 120230-0090 |
| 17 Pole  | 8.0A | 150V | 7.00-12.00mm (.276-.472") | 0.34-1.00mm ² | KASJS00-025 | 120230-0050 | KASJS01-025 | 120230-0096 |
| 19 Pole (16+3)  | 16=8.0A, 3=10.0A | 150V | 7.00-12.00mm (.276-.472") | 0.34-1.00mm ² /0.56-1.00mm ² | | | KALS01-225 | 120230-0102 |

Note: Sales drawings for all standard order numbers are available on molex.com

*Cable diameters 3.00-7.00mm and 11.00-17.00mm also available. Contact Molex for more information.

Brad® M23 Signal Field Attachable Connectors

120230 Male Crimp-Style Contacts Straight



Features and Benefits

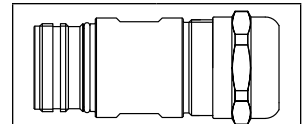
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

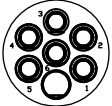
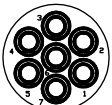
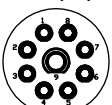
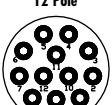
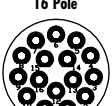
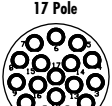
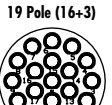
Physical

Housing: Copper-Zinc alloy, die-casting
Housing Surface: Nickel-plated Brass
Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
Inserts (for contacts):
Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class V-0
Contacts: Brass alloy
Contact Type: Crimp, solder, dip-solder (PCB)
Contact Surface at Point of Contact:
Nickel- and Gold-plated (0.25µm)
Minimum Mating Cycles: >1000
Seals/O-Rings: Buna-N standard
Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
NEMA Rating: 4x



| Poles | Max. Current per Contact | Max. Voltage | Cable Diameter* | Crimp Range | Engineering No. | Standard Order No. |
|---|--------------------------|--------------|---------------------------|---|-----------------|--------------------|
| 6 Pole  | 20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.75-2.50mm ² | KAS6S06-405 | 120230-0110 |
| 7 Pole  | 20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.75-2.50mm ² | KAS7S06-405 | 120230-0119 |
| 9 Pole (8+1)  | 8=8.0A, 1=20.0A | 300V | 7.00-12.00mm (.276-.472") | 0.14-1.00mm ² /0.75-2.50mm ² | KAS9S06-415 | 120230-0128 |
| 12 Pole  | 8.0A | 300V | 7.00-12.00mm (.276-.472") | 0.14-1.00mm ² | KASCS06-015 | 120230-0137 |
| 16 Pole  | 8.0A | 150V | 7.00-12.00mm (.276-.472") | 0.14-1.00mm ² | KASHS06-015 | 120230-0146 |
| 17 Pole  | 8.0A | 150V | 7.00-12.00mm (.276-.472") | 0.14-1.00mm ² | KASJS06-015 | 120230-0155 |
| 19 Pole (16+3)  | 16=8.0A, 3=10.0A | 150V | 7.00-12.00mm (.276-.472") | 0.14-1.00mm ² / 0.14-1.00mm ² | KASLS06-115 | 120230-0164 |

Note: Sales drawings for all standard order numbers are available on molex.com

*Cable diameters 3.00-7.00mm and 11.00-17.00mm also available. Contact Molex for more information.

Brad® M23 Signal Receptacles

120231 Female Crimp-Style Contacts Straight Front Panel Mount



Features and Benefits

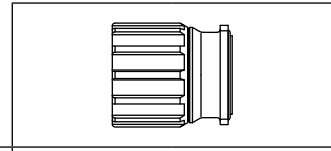
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

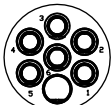
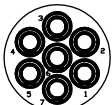
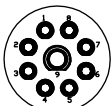
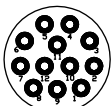
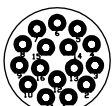
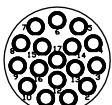

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
 Inserts (for contacts):
 Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class V-0
 Contacts: Brass alloy
 Contact Type: Crimp, solder, dip-solder (PCB)
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: 4x



| Poles | Max. Current per contact | Max. Voltage | Mounting Type | Mounting Thread | Crimp Range | Straight | |
|---|--------------------------|--------------|---------------|------------------|---|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 6 Pole  | 20.0A | 300V | Flange-Mount | Flange 4x0 3.2mm | 0.75-2.5mm ² | KRS6G20-403 | 120231-0002 |
| 7 Pole  | 20.0A | 300V | Flange-Mount | Flange 4x0 3.2mm | 0.75-2.5mm ² | KRS7G20-403 | 120231-0005 |
| 9 Pole (8+1)  | 8 = 8.0A 1 = 20.0A | 300V | Flange-Mount | Flange 4x0 3.2mm | 0.54-2.1mm ² / 0.75-2.5mm ² | KRS9G20-423 | 120231-0008 |
| 12 Pole  | 8.0A | 300V | Flange-Mount | Flange 4x0 3.2mm | 0.34-1.0mm ² | KRSG20-023 | 120231-0011 |
| 16 Pole  | 8.0A | 150V | Flange-Mount | Flange 4x0 3.2mm | 0.34-1.0mm ² | KRSHG20-023 | 120231-0014 |
| 17 Pole  | 8.0A | 150V | Flange-Mount | Flange 4x0 3.2mm | 0.34-1.0mm ² | KRSJG20-023 | 120231-0017 |
| 19 Pole (16+3)  | 16 = 8.0A 3 = 10.0A | 150V | Flange-Mount | Flange 4x0 3.2mm | 0.34-1.0mm ² / 0.56-1.0mm ² | KRSLG20-223 | 120231-0020 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Signal Receptacles

120231

Male Crimp-Style Contacts Straight, Right Angle Front Panel Mount



Features and Benefits

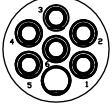
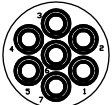
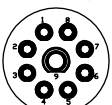
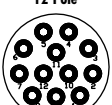
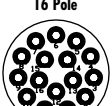
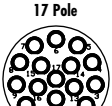
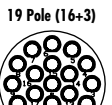
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
 Contact Inserts:
 Thermoplastic Polyamid PA 6 (Nylon 6/6),
 PBT fire protection class V-0
 Contacts: Brass alloy
 Contact Type: Crimp, solder, dip-solder (PCB)
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: NEMA 4x

| Poles (Male View) | Max. Current per Contact | Max. Voltage | Mounting Type | Mounting Thread | Crimp Range | Straight | | Right Angle* | |
|---|-----------------------------|-----------------|------------------|--------------------|--|-----------------|-----------------------|-----------------|-----------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 6 Pole  | 20.0A | 300V | Flange Mount | Flange 4x3.20mm | 0.75-2.50mm ² | KRS6G26-4031 | 120231-0023 | KRS6G27-4012 | 120231-0044 |
| 7 Pole  | 20.0A | 300V | Flange Mount | Flange 4x3.20mm | 0.75-2.50mm ² | KRS7G26-4031 | 120231-0026 | KRS7G27-4012 | 120231-0047 |
| 9 Pole (8+1)  | 8 = 8.0A 1 = 20.0A | 300V | Flange Mount | Flange 4x3.20mm | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRS9G26-4131 | 120231-0029 | KRS9G27-4112 | 120231-0050 |
| 12 Pole  | 8.0A | 300V | Flange Mount | Flange 4x3.20mm | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRSCG26-0131 | 120231-0032 | KRSCG27-0112 | 120231-0053 |
| 16 Pole  | 8.0A | 150V | Flange Mount | Flange 4x3.20mm | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRSHG26-0131 | 120231-0035 | KRSHG27-0112 | 120231-0056 |
| 17 Pole  | 8.0A | 150V | Flange Mount | Flange 4x3.20mm | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRSJG26-0131 | 120231-0038 | KRSJG27-0112 | 120231-0059 |
| 19 Pole (16+3)  | 16 = 18.0A 3 = 10.0A | 150V | Flange Mount | Flange 4x3.20mm | 0.14-1.00mm ² /0.14-1.00mm ² | KRSLG26-1131 | 120231-0041 | KRSLG27-1112 | 120231-0062 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *Receptacle flange mount rotatable

Brad® M23 Signal Receptacles

120231 Male Crimp-Style Contacts Straight Back Panel Mount



Features and Benefits

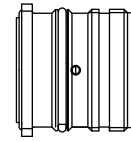
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

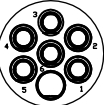
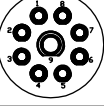
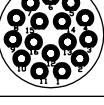

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
 Contact Inserts:
 Thermoplastic Polyamid PA 6 (Nylon 6/6),
 PBT fire protection class V-0
 Contacts: Brass alloy
 Contact Type: Crimp, solder, dip-solder (PCB)
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: NEMA 4x



| Poles (Male View) | Max. Current per Contact | Max. Voltage | Mounting Type | Mounting Thread | Crimp Range | Straight | |
|---|-----------------------------|--------------|---------------|-----------------|---|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 6 Pole  | 20.0A | 300V | Flange Mount | Flange 4xM3 | 0.75-2.50mm ² | KRS6G46-4041 | 120231-0066 |
| 7 Pole  | 20.0A | 300V | Flange Mount | Flange 4xM3 | 0.75-2.50mm ² | KRS7G46-4041 | 120231-0070 |
| 9 Pole (8+1)  | 8 = 8.0A 1 = 20.0A | 300V | Flange Mount | Flange 4xM3 | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRS9G46-4141 | 120231-0074 |
| 12 Pole  | 8.0A | 300V | Flange Mount | Flange 4xM3 | 0.14-1.00mm ² | KRSCG46-0141 | 120231-0078 |
| 16 Pole  | 8.0A | 150V | Flange Mount | Flange 4xM3 | 0.14-1.00mm ² | KRSHG46-0141 | 120231-0082 |
| 17 Pole  | 8.0A | 150V | Flange Mount | Flange 4xM3 | 0.14-1.00mm ² | KRSJG46-0141 | 120231-0086 |
| 19 Pole (16+3)  | 16 = 18.0A 3 = 10.0A | 150V | Flange Mount | Flange 4xM3 | 0.14-1.00mm ² / 0.14-1.00mm ² | KRSLG46-1141 | 120231-0090 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Signal Receptacles

120231

Male Crimp-Style Contacts
Straight
Back Panel Mount



Features and Benefits

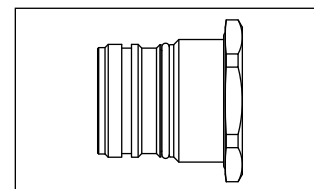
- Cable assembly and shielding in one assembly step
- Clipped-on strain-relief insert prevents cable rotation
- Flexible EMC-O-Ring guarantees reliable EMC-protection
- Radial-encompassing spring contacts assure low plug-in resistance and high-mating cycles
- Integrated locking clip secures the contact in the insert and allows easy assembly and disassembly

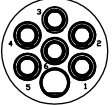
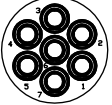
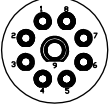
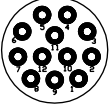
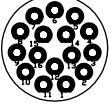
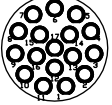

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Cable Diameter Range: 3.00 to 17.00mm (0.12 to 0.55")
 Contact Inserts:
 Thermoplastic Polyamid PA 6 (Nylon 6/6),
 PBT fire protection class V-0
 Contacts: Brass alloy
 Contact Type: Crimp, solder, dip-solder (PCB)
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to +125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: NEMA 4x



| Poles (Male View) | Max. Current per Contact | Max. Voltage | Mounting Type | Mounting Thread | Crimp Range | Straight | |
|---|-----------------------------|--------------|---------------|-----------------|---|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 6 Pole  | 20.0A | 300V | Flange Mount | Single Hole | 0.75-2.50mm ² | KRS6P46-400 | 120231-0094 |
| 7 Pole  | 20.0A | 300V | Flange Mount | Single Hole | 0.75-2.50mm ² | KRS7P46-400 | 120231-0098 |
| 9 Pole (8+1)  | 8 = 8.0A 1 = 20.0A | 300V | Flange Mount | M25x1.5 | 0.14-1.00mm ² / 0.75-2.50 mm ² | KRS9P46-410 | 120231-0102 |
| 12 Pole  | 8.0A | 300V | Flange Mount | M25x1.5 | 0.14-1.00mm ² | KRSCP46-010 | 120231-0106 |
| 16 Pole  | 8.0A | 150V | Flange Mount | M25x1.5 | 0.14-1.00mm ² | KRSHP46-010 | 120231-0110 |
| 17 Pole  | 8.0A | 150V | Flange Mount | M25x1.5 | 0.14-1.00mm ² | KRSJP46-010 | 120231-0114 |
| 19 Pole (16+3)  | 16 = 18.0A 3 = 10.0A | 150V | Flange Mount | M25x1.5 | 0.14-1.00mm ² / 0.14-1.00mm ² | KRSLP46-110 | 120231-0118 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *Receptacle flange mount rotatable

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® M23 Signal Single-Ended Molded Cordsets

120094

**Female Straight
Female Right Angle-to-Pigtail**



Features and Benefits

- 12- and 19-pole versions available
- IP67 rated for harsh environments
- Offered with PUR cables for moderate flexing and for environments encountering cutting fluids and oils

Electrical

Voltage: 63V AC/DC max.
Current: 6.0A max.

Mechanical

Wire Size: 18/22 AWG

Physical

Connector Body: TPU
Cable Jacket: PUR
Keyway: None
Connector End A: M23
Connector End B: Pigtail
Contact: Copper with Gold over Nickel plating
Coupling Nut: Nickel-plated Brass
Cable Length: 10.0m (32.81")
Cable Jacket Color: Black
Operating Temperature: -25 to +90° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Cable Diameter | Female Straight | | Female Right Angle-to-Pigtail | |
|------------------------|--------------------|-----------------|--------------------|-------------------------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | 9.40mm (.370") | K02100P80M100 | 120094-5022 |
| | 11.43mm (.450") | K03000P80M100 | 120094-5003 | K03001P80M100 | 120094-0044 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

K02100P80M100

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® M23 Power Field Attachable Connectors

120233

**Female Crimp-Style Contacts
Straight, Right Angle**



Features and Benefits

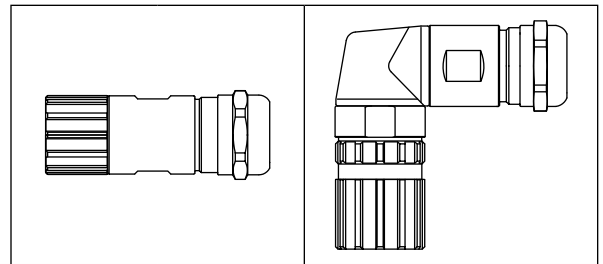
- Modularity—same insert for all housings
- The integrated locking clip allows quick assembly
- Complete assembly and disassembly without special tools
- Lowest contact resistance as a result of a Gold-plated contact area
- Integrated strain-relief fitting

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Contact Inserts:
 Thermoplastic Polyamid PA 6 (Nylon 6/6),
 PBT fire protection class 94V-0
 Contacts: Brass alloy
 Type of Contacts: Crimp
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to 125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: NEMA 4x



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Crimp Range | Female Straight | | Female Right Angle | |
|------------------------|-----------------------------|----------------|---|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 6 (5+PE) | 28.0A | 800V | 0.75-2.50mm ² | KAP6S00-105 | 120233-0001 | KAP6S01-105 | 120233-0009 |
| 8 (4+3+PE) | 4=8.0A, 4=28.0A | 4=300V, 4=800V | 0.25-1.00mm ² /0.75-2.5mm ² | KAP8S00-115 | 120233-0005 | KAP8S01-115 | 120233-0013 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Power Field Attachable Connectors

120233 Male Crimp-Style Contacts Straight



Features and Benefits

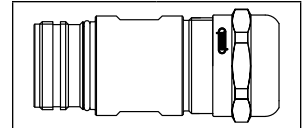
- Modularity—same insert for all housings
- The integrated locking clip allows quick assembly
- Complete assembly and disassembly without special tools
- Lowest contact resistance as a result of a Gold-plated contact area
- Integrated strain-relief fitting

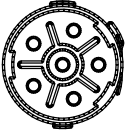
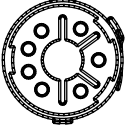
Physical

Connector Body: Nylon
Keyway: None
Contact: Brass with Gold over Nickel plating
Operating Temperature: -40 to +125° C

Environmental

Protection: IP67



| Poles | Max. Current per Contact | Max. Voltage | Cable Diameter | Crimp Range | Engineering No. | Standard Order No. |
|--|--------------------------|----------------------|---------------------------|-------------|-----------------|--------------------|
| 6 Pole (5+PE)  | 28.0A | 800V | 7.00-12.00mm (.276-.472") | 0.25-1.00mm | KAP6S06-105 | 120233-0017 |
| 8 Pole (4+3+PE)  | 4 = 8.0A 4 = 28.0A | 4 = 300V 4 = 800V | 7.00-12.00mm (.276-.472") | 0.75-2.50mm | KAP8S06-115 | 120233-0021 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Power Connectors Receptacles

120234

**Female Crimp-Style Contacts
Straight
Front Panel Mount**



Features and Benefits

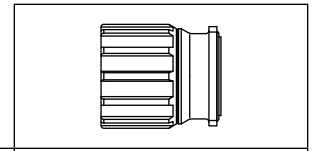
- Modularity—same insert for all housings
- The integrated locking clip allows quick assembly
- Complete assembly and disassembly without special tools
- Lowest contact resistance as a result of a Gold-plated contact area
- Integrated strain-relief fitting

Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Inserts (for contacts):
 Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class 94V-0
 Contacts: Brass alloy
 Type of Contacts: Crimp
 Contact Surface at Point of Contact:
 Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to 125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: 4x



| Poles | Max. Current per Contact | Max. Voltage | Panel Mount Style | Mounting Type | Mounting Thread | Crimp Range | Straight | |
|---------------------|--------------------------|----------------|-------------------|---------------|------------------|--|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 6 Pole (5+PE) | 28.0A | 800V | Front Panel | Flange-Mount | Flange 4x0 3.2mm | 0.75-2.5mm ² | KRP6G00-103 | 120234-0001 |
| 8 Pole (4+3+PE) | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Front Panel | Flange-Mount | Flange 4x0 3.2mm | 0.25-1.00mm ² / .75-2.5mm ² | KRP8G00-113 | 120234-0003 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Power Receptacles

120234

Male Crimp-Style Contacts Straight, Right Angle Front, Back Panel Mount



Features and Benefits

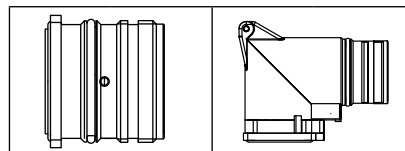
- Modularity—same insert for all housings
- The integrated locking clip allows quick assembly
- Complete assembly and disassembly without special tools
- Lowest contact resistance as a result of a Gold-plated contact area
- Integrated strain-relief fitting








Physical

Housing: Copper-Zinc alloy, die-casting
 Housing Surface: Nickel-plated Brass
 Inserts (for contacts): Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class 94V-0
 Contacts: Brass alloy
 Type of Contacts: Crimp
 Contact Surface at Point of Contact: Nickel- and Gold-plated (0.25µm)
 Minimum Mating Cycles: >1000
 Seals/O-Rings: Buna-N standard
 Operating Temperature: -40 to 125° C

Environmental

Protection: IP67 per EN 60625 (connected)
 NEMA Rating: 4x



| Poles | Max. Current per Contact | Max. Voltage | Panel Mount Style | Mounting Type | Mounting Thread | Crimp Range | Rotatable | Straight | | Right Angle | |
|--|--------------------------|----------------|-------------------|------------------------|-------------------|---|-----------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 6 Pole (5+PE)  | 28.0A | 800V | Front Panel | Flange-Mount | Flange 4xØ 3.20mm | 0.75-2.50mm ² | No | KRP6G06-103 | 120234-0005 | | |
| 8 Pole (4+3+PE)  | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Front Panel | Flange-Mount | Flange 4xØ 3.20mm | 0.25-1.00mm ² / 0.75-2.5mm ² | | KRP8G06-113 | 120234-0007 | | |
| 6 Pole (5+PE)  | 28.0A | 800V | Front Panel | Flange 25.00 x 25.00mm | Flange 4xØ 2.70mm | 0.75-2.50mm ² | Yes | | | KRP6G07-1012 | 120234-0009 |
| 8 Pole (4+3+PE)  | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Front Panel | Flange 25.00 x 25.00mm | Flange 4xØ 2.70mm | 0.25-1.00mm ² / 0.75-2.5mm ² | | | | KRP8G07-1112 | 120234-0011 |
| 6 Pole (5+PE)  | 28.0A | 800V | Front Panel | Flange 28.00 x 28.00mm | Flange 4xØ 3.20mm | 0.75-2.50mm ² | | | | KRP6G07-1052 | 120234-0013 |
| 8 Pole (4+3+PE)  | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Front Panel | Flange 28.00 x 28.00mm | Flange 4xØ 3.20mm | 0.25-1.00mm ² / 0.75-2.5mm ² | | | | KRP8G07-1152 | 120234-0015 |
| 6 Pole (5+PE)  | 28.0A | 800V | Back Panel | Flange-Mount | Flange 4xØ 3.20mm | 0.75-2.50mm ² | No | KRP6G46-1031 | 120234-0017 | | |
| 8 Pole (4+3+PE)  | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Back Panel | Flange-Mount | Flange 4xØ 3.20mm | 0.25-1.00mm ² / 0.75-2.5mm ² | | KRP8G46-1131 | 120234-0019 | | |
| 6 Pole (5+PE)  | 28.0A | 800V | Back Panel | Single Hole Mount | M25 x 1.50mm | 0.75-2.50mm ² | | KRP6P46-100 | 120234-0021 | | |
| 8 Pole (4+3+PE)  | 4=8.0A, 4=28.0A | 4=300V, 4=800V | Back Panel | Single Hole Mount | M25 x 1.50mm | 0.25-1.00mm ² / 0.75-2.5mm ² | | KRP8P46-110 | 120234-0023 | | |
| | | | | | | | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® M23 Power and Signal Tools and Accessories

120155



| Description | Power / Signal | Gender | Engineering No. | Standard Order No. |
|----------------|----------------|--------|-----------------|--------------------|
| Crimp Tool | Power | | KP-TOOL-01 | 120155-0017 |
| | Signal | | KS-TOOL-01 | 120155-0012 |
| Locator | Power | Male | KP-LOC-01 | 120155-0018 |
| | | Female | KP-LOC-02 | 120155-0019 |
| | Signal | Male | KS-LOC-01 | 120155-0013 |
| | | Female | KS-LOC-02 | 120155-0014 |
| Assembly Tool | Signal | | KS-TOOL-02 | 120155-0015 |
| Adapter Flange | Signal/Power | | KA-FLANGE | 120155-0016 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

mPm® DIN Cordset Family

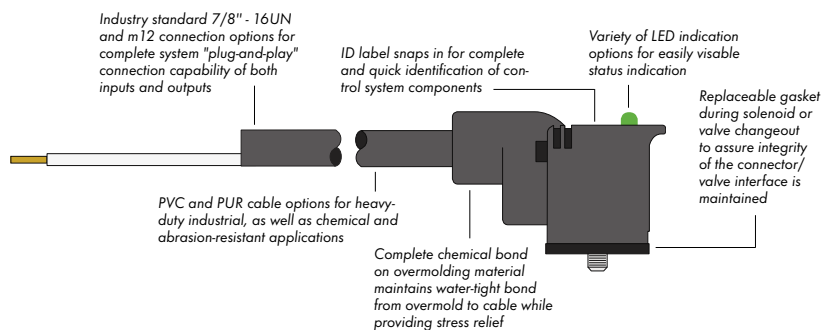
DIN

FIELD ATTACHABLE

The mPm range of connectors conform to Industry Standard EN 175301-803 (formerly DIN 43650). This is the standard for a series of electrical connectors, which are commonly used with solenoid valves (especially those used on hydraulic and pneumatic valves). The new generation of Molex DIN connectors provides customers with unsurpassed sealing performance, easier assembly and mounting and lower applied costs.

The connector has an external nut to provide greater and consistent torque which ensures good cable retention and high reliability. Together with the integrated front gasket, Molex DIN connectors achieve a sealing performance from dust and water to IP67. Cable retention force is increased by up to 115% when compared with traditional internal nut designs. This innovative new design reduces the number of components in the connector, making customer assembly and secure mounting, easier and quicker.

Traditional mPm connectors are supplied to the customer pre-assembled, requiring disassembly before terminating the cable. The new generation of connectors is supplied in single set, or bulk components reducing disassembly time and reducing cost. The connectors can accommodate PG9 and PG11 cable and up to 9.00mm cable outer diameter and since one size fits all the customer can reduce their connector inventory. The result is a higher performance and lower overall cost solution. To further reduce labor, pre-terminated and overmolded DIN connectors are also available in stand lengths.



Overmolded with LED

MOLDED CABLE

Our connectors with molded-in cable are suitable for use with most types of solenoid. They offer a fast and efficient method of connection resulting in greatly reduced installation time and cost. They can be supplied with or without integral LED indicators and suppression circuits. A diagram is printed on each connector with circuit to allow for easy user identification.



Overmolded With LED

Overmolded without LED



Field Attachable With LED



Field Attachable without LED

Brad® mPm® Field Attachable DIN Valve Connectors

121201/121207

Form A
External Thread
Non-Electronic, Electronic



Features and Benefits

- IP67 rated for waterproofing
- Conforms to industry standard EN175301-803
- Accommodates a range of cable diameters
- Product supplied in ready-to-use condition
- Integrated gaskets within housing

Reference Information

UL Listed, File E218123 (available upon request)

Electrical

Max. Current: 16.0A
Contact Resistance: ≤4 milliohms max.
Insulation Resistance: 100 Megaohms min.
Max. Conductor: 1.50mm²/16 AWG

Mechanical

Insertion and Withdrawal Force: 2+PE ≤ 60N

Physical

Durability (min.): 50 cycles
Contact Area: Silver
Solder Tail Area: Silver
Operating Temperature:
Nitrile Rubber (NBR) Gasket — -40 to +90° C
Silicone Gasket — -40 to +125° C
Cable Range: 4.00-9.00mm
Contact Distance: C28 (Non-Electronic)—18.00mm (.709")
S28 (Electronic)—18.00mm (.709")
Poles: 2—2-pole
3—3-pole
Material and Housing Color: G—PA6, Gray
N—PA6, Black
T—Transparent
Ground Position: 0—Unmounted
2—H12
3—H3
6—H6
9—H9

Physical (continued)

Screw and Gasket:
R—Integrated NBR Gasket and IP67 Screw
S—Integrated Silicon Gasket and IP67 Screw
Non-Standard Packaging:
CN—Bulk Pack Unmounted
SN—Bulk Pack Mounted
Voltage, LED Color (Electronic):
Red LED: 1—12V
2—24V
3—48V
4—115V
5—230V
Green LED: A—12V
B—24V
C—48V
D—115V
E—230V
Amber LED: G—12V
H—24V
K—48V
L—115V
M—230V
Circuit (Electronic): See Circuit Options on
mPm Available Circuits page

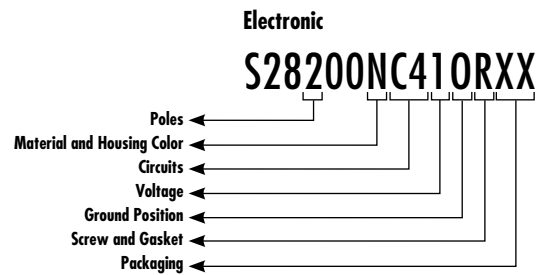
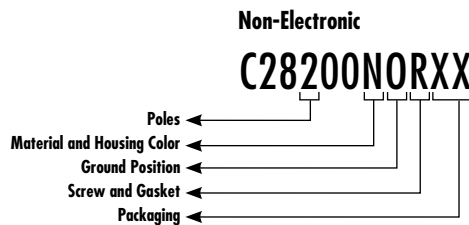
Environmental

Protection: IP67

| Drawing | Pitch | Poles | Max. Current per Contact | Max. Voltage | Connector | | Base | | Type |
|--|---------|-------|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 18.00mm | 2 | 16.0A | 250V AC 300V DC | C28200NOR | 121201-0001 | B202000N2 | 121012-0013 | Non-Electronic |
| | | 3 | 16.0A | 250V AC 300V DC | C28300NOR | 121201-0002 | B203000N2 | 121012-0019 | Non-Electronic |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | | Electronic |

Molex offers a wide range of additional related components such as adapters, splitters and dual-din overmolded connectors. For information regarding these products, please contact your local sales representative.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Field Attachable DIN Valve Connectors

121202/121208

Form Industrial External Thread Non-Electronic, Electronic



Features and Benefits

- IP67 rated for waterproofing
- Conforms to industry standard EN175301-803
- Accommodates a range of cable diameters
- Product supplied in ready-to-use condition
- Integrated gaskets within housing

Reference Information

UL Listed, File E218123 (available upon request)

Electrical

Max. Current: Form A, B and Industrial—16.0A
 Form C, Micro—10.0A
 Contact Resistance: ≤4 milliohms max.
 Insulation Resistance: 100 Megaohms min.
 Max. Conductor: 1.50mm²/16 AWG

Mechanical

Insertion and Withdrawal Force: 2+PE ≤ 60N

Physical

Durability (min.): 50 cycles
 Contact Area: Silver
 Solder Tail Area: Silver
 Operating Temperature:
 Nitrile Rubber (NBR) Gasket — -40 to +90° C
 Silicone Gasket — -40 to +125° C
 Cable Range: 4.00-9.00mm
 Contact Distance: C22 (Non-Electronic)—11.00mm (.433")
 S22 (Electronic)—11.00mm (.433")
 Poles: 2—2-pole + Ground
 Material and Housing Color: G—PA6, Gray
 N—PA6, Black
 T—Transparent
 Ground Position: 0—Unmounted
 2—H12
 3—H3
 6—H6
 9—H9

Physical (continued)

Screw and Gasket:
 R—Integrated NBR Gasket and IP67 Screw
 S—Integrated Silicon Gasket and IP67 Screw
 Non-Standard Packaging:
 CN—Bulk Pack Unmounted
 SN—Bulk Pack Mounted
 Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24V
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V
 Circuit (Electronic): See Circuit Options on
 mPm Available Circuits page

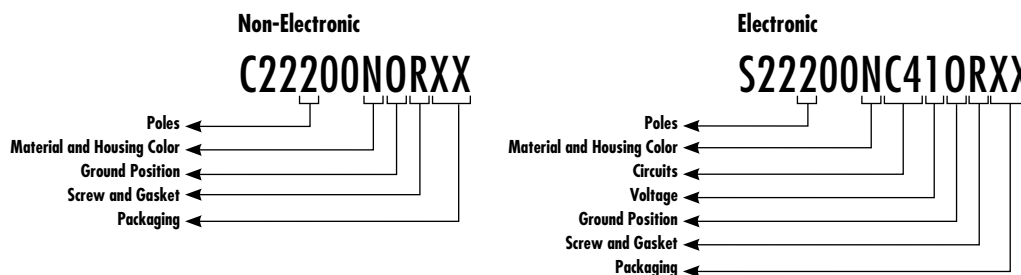
Environmental

Protection: IP67

| Drawing | Pitch | Poles | Max. Current per Contact | Max. Voltage | Connector | | Type |
|---------|---------|--|--------------------------|--------------------|-----------------|--------------------|----------------|
| | | | | | Engineering No. | Standard Order No. | |
| | 11.00mm | 2 | 10.0A | 250V AC 300V DC | C22200NOR | 121202-0002 | Non-Electronic |
| | | For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | |

Molex offers a wide range of additional related components such as adapters, splitters and dual-din overmolded connectors. For information regarding these products, please contact your local sales representative.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Field Attachable DIN Valve Connectors

121203/121209

Form B
External Thread
Non-Electronic, Electronic



Features and Benefits

- IP67 rated for waterproofing
- Conforms to industry standard EN175301-803
- Accommodates a range of cable diameters
- Product supplied in ready-to-use condition

Reference Information

UL Listed, File E218123 (available upon request)

Electrical

Max. Current: 16.0A
Contact Resistance: ≤4 milliohms max.
Insulation Resistance: 100 Megaohms min.
Max. Conductor: 1.50mm²/16 AWG

Mechanical

Insertion and Withdrawal Force: 2+PE ≤ 60N

Physical

Durability (min.): 50 cycles
Contact Area: Silver
Solder Tail Area: Silver
Operating Temperature:
Nitrile Rubber (NBR) Gasket — -40 to +90° C
Silicone Gasket — -40 to +125° C
Cable Range: 4.00-9.00mm
Contact Distance: C92 (Non-Electronic)—10.00mm (.394")
S92 (Electronic)—10.00mm (.394")
Poles: 2—2-pole + Ground
Material and Housing Color: G—PA6, Gray
N—PA6, Black
T—Transparent
Ground Position: 0—Unmounted
2—H12
3—H3
6—H6
9—H9

Physical (continued)

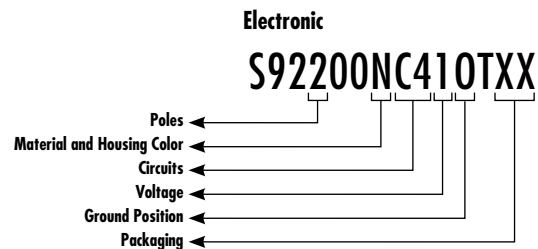
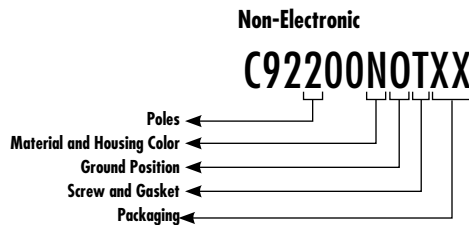
Screw and Gasket:
T—Profile NBR and IP67 screw
U—Profile silicon and IP67 screw
Non-Standard Packaging:
CN—Bulk Pack Unmounted
SN—Bulk Pack Mounted
Voltage, LED Color (Electronic):
Red LED: 1—12V
2—24V
3—48V
4—115V
5—230V
Green LED: A—12V
B—24V
C—48V
D—115V
E—230V
Amber LED: G—12V
H—24V
K—48V
L—115V
M—230V
Circuit (Electronic): See Circuit Options on
mPm Available Circuits page

Environmental

Protection: IP67

| Drawing | Pitch | Poles | Max. Current per Contact | Max. Voltage | Connector | | Type |
|--|---------|-------|--------------------------|--------------------|-----------------|--------------------|----------------|
| | | | | | Engineering No. | Standard Order No. | |
| | 10.00mm | 2 | 16.0A | 250V AC 300V DC | C92200NOT | 121203-0001 | Non-Electronic |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | Electronic |

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Field Attachable DIN Valve Connectors

121203/121209

Form C
External Thread
Non-Electronic, Electronic



Features and Benefits

- IP67 rated for waterproofing
- Conforms to industry standard EN175301-803
- Accommodates a range of cable diameters
- Product supplied in ready-to-use condition

Reference Information

UL Listed, File E218123 (available upon request)

Electrical

Max. Current: 10.0A
Contact Resistance: ≤4 milliohms max.
Insulation Resistance: 100 Megaohms min.
Max. Conductor: 1.50mm²/16 AWG

Mechanical

Insertion and Withdrawal Force: 2+PE ≤ 60N

Physical

Durability (min.): 50 cycles
Contact Area: Silver
Solder Tail Area: Silver
Operating Temperature:
Nitrile Rubber (NBR) Gasket — -40 to +90° C
Silicone Gasket — -40 to +125° C
Cable Range: 3.00-5.50mm
Contact Distance: C25 (Non-Electronic)—8.00mm (.315")
S25 (Electronic)—8.00mm (.315")

Environmental

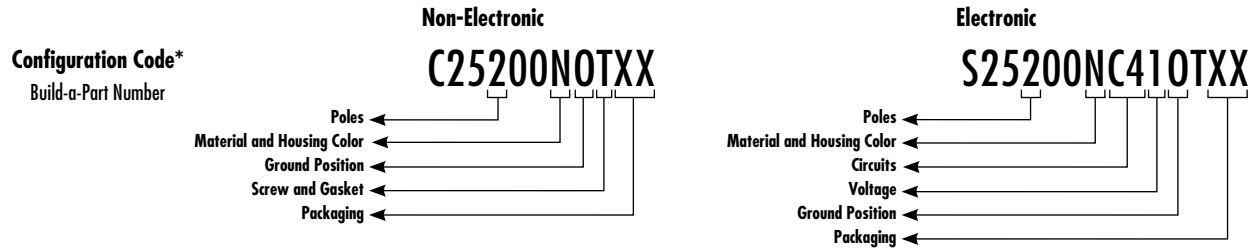
Protection: IP67 Poles: 2—2-pole
3—3-pole
Material and Housing Color: G—PA6, Gray
N—PA6, Black
T—Transparent
Ground Position: 0—Unmounted
2—H12
3—H3
6—H6
9—H9

Physical (continued)

Screw and Gasket:
T—Profile NBR and IP67 screw
U—Profile silicon and IP67 screw
Non-Standard Packaging:
CN—Bulk Pack Unmounted
SN—Bulk Pack Mounted
Voltage, LED Color (Electronic):
Red LED: 1—12V
2—24V
3—48V
4—115V
5—230V
Green LED: A—12V
B—24V
C—48V
D—115V
E—230V
Amber LED: G—12V
H—24V
K—48V
L—115V
M—230V
Circuit (Electronic): See Circuit Options on
mPm Available Circuits page

| Drawing | Pitch | Poles | Max. Current per Contact | Max. Voltage | Connector | | Base | | Type |
|---------|--------|--|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 8.00mm | 2 | 10.0A | 250V AC 300V DC | C25200NOT | 121204-0001 | B15200N2 | 121012-0009 | Non-Electronic |
| | | 3 | 10.0A | 250V AC 300V DC | C25300NOT | 121204-0005 | B15300N2 | 121012-0010 | |
| | | For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | |

Molex offers a wide range of additional related components such as adapters, splitters and dual-din overmolded connectors. For information regarding these products, please contact your local sales representative.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Field Attachable DIN Valve Connectors

121205/121211

Form Micro External Thread Non-Electronic, Electronic



Features and Benefits

- IP67 rated for waterproofing
- Conforms to industry standard EN175301-803
- Accommodates a range of cable diameters
- Product supplied in ready-to-use condition

Reference Information

UL Listed, File E218123 (available upon request)

Electrical

Max. Current: 10.0A
Contact Resistance: ≤4 milliohms max.
Insulation Resistance: 100 Megaohms min.
Max. Conductor: 1.50mm²/16 AWG

Mechanical

Insertion and Withdrawal Force: 2+PE ≤ 60N

Physical

Durability (min.): 50 cycles
Contact Area: Silver
Solder Tail Area: Silver
Operating Temperature:
Nitrile Rubber (NBR) Gasket — -40 to +90° C
Silicone Gasket — -40 to +125° C
Cable Range: 3.00-5.50mm
Contact Distance: C29 (Non-Electronic)—9.40mm (.370")
S29 (Electronic)—9.40mm (.370")
Poles: 2—2-pole
3—3-pole
Material and Housing Color: G—PA6, Gray
N—PA6, Black
T—Transparent
Ground Position: 0—Unmounted
2—H12
3—H3
6—H6
9—H9

Physical (continued)

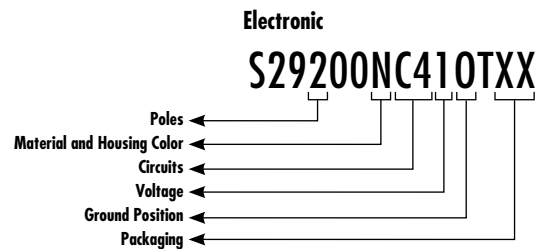
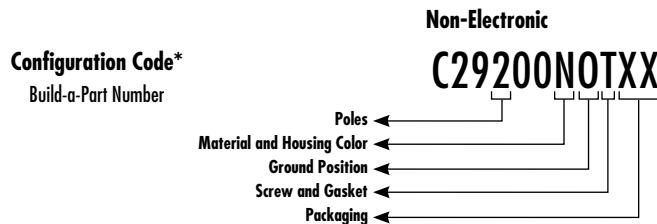
Screw and Gasket:
T—Profile NBR and IP67 screw
U—Profile silicon and IP67 screw
Non-Standard Packaging:
CN—Bulk Pack Unmounted
SN—Bulk Pack Mounted
Voltage, LED Color (Electronic):
Red LED: 1—12V
2—24V
3—48V
4—115V
5—230V
Green LED: A—12V
B—24V
C—48V
D—115V
E—230V
Amber LED: G—12V
H—24V
K—48V
L—115V
M—230V
Circuit (Electronic): See Circuit Options on
mPm Available Circuits page

Environmental

Protection: IP67

| Drawing | Pitch | Poles | Max. Current per Contact | Max. Voltage | Connector | | Base | | Type |
|--|--------|-------|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 9.40mm | 2 | 10.0A | 250V AC 300V DC | C29200NOT | 121205-0001 | B29200N2 | 121012-0102 | Non-Electronic |
| | | 3 | 10.0A | 250V AC 300V DC | C29300NOT | 121205-0005 | | | |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | | Electronic |

Molex offers a wide range of additional related components such as adapters, splitters and dual-din overmolded connectors. For information regarding these products, please contact your local sales representative.



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Molded Cable DIN Valve Connectors

121040
Form A
Non-Electronic, Electronic



Features and Benefits

- DIN overmolded connector according to UNI EN 175301-803
- Available in Form A, Form B, Form C, Industrial and Micro
- Fully overmolded provides IP65 as standard but available with IP67
- Protection for harsh environments
- Available in array of configurations:
 - Large variety of cable types
 - H12 ground position standard (more orientations available upon request)
 - Black head standard (gray available upon request)
 - UL listed versions available
 - Large variety of integrated electronic circuit versions available
 - Different gasket available (flat, profile, self-retain)

Physical

Overmolding Material: Polypropylene
 Gasket: NBR black (silicon gasket available upon request)
 Contacts: Brass with Silver plating
 Wire: PVC (more available upon request)
 No. of Wires: 1—2 Wires
 2—2 Wires plus Earth
 3—3 Wires plus Earth
 Head Color: G—Gray
 N—Black
 A—Black (UL)
 B—Gray (UL)
 Cable Length (cm): 050—0.5m
 300—3.0m
 10K—10.0m
 Earth Pin Location: 1—H6/12 Double Earth
 6—H6
 2—H12

Gasket Screws:

- 1—NBR Profile Gasket Plus Fixing Screw
- 2—NBR Flat Gasket Plus Fixing Screw
- 3—Silicon Profile Gasket Plus Fixing Screw
- 4—Silicon Flat Gasket Plus Fixing Screw
- R—Integrated Gasket Plus Fixing Screw (IP67)

Physical (continued)

Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24V
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V

Cable Cross Section Area: See Cable Options on Technical Features page

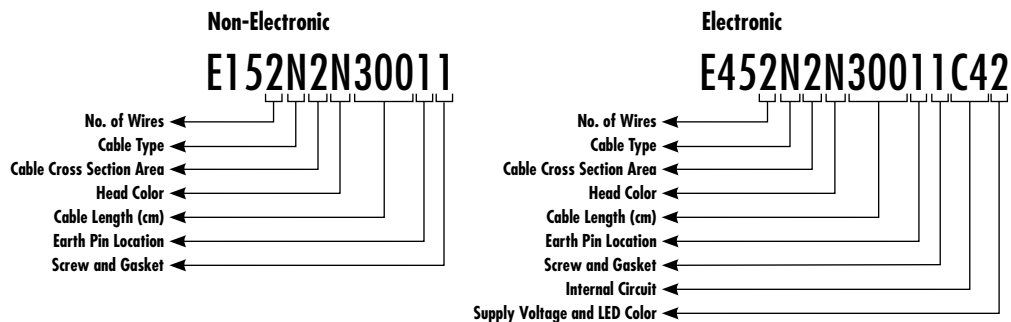
Cable Type: See Cable Options on Technical Features page
 Internal Circuit (Electronic): See Circuit Options on Circuits Available page

Environmental

Protection: IP65 (IP67 available upon request)
 Certifications: UL Listed, File E218123 (available upon request)

| Drawing | Pitch | Poles | Cable Type | Max. Current per Contact | Max. Voltage | 1.0m | | 2.0m | | 5.0m | | 10.0m | | Type |
|--|---------|-------|--------------------------------|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 18.00mm | 2 | PVC H05 0.75mm ² | 5.0A | 250V AC 300V DC | E152N3N10011 | 121040-0140 | E152N3N20011 | 121040-0159 | E152N3N50011 | 121040-0589 | E152N3N10K11 | 121040-0146 | Non-Electronic |
| | | 3 | PVC H05 0.75mm ² | 5.0A | 250V AC 300V DC | E153N3N10021 | 121040-0210 | E153N3N20021 | 121040-0219 | E153N3N50021 | 121040-0230 | E153N3N10K21 | 121040-1257 | |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | | | | | | | Electronic |

Configuration Code* Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Molded Cable DIN Valve Connectors

121040

Form Industrial
Non-Electronic, Electronic



Features and Benefits

- DIN overmolded connector according to UNI EN 175301-803
- Available in Form A, Form B, Form C, Industrial and Micro
- Fully overmolded provides IP65 as standard but available with IP67
- Protection for harsh environments
- Available in array of configurations:
 - Large variety of cable types
 - H12 ground position standard (more orientations available upon request)
 - Black head standard (gray available upon request)
 - UL listed versions available
 - Large variety of integrated electronic circuit versions available
 - Different gasket available (flat, profile, self-retain)

Physical

Overmolding Material: Polypropylene
 Gasket: NBR black (silicon gasket available upon request)
 Contacts: Brass with Silver plating
 Wire: PVC (more available upon request)
 No. of Wires: 1—2 Fill/Wires
 2—2 Fill plus Terra/2 Wires Plus Earth
 Head Color: G—Gray
 N—Black
 A—Black (UL)
 B—Gray (UL)
 Cable Length (cm): 050—0.5m
 300—3.0m
 10K—10.0m
 Earth Pin Location: 6—H6
 2—H12
 Gasket Screws:
 1— NBR Profile Gasket Plus Fixing Screw
 2— NBR Flat Gasket Plus Fixing Screw
 3— Silicon Profile Gasket Plus Fixing Screw
 4— Silicon Flat Gasket Plus Fixing Screw
 R—Integrated Gasket Plus Fixing Screw (IP67)

Physical (continued)

Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24V
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V

Cable Cross Section Area: See Cable Options on Technical Features page

Cable Type: See Cable Options on Technical Features page

Internal Circuit (Electronic): See Circuit Options on Circuits Available page

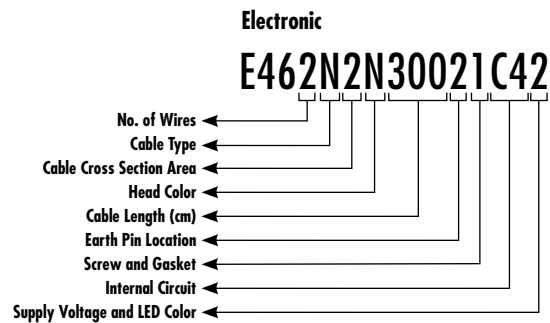
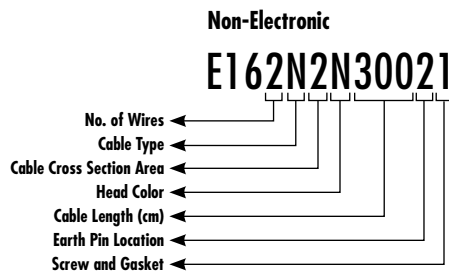
Environmental

Protection: IP65 (IP67 available upon request)
 Certifications: UL Listed, File E218123 (available upon request)

| Drawing | Pitch | Poles | Cable Type | Max. Current per Contact | Max. Voltage | 1.0m | | 2.0m | | 5.0m | | 10.0m | | Type |
|---------|---------|-------|--------------------------------|--------------------------|--------------------|--|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 11.00mm | 2 | PVC H05 0.75mm ² | 5.0A | 250V AC 300V DC | E162N3N10021 | 121040-0295 | E162N3N20021 | 121040-0305 | E162N3N50021 | 121040-0320 | E162N3N10K21 | 121040-0299 | Non-Electronic |
| | | | | | | For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | |

Configuration Code*

Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Molded Cable DIN Valve Connectors Form B Non-Electronic, Electronic



Features and Benefits

- DIN overmolded connector according to UNI EN 175301-803
- Available in Form A, Form B, Form C, Industrial and Micro
- Fully overmolded provides IP65 as standard but available with IP67
- Protection for harsh environments
- Available in array of configurations:
 - Large variety of cable types
 - H12 ground position standard (more orientations available upon request)
 - Black head standard (gray available upon request)
 - UL listed versions available
 - Large variety of integrated electronic circuit versions available
 - Different gasket available (flat, profile)

Physical

Pitch: 10.00mm
 Overmolding Material: Polypropylene
 Gasket: NBR black (silicon gasket available upon request)
 Contacts: Brass with Silver plating
 Wire: PVC (more available upon request)
 No. of Wires: 1—2 Wires
 2—2 Wires plus Earth
 Head Color: G—Gray
 N—Black
 A—Black (UL)
 B—Gray (UL)
 Cable Length (cm): 050—0.5m
 300—3.0m
 10K—10.0m
 Earth Pin Location: 6—H6
 2—H12

Gasket Screws:

- 1—NBR Profile Gasket Plus Fixing Screw
- 2—NBR Flat Gasket Plus Fixing Screw
- 3—Silicon Profile Gasket Plus Fixing Screw
- 4—Silicon Flat Gasket Plus Fixing Screw

Physical (continued)

Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V

Cable Cross Section Area: See Cable Options on Technical Features page

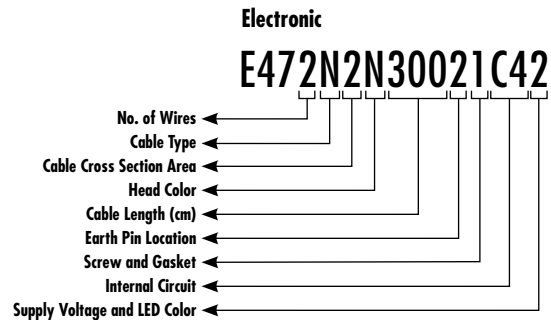
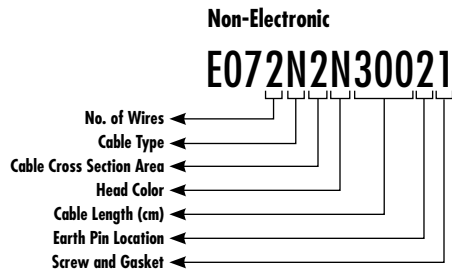
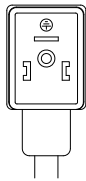
Cable Type: See Cable Options on Technical Features page
 Internal Circuit (Electronic): See Circuit Options on Circuits Available page

Environmental

Protection: IP65 (IP67 available upon request)
 Certifications: UL Listed, File E218123 (available upon request)

Configuration Code*

Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Molded Cable DIN Valve Connectors

121040

Form C
Non-Electronic, Electronic



Features and Benefits

- DIN overmolded connector according to UNI EN 175301-803
- Available in Form A, Form B, Form C, Industrial and Micro
- Fully overmolded provides IP65 as standard but available with IP67
- Protection for harsh environments
- Available in array of configurations:
 - Large variety of cable types
 - H12 ground position standard (more orientations available upon request)
 - Black head standard (gray available upon request)
 - UL listed versions available
 - Large variety of integrated electronic circuit versions available
 - Different gasket available (flat, profile)

Physical

Overmolding Material: Polypropylene
 Gasket: NBR black (silicon gasket available upon request)
 Contacts: Brass with Silver plating
 Wire: PVC (more available upon request)
 No. of Wires: 1—2 Wires
 2—2 Wires plus Earth
 3—4 Wires
 5—2 Wires (SMC Compatible)
 6—3 Wires (SMC Compatible)
 7—4 Wires (SMC Compatible)
 Head Color: G—Gray
 N—Black
 A—Black (UL)
 B—Gray (UL)
 Cable Length (cm): 050—.050cm
 300—3.0m
 10K—10.0m
 Earth Pin Location: 1—H6/12 Double Earth
 6—H6
 2—H12
 Gasket Screws:
 1—NBR Profile Gasket Plus Fixing Screw
 2—NBR Flat Gasket Plus Fixing Screw
 3—Silicon Profile Gasket Plus Fixing Screw
 4—Silicon Flat Gasket Plus Fixing Screw

Physical (continued)

Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24V
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V

Cable Cross Section Area: See Cable Options on Technical Features page

Cable Type: See Cable Options on Technical Features page

Internal Circuit (Electronic): See Circuit Options on Circuits Available page

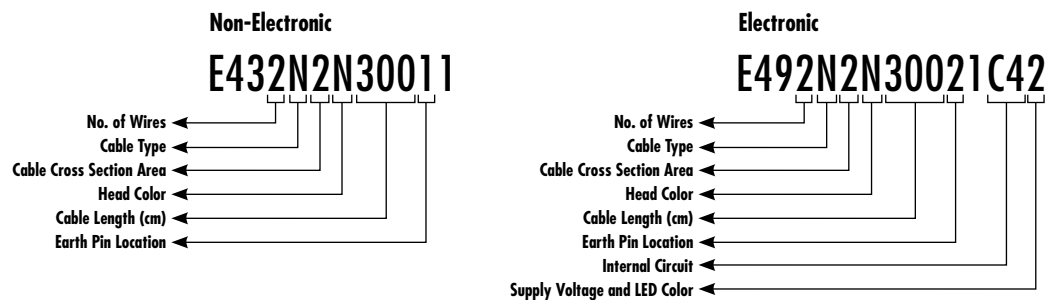
Environmental

Protection: IP65 (IP67 available upon request)
 Certifications: UL Listed, File E218123 (available upon request)

| Drawing | Pitch | Poles | Cable Type | Max. Current per Contact | Max. Voltage | 1.0m | | 2.0m | | 5.0m | | 10.0m | | Type |
|--|--------|-------|--------------------------------|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 8.00mm | 2 | PVC H03 0.50mm ² | 3.0A | 250V AC 300V DC | E432N2N10011 | 121040-0491 | E432N2N20011 | 121040-0496 | E432N2N50011 | 121040-0500 | E432N2N10K11 | 121040-0493 | Non-Electronic |
| | | 3 | PVC H03 0.50mm ² | 3.0A | 250V AC 300V DC | E433N2N10021 | 121040-1258 | E433N2N20021 | 121040-1259 | E433N2N50021 | 121040-0511 | E433N2N10K21 | 121040-1109 | |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | | | | | | | Electronic |

Configuration Code*

Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® mPm® Molded Cable DIN Valve Connectors

121040

Form Micro
Non-Electronic, Electronic



Features and Benefits

- DIN overmolded connector according to UNI EN 175301-803
- Available in Form A, Form B, Form C, Industrial and Micro
- Fully overmolded provides IP65 as standard but available with IP67
- Protection for harsh environments
- Available in array of configurations:
 - Large variety of cable types
 - H12 ground position standard (more orientations available upon request)
 - Black head standard (gray available upon request)
 - UL listed versions available
 - Large variety of integrated electronic circuit versions available
 - Different gasket available (flat, profile)

Physical

Overmolding Material: Polypropylene
 Gasket: NBR black (silicon gasket available upon request)
 Contacts: Brass with Silver plating
 Wire: PVC (more available upon request)
 No. of Wires: 1—Need description
 2—Need description
 3—4 Wires
 5—2 Wires (SMC Compatible)
 6—3 Wires (SMC Compatible)
 7—4 Wires (SMC Compatible)
 Head Color: G—Gray
 N—Black
 A—Black (UL)
 B—Gray (UL)
 Cable Length (cm): 050—050cm
 300—3.0m
 10K—10.0m
 Earth Pin Location: 1—H6/12 Double Earth
 6—H6
 2—H12
 Gasket Screws:
 1—NBR Profile Gasket Plus Fixing Screw
 2—NBR Flat Gasket Plus Fixing Screw
 3—Silicon Profile Gasket Plus Fixing Screw
 4—Silicon Flat Gasket Plus Fixing Screw

Physical (continued)

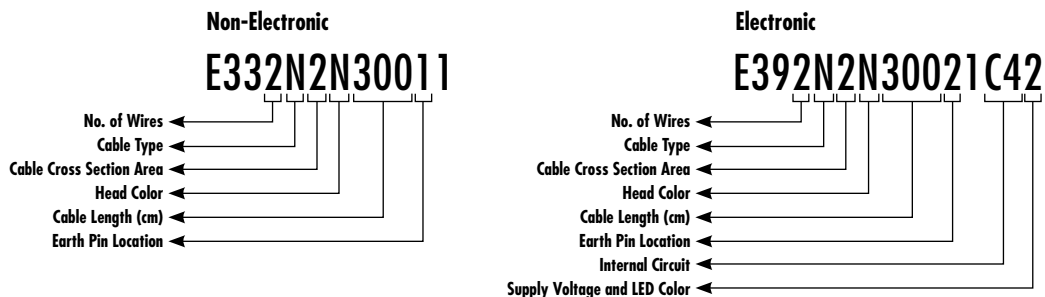
Voltage, LED Color (Electronic):
 Red LED: 1—12V
 2—24V
 3—48V
 4—115V
 5—230V
 Green LED: A—12V
 B—24V
 C—48V
 D—115V
 E—230V
 Amber LED: G—12V
 H—24V
 K—48V
 L—115V
 M—230V
 Cable Cross Section Area: See Cable Options on Technical Features page
 Cable Type: See Cable Options on Technical Features page
 Internal Circuit (Electronic): See Circuit Options on Circuits Available page

Environmental

Protection: IP65 (IP67 available upon request)
 Certifications: UL Listed, File E218123 (available upon request)

| Drawing | Pitch | Poles | Cable Type | Max. Current per Contact | Max. Voltage | 1.0m | | 2.0m | | 5.0m | | 10.0m | | Type |
|--|--------|-------|--------------------------------|--------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|----------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | |
| | 9.40mm | 2 | PVC H03 0.50mm ² | 3.0A | 250V AC 300V DC | E332N2N10011 | 121040-0422 | E332N2N20011 | 121040-0436 | E332N2N50011 | 121040-0451 | E332N2N10K11 | 121040-0428 | Non-Electronic |
| | | 3 | PVC H03 0.50mm ² | 3.0A | 250V AC 300V DC | E333N2N10021 | 121040-1260 | E333N2N20021 | 121040-0470 | E333N2N50021 | 121040-0887 | E333N2N10K21 | 121040-0703 | |
| For all Electronic part numbers, please use the Electronic Build-a-Part Number system in the Configuration Code below. | | | | | | | | | | | | | | Electronic |

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

mPm[®] Technical Features

Cable Types

| Cable Type | Code | Features | Stranding | Bending Radius |
|------------|------|---|---|----------------------|
| PVC | N | Application general purpose cable which has good resistance to water, but usually poor oil resistance. | 0.5mm ² = 15 x 0.20 0.75mm ² = 21 x 0.20 1mm ² = 28 x 0.20 | 15X outside diameter |
| CEI | I | Approved to IEC 332-2A, flame retardant and self extinguishing. Limited resistance to mineral oils. | 0.5mm ² = 28 x 0.15 0.75mm ² = 42 x 0.15 1mm ² = 32 x 0.20 | 10X outside diameter |
| PUR | P | Offers good resistance to oil and chemicals. Can swell when constantly immersed in water. | 0.5mm ² = 28 x 0.15 0.75mm ² = 42 x 0.15 1mm ² = 32 x 0.20 | 10X outside diameter |
| PVC CSA-UL | A | Approved to CSA-UL 2661, application general purpose cable which has good resistance to water, but usually poor oil resistance. | 20 AWG = 32 x 0.15 18 AWG = 52 x 0.15 | 10X outside diameter |
| PUR CSA-UL | B | Approved to CSA-UL 20668. Very good resistance to oil and chemicals. | 20 AWG = 32 x 0.15 18 AWG = 52 x 0.15 | 10X outside diameter |

Technical Features

| mPm Code | Material | Color | Conductors | Section | External Diameter | Temperature Range | DIN A-B | DIN C | |
|----------|----------|----------------------|--------------|---------|---------------------|-------------------|-------------|-------|---|
| I | 2 | PVC CEI 2022 II O.R. | Gray RAL7035 | 2 | 0.5mm ² | 5.5±0.2mm | -5 to +70 | x | x |
| I | 2 | PVC CEI 2022 II O.R. | Gray RAL7035 | 3 | 0.5mm ² | 5.5±0.2mm | -5 to +70 | x | x |
| I | 2 | PVC CEI 2022 II O.R. | Gray RAL7035 | 4 | 0.5mm ² | 6.5±0.2mm | -5 to +70 | x | |
| I | 2 | PVC CEI 2022 II O.R. | Gray RAL7035 | 5 | 0.5mm ² | 7±0.2mm | -5 to +70 | x | |
| P | 2 | PUR - BLEND | Black | 2 | 0.5mm ² | 5.5±0.2mm | -5 to +70 | x | x |
| P | 2 | PUR - BLEND | Black | 3 | 0.5mm ² | 5.5±0.2mm | -5 to +70 | x | x |
| P | 2 | PUR - BLEND | Black | 5 | 0.5mm ² | 7±0.2mm | -5 to +70 | x | x |
| A | 2 | PVC CSA/UL 2661 | Black | 2 | 20 AWG | 5.5±0.2mm | -15 to +105 | x | x |
| A | 2 | PVC CSA/UL 2661 | Black | 3 | 20 AWG | 5.6±0.2mm | -15 to +105 | x | x |
| A | 2 | PVC CSA/UL 2661 | Black | 4 | 20 AWG | 6.2±0.2mm | -15 to +105 | x | x |
| A | 2 | PVC CSA/UL 2661 | Black | 5 | 20 AWG | 7±0.2mm | -15 to +105 | x | |
| B | 2 | PUR CSA/UL 20668 | Black | 2 | 20 AWG | 5.5±0.2mm | -25 to +90 | x | x |
| B | 2 | PUR CSA/UL 20668 | Black | 3 | 20 AWG | 5.6±0.2mm | -25 to +90 | x | x |
| B | 2 | PUR CSA/UL 20668 | Black | 4 | 20 AWG | 6.2±0.2mm | -25 to +90 | x | x |
| B | 2 | PUR CSA/UL 20668 | Black | 5 | 20 AWG | 7±0.2mm | -25 to +90 | x | |
| P | 3 | PUR - BLEND | Black | 2 | 0.75mm ² | 6.5±0.2mm | -5 to +70 | x | |
| P | 3 | PUR - BLEND | Black | 3 | 0.75mm ² | 6.5±0.2mm | -5 to +70 | x | |
| P | 3 | PUR - BLEND | Black | 4 | 0.75mm ² | 7±0.2mm | -5 to +70 | x | |
| A | 3 | PVC CSA/UL 2661 | Black | 2 | 18 AWG | 6.5±0.2mm | -15 to +105 | x | |
| A | 3 | PVC CSA/UL 2661 | Black | 3 | 18 AWG | 6.5±0.2mm | -15 to +105 | x | |
| A | 3 | PVC CSA/UL 2661 | Black | 4 | 18 AWG | 7±0.2mm | -15 to +105 | x | |
| A | 3 | PVC CSA/UL 2661 | Black | 5 | 18 AWG | 7.8±0.2mm | -15 to +105 | x | |
| B | 3 | PUR CSA/UL 20668 | Black | 2 | 18 AWG | 6.5±0.2mm | -25 to +90 | x | |
| B | 3 | PUR CSA/UL 20668 | Black | 3 | 18 AWG | 6.5±0.2mm | -25 to +90 | x | |
| B | 3 | PUR CSA/UL 20668 | Black | 4 | 18 AWG | 7±0.2mm | -25 to +90 | x | |
| B | 3 | PUR CSA/UL 20668 | Black | 5 | 18 AWG | 7.8±0.2mm | -25 to +90 | x | |
| I | 4 | PVC CEI 2022 II O.R. | Gray RAL7035 | 2 | 1mm ² | 7.1+0.2-0mm | -5 to +70 | x | |
| I | 4 | PVC CEI 2022 II O.R. | Gray RAL7035 | 3 | 1mm ² | 7.1+0.2-0mm | -5 to +70 | x | |
| N | 2 | PVCH03 | Black | 2 | 0.5mm ² | 5.1+ 0.2-0mm | -5 to +70 | x | x |
| N | 2 | PVCH03 | Black | 3 | 0.5mm ² | 5.4+ 0.2-0mm | -5 to +70 | x | x |
| N | 2 | PVCH03 | Black | 4 | 0.5mm ² | 5.75+0.2-0mm | -5 to +70 | x | x |
| N | 3 | PVCH05 | Black | 2 | 0.75mm ² | 6.2+ 0.2-0mm | -5 to +70 | x | |
| N | 3 | PVCH05 | Black | 3 | 0.75mm ² | 6.6+0.2-0mm | -5 to +70 | x | |
| N | 3 | PVCH05 | Black | 4 | 0.75mm ² | 7.15+0.2-0mm | -5 to +70 | x | |
| N | 3 | PVCH05 | Black | 5 | 0.75mm ² | 8.0+0.2-0mm | -5 to +70 | x | |
| N | 4 | PVCH05 | Black | +2 | 1mm ² | 6.5+0.2-0mm | -5 to +70 | x | |
| N | 4 | PVCH05 | Black | 3 | 1mm ² | 6.9+0.2-0mm | -5 to +70 | x | |

mPm[®] Available Circuits

| Input | Circuit Schematic | Circuit Description | Product Form | |
|---------|-------------------|--|---|---|
| | | | Overmoulded | Field Attachable |
| V AC-DC | | Circuit A0 With filament lamp for 12 or 24V or with neon lamp for 115 or 230V | | S 222 S 282 S 922 |
| V AC-DC | | Circuit A1 With bipolar LED Bipolar LED voltage: 12 to 230V | E 452 E 482 E 472 E 392 E 492 | S 222 S 282 S 922 S 252 S 292 |
| V DC | | Circuit C3 With LED plus blocking diode to protect against overvoltage when switching off. Voltage 12 to 230V. | E 452 E 462 E 472 E 392 E 492 | S 222 S 282 S 922 S 252 S 292 |
| V AC-DC | | Circuit C4 Bipolar LED and VDR to protect supply and switch. (The energy in the coil is limited by the VDR). Voltage: 12 to 230V. | E 452 E 462 E 472 E 392 E 492 | S 222 S 282 S 922 S 252 S 292 |
| V AC-DC | | Circuit D0 With VDR to protect supply and switch from overvoltage. (The energy in the coil is limited by the VDR). | E 452 E 462 E 472 E 392 E 492 | S 222 S 282 S 922 S 252 S 292 |
| V DC | | Circuit E0 With blocking diode to protect against overvoltage when switching off. | E 452 E 462 E 472 E 392 E 492 | S 222 S 282 S 922 S 252 S 292 |
| V AC-DC | | Circuits S0 With transient suppressor (Transil) to provide blocking of input and output overvoltage, plus LED indicator to confirm voltage presence. | E 452 E 462 E 472 | S 222 S 282 S 922 |
| V AC-DC | | Circuits S1 With transient suppressor (Transil) to provide blocking of input and output overvoltage. | | S 222 S 282 S 922 |

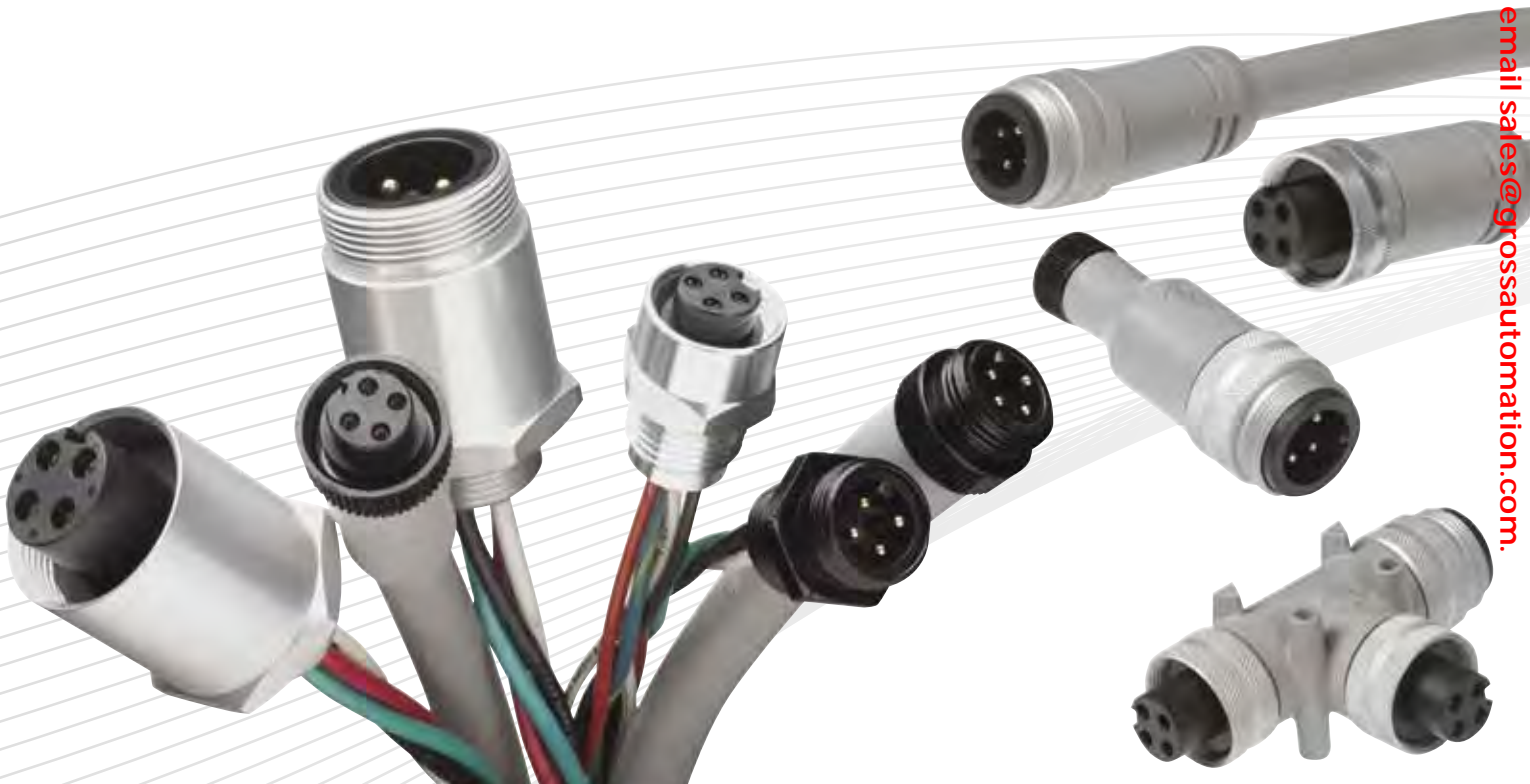
Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Power Products

| | |
|--|------------|
| NFPA 79-2012 Compliant | 204 |
| Trunk/Feeder | |
| Cordsets | 205 to 207 |
| Tees | 208 |
| Reducers | 209 |
| Receptacles | 210 |
| Field Attachable Connectors | 211 |
| Drop/Branch | |
| Cordsets | 212 to 214 |
| Receptacles | 215 |
| Field Attachable Connectors | 216 |
| Accessories | |
| Closure Caps and Locking Clips | 217 |
| Emergency Stop Cordsets and Tees | 218 |
| Emergency Stop Receptacles and Terminators | 219 |

Power Ultra products

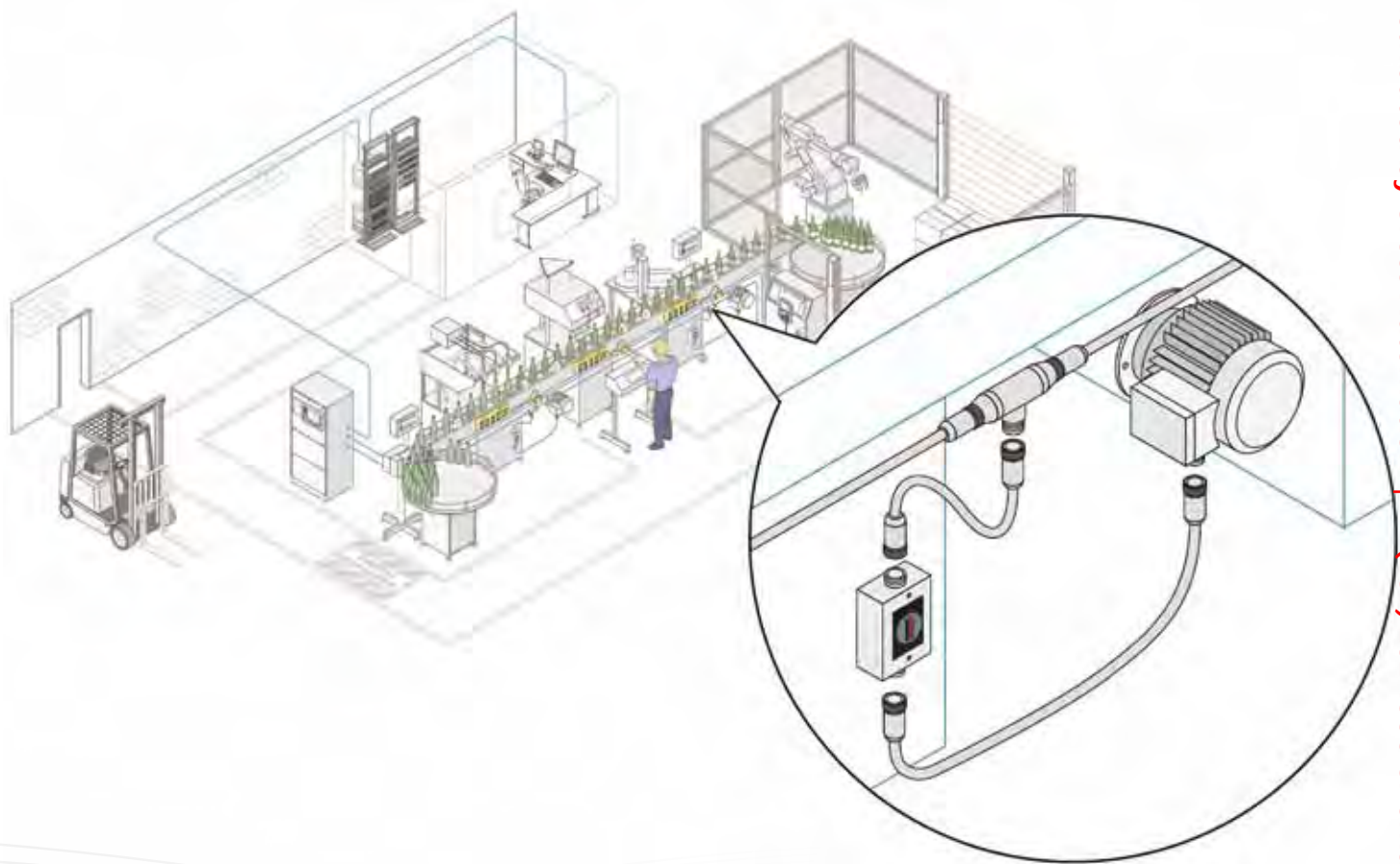
Pipe and wire is how we used to distribute power to machine outputs. Today, more design engineers are choosing Brad® Power modular, flexible power wiring systems from Molex. Beginning with machine assembly, Brad® power solutions save money and time.



Modular power for everyone

Brad® Power modular components make installation faster, easier and more reliable. Where multiple machines are involved, assembling the systems is consistent and repeatable.

Compared to traditional hard wiring, Brad® Power solutions provide reduced labor costs, simplified connections, increased plant flexibility and reduced commission time. They also deliver rapid return on capital equipment investments.



Cut your total installed cost

Brad® quick-connect, modular wiring solutions install easily and make commissioning simple. In fact, electrical installation and commissioning times can be slashed by as much as 80%. And that can translate into a total installed cost (TIC) reduction of 20% to 50% vs. conventional hard-wiring thanks to:

- No specialized tools
- No pipe bending
- No wire pulling
- No conduit or raceways required
- Reduced labor time
- Minimized testing and troubleshooting

Reduce your total cost of ownership

The Brad® Power system delivers a higher return on investment (ROI) because the total cost of ownership (TCO) continues to drop the longer the system is owned, used and maintained. Benefits include:

- Increased machine uptime
- Faster, easier maintenance of failed machine devices
- Simplified scalability
- Parts that can be reused over and over

NFPA 79-2012 Compliant

It took a 2002 electrical code revision (and further refinements in 2007 and 2012) to enable system designers and users to experience this practical alternative to hard-wired power distribution and motor control on industrial equipment and machine tools. Compare the codes:

| | 1997 Edition | 2012 Edition |
|---|---|---|
| Conductor Sizing for Power Circuits | Section 15.3 (a): Conductors shall not be smaller than 14 AWG. | Section 12.6.1 Conductors shall not be smaller than 14 AWG for power circuits unless otherwise permitted in 12.6.1.1 (16 AWG) and 12.6.1.2 (18 AWG). |
| Wiring Methods and Practices Regarding Connectors | Section 16.1.4: Conductors and cables shall be run without splices from terminal to terminal. | Section 13.1.2.3 Factory-applied connectors, molded onto cables, shall be permitted. Such connectors shall not be considered as splices or joints. |
| Wiring Methods and Practices Regarding Exposed Cable | Section 16.3.1: Conductors and their connections, external to the control panel, shall be totally enclosed in suitable raceways or enclosures. | Section 13.1.6.1 Exposed cables, installed along the structure of the equipment or system or in the chases of the machinery, shall be permitted. Exposed cables shall be installed to closely follow the surface and structural members of the machinery. |

UL 2237 (PVVA) Listed

Brad® Power products are designed to interconnect high-energy devices, such as motors, heaters, and pumps to their power source. In such applications, there is a high potential for extreme electrical transients to occur during a fault condition before the over-current protection device (i.e. fuse or breaker) trips. Brad Power

products have been tested and proven to withstand these fault conditions under UL 2237.

UL 2237 covers interconnect systems intended for use in power branch circuits, including motor branch circuits in industrial machinery.

The UL 2237 Listing assures that our wiring system integrity and safety is preserved, even after a fault has occurred in the installation. Just reset, or eliminate the fault condition, and continue operating.

Applications

Power distribution and motor control in:

- Complex automated assembly equipment
- Material handling and conveying equipment
- Food/beverage processing and packaging
- Pharmaceutical process equipment
- Petrochemical plants

Design and Quality

- UL 2237 (PVVA) approved
- Rugged, factory-applied connectors over-molded
- Strong, crush-resistant TC-ER cable
- Convenient, field attachable connectors

A Complete System

There are no holes in the Brad Power solution. It's all here, including: receptacles, trunk/feeder cordsets and connectors, drop/branch cordsets and connectors, tees, reducers, and accessories (locking clips, closure caps, field attachable connectors, etc.). Stainless steel hardware is available as an option.

Machine builders will appreciate the increased worker productivity, reduced manufacturing costs, quicker time to market and improved profit margins. System designers, integrators and plant engineers will enjoy the faster commissioning times,

lower installation costs and simplified maintenance and repair. And everyone will appreciate the fact that Brad Power solutions are from Molex, a leading single-source supplier of interconnect products. Backed by a firm commitment to research and development, the Molex team of skilled experts is passionate about designing, developing and distributing innovative connection solutions for you.

Brad® Power Trunk/Feeder Single-Ended Cordsets

130063

Female Straight, Right Angle Threaded



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 10 AWG

Physical

Connector Face: PVC

Connector Body: PVC

Cable: A48—UL Type STOOW/TC-ER

Cable Jacket: PVC

Cable Jacket Color: Gray

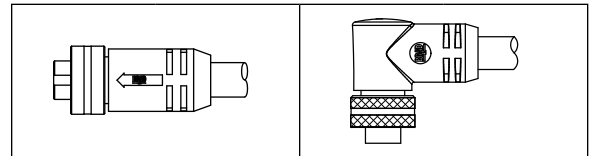
Contact: Copper alloy with Gold over Nickel plating

Coupling Nut: Anodized Aluminum

Operating Temperature: -20 to +105° C

Environmental

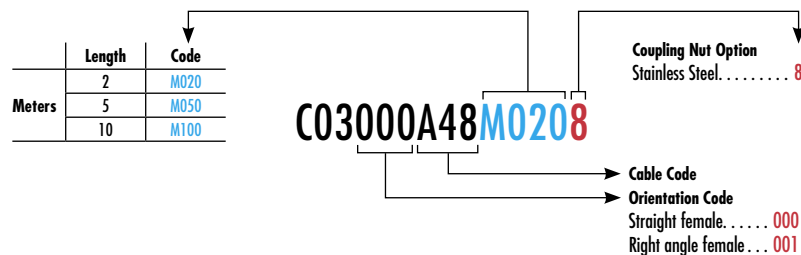
Protection: IP67, IP68 and IP69K (with Stainless Steel)



| Poles (Female View) | Current | Keyway | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--|---------|-----------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Black 3 - White 2 - Green/Yellow-gnd | 32.0A | Single | PVC (A48) | 10 | 2.0m | C03000A48M020 | 130063-0003 | C03001A48M020 | 130063-0037 |
| 3 Pole 1 - Black 3 - White 2 - Green/Yellow-gnd | | Alternate | | | | C03100A48M020 | 130063-0056 | C03101A48M020 | 130063-0199 |
| 4 Pole 1 - Black 2 - Green/Yellow-gnd 3 - Red 4 - White | 32.0A | Single | PVC (A48) | 10 | 2.0m | C04000A48M020 | 130063-0089 | C04001A48M020 | 130063-0135 |
| 4 Pole 1 - Black 2 - Green/Yellow-gnd 3 - Red 4 - White | | Alternate | | | | C04100A48M020 | 130063-0181 | C04101A48M020 | 130063-0183 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Trunk/Feeder Single-Ended Cordsets

130063

Male Straight, Right Angle Threaded



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 10 AWG

Physical

Connector Face: PVC

Connector Body: PVC

Cable: A48—UL Type STOOW/TC-ER

Cable Jacket: PVC

Cable Jacket Color: Gray

Contact: Copper alloy with Gold over Nickel plating

Coupling Nut: Anodized Aluminum

Operating Temperature: -20 to +105° C

Environmental

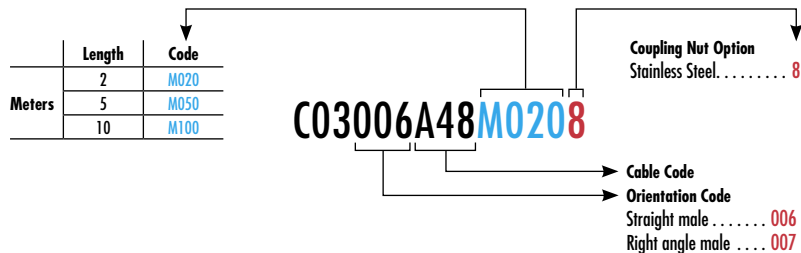
Protection: IP67, IP68 and IP69K (with Stainless Steel)

| Poles | Current | Keyway | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|---------|-----------|---------------------------|---------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Black 3 - White 2 - Green/Yellow-gnd | 32.0A | Single | PVC (A48) | 10 | 2.0m | C03006A48M020 | 130063-0042 | C03007A48M020 | 130063-0194 |
| | | Alternate | | | | C03106A48M020 | 130063-0200 | C03107A48M020 | 130063-0201 |
| 4 Pole 1 - Black 2 - Green/Yellow-gnd 3 - Red 4 - White | 32.0A | Single | PVC (A48) | 10 | 2.0m | C04006A48M020 | 130063-0150 | C04007A48M020 | 130063-0169 |
| | | Alternate | | | | C04106A48M020 | 130063-0012 | C04107A48M020 | 130063-0189 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*

Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Trunk/Feeder Double-Ended Cordsets

130064

Female Straight-to-Male Straight Threaded



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 10 AWG

Physical

Connector Face: PVC

Connector Body: PVC

Contact: Copper alloy with Gold over Nickel plating

Cable: A48—UL Type STOOW/TC-ER

Cable Jacket: PVC

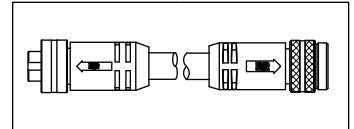
Cable Jacket Color: Gray

Coupling Nut: Anodized Aluminum

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67, IP68, IP69K (with Stainless Steel)



| Poles (Female View) | Current | Keyway | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | |
|---------------------|---------|-----------|---------------------------|---------------|--------|----------------------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 3 Pole | 32.0A | Single | PVC (A48) | 10 | 2.0m | CC3030A48M020 | 130064-0065 |
| 3 Pole | | Alternate | | | | CC3130A48M020 | 130064-0401 |
| 4 Pole | 32.0A | Single | PVC (A48) | 10 | 2.0m | CC4030A48M020 | 130064-0187 |
| 4 Pole | | Alternate | | | | CC4130A48M020 | 130064-0356 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

CC3030A48M0208

Coupling Nut Option
Stainless Steel..... **8**

Cable Code

Orientation Code

Straight female-to-straight male **030**

Right angle female-to-straight male **031**

Straight female-to-right angle male. . . . **032**

Right angle female-to-right angle male. . **033**

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Power Trunk Tees

130068

Trunk-to-Trunk and Trunk-to-Drop



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: PVC

Connector Body: PVC

Contact: Copper alloy with Gold over Nickel plating

Coupling Type: Anodized Aluminum/epoxy-coated Zinc

Cable Type: UL Type STOOW, TC-ER

Cable Jacket: PVC

Cable Jacket Color: Gray

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67, IP68, IP69K (with Stainless Steel)

| Poles (Female View) | Current | Keyway | Trunk-to-Trunk | |
|---------------------|---------|-----------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. |
| 3 Pole | 32.0A | Single | TC30C30-200 | 130068-0045 |
| 3 Pole | | Alternate | TC31C31-200 | 130068-0055 |
| 4 Pole | 32.0A | Single | TC40C40-200 | 130068-0079 |
| 4 Pole | | Alternate | TC41C41-200 | 130068-0086 |

| Poles (Female View) | Current | Keyway | Trunk-to-Drop | |
|---------------------|--------------------------|-----------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. |
| 3 Pole | 32.0A Trunk / 15.0A Drop | Single | TC30130-200 | 130068-0034 |
| 3 Pole | | Alternate | TC31130-200 | 130068-0051 |
| 4 Pole | 32.0A Trunk / 13.0A Drop | Single | TC40140-200 | 130068-0069 |
| 4 Pole | | Alternate | TC41140-200 | 130068-0082 |

| Poles (Female View) | Current | Keyway | Cable AWG | Trunk-to-Drop | |
|-----------------------------------|--------------------------|--------|-----------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. |
| 3 Pole 1 - Black 3 - White | 32.0A Trunk / 15.0A Drop | Single | 14 | TC30200A46M010 | 130068-0042 |
| | 32.0A Trunk / 13.0A Drop | | 16 | TC30200A45M010 | 130068-0039 |
| 4 Pole | 32.0A Trunk / 15.0A Drop | Single | 14 | TC40200A46M010 | 130068-0075 |
| | 32.0A Trunk / 10.0A Drop | | 16 | TC40200A45M010 | 130068-0072 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

TC30200A46M0108

Coupling Nut Option
Stainless Steel..... 8

Cable Code

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Power Truck-to-Drop Reducers

130068
Male-Female
Straight
Threaded



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: PVC

Connector Body: PVC

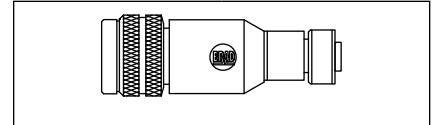
Contact: Copper alloy with Gold over Nickel plating

Coupling Nut: Anodized Aluminum/epoxy-coated Zinc

Operating Temperature: -20 to +90° C

Environmental

Protection: IP67, IP68, IP69K (with Stainless Steel)



| Poles (Male View) | Current | Keyway | Engineering No. | Standard Order No. |
|-------------------|---------|-----------|-----------------|--------------------|
| 3 Pole | 15.0A | Single | 1C3030-001 | 130068-0015 |
| 3 Pole | | Alternate | 1C3130-001 | 130068-0017 |
| 4 Pole | 15.0A | Single | 1C4030-001 | 130068-0019 |
| 4 Pole | | Alternate | 1C4130-001 | 130068-0022 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

1C3030-0018

Coupling Nut Option
Stainless Steel. **8**

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Trunk/Feeder Receptacles

130066
Female, Male
Straight



Features and Benefits

- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 10 AWG

Wire Type: UL Type THHN

Physical

Connector Face: PVC

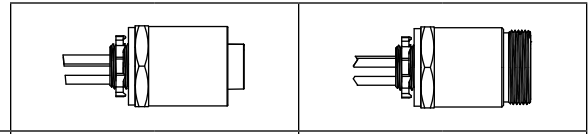
Shell: Anodized Aluminum

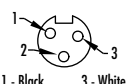
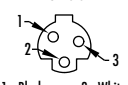
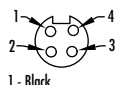
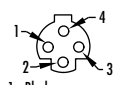
Contact: Copper alloy with Gold over Nickel plating

Panel Mount: Front

Environmental

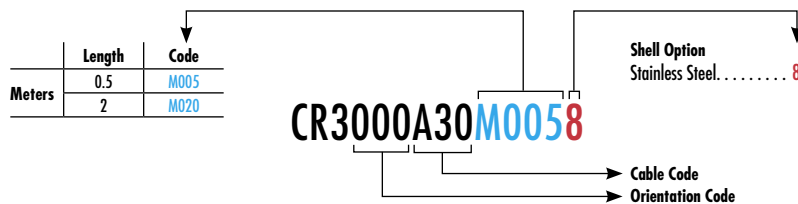
Protection: IP67, IP68 (IP69K with Stainless Steel)



| Poles (Female View) | Current | Keyway | Mounting Thread Size | Female | | Male | |
|---|---------|-----------|----------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole  1 - Black 3 - White 2 - Green/Yellow-gnd | 32.0A | Single | 1/2" - 14 NPT | CR3000A30M005 | 130066-0110 | CR3006A30M005 | 130066-0255 |
| | | | 3/4" - 14 NPT | CR3C00A30M005 | 130066-0134 | CR3C06A30M005 | 130066-0143 |
| 3 Pole  1 - Black 3 - White 2 - Green/Yellow-gnd | 32.0A | Alternate | 1/2" - 14 NPT | CR3100A30M005 | 130066-0256 | CR3106A30M005 | 130066-0257 |
| | | | 3/4" - 14 NPT | CR3D00A30M005 | 130066-0258 | CR3D06A30M005 | 130066-0259 |
| 4 Pole  1 - Black 3 - Red 2 - Green/Yellow-gnd 4 - White | 32.0A | Single | 1/2" - 14 NPT | CR4000A30M005 | 130066-0152 | CR4006A30M005 | 130066-0170 |
| | | | 3/4" - 14 NPT | CR4C00A30M005 | 130066-0189 | CR4C06A30M005 | 130066-0203 |
| 4 Pole  1 - Black 3 - Red 2 - Green/Yellow-gnd 4 - White | 32.0A | Alternate | 1/2" - 14 NPT | CR4100A30M005 | 130066-0260 | CR4106A30M005 | 130066-0186 |
| | | | 3/4" - 14 NPT | CR4D00A30M005 | 130066-0261 | CR4D06A30M005 | 130066-0262 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Power Trunk/Feeder Field Attachable Connectors

130070

**Internal Thread Female
External Thread Male**



Features and Benefits

- Special contact design for reliability and low resistance
- Allows easy field conversion to quick-connect or repair of damaged, molded connectors

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 14 to 8 AWG

Cable Range: .43 to .82" (11 to 21mm)

Physical

Connector Face: PVC

Connector Body: Nylon

Contact: Copper alloy with Gold over Nickel plating

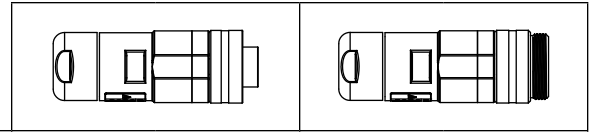
Coupling Nut: Anodized Aluminum

Grommet: Neoprene

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67, IP68, IP69K



| Poles (Female View) | Current | Coupling Type | Female Straight | | Male Straight | |
|------------------------|---------|-----------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole | 32.0A | Internal Thread | CA3000-39 | 130070-0021 | | |
| | | External Thread | | | CA3006-39 | 130070-0022 |
| 4 Pole | 32.0A | Internal Thread | CA4000-39 | 130070-0023 | | |
| | | External Thread | | | CA4006-39 | 130070-0024 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Drop/Branch Single-Ended Cordsets

130061

Female Straight, Right Angle Threaded



Features and Benefits

- Meets NFPA 79-2012 standard for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: PVC

Connector Body: PVC

Contact: Brass with Gold over Nickel plating

Cable: A45—UL Type STOOW/TC-ER 16 AWG

A46—UL Type STOOW/TC-ER 14 AWG

Cable Jacket: PVC

Cable Jacket Color: Gray

Coupling Nut: Black epoxy-coated Zinc

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67, IP68 and IP69K (with Stainless Steel)

| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--|---------|-------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | STOOW/TC-ER | PVC (A45) | 16 | 2.0m | 103000A45M020 | 130061-0025 | 103001A45M020 | 130061-0220 |
| | 15.0A | | PVC (A46) | 14 | | 103000A46M020 | 130061-0030 | 103001A46M020 | 130061-0040 |
| 4 Pole 1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | STOOW/TC-ER | PVC (A45) | 16 | 2.0m | 104000A45M020 | 130061-0080 | 104001A45M020 | 130061-0108 |
| | 15.0A | | PVC (A46) | 14 | | 104000A46M020 | 130061-0091 | 104001A46M020 | 130061-0119 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

103000A45M0208

Coupling Nut Option
Stainless Steel. 8

Cable Code
Orientation Code
Straight female. 000
Right angle female. 001

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Drop/Branch Single-Ended Cordsets

130061

Male Straight, Right Angle Threaded



Features and Benefits

- Meets NFPA 79-2012 standard for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

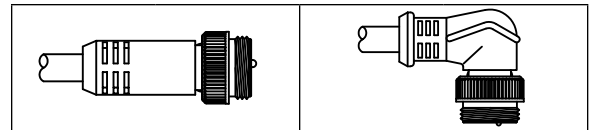
Voltage: 600V AC/DC

Physical

Connector Face: PVC
 Connector Body: PVC
 Contact: Brass with Gold over Nickel plating
 Cable: A45—UL Type ST00W/TC-ER 16 AWG
 A46—UL Type ST00W/TC-ER 14 AWG
 Cable Jacket: PVC
 Coupling Nut: Black epoxy-coated Zinc
 Cable Jacket Color: Gray
 Operating Temperature: -20 to +105° C

Environmental

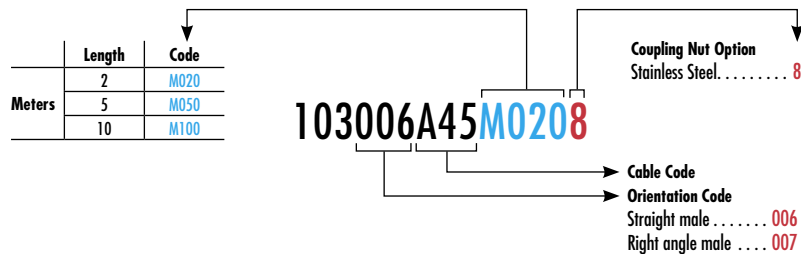
Protection: IP67, IP68 and IP69K (with Stainless Steel)



| Poles | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|--|---------|-------------|---------------------------|---------------|--------|-----------------|--------------------|------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole 1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | ST00W/TC-ER | PVC (A45) | 16 | 2.0m | 103006A45M020 | 130061-0046 | 103007A45M020 | 130061-0218 |
| | 15.0A | | PVC (A46) | 14 | | 103006A46M020 | 130061-0057 | 103007A46M020 | 130061-0073 |
| 4 Pole 1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | ST00W/TC-ER | PVC (A45) | 16 | 2.0m | 104006A45M020 | 130061-0135 | 104007A45M020 | 130061-0168 |
| | 15.0A | | PVC (A46) | 14 | | 104006A46M020 | 130061-0150 | 104007A46M020 | 130061-0179 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Power Drop/Branch Double-Ended Cordsets

130062 Threaded Female Straight-to-Male Straight



Features and Benefits

- Meets NFPA 79-2012 standard for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: PVC

Connector Body: PVC

Contact: Brass with Gold over Nickel plating

Cable: A45—UL Type STOOW/TC-ER 16 AWG

A46—UL Type STOOW/TC-ER 14 AWG

Cable Jacket: PVC



Cable Jacket Color: Gray

Coupling Nut: Black epoxy-coated Zinc

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67, IP68 and IP69K (with Stainless Steel)

| Poles (Male View) | Current | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | |
|---|---------|-------------|------------------------------|------------------|--------|----------------------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| 3 Pole  1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | STOOW/TC-ER | PVC (A45) | 16 | 2.0m | 113030A45M020 | 130062-0032 |
| | 15.0A | | PVC (A46) | 14 | | 113030A46M020 | 130062-0047 |
| 4 Pole  1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | STOOW/TC-ER | PVC (A45) | 16 | 2.0m | 114030A45M020 | 130062-0088 |
| | 15.0A | | PVC (A46) | 14 | | 114030A46M020 | 130062-0124 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

113030A45M0208

Coupling Nut Option
Stainless Steel. 8

Cable Code

Orientation Code

Straight female-to-straight male 030

Right angle female-to-straight male 031

Straight female-to-right angle male. 032

Right angle female-to-right angle male . . . 033

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Drop/Branch Receptacles

130066

Female, Male Straight



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Meets NFPA 79-2012 standards for motor and branch circuits
- UL 2237 (PVVA) listed

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Type: THHN

Physical

Connector Face: PVC

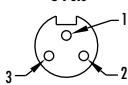

Shell: Black epoxy-coated Zinc or anodized Aluminum

Mounting Thread Size: 1/2" - 14 NPT

Panel Mount: Front

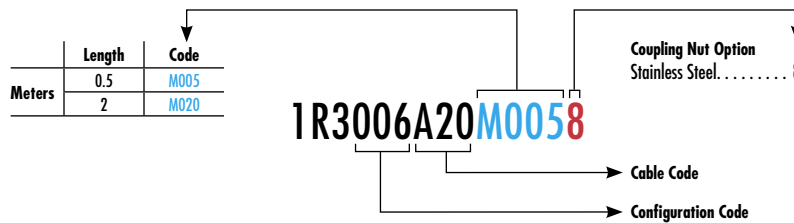
Environmental

Protection: IP67, IP68 (IP69K with Stainless Steel)

| Poles (Female View) | Current | Wire Size AWG | Female Straight | | Male Straight | |
|--|---------|---------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 Pole  1 - Green/Yellow-gnd 2 - Black 3 - White | 13.0A | 16 | 1R3000A20M005G | 130066-0281 | 1R3006A20M005G | 130066-0263 |
| | 15.0A | 14 | 1R3000A28M005G | 130066-0035 | 1R3006A28M005G | 130066-0050 |
| 4 Pole  1 - Black 2 - White 3 - Red 4 - Green/Yellow-gnd | 10.0A | 16 | 1R4000A20M005G | 130066-0254 | 1R4006A20M005G | 130066-0078 |
| | 15.0A | 14 | 1R4000A28M005G | 130066-0069 | 1R4006A28M005G | 130066-0090 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Power Mini-Change® Drop/Branch Field Attachable Connectors

130017
Female, Male
Straight



Features and Benefits

- Patented Quad-Beam™ contact design for reliability and low resistance
- Allows easy field conversion to quick-connect or repair of damaged, molded connector

Reference Information

UL File No.: E258922

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 15 to 24 AWG

Cable Range: 5.08 to 11.43mm (.200 to .450")

Physical

Connector Face: Polyurethane

Connector Body: Nylon

Contact: Brass with Gold over Nickel plating

Coupling Nut: Nickel-plated Brass

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Poles (Female View) | Current | Female Straight | | Male Straight | |
|------------------------|---------|-----------------|--------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | 1A3000-34PWR | 130017-0055 |
| | | 1A4000-34PWR | 130017-0057 | 1A4006-34PWR | 130017-0058 |

Note: Sales drawings for all standard order numbers are available on molex.com

Brad® Power Trunk/Feeder Accessories

- Features and Benefits**
- Protects connector from dust and moisture

130070 Closure Cap/Locking Clip



| Product Name | Description | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|--------------|--|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| Closure Cap | 1 3/8" - 16 UN-2A External Thread, Anodized Aluminum | 55-0198 | 130070-0018 | | | | |
| | 1 3/8" - 16 UN-2B Internal Thread, Anodized Aluminum | | | 55-0298 | 130070-0019 | | |
| Locking Clip | Snap Lock, Tool to Release (Pkg of 10) | | | | | 66200A-10 | 130070-0020 |

Brad® Power Drop/Branch Accessories

- Features and Benefits**
- Protects connector from dust and moisture

130201/130070 Closure Cap/Locking Clip

| Product Name | Description | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|--------------|--|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| Closure Cap | 7/8" - 16 UN-2A External Thread, Anodized Aluminum with Steel Bead Chain | 65-0085 | 130201-1109 | | | | |
| | 7/8" - 16 UN-2B Internal Thread, Anodized Aluminum with Steel Bead Chain | | | 65-0086 | 130201-1111 | | |
| Locking Clip | Snap Lock, Tool to Release (Pkg of 10) | | | | | 11400A-10 | 130070-0012 |

Brad® Mini-Change® and Micro-Change® (M12) Emergency Stop Cordsets and Tees

130010/130018
Special Wired



Features and Benefits

- Patented Quad Beam™ contact with Gold over Nickel plating provides high reliability and low resistance
- Compatible with Allen-Bradley ArmorStart drives*

Reference Information

UL File No. E152210
CSA File No. LR6837

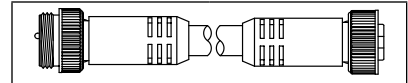
Physical

Connector Face: TPE
Connector Body: TPE
Contacts: Brass with Gold over Nickel plating
Hardware: Black epoxy-coated Zinc
Operating Temperature: -20 to +80° C

Environmental

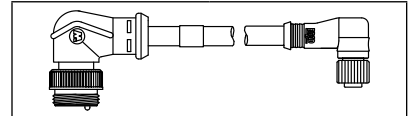
Protection: IP67

E-stop Cordset (Mini-Change-to-Mini-Change)



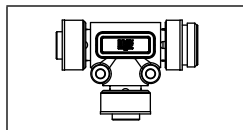
| Male | Schematic | Female | Current | Voltage | Cable Type | Male Straight-to-Female Straight | |
|------|-----------|--------|---------|---------|------------|----------------------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | | 8.0A | 600V | TC-ER | 51180-M020 | 130018-0125 |

E-stop Adapter Cordset (Mini-Change-to-Micro-Change)



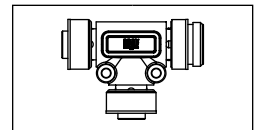
| Male | Schematic | Female | Current | Voltage | Cable Type | Male-Female Right Angle-to-Right Angle | |
|------|-----------|--------|---------|---------|------------|--|--------------------|
| | | | | | | Engineering No. | Standard Order No. |
| | | | 4.0A | 300V | ITC-ER | 41627-M010 | 130010-1657 |

Tee for E-stop In (Mini-Change)



| Schematic | Current | Voltage | Engineering No. | Standard Order No. |
|-----------|---------|---------|-----------------|--------------------|
| | 8.0A | 600V | 61451-ESIN | 130035-0030 |

Tee for E-stop Out (Mini-Change)



| Schematic | Current | Voltage | Engineering No. | Standard Order No. |
|-----------|---------|---------|-----------------|--------------------|
| | 8.0A | 600V | 61451-ESOUT | 130035-0031 |

Note: Sales drawings for all standard order numbers are available on molex.com
*Allen-Bradley and ArmorStart are trademarks of Rockwell Automation Inc.

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

51180-M020

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad® Mini-Change® Emergency Stop Receptacles and Terminators

130010/130018
Special Wired

Features and Benefits

- Patented Quad Beam™ contact with Gold over Nickel plating provides high reliability and low resistance
- Compatible with Allen-Bradley ArmorStart drives*

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: TPE
Connector Body: TPE
Contacts: Brass with Gold over Nickel plating
Hardware: Zinc die-cast with black epoxy
Mounting Thread Size: 1/2" - 14 NPT
Panel Mount: Front
Operating Temperature: -20 to +80° C

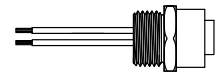
Environmental

Protection: IP67



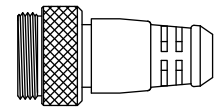
Female Receptacle

| Female | Schematic | Current | Voltage | Wire Type | Female Straight | |
|---------------|-----------|---------|---------|-----------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| <p>6 Pole</p> | | 8.0A | 600V | UL 1015 | 41671-0030 | 130013-0991 |



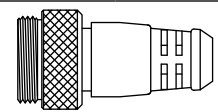
E-stop In Terminator

| Male | Schematic | Current | Voltage | Male | |
|---------------|-----------|---------|---------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. |
| <p>6 Pole</p> | | 8.0A | 600V | 41437-001 | 130039-0358 |



E-stop Out Terminator

| Male | Schematic | Current | Voltage | Male | |
|---------------|-----------|---------|---------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. |
| <p>6 Pole</p> | | 8.0A | 600V | 41437-002 | 130039-0359 |



*Allen-Bradley and ArmorStart are trademarks of Rockwell Automation Inc.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Network Solutions

| | | | |
|--|------------|--|------------|
| DeviceNet* | 224 to 225 | Micro-Change® (M12) and Ultra-Lock® | |
| Remote Scanners | 226 | Cordsets (US) | 323 to 324 |
| Diagnostic Tools | 227 | Cordsets (Europe) | 325 to 326 |
| Interface Cards | 228 | Receptacles (US) | 327 |
| Interface Modules | 229-230 | Receptacles (Europe) | 328 |
| Common Industrial Safety Software Kits | 231 | Field Attachable Connectors | 329 |
| I/O Modules | 232 to 233 | Ethernet | 330 |
| Bulk Cables | 234 to 237 | Development Kits | 332 to 333 |
| Mini-Change® | | Windows* Compatible Drivers | 334 to 335 |
| Cordsets | 238 to 244 | Network Interface Cards | 336 to 337 |
| Receptacles | 245 to 247 | Communication Modules | 338 |
| Field Attachable Connectors | 248 | I/O Modules | 339 to 340 |
| Terminator Resistors | 249 | Common Industrial Safety Software Kits | 341 |
| Tees and Adapters | 250 to 253 | Ethernet Switches | 342 to 343 |
| Passive Multi-Ports | 254 to 255 | RJ-Lnxx® RJ-45 and Standard RJ-45 | |
| Micro-Change® (M12) | | Cordsets | 344 to 348 |
| Cordsets | 256 to 261 | Receptacles | 349 to 353 |
| Receptacles | 262 to 263 | Field Attachable Connectors | 354 |
| Field Attachable Connectors | 264 | Accessories | 354 |
| Terminators | 265 | Sealed RJ-45 | |
| Tees and Splitters | 266 | Cordsets | 355 to 357 |
| Passive Multi-Ports | 267 to 268 | Receptacles | 358 |
| Open Style | | Field Wireable Connectors | 359 |
| Cordsets | 269 to 270 | Dust Caps | 359 |
| Receptacle Assemblies | 271 | Micro-Change® (M12) | |
| Nano-Change® (M8) | | Cordsets | 360 to 363 |
| Cordsets | 272 to 276 | Field Attachable Connectors | 364 |
| Passive Multi-Ports | 277 | Ultra-Lock® | |
| Auxiliary Power Media | | Cordsets | 365 to 366 |
| Mini-Change® | | Receptacles | 367 to 370 |
| Cordsets | 278 | Micro-Change® (M12) | |
| Adapters | 279 | Adapters | 371 |
| Field Attachable Connectors | 280 | Circular Hybrid Technology Connector | 372 |
| Power Taps | 281 | X-Coded | 373 to 374 |
| Machine Stop Tees | 282 | Other Networks | 376 |
| Micro-Change® (M12) and Ultra-Lock® | | Communication Modules | 378 |
| Cordsets | 283 to 284 | Interface Cards | 379 to 381 |
| Receptacles | 285 | Windows Compatible Protocol Drivers | 382 |
| Field Attachable Connectors | 286 | I/O Modules | 383 |
| PROFIBUS† | 288 | PICS Simulation Software | 384 |
| Adapters | 290 | NMEA 2000* | 385 |
| Interface Cards | 290 to 297 | Bulk Cables | 386 |
| Communication Modules | 298 to 299 | Micro-Change® (M12) | |
| Industrial Gateway | 300 | Cordsets | 387 to 389 |
| I/O Modules | 301 to 302 | Receptacles | 390 |
| Cables | 303 | Field Attachable Connectors | 391 |
| Micro-Change® (M12) | | Terminator Resistors | 392 |
| Cordsets | 304 to 306 | Tees | 393 to 394 |
| Receptacles | 307 to 309 | Junction Boxes | 395 |
| Field Attachable Connectors | 310 | Mini-Change® | |
| Terminators | 311 | Cordsets | 396 |
| Tees | 312 | Field Attachable Connectors | 397 |
| D-Sub | | Terminator Resistors | 398 |
| Field Attachable Connectors | 313 | Tees | 399 |
| Cordsets | 314 to 318 | Power Tap | 400 |
| Auxiliary Power Media | | Auxiliary Power Media Cordsets | 401 |
| Mini-Change® | | Micro-Change® (M12) and Mini-Change® | |
| Cordsets | 319 | Receptacles | 402 |
| Receptacles | 320 | Closure Caps | 402 |
| Field Attachable Connectors | 321 | Industrial USB | 403 |
| Tees | 322 | Cordsets | 404 to 405 |
| | | Receptacles | 406 |
| | | Dust Cap | 407 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).

†PROFIBUS is a trademark of PROFIBUS International.

*Windows is a registered trademark of Microsoft Corporation.

*NMEA 2000 is a trademark of the National Marine Electronics Association

Network solutions

Our line of Brad® communication and control products is designed to support and facilitate the networks that automate today's and tomorrow's premier global industrial applications. Molex supports the most popular industrial networks and fieldbuses—Ethernet, DeviceNet*, PROFIBUS† and legacy with a variety of products and solutions. Through its leading connectivity brands, Brad products give the user and designer a complete communication and connectivity solution—from network interface cards for PC-based HMI/supervision, PLC communication modules for fieldbus control up to IP67 infrastructure to connect on-machine I/O devices. Molex brings the flexibility which is scalable based on your needs and applications. Upgrade to a total system solution by incorporating Brad communications and Brad control products.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).
†PROFIBUS is a trademark of PROFIBUS International.



DeviceNet

Brad® and DeviceNet™

Brad® automation products give the designers and users of a DeviceNet™ system a complete communication and connectivity solution—from scanner through media infrastructure to IP67 I/O connections and diagnostics. No other supplier provides a comprehensive backbone of connectivity while giving you the power to choose other elements of the control system. You select which control engine you want, whether it be PC- or PLC-based. You choose which control architecture—centralized or distributed—which type of motor controllers, valve banks or sensors you want. Brad insures connectivity to all these devices.

PROFIBUS†

Brad® and PROFIBUS

Brad® products give the user and designer of a PROFIBUS system a complete communication and connectivity solution—from scanner card to media infrastructure to IP67 I/O connections. You can select which control engine you want, whether it is PC- or PLC-based; we get you onto the network. You can choose which control architecture—centralized or distributed—that makes the most sense to you. Whether you are connecting motor controllers, valve banks or sensors, we ensure that connectivity to those points are there.

Ethernet

Brad® and Ethernet

Brad® ethernet products provide solutions that enable the world's most popular Local Area Network to be reliably utilized on the factory floor or in harsh commercial environments. The Brad line offers a large choice of products including physical media, IP67 I/O modules, unmanaged and managed switches, powerful network interfaces, industrial gateways and protocol development kits to connect the most popular Ethernet industrial networks and fieldbuses. Brad Ethernet products give the user a complete communication and connectivity solution to design a large scope of industrial applications—PC-Based control, supervision, data storage, protocol bridging, etc.—to suit all industry sectors.

Other Networks

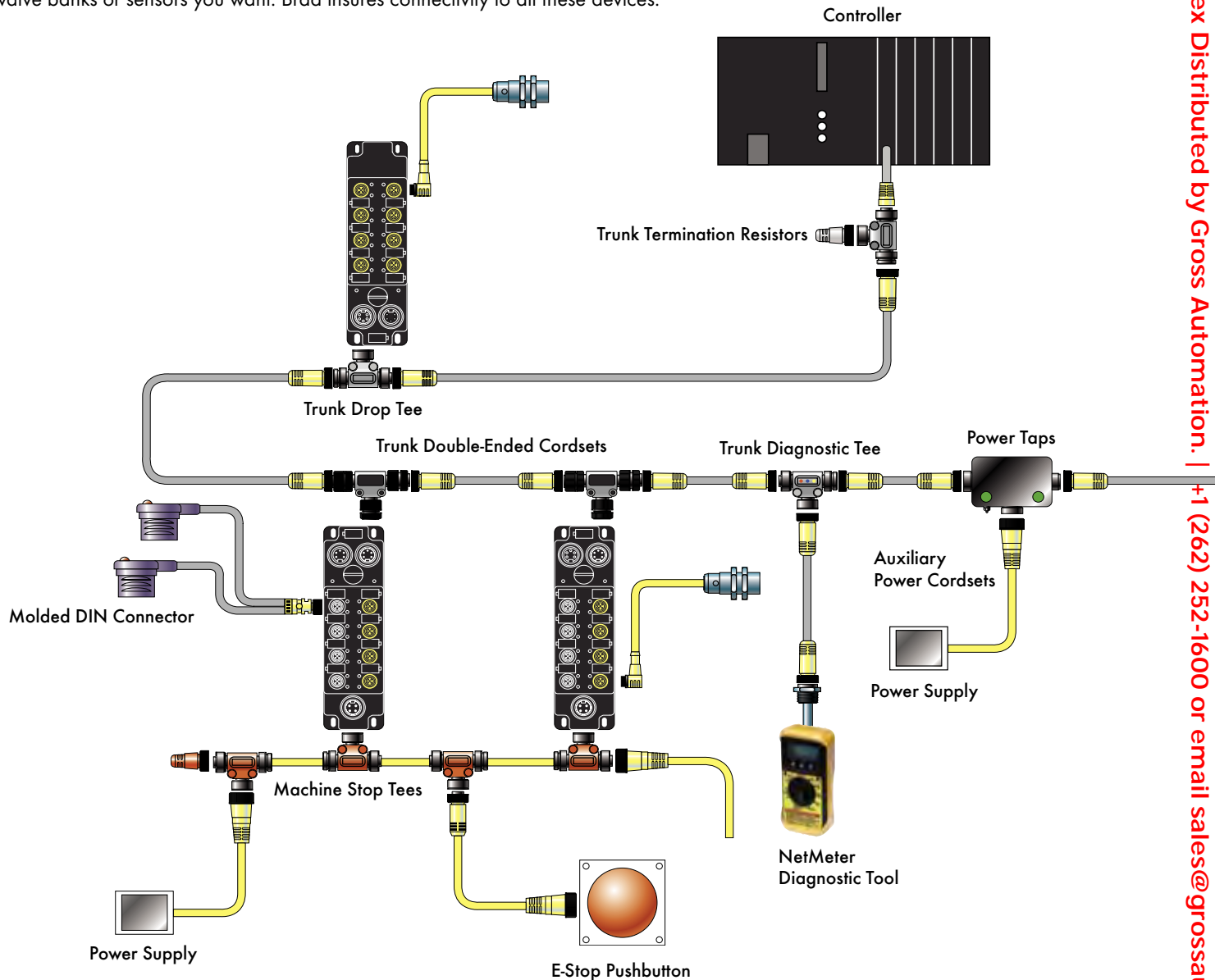
Brad® and Other Networks

The Brad® product portfolio covers more than 40 industrial protocols including current and legacy networks such as Modbus, CANopen, Serial, AS-interface, and CC-Link. Brad products offer users a complete communication and connectivity solution—from software drivers, interface cards, PLC communication modules, industrial gateways, IP67 digital I/O modules and network media. With over 20 years of experience and technical expertise in industrial communication and control, Molex is a dependable partner. Brad systems are installed around the world in sectors as varied as petrochemical, automotive, food processing and building management. Brad product lines are developed in compliance with the standards and specifications published by international organizations to guarantee a high level of performance, reliability and availability.

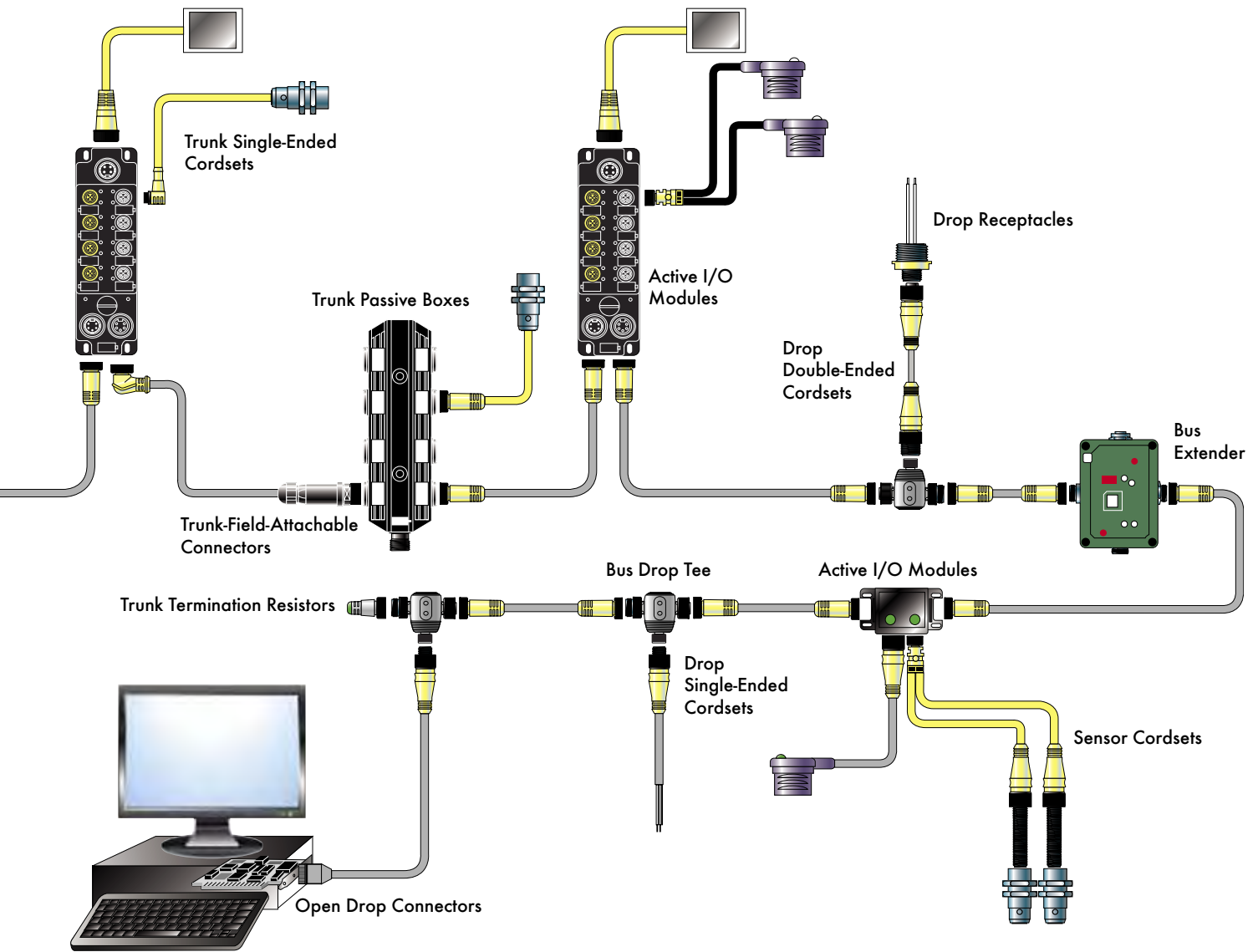


Brad® DeviceNet*

Brad® automation products give the designer and users of a DeviceNet system a complete communication and connectivity solution—from scanner through media infrastructure to IP67 I/O connections and diagnostics. No other supplier provides a comprehensive backbone of connectivity while giving you the power to choose other elements of the control system. You select which control engine you want, whether it be PC- or PLC-based. You choose which control architecture—centralized or distributed—which type of motor controllers, valve banks or sensors you want. Brad insures connectivity to all these devices.













Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.



PC-Based
Control/HMI/
SCADA

Components and Elements of DeviceNet System

- | | | | |
|---|-------------------|---|-----------------|
|  | Controller |  | Thick Media |
|  | I/O Devices |  | Thin Media |
|  | IP67 I/O Modules |  | Power Media |
|  | Media |  | Cordsets |
|  | Network Interface |  | I/O Connections |

Brad® SST™ DeviceNet™ Remote Scanner

112034

DeviceNet Control over Ethernet



Features and Benefits

- High performance DeviceNet protocol executed via up to 16 Remote DeviceNet Scanners
- User interface DLL/API is completely backward compatible with existing applications and local DeviceNet interface cards
- Diagnostic LEDs
- UCMM (Unconnected Message Manager) capable; Group 1, 2, and 3 dynamic explicit connections supported
- Provides simultaneous execution of Group 2 Client (Master) and Server (Slave) operation
- Supports all DeviceNet standard baud rates: 125, 250, and 500 Kbaud
- Supports Poll, Strobe, Change of State (COS) and Cyclic I/O messaging
- Provides Client (Master) explicit messaging to slave devices
- Backward compatible DLL preserves existing investment
- DIN rail mount allows distribution to machine level
- Frees up PC slots by placing scanner cards remotely
- Manage your DeviceNet application across an Ethernet LAN
- Capable of updating DeviceNet I/O faster than a PCI version
- Reduce infrastructure costs by using cheaper Ethernet cable and fewer and/or less expensive PCs

OS and Drivers Supported

- Microsoft® Windows XP, Vista and 7 (32/64-bit) drivers
- Diagnostic tools
- Example C source code and Windows DLLs for custom driver development

Software Tools

Diagnostic and test tools are available that enable fast integration of industrial communication into your application.

Hardware Specifications

- Diagnostic LEDs:
 - Remote Scanner—Power, system status
 - DeviceNet—Power, communication, health
 - Ethernet—Link, 10/100 MBaud, activity
- Remote Scanner Power: 10–30VDC, 330mA typical (male Nano-Change® M8 connector)
- RoHS Compliant: Yes
- Approvals: CE, ODVA DeviceNet Conformance

Environmental

- Humidity: 5 to 95% non-condensing

Network Specifications

- Protocol:
 - DeviceNet Master—Group 2 Client, Group 2 only Client
 - DeviceNet Slave—Group 2 Server
 - Isolated CAN physical layer on each channel
- Cable:
 - DeviceNet—shielded twisted pair, compatible with target network
 - Ethernet—Cat 5e shielded
- Connector:
 - DeviceNet—Compliant male Micro-Change® M12 connector
 - Ethernet—RJ45
- DeviceNet Power: 11-24 VDC, 50 mA typical
- Isolation: 500 V
- Data Rate:
 - DeviceNet—125 Kbps, 250 Kbps and 500 Kbps
 - Ethernet—10/100 Mbps

Physical

- Operating Temperature: 0° to +50° C
- Storage Temperature: -40 to +85° C

| Product Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| Remote DeviceNet Scanner (without cables) | SST-EDN-1 | 112034-0021 |
| Remote DeviceNet Scanner with cable kit (DeviceNet and Power) Single-ended power cable: 3-pole, M8 connector on one end, 2 meters (6.6ft), UL/CSA cable, Cat. No. 120086-0102 (403000A10M020) Single-ended DeviceNet cable: 5-pole, M12 connector on one end, 2 meters (6.6ft), UL/CSA cable, Cat. No. 130027-0049 (DND20A-M020) | SST-EDN-1-C2 | 112034-0026 |

Brad® DeviceNet™ Diagnostic Tools

112008 eNetMeter™ DN
112008 NetAlytix™
112008 NetMeter®



Quickly identify problems relating to network power, data errors and excessive bandwidth consumption for your DeviceNet network.

eNetMeter DN and NetAlytix

eNetMeter DN is a passive device that continuously monitors a DeviceNet network and sends the information over Ethernet to a PLC or PC monitoring system. The information can be used to proactively respond to out-of-tolerance parameters before network failure occurs. Optionally, data can be accessed through NetAlytix software, an OPC server or a DLL.

NetMeter

NetMeter cuts troubleshooting time by providing technical details, yet it simplifies and summarizes, allowing both a DeviceNet expert and novice to effectively identify and diagnose network problems. It summarizes DeviceNet bus health by displaying a happy face icon, indicating a healthy network; a sad face, indicating a serious problem; or a neutral face, indicating nominal performance (a good indication to repair things before they actually fail). NetMeter then walks the user through each fault condition and its potential source.

eNetMeter DN and NetAlytix

Features and Benefits

- Continuously monitors a DeviceNet network in a passive state
- Provides feedback to an EtherNet/IP* master or one of three methods to a personal computer (PC) residing on Ethernet:
 - NetAlytix™ software
 - OPC server
 - DLL interface
- High-speed sampling of network parameters
 - Signals are sampled millions of times per second providing accurate values
- Information captured includes:
 - Overall network status and measurements
 - Individual node status and measurements
 - Detailed measurements of power (V+, V-), signal (CANH, CANL) and shield parameters
- Warning and fault flags indicate when a value has exceeded a set tolerance (levels are customizable)
- NetAlytix software enables quick graphical access to network issues including CAN and power waveform details

Electrical

Input Power (Aux. or DeviceNet)
11 to 25V DC, 300 mA (typical at 24 VDC)
Data Rate: DeviceNet: 125K, 250K and 500K baud
Ethernet: 10/100 M baud

Mechanical

Diagnostic LEDs and Control: Ready, System/Boot, Power & Comm; Reset (recessed)

Physical

Dimensions: 142.00mm (5.60") high;
102.00mm (4.08") deep;
38.00mm (1.53") wide
Connectors: DeviceNet—5-pole M12 Micro-Change®
Ethernet—RJ-45
Enclosure: IP20
Mounting: DIN rail or panel (screw) mounted
USB: USB 2.0 master, for transfer/storage of configuration parameters
Operating Temperature: 0 to 60° C
Storage Temperature: -5 to 75° C
Humidity: 5 to 95% non-condensing

Compliance

Approvals: CE, cULus, ODVA EtherNet/IP Conformance
RoHS Compliant: Yes

NetMeter

Features and Benefits

- Certifies proper network operation:
 - Measures 677 key network parameters
 - Compares with DeviceNet specification
- Battery-powered:
 - Save readings for off-line analysis
- Accelerates fault troubleshooting:
 - AutoSearch finds all bad network parameters
 - Full traffic and error analysis by node address
 - Power quality, shield voltage, signal quality

Electrical

Power supply: 7V—30V (30 mA at 24V)
Battery 2x AA Alkaline (for offline review of stored measurements)

Mechanical

Baud Rates Supported: 125K, 250K, 500K (auto-detect)
Analog Range (with over/under range indication):
Bus Power: 0 to 25V
Bus Signal: -5 to 10V

Physical

Connectors: DeviceNet* Standard "Sealed Micro"
Adapter cable included for DeviceNet Standard "Sealed Mini"



| Product Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| eNetMeter DN diagnostic tool for DeviceNet | SST-ENM-DN1 | 112008-0008 |
| NetAlytix software for eNetMeter DN (includes full application, DLL/API, OPC Server) | SST-NAS-DN1 | 112008-0011 |
| Bundle of eNetMeter DN (112008-0008) and NetAlytix (112008-0011), with a limit of one per partner or end-customer site | SST-ENM-SKT | 112008-0012 |
| Bundle of eNetMeter DN (112008-0008) and NetAlytix (112008-0011) in portable test case (IP54) with DC power and external ports for network as well as AC power connections | SST-ENM-PTU | 112008-0016 |
| NetMeter for DeviceNet | DN-MTR (E) | 112008-0013 |
| NetMeter Kit for DeviceNet (includes carrying case, PowerMonitor T and LED Termination Resistor) | DN-MTR-KIT (E) | 112008-0014 |
| NetMeter carrying case | DN-MTR-BAG | 112008-0003 |
| NetMeter ISO calibration | DN-MTR-CAL | 112008-0004 |

The diagnostic tools above are all endorsed within the Encompass Program by Rockwell Automation.
*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

Brad® SST™ Network Interface Cards

- 112005** DeviceNet™ PC/104 Cards
- 112027** OPC Software Tools
- 112113** DeviceNet PCI Cards
- 112030** DeviceNet Software Tools



SST™ network interface cards (NICs) and software tools are used for high-speed control and monitoring applications on DeviceNet.

SST™ Network Interface Cards

DeviceNet NICs from Molex are ideal for applications where high-performance control and reliability are required. Backed by superior support and service, Molex network interfaces support a wide range of network protocols and bus formats.

SST network interface cards for DeviceNet can be found in many applications including:

- Human-Machine Interface
- PC Control
- OEM machine control (robotics, semiconductor, material handling)
- Device Development
- Network Diagnostics

SST NICs undergo DeviceNet conformance testing.

Features and Benefits

- Enhanced FPGA-based design
 - Lower component count for higher reliability
 - Extended product lifecycle
- Diagnostic LEDs
- Provides Quick-Connect functionality (Master mode)
 - Allows devices to be accessed on power-up in under 500 milliseconds
- Flexible communication support:
 - UCMM (Unconnected Message Manager) capable; Group 1, 2, and 3 dynamic explicit connections supported
 - Provides simultaneous execution of Group 2 Client (Master) and Server (Slave) operation
 - Supports all DeviceNet standard baud rates: 125, 250, and 500 Kbaud
 - Supports Poll, Strobe, Change of State (COS) and Cyclic I/O messaging
 - Provides Client (Master) explicit messaging to slave devices
 - Supports fragmented Explicit and I/O messages
- Support for CAN 2A and 2B (both 11 and 29 bit identifiers)
- Windows XP, Vista and 7 (32/64-bit) drivers provided
- Form-fit-function replacements for the DN3 family of NICs for DeviceNet
- Compatible with CIP Safety Stack from Molex (provided separately)
- Multi-Slave versions available (optional) to aid in system simulation (PCU format only)
- Software tools enable faster network commissioning and diagnosis of faults

Electrical

External Power: 11-24 VDC, 50 mA typical
Isolation: 500 V
Data Rate: Up to 1 Mbaud for CAN 125K, 250K and 500K baud for DeviceNet

Protocol

DeviceNet Master—Group 2 Client, Group 2 only Client
DeviceNet Slave—Group 2 Server
Compliant with DeviceNet Specification 1.8
CAN 2.0 B
Isolated CAN physical layer on each channel (where applicable)

Mechanical

PCI (PCU)

Bus Interface: 32-bit, 33 MHz, PCI universal 3.3/5V interface (compliant with PCI v2.2 and v2.3)
Processor: 64 MHz NIOS Processor
Memory: 128 bytes for PCI configuration
Diagnostics: Bi-color LEDs showing card status power, communication
Interrupts: Hardware Plug and Play (32 Kbytes used per card)
Typical Current Draw: +5V, ± 5%, 300mA (1 channel)
Addressing—Memory: 256 Kbyte window available per channel
Addressing—I/O: 16 bytes allocated per channel

PC/104

Bus Interface: 16-bit PC/104 interface (compliant with PC/104, v2.3 & v2.4)
Processor: 64 MHz NIOS Processor
Memory: 256 KB of shared RAM per channel
Diagnostics: Bi-color LEDs showing card status power, health, communication
Interrupts: Software selectable level
IRQ 2/9, 5, 7, 10, 11, 12, 15; standard TTL drive
Typical Current Draw: +5V, ± 5%, 600mA 2 channel
Addressing—Memory: 256K in a window of 8K, 16K, 32K, 64K, 128K or 256K bytes on even window boundary between 512K and 1Mb
Addressing—I/O: 8 bytes on any even 8-bit boundary from 200h-2F8h or 600h-6F8h

Physical

Dimensions —PCI (PCU):
Standard half-height (1 channel)
Standard full-height (2 channel)
Dimensions (LxW)—PC/104:
9.588 x 9.017cm (3.775 x 3.550")
Operating Temperature: 0 to +60° C (32 to 140° F)
Storage Temperature: -40 to +85° C (-40 to 185° F)
Cable: Shielded twisted pair, compatible with target network
Connector: DeviceNet compliant 5-pin CAN connector

Environmental

RoHS Compliant
Humidity: 5 to 95% non-condensing

| Product Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| DeviceNet card, Universal PCI bus (3.3V / 5V), 1 channel, full-height bracket | SST-DN4-PCU | 112113-0007 |
| DeviceNet card, Universal PCI bus (3.3V / 5V), 1 channel, half-height bracket | SST-DN4-PCU-H | 112113-0001 |
| DeviceNet card, Universal PCI bus (3.3V / 5V), Multi-Slave, 1 channel | SST-DNMS4-PCU | 112113-0009 |
| DeviceNet card, Universal PCI bus (3.3V / 5V), Multi-Slave, 1 channel, half-height bracket | SST-DNMS4-PCU-H | 112113-0010 |
| DeviceNet card, Universal PCI bus (3.3V / 5V), 2 channels | SST-DN4-PCU-2 | 112113-0005 |
| DeviceNet card, PC/104, 1 channel | SST-DN4-104-1 | 112005-0040 |
| DeviceNet card, PC/104, 2 channels | SST-DN4-104-2 | 112005-0048 |

SST™ DN4 DeviceNet* USB Interface Module

112076 USB Interface Module



Molex's compact SST DN4 DeviceNet USB interface module uses an enhanced FPGA design to maximize performance in control and monitoring applications

The SST DN4 DeviceNet USB module from Molex was developed to provide industrial OEMs and end-users with a compact, high-performance DeviceNet interface for PC communication. Ideal for use in control and monitoring applications, Molex's USB design is the result of 15 years of DeviceNet product expertise.

The SST DN4 USB interface module uses an enhanced FPGA (Field Programmable Gate Array) design with a lower component count, resulting in an extended product lifecycle and higher reliability.

Features and Benefits

- Scans DeviceNet in 3 to 5 milliseconds for a high-performance module for control applications
- Provides simultaneous execution of Group 2 Client (Master) and Server (Slave) operations for applications where both capabilities may be required

Features and Benefits (continued)

- Supports poll, strobe, change-of-state (COS) and cyclic input/output messaging flexibility for any DeviceNet control scheme
- QuickConnect capability in Client (Master) mode ensures devices may be accessed faster on power-up (in under 500 milliseconds)
- Used in Controller Area Network (CAN) networks (2A, up to 1Mb per second), and DeviceNet networks (at 125, 250 or 500kB per second); one device supports multiple networks
- SST DN4 USB interface module is a functional replacement for the DNP PCMCIA cards providing backward compatibility with DNP cards
- Conformance tested to ODVA standards (Volume 3, v.1.8 for DeviceNet) meeting industry standard requirements

Operating Systems and Drivers Supported

- Windows XP/Vista/7 drivers (32/64-bit)
- The Console; a grouping of software tools including OPC server configuration and diagnostic tools
- Open, documented memory map interface with example C source code and Windows DLLs for custom driver development

Reference Information

cULus, CE
FCC (Part 15, Subpart B—Class A)

Electrical

Processor: 64 MHz NIOS Processor
Addressing I/O: Up to 500 bytes of input data and 500 bytes of output data per I/O connection as a DeviceNet master or slave
Current Draw (USB): 4.75 to 5.25V DC, 80mA max. typical
Protocol: DeviceNet Master—Group 2 Client, Group 2 only Client
DeviceNet Slave—Group 2 Server
Compliant with ODVA DeviceNet Specification 1.8
Compliant with CAN 2.0 A

Electrical (continued)

External Power: 11 to 25V DC, 60mA max.
Isolation: Isolated CAN physical layer 500V DC
Data Rate: Up to 1M baud for CAN 125K, 250K and 500K baud for DeviceNet

Physical

Bus Interface: USB High-Speed 2.0 compatible standard
USB Type B receptacle
Dimensions: Width—102mm (4.016")
Depth—54.0mm (2.126")
Height—30.0mm (1.181")
Cable: Shielded twisted pair, compatible with target network
Connector: DeviceNet compliant 5-pin CAN connector
Diagnostics: LEDs showing card status health (tri-colour) and communication (bi-colour)
Humidity: 5 to 95% non-condensing
Operating Temperature: 0 to +60° C (+32 to +140° F)
Storage Temperature: -40 to +85° C (-40 to +185° F)

Environmental

RoHS

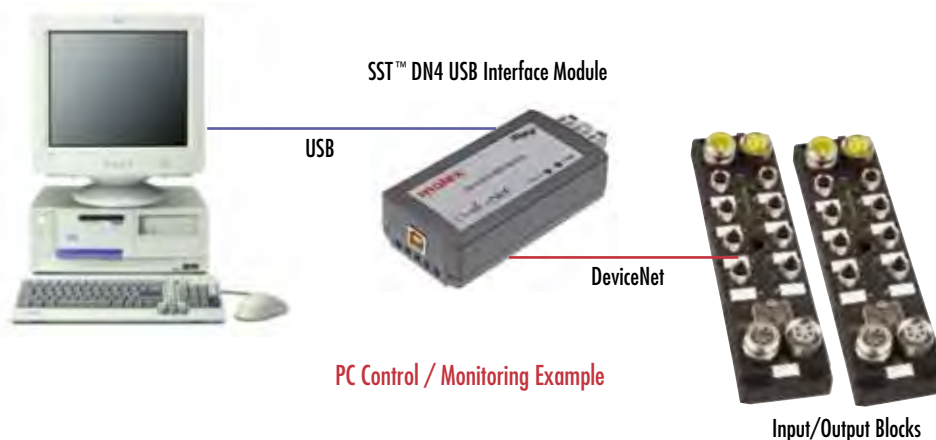
Markets and Applications

- Applications
 - I/O blocks
 - PC control systems
 - HMI/SCADA (Human Machine Interface/Supervisory Control and Data Acquisition) systems
 - Robot and other machine control
 - Diagnostics
- Markets
 - Automotive
 - Semiconductor
 - Material handling
 - Pulp and paper
 - Food and beverage
 - Mining and metals

SST™ DN4 DeviceNet USB Interface Module

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| DeviceNet USB interface with 5-pin connector | SST-DN4-USB | 112076-0001 |
| DeviceNet USB interface with 5-pin to M12 Sealed Micro connector | SST-DN4-USB-SM | 112076-0002 |

Note: SST™ DeviceNet remote diagnostic software is included with each module
*DeviceNet and CIP are trademarks of ODVA



SST™ DeviceNet* Software Tools

112027/112030

DeviceNet Software Tools

Software available for the SST DeviceNet interfaces enables fast integration of industrial communication within a customer's application.

Operating Systems and Drivers Supported

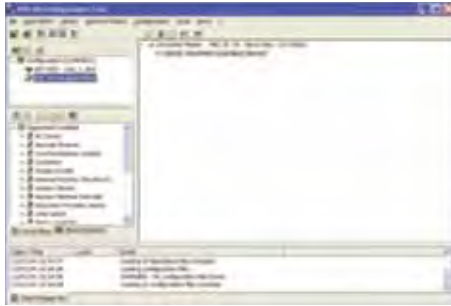
- Windows XP/Vista/7 drivers (32/64-bit)
- The Console; a grouping of software tools including OPC server configuration and diagnostic tools
- Open, documented memory map interface with example C source code and Windows DLLs for custom driver development



DeviceNet Software Console Tools and OPC Server

| Key | Engineering No. | Standard Order No. |
|----------------------|-----------------|--------------------|
| USB (single license) | SST-DN3-CNF-U | 112030-0007 |
| (single license) | SST-DN3-OPC | 112027-0014 |

*DeviceNet and CIP are trademarks of ODVA



Configuration Console



OPC Server



Diagnostic and Test Tools
(included with DN3/DN4 DeviceNet cards)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Common Industrial Protocol (CIP*) Safety Software Kit (Stack)

112115/112116/112117
DeviceNet* and EtherNet/IP*
Stack Development Kits



Molex demonstrates market leadership with the comprehensive CIP Safety Stack software solution, allowing industrial-device manufacturers to embed CIP Safety Stack technology quickly and economically within their products.

Common Industrial Protocol (CIP) Safety is a protocol extension developed by the ODVA. The CIP Safety protocol offers a set of highly-integrated safety services which leverage the underlying communications stacks of the standard CIP networks to transport data from a source to a destination. CIP Safety allows end-users to implement safety systems in a more integrated, cost-effective manner. The Molex CIP Safety Software Kit (also called Stack) is offered as a tool kit, with the stack provided as modular "C" code that is pre-tested. The software allows a manufacturer of intelligent industrial products to implement the necessary safety-application layer that enables products to comply with the CIP Safety specification (Edition 2.1) from ODVA. The CIP Safety Stack is available for both DeviceNet* and EtherNet/IP*, and both are endorsed by Rockwell Automation under the Value Added Design Partner program.

The CIP Safety Stack is approved by TÜV for SIL3 applications and it has been conformance tested using the ODVA Conformance Test. Molex can support customers that request assistance with design implementation and/or guidance through TÜV approval.

Features and Benefits

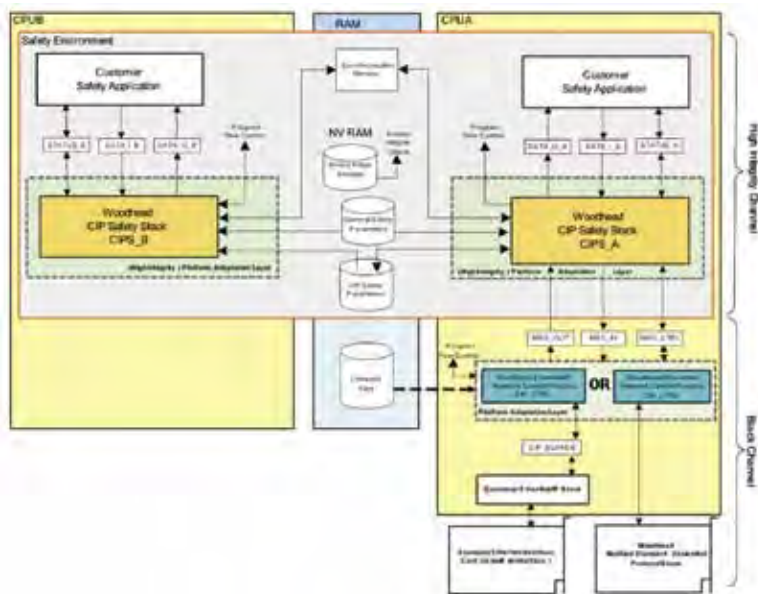
- Meets IEC 61508, SIL3 ensuring international market acceptance
- Approved by TÜV and tested by ODVA means a high-quality solution for minimal project risk and faster time-to-market
- Pre-tested modular ANSI C code is easy to compile using standard compilers; faster time-to-market
- Molex engineers can support protocol-integration requests minimizing investment required for in-house resources
- Designed for use with other Molex/Brad offerings: Hardware (DN4 network interface cards), Software (DeviceNet or EtherNet/IP software stacks) which results in a complete CIP communication solution

Specifications

- ANSI C code is provided for the safety portion of the Stack (Compliant with CIP Safety Specification 2.1)
- ANSI C code for black-channel components (NET_CTRL_IO)
- Interface specification for high-integrity and black-channel environments
- Safety integration manual (including safety measure requirements)
- Optionally, modified standard CIP stacks (software/firmware) for DeviceNet (Slave) or EtherNet/IP (Adapter)
- Optionally, ANSI C code for the Platform Adaptation Layers (both safety and non-safety)
- Documentation required by certification bodies (TÜV, ODVA)
- Support during certification process of vendor's final product

Markets and Applications

- Industrial Device Manufacturers
 - I/O blocks
 - Valves
 - Drives
 - Complex machines (OEM)
- End-Users
 - Automotive
 - Consumer goods
 - Heavy industries



CIP* Safety Software Stack Concept for a Slave (Adapter) Application

| Device Type | Network | Description | Engineering No. | Standard Order No. |
|-------------------|---------------------------|---|-------------------|--------------------|
| Slave | DeviceNet | Stack Development Kit (Standard Source Code) | SDK-DNS-SAF | 112115-0001 |
| | | Stack Development Kit (Source Code Obfuscation [†]) | SDK-DNS-SAF-O | 112115-0002 |
| | | Royalty (per device) | SDK-DNS-SAF-L | 112116-0001 |
| Adapter | EtherNet/IP | Stack Development Kit (Standard Source Code) | SDK-EIP-ADP-SAF | 112117-0001 |
| | | Stack Development Kit (Source Code Obfuscation [†]) | SDK-EIP-ADP-SAF-O | 112117-0002 |
| | | Royalty (per device) | SDK-EIP-ADP-SAF-L | 112116-0002 |
| Slave and Adapter | DeviceNet and EtherNet/IP | Stack Development Kit (Standard Source Code) | SDK-DEP-SAP-SAF | 112115-0003 |
| | | Stack Development Kit (Source Code Obfuscation [†]) | SDK-DEP-SAP-SAF-O | 112115-0004 |
| N/A | N/A | Engineering Support | SDK-CIP-EDS-SAF | 112115-0005 |

*CIP, DeviceNet and EtherNet/IP are trademarks of ODVA, Inc.

†Note: Source code obfuscation means that the "C" code is protected, but the compiler can process it.

Brad® HarshIO 600

112092

Digital IP67 IO Module Classic Format



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments.
- Accepts M12 threaded connectors or Brad Ultra-Lock® Push-Pull connection system
- Standard hole housing pattern allows for interchangeability with popular IO modules
- Visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status
- Support of QuickConnect (Fast Boot) for robot tool changer application

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- Sixteen digital input/output per module
- Supports PNP and NPN input devices
- Watchdog with output reply state

Compatible Protocols

- DeviceNet® Slave
- Supports ODVA Group 2 Server Slave functionality
- Supports ADR and Quick-Connect

Conformance

- IP67 according to IEC 60529
- Vibration: IEC 60068-2-6 conformance
- Mechanical Shock: 10G, 11ms, 3 axis
- CE
- UL
- cUL
- RoHS compliant
- ODVA certified

Technical Data

- IO Configurations:
 - 16 inputs
 - 8 inputs + 8 outputs
- IO Connectors: 8x M12 ports, Ultra-Lock M12 female 5-pole, internally threaded
- DeviceNet Connectors:
 - 1x Mini-Change® male, 5-pole
 - 1x Mini-Change female, 5-pole
- Power Connectors:
 - Power In—Male Mini-Change, 4-pole
 - Power Out—Female Mini-Change, 4-pole
- Power Requirements:
 - Module Input Power—24V DC
 - Module Output Power—24V DC, 2.0A max. per channel, 8.0A max. per module
- Input Type:
 - Compatible with dry contact and PNP or NPN 3-wire switches
 - Electronic short circuit protection
- DeviceNet Address: 0 to 63 by rotary switches
- Input Device Supply: 140mA per port at 25° C
- Output Load Current: 1.0A max. per channel, electronic short circuit protection
- Maximum Switching Frequency: 200 Hz
- Housing Dimensions:
 - 60.00 by 220.00 by 20.00mm (2.36 by 8.66 by .780")
- Mounting Dimensions:
 - 37.50mm (1.480") horizontal on centers
 - 210.00mm (8.270") vertical on centers
 - Center hole
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 4 | 16 | | NPN | TCDDN-8D0N-10U | 112092-0019 |
| | 8 | 8 | | TCDDN-888N-11U | 112092-0020 |
| | 16 | | PNP | TCDDN-8D0P-10U | 112092-0010 |
| | 8 | 8 | | TCDDN-888P-11U | 112092-0009 |

Brad® HarshIO 600

112092

Digital IP67 IO Module Compact Format



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments.
- Accepts M12 threaded connectors or Brad Ultra-Lock® Push-Pull connection system
- Standard hole housing pattern allows for interchangeability with popular IO modules
- Visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status
- Support of QuickConnect (Fast Boot) for robot tool changer application

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- Eight digital input/output per module
- Supports PNP and NPN input devices
- Watchdog with output reply state

Compatible Protocols

- DeviceNet® Slave
- Supports ODVA Group 2 Server Slave functionality
- Supports ADR and Quick-Connect

Conformance

- IP67 according to IEC 60529
- Vibration: IEC 60068-2-6 conformance
- Mechanical Shock: 10G, 11ms, 3 axis
- CE
- UL
- cUL
- RoHS compliant
- ODVA certified

Included Hardware/Software

- IO Configurations:
 - 8 inputs
 - 4 inputs + 4 outputs
- IO Connectors:
 - 4x ports, Ultra-Lock M12 female 5-pole, internally threaded
 - 8x ports, M8 female 3-pole threaded
- DeviceNet Connectors:
 - 1x M12 male, 5-pole
 - 1x M12 female, 5-pole
- Power Connectors: M12 Male, 5-pole, A-Coding
- Power Requirements:
 - Module Input Power—24V DC
 - Module Output Power—24V DC, 4.0A max.
- Input Type:
 - Compatible with dry contact and PNP or NPN
 - Electronic short circuit protection
- DeviceNet Address: 0 to 63 by rotary switches
- Input Delay: 3ms default or configurable (through EDS)
- Input Device Supply: 140mA per port at 25° C
- Output Load Current: 1.0A max. per channel, electronic short circuit protection
- Maximum Switching Frequency: 200 Hz
- Housing Dimensions: 30.00 by 175.00 by 20.00mm (1.18 by 6.89 by .78")
- Mounting Dimensions:
 - 23.00mm (0.91") horizontal on centers
 - 168.00mm (6.61") vertical on centers
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

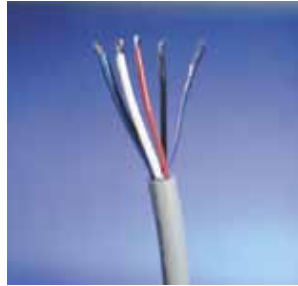
Compact—M8

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 8 | | NPN | TBDDN-880N-804 | 112092-0022 |
| | 8 | | PNP | TBDDN-880P-804 | 112092-0008 |

Compact—M12

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 8 | | NPN | TBDDN-480N-80U | 112092-0018 |
| | 4 | 4 | NPN | TBDDN-444N-88U | 112092-5004 |
| | 8 | | PNP | TBDDN-480P-80U | 112092-0007 |
| | 4 | 4 | PNP | TBDDN-444P-88U | 112092-0006 |

DeviceNet* Brad® Bulk Cable 130039 Thick Cable



Features and Benefits

- Meets or exceeds ODVA specifications for highest system reliability

Reference Information

UL: Type CL2, VL 1581 flame resistance
CSA: AWM I/II and A/B FT4

Overall

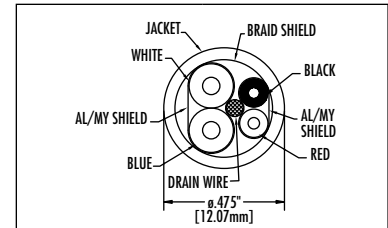
Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs

Power Pair

Wire: Two 15 AWG (19x28 AWG) stranded tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC resistance: 3.6 ohms/1000 ft max. at 20° C
Current: 8.0A
Color Code: Red/Black

Data Pair

Wire: Two 18 AWG (19x28 AWG) stranded tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 6.92 ohms/1000 ft max. at 20° C
Capacitance: 12pF/ft
Color Code: White/Blue



| Cable Length | Max. Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|--------------|--------------|-----------------|--------------------|
| 50.0m (164.04') | 8.0A | 300V | DN00A-M500 | 130039-0368 |
| 100.0m (328.08') | | | DN00A-T100 | 130039-0369 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable 130039 Thick Flex Rated Cable



Features and Benefits

- Meets or exceeds ODVA for highest system reliability
- Rated over 1.4M flex cycles—40% greater than most flex rated DeviceNet cabling

Reference Information

UL: CL3; AWM 20626, UL 1581
CSA: AWM I/II A/B 80° C 300V FT1

Overall

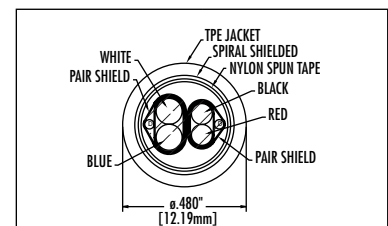
Rating: 300V, 80° C
Materials: Power—TPE outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Flexure: Rolling flex >1.4m cycles at 10x bend radius
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wires between pairs

Power Pair

Wire: Two 15 AWG (19x28 AWG) individually-tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 3.6 ohms/1000 ft max. at 20° C
Current: 8.0A
Color Code: Red/Black

Data Pair

Wire: Two 18 AWG (19x30 AWG) individually-tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 6.9 ohms/1000 ft max. at 20° C
Capacitance: 12pF/ft
Color Code: White/Blue



| Cable Length | Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|---------|--------------|-----------------|--------------------|
| 50.0m (164.04') | 8.0A | 300V | DNF00A-M500 | 130039-0349 |
| 100.0m (328.08') | | | DNF00A-T100 | 130039-0350 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable

130039 Thick Tray Rated Cable



Features and Benefits

- Designated for tray-rating usage per NEC guidelines or where 600V cable requirements need to be met
- Meets or exceeds ODVA for highest system reliability

Reference Information

UL: Type TC-ER
CSA: 1/II A/B

Overall

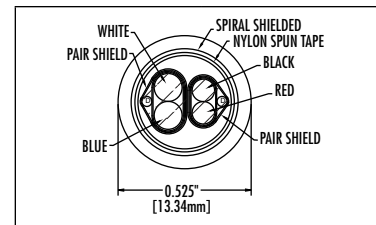
Rating: 600V UL type TC
Materials: Power—PVC outer jacket, PP inner insulation,
Data—PVC with nylon skin
Construction: Two shielded pairs, with one 18 AWG
(19x30 AWG) Copper drain wire

Power Pair

Wire: Two 16 AWG (19x29 AWG) individually tinned
Copper
Shielding: Aluminum outside with polyester tape overlap
DC Resistance: 4.9 ohms/1000 ft max. at 20° C
Current: 8.0A
Color Code: Red/Black

Data Pair

Wire: Two 18 AWG (19x30 AWG) individually tinned
Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 6.9 ohms/1000 ft max. at 20° C
Capacitance: 14.7 pF/ft
Color Code: White/Blue
Velocity of Propagation: 64% NOM
Cable Jacket Color: Gray



| Cable Length | Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|---------|--------------|-----------------|--------------------|
| 50.0m (164.04') | 8.0A | 600V | DNE00A-M500 | 130039-0347 |
| 100.0m (328.08') | | | DNE00A-T100 | 130039-0348 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable

130039 Mid Cable



Features and Benefits

- Meets or exceeds ODVA specifications for thin or drop cable for the highest system reliability
- Allows for cleaner, tighter cable rating of trunk cable for smaller length networks

Reference Information

UL: AWM Style 1569
CSA: AWM I/II A/B 300V FT1, 80° C

Overall

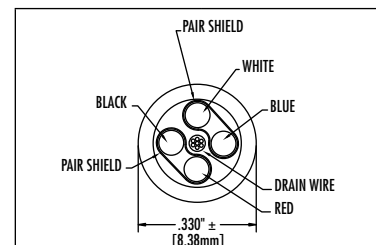
Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 20 AWG tinned Copper
drain wire between pair

Power Pair

Wire: Two 16 AWG (65x34 AWG) tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
Velocity of Propagation: 75%
DC Resistance: 4.1 ohms/1000 ft max. at 20° C
Current: 8.0A
Color Code: Red/Black

Data Pair

Wire: Two 20 AWG (19x36 AWG) stranded Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 10.4 ohms/1000 ft max. at 20° C
Capacitance: 12.35pF/ft
Color Code: White/Blue
Cable Jacket Color: Gray



| Cable Length | Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|---------|--------------|-----------------|--------------------|
| 50.0m (164.04') | 8.0A | 300V | DNB00A-M500 | 130039-0339 |
| 100.0m (328.08') | | | DNB00A-T100 | 130039-0340 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable

130039 Thin Cable



Features and Benefits

- Meets and exceeds ODVA specifications for the highest reliability
- Standard Thin or drop line cable
- Thin High Flex is rated over 1.4M flexcycles—40% greater than most DeviceNet Flex-rated cabling

Reference Information

UL: CL2, AWM 2464
CSA: FT4 rated

Overall

Rating: 300V 80° C

Materials: Power—PVC outer jacket with semi-rigid PVC inner insulation (power) PE foam inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs

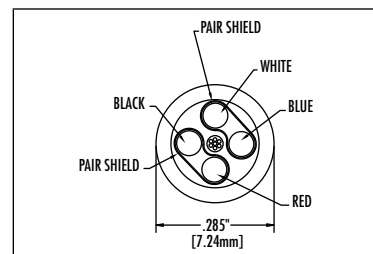
Cable Jacket Color: Gray

Power Pair

Wire: Two 22 AWG individually tinned stranded Copper
Shielding: Aluminum foil shield, 25% overlap
DC resistance: 16.5 ohms/1000 ft max. at 20° C
Current: 4.0A
Color Code: Red/Black

Data Pair

Wire: Two 22 AWG individually tinned stranded Copper
Shielding: Aluminum foil shield, 25% overlap
DC resistance: 16.5 ohms/1000 ft max. at 20° C
Velocity of Propagation: 75%
Capacitance: 11pF/ft
Color Code: White/Blue



| Cable Length | Max. Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|--------------|--------------|-----------------|--------------------|
| 100.0m (328.08') | 4.0A | 300V | DND00A-T100 | 130039-0381 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable

130039 Thin Flex Rated Cable



Features and Benefits

- Meets and exceeds ODVA specifications for the highest reliability
- Standard Thin or drop line cable
- Thin High Flex is rated over 1.4M flexcycles—40% greater than most DeviceNet Flex-rated cabling

Reference Information

UL: CL3 AWM 20626, flame UL 1581
CSA: AWM 1/II A/B, 80° C, 300V FT1

Overall

Rating: 300V 80° C

Materials: Power—TPE outer jacket PVC with nylon skin inner insulation

Data—PE foam inner insulation

Flexure: Rolling flex > 1m cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs

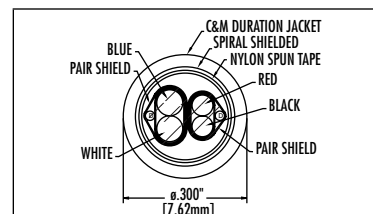
Cable Jacket Color: Gray

Power pair

Wire: Two 22 AWG individually tinned stranded Copper
Shielding: Aluminum outside/polyester tape, 25% overlap
DC Resistance: 17.5 ohms/1000 ft max. at 20° C
Current: 4.0A
Color Code: Red/Black

Data Pair

Wire: Two 24 AWG individually tinned stranded Copper
Shielding: Aluminum outside/polyester tape, 25% overlap
DC Resistance: 28 ohms/1000 ft max. at 20° C
Velocity of Propagation: 75%
Capacitance: 12pF/ft
Color Code: White/Blue



| Cable Length | Max. Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|--------------|--------------|-----------------|--------------------|
| 100.0m (328.08') | 4.0A | 300V | DNDFO0A-T100 | 130039-0344 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Bulk Cable

130039 Thin Tray Rated Cable



Features and Benefits

- Designated for tray-rating usage per NEC guidelines or where 300V cable requirements need to be met
- Meets or exceeds ODVA specification for the highest system reliability

Reference Information

UL: CMG, CL2 AWM, flame 1581
CSA : AWM 1/II A, flame FT4

Overall

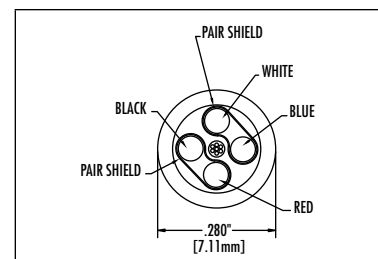
Rating: 300V UL type CL2 80° C
Materials: Power—PVC outer jacket, PVC with nylon skin inner insulation
Data—FPE insulation
Construction: Two foil shielded pairs with one 22 AWG Copper drain wire between pairs
Cable Jacket Color: Gray

Power pair

Wire: Two 22 AWG individually tinned Copper
Shielding: Aluminum outside with polyester tape overlap
DC Resistance: 17.5% ohms/1000 ft max. at 20° C
Current: 4.0A
Color Code: Red/Black

Data Pair

Wire: Two 24 AWG individually tinned stranded Copper
Shielding: Aluminum outside/polyester tape, 25% overlap
DC Resistance: 28 ohms/1000 ft max. at 20° C
Velocity of Propagation: 75%
Capacitance: 12pF/ft
Color Code: White/Blue



| Cable Length | Max. Current | Max. Voltage | Engineering No. | Standard Order No. |
|------------------|--------------|--------------|-----------------|--------------------|
| 100.0m (328.08') | 4.0A | 300V | DNDG00A-T100 | 130039-0346 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Mini-Change® Single-Ended Cordsets

130024
Female
Straight, Right Angle
Threaded
Thick and Mid Media



Features and Benefits

- Phosphor-Bronze contacts for greatest reliability
- Variety of cable types, cable exit, coupling nut and length options for maximum system flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Mechanical

Connector Face: PVC-UL STD 94-V
Molded Body: PVC-UL STD 94-V
Coupling Nut: Zinc diecast with black epoxy coat
Optional Stainless Steel or Nickel-plated Brass

Physical

Connector Body: PVC
Contact: Brass with Gold plating
Coupling Nut: Diecast Zinc
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DNB—DeviceNet Mid (Trunk)

Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC inner insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs, 20 AWG Tin Copper drain wire between pair
UL: AWM Style 1569
CSA: AWM I/II A/B 300V FY1, 80° C

DN—DeviceNet Thick (Trunk)

Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC with Nylon skin inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs
UL: UL type CL2, VL 1581 flame resistance
CSA: AWM I/II A/B 80° C 300V FT1

DNF—DeviceNet Thick Flex-Rated

Rating: 300V, 80° C
Materials: Power:—TPE outer jacket, PVC with Nylon skin inner insulation
Data—PE Foam inner insulation
Flexure: Rolling flex > 1.4m cycles at 10x bend radius
Construction: Two shielded pairs, 18 AWG (19x30 AWG), drain wire between pair
UL: CL3; AWM 20626, UL 1581
CSA: AWM I/II A/B 80° C 300V FT1

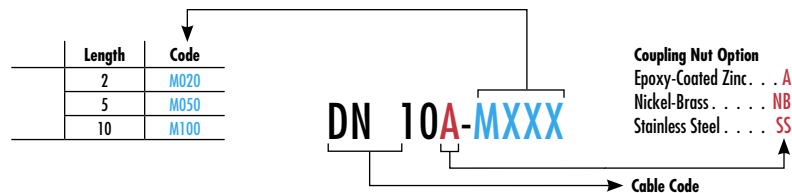
DNE—DeviceNet Thick Tray-Rated

Rating: 600V UL type TC
Materials: Power—PVC outer jacket, PP inner insulation
Data—PVC with Nylon skin
Construction: Two shielded pairs, with one 18 AWG (19x30 AWG), Copper drain wire
UL: Type TC-ER
CSA: I/II A/B

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Cable Diameter | Cable Length | Straight | | Right Angle | |
|---------------------|--------------------------|--------------|------------------|---------------|---------------|----------------|--------------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 300V AC/DC | Mid Cable | PVC | 16/20 | 8.38mm | 1.0m | DNB10A-M010 | 130024-0169 | DNB90A-M010 | 130024-0178 |
| | | | Thick (Trunk) | PVC | 15/18 | 12.07mm | | DN10A-M010 | 130024-0073 | DN90A-M010 | 130024-0133 |
| | 8.0A | 600V AC/DC | Thick Flex-Rated | TPE High-Flex | 15/18 | 12.19mm | | DNF10A-M010 | 130024-0337 | DNF90A-M010 | 130024-0341 |
| | | | Thick Tray-Rated | PVC | 16/18 | 13.34mm | | DNE10A-M010 | 130024-0260 | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Single-Ended Cordsets

130024

**Female
Straight, Right Angle
Thin Media
Threaded**



Features and Benefits

- Over-molded open style of DeviceNet connector provides for environmental protection and cable integrity strain relief
- Variety of form factor, cable type and length options available for maximum flexibility

Mechanical

Body: Molded PVC
Insert: PVC

Physical

Contact: Phosphor Bronze
Contact Plating: Gold over Nickel
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

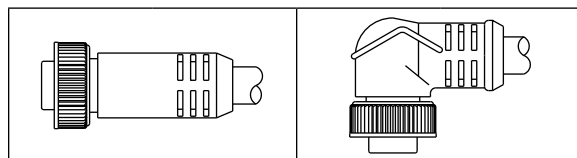
Cables

DND—Thin Standard

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray
UL: CL2, AWM 2464
CSA: FT4 Rated

DNDF—Thin High-Flex

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Flexure: Rolling Flex > 1 million cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray
UL : CL3 AWM 20626, Flame UL 1581
CSA : AWM: 1/II A/B, 80° C, 300V FT1



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Cable Diameter | Length | Straight | | Right Angle | |
|---|--------------------------|--------------|-----------------|--------------|---------------|----------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 300V AC/DC | Thin Cable | PVC | 22/22 | 7.24mm | 1.0m | DND10A-M010 | 130024-0215 | DND90A-M010 | 130024-0232 |
| | | | Thin, High-Flex | TPE | 22/24 | 7.62mm | 1.0m | DNDF10A-M010 | 130024-0353 | DNDF90A-M010 | 130024-0355 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

DND40A-M010

Coupling Nut Option
Epoxy-Coated Zinc . . . A
Nickel-Brass NB
Stainless Steel SS

→ Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Single-Ended Cordsets

130024/130025

Male
Straight, Right Angle
Thick and Mid Media
Threaded



Features and Benefits

- Phosphor-Bronze contacts for greatest reliability
- Variety of cable types, cable exit, coupling nut and length options for maximum system flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Mechanical

Connector Face: PVC-UL Std 94-V
Molded Body: PVC-UL Std 94-V
Coupling Nut: Zinc diecast with black epoxy coat

Physical

Contacts: Phosphor-Bronze base material
Contact Plating: Gold over Nickel per ODVA specs
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DNB—Mid Trunk

Rating: 300V, 80° C
Materials: Power—Gray PVC outer Jacket, PVC inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 20 AWG Tin Copper drain wire between pair
UL: AWM Style 1569
CSA: AWM 1/II A/B 300V FTI, 80° C

Cables (continued)

DN—Thick Trunk

Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs
UL: UL Type CL2, VL 1581 flame resistance
CSA: CSA AWM: 1/II and A/B FT4

DNF—Thick Flex-Rated

Rating: 300V, 80° C
Materials: Power—TPE outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Flexure: Rolling Flex >1.4m cycles at 10x bend radius
Construction: Two shielded pairs with 18 AWG (19x30 AWG), drain wire between pairs
UL: CL3; AWM 20626, UL 1581
CSA: AWM 1/II A/B 300V FTI, 80° C

DNE—Thick Tray-Rated

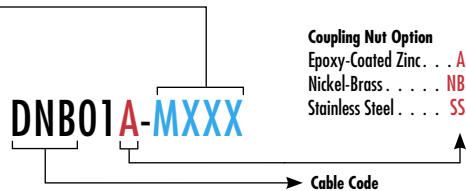
Rating: 600V UL Type TC
Materials: Power—PVC outer jacket, PP inner insulation
Data—PVC with Nylon skin
Construction: Two shielded pairs with one 18 AWG (19x30 AWG) Copper drain wire
UL: Type TC-ER
CSA: 1/II A/B

| Poles (Male View) | Max. Current Per Contact | Max. Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Straight | | Right Angle | |
|----------------------|-----------------------------|-----------------|------------------|-----------------|----------------|------------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | | | 4.0A | 300V AC/DC | Mid Cable |
| | | | Thick (Trunk) | | 12.07mm | 15/18 | | DN01A-M010 | 130024-0028 | DN09A-M010 | 130024-0059 |
| | | | Thick Flex-Rated | TPE High-Flex | 12.19mm | 15/18 | | DNF01A-M010 | 130024-0265 | | |
| | 8.0A | 600V AC/DC | Thick Tray-Rated | PVC | 13.34mm | 16/18 | | DNE01A-M010 | 130024-0249 | DNF09A-M010 | 130025-0538 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Single-Ended Cordsets

130024/130027

Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Phosphor-Bronze contacts for greatest reliability
- Variety of cable types, cable exit, coupling nut and length options for maximum system flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Mechanical

Connector Face: PVC-UL Std 94-V
Molded Body: PVC-UL Std 94-V
Coupling Nut: Zinc diecast with black epoxy coat

Physical

Contacts: Phosphor-Bronze base material
Contact Plating: Gold over Nickel per ODVA specs
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DND—Thin

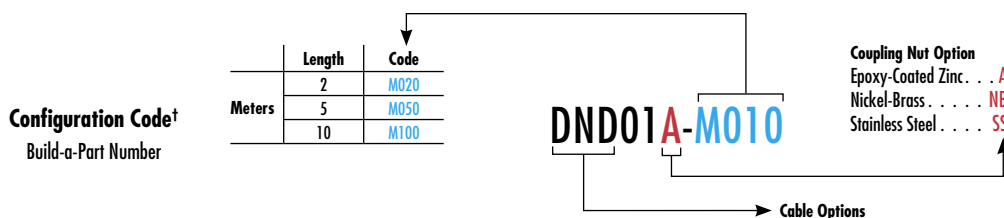
Rating: 300V, 80° C
Materials: Power—PVC outer jacket with semi-rigid PVC inner insulation
Data —PE foam inner insulation
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray

DNDF—Thin High Flex

Rating: 300V, 80° C
Materials: Power—TPE outer jacket, PVC with nylon skin inner insulation
Data —PE foam PE foam inner insulation
Flexure: Rolling Flex >1m cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray

| Poles (Male View) | Max. Current Per Contact | Max. Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Male Straight | | Male Right Angle | |
|----------------------|-----------------------------|-----------------|------------|-----------------|----------------|------------------|-------------|---|--------------------|------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | | | | | <p>5 Pole 1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 300V AC/DC | Thin |
| Thin Flex Rated | TPE | 7.62mm | 22/24 | DNDF01A-M010 | 130024-0005 | DNDF09A-M010 | 130024-0356 | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)



[†]Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Double-Ended Cordsets

130025

**Female Straight-to-Male Straight
Right Angle Female-to-Straight
Male
Right Angle Female-to-Right
Angle Male
Thick and Mid Media
Threaded**



Features and Benefits

- Phosphor-Bronze contacts for greatest reliability
- Variety of cable types, cable exit, coupling nut and length options for maximum system flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 300V AC/DC
Max. Current per Contact: 4.0A
Thick Tray-Rated: Voltage—300V AC/DC
Thick Tray-Rated: Max. Current per Contact—8.0A

Mechanical

Connector Face: PVC-UL Std 94-V
Molded Body: PVC-UL Std 94-V
Coupling Nut: Zinc diecast with black epoxy coat
Optional stainless Steel or Nickel-coated

Physical

Connector Body: PVC
Cable Jacket: PVC
Cable Jacket Color: Gray
Connector End A: Mini-Change
Connector End B: Mini-Change
Contact: Brass with Gold plating
Copper with Gold over Nickel plating
Coupling Nut: Diecast Zinc
Keyway: Single
LED Indicator: No
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DNB—DeviceNet Mid (Trunk)

Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC inner insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs, 20 AWG Tin-Copper drain wire between pair
UL: AWM—Style 1569
CSA: AWM—1/II A/B 300V FY1, 80° C

Cables (continued)

DN—DeviceNet Thick (Trunk)

Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC with Nylon skin inner insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs
UL: Type CL2, VL 1581 flame resistance
CSA: AWM 1/II A/B 80° C 300V FT1

DNF—DeviceNet Thick Flex-Rated

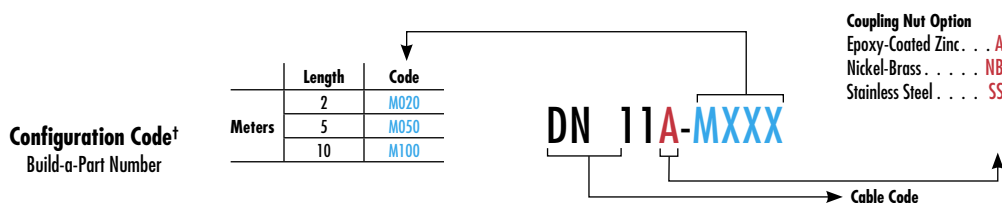
Rating: 300V, 80° C
Materials: Power—TPE outer jacket, PVC with Nylon skin inner insulation
Data—PE Foam inner insulation
Flexure: Rolling flex > 1.4m cycles at 10x bend radius
Construction: Two shielded pairs, 18 AWG (19x30 AWG), drain wire between pair
UL: CL3; AWM 20626, UL 1581
CSA: AWM 1/II A/B 80° C 300V FT1

DNE—DeviceNet Thick Tray-Rated

Rating: 600V UL type TC
Materials: Power—PVC outer jacket, PP inner insulation
Data—PVC with Nylon skin
Construction: Two shielded pairs, with one 18 AWG (19x30 AWG) Copper drain wire
UL: Type TC-ER
CSA: 1/II A/B

| Poles (Female View) | Wire/Cable Type | Cable Jacket | Wire Size AWG | Cable Diameter | Cable Length | Female Straight-to-Male Straight | | Right Angle Female-to-Straight Male | | Right Angle Female-to-Right Angle Male | |
|---------------------|------------------|----------------|---------------|----------------|--------------|----------------------------------|--------------------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | Mid Cable | PVC | 16/20 | 8.38mm | 1.0m | DNB11A-M010 | 130025-0233 | DNB91A-M010 | 130025-0259 | DNB99A-M010 | 130025-0267 |
| | Thick (Trunk) | PVC | 15/18 | 12.10mm | 1.0m | DN11A-M010 | 130025-0054 | DN91A-M010 | 130025-0173 | | |
| | Thick Flex-Rated | TPE, High-Flex | 15/18 | 12.07mm | 1.0m | DNF11A-M010 | 130025-0408 | DNF91A-M010 | 130025-0468 | DNF99A-M010 | 130025-0197 |
| | Thick Tray-Rated | PVC | 16/18 | 13.34mm | 1.0m | DNE11A-M010 | 130025-0352 | | | DNF99A-M010 | 130025-0482 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Double-Ended Cordsets

130025

Female, Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Phosphor-bronze contacts for greatest reliability
- Variety of cable types, cable exit, coupling nut and length options for maximum system flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Mechanical

Connector Face: PVC-UL Std 94-V
Molded Body: PVC-UL Std 94-V
Coupling Nut: Zinc diecast with black epoxy coat

Physical

Contacts: Phosphor-Bronze base material
Contact Plating: Gold over Nickel per ODVA Specs
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

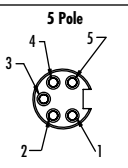
Cables

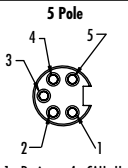
DND—DeviceNet Thin

Rating: 300V 80° C
Materials: Power—PVC outer jacket with semi-rigid PVC inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray

DNDF—DeviceNet Thin High-Flex

Rating: 300V 80° C
Materials: Power—TPE outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Flexure: Rolling Flex > 1m cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | |
|--|--------------------------|--------------|------------------|---------------------------|----------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  <p>5 Pole 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 300V AC/DC | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND11A-M010 | 130025-0287 | DND19A-M010 | 130025-0313 |
| | | | Thin/ Flex Rated | TPE | 7.62mm | 22/24 | | DNDF11A-M010 | 130025-0502 | DNDF19A-M010 | 130025-0013 |

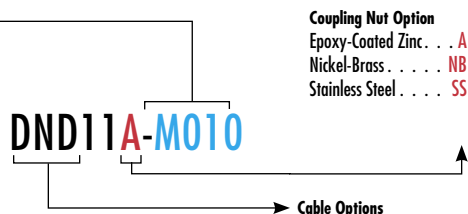
| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size AWG | Length | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|---|--------------------------|--------------|-----------------|---------------------------|----------------|---------------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  <p>5 Pole 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 300V AC/DC | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND91A-M010 | 130025-0322 | DND99A-M010 | 130025-0543 |
| | | | Thin/Flex-Rated | TPE | 7.62mm | 22/24 | | DNDF91A-M010 | 130025-0546 | DNDF99A-M010 | 130025-0513 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Back Panel Mount Double-Ended Cordsets

130039

Male-to-Female Straight
Female Straight-to-Male Right Angle
Male-to-Female Straight
Female Right Angle-to-Male Straight
Back Panel Mount
Thick Media



Features and Benefits

- Back panel mount receptacles are used to bring connectivity from inside to outside the control panel
- A variety of configurations are available for maximum flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage Rating: 300V AC/DC
Current: 4.0A

Mechanical

Connector Face: PVC-UL STD 94-V
Molded Body: PVC-UL STD 94-V
Coupling Nut: Zinc diecast with black epoxy coating
Shell: Nickel-Brass
Shell Inserts: PVC-UL STD 94-V

Physical

Contacts: Phosphor-Bronze base material
Contact Plating: Gold over Nickel per ODVA specifications
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DN—Thick Trunk

Rating: 300V, 80° C

Materials: Power—Gray PVC outer jacket, PVC with Nylon skin inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs with 18 AWG (19x30) drain wire between pairs

UL: Type CL2, VL 1581 flame resistance

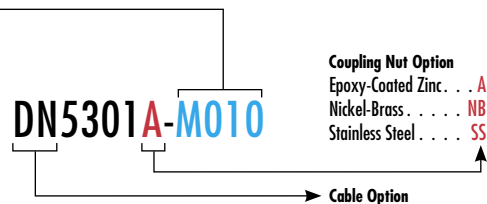
CSA: AWM I/II and A/B FT4

| Back Panel Face View (Female) | Male-to-Female Straight | | Female Straight-to-Male Right Angle | | Male-to-Female Straight | | Female Right Angle-to-Male Straight | |
|---|-------------------------|--------------------|-------------------------------------|--------------------|-------------------------|--------------------|-------------------------------------|--------------------|
| | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole 4 3 2 1 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | DN5210A-M010 | 130039-0096 | DN5290A-M010 | 130039-0098 | DN5301A-M010 | 130039-0101 | DN5309A-M010 | 130039-0103 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| Meters | Length | Code |
|--------|--------|------|
| | 2 | M020 |
| 5 | M050 | |
| 10 | M100 | |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Trunk Receptacles

130039

Female, Male
Straight
Thick and Mid Media



Features and Benefits

- Receptacles offered with a variety of cable and length options for maximum flexibility
- Receptacles allow for the trunk line to come into an enclosure and make connection to inside of the panel components
- Male or female receptacles are mounted to the enclosure and the back end trunk cabling can be wired to the open terminal strip of a motor controller, the master scanner or a power supply for the network

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Shell (Receptacle): Gray anodized Aluminum

Insert: PVC—UL STD 94V

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

NEMA Rating: NEMA 6

Cables

DNB—DeviceNet Mid Trunk

Rating: 300V, 80° C

Materials: Power—Gray PVC outer jacket, PVC inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 20 AWG Tin-Copper drain wire between pairs

UL: AWM Style 1569

CSA: AWM 1/II A/B 300V FTI, 80° C

Outside Diameter: 0.34" (8.60mm)

DN—DeviceNet Thick Trunk

Rating: 300V, 80° C

Materials: Power—Gray PVC outer jacket, PVC with Nylon skin inner insulation

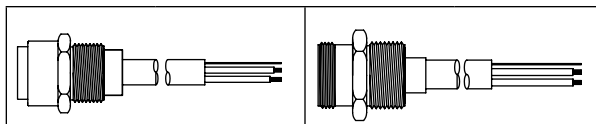
Data—PE foam inner insulation

Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs

UL: Type CL2, VL 1581 flame resistance

CSA: AWM 1/II and A/B 300V FT4

Outside Diameter: 0.48" (12.10mm)



| Face View (5 Pole) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Configuration | | | |
|---|-----------------------------|-----------------|------------|--------------|------------------|--------|--|--------------------|--|--------------------|
| | | | | | | | Female Straight with 1/2"-14 NPT, Front Panel Mount | | Male Straight with 1/2"-14 NPT, Front Panel Mount | |
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Female View 1 - Drain 4 - White 2 - Red 5 - Blue 3 - Black | 4.0A | 300V AC/DC | Trunk (DN) | PVC | 15/18 | 1.0m | DN5000-M010 | 130039-0284 | DN5100-M010 | 130039-0299 |
| Male View 1 - Drain 4 - White 2 - Red 5 - Blue 3 - Black | 4.0A | 300V AC/DC | Mid (DNB) | PVC | 16/20 | 1.0m | DNB5000-M010 | 130039-0312 | DNB5100-M010 | 130039-0318 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

DNB5000-M010

→ Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® PCB Mount Receptacles

130188

**Female, Male
Straight
Thick Media
Threaded, PCB Pins**



Features and Benefits

- Receptacles offered with PCB mount options for maximum flexibility

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Shell: Gray anodized Aluminum

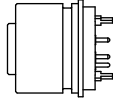
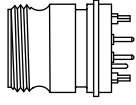
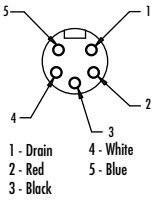
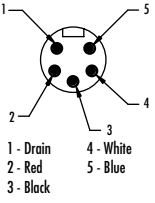
Insert: PVC—UL STD 94V

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

NEMA Rating: NEMA 6

| | |  Female Straight with 1/2" - 14 NPT, PCB Mount, PCB Pins | |  Male Straight with 1/2" - 14 NPT, PCB Mount, PCB Pins | | |
|---|--------------------------|--|-----------------|---|-----------------|--------------------|
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole Female  1 - Drain 4 - White 2 - Red 5 - Blue 3 - Black | 8.0A | 300V AC/DC | 67-0075 | 130188-0034 | | |
| 5 Pole Male  1 - Drain 4 - White 2 - Red 5 - Blue 3 - Black | 8.0A | 300V AC/DC | | | 67-0065 | 130188-0033 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Mini-Change® Bulkhead Feed-Through Receptacles

130013

**Female-Male
Straight
Thick Media**



Features and Benefits

- Receptacles offered with a variety of cable and length options for maximum flexibility
- Bulkhead version features rugged keyways for positive alignment of connections

Reference Information

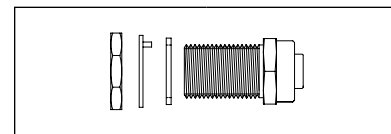
CSA File No.: LR6837

Physical

Shell: Nickel-plated Brass
Gasket Material: Neoprene
Thrust Washer: Nylon
Locknut Material: Nickel-plated Brass
Insert: PVC—UL STD 94V
Operating Temperature: -20 to +60° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Face View (Female) | Max. Current per Contact | Max. Voltage | Mounting | Engineering No. | Standard Order No. |
|--|--------------------------|--------------|-------------------|-----------------|--------------------|
| <p>5 Pole</p> <p>1 - Drain 4 - White 2 - Red 5 - Blue 3 - Black</p> | 8.0A | 600V | Front Panel Mount | 1R5030 | 130013-0541 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Mini-Change® Field Attachable Connectors

130034

**Female, Male
Straight
Thick and Mid Media
Threaded**



Features and Benefits

- Color-coded screw terminators make for error-free field installation
- Accepts a wide range of DeviceNet cables for maximum installation flexibility

Reference Information

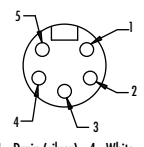
CSA File No: LR6837

Physical

Connector Face: Polyurethane
 Connector Body: Polyamide
 Contact: Gold-plated Brass
 Coupling Nut: Nickel-plated Brass
 Grommet: Neoprene
 Cable Range OD: 0.20 to 0.48" (5.00 to 12.00 mm)
 Acceptable Wire Gauges:
 24 AWG (0.25 mm²) to 15 AWG (2.0 mm²)
 Color Coding: Per ODVA standards
 Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Male | | Female | |
|---|-----------------------------|--------------|--|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole  1 - Drain (silver) 4 - White 2 - Red 5 - Blue 3 - Black | 8.0A | 600V AC/DC | 0.20 to 0.48" (5.00 to 12.00mm) OD (Thick and Mid Cables) | 1A5006-34DN | 130034-0006 | 1A5000-34DN | 130034-0005 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Mini-Change® Terminator Resistors

130039

**Female, Male
Straight
Threaded
Thick Media**



Features and Benefits

- Phosphor Bronze contacts for maximum reliability
- Diagnostic versions indicate correct polarity at a glance to ensure power connections have been made and made properly

Physical

Connector Face: PVC
 Molded Body: Diagnostic—clear PVC
 STD—gray PVC
 Coupling Nut: Zinc diecast, black e-coat optional
 302 stainless
 Contact Material: Phosphor Bronze alloy
 Contact Plating: Gold over Copper alloy
 LED: Green—Proper polarity
 Red—Improper polarity
 Operating Temperature: 0 to 60° C

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Connector Face | Type | Female | | Male | |
|--|-----------------------------|--------------|----------------|------------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole 1 - No connection 4 - Resistor 2 - No connection 5 - Resistor 3 - No connection | 8.0A | 50V AC/DC | PVC | LED Diagnostic - Clear | DN150L | 130039-0072 | DN100L | 130039-0371 |
| | | | | Molded Gray | DN150 | 130039-0376 | DN100 | 130039-0370 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Mini-Change® Diagnostic Power Monitor® Tees

130035
Male/Female
Thick Media



Features and Benefits

- Minimizes maintenance repair and downtime by analyzing bus power quality
- Predicts power faults by logging outside of specification power conditions thereby increasing uptime
- Helps quickly certify new installations

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

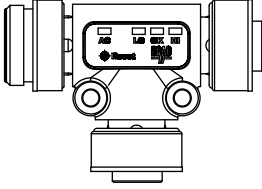
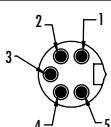
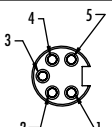
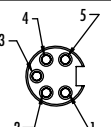
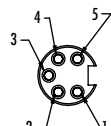
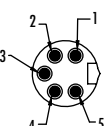
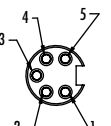
Power Supply: 7–30V DC, < 50mA
Basic Analog Accuracy: ± 100mV
Minimum “Low” Voltage Threshold: <12.96V
Nominal “OK” Voltage Range: 12.96V–24.78V
Maximum “High” Voltage Threshold: >24.78V
Glitch/Ripple Threshold (AV/AT): Var 75 V/S at 16mS to 640 V/S at 1.0mS
Reset: Magnet at drop “reset” changes mag reed switch state

Physical

Connector Face: Thermo plastic elastomer
Molded Body: Thermo plastic elastomer
Coupling Nut: Zinc diecast black e-coat
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | | | |  | |
|--|---|---|---|---|--------------------|
| Diagnostic Type | Left Trunk Gender | Right Trunk Gender | Drop Gender | Engineering No. | Standard Order No. |
| Standard Bus Drop Tee with Diagnostics | Male | Female | Female | DN3020PM-1 | 130035-0060 |
| |  |  |  | | |
| | 1 - Drain 2 - V+ 3 - V- 4 - CAN_H 5 - CAN_L | 1 - Drain 2 - V+ 3 - V- 4 - CAH_H 5 - CAH_L | 1 - Drain 2 - V+ 3 - V- 4 - CAH_H 5 - CAH_L | | |
| | Female | Male | Female | DN3020PM-3 | 130035-0061 |
| |  |  |  | | |
| | 1 - Drain 2 - V+ 3 - V- 4 - CAH_H 5 - CAN_L | 1 - Drain 2 - V+ 3 - V- 4 - CAN_H 5 - CAN_L | 1 - Drain 2 - V+ 3 - V- 4 - CAH_H 5 - CAH_L | | |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Diagnostic Tee

| Indication | Led Display | Condition |
|------------|-----------------|-----------------------------------|
| OK | Green | Normal |
| HI | Red | Overvoltage |
| LO | Blue | Undervoltage |
| HI | Flashing Red | Surge within last 24 hours |
| LO | Flashing Blue | Brown out within last 24 hours |
| AC | Flashing Yellow | Power glitch within last 24 hours |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Mini-Change® Diagnostic Power Monitor® In-Line Adapters

130035

Male/Female
Thick Media



Features and Benefits

- Minimizes maintenance repair and downtime by analyzing bus power quality
- Predicts power faults by logging outside of specification power conditions thereby increasing uptime
- Helps quickly certify new installations

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Power Supply: 7–30V DC, < 50mA

Basic Analog Accuracy: ±100mV

Minimum “Low” Voltage Threshold: < 12.96V

Nominal “OK” Voltage Range: 12.96V–24.78V

Maximum “High” Voltage Threshold: > 24.78V

Glitch/Ripple Threshold (AV/AT): Var 75 V/S at 16mS to

640 V/S at 1mS

Reset: Magnet at drop “Reset” changes mag reed switch state

Physical

Connector Face: Thermoplastic elastomer

Molded Body: Thermoplastic elastomer

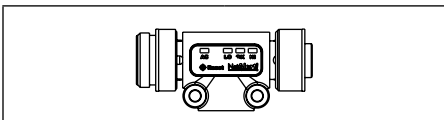
Coupling Nut: Zinc diecast black e-coat

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

NEMA Rating: NEMA 6



| Diagnostic Type | Left Trunk Gender | Right Trunk Gender | Engineering No. | Standard Order No. |
|---------------------------------------|---|---|-----------------|--------------------|
| Inline Adaptor with Power Diagnostics | Male 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | Female 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | 115011A-PM-1 | 130035-0007 |
| | Female 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | Male 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | 115011A-PM-3 | 130035-0008 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Diagnostic Tee

| Indication | Led Display | Condition |
|------------|-----------------|-----------------------------------|
| OK | Green | Normal |
| HI | Red | Overvoltage |
| LO | Blue | Undervoltage |
| HI | Flashing Red | Surge within last 24 hours |
| LO | Flashing Blue | Brown out within last 24 hours |
| AC | Flashing Yellow | Power glitch within last 24 hours |

DeviceNet* Brad® Mini-Change® Tees

130035/130039

Bus Drop Tees
Thick Media



Features and Benefits

- Phosphor bronze contacts for greatest reliability
- Variety of Mini-Change and Micro-Change® configurations for maximum installation flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage Rating: Mini-Change—600V AC/DC
Micro-Change—250V AC/DC
Current: Mini-Change Drop—8.0A
Micro-Change Drop—4.0A

Physical

Connector Face: Brad Micro-Change Drop Tee—PCV
Molded Body: Brad Mini-Change Drop Tee—TPE
Coupling Nut: Zinc diecast black e-coat
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Nickel alloy
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| View | Wiring Schematic | Face View (Left Trunk Female) | Face View (Right Trunk Male) | Face View (Drop Gender Female) | Engineering No. | Standard Order No. |
|------|------------------|---|---|--|-----------------|-----------------------|
| | | <p>Mini-Change</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | <p>Mini-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | <p>Mini-Change</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | DN3020 | 130035-0057 |
| | | DN3200 | 130035-0071 | | | |
| | | <p>Mini-Change</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | <p>Mini-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | <p>Micro-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | DND3020 | 130039-0341 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Mini-Change® Gender Changers

130035/130039

Straight Female-to-Male
Straight Male-to-Female
Right Angle Male-to-Female
Thick Media
Threaded



Features and Benefits

- Phosphor Bronze contacts for greatest reliability
- Variety of male-to-female and female-to-male connection options for maximum installation flexibility

Physical

Connector Face: Thermoplastic elastomer
Molded Body: Thermoplastic elastomer
Coupling Nut: Zinc diecast, black e-coat; Stainless Steel, Nickel-plated Brass optional
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Nickel
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6P

| Poles | Max. Current per Contact | Max. Voltage | Female-to-Male | | Male-to-Female | | Right Angle Male-to-Female Connector | |
|---|--------------------------|--------------|-----------------|--------------------|-----------------|--------------------|--------------------------------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole Female 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | 8.0A | 600V AC/DC | 115060A | 130035-0015 | 115010A | 130039-0351 | 115032A | 130035-0013 |
| 5 Pole Male 1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V- | | | | | | | | |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

115060**A**

Coupling Nut Option
 Epoxy-Coated Zinc . . . **A**
 Nickel-Brass **NB**
 Stainless Steel **SS**

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change® Passive Multi-Ports

130036
Side Mount Bus-In Connection
Thick and Mid Media



Features and Benefits

- A family of configurations from 4- to 8-port for maximum installation flexibility
- Rugged enclosure for reliable connectors in an industrial environment

Reference Information

UL File No.: E46237
CSA File No: LR6837

Electrical

Voltage Rating: 120V AC/DC
Current: 7.0A total per MPIS unit

Mechanical

Insert: PVC
Housing: Pet (Polyester)
Receptacle Housing: Zinc diecast with black epoxy coat
ID Label: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

| Face View | Ports | Box Configuration | Wiring Schematic | Engineering No. | Standard Order No. |
|--|-------|-------------------|------------------|-----------------|--------------------|
| | 4 | | | DN4000 | 130036-0005 |
| <p>Female drop</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 6 | | | DN6000 | 130036-0008 |
| <p>Male bus in</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 8 | | | DN8000 | 130036-0010 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Mini-Change® Passive Multi-Ports

130036

Side Mount
Bus-In-Bus-Out Connection
Thick and Mid Media



Features and Benefits

- Family of configurations for maximum flexibility
- Simple Bus-In/Bus-Out connections for connection convenience
- Rugged housing and connectors designed to withstand tough industrial environments

Reference Information

UL File No.: E46237
CSA File No.: LR6837

Electrical

Voltage Rating: 120V AC/DC
Current: 7.0A total per MPIS unit

Mechanical

Insert: PVC
Housing: PET (Polyester)
Receptacle Shell: Zinc diecast with black epoxy coat
ID Label: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Face View | Ports | Box Configuration | Wiring Schematic | Engineering No. | Standard Order No. |
|--|-------|-------------------|------------------|-----------------|--------------------|
| <p>Female Pass Through</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 2 | | | DN2100 | 130039-0336 |
| <p>Male Bus-In</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4 | | | DN4100 | 130036-0006 |
| <p>Female Bus-Out</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 6 | | | DN6100 | 130036-0009 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Micro-Change® (M12) Single-Ended Cordsets

130027
Female, Pigtail
Straight, Right Angle
Thin Media



Features and Benefits

- Rugged, IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable types, cable exit, form factor, coupling nut and length options for maximum flexibility

Physical

Body: Molded PVC
Insert: Nylon 6/6
Contacts: Phosphor Bronze
Contact Plating: Gold over Nickel
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

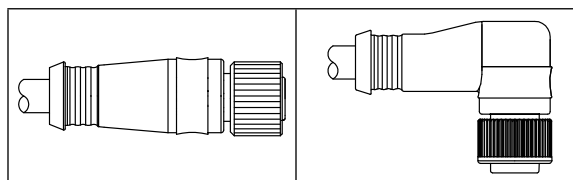
Cables

DND—Thin Standard

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray
UL: CL2, AWM 2464
CSA: FT4 Rated

DNDF—Thin High-Flex

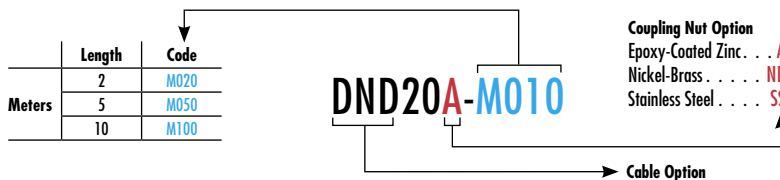
Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Flexure: Rolling Flex > 1 million cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray
UL : CL3 AWM 20626, Flame UL 1581
CSA : AWM 1/II A/B, 80° C, 300V FT1



| Face View (Female) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Cable Diameter | Length | Straight | | Right Angle | |
|--|--------------------------|--------------|-----------------|--------------|---------------|----------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 250V AC | Thin Cable | PVC | 22/22 | 7.24mm | 1.0m | DND20A-M010 | 130027-0048 | DND30A-M010 | 130027-0075 |
| | | | Thin, High-Flex | TPE | 22/24 | 7.62mm | 1.0m | DNDF20A-M010 | 130027-0171 | DNDF30A-M010 | 130027-0161 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code† Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change® (M12) Single-Ended Cordsets

130027
Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Rugged, IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, cable exit, form factor, coupling nut and length options for maximum flexibility

Mechanical

Body: Molded PVC
Insert: PVC

Physical

Contact: Phosphor Bronze
Contact Plating: Gold over Nickel
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DND—Thin Standard

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray
UL: CL2, AWM 2464
CSA: FT4 Rated

DNDF—Thin High-Flex

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Flexure: Rolling Flex > 1 million cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray
UL : CL3 AWM 20626, Flame UL 1581
CSA : AWM I/II A/B, 80° C, 300V FT1

| Face View (Male) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Straight | | Right Angle | |
|--|--------------------------|--------------|------------|--------------|----------------|---------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 250V AC/DC | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND02A-M010 | 130027-0012 | DND03A-M010 | 130027-0037 |
| | | | Flex Rated | TPE | 7.62mm | 22/24 | 1.0m | DNDF02A-M010 | 130027-0103 | DNDF03A-M010 | 130027-0115 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

DND02A-M010

Coupling Nut Option
Epoxy-Coated Zinc . . . A
Nickel-Brass NB
Stainless Steel SS

Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change® (M12) Double-Ended Cordsets

130028
Female, Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Rugged, IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable, cable exit, form factor, coupling nut and length options for maximum flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: Nylon 6/6
Molded Body: PVC
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DND—DeviceNet Thin

Rating: 300V, 80° C

Materials: Power—PVC outer jacket with semigrind PVC inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs

Cable Jacket Color: Gray

DNDF—DeviceNet Thin High Flex

Rating: 300V, 80° C

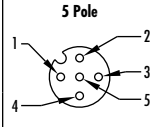
Materials: Power—TPE outer jacket PVC with Nylon skin inner insulation

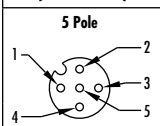
Data—PE foam inner insulation

Flexure: Rolling flex > 1m cycles at 10x bend radius

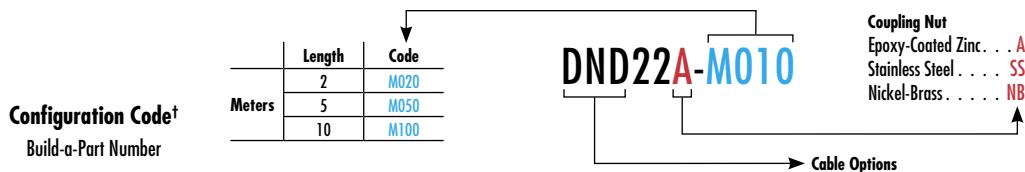
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs

Cable Jacket Color: Gray

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | |
|---|--------------------------|--------------|------------------|---------------------------|----------------|-----------|------------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V- | 4.0A | 250V | Thin | PVC | 7.24mm (.285") | 22/22 | 1m (3.28') | DND22A-M010 | 130028-0028 | DND23A-M010 | 130028-0070 |
| | | | Thin/ Flex Rated | TPE | 7.62mm (.300") | 22/24 | | DNDF22A-M010 | 130028-0132 | DNDF23A-M010 | 130028-0163 |

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|------------------|---------------------------|----------------|-----------|------------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|  1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V- | 4.0A | 250V | Thin | PVC | 7.24mm (.285") | 22/22 | 1m (3.28') | DND32A-M010 | 130028-0085 | DND33A-M010 | 130028-0104 |
| | | | Thin/ Flex Rated | TPE | 7.62mm (.300") | 22/24 | | DNDF32A-M010 | 130028-0172 | DNDF33A-M010 | 130028-0183 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)
Note: Sales drawings for all standard order numbers are available on molex.com



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change (M12)- to-Mini-Change Double-Ended Cordsets

130039

Female, Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Rugged, IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable, cable exit, form factor, coupling nut and length options for maximum flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: Brad Micro-Change—Nylon 6/6
Brad Mini-Change—PVC
Molded Body: PVC
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DND—DeviceNet Thin

Rating: 300V 80° C
Materials: Power—PVC outer jacket with semigrad PVC inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray

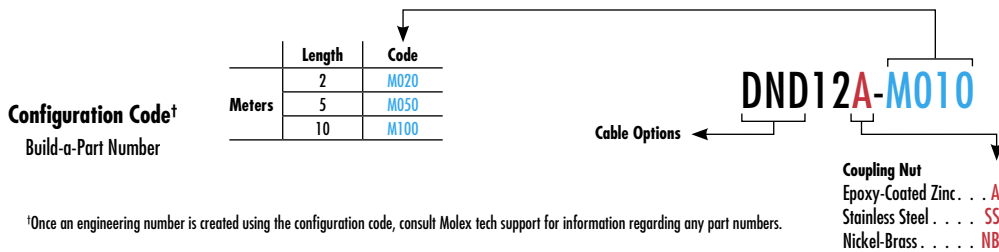
DNDF—DeviceNet Thin High-Flex

Rating: 300V 80° C
Materials: Power—TPE outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Flexure: Rolling Flex > 1m cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray

| Face View (Female) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Micro Female Straight-to-Mini Male Straight | | Micro Female Straight-to-Mini Male Right Angle | |
|--|--------------------------|--------------|-----------------|---------------------------|----------------|-----------|--------|---|--------------------|--|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND21A-M010 | 130039-0157 | DND29A-M010 | 130039-0175 |
| | | | Thin/Flex-Rated | TPE | 7.62mm | 22/24 | | DNDF21A-M010 | 130039-0248 | DNDF29A-M010 | 130039-0257 |

| Face View (Female) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Micro Female Right Angle-to-Mini Male Straight | | Micro Female Right Angle-to-Mini Male Right Angle | |
|--|--------------------------|--------------|-----------------|---------------------------|----------------|-----------|--------|--|--------------------|---|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND31A-M010 | 130039-0179 | DND39A-M010 | 130039-0188 |
| | | | Thin/Flex-Rated | TPE | 7.62mm | 22/24 | | DNDF31A-M010 | 130039-0259 | DNDF39A-M010 | 130039-0263 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)
Note: Sales drawings for all standard order numbers are available on molex.com



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Mini-Change®-to- Micro-Change® (M12) Double-Ended Cordsets

130039

Female, Male
Straight, Right Angle
Thin Media
Threaded



Features and Benefits

- Rugged, IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable, cable exit, form factor, coupling nut and length options for maximum flexibility

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Physical

Connector Face: Brad Micro-Change—Nylon 6/6

Brad Mini-Change—PVC

Molded Body: PVC

Coupling Nut: Zinc diecast with black epoxy coat

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

NEMA Rating: NEMA 6

Cables

DND—DeviceNet Thin

Rating: 300V, 80° C

Materials: Power—PVC outer jacket with semigrad PVC inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs

Cable Jacket Color: Gray

DNDF—DeviceNet Thin High Flex

Rating: 300V, 80° C

Materials: Power—TPE outer jacket PVC with Nylon skin inner insulation

Data—PE foam inner insulation

Flexure: Rolling flex > 1m cycles at 10x bend radius

Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs

Cable Jacket Color: Gray

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | |
|--|--------------------------|--------------|------------------|---------------------------|----------------|-----------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND12A-M010 | 130039-0145 | DND13A-M010 | 130039-0151 |
| | | | Thin/ Flex Rated | TPE | 7.62mm | 22/24 | | DNDF12A-M010 | 130039-0523 | DNDF13A-M010 | 130039-0245 |

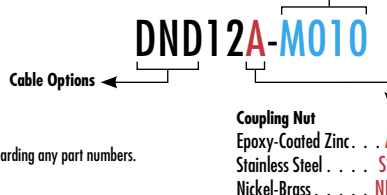
| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size | Length | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|------------------|---------------------------|----------------|-----------|--------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND92A-M010 | 130039-0209 | DND93A-M010 | 130039-0216 |
| | | | Thin/ Flex Rated | TPE | 7.62mm | 22/24 | | DNDF92A-M010 | 130039-0266 | DNDF93A-M010 | 130039-0551 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change® Double-Ended Cordsets

130031/130039

Straight, Right Angle,
Female, Male
Thin Media
Panel Mount
Threaded



Features and Benefits

- Back panel mount receptacles are used to couple connectivity from the inside to the outside of the control panel
- A variety of configurations are available for maximum flexibility

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Face: Nylon 6/6
Molded Body: PVC
Coupling Nut: Zinc diecast with black epoxy coating
Optional Stainless Steel or Nickel-Brass
Shell: Nickel-Brass
Shell Insert: Nylon 6/6
Contacts: Phosphor Bronze alloy
Contact Plating: Gold over Nickel per ODVA specifications
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

DND—DeviceNet Thin

Rating: 300V 80° C

Materials: Power—PVC outer jacket with semi-rigid PVC insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 20 AWG Tin Copper drain wire between pairs

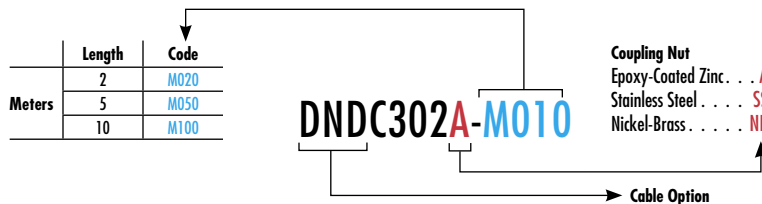
Cable Jacket Color: Gray

| Poles (Female View) | Max. Current per Voltage | Maximum Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Straight-to-Back Panel Mount | | Right Angle-to-Back Panel Mount | | Back Panel Mount-to-Straight | | Back Panel Mount-to-Right Angle | |
|--|--------------------------------|--------------------|---------------|-----------------|-------------------|---------------------|--------|------------------------------|--------------------|---------------------------------|--------------------|------------------------------|--------------------|---------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 0.5m | DNDC302A-M005 | 130039-0230 | DNDC303A-M005 | 130031-0012 | DNDC220A-M005 | 130039-0223 | DNDC230A-M010 | 130031-0014 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change® (M12) Single-Ended Panel Mount Receptacles

130031
Female, Male
Straight
Thin Media



Features and Benefits

- A variety of options allows for maximum flexibility in connecting device nodes
- DeviceNet color coded wiring coming from the back of the receptacle
- The length of wiring can be varied

Physical

Shell: Anodized Aluminum
Insert: Nylon 6/6
Panel Nut: Steel, Zinc plated
Contact Pin: Copper alloy, Gold over Nickel plating
O-Ring: Nitrile
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6P

| Face View | Max. Current per Contact | Max. Voltage | Configuration | | Configuration | | | |
|--|--------------------------|--------------|--|--------------------|--------------------------------------|--|-------|--------------------------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | | |
| <p>Female</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 250V AC/DC | <p>Female Straight, Front Panel Mount with 1/4"-18 NPT Mounting Thread</p> | 81611 | 130031-0023 | <p>Male Straight, Front Panel Mount with 1/4"-18 NPT Mounting Thread</p> | 81612 | 130031-0026 |
| <p>Male</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | | | 4.0A | 250V AC/DC | <p>Wire Type</p> <p>PVC, UL 1061</p> | | | <p>Wire Type</p> <p>PVC, UL 1061</p> |
| | | | <p>Wire Size AWG</p> <p>22</p> | | | <p>Wire Size AWG</p> <p>22</p> | | |
| | | | <p>Length</p> <p>12.00"</p> | | | <p>Length</p> <p>12.00"</p> | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Micro-Change® (M12) Bulkhead Feed-Through

120070

Female Straight-to-Male Straight
Thin Media

Features and Benefits

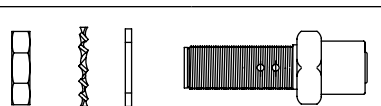
- Bulkhead version features keyways for positive alignment of connections

Physical

Shell: Nickel over Brass
Insert: Nylon 6/6
Gasket Material: Neoprene
Lock Washer: Steel alloy
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles | Max. Current per Contact | Max. Voltage | Mounting Style | Female Straight-to-Male Straight | |
|--|--------------------------|--------------|-------------------|----------------------------------|--------------------|
| | | | | Engineering No. | Standard Order No. |
| <p>5 Pole Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 4.0A | 250V AC/DC | Front Panel Mount | 8R5L30 | 120070-0237 |
| <p>5 Pole Male</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Micro-Change® (M12) Field Attachable Connectors

130034
Female, Male
Straight
Thin Media
Threaded



Features and Benefits

- Color-coded screw terminals make for error-free field installation
- Rugged housing material designed to withstand industrial environments

Reference Information

CSA File No.: LR6835

Physical

Connector Face: Polyamide
Molded Body: Polyamide
Contact: Silver-plated Brass
Coupling Nut: Nickel-plated Brass
Grommet: Nitrite Rubber
Cable Range OD: 0.16 to 0.32" OD (4.10 to 8.10 mm)
Acceptable Cable Types: Thin, Thin-Flex, Thin-600V
Color Coding: Per DeviceNet standards
Operating Temperature: -25 to +90° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Male | | Female | |
|--|-----------------------------|------------------|---|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole 1 - Silver (drain) 4 - White 2 - Red 5 - Blue 3 - Black | 4.0A | 30V AC 36V DC | 0.16 to 0.32" OD Cable (Thin) (4.06 to 8.13mm) | 8A5006-32DN | 130034-0008 | | |
| | | | | | | 8A5000-32DN | 130034-0007 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)
Note: Sales drawings for all standard order numbers are available on molex.com

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet*
Brad® Micro-Change®
(M12)
Terminators
120039/130039
Female, Male
Straight
Thin Media
Threaded

Features and Benefits

- Phosphor Bronze contacts for maximum reliability
- Diagnostic versions indicate correct polarity at a glance to ensure power connections have been made and made properly

Physical

Connector Face: Nylon
 Molded Body: Diagnostic—Clear PVC
 STD—Gray PVC
 Coupling Nut: Zinc diecast, black e-coat
 Contact Material: Phosphor Bronze alloy
 Contact Plating: Gold over Copper alloy
 LED: Green—Proper polarity
 Red—Improper polarity
 Operating Temperature: 0 to 60° C

Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Connector Face | Type | Female | | Male | |
|--|-----------------------------|--------------|----------------|-----------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - No connection 2 - No connection 3 - No connection 4 - Resistor 5 - Resistor</p> | 4.0A | 30V | Nylon | LED Diagnostic-Clear | DND150L | 120039-0003 | DND100L | 120039-0001 |
| | | | | Molded Gray | DND150 | 130039-0385 | DND100 | 130039-0382 |
| | | | | Molded Gray-Jumpered* | DND151 | 130039-0386 | DND101 | 130039-0125 |

*Jumpered terminators are used during network installation for continuity verification
 DeviceNet is a trademark of Open DeviceNet Vender Association (ODVA)

DeviceNet* Brad® Micro-Change® (M12) Tees and Splitters

130035/130039

Bus Drop
Thin Media



Features and Benefits

- Phosphor Bronze contacts for greatest reliability
- Tees enable tapping into trunk line to add drop lines or devices
- Splitters allow service to two devices through just one connection

Tee

Electrical

Voltage: 250V AC/DC
Current: Drop—4.0A
Contact Material: Phosphor Bronze Alloy
Contact Plating: Gold over Nickel Alloy

Physical

Connector Face: Drop Tee—PVC
Molded Body: Drop Tee—PVC
Coupling Nut: Nickel-plated Brass
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Splitter

Reference Information

UL File No.: E152210
CSA File No.: LR6337

Electrical

Voltage: 250V AC/DC
Current: 4.0A

Physical

Connector Face: Nylon 6/6
Molded Body: PVC
Coupling Nut: Zinc diecast with black epoxy coat, Stainless Steel type 303 Nickel-plated Brass
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | | Micro-Bus Drop | |
|---|----------|-----------------|--------------------|
| Face View (Female) | Type | Engineering No. | Standard Order No. |
| <p style="text-align: center;">5 Pole</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | Drop Tee | MICT555 | 130035-0090 |

| | | Male-Female/Female | |
|---|------------------|--------------------|--------------------|
| Face View (Female) | Type | Engineering No. | Standard Order No. |
| <p style="text-align: center;">5 Pole</p> <p>1 - Drain 4 - CAN H 2 - V+ 5 - CAN L 3 - V-</p> | Splitter Cordset | DNYG001 | 130039-0396 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Brad® Micro-Change® (M12) Passive Multi-Ports

130037

Mini-Change® and Micro-Change® Homerun Connectors



Features and Benefits

- Versions with Home Run connectors and with molded Home Run cable available for maximum system design flexibility
- Rugged housing and connectors designed to withstand harsh industrial environments

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage Rating: 10 to 30V DC
Current: 4.0A per port

Physical

Insert: PA
Housing: Glass-filled PBT
Receptacle Housing: Nickel-plated Brass
ID Label: ABS
Operating Temperature: -20 to +90° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Home Run Cable

DND—DeviceNet Thin

Rating: 300V, 80° C

Materials: Power—PVC outer jacket with semigrind PVC inner insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs

Cable Jacket Color: Gray

| Face View | Ports | Configuration | Wiring Schematic | Drop Cable Length | Drop Cable Configuration | | | |
|--|-------|---------------|--|-------------------|--|--------------------|---|--------------------|
| | | | | | Drop with Molded Micro-Change Home Run Cable | Standard Order No. | Drop with Molded Mini-Change Home Run Cable | Standard Order No. |
| <p>Female Drop Micro-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4 | | <p>PIN 1 DRAIN PIN 2 V+ PIN 3 V- PIN 4 CAN_H PIN 5 CAN_L</p> | 2.0m | DND4500-02 | 130037-0006 | DND4300-02 | 130037-0005 |
| <p>Male Bus-In Micro-Change</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 8 | | <p>PIN 1 DRAIN PIN 2 +V PIN 3 -V PIN 4 CAN_H PIN 5 CAN_L</p> | 2.0m | DND8500-02 | 130037-0011 | DND8300-02 | 130037-0010 |
| <p>Male Bus-In Mini-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | | | <p>PIN 1 DRAIN PIN 2 +V PIN 3 -V PIN 4 CAN_H PIN 5 CAN_L</p> | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Micro-Change® Passive Multi-Ports

130036/130037 Mini-Change® Homerun Connectors



Features and Benefits

- Versions with Home Run connectors and with molded home run cable available for maximum system design flexibility
- Rugged housing and connectors designed to withstand harsh industrial environments

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage Rating: 10 to 30V DC
Amperage: 4.0A per port

Physical

Insert: PA
Housing: Glass-filled PBT
Receptacle Housing: Nickel-plated Brass
ID Label: ABS
Home Run Connectors: Brad Mini-Change
Operating Temperature: -20 to +90° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Face View | Ports | Configuration | Wiring Schematic | Engineering No. | Standard Order No. |
|---|-------|---------------|------------------|-----------------|--------------------|
| <p>Female Drop</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4 | | | DND4200 | 130037-0004 |
| <p>Male Bus-In</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 8 | | | DND8200 | 130037-0008 |

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Brad® Open Style Single-Ended Cordsets

130039

Female
Straight
Thin Media



Features and Benefits

- Over-molded open style of DeviceNet connector provides for environmental protection and cable integrity strain relief
- Variety of form factor, cable type and length options available for maximum flexibility

Physical

Contacts: Bronze
Contact Plating: Gold
Body: Polyamide
Operating Temperature: 0 to 60° C

Environmental

Protection: IP20

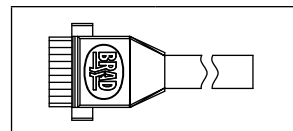
Cables

DND—Thin Standard

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray
UL: CL2, AWM 2464
CSA: FT4 Rated

DNDF—Thin High-Flex

Rating: 300V 80° C
Outer Jacket: PVC
Inner Insulation: Power—Semi-rigid PVC
Data—PE foam
Flexure: Rolling Flex > 1 million cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray
UL : CL3 AWM 20626, Flame UL 158
CSA : AWM I/II A/B, 80° C, 300V FT1



| Face View (Female) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Cable Diameter | Length | Straight | |
|---|--------------------------|--------------|------------|--------------|---------------|----------------|-------------|-----------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. |
| <p>1 - Black (V-) 4 - White (CAH_H) 2 - Blue (CAN_L) 5 - Red (V+) 3 - Bare (Shield Drain)</p> | 10.0A | 300V AC/DC | Thin Cable | PVC | 22/22 | 7.24mm | 1.0m | DND40-M010 | 130039-0127 |
| Thin, High-Flex | | | TPE | 22/24 | 7.62mm | 1.0m | DNDF40-M010 | 130039-0545 | |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

DND40A-M010

Coupling Nut Option
Epoxy-Coated Zinc A
Nickel-Brass NB
Stainless Steel SS

Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Open Style-to-Brad® Mini-Change® and Micro-Change® (M12) Double-Ended Cordsets

130039



Features and Benefits

- Over-molded open style of DeviceNet connector provides for environmental protection and cable integrity strain relief
- Variety of form factor, cable type and length options available for maximum flexibility

Electrical

Contacts: Mini-Change—Phosphor Bronze
Micro-Change—Phosphor Bronze
Open—Bronze
Contact Plating: Mini-Change—Gold over Nickel
Micro-Change—Gold over Nickel
Open—Gold

Physical

Body: Mini-Change—Molded PVC
Micro-Change—Molded PVC
Open—Polyamide
Insert: Mini-Change—PVC
Micro-Change—Nylon 6/6
Operating Temperature: Mini-Change—-20 to +80° C
Micro-Change—-20 to +80° C
Open—0 to 60° C

Environmental

Protection: Mini-Change—IP67
Micro-Change—IP67
Open—IP20

Cables

DND—DeviceNet Thin

Rating: 300V 80° C
Materials: Power—PVC outer jacket with semi-rigid PVC inner insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs, 22 AWG Tin Copper drain wire between pairs
Cable Jacket Color: Gray

DNDF—DeviceNet Thin High Flex

Rating: 300V, 80° C
Materials: Power—TPE outer jacket, PVC with Nylon skin inner insulation
Data—PE foam PE foam inner insulation
Flexure: Rolling Flex >1m cycles at 10x bend radius
Construction: Two foil shielded pairs, 26 AWG Tin-Copper drains between pairs
Cable Jacket Color: Gray

| Face View Connector | Max. Current per Voltage | Maximum Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Open-to-Male Straight Mini | | Open-to-Male Right Angle Mini | |
|--|--------------------------|-----------------|---------------------|--------------|----------------|---------------|--------|----------------------------|--------------------|-------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Open 1 - Black (V-) 4 - White (CAH_H) 2 - Blue (CAN_L) 5 - Red (V+) 3 - Bare (Shield Drain) | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND41A-M010 | 130039-0132 | DND49A-M010 | 130039-0122 |
| Male Mini-Change 1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V- | | | Thin/ Flex Rated | TPE | 7.62mm | 22/24 | | DNDF41A-M010 | 130039-0546 | DNDF49A-M010 | 130039-0547 |

| Face View Connector | Max. Current per Voltage | Maximum Voltage | Cable Type | Cable Jacket (Cable Code) | Cable Diameter | Wire Size AWG | Length | Open-to-Male Straight M12 | | Open-to-Male Right Angle M12 | |
|--|--------------------------|-----------------|---------------------|---------------------------|----------------|---------------|--------|---------------------------|--------------------|------------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Open 1 - Black (V-) 4 - White (CAH_H) 2 - Blue (CAN_L) 5 - Red (V+) 3 - Bare (Shield Drain) | 4.0A | 250V | Thin | PVC | 7.24mm | 22/22 | 1.0m | DND42A-M010 | 130039-0190 | DND43A-M010 | 130039-0204 |
| Male Micro-Change 1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V- | | | Thin/ Flex Rated | TPE | 7.62mm | 22/24 | | DNDF42A-M010 | 130039-0548 | DNDF43A-M010 | 130039-0549 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Open Style-to-Brad® Mini-Change® and Micro-Change® (M12) Receptacle Assemblies

130031/130033/130039

Open-to-Back Panel Mount
Thin Media



Features and Benefits

- Over-molded open style of DeviceNet connector provides for environmental protection and cable integrity strain relief
- Variety of form factor, cable type and length options available for maximum flexibility

Reference Information

UL File No.: E152210

CSA File No.: LR6837

Electrical

Contacts: Mini-Change—Phosphor Bronze

Micro-Change—Phosphor Bronze

Open—Bronze

Contact Plating: Mini-Change—Gold over Nickel

Micro-Change—Gold over Nickel

Open—Gold

Physical

Body: Mini-Change—Molded PVC

Micro-Change—Molded PVC

Open—Polyamide

Insert: Mini-Change—PVC

Micro-Change—Nylon 6/6

Operating Temperature: -20 to +80° C

Environmental

Protection: Mini-Change—IP67

Micro-Change—IP67

Open—IP20

Cables

DND—Thin

Rating: 300V 80° C

Materials: Power—PVC outer jacket with semi-rigid

PVC insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 20 AWG Tin Copper drain

wire between pairs

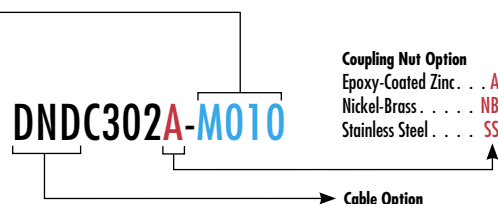
Cable Jacket Color: Gray

| Face View | Max. Current per Voltage | Maximum Voltage | Cable Type | Cable Jacket | Cable Diameter | Wire Size AWG | Length | Open-to-Mini-Change Receptacle | | Open-to-M12 Receptacle | |
|---|--------------------------|-----------------|------------|--------------|----------------|---------------|--------|--------------------------------|--------------------|------------------------|--------------------|
| | | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>Open</p> <p>1 - Black (V-) 4 - White (CAN_H) 2 - Blue (CAN_L) 5 - Red (V+) 3 - Bare (Shield Drain)</p> <p>Male Mini-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> <p>Male Micro-Change</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 4.0A | 250V AC/DC | Thin | Polyamide | 7.24mm | 22/22 | 1.0m | DND5304-M010 | 130039-0087 | | |
| | 4.0A | 250V AC/DC | Thin | Polyamide | 7.62mm | 22/22 | 0.50m | | | DNDC304-M005 | 130033-0003 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Nano-Change® (M8) Single-Ended Cordsets

130029

Female
Straight, Right Angle
Ultra-Thin Media
Threaded



Features and Benefits

- Rugged IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Physical

Connector Face: PBT
Molded Body: TPE
O-Ring: Viton®
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: PVC—-20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

D12—Ultra-Thin

Rating: 300V

Materials: Individually Thinned—PVC outer jacket, 26 AWG (19 x 38 AWG) Copper

Power—Semi-rigid PVC insulation

Data—PE foam inner insulation

Construction: Two shielded pairs, 26 AWG Tin Copper drain wire between pairs

Cable Jacket Color: Gray

UL: AWM Style 2095

CSA: AWM I/II A/B, FT4

| Face View (Female) | Current | Voltage | Cable Jacket (Cable Type) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|--|---------|---------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Drain 4 - Black 2 - Red 5 - Blue 3 - White</p> | 1.68A | 60V AC/75V DC | Ultra-Thin | 26 | 1.0m | 405000D12M010 | 130029-0001 | 405001D12M010 | 130029-0002 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

405000D12M010

Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Nano-Change® (M8) Single-Ended Cordsets

130029

Male
Straight, Right Angle
Ultra-Thin Media
Threaded



Features and Benefits

- Rugged IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Physical

Connector Face: PBT
Molded Body: TPE
O-Ring: Viton®
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: PVC—-20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

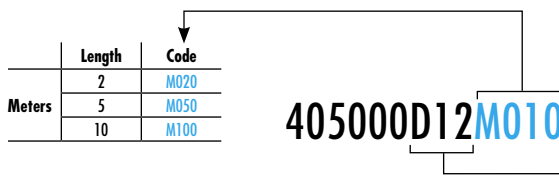
D12—Ultra-Thin

Rating: 300V
Materials: Individually Thinned—PVC outer jacket, 26 AWG (19 x 38 AWG) Copper
Power—Semi-rigid PVC insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 26 AWG Tin Copper drain wire between pairs
Cable Jacket Color: Gray
UL: AWM Style 2095
CSA: AWM I/II A/B, FT4

| Poles | Current | Voltage | Cable Jacket (Cable Type) | Wire Size AWG | Length | Straight | | Right Angle | |
|--|---------|---------------|---------------------------|---------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Drain 4 - Black 2 - Red 5 - Blue 3 - White</p> | 1.68A | 60V AC/75V DC | Ultra-Thin | 26 | 1.0m | 405006D12M010 | 130029-0003 | 405007D12M010 | 130029-0005 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Nano-Change® (M8) Double-Ended Cordsets

130030
Female, Male
Straight, Right Angle
Ultra-Thin Media
Threaded



Features and Benefits

- Rugged IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Physical

Connector Face: PBT
Molded Body: TPE
O-Ring: Viton®
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: PVC—-20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

D12—Ultra-Thin

Rating: 300V
Materials: Individually Thinned—PVC outer jacket, 26 AWG (19x38 AWG) Copper
Power—Semi-rigid PVC insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs, 26 AWG Tin Copper drain wire between pairs
Cable Jacket Color: Gray
UL: AWM Style 2095
CSA: AWM: 1/II A/B, FT4

| Face View (Female) | Current | Voltage | Cable Type | Cable Code | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|--|---------|-------------------|------------|------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole 1 - Drain 4 - Black 2 - Red 5 - Blue 3 - White</p> | 1.68A | 60V AC/ 75V DC | Ultra-Thin | PVC | 26 | 1.0m | 445030D12M010 | 130030-0003 | 445032D12M010 | 130030-0004 | 445031D12M010 | 130030-0088 | 445033D12M010 | 130030-0089 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

485030D12M010

→ Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Micro-Change® (M12)-to-Nano-Change® (M8)

Double-Ended Cordsets

130030

Female, Male
Straight, Right Angle
Ultra-Thin Media
Threaded



Features and Benefits

- Rugged IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Physical

Connector Face: PBT
Molded Body: TPE
O-Ring: Viton®
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: PVC—-20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

D12—Ultra-Thin

Rating: 300V
Materials: Individually Thinned—PVC outer jacket, 26 AWG (19x38 AWG) Copper
Power—Semi-rigid PVC insulation
Data—PE Foam inner insulation
Construction: Two shielded pairs, 26 AWG Tin Copper drain wire between pairs
Cable Jacket Color: Gray
UL: AWM Style 2095
CSA: AWM I/II A/B, FT4

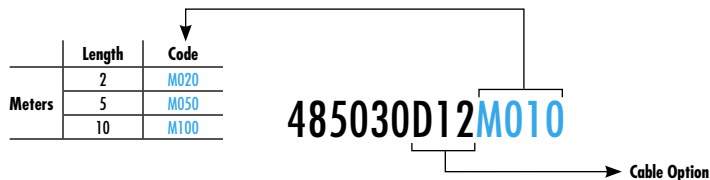
| Double-Ended Connector Face View | Max. Current | Max. Voltage | Cable Type | Cable Code | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|--|--------------|-------------------|------------|------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole Nano-Change (Female)</p> <p>1 - Drain 4 - Black 2 - Red 5 - Blue 3 - White</p> | 1.68A | 60V AC/ 75V DC | Ultra-Thin | PVC | 24 | 1.0m | 845030D12M010 | 130030-0027 | 845032D12M010 | 130030-0061 | 845031D12M010 | 130030-0041 | 845033D12M010 | 130030-0070 |
| <p>5 Pole Micro-Change (Female)</p> | | | | | | | | | | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com.

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® Nano-Change® (M8)-to- Micro-Change® (M12) Double-Ended Cordsets

130030

**Female, Male
Straight, Right Angle
Ultra-Thin Media
Threaded**



Features and Benefits

- Rugged IP67 rated connectors for continued connection integrity in industrial environments
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Physical

Connector Face: PBT
Molded Body: TPE
O-Ring: Viton®
Coupling Nut: Zinc diecast with black epoxy coat
Operating Temperature: PVC—-20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

D12—Ultra-Thin

Rating: 300V
Materials: Individually Thinned—PVC outer jacket, 26 AWG (19x38 AWG) Copper
Power—Semi-rigid PVC insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 26 AWG Tin Copper drain wire between pairs
Cable Jacket Color: Gray
UL: AWM Style 2095
CSA: AWM I/II A/B, FT4

| Face View | Current | Voltage | Cable Type | Cable Code | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Straight-to-Male Right Angle | | Female Right Angle-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|--|---------|-------------------|------------|------------|---------------|--------|----------------------------------|--------------------|-------------------------------------|--------------------|-------------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole Nano-Change (Female)</p> <p>1 - Drain 4 - Black 2 - Red 5 - Blue 3 - White</p> <p>5 Pole Micro-Change (Female)</p> | 1.68A | 60V AC/ 75V DC | Ultra-Thin | PVC | 24 | 1.0m | 485030D12M010 | 130030-0010 | 485032D12M010 | 130030-0091 | 485031D12M010 | 130030-0090 | 485033D12M010 | 130030-0022 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

485030D12M010

→ Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Brad® 14-Port Nano-Change® (M8) Passive Multi-Port

130038

Ultra-Thin Media



Features and Benefits

- Up to 60% space savings over functionally equivalent M12 drop boxes
- Mates with Straight and 90° M8 connectors allowing user to route cable as needed
- Designed to accept Ultra-Thin DeviceNet cabling: Ideal for tight routings and space and for applications requiring small footprints

Physical

Insert: PUR
Housing: Grey, thermo formed ABS
Receptacle Shell: Nickel-plated Brass
Connector Configuration: Periphery Connectors—45°
Center Connectors—90°
Operating Temperature: -0 to +60° C

Electrical

Voltage: 36V DC
Current: 8.0A total per drop box
Grounding: Grounding through mounting holes
LED Indication for Network: Voltage Status
Green—Within DeviceNet Voltage Spec (13-24V)
Red—Overvoltage (>24V)
Yellow—Undervoltage (<13V)

Environmental

Protection: IP65
NEMA Rating: NEMA 6

| Connector Face View | Ports | Box Configuration | Wiring Schematic | Engineering No. | Standard Order No. |
|--|-------|-------------------|------------------|-----------------|--------------------|
| <p>Female Nano-Change Connector</p> <p>1 - Drain 4 - V- 2 - V+ 5 - CAN_L 3 - CAN_H</p> <p>Male Mini-Change Bus-In</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> <p>Female Mini-Change Bus-Out</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 14 | | | DNTA14114A1 | 130038-0016 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Auxiliary Power Brad® Mini-Change® A-Size Double-Ended Cordset

130010

Internal Thread Female
External Thread Male
Straight, Right Angle



Features and Benefits

- Patented QuadBeam™ contact design for reliability and low resistance
- Flex-rated TC-ER cable

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 16 AWG

Physical

Connector Face: PVC or TPE
Connector Body: PVC or TPE
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable Jacket Color: Yellow
Cables: K12 and K13—UL Type TC-ER, Flex rated
A38 and A01—UL Type STOOW, extra hard service cord

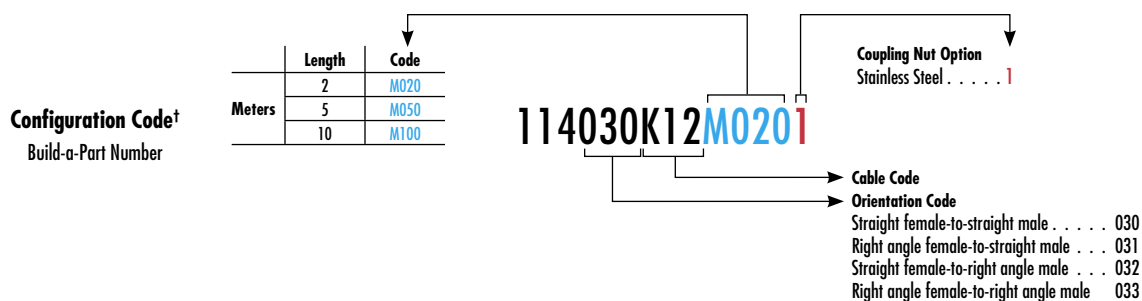
Environmental

Protection: IP67

| Poles (Female View) | Current | Wire Cable Type | Cable Jacket (Cable Code) | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|---------|-----------------|------------------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 10.0A | TC-ER | TPE (K12) | 2.0m | 114030K12M020 | 130010-0865 | 114033K12M020 | 130010-1744 |
| | | STOOW | PVC (A38) | | 114030A38M020 | 130010-0795 | 114033A38M020 | 130010-1823 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Auxiliary Power Brad® Mini-Change® Bulkhead Adapters

130013
Female-Male Straight



Features and Benefits

- Patented QuadBeam™ contact design for reliability and low resistance
- Facilitates through-panel connections

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

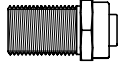
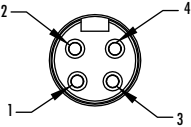
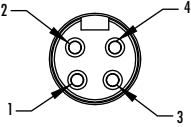
Voltage: 600V AC/DC

Physical

Connector Face: PVC
Contact: Brass with Gold over Nickel plating
Shell Material: Nickel-plated Brass
Mounting Thread: 7/8"-16 UN-2A
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | |  | | |
|--|---------|---|-----------------|--------------------|
| Poles (Female View) | Current | Material Type | Engineering No. | Standard Order No. |
|  | 8.0A | Stainless Steel | 1R40301 | 130013-1001 |
|  | 8.0A | Brass | 1R4030 | 130013-0388 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

Option
Stainless Steel 1

1R40301

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Auxiliary Power Brad® Mini-Change® Field Attachable Connectors

130017
Internal Thread Female
External Thread Male



Features and Benefits

- Patented Quad-Beam™ contact design for reliability and low resistance

Reference Information

CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Physical

Connector Face: Polyurethane

Connector Body: Nylon

Contact: Brass with Gold over Nickel plating

Coupling Nut: Nickel-plated Brass

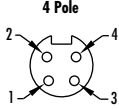
Wire Size: 15 to 24 AWG

Cable Range: 5.08 to 11.43mm (.200 to .450")

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Poles (Female View) | Current | Coupling Type | Female Straight | | Male Straight | |
|--|---------|-----------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 Pole  | 10.0A | Internal Thread | 1A4000-34 | 130017-0015 | | |
| | | External Thread | | | 1A4006-34 | 130017-0020 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

DeviceNet* Auxiliary Power Brad® Mini-Change® Power Taps

130039

Fused Power
Tap Blocks



Features and Benefits

- Connects power supply to DeviceNet trunk line in convenient plug/play fashion
- Easily replaceable fuses protect bus and connected components from over-current
- Provides LED indication of power and polarity for simple diagnostics

Electrical

Fuse Protection: 4.0A
Voltage: 50V DC

Physical

Housing: PBT
Port Shell Material: Epoxy-coated Zinc
Connector Face: PVC
Contacts: Brass with Gold over Nickel plating

Environmental

Protection: IP67

| Left Port Configuration | Drop Port Configuration | Right Port Configuration | LED Indicator | Box Configuration | Schematic | Engineering No. | Standard Order No. |
|--|--|--|---------------|-------------------|-----------|-----------------|--------------------|
| <p>5 Pole Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | <p>4 Pole Male</p> <p>1 - Vaux+ 2 - Vaux- 3 - Vaux+ 4 - Vaux-</p> | <p>5 Pole Male</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | Yes | | | DN-PT1 | 130039-0390 |
| <p>5 Pole Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | <p>4 Pole Male</p> <p>1 - Vaux+ 2 - Vaux- 3 - Vaux+ 4 - Vaux-</p> | <p>5 Pole Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | Yes | | | DN-PT2 | 130039-0391 |
| <p>5 Pole Male</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | <p>4 Pole Male</p> <p>1 - Vaux+ 2 - Vaux- 3 - Vaux+ 4 - Vaux-</p> | <p>5 Pole Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | Yes | | | DN-PT3 | 130039-0393 |

Note: Sales drawings for all standard order numbers are available on molex.com

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Auxiliary Power Brad® Mini-Change® Machine E-Stop Tees

130035



Features and Benefits

- Patented Quad Beam™ contact provides high reliability and low resistance
- Provides quick connection of auxiliary power for networks
- Provides interruption to auxiliary power for safe installation

Electrical

Current: 8.0A
Voltage: 50V

Physical

Connector Face: PVC
Connector Body: TPE
Contacts: Brass with Gold over Nickel plate
Couplers: Epoxy-coated Zinc
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67

| Poles (Female View) | Configuration | Schematic | Engineering No. | Standard Order No. |
|---------------------|---------------|-----------|-----------------|--------------------|
| | | | DNETAUXPT | 130035-0085 |
| | | | DNEST | 130035-0081 |
| | | | DNESJ | 130035-0077 |
| | | | DNAPT | 130035-0072 |

Note: Sales drawings for all standard order numbers are available on molex.com
*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

DeviceNet* Auxiliary Power Brad® Micro-Change® and Ultra-Lock® (M12) Single-Ended Cordsets

120079

Female, Pigtails
Straight, Right Angle



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in DeviceNet installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change Cordsets

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|------------|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 805000A09M020 | 120065-0471 | 805001A09M020 | 120065-1697 |
| | | | PLTC-ER | TPE (K03) | 18 | | 805000K03M020 | 120065-1367 | 805001K03M020 | 120065-1720 |

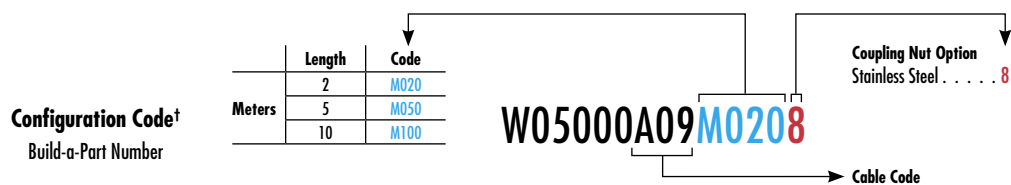
Ultra-Lock Cordsets

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|------------|--------------------------|--------------|------------|---------------------------|---------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | W05000A09M020 | 120079-0109 | W05001A09M020 | 120079-0223 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendors Association (ODVA)



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Auxiliary Power Brad® Micro-Change® and Ultra-Lock® (M12) Double-Ended Cordsets

120080

**Female Straight-to-Male Straight,
Female Right Angle-to-Male
Right Angle**



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in DeviceNet installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change Cordsets

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 885030A09M010 | 120066-0427 | 885033A09M010 | 120066-1634 |
| | | | PLTC-ER | TPE (K03) | 18 | | 885030K03M010 | 120066-1034 | 885033K03M010 | 120066-1421 |

Ultra-Lock Cordsets

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | WW5030A09M010 | 120080-0325 | WW5033A09M010 | 120080-0431 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendors Association (ODVA)

Configuration Code†
Build-a-Part Number

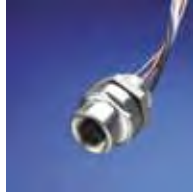


†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Auxiliary Power Brad® Micro-Change® and Ultra-Lock® (M12) Receptacles

120070

Front Panel Mount
Bulkhead Pass-Through



Features and Benefits

- M12 single keyway (A-Coding) IEC compliant panel mount receptacles
- 5-pole version for auxiliary power to devices in DeviceNet installations
- Fully potted assemblies provide IP67/68 protection for harsh environments

Physical

Shell: Nickel-plated Brass
Contact Carries: Polyamide
O-ring: M12—Red Viton®
Panel—Black Viton
Contacts: Copper alloy with Gold over Nickel plating
Wire PVC Insulation: 300V, 80° C, UL1061, 22 AWG (3-5 poles) and 24 AWG (8 poles)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Configuration | | Configuration | | Configuration | |
|---------------------|--------------------------|--------------|---|---|---|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | Micro-Change (M12), 1/4"-18NPT, Front Panel Mount | Ultra-Lock Enabled, 1/2"-14NPT, Front Panel Mount | Micro-Change (M12), Bulkhead Pass-thru Receptacle | | | |
| | | | PVC leads, UL1061 | PVC leads, UL1061 | | | | |
| | | | 22 AWG | 22 AWG | | | N/A | |
| | | | 12" | 12" | | | | |
| | | | 8R5A00A18A120 | 120070-0201 | WR5000A18A120 | 120084-0016 | 8R5L30 | 120070-0237 |

Note: Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Feet | 1.0 | A120 |
| | 3.0 | F030 |
| Meters | 0.3 | C300 |
| | 1.0 | M010 |

8R5A00A18A120

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

DeviceNet* Auxiliary Power Field Attachable Brad® Micro-Change® and Ultra-Lock® (M12) Connectors

120085
Female, Male
Straight



Features and Benefits

- Allows field termination of cables to IEC compliant M12 A-Coding connector
- Contact carries with screw terminals provide easy field termination of conductors
- 5-pole version for auxiliary power to devices in DeviceNet installations
- Back end housing and cable gland provides IP67 protection and strain relief


Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)


Environmental

Protection: IP67
NEMA rating: NEMA 6

Micro-Change

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Male Straight | |
|--|-----------------------------|-----------------|-----------------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole  | 4.0A | 250V AC/DC | 4.10-8.10mm (.161-.319") | 8A5000-32 | 120071-0043 | 8A5006-32 | 120071-0047 |

Ultra-Lock

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Male Straight | |
|---|-----------------------------|-----------------|-----------------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole  | 4.0A | 250V AC/DC | 4.10-8.10mm (.161-.319") | WA5000-32 | 120085-0014 | WA5006-32 | 120085-0006 |

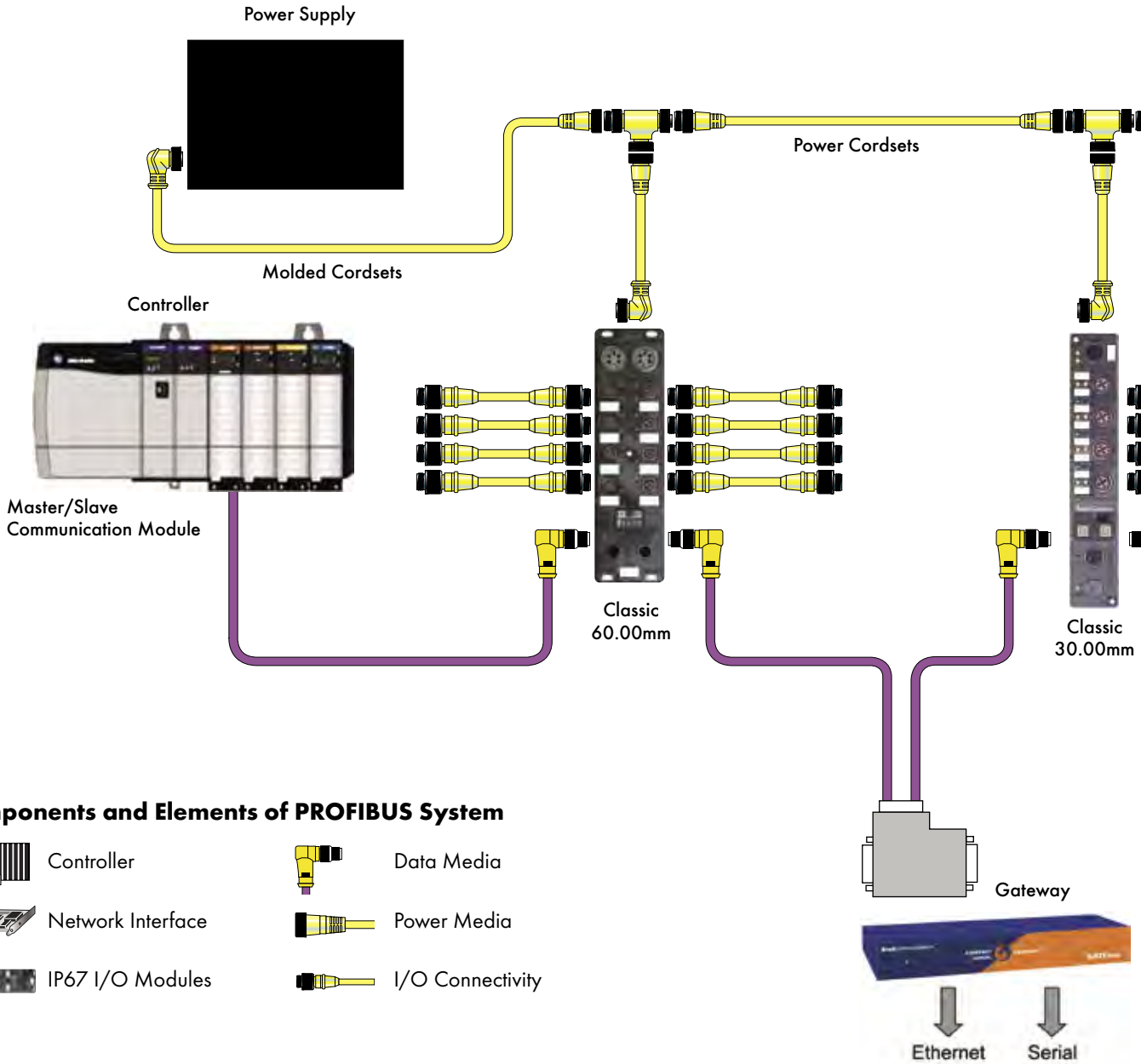
Note: Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA)

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® PROFIBUS*

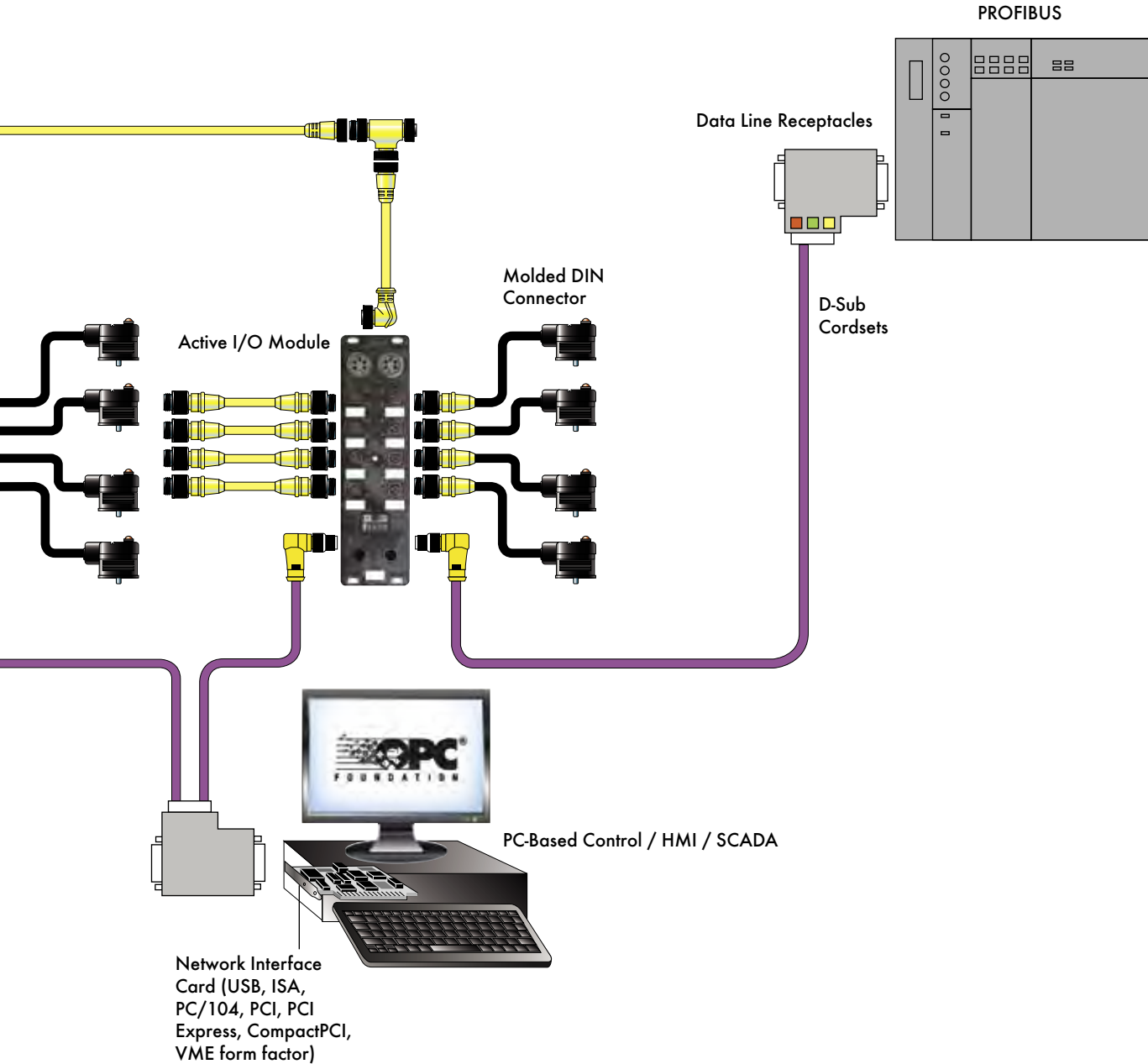
Brad products give the user and designer of a PROFIBUS system a complete communication and connectivity solution—from scanner card to media infrastructure to IP67 I/O connections and diagnostics. You can select which control engine you want, whether it is PC- or PLC-based; we get you onto the network. You can choose which control architecture—centralized or distributed—that makes the most sense to you. Whether you are connecting motor controllers, valve banks or sensors, we ensure that connectivity to those points are there.



Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS*

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.



* PROFIBUS is a trademark of PROFIBUS International.

Brad® Direct-Link® Network Interface Card

112035 PROFIBUS* Adapter for SCADA/HMI



Features and Benefits

- Allow to communicate with Siemens Simatic® S5 and S7 PLC series
- All PROFIBUS protocols run simultaneously
- Fast data acquisition between PC-based applications and industrial devices connected to Profibus
- All protocols included in the package
- Best choice for HMI/SCADA applications

Description

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Windows compatibility (32-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®

Included Hardware/Software

- High-speed USB Adapter, version 2.0 or 1.1
- 1 PROFIBUS port, DB9 female, Galvanic insulation 500V
- Speed: 9.6 Kbps up to 12 Mbps
- Power Supply: 5V through USB (no external supply required)

Compatible Protocols

- Master DP-V0 DP-V1, Class-1 and Class-2
- S7/MPI Master for S7-300 and S7/400
- S7/MPI Slave for S7-200
- S5 for Simatic S5 (95U, 115U, 135U, 155U)

Conformance

- RoHS compliant
- CE
- UL
- cUL

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| Direct-Link™ USB Adapter for MPI, Full access (DLL/OPC/WW IO) | DRL-MPI-USB | 112035-0001 |
| Direct-Link™ USB Adapter for MPI, Library access only (DLL) | DRL-MPI-USB-DLL | 112035-0002 |
| Direct-Link™ USB Adapter for all PROFIBUS, Full access (DLL/OPC/WW IO) | DRL-PFB-USB | 112026-0014 |
| Direct-Link™ USB Adapter for PROFIBUS, Library access only (DLL) | DRL-PFB-USB-DLL | 112026-0015 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® applicom® Network Interface Card

112013 PROFIBUS*-DP for PC-Based Control and SCADA/HMI



Features and Benefits

- Deterministic data acquisition for real time PC-based control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very easy-to-use; no knowledge of protocol required
- Remote access via serial connection; enables configuration and diagnostic when using real time OS (VxWorks, QNX, etc)
- Run Master and Slave modes simultaneously

Description

- Auto mapping of IO in card DPRAM
- IO exchange up to 14 Kbytes
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- PC/104 bus
- 8 Mb SDRAM; 512 Kb Flash Memory
- 1 Digital Input + 1 Digital Output
- 1 Profibus port, Galvanic insulation 500V
- Connector: HE13 2x5 pins or DB9 female
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system status and communications status

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0 (passive)

Conformance

- RoHS compliant
- CE
- OPC certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| PCU-DPIO PCI Network Interface Card for PROFIBUS-DP, HE13 connector | DRL-DPM-104 | 112013-0003 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® SST™ Network Interface Card

112013 PROFIBUS*-DP for High-Speed PC-Based Control



Features and Benefits

- High speed deterministic communication for control applications
- OEM ready, hardware and software components provided separately
- CommDTM driver for FDT Frame engineering software (PACTware™, FieldCare™, FieldMate™, etc)
- On board FPGA eliminates data bottlenecks, ensuring delivery of time critical information

Description

- Highly customizable Profibus access via Direct DPRAM services
 - Configuration
 - Diagnostic
 - Process Data
- Manage DP Master and Slave modes simultaneously
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools: Configuration console (optional) Test and diagnostic tools (optional)
- OPC DA Server v3.0 (optional)
- Supported OS:
 - Windows (32-bit): Windows Vista®, 2003 Server, Windows XP®
 - Others: Open, documented memory map interface with C source code samples and Windows 32-bit DLLs for custom driver development

Included Hardware/Software

- PC/104 bus
- 1 PROFIBUS port, DB9 female, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system status and communications status

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0
- FDL Send/Receive

Conformance

- RoHS compliant
- CE
- FDT certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| PB3 PC/104 Network Interface Card for PROFIBUS-DP | SST-PB3-104 | 112013-0013 |
| PB3 PC/104 Network Interface Card for PROFIBUS-DP, Bulk of 25 | SST-PB3-104-B25 | 112013-0015 |
| PROFIBUS Configuration and Diagnostic Console, Single license with Parallel key | SST-PB3-CNF-P | 112030-0008 |
| PROFIBUS Configuration and Diagnostic Console, Single license with USB key | SST-PB3-CNF-U | 112030-0009 |
| PROFIBUS OPC DA Server, Single license code | SST-PB3-OPC | 112028-0030 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® Direct-Link® Network Interface Card

112034
PROFIBUS* for SCADA/HMI



Features and Benefits

- Economical solution
- Dedicated for communication with Siemens Simatic® S7 PLC series
- Ideal for OEM applications
- Best choice for light HMI/SCADA applications

Description

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Windows® compatibility (32-bit): Seven, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded

Included Hardware/Software

- PCI Universal bus 3.3V/5V (PCI-X compatible)
- Hardware Plug and Play
- 1 PROFIBUS port, DB9 female, Galvanic insulation 500V
- Speed: 9.6 Kbps up to 12 Mbps

Compatible Protocols

- S7/MPI Master for S7-300 and S7/400
- S7/MPI Slave for S7-200

Conformance

- RoHS compliant
- CE
- OPC certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| Direct-Link® USB Adapter for MPI, Full access (DLL/OPC/WW IO) | DRL-MPI-PCU | 112034-0018 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® applicom® Network Interface Card

112011
PROFIBUS* for SCADA/HMI



Features and Benefits

- Allow communication with Siemens Simatic® S5 and S7 PLC series
- All PROFIBUS protocols run simultaneously
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- All protocols are included
- Best choice for HMI/SCADA applications
- Combo offer: PROFIBUS + Ethernet
- Economical version dedicated to Siemens Simatic S7 Series

Description

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- Hardware Plug and Play
- AMD SC520
- 16 Mb SDRAM
- 4 Mb Flash Memory
- 1 PROFIBUS port, DB9 female, Galvanic insulation 500V
- Speed: 9.6 Kbps up to 1.5 Mbps

Compatible Protocols

- Master DP-V0, Class-1 and Class-2
- S7/MPI Client*
- FDL S5 Master
- PPI/PPI+ Master†
- Free FDL Send/Receive*

Conformance

- RoHS compliant
- CE
- OPC certified
- PCI Express certified

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCU1500S7 PCI Network Interface Card for Siemens S7 | APP-PS7-PCU-C | 112011-0006 |
| PCIE1500S7 PCI Express Network Interface Card for Siemens S7 | APP-PS7-PCIE | 112011-5027 |
| PCU1500PFB PCI Network Interface Card for PROFIBUS | APP-PFB-PCU-C | 112011-0004 |
| PCIE1500PFB PCI Express Network Interface Card for PROFIBUS | APP-PFB-PCIE | 112011-5026 |
| PCU1500PFB PCI Network Interface Card for PROFIBUS + Ethernet | APP-EPB-PCU-C | 112000-0001 |
| PCIE1500PFB PCI Express Network Interface Card for PROFIBUS + Ethernet | APP-EPB-PCIE | 112000-5028 |

*PROFIBUS is a trademark of PROFIBUS International

†Protocols compatible with PCU1500S7 and PCIE1500S7

Brad® applicom® Network Interface Card

112011 PROFIBUS* for PC-Based Control and SCADA/HMI



Features and Benefits

- Deterministic data acquisition for real time control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very easy-to-use; no knowledge of protocol required
- Remote access via TCP/IP connection; enables configuration and diagnostic when using real time OS (VxWorks, QNX, etc)
- Run Master and Slave modes simultaneously

Description

- Auto mapping of IO in card DPRAM
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows® (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/ XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

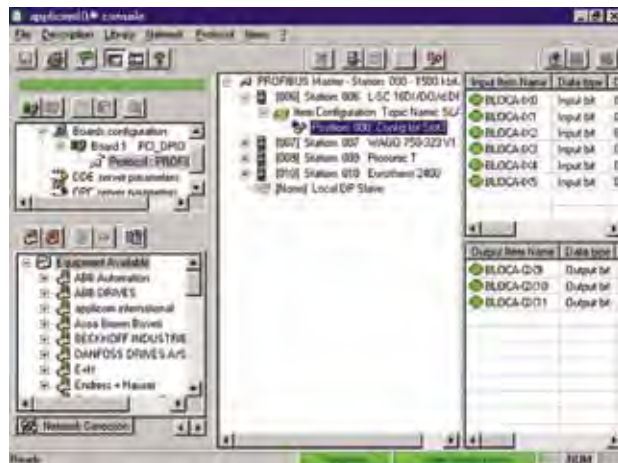
- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- Hardware Plug and Play
- AMD SC520
- 16 Mb SDRAM; 4 Mb Flash Memory
- 1 Digital Input + 1 Digital Output
- 1 PROFIBUS port, DB9 female, Galvanic insulation 500V
- Speed: 9.6 Kbps up to 12 Mbps

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0 (passive)

Conformance

- RoHS compliant
- CE
- OPC certified
- PCI Express certified



Configuration Console



Device Diagnostics

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCU-DPIO PCI Network Interface Card for PROFIBUS-DP | DRL-DPM-PCU | 112011-0008 |
| PCIE-DPIO PCI Express Network Interface Card for PROFIBUS-DP | DRL-DPM-PCIE | 112011-5028 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® SST™ Network Interface Card

112011 PROFIBUS*-DP for High-Speed PC-Based Control



Features and Benefits

- High-speed deterministic communication for PC-Based control applications
- OEM ready, hardware and software components provided separately
- CommDTM driver for FDT Frame engineering software (PACTware™, FieldCare™, FieldMate™, etc)
- On board FPGA eliminates data bottlenecks, ensuring delivery of time critical information
- Available with 1 or 2 PROFIBUS channels
- Typical application:
 - PC-Based control
 - Network diagnostics
 - Custom OEM system
 - Monitoring
 - Data storage

Description

- Highly customizable PROFIBUS access via Direct DPRAM services
 - Configuration
 - Diagnostic
 - Process Data
- Manage DP Master and Slave modes simultaneously
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Configuration console (optional)
 - Test and diagnostic tools (optional)
- OPC DA Server v3.0 (optional)
- Supported OS:
 - Windows (32-bit): Windows Vista®, 2003 Server, Windows XP®
 - Others: Open, documented memory map interface with C source code samples and Windows 32-bit DLLs for custom driver development

Included Hardware/Software

- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- 1x or 2x PROFIBUS ports, DB9 female, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system status and communications status

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0
- FDL Send/Receive

Conformance

- RoHS compliant
- CE
- PCI Express certified
- FDT Certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| PCI Network Interface Card for PROFIBUS-DP, 1 Channel, DLL+ CommDTM | SST-PB3-PCU | 112011-0021 |
| PCI Network Interface Card for PROFIBUS-DP, 1 Channel, DLL+CommDTM, Bulk of 25 | SST-PB3-PCU-B25 | 112011-0024 |
| PCI Network Interface Card for PROFIBUS-DP, 2 Channels, DLL+ CommDTM | SST-PB3-PCU-2 | 112011-0022 |
| PCI Network Interface Card for PROFIBUS-DP, 2 Channels, DLL+CommDTM, Bulk of 25 | SST-PB3-PCU-2-B | 112011-0027 |
| PCI Express Network Interface Card for PROFIBUS-DP, 1 Channel, DLL+CommDTM | SST-PB3-PCIE-1 | 112011-0031 |
| PCI Express Network Interface Card for PROFIBUS-DP, 2 Channels, DLL+CommDTM | SST-PB3-PCIE-2 | 112011-0032 |
| PROFIBUS Configuration and Diagnostic Console, Single license with Parallel key | SST-PB3-CNF-P | 112030-0008 |
| PROFIBUS Configuration and Diagnostic Console, Single license with USB key | SST-PB3-CNF-U | 112030-0009 |
| PROFIBUS OPC DA Server, Single license code | SST-PB3-OPC | 112028-0030 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® SST™ Network Interface Card

112011 Multi-Slave PROFIBUS*-DP for Simulation



Features and Benefits

- Emulates or monitors 1 to 125 DP Slaves using one physical PROFIBUS connection
- Ideal for full load network testing of DP Master
- Use to connect OI/HMI applications to Profibus-DP
- Reduced commissioning time; quickly differentiate between wiring, devices, and network problems by comparing real-world results with the emulation
- Passive PROFIBUS connection; network traffic is not affected

Description

- Monitor up to 125 devices
 - Avoids 244 bytes in and 244 bytes out limitation
 - Connects as a passive station, does not affect existing network traffic
 - View input and output data for each slave
 - View slave diagnostic and parameterization data for each slave
- Emulate up to 125 devices
 - Virtually any PROFIBUS DP slave device (e.g. drives, motors, I/O) can be emulated to any PROFIBUS master including DCS, PLC and PC control
 - Use with PICS Simulation™ software and other third party simulation software
 - Several DP Class-1 masters can communicate to one PROFIBUS multi-slave card
- Engineering Tools:
 - Configuration console
 - Test and diagnostic tools
- OPC DA Server v3.0
- Supported Operating System:
 - Windows 32-bit: NT, 2000, Windows XP®
 - Open, documented memory map interface with example C source code and Windows 32-bit DLLs for custom driver development

Included Hardware/Software

- PCI bus 5V
- Hardware plug and play
- 1 PROFIBUS port, DB9 female and 9-pin Phoenix, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system status and communications status

Compatible Protocols

- DP-V0 Slave

Conformance

- CE

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| PCI Network Interface Card for PROFIBUS-DP Multi-Slave, 1 Channel | SST-PBMS-PCI | 112011-0025 |

*PROFIBUS is a trademark of PROFIBUS International

Brad[®] applicom[®] Network Interface Card

112018 PROFIBUS* for PC-Based Control and SCADA/HMI



Features and Benefits

- Deterministic data acquisition for real time control applications
- Onboard co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very easy-to-use; no knowledge of protocol required
- Remote access via TCP/IP connection; enables configuration and diagnostic when using real time OS (VxWorks, QNX, etc)
- Run Master and Slave modes simultaneously

Description

- Auto mapping of IO in card DPRAM
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware[®] DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): Seven, 2008 Server, Windows Vista[®], 2003 Server, Windows XP[®]/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- CompactPCI bus 5V, 3U
- Hardware plug and play
- AMD SC520
- 8 Mb SDRAM; 512 Kb Flash Memory
- 1 Digital Input + 1 Digital Output
- 1 PROFIBUS port, DB9 female, Galvanic insulation 500V
- Speed: 9.6 Kbps up to 12 Mbps

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0 (passive)

Conformance

- RoHS compliant
- CE
- OPC certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| CPCI-DPIO CompactPCI Network Interface Card for PROFIBUS-DP | DRL-DPM-CPI | 112018-5004 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® SST™
Network Interface Card
112014
PROFIBUS*-DP for High-Speed
PC-Based control



Features and Benefits

- High-speed deterministic communication for VME-Based control applications
- High-speed deterministic communication for PC-Based control applications
- OEM ready, hardware and software components provided separately
- On board FPGA eliminates data bottlenecks, ensuring delivery of time critical information
- Available with 1 or 2 PROFIBUS channels
- Typical application:
 - PC-Based control
 - Network diagnostics
 - Custom OEM system
 - Monitoring
 - Data storage

Description

- Highly customizable PROFIBUS access via Direct DPRAM services
 - Configuration
 - Diagnostic
 - Process Data
- Supports 16-bit transfers (VME D16) with both VME A24 (standard) and A16 (short IO) address transfers
- Redundancy feature; 2 channels version VME interface card provides the option of connecting to one or two independent PROFIBUS networks
- Manage DP Master and Slave modes simultaneously
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Configuration console (optional)
 - Test and diagnostic tools (optional)
- Supported OS: Open, documented memory map interface with C source code samples and library for custom driver development

Included Hardware/Software

- VME Bus, 6U double-eight
- 1 PROFIBUS port, DB9 female, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system status and communications status

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0
- FDL Send/Receive

Conformance

- RoHS compliant
- CE

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| VME Network Interface Card for PROFIBUS-DP, 1 Channel | SST-PB3-VME-1 | 112014-0004 |
| VME Network Interface Card for PROFIBUS-DP, 2 Channels | SST-PB3-VME-2 | 112014-0006 |
| PROFIBUS Configuration and Diagnostic Console, Single license with Parallel key | SST-PB3-CNF-P | 112030-0008 |
| PROFIBUS Configuration and Diagnostic Console, Single license with USB key | SST-PB3-CNF-U | 112030-0009 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® SST™ Communication Module for Rockwell SLC 500

112016
PROFIBUS*-DP Master/Slave



Features and Benefits

- Connects your Allen-Bradley SLC 500 to a PROFIBUS network
- Target markets: Factory automation, Process control, Complex machines, etc
- Direct IO Mapping, no Ladder Logic to write for configuration and data transfer between module and SLC processor

Description

High speed deterministic communication

- Fast, easy set up into SLC backplane; PROFIBUS IO data is automatically mapped into the SLC processor's I, O, MO and MI files
- Easy diagnostics: Built-in LEDs
- Manage DP Master and Slave modes simultaneously
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Configuration console
 - Test and diagnostic tools

Included Hardware/Software

- Acts as 1756 Input/Output module
- Support multiple modules in a chassis
- 1 PROFIBUS port, DB9 female, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- IO Mapping:
 - I and O Files—32 words in, 32 words out
 - M1 and M0 Files—1000 words in/out
- 1 serial port for configuration and diagnostic
- Firmware upgradeable

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0
- FDL Send/Receive

Conformance

- RoHS compliant
- CE
- Rockwell Encompass™

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PROFIBUS Communication module for Rockwell SLC 500 | SST-PB3-SLC | 112016-0022 |

*PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® SST™ Communication Module for Rockwell ControlLogix

112016
PROFIBUS*-DP Master/Slave



Features and Benefits

- Connects your Allen-Bradley® ControlLogix to a PROFIBUS network
- Target markets: Factory automation, Process control, Complex machines, etc.
- Fully integrated into the Rockwell Automation environment
Remote configuration and monitoring via Rockwell RSLinx™
Add-On-Profile for Rockwell RSLogix5000
- Direct IO Mapping, no Ladder Logic to write for configuration and data transfer between module and CLX processor
- Conformal coating version:
 - Provide environmental and mechanical protection to significantly extend the life of the components and circuitry
 - Protect electronic boards from moisture and contaminants
- Typical applications:
 - Marine
 - Agro-Food
 - Mining
 - Harsh automotive, etc.

Description

- High-speed deterministic communication
- Easy diagnostics: Built-in LEDs and 4 characters display
- Manage DP Master and Slave modes simultaneously
- Allow to change PROFIBUS configuration with PLC in RUN mode
- Dynamically add/remove PROFIBUS slaves from the scan list
- CommDTM driver for FDT Frame engineering software (PACTware™, FieldCare™, FieldMate™, etc)
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Configuration console
 - Test and diagnostic tools

Included Hardware/Software

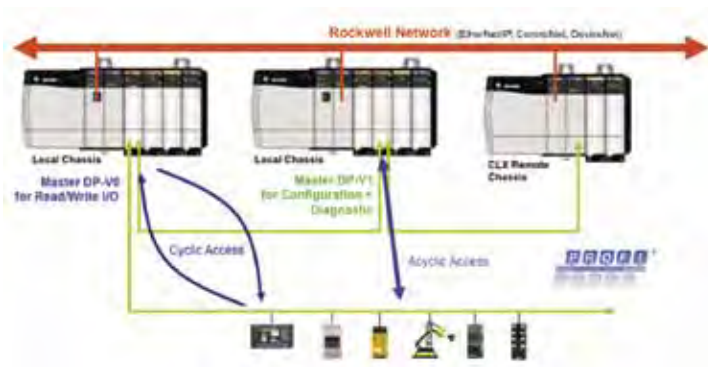
- Acts as Input/Output module
- Support multiple modules in a chassis; support Local and Remote chassis
- One PROFIBUS port, DB9 female, Galvanic insulation 1000V
- Speed: 9.6 Kbps up to 12 Mbps
- LEDs for system, communication, and network status
- Up to 1984 Input Bytes and 1968 Output Bytes
- One Serial port for configuration and diagnostic
- Firmware upgradeable

Compatible Protocols

- Master DP-V0 Class-1 and Class-2
- Master DP-V1 Class-1 and Class-2
- Slave DP-V0

Conformance

- RoHS compliant
- CE
- UL
- cUL
- Class 1 Div 2
- Rockwell Enccompass
- FDT Certified



| Description | Engineering No. | Standard Order No |
|--|--------------------|-------------------|
| PROFIBUS Communication module for Rockwell ControlLogix | SST-PB3-CLX-RLL | 112016-0018 |
| PROFIBUS Communication module for Rockwell ControlLogix, Conformal Coating version | SST-PB3-CLX-RLL-CC | 112016-0023 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® Direct-Link® Industrial Gateway

112034
PROFIBUS* to Serial



Features and Benefits

- Connects PROFIBUS controller to Master/Slave Serial devices
- Quick and cost effective solution
- Serial free send/receive; allow user to implement custom protocol (bar code reader, scale, operator display, etc)
- Typical uses:
 - Connecting Serial devices to PROFIBUS networks
 - Integration of legacy devices such as in the machine tool industry
 - Well suited for simple network extensions

Description

- Easy-to-use configuration by GSD file (no configuration tool needed)
- Automatic reconfiguration after replacement by the PROFIBUS Master (Set_Param command)
- Rotary switches for PROFIBUS Address
- Full diagnostic through LEDs, dedicated RS232 port and PROFIBUS Slave_Diag information

Included Hardware/Software

- IP20
- DIN rail mounting
- Up to 244 Input bytes and 244 Output bytes on PROFIBUS
- Up to 20 Modbus Read and Write commands with Cyclic, Change of State or trigger working modes
- Communication Ports
 - 1x Serial, 600 bps up to 57.6 Kbps, RS232/RS485
 - 1x PROFIBUS, 9.6 Kbps up to 12 Mbps, DB9 female

Compatible Protocols

- PROFIBUS
 - DP-VO Slave
- Serial
 - Modbus Master (ASCII/RTU)
 - Modbus Slave (ASCII/RTU)
 - Free Send/Receive Master/Slave

Conformance

- RoHS compliant
- CE

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| Gateway PROFIBUS-DP slave to Serial Master/Slave, RS232/485 | DRL-DPS-SRM | 112026-0013 |

*PROFIBUS is a trademark of PROFIBUS International

Brad® HarshIO 600

112038

Digital IP67 I/O Module Classic Format



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments
- Accepts M12 threaded connectors or Brad Ultra-Lock® Push-Pull connection system
- Standard hole housing pattern allows for interchangeability with popular IO modules
- Visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- 16 digital input/output per module
- Supports PNP and NPN input devices
- Watchdog with output reply state

Compatible Protocols

PROFIBUS Slave DP-V0

Conformance

- IP67 according to IEC 60529
- Vibration: IEC 60068-2-6 conformance
- Mechanical Shock: 10G, 11ms, 3 axis
- CE
- UL
- cUL
- RoHS compliant
- PNO certified

Included Hardware/Software

- IO Configurations:
 - 16 inputs
 - 14 inputs + 2 outputs
 - 12 inputs + 4 outputs
 - 8 inputs + 8 outputs
 - 8 inputs + 8 universal (inputs or outputs)
- IO Connectors: 8x M12 ports, Ultra-Lock M12 female 5-pole, internally threaded
- PROFIBUS Connectors:
 - 1x M12 male, 5-pole B-coded
 - 1x Ultra-Lock® M12 female, 5-pole B-coded
- Power Connectors:
 - Power In: Male Mini-Change, 5-pole
 - Power Out: Female Mini-Change, 5-pole
- Power Requirements:
 - Module input power: 24V DC
 - Module output power: 24V DC, 2.0A max per channel, 8.0A max per module
- Input Type:
 - Compatible with dry contact and PNP or NPN 3-wire switches
 - Electronic short circuit protection
- PROFIBUS Address: 1 to 99 by rotary switches or 1 to 125 by Set_Slave_Address command
- Input Delay: 0.5ms default or configurable (through GSD)
- Input Device Supply: 140mA per port at 25° C
- Output Load Current: 2.0A max per channel, electronic short circuit protection
- Maximum Switching Frequency: 200 Hz
- Housing Dimensions: 60.00 by 220.00 by 20.00mm (2.36 by 8.66 by .78")
- Mounting Dimensions:
 - 37.50mm (1.480") horizontal on centers
 - 210.00mm (8.270") vertical on centers
 - Center hole
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 16 | | NPN | TCDPB-8DON-B1U | 112038-0030 |
| | 14 | 2 | NPN | TCDPB-8C2N-B1U | 112038-0028 |
| | 12 | 4 | NPN | TCDPB-8B4N-B1U | 112038-0026 |
| | 8 | 8 | NPN | TCDPB-888N-B1U | 112038-0024 |
| | 16 | | PNP | TCDPB-8DOP-B1U | 112038-0031 |
| | 14 | 2 | PNP | TCDPB-8C2P-B1U | 112038-0029 |
| | 12 | 4 | PNP | TCDPB-8B4P-B1U | 112038-0027 |
| | 8 | 8 | PNP | TCDPB-888P-B1U | 112038-0025 |

Brad® HarshIO 600

112038

Digital IP67 IO Module Compact Format



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments.
- Accepts M12 threaded connectors or Brad Ultra-Lock® Push-Pull connection system
- Visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- Eight digital input/output per module
- Supports PNP and NPN input devices
- Watchdog with output reply state

Compatible Protocols

PROFIBUS Slave DP-VO

Conformance

- IP67 according to IEC 60529
- Vibration: IEC 60068-2-6 conformance
- Mechanical Shock: 10G, 11ms, 3 axis
- CE
- UL
- cUL
- RoHS compliant
- PNO certified

Included Hardware/Software

- IO Configurations:
 - 8 inputs
 - 6 inputs + 2 outputs
 - 4 inputs + 4 outputs
 - 8 outputs
- IO Connectors:
 - 4x ports, Ultra-Lock® M12 female 5-pole, internally threaded
 - 8x ports, M8 female 3-pole threaded
- PROFIBUS Connectors:
 - 1x M12 male, 5-pole, B-coding
 - 1x Ultra-Lock® M12 female, 5-pole, B-coding
- Power Connectors: M12 male, 5-pole, A-coding
- Power Requirements:
 - Module Input Power—24V DC
 - Module Output Power—24V DC, 4.0A max.
- Input Type:
 - Compatible with dry contact and PNP or NPN
 - Electronic short circuit protection
- PROFIBUS Address: 1 to 99 by rotary switches or 1 to 125 by Set_Slave_Address command
- Input Delay: 3ms default or configurable (through GSD)
- Input Device Supply: 140mA per port at 25° C
- Output Load Current: 1.4A max. per channel, electronic short circuit protection
- Maximum Switching Frequency: 200 Hz
- Housing Dimensions: 30.00 by 175 by 20.00mm (1.18 by 6.89 by .78")
- Mounting Dimensions:
 - 23.00mm (0.91") horizontal on centers
 - 168.00mm (6.61") vertical on centers
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

Compact—M8

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 8 | | NPN | TBDPB-880N-B84 | 112038-0019 |
| | 6 | 2 | NPN | TBDPB-862N-B84 | 112038-0017 |
| | 4 | 4 | NPN | TBDPB-844N-B84 | 112038-0015 |
| | 8 | | PNP | TBDPB-880P-B84 | 112038-0021 |
| | 6 | 2 | PNP | TBDPB-862P-B84 | 112038-0018 |
| | 4 | 4 | PNP | TBDPB-844P-B84 | 112038-0016 |
| | | 8 | PNP | TBDPB-808P-B84 | 112038-0014 |

Compact—M12

| No. of Power Pin | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|------------------|------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 8 | | NPN | TBDPB-480N-B8U | 112038-0009 |
| | 6 | 2 | NPN | TBDPB-462N-B8U | 112038-0007 |
| | 4 | 4 | NPN | TBDPB-444N-B8U | 112038-0005 |
| | 8 | | PNP | TBDPB-480P-B8U | 112038-0011 |
| | 6 | 2 | PNP | TBDPB-462P-B8U | 112038-0008 |
| | 4 | 4 | PNP | TBDPB-444P-B8U | 112038-0006 |
| | | 8 | PNP | TBDPB-408P-B8U | 112038-0003 |

PROFIBUS* Brad® Solid Core Bulk Cables

130211



Features and Benefits

- Provides field installation flexibility
- Used with field-attachables to provide plug-and-play solution

Overall

Voltage Rating: 300V
 Operating Temperature: -40 to +60° C
 Maximum O.D.: 0.331" (8.40 mm)

Construction

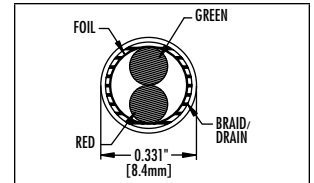
Jacket Material: PUR
 Inner Material Insulation: Polyethylene
 Shield Type: Aluminum Foil 100%
 Tinned Copper braid 80%
 Conductors: Twisted Pair 22 AWG solid wire

Electrical

DC Resistance: 186 W/K Ohms
 Nominal Impedance: 150 ± 15 OHMS
 Effective Capacitance (1 KHz): 28.5 nF/KW
 Approvals: UL, CSA

Cable Flex Information

Torsion:
 Survived more than 2 million cycles at 360° over 1.0m
 C-Track: Survived more than 3 million cycles at
 acceleration to 10.0m/s² and process speed of
 5.0m/s
 Bend Radius: 10 X cable diameter



| Cable Length | Max. Current | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Engineering No. | Standard Order No. |
|--------------|--------------|--------------|--------------|--------------|-----------|-----------------|--------------------|
| 76.2m (250') | 4.0A | 300V | Twisted Pair | PUR | 22 | 85-0001 | 130211-0032 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Single-Ended Cordsets

120039/120098

Female
Straight, Right Angle
Threaded



Features and Benefits

- PUR jacketed for chemical and oil resistance
- Low-resistance contact design
- Leaded end allows for easy field termination
- 360° shielded head design to reduce RFI/EMI

Physical

Connector Face: Nylon 6/6
Molded Body: PUR
O-Ring: Nitrile rubber
Coupling Nut: Nickel-plated Brass (360° shielded)
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cable

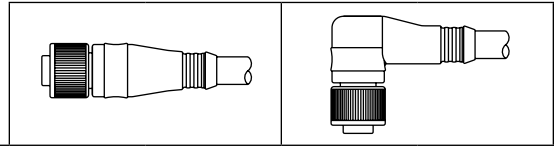
Outside Diameter: 8 ± 0.20mm

Cable Construction

Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: PETP/AV foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: More than 3 million cycles at acceleration 10.0m/s² and process speed of 5.0m/s
Bend Radius: 7.5 x cable diameter (static)



| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Straight | | Right Angle | |
|---|-----------------------------|--------------|--------------|--------------|------------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Not used 2 - Green (Bus A) 3 - Not used 4 - Red (Bus B) 5 - Shield</p> | 4.0A | 250V AC/DC | Twisted Pair | PUR | 22 | 1.0m | B05S00PP4M010 | 120098-0084 | B05S01PP4M010 | 120039-0132 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

B05S01PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Single-Ended Cordsets

120039/120098

Male
Straight, Right Angle
Threaded



Features and Benefits

- PUR jacketed for chemical and oil resistance
- Low-resistance contact design
- Leaded end allows for easy field termination
- 360° shielded head design to reduce RFI/EMI

Physical

Connector Face: Nylon 6/6
Molded Body: PUR
O-Ring: Nitrile Rubber
Coupling Nut: Nickel-plated Brass (360° shielded)
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cable

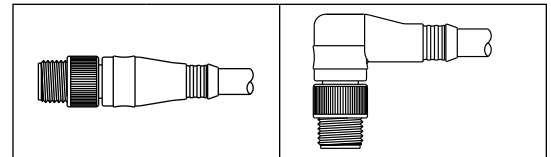
Outside Diameter: 8.00 ± 0.20mm

Cable Construction

Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: PETP/AV foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: Survived more than 3 million cycles at acceleration 10.0m/s² and process speed of 5.0m/s
Bend Radius: 7.5 x cable diameter (static)



| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Straight | | Right Angle | |
|---|--------------------------|--------------|--------------|--------------|---------------|--------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole</p> <p>1 - Not used 4 - Red (Bus B)</p> <p>2 - Green (Bus A) 5 - Shield</p> <p>3 - Not used</p> | 4.0A | 250V AC/DC | Twisted Pair | PUR | 22 | 1.0m | B05S07PP4M010 | 120039-0158 | B05S06PP4M010 | 120098-0099 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| Length | Code |
|--------|------|
| 1 | M010 |
| 2 | M020 |
| 5 | M050 |
| 10 | M100 |

B05S01PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Micro-Change® (M12) Double-Ended Cordsets

120098

Female, Male
Straight-to-Straight
Straight-to-Right Angle
Right Angle-to-Right Angle
Right Angle-to-Straight
Threaded



Features and Benefits

- PUR jacketed for chemical and oil resistance
- Low-resistance contact design for repeated mating
- Provides a plug-and-play solution for quick field installation
- 360° shielded head design to reduce RFI/EMI

Mechanical

Connector Face: Nylon 6/6
Molded Body: PUR
Coupling Nut: Nickel-plated Brass (360° shielded)

Physical

Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cable

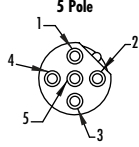
Outside Diameter: 8.00 ± 0.20mm

Cable Construction

Cable Type: Twisted pair
Cable Jacket: PUR
Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: PETP/AV foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s
Bend Radius: 7.5 x cable diameter (static)

| Pole (Female View) | Max. Current per Contact | Max. Voltage | Wire Size AWG | Length | Straight-to-Straight | | Straight-to-Right Angle | | Right Angle-to-Right Angle | | Right Angle-to-Straight | |
|-----------------------|--------------------------------|-----------------|------------------|--------|--|--------------------|-------------------------|--------------------|----------------------------|--------------------|-------------------------|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | |  <p>1 - Not used 2 - Green (Bus A) 3 - Not used 4 - Red (Bus B) 5 - Shield</p> | 4.0A | 250V AC/DC | 22 | 1.0m | BB5S30PP4M010 | 120098-0006 | BB5S31PP4M010 |

Note: Sales drawings for all standard order numbers are available on molex.com

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code[†]

Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

BB5S30PP4M010

[†]Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Micro-Change® (M12) Single-Ended Data Line Receptacles

120099

Female, Male
Back Panel Mount
Cable



Features and Benefits

- Epoxy potted for durability
- Provides a quick disconnect solution to control panels
- Enables plug-and-play to junction boxes

Physical

Shell: Nickel-plated Brass
Insert: Nylon 6/6
O-Ring: Nitrile Rubber
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cable Construction

Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: Petp/Av Foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed up to 5.0m/s
Bend Radius: 7.5 x cable diameter (static)

Cable

Outside Diameter: 8.00 ± 0.20mm

| | | | | | | | Configuration | | | |
|--|--------------------------|--------------|--------------|---------------------------|---------------|--------|---|--------------------|---|--------------------|
| | | | | | | | Female M16 x 1.5 Mounting Thread Back Panel Mount | | Male M16 x 1.5 Mounting Thread Back Panel Mount | |
| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole Female 1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used | 4.0A | 250V AC/DC | Twisted Pair | PUR | 22 | 1.0m | BR5U70PP4M0103 | 120099-0005 | | |
| 5 Pole Male 1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used | | | | | | | | | BR5U76PP4M0103 | 120099-0013 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 0.3 | M003 |
| | 1 | M010 |
| | 2 | M020 |

BR5U70PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Data Line Receptacles

120099

Female, Male
Front Panel Mount
Wire Leads



Features and Benefits

- Epoxy potted for industrial environments
- Used in control panels and junction boxes
- Used to feed through panels
- Can be used with Siemens™ ET 200 I/O block to provide a quick disconnect solution

Physical

Shell: Nickel-plated Brass
Insert: Nylon 6/6
O-Ring: Nitrile rubber
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Configuration | Female, PG11 Mounting Thread, Front Panel Mount | | Male, PG11 Mounting Thread, Front Panel Mount | | | |
|--|---|--------------|---|--------------------|-----------------|--------------------|
| | Wire Type | PVC Leads | Wire Type | PVC Leads | | |
| Wire Size AWG | 22 | 22 | 22 | 22 | | |
| Length | 3" | 3" | 3" | 3" | | |
| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole Female 1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used | 4.0A | 250V AC/DC | 81689-030 | 120099-0024 | | |
| 5 Pole Male 1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used | 4.0A | 250V AC/DC | | | 81688-030 | 120099-0025 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Data Line Bulkhead Pass-Through Receptacle

120099

Female Straight-to-Male Straight
Front Panel Mount



Features and Benefits

- Epoxy potted for industrial environments
- Used in control panels and junction boxes
- Used to feed through panels
- Can be used with Siemens™ ET 200 I/O block to provide a quick disconnect solution

Physical

Shell: Nickel-plated Brass
 Insert: Nylon 6/6
 Conductors: Bulkhead Feed-Through—Solid phosphor Bronze
 O-Ring: Nitrile rubber
 Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
 NEMA Rating: NEMA 6



| Poles | Max. Current per Contact | Max. Voltage | Mounting | Female Straight-to-Male Straight M12 Mounting Thread | |
|--|--------------------------|--------------|-------------------|--|--------------------|
| | | | | Engineering No. | Standard Order No. |
| <p>5 Pole Female</p> <p>1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used</p> <p>Male</p> <p>1 - Not used 4 - Red 2 - Green 5 - Gray 3 - Not used</p> | 4.0A | 250V AC/DC | Front Panel Mount | BR5L30 | 120099-0001 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Field Attachable Connectors

120100
Female, Male
Straight
Threaded



Features and Benefits

- Screw terminal connection for 22 AWG conductors
- Easy field installation of quick-disconnect design
- For use with all reverse keyway M12 designs
- Shielded to reduce RFI/EMI

Physical

Connector Face: Polyamide
Body: Nickel-plated Brass
Contact: Silver-plated Brass
Coupling Nut: Nickel-plated Brass
Grommet: Nitrile rubber
Conductor Size: 22 AWG
Operating Temperature: -25 to +90° C

Environmental

Protection: IP67

| Poles | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Male Straight | |
|--|--------------------------|--------------|----------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole Female</p> <p>1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used</p> | 4.0A | 250V AC/DC | 4.10 - 8.10mm | BA5500-32 | 120100-0001 | | |
| <p>5 Pole Male</p> <p>1 - Not used 4 - Red (Bus B) 2 - Green (Bus A) 5 - Shield 3 - Not used</p> | | | | BA5506-32 | 120100-0002 | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® Micro-Change® (M12) Bus Terminators

120102
Male
Straight
External Thread



Features and Benefits

- Shielded to reduce RFI/EMI and improve signal integrity
- Male reverse key Brad Micro-Change terminator
- M12 threads
- Used with remote active I/O modules
- Used to terminate end of data line

Electrical

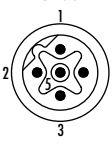
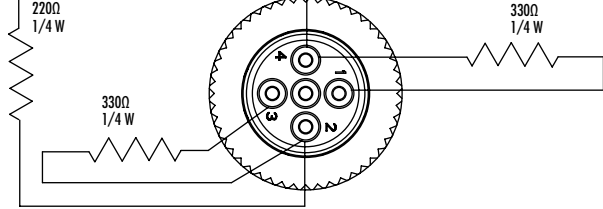
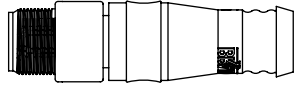
Voltage: 250V AC/DC
Current: 4.0A

Physical

Connector Face: Nylon 6/6
Molded Body: PVC
O-Ring: Terminators—Nitrile rubber
Coupling Nuts: Nickel-plated Brass

Environmental

Protection: IP67

| Poles (Male View) | Wiring Schematic | Engineering No. | Standard Order No. |
|--|---|---|--------------------|
| <p>5 Pole</p>  <p>1 - 5V DC 4 - Bus-B 2 - Bus-A 5 - Shield 3 - Ground</p> |  |  <p>B05506</p> | <p>120102-0002</p> |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

PROFIBUS* Brad® Micro-Change® (M12) Data Line Tees

120101



Features and Benefits

- Shielded to reduce RFI/EMI and improve signal integrity
- M12 threads
- Provides quick disconnection of bus line
- Allows disconnection of node without shutting down the network
- Used with remote active I/O modules

Electrical

Voltage: 30V AC/36V DC
Current: 4.0A

Physical

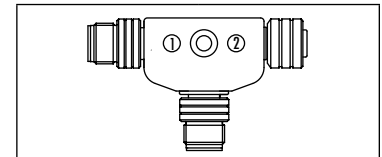
Connector Face: Nylon 6/6
Molded Body: PVC
O-Ring: Viton®
Coupling Nuts: Nickel-plated Brass
Shielding Sleeves: Nickel-plated Brass

Environmental

Protection: IP67

General

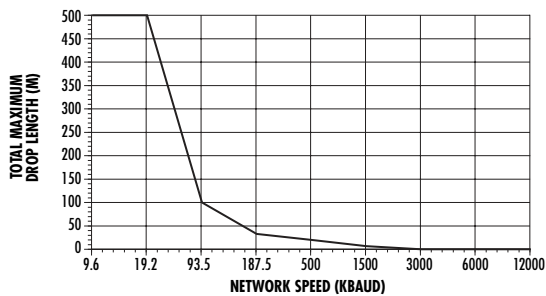
Coupling nuts, pin 5 and PCB all connected to provide full shielding; Reverse key for PROFIBUS circuitry includes line balancing inductors



| Poles | Wiring Schematic | Engineering No. | Standard Order No. |
|---|------------------|-----------------|--------------------|
| <p>5 Pole</p> <p>Bus In Male Face View</p> | | PDT501 | 120101-0002 |
| <p>5 Pole</p> <p>Bus Out Female Face View</p> | | | |
| <p>5 Pole</p> <p>Drop Bus Male Face View</p> | | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Recommended Use of Drop Lines



Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* Brad® D-Sub Field Attachable Connectors

120100/120103

9-pin D-Sub
Plastic Housing
Metal Housing
Diagnostic



Features and Benefits

- All metal construction for harsh environments
- Fully shielded for high noise immunity
- IDC connections for fast and reliable installations
- Captive single-screw mechanism—no loose parts
- High transfer rate—12 MBaud
- 4 LEDs for fast diagnostics and health status of the bus and device (diagnostic versions only)
- Terminator monitor indicates if terminator is missing (diagnostics versions only)
- Integrated switchable terminators
- Transparent cable slots and covers for high visibility
- Integrated programming/diagnostic port (on 90°/45° formats)
- Available in 0°, 45° and 90° formats making connections to various devices easier

Mechanical

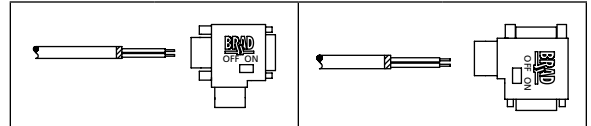
PROFIBUS: 9-pole SubD pin headers
 Programming/Diagnostics: 9-pole SubD socket
 Insertion (withdrawal) Cycles: min. 200
 Cable Type: Solid core PROFIBUS Type A, EN50170
 Cable Diameter: 8.00mm
 Screw/Tightening Torque: 4-40 UNC/0.4Nm
 Enclosure Material: Die-cast Zinc
 Temperature Range: -20 to +75° C
 Cable Connection: IDC technology
 Terminating Resistor: Build-in switchable
 Bus Signals: Dual, in and out

Insulation Stripping Lengths

Outer Sheath: 17.00mm
 Shield: 11.00mm

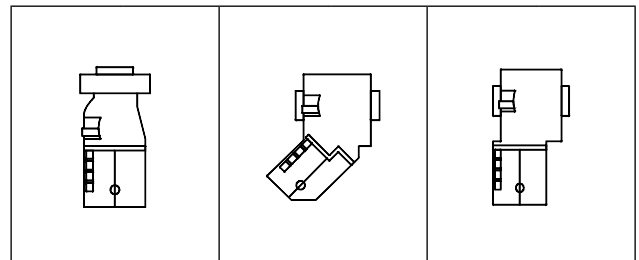
9 Pin D-Sub Plastic Housing Field Attachable

| Face View | Housing Material | Termination Switch | Programming Port | Diagnostic LEDs | Configuration (D-Sub) | | | |
|---|------------------|--------------------|------------------|-----------------|-------------------------|--------------------|-----------------|--------------------|
| | | | | | 0 or Right Degree Angle | | Right Angle | |
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Not used 6 - Not used 2 - Not used 7 - Not used 3 - Red (Bus B) 8 - Green (Bus A) 4 - Not used 9 - Not used 5 - Not used</p> | ABS | Yes | No | No | MA9D00-32 | 120100-0004 | | |
| | | | Yes | No | | | MA9DP0-32 | 120100-0003 |



9 Pin D-Sub Metal Housing Diagnostic Field Attachable

| Face View | Housing Material | Termination Switch | Programming/Diagnostics Port | Diagnostic LEDs | Cable Connection | Configuration (D-Sub) | | | | | |
|---|------------------|--------------------|------------------------------|-----------------|------------------|-----------------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | | | 0 Degree Angle | | 45 Degree Angle | | Right Angle | |
| | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Not used 6 - Not used 2 - Not used 7 - Not used 3 - Red (Bus B) 8 - Green (Bus A) 4 - Not used 9 - Not used 5 - Not used</p> | Die-cast Zinc | Yes | No | Yes | IDC Technology | MA9D00-42 | 120103-5001 | | | | |
| | | | Yes | | | | PA9D0B-42 | 120103-0003 | | | |
| | | | Yes | | | | | | PA9D01-42 | 120103-0001 | |
| | | | No | | | No | | | PA9S01-42 | 120103-0005 | |



| LED | Color | LED Off | LED On | LED Flashing at 5Hz |
|------|--------|-----------------------------------|---|---|
| PWR | Yellow | No 5 Vdc Power Supply from Device | Self Testing Completed Device Power OK | PB Master Failed or Short Circuit of Wire |
| TxD | Green | No Bus Activity | N/A | Data Transfer in Progress |
| Term | Yellow | No Termination | Terminator OK | Internal Terminating Resistors Faulty |
| ERR | Red | No Errors | Faulty Bus Terminations in the Bus Line | Signal Levels Out of Defined Range |

*PROFIBUS is a trademark of PROFIBUS International

PROFIBUS* Brad® D-Sub Single-Ended Cordsets

120098

Male

Horizontal, Vertical,
Vertical with Programming Port



Features and Benefits

- PUR jacketed for chemical and oil resistance
- D-Sub connector enables interface card connection
- D-Sub connector provides termination circuitry
- D-Sub includes termination switch for field installation flexibility

Mechanical

Material: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP40

Cable

Outside Diameter: 8.00 ±2.00mm

Cable Construction

Jacket Material: PUR

Inner Material Insulation: PE insulation

Shield Type: PETP/AV foil, Tinned Copper braid 65%

Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m

C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s

Bend Radius: 7.5 x cable diameter (static)

| Face View (Male) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Horizontal | | Vertical | | Vertical with Programming Port | |
|---|--------------------------|--------------|--------------|--------------|---------------|--------|-----------------|--------------------|-----------------|--------------------|--------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Not used 6 - Not used 2 - Not used 7 - Not used 3 - Red (Bus-B) 8 - Green (Bus-B) 4 - Not used 9 - Not used 5 - Not used</p> | 4.0A | 250V AC/DC | Twisted Pair | PUR | 22 | 1.0m | M03S06PP4M010 | 120098-0202 | M03S07PP4M010 | 120098-8025 | P03S07PP4M010 | 120098-0203 |

Note: Sales drawings for all standard order numbers are available on molex.com

*Profibus is a trademark of Profibus International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

M03S62PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® D-Sub-to-D-Sub Double-Ended Cordsets

120098

Horizontal, Vertical
Vertical with Programming Port



Features and Benefits

- PUR jacketed for chemical and oil resistance
- D-Sub connector enables interface card connection
- D-Sub connector provides termination circuitry
- D-Sub includes termination switch for field installation flexibility

Mechanical

Material: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP40

Cable

Outside Diameter: 8.00 ± 0.20 mm

Cable Construction

Cable Type: Twisted pair

Cable Jacket: PUR

Wire Size: 22 AWG

Jacket Material: PUR

Inner Material Insulation: PE insulation

Shield Type: PETP/AV Foil, Tinned Copper braid 65%

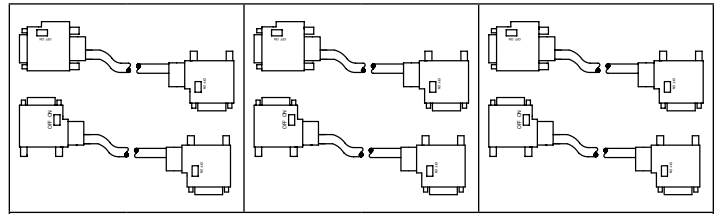
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m

C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s

Bend Radius: 7.5 x cable diameter (static)

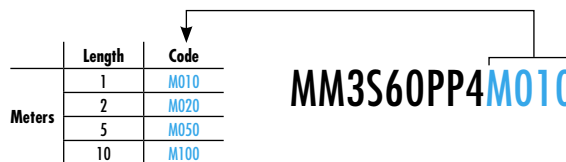


| Face View (Male) | Max. Current per Contact | Max. Voltage | Length | Configuration (D-Sub) | Configuration (D-Sub) | | | | | |
|---|--------------------------|--------------|--------|-----------------------|-----------------------|--------------------|-----------------|--------------------|--------------------------------|--------------------|
| | | | | | Horizontal | | Vertical | | Vertical with Programming Port | |
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Not used 6 - Not used 2 - Not used 7 - Not used 3 - Red (Bus B) 8 - Green (Bus A) 4 - Not used 9 - Not used 5 - Not used</p> | 4.0A | 250V AC/DC | 1.0m | Horizontal | MM3S60PP4M010 | 120098-0198 | MM3S62PP4M010 | 120098-0200 | MP3S62PP4M010 | 120098-0199 |
| | | | | Vertical | MM3S62PP4M010 | 120098-0200 | MM3S63PP4M020 | 120098-0120 | MP3S63PP4M020 | 120098-0122 |

Note: Sales drawings for all standard order numbers are available on molex.com

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® D-Sub-to-(2) D-Sub Connectors Double-Ended Cordsets

120098

Horizontal, Vertical
Vertical with Programming Ports



Features and Benefits

- PUR jacketed for chemical and oil resistance
- D-Sub connector enables interface card connection
- D-Sub connector provides termination circuitry
- D-Sub includes termination switch for field installation flexibility

Mechanical

Material: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP40

Cable

Outside Diameter: 8.00 ± 0.20 mm

Cable Construction

Cable Type: Twisted pair

Cable Jacket: PUR

Wire Size: 22 AWG

Jacket Material: PUR

Inner Material Insulation: PE insulation

Shield Type: PETP/AV Foil, Tinned Copper braid 65%

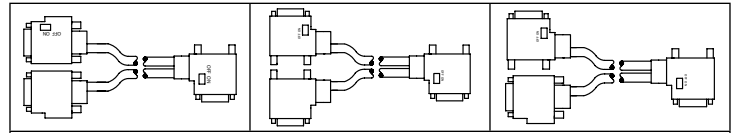
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m

C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s

Bend Radius: 7.5 x cable diameter (static)



| Face View (Male) | Max. Current per Contact | Max. Voltage | Length | Configuration (D-Sub) | Configuration (D-Sub) | | | | | |
|---|--------------------------|--------------|--------|--------------------------------|-----------------------|--------------------|-----------------|--------------------|--------------------------------|--------------------|
| | | | | | Horizontal | | Vertical | | Vertical with Programming Port | |
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - Not used 6 - Not used 2 - Not used 7 - Not used 3 - Red (Bus B) 8 - Green (Bus A) 4 - Not used 9 - Not used 5 - Not used</p> | 4.0A | 250V AC/DC | 1.0m | (2) Horizontal | MM3G60PP4M010 | 120098-0204 | | | MP3G62PP4M010 | 120098-0206 |
| | | | | (2) Vertical | MM3G61PP4M010 | 120098-0207 | | | MP3G63PP4M010 | 120098-0209 |
| | | | | (1) Horizontal (1) Vertical | MM3G70PP4M010 | 120098-0211 | MM3G72PP4M010 | 120098-8035 | MP3G72PP4M010 | 120098-0213 |

Note: Sales drawings for all standard order numbers are available on molex.com

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

MM3G60PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Micro-Change® (M12)-to-D-Sub Double-Ended Cordsets

120098

Micro-Change Male Straight/Right
Angle-to-D-Sub
Micro-Change Female Straight/
Right Angle-to-D-Sub
Threaded



Features and Benefits

Double-Ended Cordset

- Double ended straight and 90°
- Used in a variety of configurations where a complete daisy-chain plug-and-play solution is desired

D-Sub Cordset

- Shielded D-Sub connector maintains signal integrity in noisy environments
- D-Sub includes termination switch for field installation flexibility
- Plug and play connection between PROFIBUS interface cards and modules
- D-Sub to single or dual-ended M12
- Horizontal, vertical, straight or 90° configurations
- Standard and application specific lengths

Physical

Brad Micro-Change Connector

Connector Face: Nylon 6/6
Molded Body: PUR
Coupling Nut: Nickel-plated Brass (360° Shielded)
Operating Temperature: -20 to +80° C

9-pin D-Sub Connector

Material: ABS
Operating Temperature: 0 to 60° C

Environmental

Brad Micro-Change Connector

Protection: IP67
NEMA Rating: NEMA 6
Operating Temperature: -20 to +80° C

9-pin D-Sub Connector

Protection: IP40
Operating Temperature: 0 to 60° C

Cable

Outside Diameter: 8.00 ± 0.20mm

Cable Construction

Cable Type: Twisted pair
Cable Jacket: PUR
Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: PETP/AV foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s
Bend Radius: 7.5 x cable diameter (static)

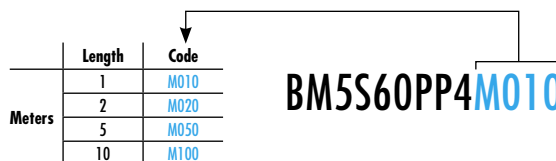
Electrical

Voltage: 250V AC/DC max.
Current: 4.0A max.

| Pole (Female View) | Wire Size AWG | Length | Configuration (D-Sub) | Male Straight | | Male Right Angle | | Female Straight | | Female Right Angle | |
|--|------------------|--------|--------------------------------|-----------------|--------------------|------------------|--------------------|-----------------|--------------------|--------------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>5 Pole 1 - Not used 4 - Red 2 - Green (Bus B) 3 - Not used 5 - Shield</p> | 22 | 1.0m | Horizontal | BM5S60PP4M010 | 120098-0062 | BM5S61PP4M010 | 120098-0223 | BM5S30PP4M010 | 120098-0155 | BM5S31PP4M010 | 120098-0184 |
| | | | Vertical | BM5S62PP4M010 | 120098-0065 | BM5S63PP4M010 | 120098-0070 | BM5S32PP4M010 | 120098-0057 | BM5S33PP4M010 | 120098-5007 |
| | | | Vertical with Programming Port | BP5S62PP4M010 | 120098-0079 | BP5S63PP4M010 | 120098-0181 | BP5S32PP4M010 | 120098-0183 | BP5S33PP4M010 | 120098-0077 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Micro-Change® (M12)-to-D-Sub Double-Ended Cordsets

120098

- (2) Straight Male-to-Micro-Change
- (2) Male Right Angle-to-Micro-Change
- (2) Female Straight-to-Micro-Change
- (2) Female Right Angle-to-Micro-Change
- (1) Male Straight, (1) Female Straight Threaded



Features and Benefits

- PUR jacketed for chemical and oil resistance
- D-Sub connector enables interface card connection
- The shielded D-Sub connector maintains signal integrity in noisy environments
- 360° shielded Micro-change head design to reduce RFI/EMI
- D-Sub includes termination switch for field installation flexibility

Micro-Change Connector

Physical

Connector Face: Nylon 6/6
Molded Body: PUR
Coupling Nut: Nickel-plated Brass (360° Shielded)
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

9-Pin D-Sub Connector

Electrical

Voltage Rating: 250V AC/DC

Mechanical

Material: ABS

Physical

Operating Temperature: 0 to 60° C

Environmental

Protection: IP40

Cable

Outside Diameter: 8.00 ±0.20mm

Cable Construction

Cable Type: Twisted pair
Cable Jacket: PUR
Wire Size: 22 AWG
Jacket Material: PUR
Inner Material Insulation: PE insulation
Shield Type: PETP/AV Foil, Tinned Copper braid 65%
Conductor: Twisted pair 22 AWG

Cable Flex Information

Torsion: Survived more than 2 million cycles at 360° over 1.0m
C-Track: Survived more than 3 million cycles at acceleration of 10.0m/s² and process speed of 5.0m/s
Bend Radius: 7.5 x cable diameter (static)

| Face View (Male) | Max. Current per Contact | Max. Voltage | Configuration (D-Sub) | Micro-Change (M12) Connection | | | | | |
|------------------|--------------------------|--------------|-----------------------|-----------------------------------|--------------------|--------------------------------------|--------------------|-------------------------------------|--------------------|
| | | | | (2) Straight Male-to-Micro-Change | | (2) Male Right Angle-to-Micro-Change | | (2) Female Straight-to-Micro-Change | |
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | Horizontal | BM5G60PP4M010 | 120098-0150 | BM5G61PP4M010 | 120098-0151 | BM5G30PP4M010 | 120098-0190 |
| | | | Vertical | BM5G62PP4M010 | 120098-0186 | BM5G63PP4M010 | 120098-0188 | BM5G32PP4M010 | 120098-0192 |

| Face View (Male) | Max. Current per Contact | Max. Voltage | Configuration (D-Sub) | Micro-Change (M12) Connection | | | |
|------------------|--------------------------|--------------|-----------------------|--|--------------------|--|--------------------|
| | | | | (2) Female Right Angle-to-Micro-Change | | (1) Male Straight, (1) Female Straight | |
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | Horizontal | BM5G31PP4M010 | 120098-0194 | BM5G70PP4M010 | 120098-0048 |
| | | | Vertical | BM5G33PP4M010 | 120098-0196 | BM5G72PP4M010 | 120098-0051 |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

BM5G60PP4M010

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Mini-Change® Auxiliary Power A-Size Double-Ended Cordsets

130010
Internal Thread Female
External Thread Male
Straight, Right Angle



Features and Benefits

- Patented QuadBeam™ contact design for reliability and low resistance
- Flex-rated TC-ER cable

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 16 AWG

Physical

Connector Face: PVC
Connector Body: PVC
Contact: Brass with Gold over Nickel plating
Coupling Nut: Black epoxy-coated Zinc
Cable Jacket Color: Yellow
Cables: K12 and K13—UL Type TC-ER, Flex rated
A38 and A01—UL Type STOOW, extra hard service cord

Environmental

Protection: IP67

| Poles (Female View) | Current | Wire Cable Type | Cable Jacket (Cable Code) | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|---------|-----------------|------------------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 8.0A | TC-ER | TPE (K13) | 2.0m | 115030K13M020 | 130010-0103 | 115033K13M020 | 130010-0119 |
| | | STOOW | PVC (A01) | | 115030A01M020 | 130010-1256 | 115033A01M020 | 130010-1303 |

Note: Sales drawings for all standard order numbers are available on molex.com

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

115030K13M0201

Coupling Nut Option
Stainless Steel 1

Cable Code
Orientation Code
Straight female-to-straight male 030
Right angle female-to-straight male . . . 031
Straight female-to-right angle male . . . 032
Right angle female-to-right angle male 033

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* Brad® Mini-Change® Auxiliary Power A-Size Receptacles

130013
Female
Internal Thread



Features and Benefits

- Patented Quad Beam™ contact design for reliability and low resistance

Reference Information

UL File No.: E152210

Electrical

Voltage: 600V AC/DC

Mechanical

Wire Size: 16 AWG

Wire Type: UL 1015

Physical

Connector Face: PVC

Shell: Anodized Aluminum

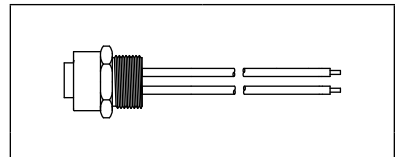
Contact: Brass with Gold over Nickel plating

Mounting Thread: 1/2" - 14 NPT

Operating Temperature: -20 to +105° C

Environmental

Protection: IP67



| Poles (Female View) | Current | Length | Engineering No. | Standard Order No. |
|------------------------|---------|--------|-----------------|--------------------|
| | 8.0A | 6.0' | 1R5000A20F060 | 130013-0423 |

Note: Sales drawings for all standard order numbers are available on molex.com

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Inches | 12 | A120 |
| Feet | 6 | F060 |
| Meters | 2 | M020 |

Coupling Nut Option
Stainless Steel..... 1

1R5000A20F0601

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS*
Brad® Mini-Change®
Auxiliary Power
Field Attachable Connectors
130017



Features and Benefits

- Patented Quad Beam™ contact provides high reliability

Reference Information

CSA File No.: LR6837

Electrical

Current: 8.0A max.
 Voltage: 600V AC/DC

Mechanical

Wire Size: 15 to 24 AWG

Physical

Connector Face: Polyurethane
 Connector Body: Nylon
 Contact: Brass with Gold over Nickel plating
 Coupling Nut: Nickel-plated Brass
 Cable Diameter: 5.08-11.43mm (.200-.450")
 Operating Temperature: -20 to +80° C

Environmental

Protection: IP67

| Poles (Female View) | Coupling Type | Female Straight | | Male Straight | |
|------------------------|---------------|-----------------|--------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | Internal Threads | 1A5000-34 | 130017-0023 |
| External Threads | | | | 1A5006-34 | 130017-0029 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *PROFIBUS is a trademark of PROFIBUS International

PROFIBUS* Brad® Mini-Change® Auxiliary Power Tap Tee

120101
Data Line



Features and Benefits

- Phosphor bronze contacts for high reliability
- Can be connected directly to a Brad PROFIBUS I/O module
- Allows you to drop power from the main power trunk

Electrical

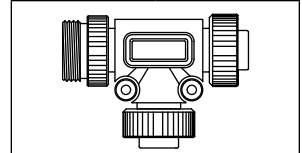
Voltage Rating: 600V
Amperage: 8.0A
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Nickel

Physical

Connector Face: Thermo Plastic Elastomer
Molded Body: Thermo Plastic Elastomer
Coupling Nut: Zinc die-cast, Black e-coat
Operating Temperature: -4 to +176° F (-20 to +80° C)

Environmental

Protection: IP67



| Poles | Code | Wiring Schematic | Engineering No. | Standard Order No. |
|---------------|---|------------------|-----------------|--------------------|
| <p>5 Pole</p> | <p>1 - Output Power V- 2 - Bus/Input Power V- 3 - Earth Ground 4 - Bus/Input Power V+ 5 - Output Power V+</p> | | PBAPT | 120101-0001 |
| <p>5 Pole</p> | | | | |
| <p>5 Pole</p> | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*PROFIBUS is a trademark of PROFIBUS International

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* (M12) Auxiliary Power Brad® Ultra-Lock® and Micro-Change® Single-Ended Cordsets (US)

120065/120079
Female, Pigtails
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM2661
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | 805000A09M020 | 120065-0471 | 805001A09M020 | 120065-1697 |
| | | | PLTC-ER | TPE (K03) | 18 | | 805000K03M020 | 120065-1367 | 805001K03M020 | 120065-1720 |

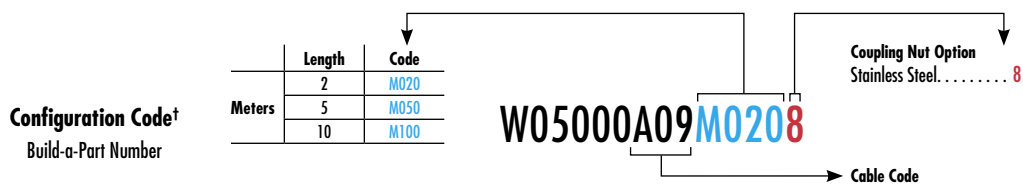
Ultra-Lock

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight | | Female Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 2.0m | W05000A09M020 | 120079-0109 | W05001A09M020 | 120079-0223 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*PROFIBUS is a trademark of PROFIBUS International



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* (M12) Auxiliary Power Brad® Micro-Change® and Ultra-Lock® Double-Ended Cordsets (US)

120065/120079

Female Straight-to-Male Straight,
Female Right Angle-to-Male Right
Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: A09—Yellow PVC jacket, 22 AWG PVC conductors, 300V, UL AWM 2661
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | 885030A09M010 | 120066-0427 | 885033A09M010 | 120066-1634 |
| | | | PLTC-ER | TPE (K03) | 18 | | 885030K03M010 | 120066-1034 | 885033K03M010 | 120066-1421 |

Ultra-Lock

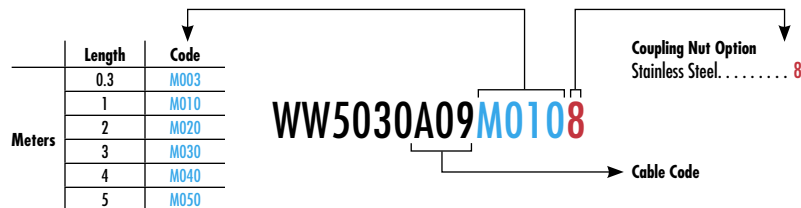
| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size AWG | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 22 | 1.0m | WW5030A09M010 | 120080-0325 | WW5033A09M010 | 120080-0431 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* (M12) Auxiliary Power Brad® Micro-Change® and Ultra-Lock® Single-Ended Cordsets (Europe)

120065/120079
Female Pigtail
Straight, Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - TPE cables for continuous-flex applications. Also ideal for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Yellow PVC jacket, 0.34mm² PVC conductors, 300V, UL AWM 2464
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|---------------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (E03) | 0.34mm ² | 2.0m | 805000E03M020 | 120006-0634 | 805001E03M020 | 120006-0652 |
| | | | PLTC-ER | TPE (K03) | 18 AWG | | 805000K03M020 | 120065-1367 | 805001K03M020 | 120065-1720 |

Ultra-Lock

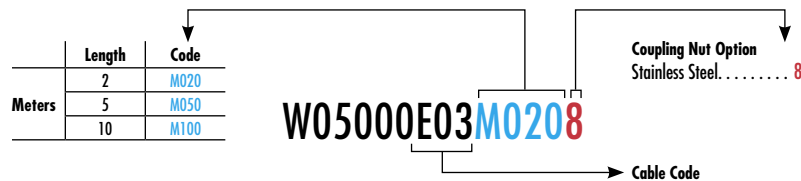
| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight | | Female Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|---------------------|--------|-----------------|--------------------|--------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (E03) | 0.34mm ² | 2.0m | W05000E03M020 | 120079-0277 | W05001E03M020 | 120079-0281 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* (M12) Auxiliary Power Brad® Micro-Change® and Ultra-Lock® Double-Ended Cordsets (Europe)

120065/120079

Female Straight-to-Male Straight,
Female Right Angle-to-Male
Right Angle



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant cordset assemblies
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Wide selection of cables to fit applications
 - PVC cables for light, cost-sensitive industrial applications
 - for welding cells, cable is weld slag resistant
 - Other versions available

Reference Information

UL File No.: E152210
CSA File No.: LR6837

Physical

Connector Body: PUR (TPE for K03)
Contact Carries: Polyamide
O-ring: Viton® (EPDM for A09 cables)
Coupling Nut: Nickel-plated Brass (Teflon® coated for K03)
Contacts: Copper alloy with Gold over Nickel plating
Cables: E03—Yellow PVC jacket, 0.34mm² PVC conductors, 300V, UL AWM 2464
K03—Yellow TPE jacket, 18 AWG PVC conductors, 300V, UL PLTC-ER, +5M flex life (torsion and bending)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|---------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 0.34mm ² | 1.0m | 885030E03M010 | 120007-0906 | 885033E03M010 | 120066-5402 |
| | | | PLTC-ER | TPE (K03) | 18 AWG | | 885030K03M010 | 120066-1034 | 885030K03M010 | 120066-1034 |

Ultra-Lock

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket (Cable Code) | Wire Size | Length | Female Straight-to-Male Straight | | Female Right Angle-to-Male Right Angle | |
|------------------------|-----------------------------|--------------|------------|------------------------------|---------------------|--------|----------------------------------|--------------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | UL 2661 | PVC (A09) | 0.34mm ² | 1.0m | WW5030E03M010 | 120080-5076 | WW5033E03M010 | 120080-5081 |

Note: Sales drawings for all standard order numbers are available on molex.com.

Teflon® and Viton® are registered trademarks of E.I. DuPont De Nemours and Company.

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code[†]
Build-a-Part Number



[†]Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* (M12) Auxiliary Power Brad® Ultra-Lock® and Micro-Change® Receptacles (US)

120084/120070

Female
Pigtail
Straight
Front Panel Mount
Bulkhead Pass-Through



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant panel mount receptacles
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Fully potted assemblies provide IP67/68 protection for harsh environments

Physical

Shell: Nickel-plated Brass
Contact Carries: Polyamide
O-Ring: M12—Red Viton®
Panel—Black Viton
Contacts: Copper alloy with Gold over Nickel plating
Wire: PVC insulation 300V, 80° C, UL1061
3 to 5 poles—22 AWG

Environmental

Protection: IP67
NEMA Rating: NEMA 6

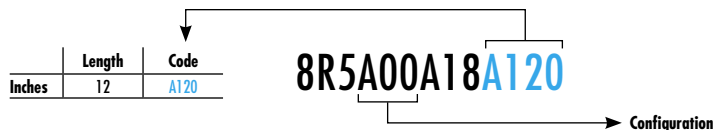
| Poles | Max. Current per Contact | Max. Voltage | Micro-Change (M12), 1/4"-18 NPT, Front Panel Mount | | Ultra-Lock Enabled, 1/2"-14 NPT, Front Panel Mount | | Micro-Change (M12), Bulkhead Pass-thru Receptacle | |
|---|--------------------------|--------------|--|--------------------|--|--------------------|---|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5 Pole 1 - Brown 4 - Black 2 - White 5 - Grey 3 - Blue | 4.0A | 250V AC/DC | 8R5A00A18A120 | 120070-0201 | WR5000A18A120 | 120084-0016 | 8R5L30 | 120070-0237 |
| Configuration | | | Micro-Change (M12), 1/4"-18 NPT, Front Panel Mount | | Ultra-Lock Enabled, 1/2"-14 NPT, Front Panel Mount | | Micro-Change (M12), Bulkhead Pass-thru Receptacle | |
| Wire Type | | | PVC leads, UL1061 | | PVC leads, UL1061 | | N/A | |
| Wire Size AWG | | | 22 | | 22 | | N/A | |
| Length | | | 12" | | 12" | | N/A | |

Note: Sales drawings for all standard order numbers are available on molex.com.

Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

PROFIBUS* (M12) Auxiliary Power Brad® Ultra-Lock® and Micro-Change® Receptacles (Europe)

120070/120084

Female
Front Panel Mount
Bulkhead Pass-Through



Features and Benefits

- M12 Single Keyway (A-Coding) IEC compliant panel mount receptacles
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Fully potted assemblies provide IP67/68 protection for harsh environments

Physical

Shell: Nickel-plated Brass
Contact Carries: Polyamide
O-Ring: M12—Red Viton®
Panel—Black Viton
Contacts: Copper alloy with Gold over Nickel plating
Wire: PVC insulation 300V, 80° C, UL1061,
3 to 5 poles—22 AWG

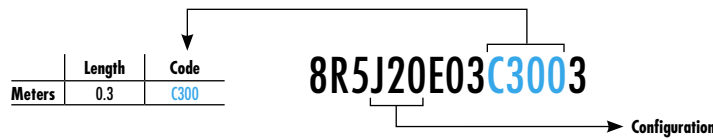
Environmental

Protection: IP67
NEMA Rating: NEMA 6

| Poles | Max. Current per Contact | Max. Voltage | Configuration | | Wire Type | | Length | |
|-------|--------------------------|--------------|--|--|---------------------|---------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | Micro-Change (M12), PG9, Front Panel Mount | Ultra-Lock Enabled, PG9, Front Panel Mount | PVC leads, UL1061 | PVC leads, UL1061 | N/A | |
| | | | | | 0.34mm ² | 0.34mm ² | | |
| | | | | | 0.3m | 0.3m | | |
| | | | | | | | | |
| | | | 8R5J20E03C3003 | 120070-5207 | WR5J20E03C3003 | 120084-5159 | 8R5L30 | 120070-0237 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.
*PROFIBUS is a trademark of PROFIBUS International

Configuration Code†
Build-a-Part Number



†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

PROFIBUS* (M12) Auxiliary Power Field Attachable Brad® Ultra-Lock® and Micro-Change® Connectors

120071/120085

Female, Male
Straight



Features and Benefits

- Allows field termination of cables to IEC compliant M12 A-Coding connector
- Preassembled contact carries with screw terminals provides easy field termination of conductors
- 5-pole version for auxiliary power to devices in PROFIBUS installations
- Back end housing and cable gland provides IP67 protection and strain relief

Physical

Connector Body: PA
Contact Carries: PA
O-ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Termination: Screw down terminals, accepts conductors up to 18 AWG (0.75mm²)

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Micro-Change

| Pole (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Male Straight | |
|-----------------------|-----------------------------|-----------------|-----------------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | 4.10-8.10mm (.161-.319") | 8A5000-32 | 120071-0043 | 8A5006-32 | 120071-0047 |

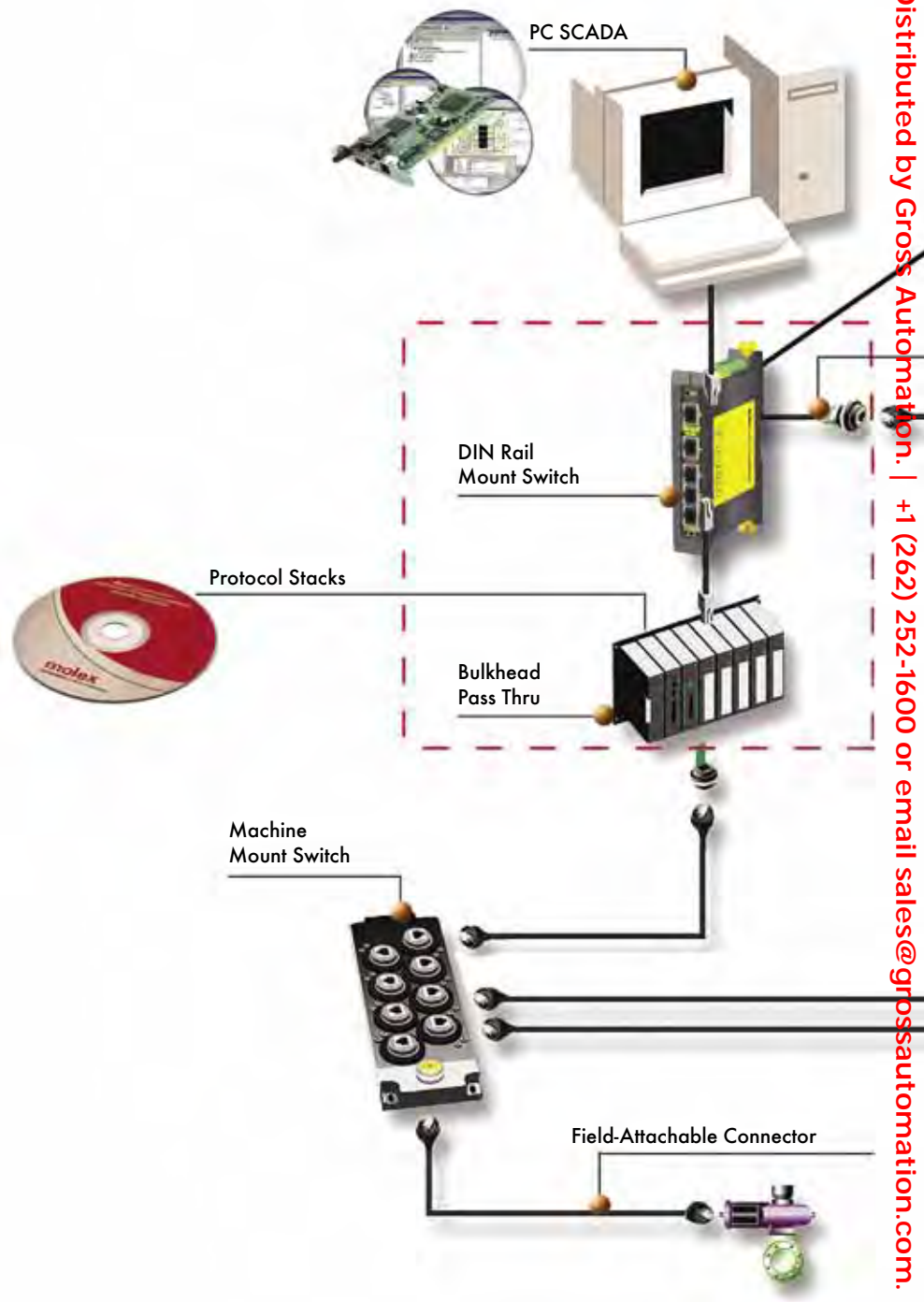
Ultra-Lock

| Pole (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Female Straight | | Male Straight | |
|-----------------------|-----------------------------|-----------------|-----------------------------|-----------------|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | 4.0A | 250V AC/DC | 4.10-8.10mm (.161-.319") | WA5000-32 | 120085-0014 | WA5006-32 | 120085-0006 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.
*PROFIBUS is a trademark of PROFIBUS International

Brad® Ethernet

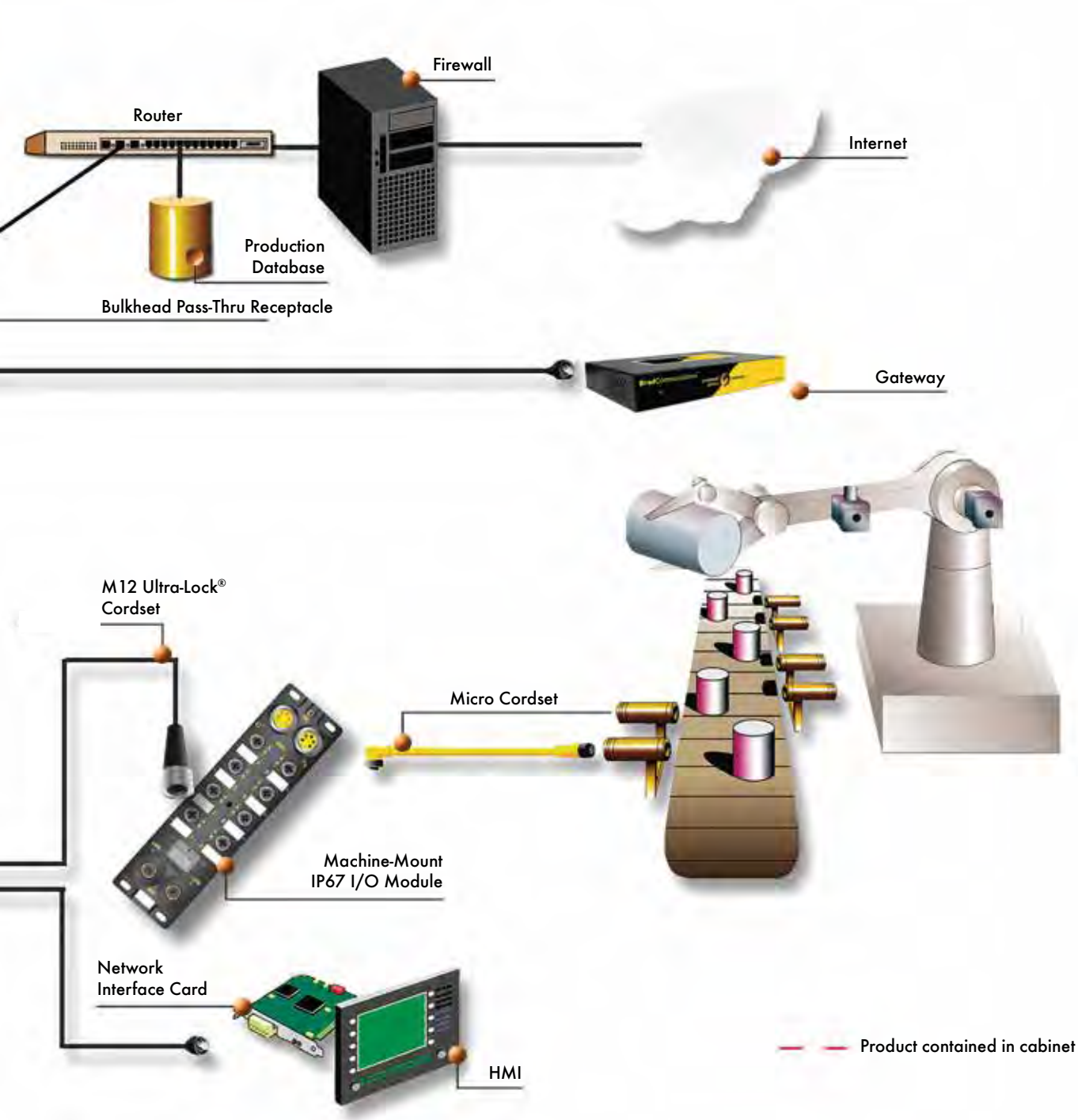
Brad ethernet products provide solutions that enable the world's most popular Local Area Network to be reliably utilized on the factory floor or in harsh commercial environments. The Brad line offers a large choice of products including physical media, IP67 I/O modules, unmanaged and managed switches, powerful network interfaces, industrial gateways and protocol development kits to connect the most popular Ethernet industrial networks and fieldbuses. Brad Ethernet products give the user a complete communication and connectivity solution to design a large scope of industrial applications—PC-Based control, supervision, data storage, protocol bridging, etc.—to suit all industry sectors.



Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad[®] Ethernet

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.



Brad® Ethernet Software Development Kit for PROFINET IO

112106

IO-Controller and IO-Device



Features and Benefits

- Master and slave protocol stacks can address both controller (master) or device (slave) manufacturers who want to implement PROFINET networks
- Brad stacks have no hardware and OS dependencies and can be easily implemented on a large range of hardware system platforms or software operating systems
- Sample applications with source codes are provided and can be quickly and easily implemented
- Brad stacks are successfully tested with PNO conformance test tools
- Molex can provide stack training, technical support and engineering development for both hardware and software design

Description

- PROFINET IO Class-A/Class-B (RT Class-1, RT Class-2)
- Portable on any real time or not operating systems implementing multithread (Windows, VxWorks, Linux, QNX, ThreadX, eCOS, etc)
- Hardware: Compatible with 32-bit microprocessors
- Multiplatform (Intel, ARM, PowerPC, Fido, Texas DSP, etc)
- Support of Intel and Motorola formats
- Consistent IO data access through shared memory (configurable or automatic) or messaging access (API)

Conformance

- Conforms to PROFINET IO specifications v2.2
- Molex is an active member of PROFINET technical working groups

Included Hardware/Software

PROFINET IO—Controller Stack

- Supported Services: Context management, configuration, IO data, alarm, and diagnostic
- Manage up to 128 IO-Devices
- Cyclic Data Exchange: Up to 1440 Input bytes and 1440 Output bytes per IO-Device slot
- IP Device Configuration: DCP or Local
- LLDP (PROFINET MIB)
- SDK initialization via XML file
- CD Deliverable: Single product line licensing (with royalties), ANSI C source code, electronic documentation, application samples

PROFINET IO Device Stack

- IO Data: Up to 1440 Input bytes and 1440 Output bytes per IO-Device slot
- GSD File: Yes
- IP Device Configuration: DCP or Local
- LLDP (PROFINET MIB)
- Allows design of fixed and modular device

OEM Engineering Console

- Generate IO-Controller stack configuration files (XML format)
- Automatic IO-Device network detection including module configuration
- GSD device library management
- IO-Device commissioning (Set Name, Device blinking, etc.)
- Integrated diagnostic
- Windows 32-bit (XP,Vista)
- OEM customization
- USB dongle protection

MRP Client/Manager Stack

- Manage media redundancy for Ethernet ring topology according PROFINET Class-B
- CD Deliverable: Single product line licensing (no royalty), ANSI C source code, electronic documentation
- Does not include PNO MRP patent

Ordering Information

| Description | Engineering No. | Standard Order No. |
|---|-------------------|--------------------|
| PROFINET IO-Device Software Development Kit | SDK-PFN-DEV | 112106-5001 |
| PROFINET IO-Device SDK Maintenance Update | SDK-PFN-DEV-UPD | 112106-5002 |
| PROFINET IO-Controller Software Development Kit—1 License Fee included | SDK-PFN-CON | 112106-5005 |
| PROFINET IO-Controller SDK Maintenance Update | SDK-PFN-CON-UPD | 112106-5006 |
| PROFINET IO-Controller OEM Configuration Console, USB Dongle, 1 license | SDK-PFN-CON-CNF-U | 112106-5012 |
| Client/Manager Media Redundancy Protocol SDK for PROFINET IO | SDK-PFN-MRP | 112106-5007 |

Support/Training Information

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| Engineering Development Support for PROFINET stack | SDK-PFN-EDS | 860000-0142 |
| Training Support for PROFINET stack | SDK-PFN-TRN | 860000-0144 |

Brad® Ethernet Software Development Kit for EtherNet/IP*

112106

Scanner and Adapter



Features and Benefits

- Master and slave protocol stacks can address both controller (master) or device (slave) manufacturers who want to implement EtherNet/IP networks
- Brad stacks have no hardware and OS dependencies and can be easily implemented on a large range of hardware system platforms or software operating systems
- Sample applications with source codes are provided and can be quickly and easily implemented
- Brad stacks are successfully tested with ODVA conformance test tools
- Molex can provide stack training, technical support and engineering development for both hardware and software design

Description

- Portable on any real time or not operating systems implementing multithread (Windows, VxWorks, Linux, QNX, ThreadX, eCOS, etc)
- Hardware: Compatible with 32-bit microprocessors
- Multi platform (Intel, ARM, PowerPC, etc)
- Support of Intel and Motorola formats
- Consistent process data image access through messaging access (API)

Conformance

- Conforms to ODVA specifications v1.4 and CIP v3.3
- Fully compatible with EtherNet/IP Conformance Test Suite Version A7
- Molex is an active member of ODVA technical working groups

Included Hardware/Software

EtherNet/IP Scanner and Adapter

- CIP Features:
 - IO messaging (process data)
 - Explicit messaging (configuration/diagnostic)
- Supported Objects according to CIP Standard
 - Identity Object
 - Message Router Object
 - Assembly Object
 - Connection Manager Object
 - Connection Configuration Object
 - TCP/IP Interface Object
 - Ethernet Link Object
- Stack Resolution: Timing resolution in microseconds
- Application Watchdog
- Rack Optimization for best performances with PointIO and FlexIO devices
- CD Deliverable: single product line licensing (with royalties), ANSI C source code, electronic documentation, application samples

Included Hardware/Software (continued)

EtherNet/IP Adapter

- CIP Features:
 - IO messaging (process data)
 - Explicit messaging (configuration/diagnostic)
- Supported Objects according to CIP Standard
 - Identity Object
 - Message Router Object
 - Assembly Object
 - Connection Manager Object
 - Connection Configuration Object
 - TCP/IP Interface Object
 - Ethernet Link Object
- Stack Resolution: Timing resolution in microseconds
- Application Watchdog
- Generic EDS file
- CD Deliverable: single product line licensing (no royalty), ANSI C source code, electronic documentation, application samples

OEM Engineering Console

- Generate EtherNet/IP stack configuration files
- Automatic EtherNet/IP network detection including module configuration
- ESD device library management
- Device commissioning
- Integrated diagnostic
- Windows 32-bit (XP, Vista)
- OEM customization
- USB dongle protection

Ordering Information

| Description | Engineering No. | Standard Order No. |
|---|-------------------|--------------------|
| EtherNet/IP Adapter Software Development Kit | SDK-EIP-ADP | 112106-0000 |
| EtherNet/IP Adapter SDK Maintenance Update | SDK-EIP-ADP-UPD | 112106-5000 |
| EtherNet/IP Scanner/Adapter Software Development Kit—1 License Fee included | SDK-EIP-SCA | 112106-5003 |
| EtherNet/IP Scanner/Adapter SDK Maintenance Update | SDK-EIP-SCA-UPD | 112106-5004 |
| EtherNet/IP Scanner OEM Configuration Console, USB Dongle, 1 license | SDK-EIP-CON-CNF-U | 112106-5011 |

Support/Training Information

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| Engineering Development Support for EtherNet/IP stack | SDK-EIP-EDS | 860000-0141 |
| Training Support for EtherNet/IP stack | SDK-EIP-TRN | 860000-0143 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

Brad® Windows Compatible Multi-Slave Driver for PROFINET

112027
PROFINET Multi IO-Device



Features and Benefits

- Connect a PC under Windows to PROFINET controller
- Use standard Ethernet card
- Support PROFINET IO Real-Time communication
- Support multi-slave functionality on single PC by using multiple Ethernet ports
- Typical applications:
 - HMI/Operator panel
 - Workbench
 - IO simulation

Description

- Conform to PROFINET IO v2.2 specifications
- Support up to 32 IO-Device connections in a single PC
- Support PROFINET Alarms
- Engineering Tools:
 - Configuration console
 - Test and diagnostic tools
- Includes Windows Library (DLL)
- Windows (32-bit): Seven, 2008 Server, Windows Vista®, 2003 Server, Windows XP®

Included Hardware/Software

- IO Data: Up to 1440 Input bytes and 1440 Output bytes per IO-Device slot
- Automatic generation of GSD file based on user configuration ready to use in PROFINET I/O-Controller engineering software
- Allows design of fixed and modular device
- IP Device configuration: DCP or Local
- Software Protection

Conformance

- Conform to PNO conformance test tool (PN Tester)
- Molex is an active member of PROFINET technical working groups

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| Windows PROFINET Multi IO-Device Driver, Software protection key | DRL-EPN-SWF-S | 112027-5007 |

Brad® Windows Compatible Explicit Messaging Driver for EtherNet/IP*

112106
EtherNet/IP EM Driver



Features and Benefits

- Fastest and easiest solution to implement EtherNet/IP Explicit Messaging communication on PC-based systems
- User friendly library, no EtherNet/IP knowledge required
- Typical applications:
 - Engineering tool
 - Commissioning console
 - Diagnostic and Monitoring tools
 - HMI/SCADA applications
 - Custom software

Description

- EIP_Driver provides an Application Programming Interface (API) that simply send/receive buffer of data on the network with remote EtherNet/IP EM Server devices
- The EIP_Driver manages the complete CIP communication (connection/reconnection, etc) so the developer needs no special expertise in the EtherNet/IP protocol.

Included Hardware/Software

- Send and receive explicit messages
- Client mode (Server mode on request)
 - Supports connected and unconnected messages
 - Supports synchronous and asynchronous modes
- Support of List Identify service to detect all EtherNet/IP stations connected to the network
- DLL library for Windows 32-bit (Seven/XP/Vista)
 - Designed to be used in multi-threaded applications
 - Several applications can use the EIP_Driver simultaneously
- DLL library can be statically or dynamically linked with the target application
- CD Deliverable: single product line licensing (no royalty), ANSI C source code, electronic documentation, application samples

Conformance

- Fully compatible with EtherNet/IP Conformance Test Suite Version A7
- Molex is an active member of ODVA (Open DeviceNet® Vendor Association) technical working groups

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| EtherNet/IP Explicit Messaging DLL library, Client mode | SDK-EIP-EML | 112106-5008 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

Brad® Direct-Link® Windows Compatible Protocol Drivers

112027

Ethernet TCP/IP and Serial



Features and Benefits

- Direct-Link SW1000 provides data acquisition between Windows PC-based applications and industrial devices connected to Ethernet TCP/IP
- Economic solution; well suited for embedded and light architecture (laptop, panel PC, MMI)
- 100% software solution; use PC COM port or integrated Ethernet interface (3COM, NE2000)
- Wide variety of open and vendor specific industrial protocols
- 1000 tags, full tags and Siemens (S5, S7, TI) versions

Description

- Based on Windows TCP/IP socket
- All Ethernet protocols can run simultaneously
- All Ethernet protocols can run Client and Server modes
- Database (32 Kbits, 32 Kwords) for Server mode to exchange data with applications

Included Hardware/Software

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware I/O (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Windows Compatibility (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®
- Software or dongle (Parallel or USB) protection

Compatible Protocols

Ethernet TCP/IP

- Altus® Alnet II (AL200x, webgate); Client/Server
- Alstom® SRTP (C80-35, C80-75); Client/Server
- Allen-Bradley® Logix5000 (ControlLogix and FlexLogix); Client/Server
- GE Fanuc® SRTP (C90-30, C90-70); Client/Server
- Mitsubishi® Melsec (A and Q); Client/Server
- Omron® FINS (C, CV, CS); Client/Server
- Schneider® Modbus TCP and UDP; Client/Server
- Schneider UNI-TE (Premium and Micro); Client/Server
- Siemens® Industrial Ethernet (S5, S7, TI); Client/Server

Serial

- Modbus Master (ASCII and RTU)
- Modbus Slave (ASCII and RTU)
- GE Fanuc SNPX Master (90-xx and 80-xx Series)
- Schneider Uni-Telway Slave (TSX 7 Series)
- Siemens AS511 Master (Simatic S5 Series)
- Siemens PPI/PPI+ Master (Simatic S7-200 Series)
- Siemens Ti-Dir Master (Simatic TI-505 Series)

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| SW1000 software drivers, 1000 tags, Software key protection. | DRL-ALL-SWL-S | 112027-0005 |
| SW1000 software drivers, Full tags, Software key protection. | DRL-ALL-SWF-S | 112027-0002 |
| SW1000 for Siemens (S5, S7, TI), Full tags, Software key protection. | DRL-SIE-SWF-S | 112027-5014 |
| SW1000 software drivers, 1000 tags, USB dongle protection | DRL-ALL-SWL-U | 112027-0006 |
| SW1000 software drivers, Full tags, USB dongle protection | DRL-ALL-SWF-U | 112027-0003 |
| SW1000 for Siemens (S5, S7, TI), Full tags, Software key protection. | DRL-SIE-SWF-U | 112027-5015 |
| SW1000 upgrade from 1000 tags to Full tags | DRL-UPG-SWF | 112027-0010 |

Brad® applicom® Network Interface Card

112000 Industrial Ethernet



Features and Benefits

- Fast data acquisition between PC-based applications and industrial devices connected to Ethernet TCP/IP
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- All protocols are included
- Best choice for Supervision/HMI/SCADA applications
- Equipment redundancy via OPC server
- Combo offer:
 - Ethernet + PROFIBUS (1.5 Mbps)
 - Ethernet + Serial (38.4 Kbps)

Description

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): Seven, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- Hardware plug and play
- AMD SCS20
- 16 Mb SDRAM
- 4 Mb Flash Memory
- One Ethernet port
 - Fast Ethernet 10/100 Mbps, auto negotiating
 - Base-T (RJ45), 4 LEDs (Rx, Tx, Link, 10/100)

Compatible Protocols

Ethernet TCP/IP (Client/Server modes)

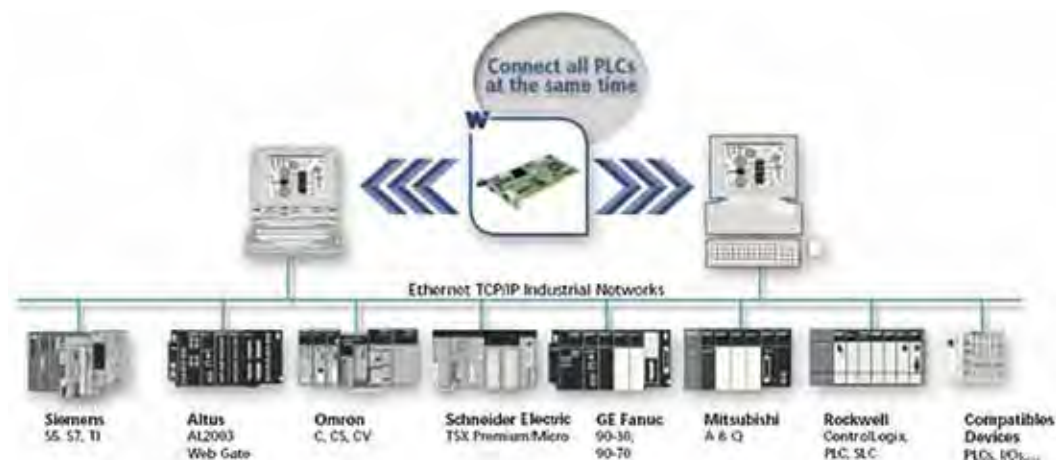
- Altus® Alnet II (AL 200x, Webgate)
- Alstom® SRTP (C80-35, C80-75)
- Allen-Bradley® EtherNet/IP* (PCCC) (Logix, PLC-5 and SLC 500)
- GE Fanuc® SRTP (90-30, 90-70)
- Mitsubishi® Melsec (A, Q)
- Omron® FINS (C, CV, CS)
- Schneider Electric® Open Modbus TCP
- Schneider Electric UNI-TE (Premium and Micro)
- Siemens® Industrial Ethernet (S5, S7, TI)
- UDP Send/Receive (Free messaging)

Ethernet ISO

- Schneider Electric® Ethway
- Siemens® Industrial Ethernet ISO (S5, S7, TF and TI)

Conformance

- RoHS compliant
- CE
- OPC certified
- Rockwell Encompass™
- Schneider Collaborative



| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCU2000ETH PCI Network Interface Card for Ethernet | APP-ETH-PCU-C | 112000-0005 |
| PCIE2000ETH PCI Express Network Interface Card for Ethernet | APP-ETH-PCIE | 112000-5026 |
| PCU2000ETH PCI Network Interface Card for Ethernet + Profibus | APP-EPB-PCU-C | 112000-0001 |
| PCIE2000ETH PCI Express Network Interface Card for Ethernet + Profibus | APP-EPB-PCIE | 112000-5028 |
| PCU2000ETH PCI Network Interface Card for Ethernet + Serial | APP-ESR-PCU-C | 112000-0003 |
| PCIE2000ETH PCI Express Network Interface Card for Ethernet + Serial | APP-ESR-PCIE | 112000-5027 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

Brad® applicom® Network Interface Card

112000
Ethernet Fieldbus



Features and Benefits

- Deterministic data acquisition for real time PC-based control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very Easy-to-Use; no knowledge of protocol required
- Remote Access via TCP/IP connection; to able configuration and diagnostic when using real time OS (VxWorks, QNX, etc.)

Description

- Auto mapping of IO in card DPRAM
- IO exchange up to 14 Kbytes
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer
 - Wonderware IO (SuiteLink/FastDDE)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- PCI Universal bus 3.3V/5V (PCI-X compatible)
- Hardware plug and play
- AMD SC520
- 16 Mb SDRAM; 4 Mb Flash Memory
- 1 Digital Input + 1 Digital Output
- 1 Ethernet port
 - Fast Ethernet 10/100 Mbps, auto negotiating
 - Base-T (RJ45), 4 LEDs (Rx, Tx, Link, 10/100)

Compatible Protocols

Modbus TCP and UDP

- Client mode
- Up to 127 simultaneous devices

Compatible Protocols (continued)

EtherNET/IP*

- Scanner and adapter
- Explicit messaging (Client/Server)
- Up to 128 simultaneous CIP connections
- EtherNet/IP Devices supported: Generic and Rockwell IO through EDS files (FlexIO, CompactLogix, etc.)
- IP address settings configurable via the console or DHCP/BOOTP server
- Client DNS Supported

PROFINET IO-Controller

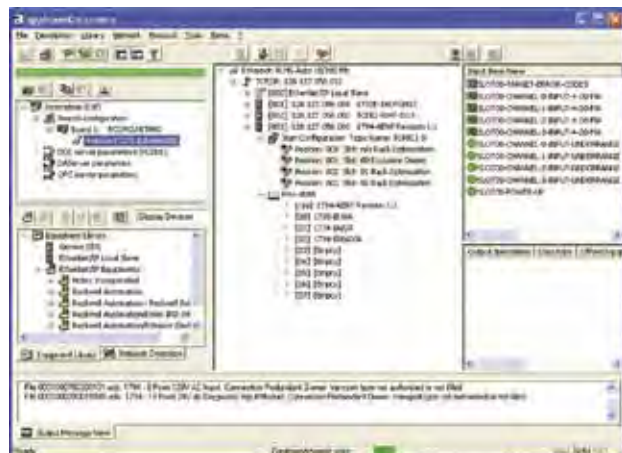
- RT Class-1
- Up to 127 IO-Devices; max. IO size 14K
- Cyclic Data Exchange (IO); up to 1437 In and 1437 Out per device
- Acyclic Data Exchange (for Configuration + Diagnostic)
- Minimum cycle time 1 ms
- Alarm handling
- IP Address manager
- Commissioning tool (set name, set IP address, device blinking, etc.)

PROFINET IO-Device

- RT Class-1
- Up to 1437 In and 1437 Out; 1 slot for Inputs + 1 slot for Outputs
- Instructions and Maintenance 0, 1, 2, 3
- 1x Record for user custom diagnostics
- Process and Diagnostic Alarm
- GSD file

Conformance

- RoHS compliant
- CE
- OPC certified
- ODVA conformance tested
- Rockwell Encompass™



Configuration Console



Device Diagnostics

| Description | Engineering No. | Order No |
|--|-----------------|-------------|
| PCU-ETHIO PCI Network Interface Card for Modbus TCP/IP | DRL-EMB-PCU | 112000-5029 |
| PCU-ETHIO PCI Express Network Interface Card for Modbus TCP/IP | DRL-EMB-PCIE | 112000-5034 |
| PCU-ETHIO PCI Network Interface Card for EtherNet/IP | DRL-EIP-PCU | 112000-5030 |
| PCU-ETHIO PCI Express Network Interface Card for EtherNet/IP | DRL-EIP-PCIE | 112000-5033 |
| PCU-ETHIO PCI Network Interface Card for PROFINET IO | DRL-EPN-PCU | 112000-5031 |
| PCU-ETHIO PCI Express Network Interface Card for PROFINET IO | DRL-EPN-PCIE | 112000-5032 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

Brad® SST™ Communication Module for Rockwell® ControlLogix

112073
Modbus TCP and Serial



Features and Benefits

- Connects your Allen-Bradley® ControlLogix to a Modbus Ethernet or Serial network
- Direct IO Mapping, no Ladder Logic to write for configuration and data transfer between module and CLX processor
- Fully integrated into the Rockwell Automation environment
- User-friendly configuration tool with intuitive graphical interface

Description

- RLL support: remote configuration and monitoring via RSLinx
- Add-On-Profile for Rockwell RSLogix5000
- USB port for user configuration and firmware upgrade
- Engineering console simplified user configuration and diagnostic
- Support multiple modules in a chassis
- Support Local and Remote chassis
- Easy diagnostics: Built-in LEDs and 4 characters display

Included Hardware/Software

- 128 MB of onboard memory
- 8 MB of flash memory (user configuration data and firmware)
- CPU Data exchange:
 - 496 Inputs bytes + 496 Output bytes
 - 32,000 Words Registers (CIP messaging)
- Type A, USB 2 and 1.1 compatible
- Communication Ports
 - 1x Ethernet, 10/100 Mbps, RJ45
 - 2x Serial, 110 bps to 115.2 kbps, RS232/RS485/RS422, RJ45 (DB9 male supplied cable)

Compatible Protocols

- Modbus Master (RTU or ASCII)
- Modbus Slave (RTU or ASCII)
- Modbus TCP and UDP Client and Server

Conformance

- RoHS compliant
- CE, UL, cUL
- Class 1 Div 2
- Rockwell Encompass™

| Description | Engineering No. | Standard Order No. |
|---|------------------|--------------------|
| Modbus communication module for Rockwell ControlLogix | SST-ESR2-CLX-RLL | 112073-0001 |

Brad® HarshIO 600

112095

Digital IP67 IO module



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments.
- Accepts M12 threaded connectors or Brad Ultra-Lock® Push-Pull connection system
- Standard hole housing pattern allows for interchangeability with popular IO modules
- User configurable versions; user can set up each digital channel as either an input or output
- Scrolling 4 characters and visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- Sixteen digital input/output per module
- Supports PNP and NPN input devices
- IP addressing via BootP, DHCP or static (through web interface, push button and PLC Scanner command)
- Built-in 2-port Ethernet switch for daisy chain topology
- Configurable IO capability (through web interface and PLC Scanner commands)
- Watchdog with output reply state
- Built-in web server for remote configuration and diagnostics

Compatible Protocols

- Modbus TCP and UDP Server
- EtherNet/IP* Adapter
- PROFINET IO-Device

Conformance

- IP67 according to IEC 60529
- NEMA 6P
- Vibration: MIL-STD-202F, method 204D, condition A
- Mechanical Shock: MIL-STD-202F, method 213B, condition B
- Thermal Shock: MIL-STD-1344A
- CE, UL, cUL
- RoHS compliant
- ODVA certified
- PNO certified

Included Hardware/Software

- IO Configurations:
 - 16 inputs
 - 14 inputs + 2 outputs
 - 12 inputs + 4 outputs
 - 8 inputs + 8 outputs
 - Universal
 - User configurable
- IO Connectors: 8x M12 ports, Ultra-Lock M12 female 5-pole, internally threaded
- Ethernet Connectors: Ultra-Lock M12 female, 4-pole D-Coded acting as a switch, crossover capability
- Power Connectors:
 - Power In—Male Mini-Change®, 4- or 5-pole
 - Power Out—Female Mini-Change, 4- or 5-pole
- Power Requirements:
 - Module Input Power—24V DC
 - Module Output Power—24V DC, 2.0A max. per channel, 8.0A max. per module
- Communication Rate: 10/100 Mbps auto-sensing, auto-crossing, half/full duplex
- Input Type:
 - Compatible with dry contact and PNP or NPN 3-wire switches.
 - Electronic short circuit protection
- Input Delay: 2.5ms default or configurable (through web interface and PLC Scanner commands)
- Input Device Supply: 200mA per port at 25° C
- Output Load Current: 2.0A max. per channel, electronic short circuit protection
- Maximum Switching Frequency: 200 Hz
- Housing Dimensions: 60.00 by 220.00 by 20.00mm (2.36 by 8.66 by .78")
- Mounting Dimensions:
 - 37.50mm (1.48") horizontal on centers
 - 210.00mm (8.27") vertical on centers
 - Center hole
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

Modbus TCP

| No. of Power Pins | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|-------------------|----------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 16 | | NPN | TCDEM-8D0N-D1U | 112095-0007 |
| 5 | 14 | 2 | NPN | TCDEM-8C2N-D1U | 112095-0005 |
| 5 | 12 | 4 | NPN | TCDEM-8B4N-D1U | 112095-0003 |
| 5 | 8 | 8 | NPN | TCDEM-888N-D1U | 112095-0001 |
| 5 | 16 | | PNP | TCDEM-8D0P-D1U | 112095-0008 |
| 5 | 14 | 2 | PNP | TCDEM-8C2P-D1U | 112095-0006 |
| 5 | 12 | 4 | PNP | TCDEM-8B4P-D1U | 112095-0004 |
| 5 | 8 | 8 | PNP | TCDEM-888P-D1U | 112095-0002 |
| 5 | 16 User Configurable | | User Configurable | TCDEM-8YXX-D1U | 112095-0009 |
| 4 | 16 | | NPN | TCDEM-8D0N-DYU | 112095-5021 |
| 4 | 14 | 2 | NPN | TCDEM-8C2N-DYU | 112095-5022 |
| 4 | 12 | 4 | NPN | TCDEM-8B4N-DYU | 112095-5023 |
| 4 | 8 | 8 | NPN | TCDEM-888N-DYU | 112095-5024 |
| 4 | 16 | | PNP | TCDEM-8D0P-DYU | 112095-5025 |
| 4 | 14 | 2 | PNP | TCDEM-8C2P-DYU | 112095-5026 |
| 4 | 12 | 4 | PNP | TCDEM-8B4P-DYU | 112095-5027 |
| 4 | 8 | 8 | PNP | TCDEM-888P-DYU | 112095-5028 |
| 4 | 16 User Configurable | | User Configurable | TCDEM-8YXX-DYU | 112095-5038 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

EtherNet/IP*

| No. of Power Pins | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|-------------------|----------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 16 | | NPN | TCDEI-8D0N-D1U | 112095-5003 |
| 5 | 14 | 2 | NPN | TCDEI-8C2N-D1U | 112095-5004 |
| 5 | 12 | 4 | NPN | TCDEI-8B4N-D1U | 112095-5005 |
| 5 | 8 | 8 | NPN | TCDEI-888N-D1U | 112095-5006 |
| 5 | 16 | | PNP | TCDEI-8D0P-D1U | 112095-5007 |
| 5 | 14 | 2 | PNP | TCDEI-8C2P-D1U | 112095-5008 |
| 5 | 12 | 4 | PNP | TCDEI-8B4P-D1U | 112095-5009 |
| 5 | 8 | 8 | PNP | TCDEI-888P-D1U | 112095-5010 |
| 5 | 16 User Configurable | | User Configurable | TCDEI-8YYX-D1U | 112095-5011 |
| 4 | 16 | | NPN | TCDEI-8D0N-DYU | 112095-5012 |
| 4 | 14 | 2 | NPN | TCDEI-8C2N-DYU | 112095-5013 |
| 4 | 12 | 4 | NPN | TCDEI-8B4N-DYU | 112095-5014 |
| 4 | 8 | 8 | NPN | TCDEI-888N-DYU | 112095-5015 |
| 4 | 16 | | PNP | TCDEI-8D0P-DYU | 112095-5016 |
| 4 | 14 | 2 | PNP | TCDEI-8C2P-DYU | 112095-5017 |
| 4 | 12 | 4 | PNP | TCDEI-8B4P-DYU | 112095-5018 |
| 4 | 8 | 8 | PNP | TCDEI-888P-DYU | 112095-5019 |
| 4 | 16 User Configurable | | User Configurable | TCDEI-8YYX-DYU | 112095-5020 |

*EtherNet/IP is a trademark of ODVA (Open Device Vendor Association)

PROFINET IO

| No. of Power Pins | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|-------------------|----------------------|--------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 16 | | NPN | TCDEP-8D0N-D1U | 112095-5029 |
| 5 | 16 | | PNP | TCDEP-8D0P-D1U | 112095-5033 |
| 5 | 14 | 2 | PNP | TCDEP-8C2P-D1U | 112095-5034 |
| 5 | 16 User Configurable | | User Configurable | TCDEP-8YYX-D1U | 112095-5037 |

Brad® Common Industrial Protocol (CIP*) Safety Software Kit (Stack)

112115/112116/112117
DeviceNet* and EtherNet/IP*
Stack Development Kits



Molex demonstrates market leadership with the comprehensive CIP* Safety Stack software solution, allowing industrial-device manufacturers to embed CIP Safety Stack technology quickly and economically within their products.

Common Industrial Protocol (CIP) Safety is a protocol extension developed by the ODVA. The CIP Safety protocol offers a set of highly-integrated safety services which leverage the underlying communications stacks of the standard CIP networks to transport data from a source to a destination. CIP Safety allows end-users to implement safety systems in a more integrated, cost-effective manner. The Molex CIP Safety Software Kit (also called Stack) is offered as a tool kit, with the stack provided as modular "C" code that is pre-tested. The software allows a manufacturer of intelligent industrial products to implement the necessary safety-application layer that enables products to comply with the CIP Safety specification (Edition 2.1) from ODVA. The CIP Safety Stack is available for both DeviceNet* and EtherNet/IP*, and both are endorsed by Rockwell Automation under the Value Added Design Partner program.

The CIP Safety Stack is approved by TÜV for SIL3 applications and it has been conformance tested using the ODVA Conformance Test. Molex can support customers that request assistance with design implementation and/or guidance through TÜV approval.

Features and Benefits

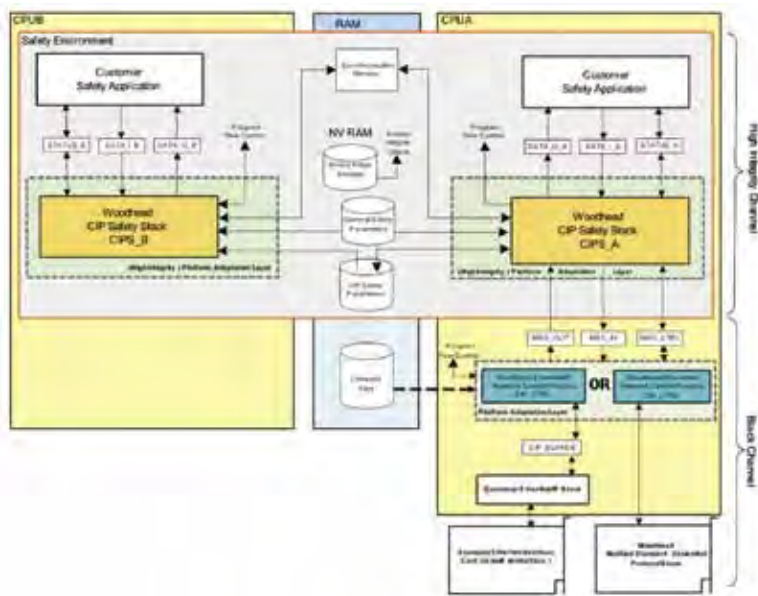
- Meets IEC 61508, SIL3 ensuring international market acceptance
- Approved by TÜV and tested by ODVA means a high-quality solution for minimal project risk and faster time-to-market
- Pre-tested modular ANSI C code is easy to compile using standard compilers; faster time-to-market
- Molex engineers can support protocol-integration requests minimizing investment required for in-house resources
- Designed for use with other Molex/Brad offerings: hardware (DN4 network interface cards), software (DeviceNet or EtherNet/IP software stacks) which results in a complete CIP communication solution

Specifications

- ANSI C code is provided for the safety portion of the Stack (Compliant with CIP Safety Specification 2.1)
- ANSI C code for black-channel components (NET_CTRL_IO)
- Interface specification for high-integrity and black-channel environments
- Safety integration manual (including safety measure requirements)
- Optionally, modified standard CIP stacks (software/firmware) for DeviceNet (Slave) or EtherNet/IP (Adapter)
- Optionally, ANSI C code for the Platform Adaptation Layers (both safety and non-safety)
- Documentation required by certification bodies (TÜV, ODVA)
- Support during certification process of vendor's final product

Markets and Applications

- Industrial Device Manufacturers
 - I/O blocks
 - Valves
 - Drives
 - Complex machines (OEM)
- End-Users
 - Automotive
 - Consumer goods
 - Heavy industries



CIP* Safety Software Stack Concept for a Slave (Adapter) Application

| Device Type | Network | Description | Engineering No. | Standard Order No. |
|-------------------|---------------------------|---|-------------------|--------------------|
| Slave | DeviceNet | Stack Development Kit (Standard Source Code) | SDK-DNS-SAF | 112115-0001 |
| | | Stack Development Kit (Source Code Obfuscation ¹) | SDK-DNS-SAF-O | 112115-0002 |
| | | Royalty (per device) | SDK-DNS-SAF-L | 112116-0001 |
| Adapter | EtherNet/IP | Stack Development Kit (Standard Source Code) | SDK-EIP-ADP-SAF | 112117-0001 |
| | | Stack Development Kit (Source Code Obfuscation ¹) | SDK-EIP-ADP-SAF-O | 112117-0002 |
| | | Royalty (per device) | SDK-EIP-ADP-SAF-L | 112116-0002 |
| Slave and Adapter | DeviceNet and EtherNet/IP | Stack Development Kit (Standard Source Code) | SDK-DEP-SAP-SAF | 112115-0003 |
| | | Stack Development Kit (Source Code Obfuscation ¹) | SDK-DEP-SAP-SAF-O | 112115-0004 |
| N/A | N/A | Engineering Support | SDK-CIP-EDS-SAF | 112115-0005 |

*CIP, DeviceNet and EtherNet/IP are trademarks of ODVA, Inc.

¹ Source code obfuscation means that the "C" code is protected, but the compiler can process it

Brad® Direct-Link® Harsh Duty Ethernet Switches

112115/112105
Series 750 (5-port) and
780 (8-port)



As our world becomes more connected, an increasing number of manufacturers and installers are specifying Ethernet devices for their harsh applications. The Brad family of rugged connectivity products is a leading product line provider of Ethernet infrastructure for Molex.

The Molex Direct-Link, harsh-duty, Ethernet switches have been developed to allow customers to convert from traditional in-cabinet to on-machine mounting, moving the switch closer to the machine and thereby reducing cabling.

The Molex Ultra-Lock® system of connectors and cordsets complete the Direct-Link Harsh-Duty Switches line.

Available in 5-port and 8-port versions, the Molex durable switches with push/pull connectors save cabling and reduce installation time and cost compared with existing cabinet installations. They provide easier system maintenance and produce a seal when connected regardless of labor skill. The connections are tested to IP67 ratings to ensure operation through dust, pressure-wash and immersion in water. Mechanical keying and radial seals eliminate the risk for operator error commonly found in other systems.

Narrow dimensions are sized to fit standard machine extrusions for easy mounting. Auto-learning features make each unit truly plug-and-play, suitable for both the novice and expert in network setup.

Operating temperature ratings of -20 to +75° C ensure that networks linked using the harsh-duty switches can run in extreme environments.

Features and Benefits

- Ultra-Lock® Connection system—faster, simpler and more secure connections than any other system on the market
- NEMA 6 and IP67 rated environmental Protection— withstands dust, pressure-wash and submersion in water
- Operating temperature -20 to +75° C enables installation in extreme temperature applications
- 30mm and 60mm formats with standard hole patterns—allows use of standard machine extrusion members
- Auto-learning with no software or configuration required—plug-and-play capabilities means less-skilled labor is able to install systems

Characteristics and Performance

Switch Type: Unmanaged (Store and Forward)
Ports: 10BaseT/100BaseTx M12
Latency (10Mb): 16µs + frame time
Latency (100Mb): 5µs + frame time
Duplex Operation: Full or half
Mounting: Screw mount
Power Input: Redundant input terminals
Input Power: 2.0W max. (DRL-750), 2.4W max. (DRL-78x)
Voltage: 9-36VDC (continuous)
Isolation: 1500 VRMS 1 minute
Dimensions: 176 x 30 x 34 (DRL-750)
220 x 60 x 37 (DRL-78x)
Weight: 230g (DRL-750)
580g (DRL-78x)

Environmental

Humidity: 5–95% RH non condensing

References

Vibration: 7g (IEC68-2-29)
Shock: 50g (IEC68-2-29)
Electrical Safety: EN61010-1 (IEC61010)
EMI Emissions: EN55011 Class A (DRL-78x),
Class B (DRL-750)
EMC Immunity: EN61326, EN61000-4-4,
EN61000-4-5,
EN61000-4-2;
8Kv contact/16Kv Air (DRL-750)
4Kv contact/8Kv Air (DRL-78x)
UL: File number pending

Physical

Operating Temperature: -20 to +75° C
Storage Temperature: -40 to +85° C

| Description | Ports (M12) | Power | Engineering No. | Standard Order No. |
|-------------------------------------|-------------|----------------------|-----------------|--------------------|
| IP67 Fast Ethernet Unmanaged Switch | 5 | M12 | DRL-750 | 112111-5001 |
| IP67 Fast Ethernet Unmanaged Switch | 8 | Mini-Change® (5-pin) | DRL-780 | 112105-5002 |
| IP67 Fast Ethernet Unmanaged Switch | 8 | Mini-Change (4-pin) | DRL-781 | 112105-5004 |

Brad® Direct-Link® In-Cabinet Ethernet Switches

112036

Series 200 and 300



A complete line of industrial Ethernet switches for managed or unmanaged applications.

Series 200—Unmanaged Switches

- Direct-Link Industrial Ethernet unmanaged switches provide enhanced performance allowing you to achieve real-time deterministic operation of your Ethernet network
- Plug-and-play—no configuration required
- Best value for reducing network collisions
- Choice of standard-duty (SD) plastic case or heavy-duty (HD) metal case designs

Series 300—Managed Switches

- Direct-Link Industrial Ethernet managed switches offer many features to meet your network management and diagnostic needs
- Advanced Network Management
 - Rapid Spanning Tree Protocol (RSTP) for fault-tolerant loops
 - VLAN (port and tag based) for traffic segregation
 - Message filtering to stop multi-cast storms (IGMP snooping)
 - Priority queuing for real-time performance (QoS)
 - Easy configuration via web, Telnet or CLI (Command-Line Interface)
- Comprehensive Network Diagnostics
 - RMON and port mirroring
 - SNMP agent v1, v2 and v3
 - All managed switches have a rugged metal case design

Features and Benefits

- 5-, 8-, 9- and 18-port configurations support both Copper and fiber wiring; 16-port models have Copper-only connections
- Unique ergonomic design with DIN rail or panel mount option using a dual-clip system for quick and easy installation
- Small footprint in IP30 or IP40 industrial package
- Supports all standard IEEE 802.3 protocols
- Redundant, dual-DC power inputs (managed switches only)

Certification

Vibration: IEC60068-2-6, -27 and -32
Electrical Safety: UL 508, CSA C22.2/14, EN61010-1, CE
Hazardous Locations: UL 1604, CSA C22.2/213 (Class I, Div 2, Groups) EN60079-15 (Zone 2, Category 3), CE (ATEX)
EMC: FCC part 15, ICES-003, EN61006-2/4, CE

Specifications

Ethernet protocols supported:
IEEE 802.3 protocols (IEEE 802.3, 802.3u, 802.3x)
10/100 BaseT(x) Ports: Shielded RJ45
10/100/1000 BaseT(x) Ports: Shielded RJ45 (18-port models only)
10/100 Mbps (full duplex) fiber SC or ST connectors
10/100/1000 Mbps (full duplex) LC connectors
Auto-negotiating:
10/100 Mbps auto-negotiation
Auto-crossover (Auto-mdi/mdix): Supported on all ports
Flow Control: Half or full duplex
Ethernet Isolation: 1500 VRMS 1 minute
Forwarding Mode: Store and forward
Latency (Typical): 5 µsec (time to route a message from one port to another internally at 100 Mps)
MAC Addresses: 1K or 2K
Address Learning: Automatic
Supply Voltage: 10–30V DC
Power Consumption (Typical): 2–10 W (dependent on model)
Power Saving: Automatic
Mounting: DIN rail or panel direct

Environmental

Humidity: 5 to 95% (non-condensing)

Physical

Packaging: IP30 or IP40 protection
Operating Temperature (Unmanaged Plastic Case): -10 to +60° C
Operating Temperature (Unmanaged Metal Case): -40 to +85° C
Operating Temperature (Managed Metal Case): -40 to +75° C
Storage Temperature: -40 to +85° C

| Industrial Ethernet Switch Product Description | Dimensions (W x H x D, mm) | Engineering No. | Standard Order No. |
|--|----------------------------|-----------------|--------------------|
| 5-port, Unmanaged, Standard-Duty, 4 RJ-45 + 1 Multi-mode FX, SC connector, 10/100 Mbps | 25.4 x 100.3 x 82.8 | DRL-241P-MSC | 112036-0043 |
| 5-port, Unmanaged, Standard-Duty, 4 RJ-45 + 1 Multi-mode FX, ST connector, 10/100 Mbps | 25.4 x 100.3 x 82.8 | DRL-241P-MST | 112036-0044 |
| 5-port, Unmanaged, Standard-Duty, 5 RJ-45, 10/100 Mbps | 25.4 x 100.3 x 82.8 | DRL-250P | 112036-0035 |
| 5-port, Unmanaged, Heavy-Duty, 5 RJ-45, 10/100 Mbps | 27.1 x 132.1 x 106.9 | DRL-250M | 112036-0036 |
| 8-port, Unmanaged, Standard-Duty, 8 RJ-45, 10/100 Mbps | 38.1 x 100.3 x 82.8 | DRL-280P | 112036-0037 |
| 8-port, Unmanaged, Heavy-Duty, 8 RJ-45, 10/100 Mbps | 40.7 x 132.1 x 106.9 | DRL-280M | 112036-0038 |
| 5-port, Unmanaged, Standard-Duty, 8 RJ-45 + 1 Multi-mode FX, SC connector, 10/100 Mbps | 25.4 x 100.3 x 82.8 | DRL-281P-MSC | 112036-0045 |
| 5-port, Unmanaged, Standard-Duty, 8 RJ-45 + 1 Multi-mode FX, ST connector, 10/100 Mbps | 25.4 x 100.3 x 82.8 | DRL-281P-MST | 112036-0046 |
| 5-port, Managed, Heavy-Duty, 3 RJ-45 + 2 Multi-mode FX, SC connector, 10/100 Mbps, redundant power | 27.1 x 132.1 x 106.9 | DRL-332M-MSC | 112036-0047 |
| 5-port, Managed, Heavy-Duty, 3 RJ-45 + 2 Multi-mode FX, ST connector, 10/100 Mbps, redundant power | 27.1 x 132.1 x 106.9 | DRL-332M-MST | 112036-0048 |
| 5-port, Managed, Heavy-Duty, 3 RJ-45 + 2 Single Mode FX, SC connector, 10/100 Mbps, redundant power | 27.1 x 132.1 x 106.9 | DRL-332M-SSC | 112036-0049 |
| 5-port, Managed, Heavy-Duty, 3 RJ-45 + 2 Single Mode FX, ST connector, 10/100 Mbps, redundant power | 27.1 x 132.1 x 106.9 | DRL-332M-SST | 112036-0050 |
| 5-port, Managed, Heavy-Duty, 5 RJ-45, 10/100 Mbps, redundant power | 27.1 x 132.1 x 106.9 | DRL-350M | 112036-0039 |
| 8-port, Managed, Heavy-Duty, 6 RJ-45 + 2 Multi-mode FX, SC connector, 10/100 Mbps, redundant power | 40.7 x 132.1 x 106.9 | DRL-362M-MSC | 112036-0051 |
| 8-port, Managed, Heavy-Duty, 6 RJ-45 + 2 Multi-mode FX, ST connector, 10/100 Mbps, redundant power | 40.7 x 132.1 x 106.9 | DRL-362M-MST | 112036-0052 |
| 8-port, Managed, Heavy-Duty, 6 RJ-45 + 2 Single-mode FX, SC connector, 10/100 Mbps, redundant power | 40.7 x 132.1 x 106.9 | DRL-362M-SSC | 112036-0053 |
| 8-port, Managed, Heavy-Duty, 6 RJ-45 + 2 Single-mode FX, ST connector, 10/100 Mbps, redundant power | 40.7 x 132.1 x 106.9 | DRL-362M-SST | 112036-0058 |
| 8-port, Managed, Heavy-Duty, 8 RJ-45, 10/100 Mbps, redundant power | 40.7 x 132.1 x 106.9 | DRL-380M | 112036-0040 |
| 16-port, Managed, Heavy-Duty, 16 RJ-45, 10/100 Mbps | 54.0 x 152.9 x 118.0 | DRL-3F0M | 112036-0041 |
| 18-port, Managed, Heavy-Duty, 18 RJ-45, 10/100 Mbps (ports 1-16), 10/100/1000 Mbps (ports 17-18) | 73.1 x 152.9 x 118.0 | DRL-3H0M | 112036-0042 |
| 18-port, Managed, Heavy-Duty, 17 RJ-45 + 1 Multi-mode FX, LC connector, 10/100 Mbps (ports 1-16), 10/100/1000 Mbps (ports 17-18), redundant power | 73.1 x 152.9 x 118.0 | DRL-3H0M-1MLC | 112036-0054 |
| 18-port, Managed, Heavy-Duty, 17 RJ-45 + 1 Single-mode FX, LC connector, 10/100 Mbps (ports 1-16), 10/100/1000 Mbps (ports 17-18), redundant power | 73.1 x 152.9 x 118.0 | DRL-3H0M-1SLC | 112036-0055 |
| 18-port, Managed, Heavy-Duty, 16 RJ-45 + 2 Multi-mode FX, LC connector, 10/100 Mbps (ports 1-16), 10/100/1000 Mbps (ports 17-18), redundant power | 73.1 x 152.9 x 118.0 | DRL-3H0M-2MLC | 112036-0056 |
| 18-port, Managed, Heavy-Duty, 16 RJ-45 + 2 Single-mode FX, LC conn, 10/100 Mbps (ports 1-16), 10/100/1000 Mbps (ports 17-18), redundant power | 73.1 x 152.9 x 118.0 | DRL-3H0M-2SLC | 112036-0057 |

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Single-Ended Cordsets

130050
Male, Pigtail
Straight



Features and Benefits

- RJ-45 plug, combined with industrially proven form factor provides a secure robust connection that protects against the effects of vibration and accidental disconnection
- Category 5e compliant
- Several cable options available

ENS—Solid Core Cable

Physical

Cable: Solid core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510 mm)
 Insulation: 0.009" (0.229 mm) of Cellular Polyethylene 0.04" (1.00mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/Polyester tape, 20% overlay minimum
 Drain Wire: 24 AWG stranded (7/32") Tin-plated Copper
 Jacket:
 Black Polyurethane 0.025" (.635 mm) nominal thickness
 Operating Temperature: -20 to +80° C
 Wiring Sequence: Choice of TIA/EIA, 568A/B, or 10 Base-T

Electrical at 20° C

TIA/EIA Rating: Category 5e

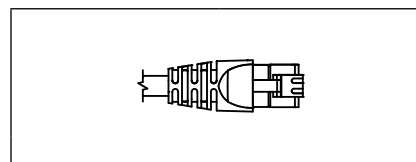
ENP—Kevlar*-wrapped Cable

Physical

Cable: Proplex™ Kevlar-wrapped
 Conductors: 26 AWG stranded bare Copper
 Insulation: Color coded HFFR, halogen free, 0.035" (0.90mm) nominal diameter
 Pair: Cabled with Kevlar strength member and tape wrapped
 Core: Four pairs cabled together
 Shield: Inner—Aluminum mylar, 100% coverage
 Outer—Tinned Copper
 Operating Temperature: -70 to +105° C
 Jacket: Black Urethane 0.059" (1.50mm) nominal thickness
 Diameter: 0.287" (7.30 mm) nominal
 Wiring Sequence: Choice of TIA/EIA, 568A/B, or 10 Base-T

Electrical at 20° C

TIA/EIA Rating: Category 5



Male Straight Single-Ended

| Cable Type | Cable Jacket | Wiring | Length | Engineering No. | Standard Order No. |
|--|--------------|--------------------|--------|-----------------|--------------------|
| Shielded Stranded Proplex Kevlar Wrapped (ENP) | PUR | 10 Base-T (4 wire) | 1.0m | ENP1305M010 | 130050-0105 |
| Shielded Solid Core (ENS) | PVC | 568A (8 wire) | 1.0m | ENS2305M010 | 130050-0392 |
| | | 568B (8 wire) | | ENS3305M010 | 130050-0436 |

Note: Sales drawings for all standard order numbers are available on molex.com

*Kevlar is a trademark of DuPont

Configuration Code†
Build-a-Part Number

| Meters | Length | Code |
|--------|--------|------|
| | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ENP1305M010

→ Wiring Option
→ Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® RJ-Lnxx RJ-45 Double-Ended Cordsets

130050
**Male-Male Straight
Standard RJ-45**



Features and Benefits

- RJ-45 plug, combined with industrially proven form factor provides a secure robust connection that protects against the effects of vibration and accidental disconnection
- Category 5e compliant
- Several cable options available

ENS—Shielded Solid Core Cable

Physical

Cable: Solid core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: 0.009" (0.229mm) of cellular polyethylene
 0.04" (1.0mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/polyester tape, 20% overlay minimum
 Drain Wire: 24 AWG stranded (7/32") Tin-plated Copper
 Jacket: Black polyurethane 0.025" (.635mm) nominal thickness
 Operating Temperature: -20 to +80° C
 Diameter: 0.245" (6.223mm) nominal
 TIA/EIA Rating: Category 5e

ENQ—Unshielded Stranded Cable

Physical

Cable: Stranded
 Conductors: 24 AWG stranded Tinned Copper
 Insulation: Polyolefin 0.037" (0.94mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Operating Temperature: -20 to +80° C
 Jacket: PVC 0.025" (0.635mm) nominal thickness
 Diameter: 0.220" (5.588mm) nominal
 TIA/EIA Rating: Category 5e

ENP—Shielded Standard Proplex™ Kevlar*-wrapped Cable

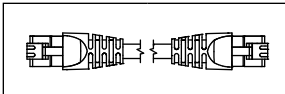
Physical

Cable: Proplex Kevlar-wrapped
 Conductors: 26 AWG stranded bare Copper
 Insulation: Color coded HFFR, halogen free,
 0.035" (0.90mm) nominal diameter
 Pair: Cabled with Kevlar strength member and tape wrapped
 Core: Four pairs cabled together
 Shield: Inner—Aluminum mylar, 100% coverage
 Outer—Tinned Copper braid, 80% coverage
 Operating Temperature: -70 to +105° C
 Jacket: Black urethane 0.059" (1.5mm) nominal thickness
 Diameter: 0.287" (7.3mm) nominal
 TIA/EIA Rating: Category 5e

ENV—Shielded Solid Core

Physical

Cable: Solid core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: Polyethylene, 0.042" (1.07mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/polyester tape
 Drain Wire: 24 AWG Tin Copper matt polyurethane
 Jacket: Black Polyurethane UV stable, 0.0244" (0.620mm) nominal thickness
 Diameter: 0.244" (6.200mm) nominal
 Operating Temperature: -20 to 60° C
 Wiring Sequence: Choice of TIA/EIA 568A/B or 10 Base-T
 TIA/EIA Rating: Category 5e



| Cable Type | Cable Jacket | Wire Size AWG | Wiring | Length | Male Straight-to-Male Straight | |
|--|----------------------|---------------|--------------------|--------|--------------------------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| Shielded Stranded Proplex Kevlar-wrapped (ENP) | PUR With Kevlar Wrap | 26 | 10 Base-T (4 wire) | 1.0m | ENP1335M010 | 130050-0107 |
| | | | 568A (8 wire) | | ENP2335M010 | 130050-0150 |
| | | | 568B (8 wire) | | ENP3335M010 | 130050-0457 |
| Shielded Solid Core (ENS) | PUR | 24 | 10 Base-T (4 wire) | 1.0m | ENS1335M010 | 130050-0324 |
| | | | 568A (8 wire) | | ENS2335M010 | 130050-0394 |
| | | | 568B (8 wire) | | ENS3335M010 | 130050-0503 |
| Shielded Solid Core (ENV) | PUR | 24 | 568B (8 wire) | 1.0m | ENV3335M010 | 130050-0512 |
| Unshielded Stranded (ENQ) | PVC | 24 | 568B (8 wire) | 1.0m | ENQ3335M010 | 130050-0507 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *Kevlar is a trademark of DuPont

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ENP1335M010

→ Wiring Option
→ Cable Option

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Standard RJ-45 to RJ-45 Cable Assembly Unshielded PVC

130048
Male Plug-to-Male Plug
Straight-Wired



Features and Benefits

- RJ-45 plug combined with industrially proven form factor provides a secure robust connection that protects against the effects of vibration and accidental disconnection
- Category 5e compliant

Reference Information

UL File No.: E200650

Physical

RJ-45 Plug: Clear Polycarbonate
Boot: PVC
Operating Temperature: -20 to +75° C

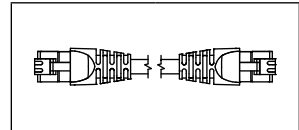
Environmental

Protection: IP20

Cable

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.250" (5.60mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL type CMR, Cec (UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C



Male Straight-to-Male Straight

| Wiring | Cable Type | Cable Jacket | Wire Size AWG | Length | Engineering No. | Standard Order No. |
|--------------------|---------------------|--------------|---------------|--------------|-----------------|--------------------|
| 10 Base-T (4 wire) | Unshielded Stranded | PVC | 4/24 | 1.0m (3.28') | E66A06003M010 | 130048-0031 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

E66A06003M010

→ Cable Option
→ Wiring Option

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Single-Ended Cordsets

130050
Threaded
Male
Straight



Features and Benefits

- RJ-45 plug, combined with industrially proven form factor provides a secure robust connection that protects against the effects of vibration and accidental disconnection
- Category 5e compliant
- Several cable options available
- Achieves IEC IP67 rates seal when mated with an RJ-Lnxx receptacle

ENS—Shielded Solid Core Cable

Physical

Cable: Solid Core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: 0.009" (0.229mm) of cellular polyethylene
 0.04" (1.0mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/Polyester tape, 20% overlay minimum
 Drain Wire: 24 AWG stranded (7/32") Tin-plated Copper
 Jacket: Black Polyurethane 0.025" (.635mm) nominal thickness
 Operating Temperature: -20 to +80° C
 Diameter: 0.245" (6.223mm) nominal
 TIA/EIA Rating: Category 5e

ENQ—Unshielded Stranded Cable

Physical

Cable: Stranded
 Conductors: 24 AWG stranded tinned Copper
 Insulation: Polyolefin 0.037" (0.94mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Operating Temperature: -20 to +80° C
 Jacket: PVC 0.025" (0.635mm) nominal thickness
 Diameter: 0.220" (5.588mm) nominal
 TIA/EIA Rating: Category 5e

ENP—Shielded Standard Proplex™ Kevlar®-Wrapped Cable

Physical

Cable: Proplex Kevlar-wrapped
 Conductors: 26 AWG stranded bare Copper
 Insulation: Color coded HFFR, Halogen free, 0.035" (0.90mm) nominal diameter
 Pair: Cabled with Kevlar strength member and tape-wrapped
 Core: Four pairs cabled together
 Shield: Inner—Aluminum Mylar, 100% coverage
 Outer—Tinned Copper braid, 80% coverage
 Operating Temperature: -70 to +105° C
 Jacket: Black Urethane 0.059" (1.50mm) nominal thickness
 Diameter: 0.287" (7.30mm) nominal
 TIA/EIA Rating: Category 5e

ENV—Shielded Solid Core

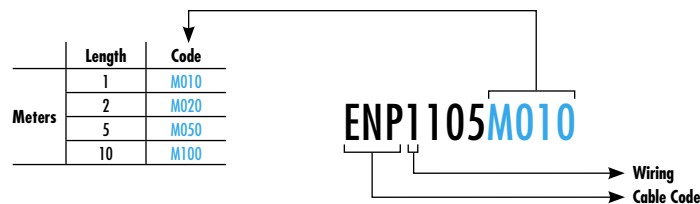
Physical

Cable: Solid core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: Polyethylene, 0.042" (1.07mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/Polyester tape
 Drain Wire: 24 AWG Tin Copper matt Polyurethane
 Jacket: Black Polyurethane UV stable, 0.0244" (0.620mm) nominal thickness
 Diameter: 0.244" (6.200mm) nominal
 Operating Temperature: -20 to 60° C
 Wiring Sequence: Choice of TIA/EIA 568A/B or 10 Base-T
 TIA/EIA Rating: Category 5e

| Cable Type | Cable Jacket | Wire Size AWG | Wiring | Length | Male Straight | |
|--|--------------------|---------------|--------------------|--------|-----------------|--------------------|
| | | | | | Engineering No. | Standard Order No. |
| Shielded Stranded Proplex Kevlar-wrapped (ENP) | PUR Kevlar-wrapped | 26 | 10 Base-T (4 wire) | 1.0m | ENP1105M010 | 130050-0071 |
| | | | 568A (8 wire) | | ENP2105M010 | 130050-0112 |
| | | | 568B (8 wire) | | ENP3105M010 | 130050-0162 |
| Shielded Solid Core (ENS) | PUR | 24 | 10 Base-T (4 wire) | 1.0m | ENS1105M010 | 130050-0277 |
| | | | 568A (8 wire) | | ENS2105M010 | 130050-0328 |
| | | | 568B (8 wire) | | ENS3105M010 | 130050-0408 |
| Shielded Solid Core (ENV) | PUR | 24 | 568B (8 wire) | 1.0m | ENV3105M010 | 130050-8023 |
| Unshielded Stranded (ENQ) | PVC | 24 | 568B (8 wire) | 1.0m | ENQ3105M010 | 130050-0506 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *Kevlar is a trademark of DuPont

Configuration Code[†]
Build-a-Part Number



[†]Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Double-Ended Cordsets

130050

Threaded Male-Male Straight RJ-45 (Industrial)-to- RJ-45 (Industrial) and RJ-45 (Industrial)-to- RJ-45 (Standard)



Features and Benefits

- RJ-45 plug, combined with industrially proven form factor provides a secure robust connection that protects against the effects of vibration and accidental disconnection
- Category 5e compliant
- Several cable options available
- Achieves IEC IP67 rates seal when mated with an RJ-Lnxx® receptacle

ENS—Shielded Solid Core Cable

Physical

Cable: Solid Core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: 0.009" (0.229mm) of cellular polyethylene
 0.04" (1.0mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/Polyester tape, 20% overlay minimum
 Drain Wire: 24 AWG stranded (7/32") Tin-plated Copper
 Jacket: Black Polyurethane 0.025" (.635mm) nominal thickness
 Operating Temperature: -20 to +80° C
 Diameter: 0.245" (6.223mm) nominal
 TIA/EIA Rating: Category 5e

ENQ—Unshielded Stranded Cable

Physical

Cable: Stranded
 Conductors: 24 AWG stranded tinned Copper
 Insulation: Polyolefin 0.037" (0.94mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Operating Temperature: -20 to +80° C
 Jacket: PVC 0.025" (0.635mm) nominal thickness
 Diameter: 0.220" (5.588mm) nominal
 TIA/EIA Rating: Category 5e

ENP—Shielded Standard Proplex™ Kevlar®-Wrapped Cable

Physical

Cable: Proplex Kevlar-wrapped
 Conductors: 26 AWG stranded bare Copper
 Insulation: Color coded HFFR, Halogen free, 0.035" (0.90mm) nominal diameter
 Pair: Cabled with Kevlar strength member and tape wrapped
 Core: Four pairs cabled together
 Shield: Inner—Aluminum Mylar, 100% coverage
 Outer—Tinned Copper Braid: 80% coverage
 Operating Temperature: -70 to +105° C
 Jacket: Black Urethane 0.059" (1.5mm) nominal thickness
 Diameter: 0.287" (7.3mm) nominal
 TIA/EIA Rating: Category 5e

ENV—Shielded Solid Core

Physical

Cable: Solid core
 Conductors: 24 AWG solid bare Copper, 0.020" (0.510mm)
 Insulation: Polyethylene, 0.042" (1.07mm) nominal diameter
 Pair: Two insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
 Core: Four pairs cabled together
 Binder: Polyester tape, 20% overlay minimum
 Shield: Aluminum/Polyester tape
 Drain Wire: 24 AWG Tin Copper matt Polyurethane
 Jacket: Black Polyurethane UV stable, 0.0244" (0.620mm) nominal thickness
 Diameter: 0.244" (6.200mm) nominal
 Operating Temperature: -20 to 60° C
 Wiring Sequence: Choice of TIA/EIA 568A/B or 10 Base-T
 TIA/EIA Rating: Category 5e

RJ-Lnxx-to-RJ-45 RJ-Lnxx RJ-45 Male, Double-Ended

| Cable Type | Cable Jacket | Wire Size AWG | Wiring | Length | Male Straight Industrial-to-Industrial | | Male Straight Industrial-to-Standard | |
|--|--------------------|---------------|--------------------|--------|--|--------------------|--------------------------------------|--------------------|
| | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Shielded Stranded Proplex Kevlar-wrapped (ENP) | PUR Kevlar-wrapped | 26 | 10 Base-T (4 wire) | 1.0m | ENP1115M010 | 130050-0076 | ENP1135M010 | 130050-0093 |
| | | | 568A (8 wire) | | ENP2115M010 | 130050-0122 | ENP2135M010 | 130050-0140 |
| | | | 568B (8 wire) | | ENP3115M010 | 130050-0170 | ENP3135M010 | 130050-8036 |
| Shielded Solid Core (ENS) | PUR | 24 | 10 Base-T (4 wire) | 1.0m | ENS1115M010 | 130050-0284 | | |
| | | | 568A (8 wire) | | ENS2115M010 | 130050-0336 | ENS2135M010 | 130050-0371 |
| | | | 568B (8 wire) | | ENS3115M010 | 130050-0412 | ENS3135M010 | 130050-0429 |
| Shielded Solid Core (ENV) | PUR | 24 | 568B (8 wire) | 1.0m | ENV3115M010 | 130050-8025 | ENV3135M010 | 130050-8029 |
| Unshielded Stranded (ENQ) | PVC | 24 | 568B (8 wire) | 1.0m | ENQ3115M010 | 130050-0251 | ENQ3135M010 | 130050-0262 |

Note: Sales drawings for all standard order numbers are available on molex.com
 *Kevlar is a trademark of DuPont

Configuration Code†
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ENP1115M010

Wiring Option
Cable Option

†Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Receptacles

130053/130055

Female
Panel Mount
External Thread
Straight



Features and Benefits

- Simple field termination of cable using a standard punchdown tool
- Category 5e compliant
- Can be used with TIA 568A or 568B wiring sequences
- Color-coded block simplifies field wiring
- Achieves IEC IP67 rated seal when mated with RJ-Lnxx cordset—but also compatible with commercial RJ-45 patch cords

Environmental

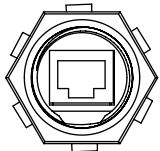
Protection: IEC IP67
TIA/EIA Rating: Category 5e compliant

Physical

O-Ring Material: Viton®
Insert Material: Acrylonitrile-Butadiene-Styrene (ABS)
Overmold Material: Polyurethane
Coupling Nut Material: Acrylonitrile-Butadiene-Styrene (ABS)
Shell Material: Acrylonitrile-Butadiene-Styrene (ABS)
Knockout Hole: 1.063
Thread Size: UNC 1" - 14 UNC
Panel Thickness: .125" maximum with gasket,
.187" maximum without gasket,
.062" minimum
Operating Temperature: -20 to +80° C
Return Loss: 5 dB at 100 MHz

RJ-45 Jack

Plating: 50 μm of Gold over 100 μm of Nickel
Current Rating: 1.5A
Voltage Rating: 125V DC

| Face View | Description | Female Straight | |
|--|--|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
|  | RJ-45 Receptacle W/110 Punchdown Termination | ENDR2FB5 | 130053-0002 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Receptacles

130053/130055

**Female
Straight
Panel Mount
External Thread**



Features and Benefits

- Ideal for OEMs looking to incorporate a sealed, robust connection into their field device
- Category 5 compliant
- Short depths for space constrained applications
- Achieves IEC IP67 rated seal when mated with an RJ-Lnxx cordset—but also compatible with commercial RJ-45 patch cords

Environmental


Protection: IEC IP67
TIA/EIA Rating: Category 5 compliant

Physical

O-Ring Material: Viton®
Insert Material: Acrylonitrile-Butadiene-Styrene (ABS)
Overmold Material: Polyurethane
Coupling Nut Material: Acrylonitrile-Butadiene-Styrene (ABS)
Shell Material: Acrylonitrile-Butadiene-Styrene (ABS)
Knockout Hole: 1.063
Thread Size: UNC 1" - 14 UNC
Panel Thickness: .125" maximum with gasket,
.187" maximum without gasket,
.062" minimum
Operating Temperature: -20 to +80° C
Return Loss: 5 dB at 100 MHz

RJ-45 Jack

Plating: 50 μm of Gold over 100 μm of Nickel
Current Rating: 1.5A
Voltage Rating: 125V DC

| Face View | Description | Female Straight | |
|--|----------------------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
|  | Direct PC Board Mount Receptacle | ENPR1FF5 | 130053-0004 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Receptacles

130053/130055

Female, Male
Straight
Panel Mount
External Thread



Features and Benefits

- Highly flexible solution for OEMs or end users looking to incorporate a sealed, robust receptacle into their field device or control panel
- Achieves IEC IP67 rated seal when mated with RJ-Lnxx cordset—but also compatible with commercial RJ-45 patch cords

Environmental

Protection: IEC IP67

TIA/EIA Rating: Not rated as additional customer termination is required

Physical

O-Ring Material: Viton®

Insert Material: Acrylonitrile-Butadiene-Styrene (ABS)

Overmold Material: Polyurethane

Coupling Nut Material: Acrylonitrile-Butadiene-Styrene (ABS)

Shell Material: Acrylonitrile-Butadiene-Styrene (ABS)

Knockout Hole: 1.063

Thread Size: UNC 1" - 14 UNC

Panel Thickness: .125" maximum with gasket,
.187" maximum without gasket,
.062" minimum

Operating Temperature: -20 to +80° C

Return Loss: 5 dB at 100 MHz

RJ-45 Jack

Plating: 50 µm of Gold over 100 µm of Nickel

Current Rating: 1.5A

Voltage Rating: 125V DC

| Face View | Description | Female Straight | |
|-----------|---|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
| | Receptacle with PC Board | ENSR1FB5 | 130055-0016 |
| | Receptacle with PC and 12" of Cable (10 Base-T) | ENSR1FB5M010 | 130055-0020 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

| Configuration Code* | | Length | Code |
|---------------------|---------------------|--------|------|
| Meters | Build-a-Part Number | 1 | M010 |
| | | 2 | M020 |
| | | 5 | M050 |
| | | 10 | M100 |

ENSR1FB5M010

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Receptacles

130055/130058

Female
Bulkhead Pass-Through
Straight
External Thread



Features and Benefits

- Easy method for bringing an Ethernet connection in from a harsh environment to an industrial enclosure
- Category 5e compliant
- Achieves IEC IP67 rated seal when mated with RJ-Lnxx cordset—but also compatible with commercial RJ-45 patch cords

Environmental

Protection: IEC IP67
TIA/EIA Rating: Category 5e

Physical

O-Ring Material: Viton®
Insert Material: ABS
Overmold Material: Polyurethane
Coupling Nut Material: ABS
Shell Material: ABS
Knockout Hole: 1.063
Thread Size: UNC 1" - 14 UNC
Panel Thickness: .125" max. with gasket,
.187" max. without gasket,
.062" min.

Operating Temperature: -20 to +80° C

Return Loss: 5 dB at 100 Mhz

RJ-45 Jack

Plating: 50 μm of Gold over 100 μm of Nickel

Current Rating: 1.5A

Voltage Rating: 125V DC

RJ-11 Jack

Plating: 50 μm of Gold over 100 μm of Nickel

Current Rating: 1.5A

Voltage Rating: 125V DC

| Face View | Description | Female Straight | |
|-----------|--|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
| | RJ-11 Bulkhead Pass-Through Receptacles with Backside Jack | ENSP6F5 | 130055-0014 |
| | RJ-45 Bulkhead Pass-Through Receptacles with 12" Male RJ-45 Patch Cord | ENSP1F5M010 | 130055-0005 |
| | RJ-45 Bulkhead Pass-Through Receptacles with Backside Jack | ENSP1F5 | 130055-0001 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ENSP1F5M010

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

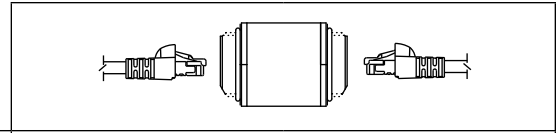
Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Receptacles

130058

Threaded Interconnect

Features and Benefits

- Allows either molded or field attachable male connectors to be mated together, extending overall system length
- Two M40 nylon lock nuts and threaded barrel allow the interconnected to be positively fixed to a panel or enclosure wall



| Face View (Female) | Description | Female Straight | |
|-----------------------|-----------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. |
| | In-Line—Interconnect | RJBG16821 | 130058-0057 |
| | Threaded—Interconnect | RJBG17946 | 130058-0059 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Field Attachable Connectors

130057
Female
Straight



Features and Benefits

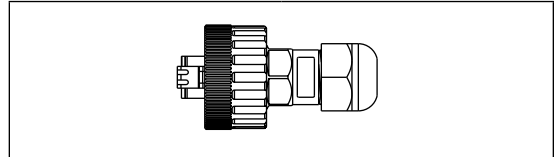
- Create an industrial Ethernet cordset in the field using standard crimp tools
- Achieves IEC IP67 rated seal when mated with an RJ-Lnxx receptacle

Physical

O-Ring Material: Viton®
Insert Material: Acrylonitrile-Butadiene-Styrene (ABS)
Overmold Material: Polyurethane
Coupling Nut Material: Acrylonitrile-Butadiene-Styrene (ABS)
Shell Material: Acrylonitrile-Butadiene-Styrene (ABS)
Thread Size: UNC 1.00–14.00"
Operating Temperature: -20 to +80° C

Environmental

Protection: IEC IP67



| Description | Engineering No. | Standard Order No. |
|--------------------------------------|-----------------|--------------------|
| RJ-45 Connector (for Stranded Cable) | ENQAM315 | 130057-0001 |
| RJ-45 Connector (for Solid Cable) | ENSAM315 | 130057-0003 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Industrial Ethernet Brad® RJ-Lnxx® RJ-45 Sealed Accessories

130058
Female, Male
Closure Caps



Features and Benefits

- Attaches to RJ-Lnxx receptacles to provide an IEC IP65 rated seal for instances when a cordset is not mated

Physical

Material: Protective Cap—PA6 Nylon GF (UV Stabilized)
Lanyard—EPDM Rubber
Thread Size: UNC 1.00–14.00"
Operating Temperature: -20 to +80° C

Environmental

Protection: IEC IP65 (65-0300), IP67 (67-0300)

| Type | Description | Female | | Male | |
|-----------------|-------------|-----------------|--------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Cap | IP65 Rated | 65-0300 | 130058-0033 | 65-0301 | 130058-0034 |
| Cap and Lanyard | IP67 Rated | 67-0300 | 130058-0035 | 67-0301 | 130058-0036 |

Note: Sales drawings for all standard order numbers are available on molex.com

Industrial Ethernet Brad® Sealed RJ-45 Overmolded Single-Ended Cordsets

84702

Bayonet Style RJ-45 Plug



Features and Benefits

- One sealing surface reduces chance of failure
- IP67 and NEMA 6P ratings ensure cable assemblies for water and dust tight functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Category 5e specified provides high data transmission speeds
- Overmolded cable assemblies allow for faster installation

Reference Information

Packaging: Bag
Mates With: 84700 and 84702
Designed In: Inches

Electrical

Voltage: 150V AC
Current: 1.5A
Contact Resistance: 20 milliohms max.
Dielectric Withstanding Voltage:
Adjacent Contacts—1000V AC
Contacts to Ground—1500V AC
Insulation Resistance: 500 Megohms min.
Type: Category 5e
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.

Mechanical

Durability: 200 mating cycles min.
Coupling Ring Destructive Torque: 2.26Nm (20 in. lb)
or more

Physical

Overmolded Body: PVC, black
Coupling Ring: PBT, black
Holder: PBT, black
Wedge: PBT, black
Gasket Seal: Nitrile, black
Contact: Phosphor Bronze
Plating: Contact Area—1.27µm (50µ") Gold
Underplating—Nickel
Operating Temperature: -40 to +85° C

| Length | Lead-free | Order No. |
|----------------|-----------|------------|
| 6.10m (20.00') | Yes | 84702-3020 |

Industrial Ethernet Brad® Sealed RJ-45 Overmolded Double-Ended Cordsets

84702

**Bayonet Style RJ-45
Plug-to-Bayonet Style
RJ-45 Plug**



Features and Benefits

- One sealing surface reduces chance of failure
- IP67 and NEMA 6P ratings ensure cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Category 5e specified provides high data transmission speeds
- Overmolded cable assemblies allow for faster installation

Reference Information

Packaging: Bag
Mates With: 84700 and 84702
Designed In: Inches

Electrical

Voltage: 150V AC
Current: 1.5A
Contact Resistance: 20 milliohms max.
Dielectric Withstanding Voltage:
Adjacent Contacts—1000V AC
Contacts to Ground—1500V AC
Insulation Resistance: 500 Megohms min.
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.

Mechanical

Durability: 200 mating cycles min.
Coupling Ring Destructive Torque: 2.26Nm (20 in. lb)
or more

Physical

Overmolded Body: PVC, black
Coupling Ring: PBT, black
Holder: PBT, black
Wedge: PBT, black
Gasket Seal: Nitrile, black
Contact: Phosphor Bronze
Plating: Contact Area—1.27µm (50µ") Gold
Underplating—Nickel
Operating Temperature: -40 to +85° C

| Length | Lead-free | Order No. |
|----------------|-----------|------------|
| 0.91m (3.00') | Yes | 84702-1003 |
| 1.83m (6.00') | | 84702-1006 |
| 3.00m (10.00') | | 84702-1010 |
| 6.10m (20.00') | | 84702-1020 |

Industrial Ethernet Brad® Sealed RJ-45 Overmolded Double-Ended Cordsets

84702

**Bayonet Style RJ-45
Plug-to-Standard RJ-45 Plug**



Features and Benefits

- One sealing surface reduces chance of failure
- IP67 and NEMA 6P ratings ensure cable assemblies are water- and dust-tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Category 5e specified provides high data transmission speeds
- Overmolded cable assemblies allow for faster installation

Reference Information

Packaging: Bag
Mates With: 84700 and 84702
Designed In: Inches

Electrical

Voltage: 150V AC
Current: 1.5A
Contact Resistance: 20 milliohms max.
Dielectric Withstanding Voltage:
Adjacent Contacts—1000V AC
Contacts to Ground—1500V AC
Insulation Resistance: 500 Megohms min.
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.

Mechanical

Durability: 200 mating cycles min.
Coupling Ring Destructive Torque: 2.26Nm (20 in. lb)
or more

Physical

Overmolded Body: PVC, black
Coupling Ring: PBT, black
Holder: PBT, black
Wedge: PBT, black
Gasket Seal: Nitrile, black
Contact: Phosphor Bronze
Plating: Contact Area—1.27 μ m (50 μ in) Gold
Underplating—Nickel
Operating Temperature: -40 to +85° C

| Length | Lead-free | Order No. |
|----------------|-----------|------------|
| 0.91m (3.00') | Yes | 84702-2003 |
| 2.13m (7.00') | | 84702-2007 |
| 3.00m (10.00') | | 84702-2010 |
| 3.66m (12.00') | | 84702-2012 |
| 4.57m (15.00') | | 84702-2015 |
| 6.10m (20.00') | | 84702-2020 |
| 6.40m (21.00') | | 84702-2021 |

Industrial Ethernet Brad® Sealed RJ-45 Receptacles

84702

Bayonet Style PCB Mount and Punchdown Panel Mount



PCB Mount



Punchdown Panel Mount

Features and Benefits

- One sealing surface reduces chance of failure
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Punchdown version supports simple IDC termination

Reference Information

Packaging: Bag
Mates With: 84700 and 84702
Designed In: Inches

Electrical

Voltage: 150V AC
Current: 1.5A
Contact Resistance: 20 milliohms max.
Dielectric Withstanding Voltage:
Adjacent Contacts—1000V AC
Contacts to Ground—1500V AC
Insulation Resistance: 500 Megohms min.
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.

Mechanical

Durability: 200 mating cycles min.
Lock Nut Destructive Torque: 2.71Nm (24 in. lb)

Physical

Receptacle Housing: PBT, black
Lock Nut: Polyamide 6/6, black
Panel Gasket: Neoprene, black
Punchdown Block: Thermoplastic, white
Wire Range (Punchdown Receptacle):
22 to 26 AWG solid and stranded, limiting outside diameter 1.40mm (.055")
Operating Temperature: -40 to +85° C

| Description | Lead-free | Standard Order No. |
|--|-----------|--------------------|
| PCB Mount Receptacle | Yes | 84702-0005 |
| Punchdown Panel Mount Receptacle | | 84702-0006 |
| PCB Mount Receptacle, Potted | | 84702-0007 |
| Punchdown Panel Mount Receptacle, Potted | | 84702-0008 |
| Punchdown with 100 Ohm Resistors | | 84702-0009 |

Industrial Ethernet Brad® Sealed RJ-45 Bulkhead Pass-Through Receptacle

84700

Bayonet Style Panel Mount



Features and Benefits

- Back-to-back RJ-45 pass-through brings ethernet connectivity into a control cabinet and eliminates need for conduit entry
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Meets ODVA/EtherNet™ IP specification

Reference Information

Packaging: Bag
Designed in: Inches
Mates With: 84700 and 84702
Waterproof: Meets requirements of IP67 and NEMA 6P for water tightness

Electrical

Voltage: 150V AC
Current: 1.5A
Contact Resistance: 20 milliohms max.
Insulation Resistance: 500 Megohms min.
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.
Return Loss: 5 dB at 100MHz

Mechanical

Durability: 500 mating cycles min.

Physical

Receptacle Housing: PBT, black
Panel Gasket: Neoprene, black
Lock Nut: Steel
Plating: Lock Nut—Zinc
Operating Temperature: -40 to +85° C

| Description | Lead-free | Standard Order No. |
|------------------------|-----------|--------------------|
| Panel Mount Receptacle | Yes | 84700-0001 |

*EtherNet IP and DeviceNet are trademarks of the Open DeviceNet Vendor Association.

Industrial Ethernet Brad® Sealed RJ-45 Field Wireable Connectors

84700



Features and Benefits

- One sealing surface reduces chance of failure
- IP67 and NEMA 6P ratings ensure cable assemblies are water- and dust-tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Superior strain relief
- Easy termination allows custom length cable to be made in the field
- Compatible with shielded and unshielded cable
- Meets ODVA/EtherNet™ IP* specification

Reference Information

Packaging: Bag
Mates With: 84700 and 84702
Designed In: Inches
Waterproof: Meets requirements of IP67 and NEMA 6P for water tightness

Electrical

Voltage: 56.5V DC
150V RMS AC (ringing voltage only)
Current: 1.5A at 25° C (77° F)
Contact Resistance: 20 milliohms max.
Insulation Resistance: 500 Megohms min.
Transmission Performance: Category 5e
RJ-45 Connection Interface: TIA/EIA-568-B
Shielding Effectiveness: 20 dB min.

Mechanical

Durability: 500 mating cycles min.

Physical

Coupling Ring: PBT, black
O-Ring: Nitrile
Gasket Seal: Nitrile, black
Plug Holder: PBT, black
Retainer Wedge: PBT, black
Wire Gauge: 24 AWG (stranded or solid conductors)
Operating Temperature: -40 to +85° C
Cable Seal Assembly: Polyamide, TPE Gland, black

| Description | Lead-free | Standard Order No. |
|-----------------------|-----------|--------------------|
| Field Attachable Plug | Yes | 84700-0002 |

*EtherNet IP is a trademark of the Open DeviceNet Vendor Association.

Industrial Ethernet Brad® Sealed RJ-45 Tethered Dust Cap

84700

Bayonet Style



Features and Benefits

- One sealing surface means less likelihood of failure
- Attachable tether so cap never gets lost
- Maintains IP67 and NEMA 6P ratings for functional integrity when connector is not mated
- IP67 and NEMA 6P ratings ensure cable assemblies are water and dust tight for functional integrity

Reference Information

Packaging: Bag
Use With: 84700, 84702, 84729, 84730
Designed In: Inches

Physical

Dust Cap: PBT, black
Tether: PE or PP, black
Gasket Seal: Nitrile, black
Screw: Brass, #8-32
Plating: Screw—Nickel
Operating Temperature: -40 to +85° C

| Description | Lead-free | Standard Order No. |
|-------------|-----------|--------------------|
| Dust Cover | Yes | 84700-0003 |

Industrial Ethernet Brad® Micro-Change® (M12) Single-Ended Cordsets

130048
Male
Threaded



Features and Benefits

- Familiar, proven M12 form factor provides robust connection
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Reference Information

UL File No.: E200650

Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.250" (5.6mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to 75° C

05—Shielded TPE

Conductors: 22 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.236" (5.99mm) nominal
Jacket Material: Teal TPE
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Shield Type: Foil shield, 100% coverage, 25% minimum overlap
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to 75° C

10—Shielded PUR

Conductors: 22 AWG stranded tinned wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.255" (6.50mm) nominal
Jacket Material: Green PUR
Cable Properties: Sun resistant
Inner Material Insulation: FRNC
Shield Type: Foil Shield—100% coverage
Braid Shield—85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL Listed CMX
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to 70° C

11—Shielded High Flex PUR, PROFINET Type C

Conductors: 22 AWG stranded tinned wire
Pair: 2 Pair STP patch cable
Outside Diameter (Nominal): 6.7mm (0.264")
Jacket Material: PUR, green
Cable Properties: Sun resistant
Inner Material Insulation: Polyolefin
Shield Type: Foil shield, braid shield, tinned Copper with minimum 85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL and CSA
Operating Temperature: -40 to 80° C

15—Shielded PVC

Conductors: 26 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.236" (5.99mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: Foamed polypropylene
Shield Type: Foil shield, 100% coverage, 25% min. overlap
Certification: UL Type CMR, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to 75° C

| Face View | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Male Straight-to-Male Straight | | Male Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|--------------------|--------------|---------------|---------------|--------------------------------|--------------------|--------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>4 Pole</p> <p>1 - Orange (TD+) 2 - Blue (RD+) 3 - Orange/White (TD-) 4 - Blue/White (TD-)</p> | 1.5A | 30V | Unshielded | PVC | 24 | 1.0m (3.37') | E10A00603M010 | 130048-0038 | E10A00703M010 | 130048-0062 |
| | | | Shielded | PVC | 22 | | E10A00610M010 | 130048-0046 | E10A00710M010 | 130048-0070 |
| | | | Shielded | PUR | 24 | E10A00615M010 | 130048-0054 | E10A00715M010 | 130048-0078 | |
| | | | Shielded | | 22 | E10A00611M050 | 130048-0281 | E10A00711M050 | 130048-0286 | |
| | | | Shielded High Flex | TPE | 26 | 1.0m (3.37') | E10A00605M010 | 120108-0186 | | |
| | | | Shielded High Flex | | | | | | E10A00705M010 | 120108-0187 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

E10A00610M010

→ Cable Options

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Micro-Change® (M12) Double-Ended Cordsets

120049/120108/130048

Male-to-Male Straight, Right Angle Threaded



Features and Benefits

- Familiar, proven M12 form factor provides robust connection
- Category 5e compliant
- D-Coded to ensure proper alignment/mating
- IP67 rated for harsh environments

Reference Information

UL File No.: E200650

Physical

Connector Body: PUR

O-Ring: Viton®

Coupling Nut: Nickel-plated Brass

Contacts: Copper alloy with Gold over Nickel plating

Environmental

Protection: IP67

NEMA Rating: NEMA 6

Operating Temperature: -20 to +75° C

Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire

Pair: Two pair UTP patch cable

Outside Diameter: 0.250" (5.6mm) nominal

Jacket Material: Teal PVC

Cable Properties: Sun and oil resistant

Inner Material Insulation: HDPE

Certification: UL Type CMR, CEC C(UL) Type CMR

TIA/EIA Rating: Category 5e

Operating Temperature: -40 to +75° C

04—Unshielded TPE

Conductors: 24 AWG stranded tinned Copper wire

Pair: Two pair UTP patch cable

Outside Diameter: 0.210" (5.3mm) nominal

Jacket Material: Teal TPE

Cable Properties: Sun, oil and weld slag resistant

Inner Material Insulation: HDPE

Flex Rating: rolling band and torsional flex, 10 million cycles

Certification: UL Type CMX, CEC C(UL) Type CMR

TIA/EIA Rating: Category 5e

Operating Temperature: -20 to +75° C

10—Shielded PUR

Conductors: 22 AWG stranded tinned Copper wire

Pair: Two pair UTP patch cable

Outside Diameter: 0.255" (6.5mm) nominal

Jacket Material: Green PUR

Cable Properties: Sun and oil resistant

Inner Material Insulation: FRNC

Shield Type: Foil Shield—100% Coverage

Braid Shield—85% Coverage

Flex Rating: Trailing cable, 5 million bending cycles

Certification: UL Listed CMX

TIA/EIA Rating: Category 5e

Operating Temperature: -40 to +70° C

05—Shielded TPE

Conductors: 26 AWG stranded tinned Copper wire

Pair: Two pair UTP patch cable

Outside Diameter: 0.236" (5.99mm) nominal

Jacket Material: Teal TPE

Cable Properties: Sun and oil resistant

Inner Material Insulation: HDPE

Shield Type: Foil shield, 100% coverage,

25% minimum overlap

Certification: UL Type CMR, CEC C(UL) Type CMR

TIA/EIA Rating: Category 5e

Operating Temperature: -20 to +75° C

11—Shielded High Flex PUR, PROFINET Type C

Conductors: 22 AWG stranded tinned wire

Pair: 2 Pair STP patch cable

Outside Diameter (Nominal): 6.7mm (0.264")

Jacket Material: PUR, green

Cable Properties: Sun resistant

Inner Material Insulation: Polyolefin

Shield Type: Foil shield, braid shield, tinned Copper with minimum 85% coverage

Flex Rating: Trailing cable, 5 million bending cycles

Certification: UL and CSA

Operating Temperature: -40 to 80° C

15—Shielded PVC

Conductors: 26 AWG stranded tinned Copper wire

Pair: Two pair UTP patch cable

Outside Diameter: 0.236" (5.99mm) nominal

Jacket Material: Teal PVC

Cable Properties: Sun and oil resistant

Inner Material Insulation: Foamed polypropylene

Shield Type: Foil shield, 100% coverage,

25% minimum overlap

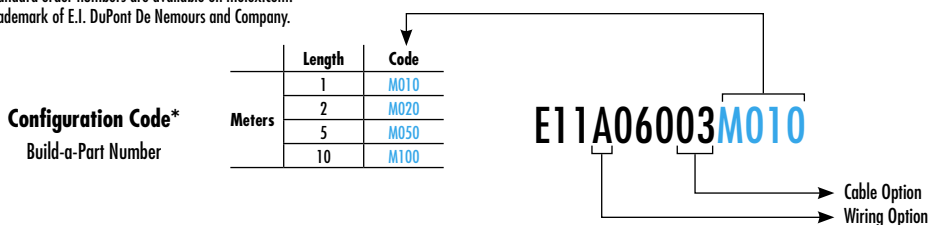
Certification: UL Type CMR, CEC C(UL) Type CMR

TIA/EIA Rating: Category 5e

Operating Temperature: -20 to +75° C

| Face View | Max. Current Per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Male Straight-to-Male Straight | | Male Straight-to-Male Right Angle | | Male Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|----------------------|--------------|---------------|--------------|--------------------------------|--------------------|-----------------------------------|--------------------|--------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>4 Pole</p> <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 30V | Unshielded | PVC | 24 | 1.0m (3.37') | E11A06003M010 | 130048-0088 | E11A06203M010 | 130048-0137 | E11A06303M010 | 130048-0161 |
| | | | Unshielded High Flex | TPE | 24 | | E11A06004M010 | 130048-0095 | | | E11A06304M010 | 120108-0167 |
| | | | Shielded | PUR | 22 | | E11A06010M010 | 130048-0114 | E11A06210M010 | 130048-0145 | E11A06310M010 | 130048-0170 |
| | | | Shielded High Flex | PUR | 22 | | E11A06011M010 | 120108-0236 | | | | |
| | | | Shielded High Flex | PUR | 22 | 2.0m (6.56') | | E11A06211M020 | 120108-0201 | E11A06311M020 | 120108-0200 | |
| | | | Shielded | PVC | 26 | | E11A06015M010 | 130048-0122 | E11A06215M010 | 130048-0153 | E11A06315M010 | 130048-0179 |
| | | | Shielded | TPE | 26 | 1.0m (3.37') | E11A06005M010 | 120108-0188 | E11A06205M010 | 120108-0189 | E11A06305M010 | 120108-0174 |
| | | | | | | | | | | | | |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.



Industrial Ethernet Brad® Micro-Change® (M12) Double-Ended Cordsets

130048
Female-to-Male
Straight
Threaded



Features and Benefits

- Familiar, proven M12 form factor provides robust connection
- Category 5e compliant
- D-Coded to ensure proper alignment/mating
- IP67 rated for harsh environments

Reference Information

UL File No.: E200650

Physical

Connector Body: PUR
O-Ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating

Environmental

Protection: IP67
NEMA Rating: NEMA 6
Operating Temperature: -20 to 75° C

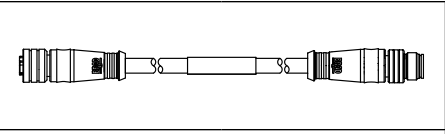
Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.250" (5.6mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C

15—Shielded PVC

Conductors: 26 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.236" (5.99mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: Foamed Polypropylene
Shield Type: Foil Shield, 100% coverage, 25% min. overlap
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to +75° C



| Face View | Max. Current Per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Female Straight-to-Male Straight | |
|--|--------------------------|--------------|------------|--------------|---------------|--------|----------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| <p>4 Pole</p> <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 30V | Unshielded | PVC | 24 | .02m | E11B03003M002 | 130048-0193 |
| | | | Shielded | PVC | 26 | | E11B03015M002 | 130048-0195 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

E11B03003M002

→ Cable Option
→ Wiring Option

Industrial Ethernet Brad® Micro-Change®-to- RJ-45 Standard Plug Double-Ended Cordsets

130048
Female-to-Male
Straight
Threaded to RJ-45



Features and Benefits

- Familiar, proven M12 form factor provides robust connection
- Category 5e compliant
- D-Coded to ensure proper alignment/mating
- IP67 rated for harsh environments

Connectors

M12

Reference Information

UL File No.: E200650

Physical

Connector Body: PUR
O-Ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Operating Temperature: -25 to +75° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

RJ-45

Reference Information

UL File No.: E200650

Physical

RJ-45 Plug: Polycarbonate, clear
Boot: PVC
Operating Temperature: -20 to +75° C

Environmental

Protection: IP20

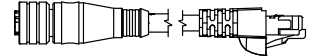
Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP Patch cable
Outside Diameter: 0.250" (5.6 mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C

11—Shielded High Flex PUR, PROFINET Type C

Conductors: 22 AWG stranded tinned wire
Pair: 2 Pair STP patch cable
Outside Diameter (Nominal): 6.7mm (0.264")
Jacket Material: PUR, green
Cable Properties: Sun resistant
Inner Material Insulation: Polyolefin
Shield Type: Foil shield, braid shield, tinned Copper with minimum 85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL and CSA
Operating Temperature: -40 to 80° C



| Face View | Max. Current Per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Female Straight-to-Male Straight | |
|---|--------------------------|--------------|--------------------|--------------|---------------|--------------|----------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| <p>4 Pole</p> <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 30V | Unshielded | PVC | 24 | 1.0m (3.37') | E16A03003M010 | 130048-0197 |
| | | | Shielded High Flex | PUR | 22 | | E16A03011M010 | 120108-0264 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 1 | M010 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

E16A03003M010

→ Cable Option
→ Wiring Option

Industrial Ethernet Brad® Micro-Change® (M12) Field Attachable Connectors

130047
Female, Male
Straight
Threaded



Features and Benefits

- Fast field termination without special tooling
- D-Coded to ensure proper alignment/mating

Mechanical

Coupling Nut: Zinc diecast
Shell Material: Zinc diecast
Contacts: Gold-plated Palladium Nickel

Cable

22 to 24 AWG
0.25 to 0.34mm²
Cable Diameter: 5.50 to 7.20mm

Environmental

Protection: IP67

Physical

Operating Temperature: -25 to +85° C

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Cable Diameter Range | Male Straight | | Female Straight | |
|------------------------|-----------------------------|--------------|----------------------|---|--------------------|-----------------|--------------------|
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | | | <p>4 Pole</p> <p>1 - Yellow (TD+) 3 - Orange (TD-) 2 - White (RD+) 4 - Blue (RD-)</p> | 4.0A | 32V | 5.50-7.20mm |

Note: Sales drawings for all standard order numbers are available on molex.com

Industrial Ethernet Brad® Ultra-Lock® (M12) Double-Ended Cordsets

120108

Male-to-Male
Straight, Right Angle
Push-to-Lock



Features and Benefits

- Push-to-Lock technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ideal for wash-down and temporary submersion applications due to improved sealing design
- Ergonomic push to lock mechanisms reduce fatigue and user errors when a high number of connections need to be made
- Category 5e compliant
- D-Coded to ensure proper alignment/mating
- IP67/68/69K rated for harsh environments

Reference Information

UL File No.: E200650

Physical

Connector Body: PUR
O-Ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Operating Temperature: -20 to +75° C

Environmental

Protection: IP67/IP68/IP69K
NEMA Rating: NEMA 6

Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.250" (5.60mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL type CMR, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C

04—Unshielded TPE

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.210" (5.30mm) nominal
Jacket Material: Teal TPE
Cable Properties: Sun, oil and weld slag resistant
Inner Material Insulation: HDPE
Flex Rating: Rolling band and torsional flex, 10 million cycles
Certification: UL type CMX, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to +75° C

10—Shielded PUR

Conductors: 22 AWG stranded tinned wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.255" (6.50mm) nominal
Jacket Material: Green PUR
Cable Properties: Sun resistant
Inner Material Insulation: FRNC
Shield Type: Foil Shield—100% coverage
Braid Shield—85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL Listed CMX
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to 70° C

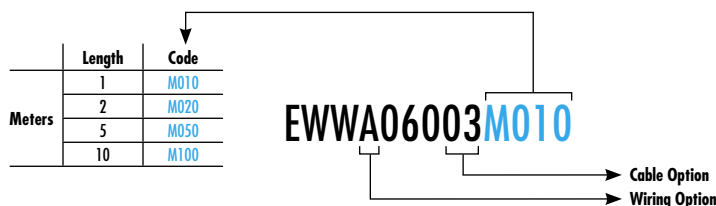
15—Shielded PVC

Conductors: 26 AWG stranded tinned copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.236" (5.99mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: Foamed polypropylene
Shield Type: Foil shield, 100% coverage, 25% min. overlap
Certification: UL type CMR, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to +75° C

| Face View (Male) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | Male Straight-to-Male Straight | | Male Straight-to-Male Right Angle | | Male Right Angle-to-Male Right Angle | |
|--|--------------------------|--------------|----------------------|--------------|---------------|--------|--------------------------------|--------------------|-----------------------------------|--------------------|--------------------------------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - White/Orange 3 - Orange 2 - White/Green 4 - Green</p> | 1.5A | 30V | Unshielded | PVC | 24 | 1.0m | EWWA06003M010 | 120108-0066 | EWWA06203M010 | 120108-0074 | EWWA06303M010 | 120108-0082 |
| | | | Unshielded High Flex | TPE | 24 | | | | EWWA06304M010 | 120108-5020 | | |
| | | | Shielded | PUR | 22 | | EWWA06010M010 | 120108-0090 | EWWA06210M010 | 120108-0098 | EWWA06310M010 | 120108-0106 |
| | | | Shielded | PVC | 26 | | EWWA06015M010 | 120108-0042 | EWWA06215M010 | 120108-0050 | EWWA06315M010 | 120108-0058 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Ultra-Lock® (M12) Double-Ended Cordset

130048

**Female-to-Male
Straight
Push-to-Lock
Crossover-Wired**



Features and Benefits

- Brad M12 Micro-Change® Threaded to Push-to-Lock Ultra-Lock® technology assures fast, reliable connections every time
- Reliable performance in high-vibration environments due to positive locking mechanism
- Ergonomic push to lock mechanisms reduce fatigue and user errors when a high number of connections need to be made
- Category 5e compliant
- D-Coded to ensure proper alignment/mating
- IP67 rated for harsh environments

Reference Information

UL File No.: E200650

Physical

Connector Body: PUR
O-Ring: Viton®
Coupling Nut: Nickel-plated Brass
Contacts: Copper alloy with Gold over Nickel plating
Operating Temperature: -20 to +75° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.250" (5.60mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL type CMR, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C

10—Shielded PUR

Conductors: 22 AWG stranded tinned wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.255" (6.50mm) nominal
Jacket Material: Green PUR
Cable Properties: Sun resistant
Inner Material Insulation: FRNC
Shield Type: Foil Shield—100% coverage
Braid Shield—85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL Listed CMX
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +70° C

15—Shielded PVC

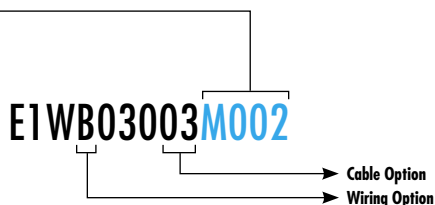
Conductors: 26 AWG stranded tinned Copper wire
Pair: Two pair UTP patch cable
Outside Diameter: 0.236" (5.99 mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: Foamed polypropylene
Shield Type: Foil Shield, 100% coverage, 25% min. overlap
Certification: UL type CMR, CEC C(UL) type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -20 to +75° C

| Face View | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Length | M12 Micro-Change Female Straight-to-M12 Ultra-Lock Male Straight | |
|--|--------------------------|--------------|------------|--------------|---------------|--------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 30V | Unshielded | PVC | 24 | 0.2m | E1WB03003M002 | 130048-0207 |
| | | | Shielded | PUR | 22 | | E1WB03010M002 | 130048-0208 |
| | | | Shielded | PVC | 26 | | E1WB03015M002 | 130048-0209 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | .2 | M002 |
| | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |



*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Ultra-Lock® (M12) Receptacles

120109

Female
Front Panel Mount
Back Panel Mount
Internal Thread



Features and Benefits

- Mates with both threaded M12 and Ultra-Lock® M12 cordsets
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Reference Information

UL File No.: E200650

Physical

Shell: Nickel-plated Brass
Insert: PUR
Conductors: Brass Gold-plated/Bronze selective Gold-plated
O-Ring: Viton®
Operating Temperature: -20 to +80° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6

| | | | |
|---------------|---|---|--|
| Configuration | Front-Panel Mount/ PG9 with 50.00mm Wire Leads | Front-Panel Mount/ M16 with 50.00mm Wire Leads | Back-Panel Mount/ M16 with 50.00mm Wire Leads |
| | Wire Type PVC Leads, UL 1061 | | |
| | Wire Size (AWG) 22 AWG | | |
| | Length .05m | | |

| Pole (Female View) | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
|--|--------------------------|--------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 125V | ERWAAJ3000C050 | 120109-0004 | ERWAAU3000C050 | 120109-5001 | ERWAAU7000C050 | 120109-5002 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|-------------|--------|------|
| Centimeters | 5 | C050 |
| | 0.3 | M003 |
| Meters | 1 | M010 |
| | 2 | M020 |

ERWAAJ3000C050

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Ultra-Lock® (M12) Receptacles

120109

**Female
Back Panel Mount
Front Panel Mount**



Features and Benefits

- Mates with both threaded M12 and Brad Ultra-Lock M12 cordsets
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Mechanical

Shell: Nickel-plated Brass
 Insert: PUR
 Conductors: Brass Gold-plated/Bronze selective Gold-plated
 O-Ring: Viton®

Electrical

TIA/EIA Rating: Category 5e

Environmental

Protection: IP67
 NEMA Rating: NEMA 6

| | Configuration | | | Front Panel Mount, PG9 Thread | | Front Panel Mount, M16 Thread | | Back-Panel Mount, M16 Thread | |
|--|---------------|--------------------------|--------------|-------------------------------|--------------------|-------------------------------|--------------------|------------------------------|--------------------|
| | Poles | Max. Current per Contact | Max. Voltage | PCB Mount | | PCB Mount | | PCB Mount | |
| | | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>4 Pole</p> <p>1 - Orange 4 - Blue-White 2 - Blue 5 - D-Coded 3 - Orange-White</p> | 1.5A | 125V | ERWD2J30 | 120109-5003 | ERWD2U30 | 120109-5004 | ERWD2U70 | 120109-5005 | |

Note: Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Industrial Ethernet Brad® Ultra-Lock® (M12) Receptacles

120109

Female
Straight
Back Panel Mount



Features and Benefits

- Mates with both threaded M12 and Ultra-Lock M12 cordsets
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Mechanical

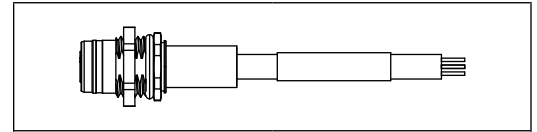
Shell: Nickel-plated Brass
Insert: PUR
Conductors: Brass Gold-plated/Bronze selective Gold-plated

Electrical

TIA/EIA Rating: Category 5e

Environmental

Protection: IP67
NEMA Rating: NEMA 6



Straight, Back Panel Mount

| Poles | Max. Current per Contact | Max. Voltage | Engineering No. | Standard Order No. |
|---|--------------------------|--------------|-----------------|--------------------|
| <p>4 Pole</p> <p>1 - Yellow (TD+) 3 - Orange (TD-) 2 - White (RD+) 4 - Blue (RD-)</p> | 1.5A | 125V | ERWAAJ4002M002 | 130054-0012 |
| | | | ERWAAJ4002M020 | 130054-0013 |

Note: Sales drawings for all standard order numbers are available on molex.com

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ERWAAJ4002**M020**

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Ultra-Lock® (M12) Double-Ended Receptacles

120109

M12 Panel Mount Female Receptacle-to-RJ-45 Male Plug



Features and Benefits

- Mates with both threaded M12 and Ultra-Lock M12 cordsets
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Reference Information

UL File No.: E200650

Mechanical

Shell: Nickel-plated Brass
Insert: Nylon
Conductors: Brass Gold-plated/Bronze selective Gold-plated
O-Ring: Viton®
Cable: PVC Jacket

Electrical

TIA/EIA Rating: Category 5E

Environmental

Protection: IP67

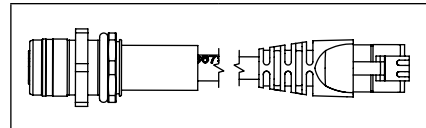
Cables

03—Unshielded PVC

Conductors: 24 AWG stranded tinned Copper wire
Pair: Two pair UTP Patch cable
Outside Diameter: 0.250" (5.6 mm) nominal
Jacket Material: Teal PVC
Cable Properties: Sun and oil resistant
Inner Material Insulation: HDPE
Certification: UL Type CMR, CEC C(UL) Type CMR
TIA/EIA Rating: Category 5e
Operating Temperature: -40 to +75° C

11—Shielded High Flex PUR, PROFINET Type C

Conductors: 22 AWG stranded tinned wire
Pair: 2 Pair STP patch cable
Outside Diameter (Nominal): 6.7mm (0.264")
Jacket Material: PUR, green
Cable Properties: Sun resistant
Inner Material Insulation: Polyolefin
Shield Type: Foil shield, braid shield, tinned Copper with minimum 85% coverage
Flex Rating: Trailing cable, 5 million bending cycles
Certification: UL and CSA
Operating Temperature: -40 to 80° C



| Pole (Female View) | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size | Length | Straight, Back Panel Mount, M16 Thread | |
|--|-----------------------------|--------------|--------------------|--------------|-----------|--------------|--|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| <p>1 - (TD+) 3 - (TD-) 2 - (RD+) 4 - (RD-)</p> | 1.5A | 30V | Unshielded | PVC | 24 | 0.6m (1.97') | ERWPAU7003M006 | 120109-0005 |
| | | | Shielded High Flex | PUR | 22 | 1.0m (3.37') | ERWPAU7011M010 | 120108-0252 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Configuration Code*
Build-a-Part Number

| | Length | Code |
|--------|--------|------|
| Meters | 2 | M020 |
| | 5 | M050 |
| | 10 | M100 |

ERWPAU7003M006

*Once an engineering number is created using the configuration code, consult Molex tech support for information regarding any part numbers.

Industrial Ethernet Brad® Micro-Change® (M12) Bulkhead Pass-Through Adapters

130054

**Female Straight,
Female Straight-to-Right Angle
Threaded
Back Panel Mount**

Features and Benefits

- Mates with both threaded M12 and (M12) cordsets
- Category 5e compliant
- IP67 rated, perfect for harsh industrial environments
- D-Coded to ensure proper alignment/mating

Mechanical

Shell: Nickel-plated Brass
Insert: PUR
Conductors: Brass Gold-plated/Bronze selective Gold-plated
O-Ring: Viton®



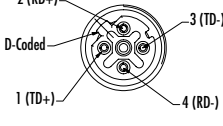
Electrical

Voltage Rating: 215V
Current: 4.0A
TIA/EIA Rating: Category 5e

Environmental

Protection: IP67



| Poles |  | |  | |
|--|---|--------------------|---|--------------------|
| | M12-to-RJ-45 Adapter with M16 Mounting Thread | | | |
| | Female Straight | | Female-Straight-to-Right Angle | |
| | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>4 Pole</p>  <p>1 (TD+) 3 (TD-) 2 (RD+) 4 (RD-)</p> <p>1 - Yellow (TD+) 3 - Orange (TD-) 2 - White (RD+) 4 - Blue (RD-)</p> | ER1PADAPTER | 130054-0009 | ER1PADAPTER90 | 130054-0010 |

Note: Sales drawings for all standard order numbers are available on molex.com.
Viton® is a registered trademark of E.I. DuPont De Nemours and Company.

Brad® Micro-Change® M12 CHT Circular Hybrid Technology Connector

120244/120355



Features and Benefits

- Shielded data lines for Cat 5e performance
- Fully shielded Cat 5e, 4-pin array with a wrap-around metal tube shielding
- Cat 5e data lines and power lines, carrying 6A (4+4) or 10A (4+2), in one connector
- IP67-sealed interface
- Cordsets feature M12 overmolded male-to-male CHT cable connectors
- Nickel-plated Brass cordset coupling nuts and receptacle shells

Physical

Connector Body: PUR
 Contact Carries: PUR for cable/Polyamide for receptacle
 O-Ring: NBR
 Coupling Nut: Nickel-plated Brass
 Contacts: Brass, Gold over Nickel
 Cables: Cable Jacket—PUR
 Data Lines—26 AWG
 Power Lines 4+4—0.75mm²
 Power Lines 4+2—1.5mm²

Environmental

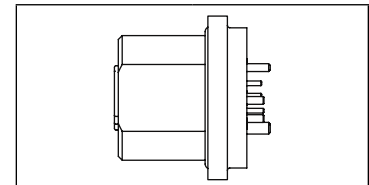
Protection: IP67
 Operating Temperature: -25° C to +75° C

Cordset CHT 4+4

| Front View | Max. Current per Contact | Max. Voltage | Wire Size | Length | Engineering No. | Standard Order No. |
|------------|--------------------------|--------------|--|--------|-----------------|--------------------|
| | 1.5A signal, 6A power | 30V | Data Lines: 26 AWG Power Lines: 0.75mm ² | 0.5m | 1202440201 | 120244-0201 |
| | | | | 1m | 1202440202 | 120244-0202 |
| | | | | 1.5m | 1202440203 | 120244-0203 |
| | | | | 2m | 1202440204 | 120244-0204 |
| | | | | 5m | 1202440205 | 120244-0205 |
| | | | | 10m | 1202440207 | 120244-0207 |

Cordset CHT 4+2

| Front View | Max. Current per Contact | Max. Voltage | Wire Size | Length | Engineering No. | Standard Order No. |
|------------|--------------------------|--------------|---|--------|-----------------|--------------------|
| | 1.5A signal, 10A power | 30V | Data Lines: 26 AWG Power Lines: 1.5mm ² | 0.5m | 1203550014 | 120355-0014 |
| | | | | 1m | 1203550015 | 120355-0015 |
| | | | | 1.5m | 1203550016 | 120355-0016 |
| | | | | 2m | 1203550017 | 120355-0017 |
| | | | | 5m | 1203550018 | 120355-0018 |
| | | | | 10m | 1203550020 | 120355-0020 |



Receptacle

| Pinning | Face View | Current (max. per contact) | Voltage (max.) | Connection | Configuration | Engineering No. | Standard Order No. |
|---------|-----------|----------------------------|----------------|------------|---------------------|-----------------|--------------------|
| CHT 4+4 | | 1.5A signal, 6A power | 30V | PCB Pins | M16x1.5, back mount | 1202440002 | 120244-0002 |
| CHT 4+2 | | 1.5A signal, 10A power | 30V | PCB Pins | M16x1.5, back mount | 1203550056 | 120355-0056 |

Brad® Micro-Change® (M12) X-Coded Cat6_A Receptacles

120341
Female



Features and Benefits

- Robust, compact M12 CAT6_A X-Coded connector design
- Complete 360° shielded design
- External and internal O-ring seals
- Receptacle PCB stand-offs
- Nickel-plated Brass housings and coupling nuts
- System mates using a standard M12 threaded coupling nut
- Receptacles can be mounted using through-hole reflow (THR) technology

Reference Information

Packaging:
Receptacles—Blister packs (25 pieces per pack)
UL File No.: E200650 pending
RoHS: Yes
Halogen Free: Yes

Electrical

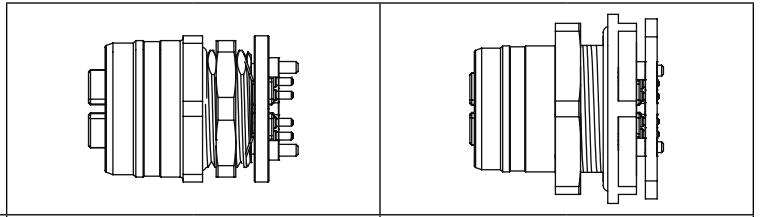
Voltage (max.): 48V
Current (max.): 0.5A
Contact Resistance: <5m Ohm
Insulation Resistance: >100M Ohm
Transmission Characteristics (Category): 6_A to TIA-568 and ISO/IEC 11801

Physical

Housing: Nickel-plated Brass
Coupling Nut: Nickel-plated Brass
Contact: Gold over Nickel

Environmental

Protection: IP67
Operating Temperature: -25 to +85° C



| Face View | Max. Current per Contact | Max. Voltage | Front Panel Mount | | Back Panel Mount | |
|--|--------------------------|--------------|-------------------|--------------------|------------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - White-Orange 2 - Orange 3 - White-Green 4 - Green 5 - White-Brown 6 - Brown 7 - White-Blue 8 - Blue</p> | 0.5A | 48V | 1203410075 | 120341-0075 | 1203410150 | 120341-0150 |

Brad® Micro-Change® (M12) X-Coded Cat6_A Double-Ended Cable Assemblies

120341
Male



Features and Benefits

- Robust, compact M12 CAT6_A X-Coded connector design
- Complete 360° shielded design: 4 twisted-cable pairs individually shielded and protected with a braided metal shield
- Male connector features X-Coded keying alignment
- Recessed male pins within die-cast metal X-Coded shield
- External and internal O-ring seals
- Factory overmolded and tested cable assemblies in AWG 26 wire gauge
- Nickel-plated Brass coupling nuts
- System mates using a standard M12 threaded coupling nut

Reference Information

Packaging:
Cables—Plastic bags, carton
UL File No.: E200650 pending
RoHS: Yes
Halogen Free: Yes

Electrical

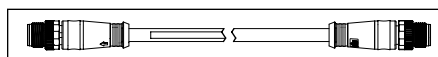
Voltage (max.): 48V
Current (max.): 0.5A
Contact Resistance: <5m Ohm
Insulation Resistance: >100M Ohm
Transmission Characteristics (Category): 6_A to TIA-568 and ISO/IEC 11801

Physical

Coupling Nut: Nickel-plated Brass
Contact: Gold over Nickel
Connector Body: PUR black
Cable: Blue PUR outer jacket, 4 twisted pairs 26 AWG,
Pair Shielding—Aluminum-bonded polyester tape (PIMF)
Cable Shielding—Tinned
Copper Wire Braid: -40 to +70° C

Environmental

Protection: IP67
Operating Temperature: -40 to +70° C

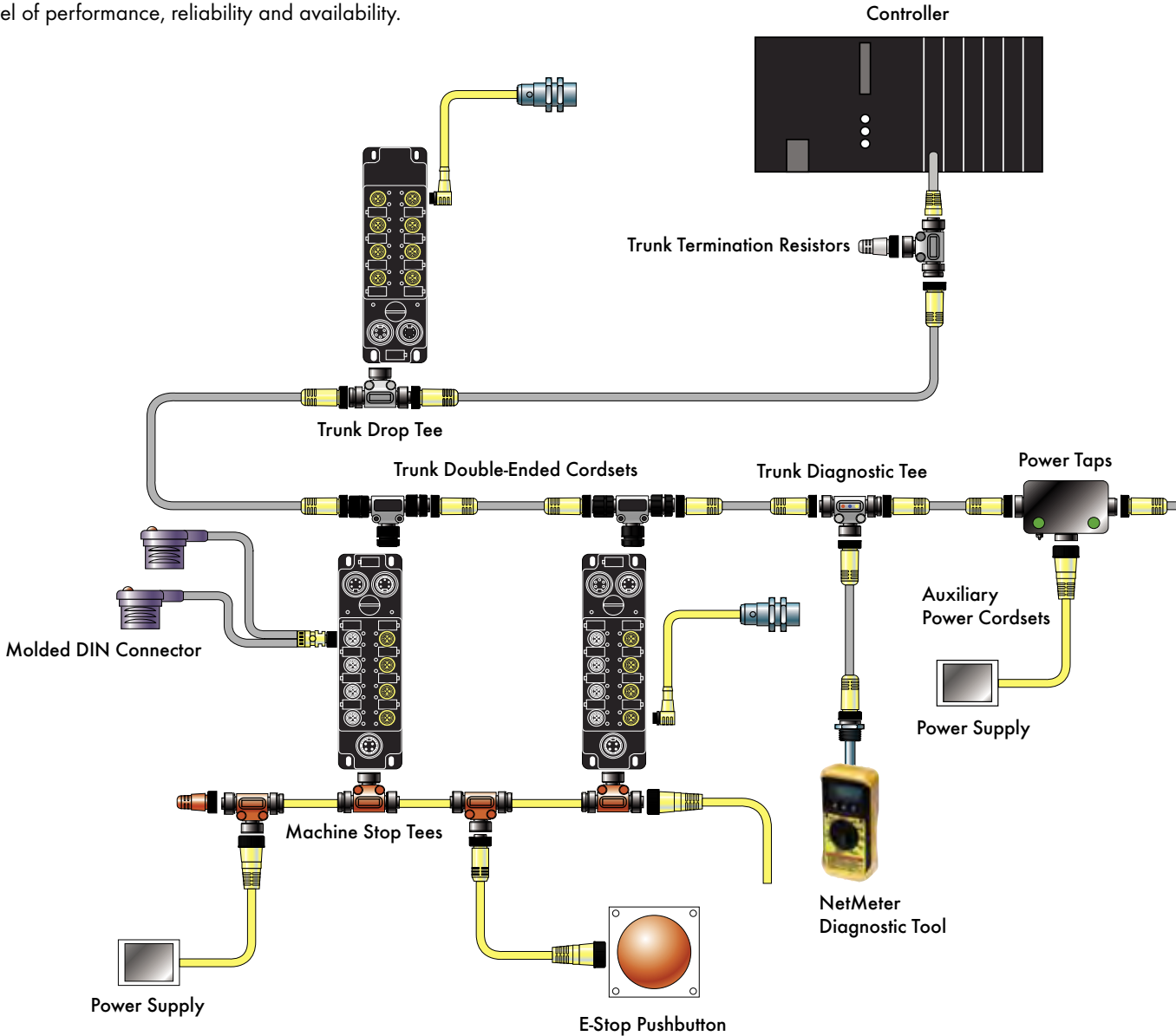


Male Straight to Male Straight

| Poles | Max. Current per Contact | Max. Voltage | Cable Type | Cable Jacket | Wire Size AWG | Cable Length | Engineering No. | Standard Order No. |
|--|--------------------------|--------------|------------|--------------|---------------|--------------|-----------------|--------------------|
| <p>8 Pole</p> <p>1 - White-Orange 2 - Orange 3 - White-Green 4 - Green 5 - White-Brown 6 - Brown 7 - White-Blue 8 - Blue</p> | 0.5A | 48V | Shielded | PUR | 26 | 0.5m | 1203410300 | 120341-0300 |
| | | | | | | 1.0m | 1203410301 | 120341-0301 |
| | | | | | | 2.0m | 1203410302 | 120341-0302 |
| | | | | | | 3.0m | 1203410303 | 120341-0303 |
| | | | | | | 4.0m | 1203410304 | 120341-0304 |
| | | | | | | 5.0m | 1203410305 | 120341-0305 |
| 10.0m | 1203410306 | 120341-0306 | | | | | | |

Brad® Other Networks

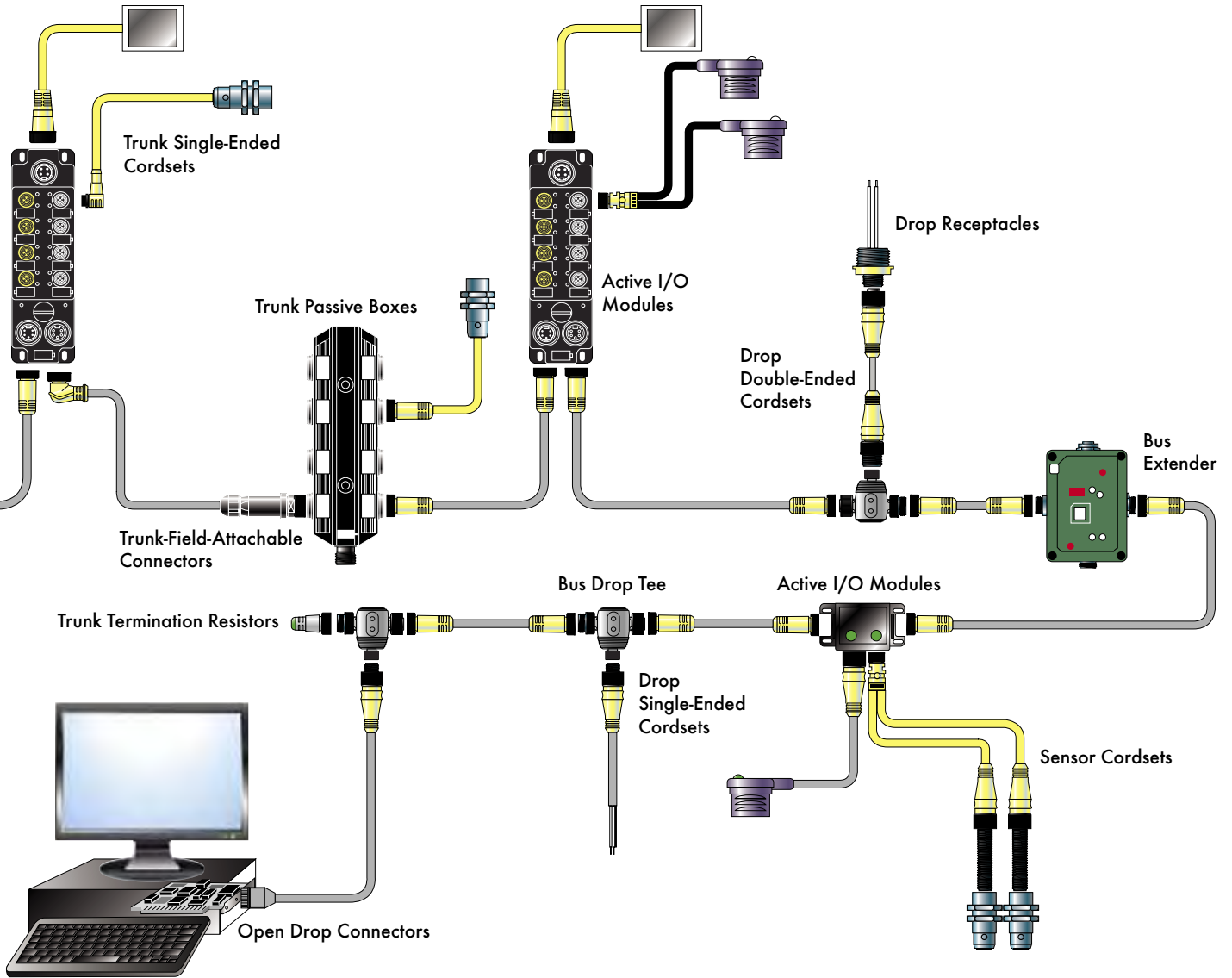
The Brad product portfolio covers more than 40 industrial protocols including current and legacy networks such as Modbus, CANopen, Serial, AS-interface, and CC-Link. Brad products offer users a complete communication and connectivity solution—from software drivers, interface cards, PLC communication modules, industrial gateways, IP67 digital I/O modules and network media. With over 20 years of experience and technical expertise in industrial communication and control, Molex is a dependable partner. Brad systems are installed around the world in sectors as varied as petrochemical, automotive, food processing and building management. Brad product lines are developed in compliance with the standards and specifications published by international organizations to guarantee a high level of performance, reliability and availability.



Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.











Other Networks

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.



PC-Based Control/HMI/SCADA

Components and Elements of DeviceNet System

- | | | | |
|---|-------------------|---|-----------------|
|  | Controller |  | Thick Media |
|  | I/O Devices |  | Thin Media |
|  | IP67 I/O Modules |  | Power Media |
|  | Media |  | Cordsets |
|  | Network Interface |  | I/O Connections |

Brad® SST™ Communication Module for Rockwell SLC 500

112019
AS-interface Scanner



Features and Benefits

- Connects your Allen-Bradley® SLC 500 to a AS-interface network
- Target markets: Factory automation, Process control, Complex machines, etc.
- Direct IO Mapping, no Ladder Logic to write for configuration and data transfer between module and SLC processor
- Supports 2 independent AS-i networks with up to 124 AS-i slave devices

Description

- High speed deterministic communication
- Fast, easy setup into SLC backplane
- AS-i IO data mapped into the SLC processor's I/O files
- Status information is mapped into the M0 and M1 files
- Multiple SST-ASI-SLC modules can be used in one SLC rack
- Configures scanner with Rockwell RSLogix 500
- Flash memory for storage of AS-i master IO configuration
- Easy diagnostics: Built-in LEDs

Included Hardware/Software

- Acts as 1756 Input/Output module
- Support multiple modules in a chassis
- 2x AS-interface Master channels
- Maximum slave supported: Up to 62 slaves on each channel
- AS-i Cycle Time: 150 μsec* (number of slaves +2)
- AS-I connector: 4-pin combicon connector
- IO Mapping:
 - I and O files: 32 words in, 32 words out
 - M1 and M0 files: 461 words in/out
- 1 Serial port for configuration and diagnostic
- Firmware upgradeable

Compatible Protocols

AS-interface Scanner compliant with specification 3.0

Conformance

- RoHS compliant
- CE
- AS-interface certified
- Rockwell Encompass™

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| AS-interface Communication module for Rockwell SLC 500 | SST-ASI-SLC | 112019-0004 |

Brad® SST™ Communication Module for Rockwell ControlLogix

112078
Serial and Ethernet TCP/IP



Features and Benefits

- Connects your Allen-Bradley ControlLogix to a Modbus Serial network
- Direct IO Mapping, no Ladder Logic to write for configuration and data transfer between module and CLX processor
- Fully integrated into the Rockwell Automation environment
- User-friendly configuration tool with intuitive graphical interface

Description

- RLL support: remote configuration and monitoring via RSLinx
- Add-On-Profile for Rockwell RSLogix5000
- USB port for user configuration and firmware upgrade
- Engineering console simplified user configuration and diagnostic
- Support multiple modules in a chassis
- Support Local and Remote chassis
- Easy diagnostics: Built-in LEDs and 4 characters display

Included Hardware/Software

- 128 MB of onboard memory
- 8 MB of flash memory (user configuration data and firmware)
- CPU Data exchange:
 - 496 Inputs bytes + 496 Output bytes
 - 32,000 Words Registers (CIP messaging)
- Type A, USB 2 and 1.1 compatible
- Communication Ports
 - 4x Serial, 110 bps to 115.2 kbps, RS232/RS485/RS422, RJ45 (DB9 male supplied cable)

Compatible Protocols

- Modbus Master (RTU or ASCII)
- Modbus Slave (RTU or ASCII)

Conformance

- RoHS compliant
- CE
- UL
- cUL
- Class 1 Div 2
- Rockwell Encompass™

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| Modbus communication module for Rockwell ControlLogix | SST-SR4-CLX-RLL | 112078-0001 |

Brad® SST™ Network Interface Card

112079

CC-Link Slave



Features and Benefits

- Deterministic data exchange with CC-Link controller for real time control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Best choice for Supervision/HMI/SCADA applications

Description

- Demo test software and sample source codes are available to enable fast integration of CC-Link into your application.
- Auto-Boot (Configuration stored in Flash)
- Includes Development Libraries
- Supported OS:
 - VxWorks
 - Windows 32-bit
 - Others: Open, documented memory map interface with C source code samples for custom driver development

Included Hardware/Software

- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
- Hardware Plug and Play
- ColdFIRE
- 256 Kb RAM + 256 Kb Flash Memory
- One Digital Input + 1 Digital Output
- One CC-Link port
- Connector: CC-Link compliant 5 pin terminal block with screws
- External Power: Nil
- Isolation: 500 Volts
- Display LEDs: ERR, RUN, SD and RD
- Station Number: 1 to 64
- Occupied Stations: 1 to 4
- Speed: 156K, 625K, 2.5M, 5M and 10M baud

Compatible Protocols

CC-Link Slave according spec. v1.1

Conformance

- RoHS compliant
- CE
- CC-Link conformance tested

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCI Network Interface Card for CC-Link, Bulk of 50 | SST-CCS-PCU-B50 | 112079-7001 |
| PCI Network Interface Card for CC-Link | SST-CCS-PCU | 112079-7002 |

Brad® applicom® Network Interface Card

112023

CANopen for PC-Based Control
and SCADA/HMI



Features and Benefits

- Deterministic data acquisition for real time PC-based control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very easy-to-use; no knowledge of protocol required
- Remote access via serial connection; enables configuration and diagnostic when using real time OS (VxWorks, QNX, etc.)
- Run Master and Slave modes simultaneously

Description

- Auto mapping of IO in card DPRAM
- IO exchange up to 14 Kbytes
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- PC/104 bus
- 8 Mb SDRAM; 512 Kb Flash Memory
- One Digital Input + 1 Digital Output
- One CANopen port
- Connector: HE13 2x5 pins
- Speed: 1 Kbps up to 1 Mbps
- LEDs for system status and communications status

Conformance

- RoHS compliant
- CE
- OPC certified

| Description | Engineering No. | Standard Order No. |
|---|-----------------|--------------------|
| PC/104 Network Interface Card for CANopen, HE13 Connector | DRL-CNO-104 | 112023-0007 |
| PC/104 Network Interface Card for CANopen, Bulk of 25 | DRL-CNO-104-B25 | 112023-5001 |

Brad® applicom® Network Interface Card

112021

CANopen for PC-Based Control and SCADA/HMI



Features and Benefits

- Deterministic data acquisition for real time Control applications
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- Very easy-to-use; no knowledge of protocol required
- Remote Access via TCP/IP connection; enables configuration and diagnostic when using real time OS (VxWorks, QNX, etc.)

Description

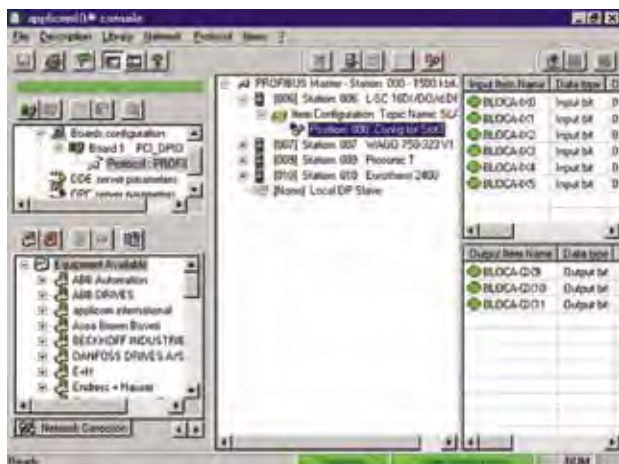
- High speed Auto mapping of IO in card DPRAM
- Hardware and software Watchdog
- Auto-Boot (Configuration stored in Flash)
- Engineering Tools:
 - Engineering console with automatic test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- Hardware Plug and Play
- AMD SC520
- 16 Mb SDRAM; 4 Mb Flash Memory
- One Digital Input + 1 Digital Output
- One CANopen port, DB9 male
- Speed: 1 Kbps up to 1 Mbps

Conformance

- RoHS compliant
- CE
- OPC certified
- PCI Express certified



Configuration Console



Device Diagnostics

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCI Network Interface Card for CANopen | DRL-CNO-PCU | 112021-0014 |
| PCI Express Network Interface Card for CANopen | DRL-CNO-PCIE | 112086-5018 |

Brad® applicom® Network Interface Card

112020

Serial Protocol for SCADA/HMI



Features and Benefits

- Fast data acquisition between PC-based applications and industrial devices connected to Serial networks
- On board co-processor eliminates data bottlenecks, ensuring delivery of time critical information
- All protocols are included
- Best choice for Supervision/HMI/SCADA applications
- Equipment redundancy via OPC server
- Combo offer: Serial + Ethernet

Description

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Supported OS:
 - Windows (32-bit and 64-bit): Seven, 2008 Server, Windows Vista®, 2003 Server, Windows XP®/XP Embedded
 - Others: Linux, VxWorks, RTX VenturCom

Included Hardware/Software

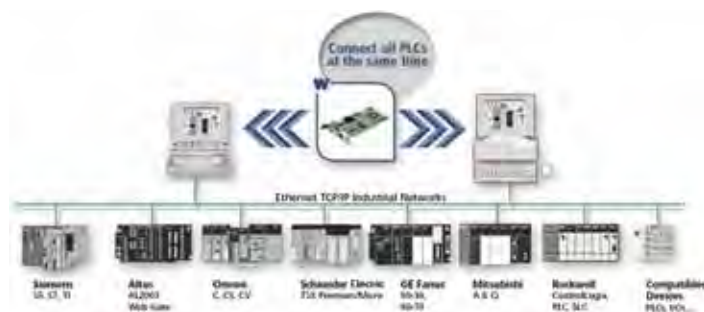
- Bus Format
 - PCI Universal bus 3.3V/5V (PCI-X compatible)
 - PCI Express 1x
- Hardware: Plug and Play
- AMD SC520
- 16 Mb SDRAM
- 4 Mb Flash Memory
- One Ethernet port
 - Fast Ethernet 10/100 Mbps, auto negotiating
 - Base-T (RJ-45), 4 leds (Rx, Tx, Link, 10/100)

Compatible Protocols

- Allen-Bradley® DF1 Master (PLC-5 and SLC Series)
- Elsag Bailey® Data Link Master (5000 and 2000 Series)
- GE Fanuc® SNPX Master (90-xx and 80-xx Series)
- Moeller Group® Sucoma Master (PS32, PS316 Series)
- Modbus Master® (ASCII and RTU)
- Modbus Slave® (ASCII and RTU)
- Omron® Sysmac Way Master
- Saia Burgess® S-Bus Master (PCD Series)
- Schneider Electric® Uni-Telway Master/Slave (TSX 7 Series)
- Siemens® 3964/3964R Free or RK512 Master
- Siemens AS511 Master (Simatic S5 Series)
- Siemens PPI/PPI+ Master (Simatic S7-200 Series)
- Siemens Ti-Dir Master (Simatic TI-505 Series)

Conformance

- RoHS compliant
- CE
- OPC certified
- PCI Express certified
- Rockwell Encompass™
- Schneider Collaborative



| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PCU1000 PCI Network Interface Card for Serial | APP-SR1-PCU-C | 112020-5017 |
| PCIE1000 PCI Network Interface Card for Serial | APP-SR1-PCIE | 112020-5018 |
| PCU2000ETH PCI Network Interface Card for Serial + Ethernet | APP-ESR-PCU-C | 112000-0003 |
| PCIE2000ETH PCI Express Network Interface Card for Serial + Ethernet | APP-ESR-PCIE | 112000-5027 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Brad® Direct-Link® Windows Compatible Protocol Drivers

112027

Serial and Ethernet TCP/IP



Features and Benefits

- Direct-Link® SW1000 provides data acquisition between Windows PC-based applications and industrial devices connected to Ethernet TCP/IP
- Economic solution; well suited for embedded and light architecture (laptop, panel PC, MMI)
- 100% software solution; use PC COM port or integrated Ethernet interface (3COM, NE2000)
- Wide variety of open and vendor specific industrial protocols
- 1000 tags, full tags and Siemens (S5, S7, TI) versions

Description

- Based on Windows TCP/IP socket
- All Ethernet protocols can run simultaneously
- All Ethernet protocols can run Client and Server modes
- Database (32 Kbits, 32 Kwords) for Server mode to exchange data with applications

Included Hardware/Software

- Engineering Tools:
 - Engineering console
 - Test and diagnostic tools
- Compatible Data Servers:
 - OPC DA v3.0, 2.05 and 1.0a
 - Wonderware® DAServer (XP only)
 - Wonderware IO (SuiteLink/FastDDE) (XP only)
- Includes Development Libraries
- Windows compatibility (32-bit and 64-bit): 7, 2008 Server, Windows Vista®, 2003 Server, Windows XP®
- Software or Dongle (Parallel or USB) Protection

Compatible Protocols

- Serial
 - Modbus Master (ASCII and RTU)
 - Modbus Slave (ASCII and RTU)
 - GE Fanuc® SNPX Master (90-xx and 80-xx Series)
 - Schneider Electric® Uni-Telway Slave (TSX 7 Series)
 - Siemens® AS511 Master (Simatic S5 Series)
 - Siemens PPI/PPI+ Master (Simatic S7-200 Series)
 - Siemens TI-Dir Master (Simatic TI-505 Series)
- Ethernet TCP/IP
 - Altus® Alnet II (AL200x, webgate); Client/Server
 - Alstom® SRTP (C80-35, C80-75); Client/Server
 - Allen-Bradley® Logix5000 (ControlLogix and FlexLogix); Client/Server
 - GE Fanuc SRTIP (C90-30, C90-70); Client/Server
 - Mitsubishi® Melsec (A and Q); Client/Server
 - Omron® FINS (C, CV, CS); Client/Server
 - Schneider Electric Modbus TCP and UDP; Client/Server
 - Schneider Electric UNI-TE (Premium and Micro); Client/Server
 - Siemens Industrial Ethernet (S5, S7, TI); Client/Server

| Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| SW1000 software drivers, 1000 tags, Software key protection | DRL-ALL-SWL-S | 112027-0005 |
| SW1000 software drivers, Full tags, Software key protection | DRL-ALL-SWF-S | 112027-0002 |
| SW1000 for Siemens (S5, S7, TI), Full tags, Software key protection | DRL-SIE-SWF-S | 112027-5014 |
| SW1000 software drivers, 1000 tags, USB dongle protection | DRL-ALL-SWL-U | 112027-0006 |
| SW1000 software drivers, Full tags, USB dongle protection | DRL-ALL-SWF-U | 112027-0003 |
| SW1000 for Siemens (S5, S7, TI), Full tags, Software key protection, USB dongle protection | DRL-SIE-SWF-U | 112027-5015 |
| SW1000 upgrade from 1000 tags to Full tags | DRL-UPG-SWF | 112027-0010 |

Brad® HarshIO 600

112098

CANopen Digital IP67 I/O module—Compact format



Features and Benefits

- Reliable solution for connecting industrial controllers to IO devices in harsh duty environments
- Visible LEDs provide maintenance personnel with the ability to easily determine IO, module and network status

Description

- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- Eight digital input/output module
- Supports PNP and NPN input devices

Compatible Protocols

CANopen Slave (DS401 Profile)

Conformance

- IP67 according to IEC 60529
- Vibration: IEC 60068-2-6 conformance
- Mechanical Shock: 10G, 11ms, 3 axis
- CE
- UL
- cUL
- RoHS compliant
- CANopen certified

Included Hardware/Software

- IO Configurations:
 - 8 inputs
 - 6 inputs + 2 outputs
 - 4 inputs + 4 outputs
 - 8 outputs
 - 8 universal (inputs or outputs)
- IO Connectors: 8x ports, M8 female 3-pole threaded
- CANopen Connectors:
 - 1x M12 male, 5-pole A-Coding
 - 1x Brad Ultra-Lock® (M12) female, 5-pole, A-Coding
- Power Requirements:
 - Module input power—24V DC
 - Module output power—24V DC, 4.0A max.
- Input Type:
 - Compatible with dry contact and PNP or NPN
 - Electronic short circuit protection
- CANopen Address: 1 to 100 by rotary switches
- Input Delay: 2.5ms default or configurable (through EDS)
- Input Device Supply: 200mA per port at 25° C
- Output Load Current: 2.0A max per channel, electronic short circuit protection
- Maximum Switching Frequency: 300 Hz
- Housing Dimensions: 30.00 by 175.00 by 20.00mm (1.18 by 6.89 by .78")
- Mounting Dimensions:
 - 23.00mm (0.91") horizontal on centers
 - 168.00mm (6.61") vertical on centers
- Operating Temperature: -25 to +70° C
- Storage Temperature: -40 to +85° C

| No. of Power Pins | IO Configuration | | Input Channel Type | Engineering No. | Standard Order No. |
|-------------------|------------------|---------------------------------|--------------------|-----------------|--------------------|
| | Input | Output | | | |
| 5 | 8 | | NPN | TBDCO-880N-804 | 112098-5006 |
| | 6 | 2 | NPN | TBDCO-862N-804 | 112098-5004 |
| | 4 | 4 | NPN | TBDCO-844N-804 | 112098-5002 |
| | 8 | | PNP | TBDCO-880P-804 | 112098-5007 |
| | 6 | 2 | PNP | TBDCO-862P-804 | 112098-5005 |
| | 4 | 4 | PNP | TBDCO-844P-804 | 112098-5003 |
| | | 8 | PNP | TBDCO-808P-804 | 112098-5001 |
| | | 8 Universal (inputs or outputs) | | PNP | TBDCO-8YYX-804 |

PICS Simulation® Software

112029

PICS PRO Software

PICS PRO Drivers

PICS PRO Software

PICS Simulation software simulates real-world systems and machines controlled by DCS, PLC and PC control systems. The entire system (communications, sequencing/interlocking, HMI/SCADA and alarms) can be tested, all emergency faults can be verified and operators trained, with minimal down-time.

PICS Simulation software enables you to identify and correct control system errors in the office, implement new processes quickly and accurately and avoid the high cost of production downtime before “flipping the switch.” PICS Simulation software provides your project team with a realistic and versatile testing and training environment.

How PICS Works

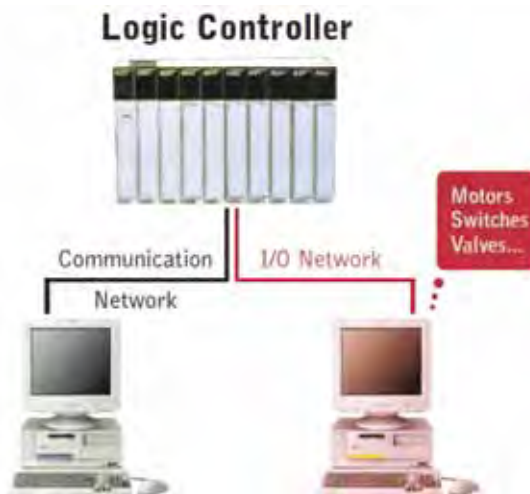
PICS Simulation software allows you to create a dynamic model on a PC that duplicates the behavior of the I/O devices, providing the control system with simulated device feedback.

PICS PRO can be used in Windows XP®, Vista® and 7 operating systems.

Features and Benefits

- Modern, customizable, visual development/debugging environment
- Ladder diagram editor for developing simulation logic (based on the IEC-61131-3 standard)
- Easy-to-use template editor for creating simulated devices and logic function blocks
- Device worksheets for graphically displaying the status of simulated devices and interacting with controls
- Importing I/O variables from popular PLC programming packages or from any delimited file format using the Import Wizard
- Editable scenarios for restoring or setting a simulation to a specific state greatly simplifies problem re-creation
- Faster startups—typically save up to 30% of the overall project programming, installation and debugging time
- Eliminate software bugs earlier in the project by locating and correcting software problems 10 to 20 times faster in a simulated environment
- Reduce downtime and project risk by installing tested and proven software
- Minimize project scheduling and cost uncertainties associated with debugging control logic problems
- Improved operator training because operators can gain valuable experience running production on the “live” control system in a simulated environment
- Training sessions can include emergency scenarios that would be too dangerous using the actual equipment

| Product Description | Engineering No. | Standard Order No. |
|--|-----------------|--------------------|
| PICS Simulation on CD and USB hardware key | SST-PICS-PRO-U | 112029-0027 |
| Allen-Bradley® 1771 Remote I/O (requires SST-DHP-PCI card) | PICS-PRO-AB | 112029-0008 |
| PROFIBUS DP I/O (requires SST-PBMS-PCI card) | PICS-PRO-PBMS | 112029-0012 |
| OPC Server (OPC client software ordered separately) | PICS-PRO-OPC | 112029-0011 |



NMEA 2000* Brad Connectors and Cables

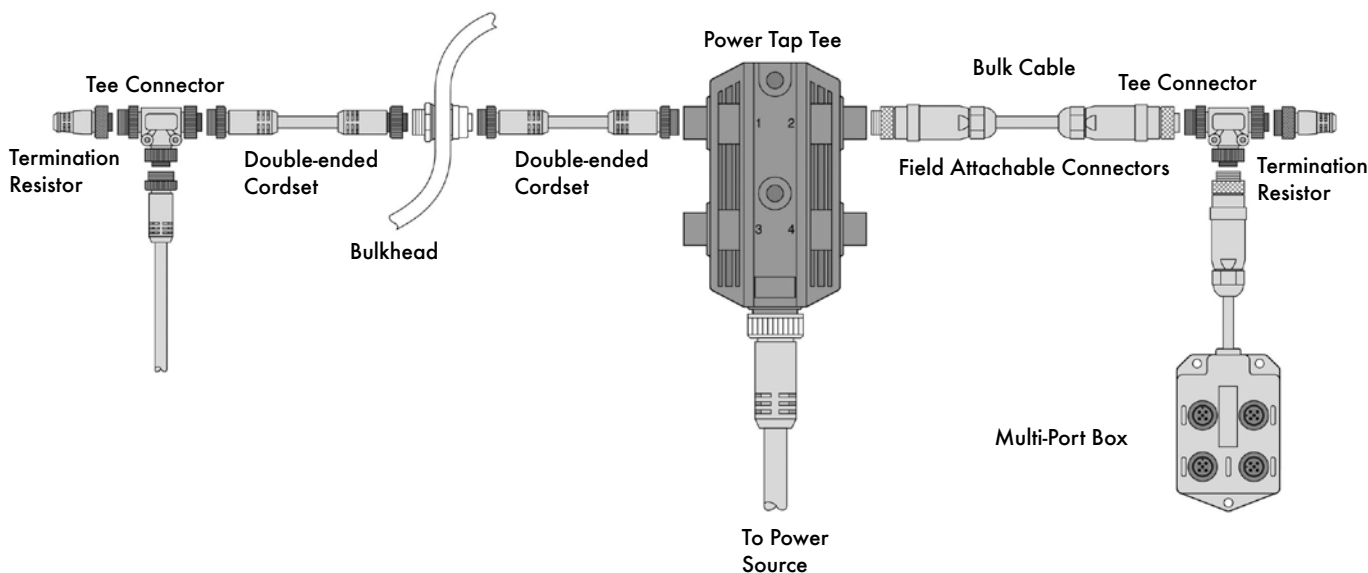
NMEA

Molex enables the NMEA 2000 physical layer for marine data network communication

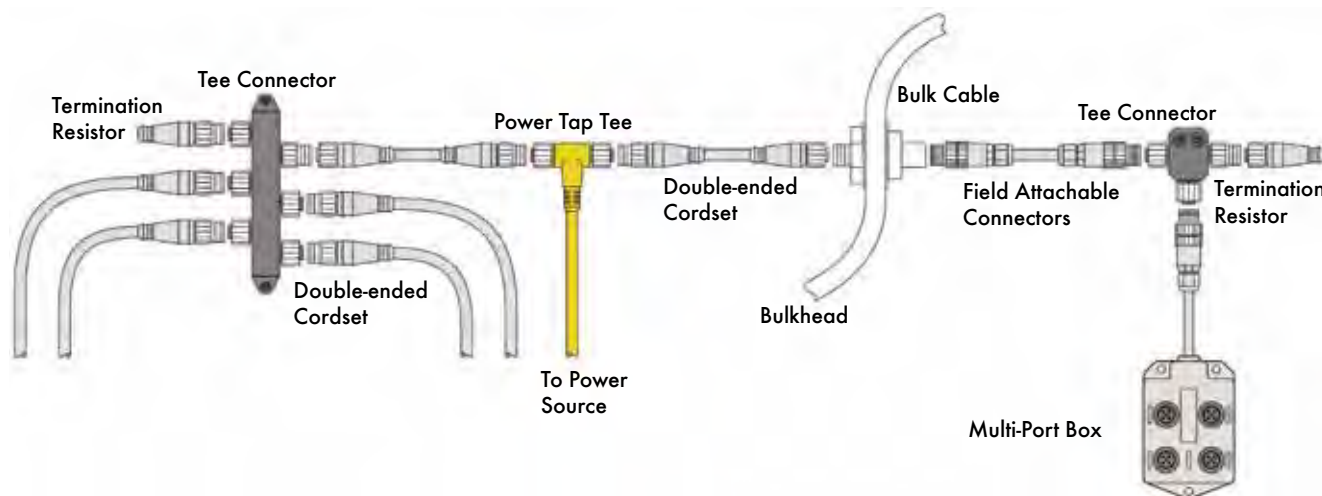
Molex designs, manufactures and supports a complete line of open standard cables, cable assemblies, connectors, terminators and power products supporting the NMEA 2000 system. NMEA 2000 is a low-cost data network operating at 250 Kbps and utilizing the Controller Area Network (CAN) integrated circuit (IC). It allows multiple electronic devices to be connected together on a common channel for the purpose of easily sharing information.

The NMEA 2000 cables and connectors are available in two styles: the Mini-Change® for thick backbones and the Micro-Change® for thin backbones.

Brad Mini-Change® NMEA 2000 Network



Brad Micro-Change® NMEA 2000 Network



* NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Thick Bulk Cables

84695
Bulk Cable



Features and Benefits

- Meets or exceeds ODVA specifications for highest system reliability

Reference Information

UL: Type CL2, VL 1581 flame resistance
CSA: AWM I/II and A/B FT4

Overall

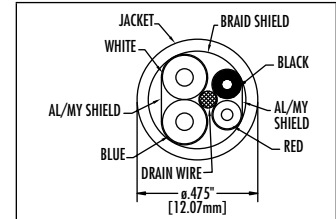
Rating: 300V, 80° C
Materials: Power—Gray PVC outer jacket, PVC with nylon skin inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs with 18 AWG (19x30 AWG) drain wire between pairs

Power Pair

Wire: Two 15 AWG (19x28 AWG) stranded tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC resistance: 3.6 ohms/1000 ft max. at 20° C
Current: 8.0A
Color Code: Red/Black

Data Pair

Wire: Two 18 AWG (19x28 AWG) stranded tinned Copper
Shielding: Aluminum outside/polyester tape 25% overlap
DC Resistance: 6.92 ohms/1000 ft max. at 20° C
Capacitance: 12pF/ft
Color Code: White/Blue



| Comments | Wire Size AWG | Wire Cable Type | Standard Order No. |
|-------------------------------------|---------------|-----------------|--------------------|
| 15 AWG Power Pair, 18 AWG Data Pair | 15/18 | Thick | 84695-9095 |

*NMEA is a trademark of the National Marine Electronics Association
Note: Sales drawings for all standard order numbers are available on molex.com

NMEA 2000* Brad® Thin Bulk Cables

84854
Bulk Cable



Features and Benefits

- Meets and exceeds ODVA specifications for the highest reliability
- Standard thin or drop line cable

Reference Information

UL: CL2, AWM 2464
CSA: FT4 rated

Overall

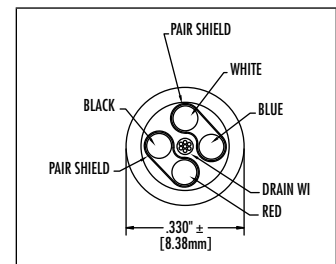
Rating: 300V 80° C
Materials: Power—PVC outer jacket with semirigid PVC inner insulation
Data—PE foam inner insulation
Construction: Two shielded pairs, 22 AWG Tin-Copper drain wire between pairs
Cable Jacket Color: Gray

Power Pair

Wire: Two 22 AWG individually tinned stranded Copper
Shielding: Aluminum foil shield, 25% overlap
DC Resistance: 16.5 ohms/1000 ft max. at 20° C
Current: 4.0A
Color Code: Red/Black

Data Pair

Wire: Two 22 AWG individually tinned stranded Copper
Shielding: Aluminum foil shield, 25% overlap
DC Resistance: 16.5 ohms/1000 ft max. at 20° C
Velocity of Propagation: 75%
Capacitance: 11pF/ft
Color Code: White/Blue



| Comments | Wire Size AWG | Wire Cable Type | Standard Order No. |
|-------------------------------------|---------------|-----------------|--------------------|
| 22 AWG Power Pair, 22 AWG Data Pair | 22/22 | Thin | 84854-9316 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) Single-Ended Cordsets

84854

**Female, Pigtail
Straight
Threaded**



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

Current: 4.0A max.

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, Gray
Wire: Two shielded pair 22 and 24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and tested to IEC IP67 standard
Vibration: Complies with MIL-STD 202F, Test Method 204, Test Condition B
Corrosion: 300 hour salt spray protection per MIL-STD 202 Method 101

| Face View | Length | Standard Order No. | |
|--|---------------|--------------------|-------------|
| | | Straight | Right Angle |
| <p>5 Pole</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 0.5m (1.64') | 84854-7021 | 84854-7028 |
| | 1.0m (3.28') | 84854-7022 | 84854-7029 |
| | 2.0m (6.56') | 84854-7023 | 84854-7030 |
| | 3.0m (9.84') | 84854-7024 | |
| | 4.0m (13.12') | 84854-7025 | 84854-7031 |
| | 5.0m (16.40') | 84854-7026 | |
| | 6.0m (19.69') | 84854-7027 | |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Micro-Change® (M12) Single-Ended Cordsets

84854

**Male
Straight, Right Angle
Threaded**



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

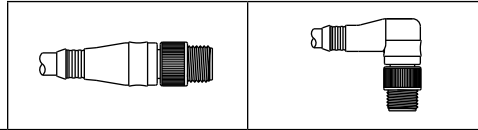
Current: 4.0A max.

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, Gray
Wire: Brad Micro-Change—Two shielded pair 22 and
24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and tested to IEC IP67 standard
Vibration: Complies with MIL-STD 202F, Test Method 204,
Test Condition B
Corrosion: Brad Micro-Change—300 hour salt spray
protection per MIL-STD 202 Method 101



| Circuits | Length | Male-Straight | Male-Right Angle |
|--|---------------|--------------------|--------------------|
| | | Standard Order No. | Standard Order No. |
| <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | 0.5m (1.64') | 84854-8021 | 84854-8028 |
| | 1.0m (3.28') | 84854-8022 | 84854-8029 |
| | 2.0m (6.56') | 84854-8023 | 84854-8030 |
| | 3.0m (9.84') | 84854-8024 | 84854-8031 |
| | 4.0m (13.12') | 84854-8025 | 84854-8031 |
| | 5.0m (16.40') | 84854-8026 | 84854-8031 |
| | 6.0m (19.69') | 84854-8027 | 84854-8031 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Micro-Change® (M12) Double-Ended Cordsets

84854
Female-to-Male
Straight
Threaded



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

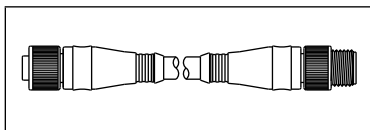
Current: 4.0A max.

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, gray
Wire: Brad Micro-Change—Two shielded pair 22 and 24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and tested to IEC IP67 Standard
Vibration: Complies with MIL-STD 202F, Test Method 204, Test Condition B
Corrosion: 300 hour salt spray protection per MIL-STD 202 Method 101



| Circuits | Connection Type | Length | Standard Order No. |
|--|-----------------|---------------|--------------------|
| <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | Male-to-Female | 0.5m (1.64') | 84854-6034 |
| | | 1.0m (3.28') | 84854-6035 |
| | | 2.0m (6.56') | 84854-6036 |
| | | 3.0m (9.84') | 84854-6037 |
| | | 4.0m (13.12') | 84854-6038 |
| | | 5.0m (16.40') | 84854-6039 |
| | | 6.0m (19.69') | 84854-6055 |
| | | 7.0m (22.97') | 84854-6041 |
| | | 8.0m (26.25') | 84854-6042 |
| | | 9.0m (29.53') | 84854-6043 |
| 10.0m (32.81') | 84854-6044 | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) Receptacles

84864
Female
Internal Thread



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

Current: 4.0A max.

Physical

Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, gray
Wire: Brad Micro-Change—Two shielded pair 22 and
24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and tested to IEC IP67 Standard
Vibration: Complies with MIL-STD 202F, Test Method 204,
Test Condition B
Corrosion: 300 hour salt spray protection per MIL-STD 202
Method 101

| Poles | Panel Mount | Female Single Ended (Pigtail) Straight | Female PCB Mount Straight | Female PCB Mount Right Angle |
|--|-------------|--|---------------------------|------------------------------|
| | | Standard Order No. | Standard Order No. | Standard Order No. |
| <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | Front | 84864-9004 | 84864-9005 | 84864-9006 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) Receptacles

84864
Male
External Thread



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

Current: 4.0A

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, gray
Wire: Brad Micro-Change—Two shielded pair 22 and
24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and tested to IEC IP67 Standard
Vibration: Complies with MIL-STD 202F, Test Method 204,
Test Condition B
Corrosion: 300 hour salt spray protection per MIL-STD 202
Method 101

| Poles | Panel Mount | Male Single Ended (Pigtail) Straight | Male PCB Mount Straight | Male PCB Mount Right Angle |
|--|-------------|--------------------------------------|-------------------------|----------------------------|
| | | Standard Order No. | Standard Order No. | Standard Order No. |
| <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | Front | 84864-9001 | 84864-9002 | 84864-9003 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Micro-Change® (M12) Field Attachable Connectors

084854

Female, Male
Straight



Features and Benefits

- Accepts a wide range of DeviceNet† cables for maximum installation flexibility
- Field termination for specific length or repair
- Internal and external threads
- Color-coded screw terminators make for error free field installation

Electrical

Voltage Rating: 36V DC
Current: 4.0A

Mechanical

Connector Face: Polyamide
Molded Body: Polyamide
Contact: Silver-plated Brass
Coupling Nut: Nickel-plated Brass
Grommet: Nitrite rubber
Cable Range OD: 0.160 to 32.00" OD (4.10 to 8.10mm)

Environmental

Protection: IP67

| Poles | Coupling Type | Female Straight | | Male Straight | |
|--|-----------------|--|--------------------|-----------------|--------------------|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| | | <p>5 Pole (Female View)</p> <p>1 - Silver (drain) 4 - White 2 - Red 5 - Blue 3 - Black</p> | Internal Thread | 848549317 | 84854-9317 |
| <p>5 Pole (Male View)</p> <p>1 - Silver (drain) 4 - White 2 - Red 5 - Blue 3 - Black</p> | External Thread | | | 848549318 | 84854-9318 |

Note: Sales drawings for all standard order numbers are available on molex.com

*NMEA 2000 is a trademark of the National Marine Electronics Association

†DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).

NMEA 2000* Brad® Micro-Change® (M12) Terminator Resistors

84586/84854

Female, Male
Female-to-Male
Straight

Features and Benefits

- Phosphor Bronze contacts for greatest reliability
- Used to terminate end of data line

Electrical

Voltage: 50V
Current: 4.0A

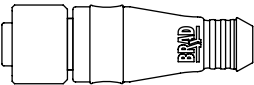
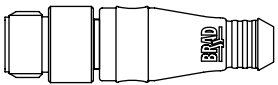
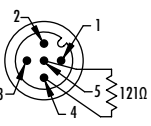
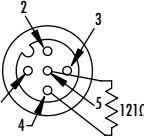
Physical

Connector Face: Micro-Change—Nylon
Molded Body: Diagnostic—Clear PVC
Standard—Gray PVC
Coupling Nut: Nickel-plated Brass
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Copper alloy

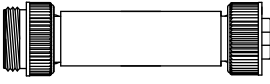
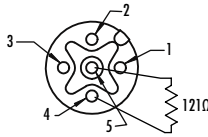
Environmental

Protection: IP67



| Poles (Female View) | Coupling Type |   | |
|--|-----------------|---|-------------------------------------|
| | | Female Straight Standard Order No. | Male Straight Standard Order No. |
|  <p>1 - no connection 4 - resistor 2 - no connection 5 - resistor 3 - no connection</p> | External Thread | | 84586-0018 |
|  <p>1 - No connection 4 - Resistor 2 - No connection 5 - Resistor 3 - No connection</p> | Internal Thread | 84586-0019 | |

Note: Sales drawings for all standard order numbers are available on molex.com

| Poles (Female View) | Coupling Type |  | |
|--|---------------|---|--|
| | | Female-to-Male Standard Order No. | |
|  <p>1 - No connection 4 - Resistor 2 - No connection 5 - Resistor 3 - No connection</p> | In-line | 84854-9319 | |

Note: Sales drawings for all standard order numbers are available on molex.com

*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Micro-Change® (M12) Bus Drop Tee

84586



Features and Benefits

- Phosphor Bronze contacts for greatest reliability
- Tees enable tapping into trunk line to add drop lines or devices

Electrical

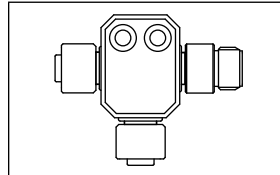
Voltage: 250V
Current: 4.0A

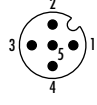
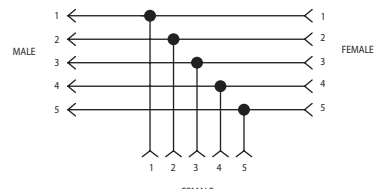
Physical

Connector Face: Black PUR
Molded Body: Gray PUR
Coupling Nut: Nickel-plated Brass
O-Ring: Red Nitrile Rubber
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Nickel alloy
Operating Temperature: 0 to 60° C

Environmental

Protection: IP67



| Face View | Wiring Schematic | Standard Order No. |
|--|---|--------------------|
| <p>(Male View)</p> <p>5 Pole</p>  |  | <p>84586-0017</p> |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) Power Tap Tees

84863
Female, Pigtail



Features and Benefits

- Rugged IP67 rated connectors bring power to active I/O modules reliably
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Electrical

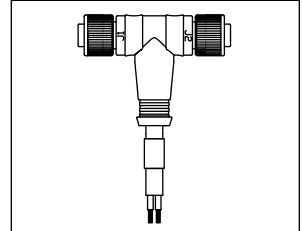
Voltage Rating: 250V AC/DC
Amperage: 4.0A

Physical

Connector Face: Nylon 6/6
Molded Body: PVC
O-Ring: Nitrile Rubber
Coupling Nut: Nickel-plated Brass
Cable: Yellow 22 AWG PVC jacket and PFC conductor insulation over 26x36 AWG Copper standing, 300V, UL style 2661, CSA AWM I/II A/B, optional 80% Metallic braid
Outside Diameter: Without Braid—.20" (5.10mm)
With Braid—.25" (6.40mm)
Operating Temperature: -20 to +105° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Drop Gender | Left Trunk Gender | Right Trunk Gender | Standard Order No. |
|---------------------|-------------|-------------------|--------------------|--------------------|
| <p>5 Pole</p> | Pigtail | Female | Female | 84863-9001 |
| | | | | 84863-9002 |
| | | | | 84863-9003 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) Junction Boxes

84589

**Top Mount, 4-Port with
Molded Home Run Cable**



Features and Benefits

- Versions with home run connectors and with molded home run cable available for maximum system design flexibility
- Rugged housing and connectors designed to withstand harsh industrial environments

Electrical

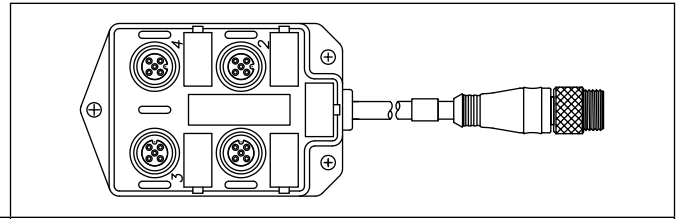
Voltage Rating: 30V AC/DC
Current: 4.0A per port
12.0A max. per unit

Physical

Insert: PA
Housing: Glass-filled PBT
Housing (Receptacle): Nickel-plated Brass
ID Label: ABS
Home Run Cable: Brad Mini-Change®, thin
Home Run Connectors: Male, Brad Micro-Change
Operating Temperature: -25 to +90° C

Environmental

Protection: IP67
NEMA Rating: NEMA 6



| Poles (Female View) | Ports | Home Run Cable Length | Top Mount |
|--|-------|-----------------------|--------------------|
| | | | Standard Order No. |
| 5 Pole 1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V- | 4 | 0.5m (1.64') | 84859-9001 |
| | | 1.0m (3.28') | 84859-9002 |
| | | 2.0m (6.56') | 84859-9003 |
| | | 3.0m (9.84') | 84859-9004 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Mini-Change® Double-Ended Cordsets

84856

**Male-to-Female
Threaded**



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Electrical

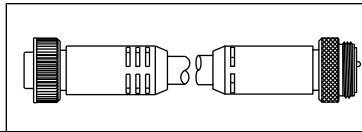
Current: 4.0A
Voltage: 300V

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVC jacket, Gray
Wire: Brad Mini-Change — Two shielded pair 18 and
15 AWG with copper drain wire between pairs
Power Pair — Red/Black
Data Pair — Blue/White
Operating Temperature: -20 to +80° C

Environmental

Protection: Designed and Tested to IEC IP67 Standard
Vibration: Complies with MIL-STD 202F, Test Method 204,
Test Condition B
Corrosion: Brad Mini-Change — 300 hour salt spray
protection per MIL-STD 202 Method 101



| Poles (Female View) | Connection Type | Length | Standard Order No. |
|--|-----------------|---------------|--------------------|
| <p>5 Pole</p> <p>1 - Drain 4 - CAN_H 2 - V+ 5 - CAN_L 3 - V-</p> | Male-to-Female | 0.5m (1.64') | 84856-1200 |
| | | 1.0m (3.28') | 84856-1201 |
| | | 2.0m (6.56') | 84856-1202 |
| | | 3.0m (9.84') | 84856-1203 |
| | | 4.0m (13.12') | 84856-1204 |
| | | 5.0m (16.40') | 84856-1205 |
| | | 6.0m (19.69') | 84856-1206 |
| | | 7.0m (22.97') | 84856-1207 |
| | | 8.0m (26.25') | 84856-1208 |
| | | 9.0m (29.53') | 84856-1209 |
| 10.0m (32.81') | 84856-1210 | | |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Mini-Change® Field Attachable Connectors

084856

Female, Male
Straight



Features and Benefits

- Accepts a wide range of DeviceNet† cables for maximum installation flexibility
- Field termination for specific length or repair
- Internal and external threads
- Color-coded screw terminators make for error free field installation

Electrical



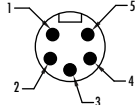
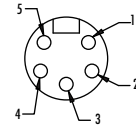
Voltage: 600V AC/DC
Current: 8.0A

Mechanical

Connector Face: Polyurethane
Connector Body: Polyamide
Contact: Gold-plated Brass
Coupling Nut: Nickel-plated Brass
Grommet: Neoprene
Cable Range OD: 0.20-0.48" (5.00-12.00mm)
Acceptable Wire Gauges: 24-15 AWG (0.25-2.0mm²)

Environmental

Protection: IP67

| Poles | Coupling Type |  |  |
|---|-----------------|--|---|
| | | Male Straight Standard Order No. | Female Straight Standard Order No. |
| 5 Pole (Male View)  1 - Drain silver 4 - White 2 - Red 5 - Blue 3 - Black | External Thread | 84856-9102 | |
| 5 Pole (Female View)  1 - Drain (silver) 4 - White 2 - Red 5 - Blue 3 - Black | Internal Thread | | 84856-9101 |

Note: Sales drawings for all standard order numbers are available on molex.com

*NMEA 2000 is a trademark of the National Marine Electronics Association

†DeviceNet is a trademark of OpenDeviceNet Vendor Association (ODVA)

NMEA 2000* Brad® Mini-Change® Terminator Resistors

084856

Male, Female
Straight



Features and Benefits

- Phosphor bronze contacts for greatest reliability
- Diagnostics versions indicate power connection and correct polarity
- Used to terminate end of data line
- Trunk and drop versions
- LED diagnostic versions

Electrical

Voltage: 50V
Current: 8.0A

Physical

Connector Face: PVC
Molded Body: Diagnostic—Clear PVC
Standard—Gray PVC
Coupling Nut: Nickel-plated Brass
Contact Material: Phosphor Bronze alloy
Contact Plating: Gold over Copper alloy
LED: Green—Proper polarity
Red—Improper polarity

Environmental

Protection: IP67

| Poles (Female View) | Coupling Type | Diagnostics/LEDs | Male Straight | | Female Straight | |
|--|-----------------|------------------|-----------------|--------------------|-----------------|--------------------|
| | | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| <p>1 - No connection 4 - Resistor 2 - No connection 5 - Resistor 3 - No connection</p> | External Thread | No | N/A | 84856-9108 | | |
| | External Thread | | | | N/A | 84856-9109 |
| | Internal Thread | Yes | N/A | 84856-9110 | | |
| | Internal Thread | | | | N/A | 84856-9111 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Mini-Change® Bus Drop Tee

084856



Features and Benefits

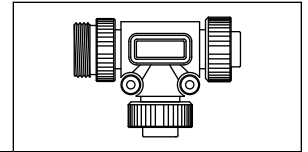
- Phosphor bronze contacts for greatest reliability
- Tees enable tapping into trunk line to add drop lines or devices

Physical

Connector Face: TPE
Molded Body: TPE
Coupling Nut: Nickel-plated Brass
Contact Material: Phosphor Bronze Alloy
Contact Plating: Gold over Nickel Alloy

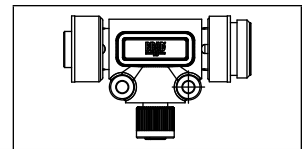
Environmental

Protection: Mini-Change—IP67
Micro-Change®—IP67



| Face View (Female) | Max. Current per Contact | Max. Voltage | Drop Connector | Left Trunk Connector | Right Trunk Connector | Standard Order No. |
|--------------------|--------------------------|--------------|----------------|----------------------|-----------------------|--------------------|
| | 8.0A | 600V | Mini-Change | Mini-Change | Mini-Change | 84856-9104 |

Note: Sales drawings for all standard order numbers are available on molex.com



| Face View (Male) | Max. Current per Contact | Max. Voltage | Drop Connector | Left Trunk Connector | Right Trunk Connector | Standard Order No. |
|------------------|--------------------------|--------------|--------------------|----------------------|-----------------------|--------------------|
| | 4.0A | 300V | Micro-Change (M12) | Mini-Change | Mini-Change | 84856-9105 |

Note: Sales drawings for all standard order numbers are available on molex.com

*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Mini-Change® Power Tap

84856

Male Drop-to-Female/Female



Features and Benefits

- Connects power supply to trunk line in convenient plug/play fashion
- Easily replaceable fuses to protect bus and connected components from excessive current
- Provides LED status indication of power and correct polarity connection for simple diagnostics

Electrical

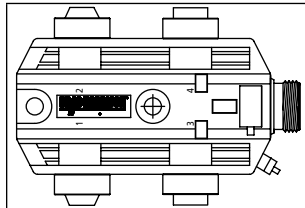
Voltage Rating: 50V DC
Fuse Protection: 4.0A
Grounding: 10-32 Screw

Physical

Insert: Nylon 6/6
Housing: PBT
Receptacle Housing: Zinc diecast with black epoxy coat
ID Label: ABS
Mounting: 2PTS, 0.290" (7.37mm)
Operating Temperature: -29 to +70° C

Environmental

Protection: IP67



| Face View (Female) | Standard Order No. |
|--|--------------------|
| <p>Left Bus-In Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | 84856-9112 |
| <p>Drop Power</p> <p>1 - Vaux- 3 - Vaux+ 2 - no connection 4 - no connection</p> | |
| <p>Right Bus-Out Female</p> <p>1 - Drain 4 - CAH_H 2 - V+ 5 - CAH_L 3 - V-</p> | |

Note: Sales drawings for all standard order numbers are available on molex.com

*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

NMEA 2000* Brad® Mini-Change® Auxiliary Power Single-Ended Cordsets

84856

Female



Features and Benefits

- Rugged IP68 rated connectors bring power to active I/O modules reliably
- Variety of cable type, connector configuration and cable length options available for maximum flexibility

Electrical

Voltage Rating: 600V AC/DC
Amperage: 10.0A

Physical

Connector Face: PVC-UL Std 94-V0
Molded Body: PV-UL Std 94-V0
Coupling Nut: Zinc diecast with black epoxy coat, optional stainless Steel type 303 or Nickel-plated Brass
Cable: Yellow, 16 AWG, PVC jacket, PVC conductor insulation over 65x34 AWG Copper stranding, UL STOOW CSA ST
Cable Diameter: 0.42" (10.77 mm)
Operating Temperature: -20 to +105° C

Environmental

Protection: IP68
NEMA Rating: NEMA 6P

| Poles (Female View) | Length | Standard Order No. |
|--|--------|--------------------|
| <p>4 Pole</p> <p>1 - Black 3 - Red 2 - White 4 - Green-yel</p> | 1.0m | 84856-9113 |
| | 5.0m | 84856-9114 |
| | 10.0m | 84856-9115 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12)/ Brad Mini-Change® Bulkhead Feed-Through Receptacles

84854/84856

Male-to-Female
Straight



Reference Information

NMEA 2000 Approved
UL File No.: E81982

Physical

Molded Connector: PVC
Coupling Ring: Brass, Nickel
Contacts: Copper alloy, Gold plated
Cable: PVD jacket, gray
Wire: Brad Micro-Change—Two shielded pair 22 and
24 AWG with Copper drain wire between pairs
Operating Temperature: -20 to 80° C

Environmental

Protection: Designed and tested to IEC IP67 Standard
Vibration: Complies with MIL-STD 202F, Test Method 204,
Test Condition B
Corrosion: Brad Micro-Change—300 hour salt spray
protection per MIL-STD 202 Method 101

| Poles (Female View) | Max. Current per Contact | Max. Voltage | Mounting Thread Size | Coupling Type | Male-Female Brad Micro-Change (M12) | Male-to-Female Brad Mini-Change |
|--------------------------------|-----------------------------|--------------|-------------------------|-----------------|-------------------------------------|---------------------------------|
| | | | | | Standard Order No. | Standard Order No. |
| <p>Mini-Change 5 Pole</p> | 4.0A | 250V AC/DC | M12 X 1.0 | External Thread | 84854-9300 | |
| <p>Micro-Change 5 Pole</p> | 8.0A | 600V AC/DC | 7/8" - 16 Un-2A | | | 84856-9103 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

NMEA 2000* Brad® Micro-Change® (M12) and Mini-Change® Closure Caps

84854/84856

Female, Male
Straight, Threaded



| Micro-Change (M12) | Standard Order No. |
|----------------------|--------------------|
| For Female Connector | 84854-9019 |

| Mini-Change | Standard Order No. |
|----------------------|--------------------|
| For Female Connector | 84856-9106 |
| For Male Connector | 84856-9107 |

Note: Sales drawings for all standard order numbers are available on molex.com
*NMEA 2000 is a trademark of the National Marine Electronics Association

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Industrial USB Plugs and Receptacles

Industrial USB connectors bring one of the most popular and convenient I/O connectors into harsh commercial and industrial environments

Many industrial devices and networks use a direct interface to a PC for programming, monitoring, data collection and diagnostics of the industrial bus. Molex's sealed, industrial Universal Serial Bus (USB) connectors are ideal for industrial and harsh commercial applications, where a secure and robust connection is required. The rugged, plug and receptacle designs feature bayonet-style latches, encapsulated PCB receptacles and overmolded cable assemblies to help keep out dust, debris and water.

USB connectors are ideal for both short-term diagnostics that require simple and fast setup, and permanent installations for data acquisition systems. Once software has been installed, USB plugs and receptacles can be quickly connected and disconnected from various devices without having to turn off computers or equipment. High performance results and ease-of-use make industrial USB from Molex a valuable solution for a variety of harsh environment applications.

For more information on Industrial USB Plugs and Receptacles, please visit: www.molex.com/product/industrialusb.html.

Features and Benefits

- IP67 and NEMA 6P ratings ensure cordsets are water and dust tight for functional integrity
- Overmolded cordsets allow for faster installation at customer site versus field-wireable designs
- Bayonet-style latch receptacle provides quick and easy connection and ensures proper insertion depth with mating
- Cordsets available in varied lengths up to 5.00m (16.40') which allows customers to choose the length convenient for their specific application
- Fully shielded cable provides Electro-magnetic Interference/Radio Frequency Interference (EMI/RFI) protection



Applications

- Factory Automation
 - Industrial Computers
 - Industrial Controllers
 - Factory Peripherals
 - Printers
 - Barcode Scanners
- Robotics
- Vision Systems
- Motion and Process Controls
- Test and Measurement Equipment
- Medical Devices
- Factory Networking Installations
- Production Equipment

Industrial USB Brad® Shielded Overmolded Cordset

84732

Double Ended Bayonet Style Type-A Plug to Bayonet Style Type-B Plug



| Order No. | Length | Lead-free |
|------------|---------------|-----------|
| 84732-0001 | 0.80m (2.62') | Yes |
| 84732-0002 | 1.50m (4.92') | |
| 84732-0003 | 2.0m (6.56') | |
| 84732-0004 | 3.0m (9.84') | |
| 84732-0005 | 5.0m (16.40') | |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating

Reference Information

Packaging: Bag
Mates With: 84729 and 84730
Designed In: Inches
Flammability: UL 94V-0
Performance: USB 2.0

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N (7.87 lb) max.
Withdrawal Force: 10N (2.25 lb) min.
Durability: 1000 mating cycles

Physical

Overmolding: PVC, black
Coupling Ring: Polyester, black
Contact: Copper alloy
Plating: Contact Area—0.75µm (30µ") Gold
Underplating—Nickel
Gasket Seal: Nitrile, black
Operating Temperature: 0 to +70° C

Industrial USB Brad® Shielded Overmolded Cordset

84727

Bayonet Style Type-A Plug to Shielded Pigtail



| Order No. | Length | Lead-free |
|------------|---------------|-----------|
| 84727-1005 | 0.15m (.49') | Yes |
| 84727-1002 | 1.50m (4.92') | |
| 84727-1001 | 2.0m (6.56') | |
| 84727-1003 | 3.0m (9.84') | |
| 84727-1004 | 5.0m (16.40') | |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Compliance with USB 2.0 specification

Reference Information

Packaging: Bag
Mates With: 84729
Designed In: Inches
Flammability: UL 94V-0
Performance: USB 2.0

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N (7.87 lb) max.
Withdrawal Force: 10N (2.25 lb) min.
Durability: 1000 mating cycles

Physical

Overmolding: PVC, black
Coupling Ring: Polyester, black
Contact: Copper alloy
Plating: Contact Area—0.75µm (30µ") Gold
Underplating—Nickel
Gasket Seal: Nitrile, black
Operating Temperature: 0 to +70° C

Industrial USB Brad® Shielded Overmolded Cordset

84728

**Bayonet Style Type-B
Plug-to-Pigtail**



| Order No. | Length | Lead-free |
|------------|---------------|-----------|
| 84728-1005 | 0.15m (.49') | Yes |
| 84728-1002 | 1.50m (4.92') | |
| 84728-1001 | 2.0m (6.56') | |
| 84728-1003 | 3.0m (9.84') | |
| 84728-1004 | 5.0m (16.40') | |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Compliance with USB 2.0 specification

Reference Information

Packaging: Bag
Mates with: 84730
Designed In: Inches
Flammability: UL 94V-0
Performance: USB 2.0

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N (7.87 lb) max.
Withdrawal Force: 10N (2.25 lb) min.
Durability: 1000 mating cycles

Physical

Overmolding: PVC, black
Coupling Ring: Polyester, black
Contact: Copper alloy
Plating: Contact Area—0.75µm (30µ") Gold
Underplating—Nickel
Gasket Seal: Nitrile, black
Operating Temperature: 0 to +70° C

Industrial USB Brad® Shielded Overmolded Cordset

84729

**Bayonet Style
Type-A Sealed Panel Mount
Receptacle to Standard Type-A
Plug**



| Order No. | Length | Lead-free |
|------------|----------------|-----------|
| 84729-0003 | 0.152m (.498') | Yes |
| 84729-0004 | 0.8m (2.62') | |
| 84729-0005 | 1.50m (4.92') | |
| 84729-0006 | 2.0m (6.56') | |
| 84729-0007 | 3.0m (9.84') | |
| 84729-0008 | 5.0m (16.40') | |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Compliance with USB 2.0 specification

Reference Information

Packaging: Bag
Mates With: 84727 and 84732
Designed In: Inches
Flammability: UL 94V-0
Performance: USB 2.0

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Lock Nut Destructive Torque: 2.71Nm (24 in. lb) or more
Mating Force: 35N (7.87 lb) max.
Withdrawal Force: 10N (2.25 lb) min.
Durability: 1000 mating cycles

Physical

Overmolding: PVC, black
Receptacle Housing: PBT, black
Lock Nut: PBT, black
Contact: Copper alloy
Plating: Contact Area—0.75µm (30µ") Gold
Underplating—Nickel
Panel Gasket: Neoprene, black
Operating Temperature: 0 to +70° C

Industrial USB Brad® Panel Mount PCB Receptacle 84729/84730 Bayonet Style



| Order No. | Description | Lead-free |
|------------|-------------|-----------|
| 84729-0009 | USB Type A | Yes |
| 84730-0010 | USB Type B | |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Compliance with USB 2.0 specification ensures compatibility with standard USB cables

Reference Information

Packaging: Bag
 Mates With: Type A—84727 and 84732
 Type B—84728 and 84732
 Designed In: Inches
 Flammability: UL 94V-0
 Performance: USB 2.0

Electrical

Voltage: 30V
 Current: 1.0A
 Contact Resistance: 30 milliohms max.
 Dielectric Withstanding Voltage: 750V AC
 Insulation Resistance: 1000 Megohms min.

Mechanical

Lock Nut Destructive Torque: 2.71Nm (24 in. lb) or more
 Mating Force: 35N (7.87 lb) max.
 Withdrawal Force: 10N (2.25 lb) min.
 Durability: 1000 mating cycles

Physical

Receptacle Housing: PBT, black
 Lock Nut: Polyamide 6/6, black
 Contact: Copper alloy
 Plating: Contact Area—0.75µm (30µ") Gold
 Underplating—Nickel
 Gasket Seal: Neoprene, black
 Operating Temperature: 0 to +70° C

Industrial USB Brad® Type-A Panel Mount Receptacle 84729 Bayonet Style to 5-Circuit Pigtail



| Order No. | Length | Lead-free |
|------------|--------------|-----------|
| 84729-0001 | 0.15m (.49') | Yes |

Features and Benefits

- Standard USB shielded I/O system in a rugged, industrial sealed package
- Fully shielded for EMI/RFI protection
- IP67 and NEMA 6P rated cable assemblies are water and dust tight for functional integrity
- Bayonet style latching provides audible and tactile confirmation of positive mating
- Compliance with USB 2.0 specification

Reference Information

Packaging: Bag
 Mates With: 84727 and 84732
 Designed In: Inches
 Flammability: UL 94V-0
 Performance: USB 2.0

Electrical

Voltage: 30V
 Current: 1.0A
 Contact Resistance: 30 milliohms max.
 Dielectric Withstanding Voltage: 750V AC
 Insulation Resistance: 1000 Megohms min.

Mechanical

Lock Nut Destructive Torque: 2.71Nm (24 in. lb) or more
 Mating Force: 35N (7.87 lb) max.
 Withdrawal Force: 10N (2.25 lb) min.
 Durability: 1000 mating cycles

Physical

Receptacle Housing: PBT, black
 Lock Nut: Polyamide 6/6, black
 Contact: Copper alloy
 Plating: Contact Area—0.75µm (30µ") Gold
 Underplating—Nickel
 Gasket Seal: Neoprene, black
 Wire Gauge: 28 AWG
 Operating Temperature: 0 to +70° C

Industrial USB Brad® Bayonet Style Tethered Dust Cap

84700



Features and Benefits

- One sealing surface means less likelihood of failure
- Attachable tether so cap never gets lost
- Maintains IP67 and NEMA 6P ratings for functional integrity when connector is not mated
- IP67 and NEMA 6P ratings ensure cable assemblies are water and dust tight for functional integrity

Reference Information

Packaging: Bag

Use With: 84700, 84702, 84729, 84730

Designed In: Inches

Physical

Dust Cap: PBT, black

Tether: PE or PP, black

Gasket Seal: Nitrile, black

Screw: Brass, #8-32

Plating: Screw—Nickel

Operating Temperature: -40 to +85° C

| Order No. | Description | Lead-free |
|------------|-------------|-----------|
| 84700-0003 | Dust Cover | Yes |

Cable Chemical Resistance Chart

| Resistance To: | Cable Jacket Material | | | |
|--|-----------------------|-----|-----|-------------------|
| | PVC | PUR | TPE | Rubber SJ- and SO |
| Oxidation | E | E | O | F |
| Heat | G-E | E | O | F |
| Oil | F | O | O | P |
| Low Temperature Flexibility | P-G | E | O | G |
| Weather, Sun | G-E | E | O | F |
| Ozone | E | E | E | P |
| Abrasion | F-G | E | E | E |
| Electrical Properties | F-G | E | E | G |
| Flame | E | E | O | P |
| Nuclear Radiation | F | E | P | F |
| Water | G-E | G-E | E | G |
| Acid | G-E | E | E | F-G |
| Alkali | G-E | E | E | F-G |
| Gasoline | P | E | E | P |
| Benzol, Tolulol (Aliphatic Hydrocarbons) | P-F | E | E | P |
| Degreaser Solvents (Haslogenated Hydrocarbons) | P-F | E | E | P |
| Alcohol (Halogenated Hydrocarbons) | G-E | E | E | G |
| Weld Slag | F | E | E | O |

P=Poor, F=Fair, G=Good, E=Excellent, O=Outstanding

Note: These relative ratings are based on average performance. Special selective compounding of the jacket can improve the performance.

Specifications and Wire Diameters American Wire Gauge (AWG)

| AWG | Strands | Nominal OD of Strand (mm) | Approximate OD (mm) | Circular MIL Area | Weight LBS. per 1000 ft | Maximum Resistance OHMS per 1000 ft |
|-----|---------|---------------------------|---------------------|-------------------|-------------------------|-------------------------------------|
| 10 | 105/30 | .0100 | .120 | 10552 | 32.5 | 1.15 |
| 10 | 49/27 | .0142 | .116 | 10445 | 32.6 | 1.21 |
| 10 | 37/26 | .0159 | .107 | 9402 | 29 | 1.26 |
| 12 | 165/34 | .0063 | .095 | 6549 | 19.8 | 1.58 |
| 12 | 65/30 | .0100 | .095 | 6533 | 20.8 | 1.85 |
| 12 | 19/25 | .0179 | .089 | 6088 | 18.8 | 1.92 |
| 12 | 7/20 | .0320 | .096 | 7168 | 21.6 | 1.45 |
| 14 | 105/34 | .0063 | .086 | 4173 | 13 | 2.49 |
| 14 | 41/30 | .0100 | .074 | 4121 | 12.7 | 2.94 |
| 14 | 19/27 | .0142 | .069 | 3829 | 11.9 | 3.05 |
| 16 | 105/36 | .0050 | .065 | 2625 | 8.1 | 3.99 |
| 16 | 65/34 | .0063 | .063 | 2584 | 8 | 4.02 |
| 16 | 26/30 | .0100 | .059 | 2613 | 8 | 4.59 |
| 16 | 19/29 | .0113 | .054 | 2426 | 7.5 | 4.82 |
| 16 | 7/24 | .0201 | .060 | 2628 | 8.6 | 3.7 |
| 18 | 65/36 | .0050 | .051 | 1625 | 5 | 6.4 |
| 18 | 41/34 | .0063 | .052 | 1629 | 5 | 6.37 |
| 18 | 19/30 | .0100 | .048 | 1608 | 4.9 | 6.22 |
| 18 | 16/30 | .0100 | .049 | 1608 | 4.9 | 6.60 |
| 18 | 7/26 | .0159 | .048 | 1770 | 5.5 | 6.54 |
| 20 | 41/36 | .0050 | .038 | 1025 | 3.2 | 10.02 |
| 20 | 26/34 | .0063 | .040 | 1033 | 3.2 | 10.05 |
| 20 | 19/32 | .0080 | .038 | 1201 | 3.7 | 9.76 |
| 20 | 10/30 | .0100 | .038 | 1005 | 3.1 | 11.8 |
| 20 | 7/28 | .0126 | .038 | 1119 | 3.5 | 10.4 |
| 22 | 26/36 | .0050 | .033 | 650 | 2 | 15.94 |
| 22 | 19/34 | .0063 | .033 | 754 | 2.3 | 15.9 |
| 22 | 7/30 | .0100 | .030 | 704 | 2.2 | 16.7 |
| 24 | 41/40 | .0031 | .0245 | 394 | 1.2 | 25.59 |
| 24 | 19/36 | .0050 | .024 | 475 | 1.5 | 25.4 |
| 24 | 10/34 | .0063 | .024 | 398 | 1.2 | 26.09 |
| 24 | 7/32 | .0080 | .024 | 448 | 1.4 | 23.3 |
| 26 | 19/38 | .0040 | .019 | 304 | .92 | 40.1 |
| 26 | 10/36 | .0050 | .021 | 250 | .77 | 41.48 |
| 26 | 7/34 | .0063 | .019 | 276 | .85 | 42.6 |
| 28 | 19/40 | .0031 | .016 | 182 | .563 | 67.7 |
| 28 | 7/36 | .0050 | .015 | 175 | .539 | 68.2 |
| 30 | 19/42 | .0025 | .012 | 118 | .359 | 87.3 |
| 30 | 7/38 | .0040 | .012 | 110 | .34 | 108.00 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Stranded Wire Cross-Reference

Standard Cable Length Tolerances

mm² to strand count
mm² to AWG

European Standards The system for flexible conductors (columns 3 and 4 below) centers around the maximum strand diameter and the conductor resistance. In view of this, some cables may have fewer strands and smaller diameter than listed below but still conform to BS 6360: 1981, VDE 0295 and IEC 228 by having the correct conductor resistance.

| Cross Section (mm ²) | Strand 5 BS 6360 Class 2 (mm ²) | Multi-Wire Strand (mm ²) | Fine Wire Strands BS 6360 Class 5 VDE 0295 (mm ²) | Extra-Fine Strand BS 6360 Class 6 VDE 0295 (mm ²) |
|----------------------------------|---|--------------------------------------|---|---|
| | Column 1 | Column 2 | Column 3 | Column 4 |
| 0.05 | | | | |
| 0.08 | | | | |
| 0.14 | | | | 18 x 0.10 |
| 0.25 | | | 14 x 0.16 | 32 x 0.10 |
| 0.34 | | 7 x 0.25 | 19 x 0.16 | 42 x 0.10 |
| 0.38 | | 7 x 0.27 | 12 x 0.21 | 21 x 0.16 |
| 0.5 | 7 x 0.30 | 7 x 0.30 | 16 x 0.21 | 28 x 0.16 |
| 0.75 | 7 x 0.37 | 7 x .037 | 24 x 0.21 | 42 x 0.16 |
| 1.0 | 7 x 0.43 | 7 x 0.43 | 32 x 0.21 | 56 x 0.16 |
| 1.5 | 7 x 0.52 | 7 x 0.52 | 30 x 0.26 | 84 x 0.16 |
| 2.5 | 7 x 0.67 | 19 x 0.41 | 50 x 0.26 | 140 x 0.16 |
| 4 | 7 x 1.05 | 19 x 0.52 | 56 x 0.31 | 224 x 0.16 |
| 6 | 7 x 1.05 | 19 x 0.64 | 84 x 0.31 | 192 x 0.21 |
| 10 | 7 x 1.35 | 49 x 0.51 | 80 x 0.31 | 321 x 0.21 |

Cable Cross-Reference—AWG to mm²

| AWG | mm ² | AWG | mm ² | AWG | mm ² |
|-----|-----------------|-----|-----------------|-----|-----------------|
| 30 | 0.05 | 21 | 0.38 | 16 | 1.5 |
| 28 | 0.08 | 20 | 0.50 | 14 | 2.5 |
| 26 | 0.14 | 18 | 0.75 | 12 | 4 |
| 24 | 0.25 | 17 | 1.0 | 10 | 6 |
| 22 | 0.34 | | | 8 | 10 |

Standard Cable Length Tolerances

| Length of Assemblies (Feet) | Tolerance (Inches) | Length of Cable Assemblies (Meters) | Tolerance (CM) |
|-----------------------------|------------------------|-------------------------------------|------------------------|
| > 1' | .75" | >.3m | 1.91cm |
| 1' - 3' | 1.75" | .3m - .9m | 4.45cm |
| 3' - 6' | 2.19" | .9m - 1.8m | 5.56cm |
| 6' - 12' | 3.50" | 1.8m - 3.7m | 8.89cm |
| 12' - 24' | 6.50" | 3.7m - 7.3m | 16.51cm |
| 24' - 48' | 12.50" | 7.3m - 14.6m | 31.75cm |
| 48' - 100' | 24.50" | 14.6m - 30.5m | 62.23cm |
| over 100' | +2% of finished length | Over 30m | +2% of finished length |

Note: Higher tolerance cable assemblies can be specified at additional cost

Approval Codes and Applicable Protection Standards

Standards as defined in the following section may apply to products or components found within this catalog. The user should always use the original standards and documents for interpretation. It is the responsibility of the user to determine the suitability of use for the products represented in this catalog.

ANSI/(NFPA) T3.5.29 R1-2007 American National Standards Institute generally defines the geometry and connection scheme of the "mini" type connectors used in fluid power (valve) applications. Automotive standard conductor colors, which are widely used on sensors, is the basis for this specification. The Mini-Change® type of connectors have their pins and conductor sizes defined for them for the 3 and 5 pin versions.

ASTM American Society of Testing and Materials, a standards organization which suggests test methods, definitions and practices.

AWM AWM cable is intended for the internal wiring factory-assembled, listed appliances such as computers, business machines, ranges, washers, dryers, radios, etc... In the past AWM cable was incorrectly used to wire buildings; this was never its intended use. In some cases AWM cable may be used for external connection. In these situations, the user should be aware that the AWM cable temperatures and voltage ratings may differ from the NEC ratings.

CENELEC EN 50 044

Section 1. Scope

This specification identifies connections for inductive proximity switches. It defines the conductor colors used on 2, 3 and 4 wire proximity switches. It also defines the numerical marking of the terminals, whether quick disconnect, or not.

Section 2. Execution of Proximity Switches

The proximity switches are distinguished by their execution: Proximity switches with integral connecting leads: the connection is identified by the color of the conductor. Proximity switches with connecting terminals for connection: the terminals are identified by numerical marking.

Section 3. Identification by color of the conductors

A protective conductor, if it exists, shall be identified according to IEC publication 446, i.e. green/yellow.

3.1 Unpolarized proximity switches for direct current or alternating current

The proximity switch is connected in series with the load: Unpolarized proximity switches, with two conductors, for direct current or alternating current, may have conductors of any color *except* green/yellow.

3.2 Polarized proximity switches for direct current supply

3.2.1. Proximity switches with two conductors

The proximity switch is connected in series with the load: The conductor for the plus (+) pole shall be BROWN, The conductor for the minus (-) pole shall be BLUE.

3.2.2. Proximity switches with three or four conductors

The conductors shall be identified as follows: Conductors for the supply voltage: BROWN for plus (+) pole, BLUE for the minus (-) pole. Conductors for the load output: The output conductor for three conductor devices shall be BLACK, whatever the function. The output conductor for four conductor devices shall be: BLACK for make operation, WHITE for break operation.

Section 4. Identification by numerical marking of the terminals

The terminal for a protective conductor, if it exists, shall be marked according to IEC publication 445.

4.1. Unpolarized proximity switches for direct current or alternating current

The proximity switch is connected in series with the load. For unpolarized proximity switches with two terminals, for direct current or alternating current, the terminals shall be marked as follows:

3 and 4 for make operation,
1 and 2 for break operation

4.2 Polarized proximity switches for direct current supply

4.2.1. Proximity switches with two terminals

The proximity switch is connected in series with the load. The terminal for the plus (+) pole shall be marked 1, the terminal for the minus (-) pole shall be marked:

4 for make operation
2 for break operation

4.2.2. Proximity switch with three or four terminals

The terminals shall be marked as follows: Terminals for supply voltage:

1 for the plus (+) pole,
3 for the minus (-) pole

Terminals for the load output

4 for make operation
2 for break operation

CE The CE mark cannot and must not be applied to electronic components of which cables, cordsets and connectors are a part. The latest rules for CE marking in accordance with the low-voltage Directive (73/23/EEC-July 1997) state that electronic components are exempted from the scope of application of the Low-voltage directive. Instead manufacturers of equipment must comply with the appropriate EC directives applicable to the machine and electrical subsystems as a whole for CE compliance.

CSA Government run laboratory that tests products to ensure conformity to a set of standard tests as defined by this body. Similar to UL standards in the US.

DIN 43560 Defines the mechanical geometry and other characteristics of the rectangular style of connectors most frequently found on hydraulic and pneumatic valves in the fluid power industry.

FT 1 Vertical Flame Test per CSA C22.2

No 0.3-92 Para 4.11.1 A finished cable shall not propagate a flame or continue to burn for more than (1) minute after five (5) fifteen (1) second applications of the flame. There is an interval of fifteen (15) seconds between the flame applications. The flame test shall be performed in accordance with Para 4.11.1 of the CSA Standard C22.2 No 0.3. In addition, if more than 25% of the indicator flag is burned, the test cable fails.

FT 4 Vertical Flame Test - Cables in Cable Trays per CSA C22.2

No 0.3-92 Para 4.11.1 Similar to the UL 1581 Vertical Flame Test, but is more severe. The FT 4 Test has its burner mounted at 20 degrees from the horizontal with the burner post facing up. The UL-1581 Vertical Tray has its burner at 0 degrees from the horizontal. The FT 4 samples must be larger than the 13mm (0.512") in diameter. If not, then the cable samples are grouped in units of at least (3) to obtain a grouped overall diameter of 13mm. The UL-1581 Vertical Tray does not distinguish on cable size. The FT 4 has a maximum char height of 1.5m (59") measure from the lower edge of the burner face. The UL-1581 has a flame height allowable up to approximately 78" measured from the burner.

FT 6 Horizontal Flame and Smoke Test per CSA C22.2

No 0.3-92 Appendix B Cables passing the FT 6 Horizontal Flame and Smoke Test are designated FT 6 in the column where the trade number appears. This test is in accordance with ANSI/NFPA Standard 262-1985 (UL-910). The maximum flame spread shall be 1.50 meters (4.92 feet). The smoke density shall be 0.5 at peak optical density and 0.15 at maximum average optical density.

IEC Protection Classes (See chart on following page)

IP 40 Protection against solid bodies larger than 1mm. No liquid protection defined.

IP 65 Dust tight. Protection against water spray from all directions at 43 PSI through a 12mm nozzle.

IP 67 Dust tight. Protection against the effects of immersion in water for 30 minutes at a depth of 1 meter.

IP 68 Dust tight. Protection against the effects of indefinite immersion in water at a pressure specified by the manufacturer. The manufacturer's specifications must be known if a valid comparison is to be made.

IP 69K Dust tight. Protection against high-pressure (8-10MPa) and high-temperature (80° C) water spray (wash down).

National Electrical Code Although the NEC covers wire and cable installed in factories, office buildings, etc as well all cable which pass through any floor, wall ceiling or which travel in ducts, plenums and other air handling spaces, each individual municipality, city, county or state can decide whether or not they wish to adopt the NEC as governing law.

NFPA (National Fire Protection Association)

NEMA (National Electrical Manufacturers Association) Defines the degree of protection in the actual test specifications.

NEMA 1 Enclosures are intended for use primarily to provide a degree of protection against limited amounts of falling dirt.

NEMA 3 Enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet and external ice formation.

NEMA 4 Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet, splashing water, hosedown and external ice formation.

NEMA 6 Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during occasional temporary submersion at a limited depth.

NEMA 6P Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during prolonged submersion at a limited depth.

UL and UR Designated Underwriters Laboratories "UL Listed" and "UL Recognized," respectively. UL is a nationally recognized laboratory that tests many products to meet safety standards that are defined in their own and other industry specifications.

VDE 0100 Defines the minimum creepage distances of the equipment to prevent hazardous electrical current and voltage for persons and objects. Isolation Class C includes the equipment mainly designed for industrial and agricultural applications in warehouses without heating, in workshops or machine tools.

VW-1 A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test.

Pin Numbering Conventions











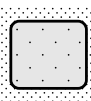
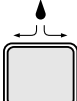

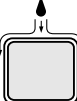

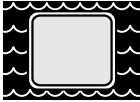
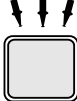
There are two conventions that determine which PIN numbers are located with respect to the keyway. These are CENELEC EN 50 044 and SAE-J-1738A.

In almost every case, except for 4-pole Mini-Change® connections, these two conventions agree with one another. This affects DeviceNet™ installations where the 4-pole Mini-Change connector is used to bring auxiliary power to I/O modules and other devices.

| Cenelec En 50 44 | | SAE-J-1738A | |
|------------------|------|-------------|------|
| Female | Male | Female | Male |
| | | | |

Approval Codes and Applicable Protection Standards

IP Ratings Table—Definition

| Code Letter (International Protection) | | First Index Figure (Foreign Bodies Protection) | | Second Index Figure (Water Protection) | | | |
|---|--|---|--|---|---|---|---|
| IP | | 6 | | 5 | | | |
| INDEX FIGURE | DEGREE OF PROTECTION | | INDEX FIGURE | DEGREE OF PROTECTION | | | |
| 0 | No Protection |  | No Protection against accidental contact, no protection against foreign bodies | 0 | No protection |  | No Protection against water |
| 1 | Protection against large foreign bodies |  | Protection against contact with any large area by hand and against large solid bodies with $\varnothing > 50\text{mm}$ | 1 | Drip-Proof |  | Protection against vertical water drips |
| 2 | Protection against medium sized foreign bodies |  | Protection against contact with the fingers, protection against small foreign solid bodies with $\varnothing > 12\text{mm}$ | 2 | Drip-Proof |  | Protection against water drips (up to a 15° angle) |
| 3 | Protection against small solid foreign bodies |  | Protection against tools wires, or similar objects with $\varnothing > 2.5\text{mm}$. Protection against small foreign solid bodies with $\varnothing > 2.5\text{mm}$ | 3 | Spray-proof |  | Protection against water drips (up to a 60° angle) |
| 4 | Protection against grainshaped foreign bodies |  | As 3 however $\varnothing > 1\text{mm}$ | 4 | Spray-proof |  | Protection against splashed water from all directions |
| 5 | Protection against deposits of dust |  | Full protection against contact. Protection against interior equipment damage due to dust deposits | 5 | Hose-proof |  | Protection against splashed water (out of a nozzle) from all directions |
| 6 | Protection against ingress of dust |  | Total protection against contact. Protection against penetration of dust | 6 | Protected against flooding |  | Protection against temporary flooding |
| \varnothing =diameter of foreign body | | | | 7 | Protected against immersion |  | Protected against temporary immersion |
| | | | | 8 | Water-tight |  | Protected against water pressure |
| | | | | 9K | Protection against high-pressure and high-temperature water |  | Protection against high-pressure and high-temperature wash down |

Glossary

10Base-T (as a transmission medium) A network running at 10 Mbps, using baseband technology and twisted pair cabling.

10Base-T (as a wiring sequence) A variation of 568A wiring, omitting the two wire pairs used for voice transmission.

100Base-F A network running at 100 Mbps, using baseband technology and fiber-optic cabling.

100Base-T A network running at 100 Mbps, using baseband technology and twisted pair cabling.

110 Punchdown Block A standard Insulation Displacement Connection (IDC) used to field terminate cable to a receptacle.

802.3 The upper level IEEE working group responsible for the standards associated with Ethernet and other CSMA/CD networks.

1000Base-T A network running at 1000 Mbps, using baseband technology and twisted pair cabling.

A

Abrasion Resistance Ability of wire, cable or material to resist surface wear.

AC (Alternating Current) Current in which the charge-flow periodically reverses and is represented by $I = I_0 \cos(2f + \theta)$. Where, I is the current, I_0 is the amplitude, f the frequency, θ the phase angle.

Active or Intelligent Device Devices that can be connected as nodes, with unique MAC IDs, to a DeviceNet™ system. These devices can provide diagnostics including troubleshooting.

Ambient Temperature The temperature of a medium (gas or liquid) surrounding an object.

American Wire Gauge (AWG) The standard system used for designating wire diameter. The lower the AWG number, the larger the diameter. Also called the Brown and Sharpe (B & S) wire gauge.

Ampere (A) The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

Analog Representation of data by continuously variable quantities.

Anneal To soften and relieve strains in any solid material, such as metal or glass, by heating to just below its melting point and then slowly cooling it. Annealing generally lowers the tensile strength of the material, while improving its flex life and flexibility.

ANSI American National Standards Institute.

Appliance Wiring Material (AWM) A UL designation covering insulated wire and cable for internal wiring of appliances and equipment.

Application Layer The software portion of a bus which determines the system's attributes. For DeviceNet™, defines how identifiers are assigned (controlling priorities) and how a CAN data field is used to specify services, move data and determine that data's meaning.

Arbitration (mechanism) Resolves potential network conflicts between nodes without loss of data or bandwidth. For DeviceNet™, a bit-wise, non-destructive arbitration method is used.

Armored Cable A cable provided with a wrapping of metal for mechanical protection.

ASI Actuator Sensor Interface.

ASIC Application-Specific Integrated Circuit — A semiconductor designed to perform a particular function by defining the interconnection of a set of basic building blocks drawn from a library provided by the circuit manufacturer.

Assembly Object Differing application objects grouped into a single attribute which can be moved with a single message.

ASTM Abbreviation for the American Society for Testing and Materials, a non-profit industry-wide organization which publishes standards, methods of tests, recommended practices, definitions and other related material.

Attenuation Amplitude dissipation of an electrical signal as it travels over distance, expressed in decibels.

Auto-Negotiate (Auto-Sense) Part of the 802.3u specification which details how devices at either end of a link advertise to the other their connection mode (speed and duplex that can be supported). Should both devices be equipped with Auto-Negotiate (vendor optional), they will select the highest common protocol for communication. Also referred to as Auto-Sense.

Autobaud Feature on DeviceNet™-active devices that sets their data rate to the correct value when connected to an existing network.

AWG American Wire Gauge — A standard used to define the physical size of a conductor determined by its circular mil area (1 mil = .001).

AWM see Appliance Wiring Material.

B

Baseband A communication network that transmits data over a single carrier frequency.

Baud A data transmission measurement for modems.

Baud Rate Measurement of data transfer speed (1 baud = 1 bit per second).

Binder A spirally served tape or thread used for holding assembled cable components in place awaiting subsequent manufacturing operations.

Bit A single character of a language having just two characters, as either of the binary digits 0 or 1.

Bit Bus A bus architecture that communicates the minimum amount of information possible through a bus. Does not accommodate diagnostics.

Braid A fibrous or metallic group of filaments interwoven in cylindrical form to form a covering over one or more wires.

Breakdown (Puncture) A disruptive discharge through insulation.

Breakdown Voltage The voltage at which the insulation between two conductors breaks down.

Bus A parallel circuit that connects the major components of an architecture, allowing the transfer of electric impulses from one connected component to any other.

Byte A sequence of 8 bits (enough to represent one character of alphanumeric data) processed as a single unit of information.

C

Cable A stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors (multiple-conductor cable).

Cable Filler The material used in multiple-conductor cables to occupy the interstices formed by the assembly of the insulated conductors, thus forming a cable core.

Cable Sheath The protective covering applied to cables.

Cabling Twisting together two or more insulated conductors by machine to form a cable. In fiber optics, a method by which a group or bundle of fibers is mechanically assembled.

CAN Controller Area Network — An ASIC used by DeviceNet™ and Smart Distributed Systems.

Capacitance Storage of electrically separated charges between two plates (or wires). Unbalance, in the case of a data wire pair, results in the transfer of unwanted signals.

Capacitance (C) The ability of dielectric material between conductors to store electricity when a difference of potential exists between the conductors. The unit of measure is the farad, which is the capacitance value that will store a charge of one coulomb when a one-volt potential difference exists between the conductors. In AC, one farad is the capacitance value which will permit one ampere of current when the voltage across the capacitor charges at a rate of one volt per second.

Category 5/5E/6 A TIA/EIA rating system that describes the physical properties of the communication channel in relation to its performance at specific communication speeds.

CENELEC European standards agency; European Committee for Electrotechnical Norms.

Change-of-State Type of messaging where the device produces data only when there is a change.

CL2 Designation of cable which meets the vertical tray flame test for class 2 systems.

Coaxial Cable A cylindrical transmission line comprised of a conductor centered inside a metallic tube or shield, separated by a dielectric material, and usually covered by an insulating jacket.

Collision Domain The group of nodes that are attached to the network in such a way that only one of those nodes can be transmitting at any one time. Nodes connected together using repeater hubs usually belong to a single collision domain, while those attached by a switching hub are generally isolated from the collision domain.

Color Code A color system for wire or circuit identification by use of solid colors, tracers, braids, surface printing etc.

Complementary Output A solid state sensor with one N.O. and N.C. output similar to a mechanical SPDT or DPST contact.

Composite Cable A cable consisting of two or more types or sizes of wire.

Compound An insulating or jacketing material made by mixing two or more ingredients.

Conductivity The ability of a material to allow electrons to flow, measured by the current per unit voltage applied. It is the reciprocal of resistivity.

Conductor A wire (or combination of wires not insulated from one another) suitable for carrying electric current.

Conduit A tube or trough in which insulated wires and cables are run.

Connector A device used to provide rapid connect/disconnect service for electrical cable and wire terminations.

Contact The part of a connector which actually carries the electrical current, and are touched together or separated to control the flow.

Control Cable A multiconductor cable made for operation in control of signal circuits.

Copolymer A compound resulting from the polymerization of two different monomers.

Cord A small, flexible insulated cable.

Cordset Portable cord fitted with a wiring device at one or both ends.

CRC Cyclic Redundancy Code — An error correction code that is recorded in each sector of a magnetic disk and used to catch errors in data.

Creepage The conduction of electricity across the surface of a dielectric.

Creepage Surface An insulating surface which provides physical separation as a form of insulation between two electrical conductors of different potential.

Crimp Termination Connection in which a metal sleeve is secured to conductor by mechanically crimping the sleeve with pliers, presses, or automated crimping machines.

Cross-linked Inter-molecular bonds between long chain thermoplastic polymers created by means of chemical or electron bombardment. The properties of the resulting thermo-setting materials are usually improved.

CSA Abbreviation for Canadian Standards Association, a non-profit independent organization which operates a listing service for electrical and electronic materials and equipment. The Canadian counterpart of the Underwriters Laboratories.

CSMA/CD Carrier Sense Multiple Access/Collision Detect — The media access method used in Ethernet architectures. All network nodes are able to detect the presence of a signal on the channel (Carrier Sense). Once the network is clear, all nodes with something to transmit vie equally for access to the channel (Multiple Access). If a node detects another signal during its transmission, the signals collide, both nodes back-off and retry at a random amount of time later (Collision Detect).

CSPE-Chlorosulfonated Polyethylene A rubbery polymer used for insulations and jackets. Manufactured by E. I. DuPont™ under the trade name of Hypalon.

Current (I) The rate of transfer of electricity. Practical unit is the ampere which represents the transfer of one coulomb per second. In a simple circuit, current (I) produced by a cell or electromotive force (E) when there is an external resistance (R) and internal resistance (r) is $I = E / (R + r)$.

Current Carrying Capacity The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

Cut-Through Resistance The ability of material to withstand mechanical pressure, usually a sharp edge or small radius, without separation.

Cyclic Option The device set-up to report its data on a regular basis, consistent with the rate of change it can detect.

D

Daisy Chain A bus wiring scheme in which, for example, device A is wired to device B, device B is wired to device C, etc. All devices may receive identical signals or, in contrast to a simple bus, each device in the chain may modify one or more signals before passing them down the line.

DC-Direct Current An electric current which flows in only one direction.

Device Object A DeviceNet product will have a single instance of a DeviceNet object. The instance will have the following attributes: node; address (MAC ID); baud rate; bus-off action; bus-off center; allocation choice; and MAC ID.

Device Profile Fully defines the device as viewed from the network. DeviceNet specifications contain such profiles.

Diagnostics Relaying of information regarding the various states or conditions of certain controls back to the PLC or PC.

Dielectric An insulating medium which intervenes between two conductors and permits electrostatic attraction and repulsion to take place across it.

Dielectric Strength The voltage which an insulation can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

Drain Wire In a cable, the uninsulated wire laid over the component or components and used as a ground connection.

Drop Cable Cable that exits a trunk cable and runs to a control.

E

E Symbol for voltage. Usually used to represent direct voltage or the effective (Root-mean-square) value of an alternating voltage.

Earth British terminology for zero-reference ground.

EDS (Electronic Data Sheet) An electronic version of a device's configurable parameters and public interfaces to the correct parameters.

EIA Electronic Industries Association (formerly RMA or RETMA).

Elastomer A rubber or rubber-like material which will stretch repeatedly to 200 percent or more and return rapidly and with force to its approximate original shape.

EPDM Ethylene-propylene-diene monomer rubber. A material with good electrical insulating properties.

EPR Ethylene-propylene copolymer rubber. A material with good electrical insulating properties.

Ethernet/IP™ A networking protocol which uses Ethernet for the physical and media access layer, and incorporates the CIP (Controller Information Protocol) from DeviceNet™ as the application layer.

Explicit Messages Provide a multi-purpose pt-pt commission path between two devices. These messages are typically used for low-priority identifiers and contain the specific meaning of the message right in the data field. This usually means the service to be performed, as well as the specific object attribute address, is imbedded herein.

Extruded Cable Cable with conductors which are uniformly insulated and formed by applying a homogeneous insulation material in a continuous extrusion process.

F

Fast Ethernet An Ethernet network operating at 100 Mbps.

FEP Fluorinated ethylene-propylene. A thermo-plastic material with good electrical insulating properties and chemical and heat resistance.

Fiber-Optic Cable A transmission medium using a central glass fiber which transmits digital signals, generated from a laser or LED, expressed as light pulses.

Fillers Non-conducting components cabled with the insulated conductors or optical fibers to impart roundness, flexibility, tensile strength, or a combination of all three, to the cable.

Fine Stranded Wire Stranded wire with component strands of 36 AWG or smaller.

Flexible That quality of cable or cable component which allows for bending under the influence of outside force, as opposed to limpness which is bending due to the cable's own weight.

FR-1 A flammability rating established by Underwriter's Laboratories for wires and cables that pass a specially designed vertical flame test. This designation has been replaced by VW-1.

FT1 A vertical flammability rating for wires and cable developed by CSA.

FT4 A vertical flammability rating for wires and cable developed by CSA that is more severe than FT1.

Full-Duplex Media Supports both transmission and reception of a signal at the same time. These nodes effectively double their available bandwidth.

G

Gauge A term used to denote the physical size of a wire.

Ground An electrical connection to the earth, generally through a ground rod. Also a common return to a point of zero potential, such as the metal chassis in radio equipment.

Ground Loop A completed circuit between shielded pairs of a multiple pair created by random contact between shields. An undesirable circuit condition in which interference is created by ground currents when grounds are connected at more than one point.

Ground Potential The potential of the earth. A circuit, terminal, or chassis is said to be a ground potential when it is used as a reference point for other potentials in the system.

H

Hertz (Hz) The unit of frequency, one cycle per second.

Hi-Pot A test designed to determine the highest voltage that can be applied to a conductor without breaking through the insulation.

Horizontal Cross-Connect A cabling system that extends from communications equipment to the work area outlet.

Hub The focal point in a messaging handling service, a number of local computers might exchange messages solely with a hub (or focal point) computer. Would be responsible for exchanging messages with other hubs and non-local computers.

Hygroscopic Capable of absorbing moisture from the air.

Hypalon A DuPont™ trade name for synthetic rubber (chlorosulfonated Polyethylene) used as insulating and jacketing material for wire and cable.

I

I/O Input/Output

I/O Messages Apply to time-critical, control-oriented data. They provide a dedicated, special purpose commission path between producers and consumers of data on a network.

Identity Object Typically, a single instance for each DeviceNet™ product. Attributes will be vendor ID, device type, product code, revision, status, S/N, product name and statistics.

IEC European Standardization agency; International Electrotechnical Commission.

IEC International Electro-technical Commission.

IEEE Abbreviation for Institute of Electrical and Electronics Engineers.

Impedance The apparent resistance in an electrical circuit to the flow of an alternating current, similar to the actual electrical resistance to a direct current, keeping the ratio of electromotive force to the current.

Impedance (Z) The total opposition that a circuit offers to the flow of alternating current of any other varying current at a particular frequency. It is a combination of resistance R and reactance X, measured in ohms.

Inductance (L) A property of a conductor or circuit which resists a change in current. It causes current changes to lag voltage changes and is measured in henrys.

Inductive Proximity Sensor A sensing device that is actuated by a metal object.

Input A signal (or power) which is applied to a piece of electrical apparatus or the terminals on the apparatus to which a signal or power is applied.

Insulation A material having good dielectric properties which is used to separate close electrical components, such as cable conductors and circuit components.

Interoperability The ability of two or more differing systems or controls to communicate.

IP Internet Protocol — The Network Layer, 24-bit addressing scheme used by most Ethernet networks

IR Drop The designation of a voltage drop in terms of current and resistance.

Irradiation In insulation, the exposure of the material to high energy emissions for the purpose of favorably altering the molecular structure.

ISO International Standards Organization.

J

Jacket Pertaining to wire and cable, the outer protective covering, may also provide additional insulation.

L

Leakage The placement or routing of wiring and component leads in an electrical circuit.

LED Light emitting diode used to indicate device status.

Limpness The ability of a cable to lay flat or conform to a surface as with microphone cables (also see flexibility).

Line Voltage The value of the potential existing on a supply or power line.

Litz Wire Fine stranded cable or wire.

Load A device that consumes power from a source and uses that power to perform a function.

Longitudinal Wrap Tape applied longitudinally with the axis of the core being covered.

M

MAC ID Assigned as the address of nodes on a DeviceNet network. DeviceNet uses a device address inside the CAN identifier field and it represents a mechanism for detecting duplicated addressed devices.

Master/Slave Stand-alone authorization to transmit belongs exclusively to one station (master), while other stations (slaves) transmit only upon request.

MCM One thousand circular mils.

Media Access Control Layer two of the OSI model defines the mechanisms used to determine access to the communication channel.

Message A packet of information that is delivered to and from a control comprised of bits and/or bytes.

Message Router Object An element of a component that passes explicit messages to other objects.

Microfarad One-millionths of a farad (2f or mfd are common abbreviations).

Micron millionth of a meter = 10^{-6} m.

Mil A unit used in measuring diameter of a wire or thickness of insulation over a conductor. One-one thousandth of an inch (.001").

Moisture Resistance The ability of a material to resist absorbing moisture from the air or when immersed in water.

Molded Plug A connector molded on either end of a cord or cable.

MTW Thermoplastic insulated machine tool wire. 600V rating.

Multiplex A technique for putting two or more signals into a single channel.

Mutual Capacitance Capacitance between two conductors when all other conductors are connected together.

Mylar® DuPont trademark for polyester film.

N

NAMUR Sensor A 2-wire, analog DC sensor which requires a remote amplifier for operation (Normenausschuss Arbeitskreis Mess und Regeltechnik).

NEC (National Electric Code) A set of regulations governing construction and installation of electrical wiring and apparatus in the United States, established by the American National Board of Fire Underwriters.

NEMA National Electrical Manufacturers Association.

Neoprene A synthetic rubber with good resistance to oil, chemical, and flame. Also called polychloroprene.

Network A system of computers and other devices interconnected by telephone wires or other means in order to share information.

NEXT Near End Cross Talk — The level of unwanted signal transferred from the transmitting wires to the receiving wires measured on the transmitting end. The specification is in decibels and refers to the maximum amount of signal that will be ignored, meaning the higher the decibel rating the better the specification. The same specification measured on the receiving end is referred to as Far End Cross Talk (FEXT).

NFPA Abbreviation for National Fire Protection Association. Administrative Sponsor for the National Electrical Code (ANSI Standards Committee (CI)).

Nodes Used to describe a single control or address and its supporting components.

Noise In a cable or circuit, any extraneous signal which tends to interfere with the signal normally present in or passing through the system.

NPN Output Transistor output that switches the common or negative voltage to the load (current sinking). Load connected between output and positive supply.

Nylon An abrasion-resistant thermoplastic with good chemical resistance, also known as PA.

O

Object DeviceNet™ node that is modeled via software as a collection of objects. Objects provide an abstract replication of a particular component within a product.

Object Model Provides a template for organizing and implementing attributes, services and behaviors of components of DeviceNet products.

Ohm The electrical unit of resistance. The value of resistance through which a potential difference of one volt will maintain a current of one ampere.

Ohms Law $E = U \times R$. Voltage (E) is directly proportional to the product of current (I) and resistance (R) of circuit.

Open Architecture/Network A protocol that is available to and open to the public without purchase of a licensing agreement.

Open Style Connector Approved connector style for DeviceNet where low-cost in panel connection to devices is required. It allows for the simple daisy-chaining of multiple devices.

Open Systems Interconnect (OSI) Model The International Standards Organization definition of the 7 communication layers that must be supported in a device for it to share network services with similar and dissimilar devices.

Output The useful power or signal delivered by a circuit or device.

Ozone Extremely reactive form of oxygen, normally occurring around electrical discharges and present in the atmosphere in small but active quantities. In sufficient concentrations it can break down certain rubber insulations under tension (such as a bent cable).

P

Parameter Object Used in devices with configurable parameters. One instance would be presented for each configurable parameter. The parameter object provides a standard way for a configuration tool to access all of the parameters including values, ranges, text strings and limits.

PBT Polybutylene terephthalate. A long fiber-reinforced thermoplastic with outstanding chemical resistance and dimensional stability properties.

PE (Cellular) Expanded or foam polyethylene.

Peer-to-Peer One control communicated directly with another control.

Physical Layer Layer consisting of sensors, actuators, cables and other control devices.

Picofarad One-millionth of one-millionth of a farad. A micro-microfarad or picofarad (abbreviation pf).

Plastic High polymeric substances, including both natural and synthetic products, but excluding the rubbers, that are capable of flowing under heat and pressure.

Plasticizer A chemical agent added to plastics to make them softer and more pliable.

PLC Programmable Logic Controller.

Plug The part of the two mating halves of a connector which is movable when not fastened to the other mating half.

PNP Output Transistor output that switches the positive voltage to the load (current sourcing). Load connected between output and common.

Polybutadiene A type of synthetic rubber often blended with other synthetic rubbers to improve their properties.

Polyester Polyethylene terephthalate, used extensively as a moisture resistant cable core wrap.

Polyethylene (PE) A thermoplastic material having excellent electrical properties.

Polymer A material of high molecular weight formed by the chemical union of monomers.

Polyolefin Any of the polymers and copolymers of the ethylene family of hydrocarbons.

Polypropylene A thermoplastic similar to polyethylene but stiffer and having higher softening point (temperature); excellent electrical properties.

Polyurethane (PUR) Broad class of polymers noted for good abrasion and solvent resistance. Can be in solid or cellular form.

Polyvinyl Chloride (PVC) A general purpose thermoplastic widely used for wire and cable insulations and jackets.

Potting The sealing of a cable termination or other component with a liquid which thermosets into an elastomer.

Power The amount of work per unit of time. Usually expressed in watts and equal to I2R.

PROFIBUS* DP A polling PROFIBUS* network, whereby the assigned master requests the status of each node.

PROFIBUS* FMS A PROFIBUS* network which supports both peer-to-peer and master-to-master messaging format.

PROFIBUS* PA A PROFIBUS* network that provides both data and power over the same two wires in accordance with IEC 1158-2. Typically used in intrinsically safe applications.

Protocol Language and logic utilized in software to address a control for communications between two devices or processes.

Proximity Switch A sensing device that detects the presence of an object without physical contact.

PVC Polyvinyl Chloride. A general purpose thermoplastic widely used in wire/cable jacketing.

R

Reactance (X) A measure of the combined effects of capacitance and inductance on an alternating current. The amount of such opposition varies with the frequency of the current. The reactance of a capacitor decreases with an increase in frequency; the opposite occurs with an inductor.

Real Time The immediate performance of an activity/command.

Resistance (R) A measure of the difficulty in moving electrical current through a medium when voltage is applied. It is measured in ohms.

Response Time Time necessary to receive a response or trigger an activity from PLC to the control.

Retractable Chord A cord having specially treated insulation or jacket so that it will retract like a spring. Retractability may be added to all or part of a cord's length.

RJ-11 A 4- or 6-pin modular connector used with twisted pair cable primarily in telephony applications, but also applicable in some datacom applications.

*PROFIBUS is a registered trademark of PROFIBUS and PROFINET International (PI)

RJ-45 An 8-pin modular connector used with twisted pair cable in datacom or datacom/telephony applications.

Rope Lay Conductor A conductor composed of a central core surrounded by one or more layers of helically laid groups of wires.

Round Media Two twisted pair wires (24V DC power and signal) plus drain in one cable per DeviceNet™ standards.

Rubber (Wire Insulation) A general term used to describe wire insulations made of thermosetting elastomers, such as natural or synthetic rubbers, neoprene, hypalon, buty rubber and others.

S

S Heavy duty, rubber-insulated portable cord. Stranded copper conductors with separator and individual rubber insulation. Two or more color coded conductors cabled with filler, wrapped with separator and rubber jacketed overall. 600V.

SAB Sensor/Actuator Bus — Integration of several sensors and actuators on one cable.

SAE Society of Automotive Engineers.

SBR A copolymer of styrene and butadiene. Also GR-S or Buna-S. Most commonly used type of synthetic rubber.

Sealed Style of Connector Molded quick-connect/disconnect style of connectors approved for DeviceNet™ installations which allow network devices to be simply added or replaced. Used when devices are exposed to a factory environment and reduced installation time and elimination of miswirings are critically important considerations.

Self Extinguishing The characteristic of a material whose flame is extinguished after the igniting flame is removed.

Semi-Rigid A cable containing a flexible inner core and a relatively inflexible sheathing.

Separator A layer of insulating material which is placed between a conductor and its dielectric, between a cable jacket and the components it covers, or between various components of a multiple-conductor cable.

Serve A filament or group of filaments such as fibers or wires, wound around a central core.

Sheath The outer covering or jacket of a multiconductor cable.

Shield In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

Shield A metallic layer applied over a group of wires to prevent interference between the enclosed wires and external fields or noise.

Shield Percentage The physical area of a circuit or cable actually covered by shielding material expressed as a percentage.

Signal Any visible or audible indication which can convey information. Also, the information conveyed through a communication system.

Silicone General Electric trademark for a material made from silicone and oxygen. Can be in thermosetting elastomer or liquid form. The thermosetting elastomer form is noted for high heat resistance.

SJ Junior hard service, rubber insulated pendant or portable cord. Same construction as type S, but 300V. Jacket thickness differs.

SJO Same as SJ, but Neoprene, oil-resistant compound outer jacket. Can also be made "water-resistant." 300V, 60° C.

SJT Junior hard service thermoplastic or rubber insulate conductors with overall plastic jacket. 300V, 60° C.

SJTO Same as SJT but oil-resistant plastic outer jacket. 60° C.

Smart Sensors Sensors that have an ASIC embedded directly in/on the control.

SO Hard service cord, same construction as type S except oil-resistant rubber jacket. 600V, 60 to 90° C.

Solid Conductor A conductor consisting of a single wire.

Solid State Pertains to circuits and components using semiconductors without moving parts. Example transistors, diodes, SCR, etc.

SOOW Same as SOW but with oil-resistant rubber conductor insulation and suitable for outdoor use.

SOW Rubber-jacketed portable cord with oil- and water-resistant outer jacket.

ST Hard service cord, jacketed, same as Type S except all plastic construction 600V, 60 to 105° C.

Star Topology A communication network based upon individual nodes connected to a central hub device that receives and directs all transmissions. (See Topology).

STOOW Same as ST but with oil- and water-resistant, outdoor rated thermoplastic outer jacket and insulation. 600V.

STP Shielded Twisted Pair — a wire used in certain SAB applications.

Stranded Conductor A conductor composed of groups of wires twisted together.

SV Vacuum cleaner cord, two or three conductor, rubber insulated. Overall rubber jacket. For light duty in damp locations. 300V, 60° C.

SVO Same as SV except Neoprene jacket 300V, 60° C.

SVT Same as SV except all plastic construction. With or without third conductor for grounding purposes only. 300V, 60 to 90° C.

SVTO Same as SVT except with oil-resistant jacket. 60° C.

Switching Hub A device that interconnects network segments at the data link layer.

T

Teflon® DuPont™ Company trade name for fluorocarbon resins. FEB, PFA and TFE are typical materials.

Tefzel DuPont trade name for a fluorocarbon material typically used as a wire wrap insulation.

Temperature Rating The maximum temperature at which an insulating material may be used in continuous operation without loss of its basic properties.

TEW Canadian Standard Association type appliance wires. Solid or stranded single conductor, plastic-insulated. 600V, 105° C TFE Teflon® (tetrafluoroethylene).

Thermal Rating The temperature range in which a material will perform its function without undue degradation.

Thermoplastic A material which will soften, flow, or distort appreciably when subjected to heat and pressure.

Thermoset A material which hardens or sets when heat is applied, and which, once set, cannot be resoftened by heating. The application of heat is called "curing."

THHN 90° C, 600V nylon jacketed building wire.

THW Thermoplastic vinyl insulated building wire. Flame retardant, moisture and heat resistant. 75° C. Dry and wet locations.

THWN Same as THW but with nylon jacket over. 75° C.

TIA 568A/B Standard 8-pin wiring sequences which defines the position of the individual transmit and receive pairs and the color code used for each wire.

TIA/EIA Telecommunications Industry Association/Electronic Industry Association — A standards organization which sets guidelines for structured cabling systems used in commercial premises.

Tinsel A type of electrical conductor comprised of a number of tiny threads, each thread having a fine, flat ribbon of copper or other metal closely spiraled about it. Used for small size cables requiring limpness and extra-long flex life.

Topology The arrangement in which the nodes of a LAN are connected to each other.

TPE Thermoplastic elastomer. A thermoplastic compound with exceptional chemical, oil, and weld slag resistance used as a jacket material in multiconductor cables.

Transceiver The component in the node that is responsible for the interface to the network.

Trunk Cable Also known as Bus Cable, it is the main or power and communications cable.

TW Thermoplastic vinyl-jacketed building wire, moisture-resistant. 60° C.

Twisted Pairs A cable composed of two small insulated conductors twisted together without a common covering.

U

UL Underwriters Laboratories.

UTP Unshielded Twisted Pair — Wire used in certain SAB applications.

V

VA Volt-Ampere. A designation of power in terms of voltage and current.

VDE German approval agency.

VDR Voltage Dependent Resistor. A surge suppression circuit type where the resistance varies inversely with the applied voltage.

Velocity of Propagation A function of the dielectric constant, expressed as a percent of transmission speed of a signal down the wire as compared to free space.

Volt (V) A unit of electrical pressure. One volt is the electrical pressure that will cause one ampere of current to flow through one ohm of resistance.

Voltage The term most often used in place of electromotive force, potential difference, or voltage drop to designate the electric pressure that exists between two points and is capable of producing a current when a closed circuit is connected between two points.

Voltage Drop The voltage developed across a component or conductor by the current flow through the resistance or impedance of the component or conductor.

Voltage Rating The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

VW-1 A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test, formerly designated FR-1.

W

Watt (W) A unit of electrical power. One watt is equivalent to the power represented by one ampere of current with a pressure of one volt in a DC circuit.

Weld Field Immune Devices carrying this designation will not false trigger in the presence of extreme electromagnetic fields produced by resistance welders.

Wicking The longitudinal flow of a liquid in a wire or cable due to capillary action.

X

XLPE Crosslinked polyethylene.

Series No. Index

| <i>Series No.</i> | <i>Page</i> | <i>Series No.</i> | <i>Page</i> | <i>Series No.</i> | <i>Page</i> | <i>Series No.</i> | <i>Page</i> |
|-------------------|-------------------------|-------------------|---------------------------------------|-------------------|---|-------------------|---|
| 112000 | 292, 336, 337, 381 | 120028 | 128 | 120113 | 76-78, 132-134 | 130035 | 152, 218, 250-253, 266, 282 |
| 112005 | 228 | 120031 | 73, 129, 130 | 120114 | 54-61, 116-123 | 130036 | 254, 255 |
| 112008 | 227 | 120039 | 265, 304, 305 | 120119 | 29-36, 91-98 | 130037 | 267, 268 |
| 112011 | 292-295 | 120054 | 78, 134 | 120149 | 129 | 130038 | 277 |
| 112013 | 290, 291 | 120055 | 32, 55, 57-59, 94, 118, 119, 120, 121 | 120155 | 185 | 130039 | 219, 234-237, 244, 245, 249, 252, 253, 255, 259-261, 265, 266, 269-271, 281 |
| 112014 | 297 | 120065 | 38-41, 100-105, 107, 283, 323 325 | 120230 | 31, 55, 93, 118, 174, 175 | 130047 | 364 |
| 112016 | 298, 299 | 120066 | 42-45, 104-107, 284, 324, 326 | 120231 | 176-179 | 130048 | 346, 360-363, 366 |
| 112018 | 296 | 120067 | 46-48, 108-110 | 120233 | 181, 182 | 130050 | 344-348 |
| 112019 | 378 | 120068 | 52, 53, 114, 115 | 120234 | 183, 184 | 130053 | 349, 350 |
| 112020 | 381 | 120070 | 49, 50, 111, 112, 263, 285, 327, 328 | 120244 | 372 | 130054 | 369, 371 |
| 112021 | 380 | 120071 | 51, 113, 286, 329 | 120341 | 373, 374 | 130055 | 351, 352 |
| 112023 | 379 | 120072 | 62, 63 | 120355 | 372 | 130057 | 354 |
| 112026 | 290, 300 | 120073 | 64, 65 | 121012 | 188, 191, 192 | 130058 | 353, 354 |
| 112027 | 230, 334, 335, 382 | 120074 | 66, 67 | 121040 | 193, 194, 196, 197 | 130060 | 154-157 |
| 112028 | 291, 294 | 120075 | 68 | 121201 | 188 | 130061 | 212, 213 |
| 112029 | 384 | 120079 | 20, 21, 24, 82, 83, 86, 283, 323, 325 | 121202 | 189 | 130062 | 214 |
| 112030 | 230, 291, 294, 297 | 120080 | 22, 23, 28, 84, 85, 90, 284, 324, 326 | 121203 | 190 | 130063 | 205, 206 |
| 112034 | 226, 292 | 120082 | 90 | 121204 | 191 | 130064 | 207 |
| 112035 | 290 | 120083 | 24, 86 | 121205 | 192 | 130066 | 210, 215 |
| 112036 | 343 | 120084 | 25, 26, 87, 88, 285, 327, 328 | 130006 | 138-141, 151, 154, 156 | 130068 | 208, 209 |
| 112038 | 301, 302 | 120085 | 27, 89, 286, 329 | 130007 | 154, 155, 158, 159 | 130070 | 211, 217 |
| 112073 | 338 | 120086 | 70, 71, 126, 127 | 130008 | 29, 30, 54, 56, 91, 92, 116, 117, 154, 155, 164, 165, 169 | 130188 | 246 |
| 112076 | 229 | 120087 | 72, 128 | 130010 | 142, 143, 157, 218, 278, 319 | 130201 | 153, 217, 163, 171 |
| 112078 | 378 | 120088 | 79, 135 | 130011 | 160 | 130211 | 303 |
| 112079 | 379 | 120089 | 78 | 130012 | 166, 169 | 84586 | 392, 393 |
| 112086 | 380 | 120090 | 73, 74 | 130013 | 144-149, 219, 247, 279, 320 | 84695 | 386 |
| 112092 | 232, 233 | 120091 | 75, 131 | 130014 | 161, 162 | 84700 | 358, 359, 407 |
| 112095 | 339, 340 | 120094 | 31, 32, 55, 57, 93, 94, 118, 119, 180 | 130015 | 167, 168, 170 | 84702 | 355-358 |
| 112098 | 383 | 120098 | 304-306, 314-318 | 130017 | 150, 216, 280, 321 | 84727 | 404 |
| 112105 | 342 | 120099 | 307-309 | 130018 | 151-153, 218 | 84728 | 405 |
| 112106 | 332-334 | 120100 | 310, 313 | 130023 | 76, 132 | 84729 | 405, 406 |
| 112111 | 342 | 120101 | 152, 312, 322 | 130024 | 238-241 | 84730 | 406 |
| 112113 | 228 | 120102 | 311 | 130025 | 240, 242, 243 | 84732 | 404 |
| 112115 | 231, 341 | 120103 | 313 | 130027 | 256, 257 | 84854 | 386-389, 391, 392, 402 |
| 112116 | 231, 341 | 120108 | 360, 361, 363, 365, 370 | 130028 | 258 | 84856 | 396-402 |
| 112117 | 231, 341 | 120109 | 367, 368, 370 | 130029 | 272, 273 | 84859 | 395 |
| 120006 | 100, 102, 104, 108, 325 | | | 130030 | 274-276 | 84863 | 394 |
| 120007 | 104, 106, 326 | | | 130031 | 261, 262 | 84864 | 390 |
| 120009 | 115 | | | 130033 | 271 | 860000 | 332, 333 |
| 120011 | 49, 50, 111, 112 | | | 130034 | 248, 264 | | |
| 120020 | 83 | | | | | | |
| 120025 | 88 | | | | | | |
| 120027 | 126, 127 | | | | | | |

Order No. Index

| <i>Order No.</i> | <i>Engineering No.</i> | <i>Page</i> | <i>Order No.</i> | <i>Engineering No.</i> | <i>Page</i> | <i>Order No.</i> | <i>Engineering No.</i> | <i>Page</i> |
|------------------|------------------------|-------------|------------------|------------------------|-------------|------------------|------------------------|-------------|
| 84586-0017 | 006..... | 393 | 84854-6039 | 060..... | 389 | 84856-9110 | 003..... | 398 |
| 84586-0018 | 007..... | 392 | 84854-6041 | 061..... | 389 | 84856-9111 | 004..... | 398 |
| 84586-0019 | 008..... | 392 | 84854-6042 | 062..... | 389 | 84856-9112 | 110..... | 400 |
| 84695-9095 | 009..... | 386 | 84854-6043 | 063..... | 389 | 84856-9113 | 111..... | 401 |
| 84700-0001 | 010..... | 358 | 84854-6044 | 064..... | 389 | 84856-9114 | 112..... | 401 |
| 84700-0002 | 011..... | 359 | 84854-6055 | 065..... | 389 | 84856-9115 | 113..... | 401 |
| 84700-0003 | 012..... | 359 | 84854-7021 | 066..... | 387 | 84859-9001 | 114..... | 395 |
| 84700-0003 | 013..... | 407 | 84854-7022 | 067..... | 387 | 84859-9002 | 115..... | 395 |
| 84702-0005 | 014..... | 358 | 84854-7023 | 068..... | 387 | 84859-9003 | 116..... | 395 |
| 84702-0006 | 015..... | 358 | 84854-7024 | 069..... | 387 | 84859-9004 | 117..... | 395 |
| 84702-0007 | 016..... | 358 | 84854-7025 | 070..... | 387 | 84863-9001 | 118..... | 394 |
| 84702-0008 | 017..... | 358 | 84854-7026 | 071..... | 387 | 84863-9002 | 119..... | 394 |
| 84702-0009 | 018..... | 358 | 84854-7027 | 072..... | 387 | 84863-9003 | 120..... | 394 |
| 84702-1003 | 019..... | 356 | 84854-7028 | 073..... | 387 | 84864-9001 | 121..... | 390 |
| 84702-1006 | 020..... | 356 | 84854-7029 | 074..... | 387 | 84864-9002 | 122..... | 390 |
| 84702-1010 | 021..... | 356 | 84854-7030 | 075..... | 387 | 84864-9003 | 123..... | 390 |
| 84702-1020 | 022..... | 356 | 84854-7031 | 076..... | 387 | 84864-9004 | 124..... | 390 |
| 84702-2003 | 023..... | 357 | 84854-8021 | 077..... | 388 | 84864-9005 | 125..... | 390 |
| 84702-2007 | 024..... | 357 | 84854-8022 | 078..... | 388 | 84864-9006 | 126..... | 390 |
| 84702-2010 | 025..... | 357 | 84854-8023 | 079..... | 388 | 112000-0001 | APP-EPB-PCU-C..... | 292, 336 |
| 84702-2012 | 026..... | 357 | 84854-8024 | 080..... | 388 | 112000-0003 | APP-ESR-PCU-C..... | 336, 381 |
| 84702-2015 | 027..... | 357 | 84854-8025 | 081..... | 388 | 112000-0005 | APP-ETH-PCU-C..... | 336 |
| 84702-2020 | 028..... | 357 | 84854-8026 | 082..... | 388 | 112000-5026 | APP-ETH-PCIE..... | 336 |
| 84702-2021 | 029..... | 357 | 84854-8027 | 083..... | 388 | 112000-5027 | APP-ESR-PCIE..... | 336, 381 |
| 84702-3020 | 030..... | 355 | 84854-8028 | 084..... | 388 | 112000-5028 | APP-EPB-PCIE..... | 292, 336 |
| 84727-1001 | 031..... | 404 | 84854-8029 | 085..... | 388 | 112000-5029 | DRL-EMB-PCU..... | 337 |
| 84727-1002 | 032..... | 404 | 84854-8030 | 086..... | 388 | 112000-5030 | DRL-EIP-PCU..... | 337 |
| 84727-1003 | 033..... | 404 | 84854-8031 | 087..... | 388 | 112000-5031 | DRL-EPN-PCU..... | 337 |
| 84727-1004 | 034..... | 404 | 84854-9019 | 088..... | 402 | 112000-5032 | DRL-EPN-PCIE..... | 337 |
| 84727-1005 | 035..... | 404 | 84854-9300 | 089..... | 402 | 112000-5033 | DRL-EIP-PCIE..... | 337 |
| 84728-1001 | 036..... | 405 | 84854-9316 | 090..... | 386 | 112000-5034 | DRL-EMB-PCIE..... | 337 |
| 84728-1002 | 037..... | 405 | 84854-9317 | 848549317..... | 391 | 112005-0040 | SST-DN4-104-1..... | 228 |
| 84728-1003 | 038..... | 405 | 84854-9318 | 848549318..... | 391 | 112005-0048 | SST-DN4-104-2..... | 228 |
| 84728-1004 | 039..... | 405 | 84854-9319 | 091..... | 392 | 112008-0003 | DN-MTR-BAG..... | 227 |
| 84728-1005 | 040..... | 405 | 84856-1200 | 092..... | 396 | 112008-0004 | DN-MTR-CAL..... | 227 |
| 84729-0001 | 041..... | 406 | 84856-1201 | 093..... | 396 | 112008-0008 | SST-ENM-DN1..... | 227 |
| 84729-0003 | 042..... | 405 | 84856-1202 | 094..... | 396 | 112008-0011 | SST-NAS-DN1..... | 227 |
| 84729-0004 | 043..... | 405 | 84856-1203 | 095..... | 396 | 112008-0012 | SST-ENM-SKT..... | 227 |
| 84729-0005 | 044..... | 405 | 84856-1204 | 096..... | 396 | 112008-0013 | DN-MTR (E)..... | 227 |
| 84729-0006 | 045..... | 405 | 84856-1205 | 097..... | 396 | 112008-0014 | DN-MTR-KIT (E)..... | 227 |
| 84729-0007 | 046..... | 405 | 84856-1206 | 098..... | 396 | 112008-0016 | SST-ENM-PTU..... | 227 |
| 84729-0008 | 047..... | 405 | 84856-1207 | 099..... | 396 | 112011-0004 | APP-PFB-PCU-C..... | 292 |
| 84729-0009 | 048..... | 406 | 84856-1208 | 100..... | 396 | 112011-0006 | APP-PS7-PCU-C..... | 292 |
| 84730-0010 | 049..... | 406 | 84856-1209 | 101..... | 396 | 112011-0008 | DRL-DPM-PCU..... | 293 |
| 84732-0001 | 050..... | 404 | 84856-1210 | 102..... | 396 | 112011-0021 | SST-PB3-PCU..... | 294 |
| 84732-0002 | 051..... | 404 | 84856-9101 | 103..... | 397 | 112011-0022 | SST-PB3-PCU-2..... | 294 |
| 84732-0003 | 052..... | 404 | 84856-9102 | 104..... | 397 | 112011-0024 | SST-PB3-PCU-B25..... | 294 |
| 84732-0004 | 053..... | 404 | 84856-9103 | 105..... | 402 | 112011-0025 | SST-PBMS-PCI..... | 295 |
| 84732-0005 | 054..... | 404 | 84856-9104 | 106..... | 399 | 112011-0027 | SST-PB3-PCU-2-B..... | 294 |
| 84854-6034 | 055..... | 389 | 84856-9105 | 107..... | 399 | 112011-0031 | SST-PB3-PCIE-1..... | 294 |
| 84854-6035 | 056..... | 389 | 84856-9106 | 108..... | 402 | 112011-0032 | SST-PB3-PCIE-2..... | 294 |
| 84854-6036 | 057..... | 389 | 84856-9107 | 109..... | 402 | 112011-5026 | APP-PFB-PCIE..... | 292 |
| 84854-6037 | 058..... | 389 | 84856-9108 | 001..... | 398 | 112011-5027 | APP-PS7-PCIE..... | 292 |
| 84854-6038 | 059..... | 389 | 84856-9109 | 002..... | 398 | 112011-5028 | DRL-DPM-PCIE..... | 293 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|--------------------|---------------|-------------|------------------|------|-------------|-----------------|------|
| 112013-0003 | DRL-DPM-104 | 290 | 112036-0049 | DRL-332M-SSC | 343 | 112095-0006 | TCDEM-8C2P-D1U | 339 |
| 112013-0013 | SST-PB3-104 | 291 | 112036-0050 | DRL-332M-SST | 343 | 112095-0007 | TCDEM-8DON-D1U | 339 |
| 112013-0015 | SST-PB3-104-B25 | 291 | 112036-0051 | DRL-362M-MSC | 343 | 112095-0008 | TCDEM-8DOP-D1U | 339 |
| 112014-0004 | SST-PB3-VME-1 | 297 | 112036-0052 | DRL-362M-MST | 343 | 112095-0009 | TCDEM-8YXX-D1U | 339 |
| 112014-0006 | SST-PB3-VME-2 | 297 | 112036-0053 | DRL-362M-SSC | 343 | 112095-5003 | TCDEI-8DON-D1U | 340 |
| 112016-0018 | SST-PB3-CLX-RLL | 299 | 112036-0054 | DRL-3HOM-1MLC | 343 | 112095-5004 | TCDEI-8C2N-D1U | 340 |
| 112016-0022 | SST-PB3-SLC | 298 | 112036-0055 | DRL-3HOM-1SLC | 343 | 112095-5005 | TCDEI-8B4N-D1U | 340 |
| 112016-0023 | SST-PB3-CLX-RLL-CC | 299 | 112036-0056 | DRL-3HOM-2MLC | 343 | 112095-5006 | TCDEI-888N-D1U | 340 |
| 112018-5004 | DRL-DPM-CPI | 296 | 112036-0057 | DRL-3HOM-2SLC | 343 | 112095-5007 | TCDEI-8DOP-D1U | 340 |
| 112019-0004 | SST-ASI-SLC | 378 | 112036-0058 | DRL-362M-SST | 343 | 112095-5008 | TCDEI-8C2P-D1U | 340 |
| 112020-5017 | APP-SR1-PCU-C | 381 | 112038-0003 | TBDPB-408P-B8U | 302 | 112095-5009 | TCDEI-8B4P-D1U | 340 |
| 112020-5018 | APP-SR1-PCIE | 381 | 112038-0005 | TBDPB-444N-B8U | 302 | 112095-5010 | TCDEI-888P-D1U | 340 |
| 112021-0014 | DRL-CNO-PCU | 380 | 112038-0006 | TBDPB-444P-B8U | 302 | 112095-5011 | TCDEI-8YXX-D1U | 340 |
| 112023-0007 | DRL-CNO-104 | 379 | 112038-0007 | TBDPB-462N-B8U | 302 | 112095-5012 | TCDEI-8DON-DYU | 340 |
| 112023-5001 | DRL-CNO-104-B25 | 379 | 112038-0008 | TBDPB-462P-B8U | 302 | 112095-5013 | TCDEI-8C2N-DYU | 340 |
| 112026-0013 | DRL-DPS-SRM | 300 | 112038-0009 | TBDPB-480N-B8U | 302 | 112095-5014 | TCDEI-8B4N-DYU | 340 |
| 112026-0014 | DRL-PFB-USB | 290 | 112038-0011 | TBDPB-480P-B8U | 302 | 112095-5015 | TCDEI-888N-DYU | 340 |
| 112026-0015 | DRL-PFB-USB-DLL | 290 | 112038-0014 | TBDPB-808P-B84 | 302 | 112095-5016 | TCDEI-8DOP-DYU | 340 |
| 112027-0002 | DRL-ALL-SWF-S | 335, 382 | 112038-0015 | TBDPB-844N-B84 | 302 | 112095-5017 | TCDEI-8C2P-DYU | 340 |
| 112027-0003 | DRL-ALL-SWF-U | 335, 382 | 112038-0016 | TBDPB-844P-B84 | 302 | 112095-5018 | TCDEI-8B4P-DYU | 340 |
| 112027-0005 | DRL-ALL-SWL-S | 335, 382 | 112038-0017 | TBDPB-862N-B84 | 302 | 112095-5019 | TCDEI-888P-DYU | 340 |
| 112027-0006 | DRL-ALL-SWL-U | 335, 382 | 112038-0018 | TBDPB-862P-B84 | 302 | 112095-5020 | TCDEI-8YXX-DYU | 340 |
| 112027-0010 | DRL-UPG-SWF | 335, 382 | 112038-0019 | TBDPB-880N-B84 | 302 | 112095-5021 | TCDEM-8DON-DYU | 339 |
| 112027-0014 | SST-DN3-OPC | 230 | 112038-0021 | TBDPB-880P-B84 | 302 | 112095-5022 | TCDEM-8C2N-DYU | 339 |
| 112027-5007 | DRL-EPN-SWF-S | 334 | 112038-0024 | TCDPB-888N-B1U | 301 | 112095-5023 | TCDEM-8B4N-DYU | 339 |
| 112027-5014 | DRL-SIE-SWF-S | 335, 382 | 112038-0025 | TCDPB-888P-B1U | 301 | 112095-5024 | TCDEM-888N-DYU | 339 |
| 112027-5015 | DRL-SIE-SWF-U | 335, 382 | 112038-0026 | TCDPB-8B4N-B1U | 301 | 112095-5025 | TCDEM-8DOP-DYU | 339 |
| 112028-0030 | SST-PB3-OPC | 291, 294 | 112038-0027 | TCDPB-8B4P-B1U | 301 | 112095-5026 | TCDEM-8C2P-DYU | 339 |
| 112029-0008 | PICS-PRO-AB | 384 | 112038-0028 | TCDPB-8C2N-B1U | 301 | 112095-5027 | TCDEM-8B4P-DYU | 339 |
| 112029-0011 | PICS-PRO-OPC | 384 | 112038-0029 | TCDPB-8C2P-B1U | 301 | 112095-5028 | TCDEM-888P-DYU | 339 |
| 112029-0012 | PICS-PRO-PBMS | 384 | 112038-0030 | TCDPB-8DON-B1U | 301 | 112095-5029 | TCDEP-8DON-D1U | 340 |
| 112029-0027 | SST-PICS-PRO-U | 384 | 112038-0031 | TCDPB-8DOP-B1U | 301 | 112095-5033 | TCDEP-8DOP-D1U | 340 |
| 112030-0007 | SST-DN3-CNF-U | 230 | 112073-0001 | SST-ESR2-CLX-RLL | 338 | 112095-5034 | TCDEP-8C2P-D1U | 340 |
| 112030-0008 | SST-PB3-CNF-P | 291, 294, 297 | 112076-0001 | SST-DN4-USB | 229 | 112095-5037 | TCDEP-8YXX-D1U | 340 |
| 112030-0009 | SST-PB3-CNF-U | 291, 294, 297 | 112076-0002 | SST-DN4-USB-SM | 229 | 112095-5038 | TCDEM-8YXX-DYU | 339 |
| 112034-0018 | DRL-MPI-PCU | 292 | 112078-0001 | SST-SR4-CLX-RLL | 378 | 112098-5001 | TBDCO-808P-804 | 383 |
| 112034-0021 | SST-EDN-1 | 226 | 112079-7001 | SST-CCS-PCU-B50 | 379 | 112098-5002 | TBDCO-844N-804 | 383 |
| 112034-0026 | SST-EDN-1-C2 | 226 | 112079-7002 | SST-CCS-PCU | 379 | 112098-5003 | TBDCO-844P-804 | 383 |
| 112035-0001 | DRL-MPI-USB | 290 | 112086-5018 | DRL-CNO-PCIE | 380 | 112098-5004 | TBDCO-862N-804 | 383 |
| 112035-0002 | DRL-MPI-USB-DLL | 290 | 112092-0006 | TBDDN-444P-88U | 233 | 112098-5005 | TBDCO-862P-804 | 383 |
| 112036-0035 | DRL-250P | 343 | 112092-0007 | TBDDN-480P-80U | 233 | 112098-5006 | TBDCO-880N-804 | 383 |
| 112036-0036 | DRL-250M | 343 | 112092-0008 | TBDDN-880P-804 | 233 | 112098-5007 | TBDCO-880P-804 | 383 |
| 112036-0037 | DRL-280P | 343 | 112092-0009 | TCDDN-888P-11U | 232 | 112098-5008 | TBDCO-8YXX-804 | 383 |
| 112036-0038 | DRL-280M | 343 | 112092-0010 | TCDDN-8DOP-10U | 232 | 112105-5002 | DRL-780 | 342 |
| 112036-0039 | DRL-350M | 343 | 112092-0018 | TBDDN-480N-80U | 233 | 112105-5004 | DRL-781 | 342 |
| 112036-0040 | DRL-380M | 343 | 112092-0019 | TCDDN-8DON-10U | 232 | 112106-0000 | SDK-EIP-ADP | 333 |
| 112036-0041 | DRL-3FOM | 343 | 112092-0020 | TCDDN-888N-11U | 232 | 112106-5000 | SDK-EIP-ADP-UPD | 333 |
| 112036-0042 | DRL-3HOM | 343 | 112092-0022 | TBDDN-880N-804 | 233 | 112106-5001 | SDK-PFN-DEV | 332 |
| 112036-0043 | DRL-241P-MSC | 343 | 112092-5004 | TBDDN-444N-88U | 233 | 112106-5002 | SDK-PFN-DEV-UPD | 332 |
| 112036-0044 | DRL-241P-MST | 343 | 112095-0001 | TCDEM-888N-D1U | 339 | 112106-5003 | SDK-EIP-SCA | 333 |
| 112036-0045 | DRL-281P-MSC | 343 | 112095-0002 | TCDEM-888P-D1U | 339 | 112106-5004 | SDK-EIP-SCA-UPD | 333 |
| 112036-0046 | DRL-281P-MST | 343 | 112095-0003 | TCDEM-8B4N-D1U | 339 | 112106-5005 | SDK-PFN-CON | 332 |
| 112036-0047 | DRL-332M-MSC | 343 | 112095-0004 | TCDEM-8B4P-D1U | 339 | 112106-5006 | SDK-PFN-CON-UPD | 332 |
| 112036-0048 | DRL-332M-MST | 343 | 112095-0005 | TCDEM-8C2N-D1U | 339 | 112106-5007 | SDK-PFN-MRP | 332 |

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-------------------|----------|-------------|-----------------|---------|-------------|-----------------|---------------|
| 112106-5008 | SDK-EIP-EML | 334 | 120007-1271 | 885032E03M010 | 106 | 120065-0200 | 803006A09M020 | 40 |
| 112106-5011 | SDK-EIP-CON-CNF-U | 333 | 120007-1407 | 884032P03M010 | 106 | 120065-0255 | 804000A09M020 | 38 |
| 112106-5012 | SDK-PFN-CON-CNF-U | 332 | 120007-1523 | 884033P03M010 | 106 | 120065-0414 | 804006A09M020 | 40 |
| 112111-5001 | DRL-750 | 342 | 120007-2879 | 883032H09M010 | 106 | 120065-0471 | 805000A09M020 | 38, 283, 323 |
| 112113-0001 | SST-DN4-PCU-H | 228 | 120009-0091 | 884A30P03M003 | 115 | 120065-0523 | 805006A09M020 | 40 |
| 112113-0005 | SST-DN4-PCU-2 | 228 | 120011-0019 | 8R4J26E03C3003 | 112 | 120065-0951 | 808000P02M020 | 39, 101 |
| 112113-0007 | SST-DN4-PCU | 228 | 120011-0036 | 8R5J26E03C3003 | 112 | 120065-0960 | 808001P02M020 | 39, 101 |
| 112113-0009 | SST-DNMS4-PCU | 228 | 120011-0237 | 8R4J400013 | 49, 111 | 120065-0964 | 808006P02M020 | 41, 103 |
| 112113-0010 | SST-DNMS4-PCU-H | 228 | 120011-0238 | 8R5J400013 | 49, 111 | 120065-1108 | 803000K05M020 | 38, 100 |
| 112115-0001 | SDK-DNS-SAF | 231, 341 | 120011-0281 | 8R4J460003 | 50, 112 | 120065-1114 | 803006K05M020 | 40, 102 |
| 112115-0002 | SDK-DNS-SAF-O | 231, 341 | 120020-0002 | W03007P03M020 | 83 | 120065-1121 | 804000K05M020 | 38, 100 |
| 112115-0003 | SDK-DEP-SAP-SAF | 231, 341 | 120025-0007 | WR5U26E03C3003 | 88 | 120065-1129 | 804006K05M020 | 40, 102 |
| 112115-0004 | SDK-DEP-SAP-SAF-O | 231, 341 | 120027-0066 | 403000E02M020 | 126 | 120065-1367 | 805000K03M020 | 283, 323, 325 |
| 112115-0005 | SDK-CIP-EDS-SAF | 231, 341 | 120027-0090 | 403001E02M020 | 126 | 120065-1444 | 803001A09M020 | 38 |
| 112116-0001 | SDK-DNS-SAF-L | 231, 341 | 120027-0106 | 403007E02M020 | 127 | 120065-1489 | 803001K05M020 | 38, 100 |
| 112116-0002 | SDK-EIP-ADP-SAF-L | 231, 341 | 120027-0115 | 4030P1E02M020 | 126 | 120065-1497 | 803007A09M020 | 40 |
| 112117-0001 | SDK-EIP-ADP-SAF | 231, 341 | 120027-0127 | 404000E02M020 | 126 | 120065-1501 | 803007K05M020 | 40, 102 |
| 112117-0002 | SDK-EIP-ADP-SAF-O | 231, 341 | 120027-0152 | 404001E02M020 | 126 | 120065-1551 | 804001A09M020 | 38 |
| 120006-0001 | 803000E03M020 | 100 | 120027-0483 | 404007E02M020 | 127 | 120065-1639 | 804001K05M020 | 38, 100 |
| 120006-0004 | 803000P03M020 | 100 | 120027-0709 | 405000P02M020 | 126 | 120065-1662 | 804007A09M020 | 40 |
| 120006-0007 | 803001E03M020 | 100 | 120027-0752 | 405006P02M020 | 127 | 120065-1691 | 804007K05M020 | 40, 102 |
| 120006-0011 | 803001P03M020 | 100 | 120027-0911 | 403006P02M020 | 127 | 120065-1697 | 805001A09M020 | 38, 283, 323 |
| 120006-0014 | 804000E03M020 | 100 | 120028-0016 | 443031E02M010 | 128 | 120065-1720 | 805001K03M020 | 283, 323, 325 |
| 120006-0018 | 804000P03M020 | 100 | 120031-0004 | 4R3F06E02C3003 | 130 | 120065-1724 | 805007A09M020 | 40 |
| 120006-0021 | 804001E03M020 | 100 | 120031-0006 | 4R4F06E02C3003 | 130 | 120065-1800 | 808007P02M020 | 41, 103 |
| 120006-0024 | 804001P03M020 | 100 | 120031-0015 | 4R3F30E02C3003 | 129 | 120065-5040 | 80C000H45M020 | 39, 101 |
| 120006-0056 | 884031P03M010 | 104 | 120031-0022 | 4R4H40E02C3003 | 73, 129 | 120065-5045 | 80C006H45M020 | 41, 103 |
| 120006-0240 | 803006E03M020 | 102 | 120031-0027 | 4R5F06E02C3003 | 130 | 120065-5099 | 80C001H45M020 | 39, 101 |
| 120006-0257 | 803006P03M020 | 102 | 120031-0028 | 4R5F30E02C3003 | 129 | 120065-5109 | 80C007H45M020 | 41, 103 |
| 120006-0273 | 803007E03M020 | 102 | 120031-0046 | 4R3H40E02C3003 | 73, 129 | 120065-8096 | 805007E03M020 | 102 |
| 120006-0288 | 803007P03M020 | 102 | 120031-0049 | 4R4F30E02C3003 | 129 | 120065-8172 | 805000H09M020 | 100 |
| 120006-0560 | 804006E03M020 | 102 | 120031-0050 | 4R5H40E02C3003 | 73, 129 | 120065-8175 | 803000H09M020 | 100 |
| 120006-0570 | 804006P03M020 | 102 | 120031-0118 | 4R4H400013 | 73 | 120065-8178 | 804000H09M020 | 100 |
| 120006-0592 | 804007P03M020 | 102 | 120039-0001 | DND100L | 265 | 120065-8296 | 805001H09M020 | 100 |
| 120006-0618 | 8040P1P03M020 | 108 | 120039-0003 | DND150L | 265 | 120065-8513 | 804001H09M020 | 100 |
| 120006-0634 | 805000E03M020 | 100, 325 | 120039-0132 | B05S01PP4M010 | 304 | 120065-8644 | 808000H08M020 | 101 |
| 120006-0647 | 805000P03M020 | 100 | 120039-0158 | B05S07PP4M010 | 305 | 120065-8649 | 808001H08M020 | 101 |
| 120006-0652 | 805001E03M020 | 100, 325 | 120054-0004 | BNY803P-FBP-05 | 78, 134 | 120065-8655 | 803006H09M020 | 102 |
| 120006-0663 | 805001P03M020 | 100 | 120054-0034 | BEY403P-FBP-05 | 78, 134 | 120065-8660 | 808006H08M020 | 103 |
| 120006-0667 | 805006E03M020 | 102 | 120054-0043 | BEY603P-FBP-05 | 78, 134 | 120065-8715 | 803001H09M020 | 100 |
| 120006-0680 | 805006P03M020 | 102 | 120054-0044 | BNY603P-FBP-05 | 78, 134 | 120065-8722 | 803007H09M020 | 102 |
| 120006-0697 | 805007P03M020 | 102 | 120054-0045 | BEYA03P-FBP-05 | 78, 134 | 120065-8729 | 804006H09M020 | 102 |
| 120006-1975 | 804007E03M020 | 102 | 120054-0046 | BNYA03P-FBP-05 | 78, 134 | 120065-8736 | 804007H09M020 | 102 |
| 120007-0083 | 883030E03M010 | 104 | 120055-0308 | BTY4010-FBC | 55, 118 | 120065-8743 | 805006H09M020 | 102 |
| 120007-0119 | 883031E03M010 | 104 | 120055-0313 | BTY4030-FBC | 57, 119 | 120065-8750 | 805007H09M020 | 102 |
| 120007-0142 | 883031P03M010 | 104 | 120055-0321 | BTY8010-FBC | 55, 118 | 120065-8757 | 808007H08M020 | 103 |
| 120007-0160 | 883032E03M010 | 106 | 120055-0328 | BTY8030-FBC | 57, 119 | 120065-8763 | 883031H09M010 | 104 |
| 120007-0172 | 883032P03M010 | 106 | 120055-0583 | BTY8000-FBP-05 | 59, 121 | 120065-8908 | 888033H08M010 | 107 |
| 120007-0216 | 883033P03M010 | 106 | 120055-0586 | BTY4000-FBP-05 | 59 | 120065-8909 | 888031H08M010 | 105 |
| 120007-0473 | 884030E03M010 | 104 | 120055-0669 | BTY403N-FBA | 58, 120 | 120066-0166 | 883030A09M010 | 42 |
| 120007-0488 | 884030P03M010 | 104 | 120055-0670 | BTY603N-FBA | 58, 120 | 120066-0222 | 883031K05M010 | 42, 104 |
| 120007-0509 | 884031E03M010 | 104 | 120055-0672 | BTY803N-FBA | 58 | 120066-0231 | 883032K05M010 | 44, 106 |
| 120007-0554 | 884033E03M010 | 106 | 120055-0925 | BKY8030-FBC | 32, 94 | 120066-0266 | 884030A09M010 | 42 |
| 120007-0906 | 885030E03M010 | 104, 326 | 120065-0129 | 803000A09M020 | 38 | 120066-0376 | 884031K05M010 | 42, 104 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|---------------|-------------|-----------------|---------|-------------|------------------|--------------------|
| 120066-0400 | 884032K05M010 | 44, 106 | 120067-0079 | 8830P9K05M010 | 48, 110 | 120067-8328 | 8030P0H09M020 | 108 |
| 120066-0427 | 885030A09M010 | 42, 284, 324 | 120067-0095 | 8840P6A09M010 | 47 | 120067-8329 | 8830P9H09M010 | 110 |
| 120066-0479 | 888033P02M010 | 45, 107 | 120067-0101 | 8840P6K05M010 | 47, 109 | 120067-8330 | 8840P9H09M010 | 110 |
| 120066-0498 | 883030P03M010 | 104 | 120067-0107 | 8840P7A09M010 | 47 | 120067-8331 | 8830P6H09M010 | 109 |
| 120066-0579 | 888030P02M010 | 43, 105 | 120067-0112 | 8840P7B03M010 | 47 | 120067-8332 | 8840P7H09M010 | 109 |
| 120066-0676 | 883030K05M010 | 42, 104 | 120067-0117 | 8840P7K05M010 | 47, 109 | 120067-8333 | 8840P6H09M010 | 109 |
| 120066-0687 | 884030K05M010 | 42, 104 | 120067-0122 | 8840P8K05M010 | 48, 110 | 120067-8334 | 8830P8H09M010 | 110 |
| 120066-1034 | 885030K03M010 | 284, 324, 326 | 120067-0185 | 8030P0A09M020 | 46 | 120067-8335 | 8840P8H09M010 | 110 |
| 120066-1137 | 883031A09M010 | 42 | 120067-0192 | 8030P0B03M020 | 46 | 120068-0137 | 0812-05EMF-00001 | 52, 114 |
| 120066-1177 | 883032A09M010 | 44 | 120067-0198 | 8030P1K05M020 | 46, 108 | 120068-0139 | 0812-05EMF-00000 | 52, 114 |
| 120066-1199 | 883033A09M010 | 44 | 120067-0227 | 8030P1A09M020 | 46 | 120068-0169 | 81590R | 52, 114 |
| 120066-1223 | 883033K05M010 | 44, 106 | 120067-0241 | 8030P1B03M020 | 46 | 120068-0170 | 81594R | 52, 114 |
| 120066-1262 | 884031A09M010 | 42 | 120067-0257 | 8040P1A09M020 | 46 | 120068-0175 | 884A30A09M003 | 53 |
| 120066-1307 | 884032A09M010 | 44 | 120067-5008 | 8030P0P03M020 | 108 | 120068-0195 | 884A30K05M003 | 53, 115 |
| 120066-1336 | 884033A09M010 | 44 | 120067-5014 | 8040P1E03M020 | 108 | 120068-0199 | 884A31A09M003 | 53 |
| 120066-1382 | 884033K05M010 | 44, 106 | 120067-5040 | 8840P7P03M010 | 109 | 120068-0211 | 884A31K05M003 | 53, 115 |
| 120066-1389 | 885031A09M010 | 42 | 120067-5040 | 8840P7P03M010 | 109 | 120068-5031 | 884A31E03M003 | 115 |
| 120066-1399 | 885032A09M010 | 44 | 120067-5063 | 8040P0P03M020 | 108 | 120068-5035 | 884AP0 | 52, 114 |
| 120066-1421 | 885033K03M010 | 284, 324 | 120067-5067 | 8030P1E03M020 | 108 | 120068-8009 | 0812-051FJ-00000 | 52, 114 |
| 120066-1626 | 888031P02M010 | 43, 105 | 120067-5069 | 8030P1P03M020 | 108 | 120068-8096 | 884A30E03M003 | 115 |
| 120066-1634 | 885033A09M010 | 44, 284, 324 | 120067-5078 | 8830P7P03M010 | 109 | 120068-8137 | 884A31H09M003 | 115 |
| 120066-5399 | 883033E03M010 | 106 | 120067-5088 | 8830P9E03M010 | 110 | 120068-8138 | 884A30H09M003 | 115 |
| 120066-5401 | 885032P03M010 | 106 | 120067-5090 | 8840P7E03M010 | 109 | 120070-0056 | 8R3A00A18A120 | 49 |
| 120066-5402 | 885033E03M010 | 106, 326 | 120067-5094 | 8040P0E03M020 | 108 | 120070-0093 | 8R3006A18A120 | 50 |
| 120066-5403 | 888032P02M010 | 45, 107 | 120067-5227 | 8030P0E03M020 | 108 | 120070-0114 | 8R4A00A18A120 | 49 |
| 120066-5404 | 88C030H45M010 | 43, 105 | 120067-5228 | 8030P0K05M020 | 46, 108 | 120070-0173 | 8R4000A18A120 | 49 |
| 120066-5405 | 88C031H45M010 | 43, 105 | 120067-5229 | 8040P0B03M020 | 46 | 120070-0173 | 8R4000A18A120 | 49 |
| 120066-5406 | 88C032H45M010 | 45, 107 | 120067-5230 | 8040P0K05M020 | 46, 108 | 120070-0184 | 8R4006A18A120 | 50 |
| 120066-5407 | 88C033H45M010 | 45, 107 | 120067-5231 | 8040P1B03M020 | 46 | 120070-0201 | 8R5A00A18A120 | 49, 285, 327 |
| 120066-8073 | 884032E03M010 | 106 | 120067-5232 | 8040P1K05M020 | 46, 108 | 120070-0235 | 8R5J460003 | 50, 112 |
| 120066-8084 | 885030P03M010 | 104 | 120067-5233 | 8830P6B03M010 | 47 | 120070-0237 | 8R5L30 | 263, 285, 327, 328 |
| 120066-8094 | 885033P03M010 | 106 | 120067-5235 | 8830P8A09M010 | 48 | 120070-0252 | 8R5006A18A120 | 50 |
| 120066-8188 | 885031P03M010 | 104 | 120067-5236 | 8830P8B03M010 | 48 | 120070-5180 | 8R8J460003 | 50, 112 |
| 120066-8189 | 885031E03M010 | 104 | 120067-5237 | 8830P8E03M010 | 110 | 120070-5200 | 8R3000A18A120 | 49 |
| 120066-8374 | 883030H09M010 | 104 | 120067-5238 | 8830P8P03M010 | 110 | 120070-5201 | 8R3J20E03C3003 | 111 |
| 120066-8379 | 884030H09M010 | 104 | 120067-5239 | 8830P9B03M010 | 48 | 120070-5202 | 8R3J26E03C3003 | 112 |
| 120066-8484 | 884031H09M010 | 104 | 120067-5240 | 8840P6B03M010 | 47 | 120070-5203 | 8R3J400013 | 49, 111 |
| 120066-8491 | 888030H08M010 | 105 | 120067-5241 | 8840P6E03M010 | 109 | 120070-5204 | 8R3J460003 | 50, 112 |
| 120066-8492 | 884033H09M010 | 106 | 120067-5242 | 8840P8A09M010 | 48 | 120070-5205 | 8R4J20E03C3003 | 111 |
| 120066-8493 | 885032H09M010 | 106 | 120067-5243 | 8840P8B03M010 | 48 | 120070-5206 | 8R5000A18A120 | 49 |
| 120066-8494 | 884032H09M010 | 106 | 120067-5244 | 8840P8E03M010 | 110 | 120070-5207 | 8R5J20E03C3003 | 111, 328 |
| 120066-8495 | 888032H08M010 | 107 | 120067-5245 | 8840P8P03M010 | 110 | 120070-5208 | 8R8J20E02C3003 | 49, 111 |
| 120066-8496 | 885031H09M010 | 104 | 120067-5246 | 8840P9A09M010 | 48 | 120070-5209 | 8R8J26E02C3003 | 50, 112 |
| 120066-8497 | 885030H09M010 | 104 | 120067-5247 | 8840P9B03M010 | 48 | 120070-5210 | 8R8J400013 | 49, 111 |
| 120066-8498 | 883033H09M010 | 106 | 120067-5248 | 8840P9E03M010 | 110 | 120071-0035 | 8A4000-31 | 51, 113 |
| 120066-8499 | 885033H09M010 | 106 | 120067-5249 | 8840P9K05M010 | 48, 110 | 120071-0036 | 8A4000-32 | 51, 113 |
| 120067-0027 | 8040P0A09M020 | 46 | 120067-8064 | 8830P6E03M010 | 109 | 120071-0037 | 8A4001-31 | 51, 113 |
| 120067-0037 | 8830P6A09M010 | 47 | 120067-8068 | 8830P7E03M010 | 109 | 120071-0038 | 8A4006-31 | 51, 113 |
| 120067-0040 | 8830P6K05M010 | 47, 109 | 120067-8087 | 8830P9P03M010 | 110 | 120071-0039 | 8A4006-32 | 51, 113 |
| 120067-0046 | 8830P7A09M010 | 47 | 120067-8211 | 8840P9P03M010 | 110 | 120071-0040 | 8A4007-31 | 51, 113 |
| 120067-0058 | 8830P7B03M010 | 47 | 120067-8255 | 8840P6P03M010 | 109 | 120071-0041 | 8A5000-31 | 51, 113 |
| 120067-0065 | 8830P7K05M010 | 47, 109 | 120067-8295 | 8830P7H09M010 | 109 | 120071-0043 | 8A5000-32 | 51, 113, 286, 329 |
| 120067-0072 | 8830P8K05M010 | 48, 110 | 120067-8308 | 8030P1H09M020 | 108 | 120071-0044 | 8A5001-31 | 51, 113 |
| 120067-0074 | 8830P9A09M010 | 48 | 120067-8309 | 8040P1H09M020 | 108 | 120071-0045 | 8A5006-31 | 51, 113 |
| | | | 120067-8327 | 8040P0H09M020 | 108 | 120071-0047 | 8A5006-32 | 51, 113, 286, 329 |

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|---------|-------------|-----------------|--------------|-------------|-----------------|---------|
| 120071-0049 | 8A5007-31 | 51, 113 | 120073-0357 | 776030D02F030 | 64 | 120079-0281 | W05001E03M020 | 82, 325 |
| 120072-0061 | 702000D02F060 | 62 | 120073-0376 | 776031D02F030 | 64 | 120079-5001 | W0C000H45M020 | 20, 82 |
| 120072-0085 | 702001D02F060 | 62 | 120073-0390 | 774033A03F030 | 65 | 120079-5006 | W0C006H45M020 | 21, 83 |
| 120072-0108 | 702006D02F060 | 63 | 120073-0391 | 774030A03F030 | 64 | 120079-5023 | W08000H08M020 | 82 |
| 120072-0118 | 702007D02F060 | 63 | 120073-0577 | 776032D02F030 | 65 | 120079-5026 | W08006H08M020 | 83 |
| 120072-0130 | 703000A03F060 | 62 | 120073-5009 | 772031D02F030 | 64 | 120079-5029 | W08S00P19M020 | 24, 86 |
| 120072-0171 | 703000D02F060 | 62 | 120073-5010 | 772032D02F030 | 65 | 120079-5033 | W08S06P19M020 | 24, 86 |
| 120072-0219 | 703001A03F060 | 62 | 120073-5011 | 774033D02F030 | 65 | 120079-5048 | W03001E03M020 | 82 |
| 120072-0250 | 703001D02F060 | 62 | 120073-5012 | 775031A03F030 | 64 | 120079-5055 | W05006P03M020 | 83 |
| 120072-0292 | 703006A03F060 | 63 | 120073-5013 | 775032D02F030 | 65 | 120079-5088 | W05001P03M020 | 82 |
| 120072-0302 | 703006D02F060 | 63 | 120073-5014 | 776033D02F030 | 65 | 120079-5102 | W03000E03M020 | 82 |
| 120072-0315 | 703007A03F060 | 63 | 120074-0014 | 7R2A00A19A120 | 66 | 120079-5103 | W03000P03M020 | 82 |
| 120072-0318 | 703007D02F060 | 63 | 120074-0030 | 7R2A06A19A120 | 67 | 120079-5104 | W03001P03M020 | 82 |
| 120072-0334 | 704000A03F060 | 62 | 120074-0042 | 7R2006A19A120 | 67 | 120079-5105 | W03006E03M020 | 83 |
| 120072-0356 | 704000D02F060 | 62 | 120074-0058 | 7R3A00A19A120 | 66 | 120079-5106 | W03006P03M020 | 83 |
| 120072-0387 | 704001A03F060 | 62 | 120074-0079 | 7R3A06A19A120 | 67 | 120079-5107 | W03007E03M020 | 83 |
| 120072-0402 | 704001D02F060 | 62 | 120074-0106 | 7R3006A19A120 | 67 | 120079-5108 | W04007E03M020 | 83 |
| 120072-0435 | 704006A03F060 | 63 | 120074-0122 | 7R4A00A19A120 | 66 | 120079-5109 | W04007P03M020 | 83 |
| 120072-0445 | 704006D02F060 | 63 | 120074-0140 | 7R4A06A19A120 | 67 | 120079-5110 | W05000P03M020 | 82 |
| 120072-0459 | 705000A03F060 | 62 | 120074-0160 | 7R4006A19A120 | 67 | 120079-5111 | W05007E03M020 | 83 |
| 120072-0471 | 705000D02F060 | 62 | 120074-0178 | 7R5A00A19A120 | 66 | 120079-5112 | W05007P03M020 | 83 |
| 120072-0508 | 705001A03F060 | 62 | 120074-0190 | 7R5A06A19A120 | 67 | 120079-5113 | W08000P02M020 | 20, 82 |
| 120072-0515 | 705001D02F060 | 62 | 120074-0222 | 7R5006A19A120 | 67 | 120079-5114 | W08001P02M020 | 20, 82 |
| 120072-0546 | 705006A03F060 | 63 | 120075-0014 | 7A3000-31 | 68 | 120079-5115 | W08006P02M020 | 21, 83 |
| 120072-0551 | 705006D02F060 | 63 | 120075-0015 | 7A3000-32 | 68 | 120079-5116 | W08007P02M020 | 21, 83 |
| 120072-0558 | 705007D02F060 | 63 | 120075-0016 | 7A3001-31 | 68 | 120079-5117 | W0C001H45M020 | 20, 82 |
| 120072-0568 | 706000D02F060 | 62 | 120075-0017 | 7A3006-31 | 68 | 120079-5118 | W0C007H45M020 | 21, 83 |
| 120072-0595 | 706001D02F060 | 62 | 120075-0018 | 7A3006-32 | 68 | 120079-8006 | W04006P03M020 | 83 |
| 120072-0616 | 706006D02F060 | 63 | 120075-0019 | 7A3007-31 | 68 | 120079-8012 | W04000P03M020 | 82 |
| 120072-0626 | 706007D02F060 | 63 | 120079-0092 | W05006A09M020 | 21 | 120079-8013 | W04001P03M020 | 82 |
| 120072-1010 | 705007A03F060 | 63 | 120079-0107 | W04006A09M020 | 21 | 120079-8041 | W03007H09M020 | 83 |
| 120072-1022 | 704007D02F060 | 63 | 120079-0109 | W05000A09M020 | 20, 283, 323 | 120079-8042 | W03000H09M020 | 82 |
| 120072-5019 | 704007A03F060 | 63 | 120079-0130 | W03000K05M020 | 20, 82 | 120079-8043 | W08001H08M020 | 82 |
| 120073-0057 | 772030D02F030 | 64 | 120079-0138 | W03000A09M020 | 20 | 120079-8044 | W08007H08M020 | 83 |
| 120073-0068 | 772033D02F030 | 65 | 120079-0149 | W04000K05M020 | 20, 82 | 120079-8045 | W05000H09M020 | 82 |
| 120073-0085 | 773030A03F030 | 64 | 120079-0155 | W03006K05M020 | 21, 83 | 120079-8046 | W05006H09M020 | 83 |
| 120073-0100 | 773030D02F030 | 64 | 120079-0156 | W04006K05M020 | 21, 83 | 120079-8047 | W03001H09M020 | 82 |
| 120073-0140 | 773031A03F030 | 64 | 120079-0164 | W04000A09M020 | 20 | 120079-8048 | W05001H09M020 | 82 |
| 120073-0151 | 773031D02F030 | 64 | 120079-0175 | W03006A09M020 | 21 | 120079-8049 | W03006H09M020 | 83 |
| 120073-0172 | 773032A03F030 | 65 | 120079-0187 | W04007A09M020 | 21 | 120079-8050 | W05007H09M020 | 83 |
| 120073-0178 | 773032D02F030 | 65 | 120079-0192 | W04007K05M020 | 21, 83 | 120079-8051 | W04001H09M020 | 82 |
| 120073-0185 | 773033A03F030 | 65 | 120079-0211 | W03001K05M020 | 20, 82 | 120079-8052 | W04007H09M020 | 83 |
| 120073-0190 | 773033D02F030 | 65 | 120079-0216 | W03001A09M020 | 20 | 120079-8053 | W04006H09M020 | 83 |
| 120073-0215 | 774030D02F030 | 64 | 120079-0220 | W03007A09M020 | 21 | 120079-8054 | W04000H09M020 | 82 |
| 120073-0237 | 774031A03F030 | 64 | 120079-0221 | W04001K05M020 | 20, 82 | 120080-0001 | WW4A30A09M003 | 28 |
| 120073-0241 | 774031D02F030 | 64 | 120079-0223 | W05001A09M020 | 20, 283, 323 | 120080-0005 | WW4A31A09M003 | 28 |
| 120073-0246 | 774032A03F030 | 65 | 120079-0226 | W03007K05M020 | 21, 83 | 120080-0033 | 8W4A30A09M003 | 28 |
| 120073-0250 | 774032D02F030 | 65 | 120079-0232 | W04001A09M020 | 20 | 120080-0037 | 8W4A31A09M003 | 28 |
| 120073-0272 | 775030A03F030 | 64 | 120079-0239 | W05007A09M020 | 21 | 120080-0081 | WW4A30K05M003 | 28, 90 |
| 120073-0293 | 775030D02F030 | 64 | 120079-0263 | W04006E03M020 | 83 | 120080-0089 | WW4A31K05M003 | 28, 90 |
| 120073-0335 | 775031D02F030 | 64 | 120079-0266 | W04000E03M020 | 82 | 120080-0108 | 8W4A30K05M003 | 28, 90 |
| 120073-0346 | 775032A03F030 | 65 | 120079-0269 | W04001E03M020 | 82 | 120080-0116 | 8W4A31K05M003 | 28, 90 |
| 120073-0351 | 775033A03F030 | 65 | 120079-0273 | W05006E03M020 | 83 | 120080-0276 | WW3030A09M010 | 22 |
| 120073-0354 | 775033D02F030 | 65 | 120079-0277 | W05000E03M020 | 82, 325 | 120080-0281 | WW3032K05M010 | 23, 85 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|--------------|-------------|-----------------|----------|-------------|-----------------|------------------|
| 120080-0286 | WW3031K05M010 | 22, 84 | 120080-5092 | 8W4A30E03M003 | 90 | 120084-5187 | WR8W46E02C300 | 26, 88 |
| 120080-0300 | WW4031K05M010 | 22, 84 | 120080-5093 | 8W4A30P03M003 | 90 | 120084-5188 | WRCW46E01C300 | 26, 88 |
| 120080-0306 | WW4032K05M010 | 23, 85 | 120080-5094 | 8W4A31E03M003 | 90 | 120084-5189 | WR4W40E03C3003 | 87 |
| 120080-0325 | WW5030A09M010 | 22, 284, 324 | 120080-5095 | 8W4A31P03M003 | 90 | 120084-5190 | WR5W40E03C3003 | 87 |
| 120080-0337 | WW4031A09M010 | 22 | 120080-8024 | 8W4A31H09M003 | 90 | 120084-5191 | WR8W40E02C300 | 25, 87 |
| 120080-0347 | WW4032A09M010 | 23 | 120080-8025 | WW3033H09M010 | 85 | 120084-5192 | WRCW40E01C300 | 25, 87 |
| 120080-0351 | WW3033A09M010 | 23 | 120080-8026 | WW3030H09M010 | 84 | 120085-0003 | WA4006-31 | 27, 89 |
| 120080-0364 | WW3033K05M010 | 23, 85 | 120080-8027 | WW4031H09M010 | 84 | 120085-0004 | WA5006-31 | 27, 89 |
| 120080-0378 | WW5032A09M010 | 23 | 120080-8028 | WW5031H09M010 | 84 | 120085-0005 | WA4006-32 | 27, 89 |
| 120080-0382 | WW5031A09M010 | 22 | 120080-8029 | WW3032H09M010 | 85 | 120085-0006 | WA5006-32 | 27, 89, 286, 329 |
| 120080-0391 | WW4033A09M010 | 23 | 120080-8030 | WW3031H09M010 | 84 | 120085-0007 | WA4007-31 | 27, 89 |
| 120080-0396 | WW4033K05M010 | 23, 85 | 120080-8031 | WW4030H09M010 | 84 | 120085-0008 | WA5007-31 | 27, 89 |
| 120080-0403 | WW4030A09M010 | 22 | 120080-8032 | WW8033H08M010 | 85 | 120085-0011 | WA4000-31 | 27, 89 |
| 120080-0414 | WW3030K05M010 | 22, 84 | 120080-8033 | WW8030H08M010 | 84 | 120085-0012 | WA5000-31 | 27, 89 |
| 120080-0417 | WW4030K05M010 | 22, 84 | 120080-8034 | WW8031H08M010 | 84 | 120085-0013 | WA4000-32 | 27, 89 |
| 120080-0419 | WW3032A09M010 | 23 | 120080-8035 | WW8032H08M010 | 85 | 120085-0014 | WA5000-32 | 27, 89, 286, 329 |
| 120080-0429 | WW3031A09M010 | 22 | 120080-8036 | WW4032H09M010 | 85 | 120085-0015 | WA4001-31 | 27, 89 |
| 120080-0431 | WW5033A09M010 | 23, 284, 324 | 120080-8037 | WW4033H09M010 | 85 | 120085-0016 | WA5001-31 | 27, 89 |
| 120080-0469 | WW4030E03M010 | 84 | 120080-8038 | WW5032H09M010 | 85 | 120086-0009 | 4030P1B09M020 | 70 |
| 120080-5023 | WWC033H45M010 | 23, 85 | 120080-8039 | WW5030H09M010 | 84 | 120086-0022 | 403001B09M020 | 70 |
| 120080-5045 | WW4030P03M010 | 84 | 120080-8040 | WW5033H09M010 | 85 | 120086-0027 | 403006B09M020 | 71 |
| 120080-5050 | WW5030P03M010 | 84 | 120080-8048 | WW4A30H09M003 | 90 | 120086-0033 | 403007B09M020 | 71 |
| 120080-5058 | WW3030E03M010 | 84 | 120080-8049 | WW4A31H09M003 | 90 | 120086-0042 | 404001B09M020 | 70 |
| 120080-5059 | WW3030P03M010 | 84 | 120082-8004 | 8W4A30H09M003 | 90 | 120086-0048 | 404006B09M020 | 71 |
| 120080-5060 | WW3031E03M010 | 84 | 120083-5010 | WOC500P45M020 | 24, 86 | 120086-0052 | 404007B09M020 | 71 |
| 120080-5061 | WW3031P03M010 | 84 | 120083-5015 | WOC506P45M020 | 24, 86 | 120086-0102 | 403000A10M020 | 70 |
| 120080-5062 | WW3032E03M010 | 85 | 120083-5044 | WWC530P45M010 | 24, 86 | 120086-0119 | 403001A10M020 | 70 |
| 120080-5063 | WW3032P03M010 | 85 | 120083-5183 | WW8530P19M010 | 24, 86 | 120086-0132 | 403006A10M020 | 71 |
| 120080-5064 | WW3033E03M010 | 85 | 120084-0007 | WR4000A18C300 | 25 | 120086-0139 | 403007A10M020 | 71 |
| 120080-5065 | WW3033P03M010 | 85 | 120084-0008 | WR4006A18C300 | 26 | 120086-0144 | 404000A10M020 | 70 |
| 120080-5066 | WW4031E03M010 | 84 | 120084-0016 | WR5000A18A120 | 285, 327 | 120086-0171 | 404000B09M020 | 70 |
| 120080-5067 | WW4031P03M010 | 84 | 120084-0016 | WR5000A18C300 | 25 | 120086-0175 | 404001A10M020 | 70 |
| 120080-5068 | WW4032E03M010 | 85 | 120084-0017 | WR5006A18C300 | 26 | 120086-0183 | 404006A10M020 | 71 |
| 120080-5069 | WW4032P03M010 | 85 | 120084-0047 | WR8W460003 | 26, 88 | 120086-0186 | 404007A10M020 | 71 |
| 120080-5070 | WW4033E03M010 | 85 | 120084-0048 | WR8W400003 | 25, 87 | 120086-0191 | 405000A10M020 | 70 |
| 120080-5071 | WW4033P03M010 | 85 | 120084-5013 | WRCU20E01C3003 | 25, 87 | 120086-0196 | 405000B09M020 | 70 |
| 120080-5072 | WW4A30E03M003 | 90 | 120084-5015 | WRCU26E01C3003 | 26, 88 | 120086-0200 | 405001A10M020 | 70 |
| 120080-5073 | WW4A30P03M003 | 90 | 120084-5095 | WR8U20E02C3003 | 25, 87 | 120086-0206 | 405006A10M020 | 71 |
| 120080-5074 | WW4A31E03M003 | 90 | 120084-5096 | WR8U26E02C3003 | 26, 88 | 120086-0210 | 405007A10M020 | 71 |
| 120080-5075 | WW4A31P03M003 | 90 | 120084-5103 | WR4J26E03C3003 | 88 | 120086-0336 | 403000B09M020 | 70 |
| 120080-5076 | WW5030E03M010 | 84, 326 | 120084-5107 | WR4U20E03C3003 | 87 | 120086-0386 | 405001B09M020 | 70 |
| 120080-5077 | WW5031E03M010 | 84 | 120084-5108 | WR4U26E03C3003 | 88 | 120086-0387 | 405006B09M020 | 71 |
| 120080-5078 | WW5031P03M010 | 84 | 120084-5109 | WR5J26E03C3003 | 88 | 120086-0390 | 405007B09M020 | 71 |
| 120080-5079 | WW5032E03M010 | 85 | 120084-5113 | WR5U20E03C3003 | 87 | 120086-0421 | 4030P1A10M020 | 70 |
| 120080-5080 | WW5032P03M010 | 85 | 120084-5154 | WR4J20E03C3003 | 87 | 120086-8001 | 403000P02M020 | 126 |
| 120080-5081 | WW5033E03M010 | 85, 326 | 120084-5159 | WR5J20E03C3003 | 87, 328 | 120086-8061 | 405007P02M020 | 127 |
| 120080-5082 | WW5033P03M010 | 85 | 120084-5175 | WR4W400003 | 25, 87 | 120086-8083 | 405007E02M020 | 127 |
| 120080-5083 | WW8030P02M010 | 22, 84 | 120084-5176 | WRCW400003 | 25, 87 | 120086-8099 | 405000E02M020 | 126 |
| 120080-5084 | WW8031P02M010 | 22, 84 | 120084-5179 | WR5W400003 | 25, 87 | 120086-8155 | 403001P02M020 | 126 |
| 120080-5085 | WW8032P02M010 | 23, 85 | 120084-5180 | WR4W460003 | 26, 88 | 120086-8156 | 404000P02M020 | 126 |
| 120080-5086 | WW8033P02M010 | 23, 85 | 120084-5181 | WR5W460003 | 26, 88 | 120086-8159 | 404001P02M020 | 126 |
| 120080-5088 | WWC030H45M010 | 22, 84 | 120084-5182 | WRCW460003 | 26, 88 | 120086-8173 | 405006E02M020 | 127 |
| 120080-5089 | WWC031H45M010 | 22, 84 | 120084-5183 | WR4W46E03C3003 | 88 | 120086-8178 | 405001E02M020 | 126 |
| 120080-5090 | WWC032H45M010 | 23, 85 | 120084-5185 | WR5W46E03C3003 | 88 | 120086-8228 | 403006E02M020 | 127 |

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|------|-------------|-----------------|----------------------|-------------|-----------------|----------|
| 120086-8329 | 403007P02M020 | 127 | 120088-8122 | 503000H08M020 | 135 | 120098-0181 | BP5563PP4M010 | 317 |
| 120086-8337 | 4030P1P02M020 | 126 | 120088-8123 | 504000P02M020 | 135 | 120098-0183 | BP5532PP4M010 | 317 |
| 120086-8368 | 404006E02M020 | 127 | 120088-8124 | 504001E02M020 | 135 | 120098-0184 | BM5S31PP4M010 | 317 |
| 120086-8373 | 404006P02M020 | 127 | 120088-8125 | 504001P02M020 | 135 | 120098-0186 | BM5G62PP4M010 | 318 |
| 120086-8382 | 404007P02M020 | 127 | 120088-8126 | 504001H08M020 | 135 | 120098-0188 | BM5G63PP4M010 | 318 |
| 120086-8391 | 405001P02M020 | 126 | 120088-8127 | 504006H08M020 | 135 | 120098-0190 | BM5G30PP4M010 | 318 |
| 120087-0074 | 443030A10M010 | 72 | 120088-8128 | 503001H08M020 | 135 | 120098-0192 | BM5G32PP4M010 | 318 |
| 120087-0088 | 443033A10M010 | 72 | 120088-8129 | 503006H08M020 | 135 | 120098-0194 | BM5G31PP4M010 | 318 |
| 120087-0093 | 444030A10M010 | 72 | 120088-8130 | 503006P02M020 | 135 | 120098-0196 | BM5G33PP4M010 | 318 |
| 120087-0103 | 444031A10M010 | 72 | 120088-8131 | 504006P02M020 | 135 | 120098-0198 | MM3S60PP4M010 | 315 |
| 120087-0108 | 444033A10M010 | 72 | 120089-5002 | 444A30 | 78 | 120098-0199 | MP3S62PP4M010 | 315 |
| 120087-0112 | 445030A10M010 | 72 | 120090-0016 | 4R3P00A27C300 | 73 | 120098-0200 | MM3S62PP4M010 | 315 |
| 120087-0117 | 445033A10M010 | 72 | 120090-0020 | 4R3P06A27C300 | 74 | 120098-0202 | M03S06PP4M010 | 314 |
| 120087-0243 | 443031A10M010 | 72 | 120090-0029 | 4R4P00A27C300 | 73 | 120098-0203 | P03S07PP4M010 | 314 |
| 120087-0253 | 443032A10M010 | 72 | 120090-0032 | 4R4P06A27C300 | 74 | 120098-0204 | MM3G60PP4M010 | 316 |
| 120087-0281 | 444032A10M010 | 72 | 120090-0037 | 4R5P00A27C300 | 73 | 120098-0206 | MP3G62PP4M010 | 316 |
| 120087-0287 | 445031A10M010 | 72 | 120090-0038 | 4R5P06A27C300 | 74 | 120098-0207 | MM3G61PP4M010 | 316 |
| 120087-0290 | 445032A10M010 | 72 | 120090-5001 | 4R3H400013 | 73 | 120098-0209 | MP3G63PP4M010 | 316 |
| 120087-8140 | 443030P02M010 | 128 | 120091-0001 | N03FA03124 | 75, 131 | 120098-0211 | MM3G70PP4M010 | 316 |
| 120087-8258 | 443030E02M010 | 128 | 120091-0003 | N03FA04124 | 75, 131 | 120098-0213 | MP3G72PP4M010 | 316 |
| 120087-8316 | 443031P02M010 | 128 | 120091-0004 | N03MA03124 | 75, 131 | 120098-0223 | BM5S61PP4M010 | 317 |
| 120087-8321 | 443032E02M010 | 128 | 120091-0006 | N03MA04124 | 75, 131 | 120098-5007 | BM5S33PP4M010 | 317 |
| 120087-8324 | 443032P02M010 | 128 | 120091-0007 | N04FA03124 | 75, 131 | 120098-5021 | BB5S31PP4M010 | 306 |
| 120087-8329 | 443033E02M010 | 128 | 120091-0009 | N04FA04124 | 75, 131 | 120098-8025 | M03S07PP4M010 | 314 |
| 120087-8349 | 444030E02M010 | 128 | 120091-0010 | N04MA03124 | 75, 131 | 120098-8035 | MM3G72PP4M010 | 316 |
| 120087-8359 | 444030P02M010 | 128 | 120091-0012 | N04MA04124 | 75, 131 | 120099-0001 | BR5L30 | 309 |
| 120087-8365 | 444031E02M010 | 128 | 120094-0044 | K03001P80M100 | 32, 57, 94, 119, 180 | 120099-0005 | BR5U70PP4M0103 | 307 |
| 120087-8372 | 444031P02M010 | 128 | 120094-0125 | K02101P80M100 | 31, 55, 93, 118, 180 | 120099-0013 | BR5U76PP4M0103 | 307 |
| 120087-8380 | 444033P02M010 | 128 | 120094-5003 | K03000P80M100 | 180 | 120099-0024 | 81689-030 | 308 |
| 120087-8502 | 443033P02M010 | 128 | 120094-5022 | K02100P80M100 | 180 | 120099-0025 | 81688-030 | 308 |
| 120087-8503 | 444032E02M010 | 128 | 120094-5023 | K02301P80M100 | 31, 55, 93, 118 | 120100-0001 | BA5S00-32 | 310 |
| 120087-8504 | 444032P02M010 | 128 | 120094-8013 | K02201P80M100 | 31, 55, 93 | 120100-0002 | BA5S06-32 | 310 |
| 120087-8507 | 444033E02M010 | 128 | 120094-8027 | K03201P80M100 | 32, 57, 94, 119 | 120100-0003 | MA9DP0-32 | 313 |
| 120088-0001 | 5030P1B09M020 | 79 | 120094-8045 | K03301P80M100 | 32, 57, 94 | 120100-0004 | MA9D00-32 | 313 |
| 120088-0002 | 503000B09M020 | 79 | 120098-0006 | BB5S30PP4M010 | 306 | 120101-0001 | PBAPT | 152, 322 |
| 120088-0014 | 504006B09M020 | 79 | 120098-0024 | BB5S32PP4M010 | 306 | 120101-0002 | PDT501 | 312 |
| 120088-0022 | 503000A10M020 | 79 | 120098-0029 | BB5S33PP4M010 | 306 | 120102-0002 | B05S06 | 311 |
| 120088-0032 | 503001A10M020 | 79 | 120098-0048 | BM5G70PP4M010 | 318 | 120103-0001 | PA9D01-42 | 313 |
| 120088-0040 | 503001B09M020 | 79 | 120098-0051 | BM5G72PP4M010 | 318 | 120103-0003 | PA9D0B-42 | 313 |
| 120088-0042 | 503006A10M020 | 79 | 120098-0057 | BM5S32PP4M010 | 317 | 120103-0005 | PA9S01-42 | 313 |
| 120088-0054 | 504001A10M020 | 79 | 120098-0062 | BM5S60PP4M010 | 317 | 120103-5001 | MA9D00-42 | 313 |
| 120088-0059 | 504006A10M020 | 79 | 120098-0065 | BM5S62PP4M010 | 317 | 120108-0042 | EWWA06015M010 | 365 |
| 120088-0099 | 5030P1A10M020 | 79 | 120098-0070 | BM5S63PP4M010 | 317 | 120108-0050 | EWWA06215M010 | 365 |
| 120088-0112 | 503006B09M020 | 79 | 120098-0077 | BP5S33PP4M010 | 317 | 120108-0058 | EWWA06315M010 | 365 |
| 120088-0116 | 504000B09M020 | 79 | 120098-0079 | BP5S62PP4M010 | 317 | 120108-0066 | EWWA06003M010 | 365 |
| 120088-0130 | 504001B09M020 | 79 | 120098-0084 | B05S00PP4M010 | 304 | 120108-0074 | EWWA06203M010 | 365 |
| 120088-8001 | 503000E02M020 | 135 | 120098-0099 | B05S06PP4M010 | 305 | 120108-0082 | EWWA06303M010 | 365 |
| 120088-8083 | 503000P02M020 | 135 | 120098-0120 | MM3S63PP4M020 | 315 | 120108-0090 | EWWA06010M010 | 365 |
| 120088-8086 | 503001E02M020 | 135 | 120098-0122 | MP3S63PP4M020 | 315 | 120108-0098 | EWWA06210M010 | 365 |
| 120088-8090 | 503001P02M020 | 135 | 120098-0150 | BM5G60PP4M010 | 318 | 120108-0106 | EWWA06310M010 | 365 |
| 120088-8093 | 503006E02M020 | 135 | 120098-0151 | BM5G61PP4M010 | 318 | 120108-0167 | E11A06304M010 | 361 |
| 120088-8095 | 504000E02M020 | 135 | 120098-0155 | BM5S30PP4M010 | 317 | 120108-0174 | E11A06305M010 | 361 |
| 120088-8120 | 504006E02M020 | 135 | | | | 120108-0186 | E10A00605M010 | 360 |
| 120088-8121 | 504000H08M020 | 135 | | | | 120108-0187 | E10A00705M010 | 360 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|---------|-------------|-----------------|----------------------|-------------|-----------------|------|
| 120108-0188 | E11A06005M010 | 361 | 120114-0087 | BTY8030-FBB | 56, 117 | 120230-0078 | KAS9S01-425 | 174 |
| 120108-0189 | E11A06205M010 | 361 | 120114-0089 | BTY805P-FBP-05 | 60, 122 | 120230-0084 | KASCS01-025 | 174 |
| 120108-0200 | E11A06311M020 | 361 | 120114-0092 | BTY8050-FBP-05 | 60, 122 | 120230-0090 | KASHS01-025 | 174 |
| 120108-0201 | E11A06211M020 | 361 | 120114-0095 | BTY812N-FBP-05 | 61, 123 | 120230-0096 | KASJS01-025 | 174 |
| 120108-0236 | E11A06011M010 | 361 | 120114-0097 | BTY812P-FBP-05 | 61, 123 | 120230-0102 | KASLS01-225 | 174 |
| 120108-0252 | ERWPAU7011M010 | 370 | 120114-0099 | BTY8120-FBP-050 | 61, 123 | 120230-0110 | KAS6S06-405 | 175 |
| 120108-0264 | E16A03011M010 | 363 | 120114-0192 | BTY412N-FBP-05 | 61, 123 | 120230-0119 | KAS7S06-405 | 175 |
| 120108-5020 | EWWA06304M010 | 365 | 120114-0202 | BTY805N-FBP-05 | 60, 122 | 120230-0128 | KAS9S06-415 | 175 |
| 120109-0004 | ERWAAJ3000C050 | 367 | 120114-0211 | BTY401N-FBC | 55, 118 | 120230-0137 | KASCS06-015 | 175 |
| 120109-0005 | ERWPAU7003M006 | 370 | 120114-8008 | BTY400N-FBP-05 | 59, 121 | 120230-0146 | KASHS06-015 | 175 |
| 120109-5001 | ERWAAU3000C050 | 367 | 120114-8011 | BTY400P-FBP-05 | 59, 121 | 120230-0155 | KASJS06-015 | 175 |
| 120109-5002 | ERWAAU7000C050 | 367 | 120114-8020 | BTY800N-FBP-05 | 59, 121 | 120230-0164 | KASLS06-115 | 175 |
| 120109-5003 | ERWD2J30 | 368 | 120114-8022 | BTY800P-FBP-05 | 59, 121 | 120231-0002 | KRS6G20-403 | 176 |
| 120109-5004 | ERWD2U30 | 368 | 120119-0001 | BKY400P-FBP-05 | 34, 96 | 120231-0005 | KRS7G20-403 | 176 |
| 120109-5005 | ERWD2U70 | 368 | 120119-0002 | BKY401P-FBB | 29, 91 | 120231-0008 | KRS9G20-423 | 176 |
| 120113-0002 | BEYA01P-FBP-05 | 77, 133 | 120119-0003 | BKY401P-FBC | 31, 93 | 120231-0011 | KRSCG20-023 | 176 |
| 120113-0006 | BEY401P-FBP-05 | 77, 133 | 120119-0004 | BKY403P-FBA | 33, 95 | 120231-0014 | KRSHG20-023 | 176 |
| 120113-0011 | BEY601P-FBP-05 | 77, 133 | 120119-0005 | BKY403P-FBB | 30, 92 | 120231-0017 | KRSJG20-023 | 176 |
| 120113-0014 | BEY801P-FBP-05 | 77, 133 | 120119-0006 | BKY403P-FBC | 32, 94 | 120231-0020 | KRSLG20-223 | 176 |
| 120113-0017 | BEY803P-FBP-05 | 78, 134 | 120119-0007 | BKY405P-FBP-05 | 35, 97 | 120231-0023 | KRS6G26-4031 | 177 |
| 120113-0020 | BNYA01P-FBC | 76, 132 | 120119-0008 | BKY4120-FBP-01 | 36, 98 | 120231-0026 | KRS7G26-4031 | 177 |
| 120113-0022 | BNYA01P-FBP-05 | 77, 133 | 120119-0009 | BKY600P-FBP-05 | 34, 96 | 120231-0029 | KRS9G26-4131 | 177 |
| 120113-0023 | BNY401P-FBC | 76, 132 | 120119-0010 | BKY601P-FBB | 29, 91 | 120231-0032 | KRSCG26-0131 | 177 |
| 120113-0025 | BNY401P-FBP-05 | 77, 133 | 120119-0011 | BKY601P-FBC | 31, 93 | 120231-0035 | KRSHG26-0131 | 177 |
| 120113-0026 | BNY601P-FBC | 76, 132 | 120119-0012 | BKY603P-FBA | 33, 95 | 120231-0038 | KRSJG26-0131 | 177 |
| 120113-0029 | BNY801P-FBC | 76, 132 | 120119-0013 | BKY603P-FBB | 30, 92 | 120231-0041 | KRSLG26-1131 | 177 |
| 120113-0032 | BNY801P-FBP-05 | 77, 133 | 120119-0015 | BKY605P-FBP-05 | 35, 97 | 120231-0044 | KRS6G27-4012 | 177 |
| 120113-5100 | BNY403P-FBP-05 | 78, 134 | 120119-0016 | BKY800P-FBP-05 | 34, 96 | 120231-0047 | KRS7G27-4012 | 177 |
| 120114-0014 | BTY401N-FBB | 54, 116 | 120119-0017 | BKY801P-FBB | 29, 91 | 120231-0050 | KRS9G27-4112 | 177 |
| 120114-0019 | BTY401P-FBB | 54, 116 | 120119-0018 | BKY801P-FBC | 31, 93 | 120231-0053 | KRSCG27-0112 | 177 |
| 120114-0020 | BTY401P-FBC | 55, 118 | 120119-0019 | BKY803P-FBA | 33, 95 | 120231-0056 | KRSHG27-0112 | 177 |
| 120114-0027 | BTY4010-FBB | 54, 116 | 120119-0020 | BKY803P-FBB | 30, 92 | 120231-0059 | KRSJG27-0112 | 177 |
| 120114-0029 | BTY403P-FBA | 58, 120 | 120119-0021 | BKY803P-FBC | 32, 94 | 120231-0062 | KRSLG27-1112 | 177 |
| 120114-0030 | BTY403P-FBB | 56, 117 | 120119-0023 | BKY805P-FBP-05 | 35, 97 | 120231-0066 | KRS6G46-4041 | 178 |
| 120114-0031 | BTY403P-FBC | 57, 119 | 120119-0025 | BKY8120-FBP-01 | 36, 98 | 120231-0070 | KRS7G46-4041 | 178 |
| 120114-0034 | BTY4030-FBA | 58, 120 | 120119-0038 | BKY4030-FBC | 32, 94 | 120231-0074 | KRS9G46-4141 | 178 |
| 120114-0035 | BTY4030-FBB | 56, 117 | 120149-0016 | 4R3L40001 | 129 | 120231-0078 | KRSCG46-0141 | 178 |
| 120114-0037 | BTY405N-FBP-05 | 60, 122 | 120149-0064 | 4R4L40001 | 129 | 120231-0082 | KRSHG46-0141 | 178 |
| 120114-0039 | BTY405P-FBP-05 | 60, 122 | 120149-0095 | 4R5L40001 | 129 | 120231-0086 | KRSJG46-0141 | 178 |
| 120114-0042 | BTY4050-FBP-05 | 60, 122 | 120155-0012 | KS-TOOL-01 | 185 | 120231-0090 | KRSLG46-1141 | 178 |
| 120114-0045 | BTY412P-FBP-05 | 61, 123 | 120155-0013 | KS-LOC-01 | 185 | 120231-0094 | KRS6P46-400 | 179 |
| 120114-0048 | BTY4120-FBP-05 | 61, 123 | 120155-0014 | KS-LOC-02 | 185 | 120231-0098 | KRS7P46-400 | 179 |
| 120114-0055 | BTY601P-FBB | 54, 116 | 120155-0015 | KS-TOOL-02 | 185 | 120231-0102 | KRS9P46-410 | 179 |
| 120114-0056 | BTY603P-FBA | 58, 120 | 120155-0016 | KA-FLANGE | 185 | 120231-0106 | KRSCP46-010 | 179 |
| 120114-0057 | BTY6030-FBA | 58, 120 | 120155-0017 | KP-TOOL-01 | 185 | 120231-0110 | KRSHP46-010 | 179 |
| 120114-0059 | BTY801N-FBB | 54, 116 | 120155-0018 | KP-LOC-01 | 185 | 120231-0114 | KRSJP46-010 | 179 |
| 120114-0060 | BTY801N-FBC | 55, 118 | 120155-0019 | KP-LOC-02 | 185 | 120231-0118 | KRSLP46-110 | 179 |
| 120114-0065 | BTY801P-FBB | 54, 116 | 120230-0005 | KAS6S00-405 | 174 | 120233-0001 | KAP6S00-105 | 181 |
| 120114-0066 | BTY801P-FBC | 55, 118 | 120230-0014 | KAS7S00-405 | 174 | 120233-0005 | KAP8S00-115 | 181 |
| 120114-0079 | BTY8010-FBB | 54, 116 | 120230-0023 | KAS9S00-425 | 174 | 120233-0009 | KAP6S01-105 | 181 |
| 120114-0082 | BTY803P-FBA | 58, 120 | 120230-0032 | KASCS00-025 | 31, 55, 93, 118, 174 | 120233-0013 | KAP8S01-115 | 181 |
| 120114-0083 | BTY803P-FBB | 56, 117 | 120230-0041 | KASHS00-025 | 174 | 120233-0017 | KAP6S06-105 | 182 |
| 120114-0084 | BTY803P-FBC | 57, 119 | 120230-0050 | KASJS00-025 | 174 | 120233-0021 | KAP8S06-115 | 182 |
| 120114-0086 | BTY8030-FBA | 58, 120 | 120230-0072 | KAS7S01-405 | 174 | 120234-0001 | KRP6G00-103 | 183 |

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|------|-------------|-----------------|------|-------------|-----------------|-----------------|
| 120234-0003 | KRP8G00-113 | 183 | 121040-0491 | E432N2N10011 | 196 | 130006-1675 | 106002A01F060 | 141 |
| 120234-0005 | KRP6G06-103 | 184 | 121040-0493 | E432N2N10K11 | 196 | 130006-2099 | 40925 | 151 |
| 120234-0007 | KRP8G06-113 | 184 | 121040-0496 | E432N2N20011 | 196 | 130006-2102 | 41037 | 151 |
| 120234-0009 | KRP6G07-1012 | 184 | 121040-0500 | E432N2N50011 | 196 | 130006-2103 | 41132 | 151 |
| 120234-0011 | KRP8G07-1112 | 184 | 121040-0511 | E433N2N50021 | 196 | 130006-2107 | 41344 | 151 |
| 120234-0013 | KRP6G07-1052 | 184 | 121040-0589 | E152N3N50011 | 193 | 130006-2109 | 41593 | 151 |
| 120234-0015 | KRP8G07-1152 | 184 | 121040-0703 | E333N2N10K21 | 197 | 130007-0024 | 206000A01F060 | 158 |
| 120234-0017 | KRP6G46-1031 | 184 | 121040-0887 | E333N2N50021 | 197 | 130007-0051 | 206002A01F060 | 159 |
| 120234-0019 | KRP8G46-1131 | 184 | 121040-1109 | E433N2N10K21 | 196 | 130007-0073 | 207000A01F060 | 158 |
| 120234-0021 | KRP6P46-100 | 184 | 121040-1257 | E153N3N10K21 | 193 | 130007-0076 | 207000A01F120 | 155 |
| 120234-0023 | KRP8P46-110 | 184 | 121040-1258 | E433N2N10021 | 196 | 130007-0115 | 207002A01F060 | 159 |
| 120244-0002 | 1202440002 | 372 | 121040-1259 | E433N2N20021 | 196 | 130007-0142 | 208000A01F060 | 158 |
| 120244-0201 | 1202440201 | 372 | 121040-1260 | E333N2N10021 | 197 | 130007-0145 | 208000A01F120 | 154 |
| 120244-0202 | 1202440202 | 372 | 121201-0001 | C28200N0R | 188 | 130007-0199 | 208002A01F060 | 159 |
| 120244-0203 | 1202440203 | 372 | 121201-0002 | C28300N0R | 188 | 130008-0025 | 301000A01F060 | 164 |
| 120244-0204 | 1202440204 | 372 | 121202-0002 | C22200N0R | 189 | 130008-0028 | 301000A01F120 | 154 |
| 120244-0205 | 1202440205 | 372 | 121203-0001 | C92200N0T | 190 | 130008-0098 | 301001A01F060 | 164 |
| 120244-0207 | 1202440207 | 372 | 121204-0001 | C25200N0T | 191 | 130008-0117 | 301002A01F060 | 165 |
| 120341-0075 | 1203410075 | 373 | 121204-0005 | C25300N0T | 191 | 130008-0157 | 302000A01F060 | 164 |
| 120341-0150 | 1203410150 | 373 | 121205-0001 | C29200N0T | 192 | 130008-0161 | 302000A01F120 | 155 |
| 120341-0300 | 1203410300 | 374 | 121205-0005 | C29300N0T | 192 | 130008-0212 | 302001A01F060 | 164 |
| 120341-0301 | 1203410301 | 374 | 130006-0091 | 102000A01F060 | 138 | 130008-0231 | 302002A01F060 | 165 |
| 120341-0302 | 1203410302 | 374 | 130006-0137 | 102001A01F060 | 138 | 130008-0303 | 303000P80M050 | 169 |
| 120341-0303 | 1203410303 | 374 | 130006-0159 | 102002A01F060 | 141 | 130008-0315 | 303001P80M050 | 169 |
| 120341-0304 | 1203410304 | 374 | 130006-0221 | 103000A01F060 | 138 | 130008-0316 | 303001P80M100 | 30, 56, 92, 117 |
| 120341-0305 | 1203410305 | 374 | 130006-0232 | 103000A01F120 | 156 | 130008-0325 | 309000A01F060 | 164 |
| 120341-0306 | 1203410306 | 374 | 130006-0279 | 103000A02F060 | 138 | 130008-0329 | 309000A01F120 | 155 |
| 120355-0014 | 1203550014 | 372 | 130006-0302 | 103000A03F060 | 138 | 130008-0351 | 309001A01F060 | 164 |
| 120355-0015 | 1203550015 | 372 | 130006-0339 | 103000A06M020 | 138 | 130008-0366 | 309002A01F060 | 165 |
| 120355-0016 | 1203550016 | 372 | 130006-0377 | 103000C01F060 | 138 | 130008-0476 | 302101P80M100 | 29, 54, 91, 116 |
| 120355-0017 | 1203550017 | 372 | 130006-0426 | 103001A01F060 | 138 | 130008-5006 | 303201P80M100 | 30, 56, 92, 117 |
| 120355-0018 | 1203550018 | 372 | 130006-0452 | 103001A02F060 | 138 | 130008-8006 | 302201P80M100 | 29, 54, 91, 116 |
| 120355-0020 | 1203550020 | 372 | 130006-0534 | 103002A01F060 | 141 | 130008-8009 | 302301P80M100 | 29, 54, 91, 116 |
| 120355-0056 | 1203550056 | 372 | 130006-0647 | 103003A01F060 | 141 | 130010-0103 | 115030K13M020 | 143, 319 |
| 121012-0009 | B152000N2 | 191 | 130006-0728 | 104000A01F060 | 139 | 130010-0119 | 115033K13M020 | 319 |
| 121012-0010 | B153000N2 | 191 | 130006-0813 | 104000A03F060 | 139 | 130010-0147 | 112020A01F060 | 142 |
| 121012-0013 | B202000N2 | 188 | 130006-0833 | 104000A05M020 | 139 | 130010-0221 | 113020A01F060 | 142 |
| 121012-0019 | B203000N2 | 188 | 130006-0868 | 104000C01F060 | 139 | 130010-0307 | 113020C01F060 | 142 |
| 121012-0102 | B292000N2 | 192 | 130006-0902 | 104001A01F060 | 139 | 130010-0488 | 113030K13M020 | 143, 157 |
| 121040-0140 | E152N3N10011 | 193 | 130006-0995 | 104002A01F060 | 141 | 130010-0525 | 114020A01F060 | 142 |
| 121040-0146 | E152N3N10K11 | 193 | 130006-1087 | 104003A01F060 | 141 | 130010-0795 | 114030A38M020 | 143, 278 |
| 121040-0159 | E152N3N20011 | 193 | 130006-1163 | 105000A01F060 | 139 | 130010-0865 | 114030K12M020 | 143, 157, 278 |
| 121040-0210 | E153N3N10021 | 193 | 130006-1240 | 105000A02F060 | 140 | 130010-1005 | 115020A01F060 | 142 |
| 121040-0219 | E153N3N20021 | 193 | 130006-1257 | 105000A03F060 | 140 | 130010-1256 | 115030A01M020 | 319 |
| 121040-0230 | E153N3N50021 | 193 | 130006-1275 | 105000A07M020 | 140 | 130010-1303 | 115033A01M020 | 319 |
| 121040-0230 | E153N3N50021 | 193 | 130006-1275 | 105000A07M020 | 140 | 130010-1316 | 116020A01F060 | 142 |
| 121040-0295 | E162N3N10021 | 194 | 130006-1312 | 105000C01F060 | 140 | 130010-1657 | 41627-M010 | 218 |
| 121040-0299 | E162N3N10K21 | 194 | 130006-1349 | 105001A01F060 | 139 | 130010-1744 | 114033K12M020 | 278 |
| 121040-0305 | E162N3N20021 | 194 | 130006-1382 | 105001A02F060 | 140 | 130010-1823 | 114033A38M020 | 278 |
| 121040-0320 | E162N3N50021 | 194 | 130006-1404 | 105001A07M020 | 140 | 130011-0010 | 226020A01F060 | 160 |
| 121040-0422 | E332N2N10011 | 197 | 130006-1438 | 105002A01F060 | 141 | 130011-0051 | 227020A01F060 | 160 |
| 121040-0428 | E332N2N10K11 | 197 | 130006-1518 | 105003A01F060 | 141 | 130011-0119 | 228020A01F060 | 160 |
| 121040-0436 | E332N2N20011 | 197 | 130006-1583 | 106000A01F060 | 140 | 130012-0009 | 331020A01F060 | 166 |
| 121040-0451 | E332N2N50011 | 197 | 130006-1590 | 106000A01F120 | 154 | 130012-0113 | 332020A01F060 | 166 |
| 121040-0470 | E333N2N20021 | 197 | 130006-1653 | 106001A01F060 | 140 | | | |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|----------|-------------|-----------------|----------|-------------|-----------------|------|
| 130012-0339 | 333030P80M050 | 169 | 130014-0078 | 2R8006A20A120 | 162 | 130025-0013 | DNDF19A-M010 | 243 |
| 130012-0385 | 339020A01F060 | 166 | 130015-0024 | 3R1004A20A120 | 167 | 130025-0054 | DN11A-M010 | 242 |
| 130013-0060 | 1R2004A20A120 | 145 | 130015-0044 | 3R1006A20A120 | 168 | 130025-0173 | DN91A-M010 | 242 |
| 130013-0074 | 1R2005A20A120 | 145 | 130015-0054 | 3R2004A20A120 | 167 | 130025-0197 | DN99A-M010 | 242 |
| 130013-0076 | 1R2006A20A120 | 146 | 130015-0076 | 3R2006A20A120 | 168 | 130025-0233 | DNB11A-M010 | 242 |
| 130013-0090 | 1R2007A20A120 | 146 | 130015-0098 | 3R3N30E80C300 | 170 | 130025-0259 | DNB91A-M010 | 242 |
| 130013-0093 | 1R2G04A20A120 | 145 | 130015-0109 | 3R3N36E80C300 | 170 | 130025-0267 | DNB99A-M010 | 242 |
| 130013-0099 | 1R2G06A20A120 | 146 | 130015-0117 | 3R9004A20A120 | 167 | 130025-0287 | DND11A-M010 | 243 |
| 130013-0112 | 1R3000A20M020 | 144 | 130015-0137 | 3R9006A20A120 | 168 | 130025-0313 | DND19A-M010 | 243 |
| 130013-0135 | 1R3004A20A120 | 145 | 130017-0004 | 1A3000-34 | 150 | 130025-0322 | DND91A-M010 | 243 |
| 130013-0184 | 1R3005A20A120 | 145 | 130017-0008 | 1A3002-34 | 150 | 130025-0352 | DNE11A-M010 | 242 |
| 130013-0193 | 1R3006A17A120 | 146 | 130017-0011 | 1A3006-34 | 150 | 130025-0408 | DNF11A-M010 | 242 |
| 130013-0202 | 1R3006A20A120 | 146 | 130017-0015 | 1A4000-34 | 150, 280 | 130025-0468 | DNF91A-M010 | 242 |
| 130013-0229 | 1R3006A24A120 | 146 | 130017-0018 | 1A4002-34 | 150 | 130025-0482 | DNF99A-M010 | 242 |
| 130013-0238 | 1R3006A25A120 | 147 | 130017-0020 | 1A4006-34 | 150, 280 | 130025-0502 | DNDF11A-M010 | 243 |
| 130013-0247 | 1R3007A20A120 | 146 | 130017-0023 | 1A5000-34 | 150, 321 | 130025-0513 | DNDF99A-M010 | 243 |
| 130013-0268 | 1R3D06A25A120 | 147 | 130017-0026 | 1A5002-34 | 150 | 130025-0538 | DNF09A-M010 | 240 |
| 130013-0273 | 1R3G04A20A120 | 145 | 130017-0029 | 1A5006-34 | 150, 321 | 130025-0543 | DND99A-M010 | 243 |
| 130013-0280 | 1R3G06A20A120 | 146 | 130017-0055 | 1A3000-34PWR | 216 | 130025-0546 | DNDF91A-M010 | 243 |
| 130013-0301 | 1R4000A39M020 | 144 | 130017-0056 | 1A3006-34PWR | 216 | 130027-0012 | DND02A-M010 | 257 |
| 130013-0314 | 1R4004A20A120 | 145 | 130017-0057 | 1A4000-34PWR | 216 | 130027-0037 | DND03A-M010 | 257 |
| 130013-0337 | 1R4005A20A120 | 145 | 130017-0058 | 1A4006-34PWR | 216 | 130027-0048 | DND20A-M010 | 256 |
| 130013-0341 | 1R4006A16A120 | 147 | 130018-0125 | 51180-M020 | 218 | 130027-0075 | DND30A-M010 | 256 |
| 130013-0353 | 1R4006A20A120 | 147 | 130018-0184 | 51149 | 151 | 130027-0103 | DNDF02A-M010 | 257 |
| 130013-0386 | 1R4007A20A120 | 147 | 130018-0204 | 40761 | 153 | 130027-0115 | DNDF03A-M010 | 257 |
| 130013-0388 | 1R4030 | 149, 279 | 130018-0206 | 41048 | 153 | 130027-0161 | DNDF30A-M010 | 256 |
| 130013-0396 | 1R4D06A16A120 | 147 | 130018-0207 | 41212 | 153 | 130027-0171 | DNDF20A-M010 | 256 |
| 130013-0402 | 1R4G04A20A120 | 145 | 130018-0210 | 41481 | 153 | 130028-0028 | DND22A-M010 | 258 |
| 130013-0409 | 1R4G06A20A120 | 147 | 130018-0217 | 61056 | 152 | 130028-0070 | DND23A-M010 | 258 |
| 130013-0423 | 1R5000A20F060 | 320 | 130023-0055 | L04101M78M100 | 76, 132 | 130028-0085 | DND32A-M010 | 258 |
| 130013-0426 | 1R5000A20M020 | 144 | 130023-0059 | L04201M78M100 | 76, 132 | 130028-0104 | DND33A-M010 | 258 |
| 130013-0442 | 1R5004A20A120 | 145 | 130023-0063 | L04301M78M100 | 76, 132 | 130028-0132 | DNDF22A-M010 | 258 |
| 130013-0482 | 1R5005A20A120 | 145 | 130023-0068 | L04A01M78M100 | 76, 132 | 130028-0163 | DNDF23A-M010 | 258 |
| 130013-0489 | 1R5006A17A120 | 148 | 130024-0005 | DNDF01A-M010 | 241 | 130028-0172 | DNDF32A-M010 | 258 |
| 130013-0493 | 1R5006A20A120 | 148 | 130024-0028 | DN01A-M010 | 240 | 130028-0183 | DNDF33A-M010 | 258 |
| 130013-0515 | 1R5006A24A120 | 148 | 130024-0059 | DN09A-M010 | 240 | 130029-0001 | 405000D12M010 | 272 |
| 130013-0534 | 1R5007A20A120 | 148 | 130024-0073 | DN10A-M010 | 238 | 130029-0002 | 405001D12M010 | 272 |
| 130013-0541 | 1R5030 | 149, 247 | 130024-0133 | DN90A-M010 | 238 | 130029-0003 | 405006D12M010 | 273 |
| 130013-0548 | 1R5D06A25A120 | 148 | 130024-0146 | DNB01A-M010 | 240 | 130029-0005 | 405007D12M010 | 273 |
| 130013-0550 | 1R5G04A20A120 | 145 | 130024-0163 | DNB09A-M010 | 240 | 130030-0003 | 445030D12M010 | 274 |
| 130013-0557 | 1R5G06A20A120 | 148 | 130024-0169 | DNB10A-M010 | 238 | 130030-0004 | 445032D12M010 | 274 |
| 130013-0567 | 1R6004A20A120 | 145 | 130024-0178 | DNB90A-M010 | 238 | 130030-0010 | 485030D12M010 | 276 |
| 130013-0589 | 1R6005A20A120 | 145 | 130024-0191 | DND01A-M010 | 241 | 130030-0022 | 485033D12M010 | 276 |
| 130013-0593 | 1R6006A20A120 | 148 | 130024-0207 | DND09A-M010 | 241 | 130030-0027 | 845030D12M010 | 275 |
| 130013-0612 | 1R6007A20A120 | 148 | 130024-0215 | DND10A-M010 | 239 | 130030-0041 | 845031D12M010 | 275 |
| 130013-0614 | 1R6G04A20A120 | 145 | 130024-0232 | DND90A-M010 | 239 | 130030-0061 | 845032D12M010 | 275 |
| 130013-0620 | 1R6G06A20A120 | 148 | 130024-0249 | DNE01A-M010 | 240 | 130030-0070 | 845033D12M010 | 275 |
| 130013-0991 | 41671-0030 | 219 | 130024-0260 | DNE10A-M010 | 238 | 130030-0088 | 445031D12M010 | 274 |
| 130013-1001 | 1R40301 | 279 | 130024-0265 | DNF01A-M010 | 240 | 130030-0089 | 445033D12M010 | 274 |
| 130014-0015 | 2R6004A20A120 | 161 | 130024-0337 | DNF10A-M010 | 238 | 130030-0090 | 485031D12M010 | 276 |
| 130014-0025 | 2R6006A20A120 | 162 | 130024-0341 | DNF90A-M010 | 238 | 130030-0091 | 485032D12M010 | 276 |
| 130014-0037 | 2R7004A20A120 | 161 | 130024-0353 | DNDF10A-M010 | 239 | 130031-0012 | DNDC303A-M005 | 261 |
| 130014-0050 | 2R7006A20A120 | 162 | 130024-0355 | DNDF90A-M010 | 239 | 130031-0014 | DNDC230A-M010 | 261 |
| 130014-0061 | 2R8004A20A120 | 161 | 130024-0356 | DNDF09A-M010 | 241 | 130031-0023 | 81611 | 262 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|----------|-------------|-----------------|------|-------------|-----------------|------|
| 130031-0026 | 81612 | 262 | 130039-0230 | DNDC302A-M005 | 261 | 130048-0095 | E11A06004M010 | 361 |
| 130033-0003 | DNDC304-M005 | 271 | 130039-0245 | DNDF13A-M010 | 260 | 130048-0114 | E11A06010M010 | 361 |
| 130034-0005 | 1A5000-34DN | 248 | 130039-0248 | DNDF21A-M010 | 259 | 130048-0122 | E11A06015M010 | 361 |
| 130034-0006 | 1A5006-34DN | 248 | 130039-0257 | DNDF29A-M010 | 259 | 130048-0137 | E11A06203M010 | 361 |
| 130034-0007 | 8A5000-32DN | 264 | 130039-0259 | DNDF31A-M010 | 259 | 130048-0145 | E11A06210M010 | 361 |
| 130034-0008 | 8A5006-32DN | 264 | 130039-0263 | DNDF39A-M010 | 259 | 130048-0153 | E11A06215M010 | 361 |
| 130035-0007 | 115011A-PM-1 | 251 | 130039-0266 | DNDF92A-M010 | 260 | 130048-0161 | E11A06303M010 | 361 |
| 130035-0008 | 115011A-PM-3 | 251 | 130039-0284 | DN5000-M010 | 245 | 130048-0170 | E11A06310M010 | 361 |
| 130035-0013 | 115032A | 253 | 130039-0299 | DN5100-M010 | 245 | 130048-0179 | E11A06315M010 | 361 |
| 130035-0015 | 115060A | 253 | 130039-0312 | DNB5000-M010 | 245 | 130048-0193 | E11B03003M002 | 362 |
| 130035-0030 | 61451-ESIN | 218 | 130039-0318 | DNB5100-M010 | 245 | 130048-0195 | E11B03015M002 | 362 |
| 130035-0031 | 61451-ESOUT | 218 | 130039-0336 | DN2100 | 255 | 130048-0197 | E16A03003M010 | 363 |
| 130035-0057 | DN3020 | 252 | 130039-0339 | DNB00A-M500 | 235 | 130048-0207 | E1WB03003M002 | 366 |
| 130035-0060 | DN3020PM-1 | 250 | 130039-0340 | DNB00A-T100 | 235 | 130048-0208 | E1WB03010M002 | 366 |
| 130035-0061 | DN3020PM-3 | 250 | 130039-0341 | DND3020 | 252 | 130048-0209 | E1WB03015M002 | 366 |
| 130035-0071 | DN3200 | 252 | 130039-0344 | DNDF00A-T100 | 236 | 130048-0281 | E10A00611M050 | 360 |
| 130035-0072 | DNAPT | 282 | 130039-0346 | DNDG00A-T100 | 237 | 130048-0286 | E10A00711M050 | 360 |
| 130035-0077 | DNESJ | 282 | 130039-0347 | DNE00A-M500 | 235 | 130050-0071 | ENP1105M010 | 347 |
| 130035-0081 | DNESJ | 282 | 130039-0348 | DNE00A-T100 | 235 | 130050-0076 | ENP1115M010 | 348 |
| 130035-0085 | DNETAUXPT | 152, 282 | 130039-0349 | DNF00A-M500 | 234 | 130050-0093 | ENP1135M010 | 348 |
| 130035-0090 | MICT555 | 266 | 130039-0350 | DNF00A-T100 | 234 | 130050-0105 | ENP1305M010 | 344 |
| 130036-0005 | DN4000 | 254 | 130039-0351 | 115010A | 253 | 130050-0107 | ENP1335M010 | 345 |
| 130036-0006 | DN4100 | 255 | 130039-0358 | 41437-001 | 219 | 130050-0112 | ENP2105M010 | 347 |
| 130036-0008 | DN6000 | 254 | 130039-0359 | 41437-002 | 219 | 130050-0122 | ENP2115M010 | 348 |
| 130036-0009 | DN6100 | 255 | 130039-0368 | DN00A-M500 | 234 | 130050-0140 | ENP2135M010 | 348 |
| 130036-0010 | DN8000 | 254 | 130039-0369 | DN00A-T100 | 234 | 130050-0150 | ENP2335M010 | 345 |
| 130037-0004 | DND4200 | 268 | 130039-0370 | DN100 | 249 | 130050-0162 | ENP3105M010 | 347 |
| 130037-0005 | DND4300-02 | 267 | 130039-0371 | DN100L | 249 | 130050-0170 | ENP3115M010 | 348 |
| 130037-0006 | DND4500-02 | 267 | 130039-0376 | DN150 | 249 | 130050-0251 | ENQ3115M010 | 348 |
| 130037-0008 | DND8200 | 268 | 130039-0381 | DND00A-T100 | 236 | 130050-0262 | ENQ3135M010 | 348 |
| 130037-0010 | DND8300-02 | 267 | 130039-0382 | DND100 | 265 | 130050-0277 | ENS1105M010 | 347 |
| 130037-0011 | DND8500-02 | 267 | 130039-0385 | DND150 | 265 | 130050-0284 | ENS1115M010 | 348 |
| 130038-0016 | DNTA14114A1 | 277 | 130039-0386 | DND151 | 265 | 130050-0324 | ENS1335M010 | 345 |
| 130039-0072 | DN150L | 249 | 130039-0390 | DN-PT1 | 281 | 130050-0328 | ENS2105M010 | 347 |
| 130039-0087 | DND5304-M010 | 271 | 130039-0391 | DN-PT2 | 281 | 130050-0336 | ENS2115M010 | 348 |
| 130039-0096 | DN5210A-M010 | 244 | 130039-0393 | DN-PT3 | 281 | 130050-0371 | ENS2135M010 | 348 |
| 130039-0098 | DN5290A-M010 | 244 | 130039-0396 | DNYG001 | 266 | 130050-0392 | ENS2305M010 | 344 |
| 130039-0101 | DN5301A-M010 | 244 | 130039-0523 | DNDF12A-M010 | 260 | 130050-0394 | ENS2335M010 | 345 |
| 130039-0103 | DN5309A-M010 | 244 | 130039-0545 | DNDF40-M010 | 269 | 130050-0408 | ENS3105M010 | 347 |
| 130039-0122 | DND49A-M010 | 270 | 130039-0546 | DNDF41A-M010 | 270 | 130050-0412 | ENS3115M010 | 348 |
| 130039-0125 | DND101 | 265 | 130039-0547 | DNDF49A-M010 | 270 | 130050-0429 | ENS3135M010 | 348 |
| 130039-0127 | DND40-M010 | 269 | 130039-0548 | DNDF42A-M010 | 270 | 130050-0436 | ENS3305M010 | 344 |
| 130039-0132 | DND41A-M010 | 270 | 130039-0549 | DNDF43A-M010 | 270 | 130050-0457 | ENP3335M010 | 345 |
| 130039-0145 | DND12A-M010 | 260 | 130039-0551 | DNDF93A-M010 | 260 | 130050-0503 | ENS3335M010 | 345 |
| 130039-0151 | DND13A-M010 | 260 | 130047-0017 | E1A500-52 | 364 | 130050-0506 | ENQ3105M010 | 347 |
| 130039-0157 | DND21A-M010 | 259 | 130047-0018 | E1A506-52 | 364 | 130050-0507 | ENQ3335M010 | 345 |
| 130039-0175 | DND29A-M010 | 259 | 130048-0031 | E66A06003M010 | 346 | 130050-0512 | ENV3335M010 | 345 |
| 130039-0179 | DND31A-M010 | 259 | 130048-0038 | E10A00603M010 | 360 | 130050-8023 | ENV3105M010 | 347 |
| 130039-0188 | DND39A-M010 | 259 | 130048-0046 | E10A00610M010 | 360 | 130050-8025 | ENV3115M010 | 348 |
| 130039-0190 | DND42A-M010 | 270 | 130048-0054 | E10A00615M010 | 360 | 130050-8029 | ENV3135M010 | 348 |
| 130039-0204 | DND43A-M010 | 270 | 130048-0062 | E10A00703M010 | 360 | 130050-8036 | ENP3135M010 | 348 |
| 130039-0209 | DND92A-M010 | 260 | 130048-0070 | E10A00710M010 | 360 | 130053-0002 | ENDR2FB5 | 349 |
| 130039-0216 | DND93A-M010 | 260 | 130048-0078 | E10A00715M010 | 360 | 130053-0004 | ENPR1FF5 | 350 |
| 130039-0223 | DNDC220A-M005 | 261 | 130048-0088 | E11A06003M010 | 361 | 130054-0009 | ERTPADAPTER | 371 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Order No. Index

| Order No. | Engineering No. | Page | Order No. | Engineering No. | Page | Order No. | Engineering No. | Page |
|-------------|-----------------|----------|-------------|-----------------|------|-------------|-----------------|----------|
| 130054-0010 | ERTPADAPTER90 | 371 | 130063-0169 | C04007A48M020 | 206 | 130070-0019 | 55-0298 | 217 |
| 130054-0012 | ERWAAJ4002M002 | 369 | 130063-0181 | C04100A48M020 | 205 | 130070-0020 | 66200A-10 | 217 |
| 130054-0013 | ERWAAJ4002M020 | 369 | 130063-0183 | C04101A48M020 | 205 | 130070-0021 | CA3000-39 | 211 |
| 130055-0001 | ENSP1F5 | 352 | 130063-0189 | C04107A48M020 | 206 | 130070-0022 | CA3006-39 | 211 |
| 130055-0005 | ENSP1F5M010 | 352 | 130063-0194 | C03007A48M020 | 206 | 130070-0023 | CA4000-39 | 211 |
| 130055-0014 | ENSP6F5 | 352 | 130063-0199 | C03101A48M020 | 205 | 130070-0024 | CA4006-39 | 211 |
| 130055-0016 | ENSR1FB5 | 351 | 130063-0200 | C03106A48M020 | 206 | 130188-0033 | 67-0065 | 246 |
| 130055-0020 | ENSR1FB5M010 | 351 | 130063-0201 | C03107A48M020 | 206 | 130188-0034 | 67-0075 | 246 |
| 130057-0001 | ENQAM315 | 354 | 130064-0065 | CC3030A48M020 | 207 | 130201-1109 | 65-0085 | 153, 217 |
| 130057-0003 | ENSAM315 | 354 | 130064-0187 | CC4030A48M020 | 207 | 130201-1111 | 65-0086 | 153, 217 |
| 130058-0033 | 65-0300 | 354 | 130064-0356 | CC4130A48M020 | 207 | 130201-1115 | 65-0102 | 163 |
| 130058-0034 | 65-0301 | 354 | 130064-0401 | CC3130A48M020 | 207 | 130201-1116 | 65-0103 | 163 |
| 130058-0035 | 67-0300 | 354 | 130066-0035 | 1R3000A28M005G | 215 | 130201-1118 | 65-0104 | 171 |
| 130058-0036 | 67-0301 | 354 | 130066-0050 | 1R3006A28M005G | 215 | 130201-1120 | 65-0105 | 171 |
| 130058-0057 | RJBG16821 | 353, 353 | 130066-0069 | 1R4000A28M005G | 215 | 130201-1224 | 55-0426 | 153 |
| 130060-0001 | 409P401 | 154 | 130066-0078 | 1R4006A20M005G | 215 | 130201-1226 | 55-0466 | 163 |
| 130060-0002 | 409P403 | 156 | 130066-0090 | 1R4006A28M005G | 215 | 130201-1228 | 55-0496 | 171 |
| 130060-0012 | 409P601 | 154 | 130066-0110 | CR3000A30M005 | 210 | 130211-0032 | 85-0001 | 303 |
| 130060-0017 | 409P801 | 154 | 130066-0134 | CR3C00A30M005 | 210 | 860000-0141 | SDK-EIP-EDS | 333 |
| 130060-0023 | 410P401 | 155 | 130066-0143 | CR3C06A30M005 | 210 | 860000-0142 | SDK-PFN-EDS | 332 |
| 130060-0024 | 410P601 | 155 | 130066-0152 | CR4000A30M005 | 210 | 860000-0143 | SDK-EIP-TRN | 333 |
| 130060-0026 | 410P801 | 155 | 130066-0170 | CR4006A30M005 | 210 | 860000-0144 | SDK-PFN-TRN | 332 |
| 130060-0065 | DNAUX4000 | 157 | 130066-0186 | CR4106A30M005 | 210 | | | |
| 130060-0066 | DNAUX8000 | 157 | 130066-0189 | CR4C00A30M005 | 210 | | | |
| 130060-0067 | ACAUX4000 | 157 | 130066-0203 | CR4C06A30M005 | 210 | | | |
| 130060-0068 | ACAUX8000 | 157 | 130066-0254 | 1R4000A20M005G | 215 | | | |
| 130061-0025 | 103000A45M020 | 212 | 130066-0255 | CR3006A30M005 | 210 | | | |
| 130061-0030 | 103000A46M020 | 212 | 130066-0256 | CR3100A30M005 | 210 | | | |
| 130061-0040 | 103001A46M020 | 212 | 130066-0257 | CR3106A30M005 | 210 | | | |
| 130061-0046 | 103006A45M020 | 213 | 130066-0258 | CR3D00A30M005 | 210 | | | |
| 130061-0057 | 103006A46M020 | 213 | 130066-0259 | CR3D06A30M005 | 210 | | | |
| 130061-0073 | 103007A46M020 | 213 | 130066-0260 | CR4100A30M005 | 210 | | | |
| 130061-0080 | 104000A45M020 | 212 | 130066-0261 | CR4D00A30M005 | 210 | | | |
| 130061-0091 | 104000A46M020 | 212 | 130066-0262 | CR4D06A30M005 | 210 | | | |
| 130061-0108 | 104001A45M020 | 212 | 130066-0263 | 1R3006A20M005G | 215 | | | |
| 130061-0119 | 104001A46M020 | 212 | 130066-0281 | 1R3000A20M005G | 215 | | | |
| 130061-0135 | 104006A45M020 | 213 | 130068-0015 | 1C3030-001 | 209 | | | |
| 130061-0150 | 104006A46M020 | 213 | 130068-0017 | 1C3130-001 | 209 | | | |
| 130061-0168 | 104007A45M020 | 213 | 130068-0019 | 1C4030-001 | 209 | | | |
| 130061-0179 | 104007A46M020 | 213 | 130068-0022 | 1C4130-001 | 209 | | | |
| 130061-0218 | 103007A45M020 | 213 | 130068-0034 | TC30130-200 | 208 | | | |
| 130061-0220 | 103001A45M020 | 212 | 130068-0039 | TC30200A45M010 | 208 | | | |
| 130062-0032 | 113030A45M020 | 214 | 130068-0042 | TC30200A46M010 | 208 | | | |
| 130062-0047 | 113030A46M020 | 214 | 130068-0045 | TC30C30-200 | 208 | | | |
| 130062-0088 | 114030A45M020 | 214 | 130068-0051 | TC31130-200 | 208 | | | |
| 130062-0124 | 114030A46M020 | 214 | 130068-0055 | TC31C31-200 | 208 | | | |
| 130063-0003 | C03000A48M020 | 205 | 130068-0069 | TC40140-200 | 208 | | | |
| 130063-0012 | C04106A48M020 | 206 | 130068-0072 | TC40200A45M010 | 208 | | | |
| 130063-0037 | C03001A48M020 | 205 | 130068-0075 | TC40200A46M010 | 208 | | | |
| 130063-0042 | C03006A48M020 | 206 | 130068-0079 | TC40C40-200 | 208 | | | |
| 130063-0056 | C03100A48M020 | 205 | 130068-0082 | TC41140-200 | 208 | | | |
| 130063-0089 | C04000A48M020 | 205 | 130068-0086 | TC41C41-200 | 208 | | | |
| 130063-0135 | C04001A48M020 | 205 | 130070-0012 | 11400A-10 | 217 | | | |
| 130063-0150 | C04006A48M020 | 206 | 130070-0018 | 55-0198 | 217 | | | |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|---------------|------------------------|------------------|-------------|
| 0812-051FJ-0000 | 120068-8009 | 52, 114 | 113020A01F060 | 130010-0221 | 142 | 1A4002-34 | 130017-0018 | 150 |
| 0812-05EMF-00000 | 120068-0139 | 52, 114 | 113020C01F060 | 130010-0307 | 142 | 1A4006-34 | 130017-0020 | 150, 280 |
| 0812-05EMF-00001 | 120068-0137 | 52, 114 | 113030A45M020 | 130062-0032 | 214 | 1A4006-34PWR | 130017-0058 | 216 |
| 102000A01F060 | 130006-0091 | 138 | 113030A46M020 | 130062-0047 | 214 | 1A5000-34 | 130017-0023 | 150, 321 |
| 102001A01F060 | 130006-0137 | 138 | 113030K13M020 | 130010-0488 | 143, 157 | 1A5000-34DN | 130034-0005 | 248 |
| 102002A01F060 | 130006-0159 | 141 | 11400A-10 | 130070-0012 | 217 | 1A5002-34 | 130017-0026 | 150 |
| 103000A01F060 | 130006-0221 | 138 | 114020A01F060 | 130010-0525 | 142 | 1A5006-34 | 130017-0029 | 150, 321 |
| 103000A01F120 | 130006-0232 | 156 | 114030A38M020 | 130010-0795 | 143, 278 | 1A5006-34DN | 130034-0006 | 248 |
| 103000A02F060 | 130006-0279 | 138 | 114030A45M020 | 130062-0088 | 214 | 1C3030-001 | 130068-0015 | 209 |
| 103000A03F060 | 130006-0302 | 138 | 114030A46M020 | 130062-0124 | 214 | 1C3130-001 | 130068-0017 | 209 |
| 103000A06M020 | 130006-0339 | 138 | 114030K12M020 | 130010-0865 | 143, 157, 278 | 1C4030-001 | 130068-0019 | 209 |
| 103000A45M020 | 130061-0025 | 212 | 114033A38M020 | 130010-1823 | 278 | 1C4130-001 | 130068-0022 | 209 |
| 103000A46M020 | 130061-0030 | 212 | 114033K12M020 | 130010-1744 | 278 | 1R2004A20A120 | 130013-0060 | 145 |
| 103000C01F060 | 130006-0377 | 138 | 115010A | 130039-0351 | 253 | 1R2005A20A120 | 130013-0074 | 145 |
| 103001A01F060 | 130006-0426 | 138 | 115011A-PM-1 | 130035-0007 | 251 | 1R2006A20A120 | 130013-0076 | 146 |
| 103001A02F060 | 130006-0452 | 138 | 115011A-PM-3 | 130035-0008 | 251 | 1R2007A20A120 | 130013-0090 | 146 |
| 103001A45M020 | 130061-0220 | 212 | 115020A01F060 | 130010-1005 | 142 | 1R2G04A20A120 | 130013-0093 | 145 |
| 103001A46M020 | 130061-0040 | 212 | 115030A01M020 | 130010-1256 | 319 | 1R2G06A20A120 | 130013-0099 | 146 |
| 103002A01F060 | 130006-0534 | 141 | 115030K13M020 | 130010-0103 | 143, 319 | 1R3000A20M005G | 130066-0281 | 215 |
| 103003A01F060 | 130006-0647 | 141 | 115032A | 130035-0013 | 253 | 1R3000A20M020 | 130013-0112 | 144 |
| 103006A45M020 | 130061-0046 | 213 | 115033A01M020 | 130010-1303 | 319 | 1R3000A28M005G | 130066-0035 | 215 |
| 103006A46M020 | 130061-0057 | 213 | 115033K13M020 | 130010-0119 | 319 | 1R3004A20A120 | 130013-0135 | 145 |
| 103007A45M020 | 130061-0218 | 213 | 115060A | 130035-0015 | 253 | 1R3005A20A120 | 130013-0184 | 145 |
| 103007A46M020 | 130061-0073 | 213 | 116020A01F060 | 130010-1316 | 142 | 1R3006A17A120 | 130013-0193 | 146 |
| 104000A01F060 | 130006-0728 | 139 | 1202440002 | 120244-0002 | 372 | 1R3006A20A120 | 130013-0202 | 146 |
| 104000A03F060 | 130006-0813 | 139 | 1202440201 | 120244-0201 | 372 | 1R3006A20M005G | 130066-0263 | 215 |
| 104000A05M020 | 130006-0833 | 139 | 1202440202 | 120244-0202 | 372 | 1R3006A24A120 | 130013-0229 | 146 |
| 104000A45M020 | 130061-0080 | 212 | 1202440203 | 120244-0203 | 372 | 1R3006A25A120 | 130013-0238 | 147 |
| 104000A46M020 | 130061-0091 | 212 | 1202440204 | 120244-0204 | 372 | 1R3006A28M005G | 130066-0050 | 215 |
| 104000C01F060 | 130006-0868 | 139 | 1202440205 | 120244-0205 | 372 | 1R3007A20A120 | 130013-0247 | 146 |
| 104001A01F060 | 130006-0902 | 139 | 1202440207 | 120244-0207 | 372 | 1R3D06A25A120 | 130013-0268 | 147 |
| 104001A45M020 | 130061-0108 | 212 | 1203410075 | 120341-0075 | 373 | 1R3G04A20A120 | 130013-0273 | 145 |
| 104001A46M020 | 130061-0119 | 212 | 1203410150 | 120341-0150 | 373 | 1R3G06A20A120 | 130013-0280 | 146 |
| 104002A01F060 | 130006-0995 | 141 | 1203410300 | 120341-0300 | 374 | 1R4000A20M005G | 130066-0254 | 215 |
| 104003A01F060 | 130006-1087 | 141 | 1203410301 | 120341-0301 | 374 | 1R4000A28M005G | 130066-0069 | 215 |
| 104006A45M020 | 130061-0135 | 213 | 1203410302 | 120341-0302 | 374 | 1R4000A39M020 | 130013-0301 | 144 |
| 104006A46M020 | 130061-0150 | 213 | 1203410303 | 120341-0303 | 374 | 1R4004A20A120 | 130013-0314 | 145 |
| 104007A45M020 | 130061-0168 | 213 | 1203410304 | 120341-0304 | 374 | 1R4005A20A120 | 130013-0337 | 145 |
| 104007A46M020 | 130061-0179 | 213 | 1203410305 | 120341-0305 | 374 | 1R4006A16A120 | 130013-0341 | 147 |
| 105000A01F060 | 130006-1163 | 139 | 1203410306 | 120341-0306 | 374 | 1R4006A20A120 | 130013-0353 | 147 |
| 105000A02F060 | 130006-1240 | 140 | 1203550014 | 120355-0014 | 372 | 1R4006A20M005G | 130066-0078 | 215 |
| 105000A03F060 | 130006-1257 | 140 | 1203550015 | 120355-0015 | 372 | 1R4006A28M005G | 130066-0090 | 215 |
| 105000A07M020 | 130006-1275 | 140 | 1203550016 | 120355-0016 | 372 | 1R4007A20A120 | 130013-0386 | 147 |
| 105000C01F060 | 130006-1312 | 140 | 1203550017 | 120355-0017 | 372 | 1R4030 | 130013-0388 | 149, 279 |
| 105001A01F060 | 130006-1349 | 139 | 1203550018 | 120355-0018 | 372 | 1R40301 | 130013-1001 | 279 |
| 105001A02F060 | 130006-1382 | 140 | 1203550020 | 120355-0020 | 372 | 1R4D06A16A120 | 130013-0396 | 147 |
| 105001A07M020 | 130006-1404 | 140 | 1203550056 | 120355-0056 | 372 | 1R4G04A20A120 | 130013-0402 | 145 |
| 105002A01F060 | 130006-1438 | 141 | 1A3000-34 | 130017-0004 | 150 | 1R4G06A20A120 | 130013-0409 | 147 |
| 105003A01F060 | 130006-1518 | 141 | 1A3000-34PWR | 130017-0055 | 216 | 1R5000A20F060 | 130013-0423 | 320 |
| 106000A01F060 | 130006-1583 | 140 | 1A3002-34 | 130017-0008 | 150 | 1R5000A20M020 | 130013-0426 | 144 |
| 106000A01F120 | 130006-1590 | 154 | 1A3006-34 | 130017-0011 | 150 | 1R5004A20A120 | 130013-0442 | 145 |
| 106001A01F060 | 130006-1653 | 140 | 1A3006-34PWR | 130017-0056 | 216 | 1R5005A20A120 | 130013-0482 | 145 |
| 106002A01F060 | 130006-1675 | 141 | 1A4000-34 | 130017-0015 | 150, 280 | 1R5006A17A120 | 130013-0489 | 148 |
| 112020A01F060 | 130010-0147 | 142 | 1A4000-34PWR | 130017-0057 | 216 | 1R5006A20A120 | 130013-0493 | 148 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| Engineering No. | Order No. | Page | Engineering No. | Order No. | Page | Engineering No. | Order No. | Page |
|-----------------|-------------|--------------------|-----------------|-------------|------|-----------------|-------------|------|
| 1R5006A24A120 | 130013-0515 | 148 | 3R1004A20A120 | 130015-0024 | 167 | 405006A10M020 | 120086-0206 | 71 |
| 1R5007A20A120 | 130013-0534 | 148 | 3R1006A20A120 | 130015-0044 | 168 | 405006B09M020 | 120086-0387 | 71 |
| 1R5030 | 130013-0541 | 149, 247 | 3R2004A20A120 | 130015-0054 | 167 | 405006D12M010 | 130029-0003 | 273 |
| 1R5D06A25A120 | 130013-0548 | 148 | 3R2006A20A120 | 130015-0076 | 168 | 405006E02M020 | 120086-8173 | 127 |
| 1R5G04A20A120 | 130013-0550 | 145 | 3R3N30E80C300 | 130015-0098 | 170 | 405006P02M020 | 120027-0752 | 127 |
| 1R5G06A20A120 | 130013-0557 | 148 | 3R3N36E80C300 | 130015-0109 | 170 | 405007A10M020 | 120086-0210 | 71 |
| 1R6004A20A120 | 130013-0567 | 145 | 3R9004A20A120 | 130015-0117 | 167 | 405007B09M020 | 120086-0390 | 71 |
| 1R6005A20A120 | 130013-0589 | 145 | 3R9006A20A120 | 130015-0137 | 168 | 405007D12M010 | 130029-0005 | 273 |
| 1R6006A20A120 | 130013-0593 | 148 | 403000A10M020 | 120086-0102 | 70 | 405007E02M020 | 120086-8083 | 127 |
| 1R6007A20A120 | 130013-0612 | 148 | 403000B09M020 | 120086-0336 | 70 | 405007P02M020 | 120086-8061 | 127 |
| 1R6G04A20A120 | 130013-0614 | 145 | 403000E02M020 | 120027-0066 | 126 | 40761 | 130018-0204 | 153 |
| 1R6G06A20A120 | 130013-0620 | 148 | 403000P02M020 | 120086-8001 | 126 | 40925 | 130006-2099 | 151 |
| 206000A01F060 | 130007-0024 | 158 | 403001A10M020 | 120086-0119 | 70 | 409P401 | 130060-0001 | 154 |
| 206002A01F060 | 130007-0051 | 159 | 403001B09M020 | 120086-0022 | 70 | 409P403 | 130060-0002 | 156 |
| 207000A01F060 | 130007-0073 | 158 | 403001E02M020 | 120027-0090 | 126 | 409P601 | 130060-0012 | 154 |
| 207000A01F120 | 130007-0076 | 155 | 403001P02M020 | 120086-8155 | 126 | 409P801 | 130060-0017 | 154 |
| 207002A01F060 | 130007-0115 | 159 | 403006A10M020 | 120086-0132 | 71 | 41037 | 130006-2102 | 151 |
| 208000A01F060 | 130007-0142 | 158 | 403006B09M020 | 120086-0027 | 71 | 41048 | 130018-0206 | 153 |
| 208000A01F120 | 130007-0145 | 154 | 403006E02M020 | 120086-8228 | 127 | 410P401 | 130060-0023 | 155 |
| 208002A01F060 | 130007-0199 | 159 | 403006P02M020 | 120027-0911 | 127 | 410P601 | 130060-0024 | 155 |
| 226020A01F060 | 130011-0010 | 160 | 403007A10M020 | 120086-0139 | 71 | 410P801 | 130060-0026 | 155 |
| 227020A01F060 | 130011-0051 | 160 | 403007B09M020 | 120086-0033 | 71 | 41132 | 130006-2103 | 151 |
| 228020A01F060 | 130011-0119 | 160 | 403007E02M020 | 120027-0106 | 127 | 41212 | 130018-0207 | 153 |
| 2R6004A20A120 | 130014-0015 | 161 | 403007P02M020 | 120086-8329 | 127 | 41344 | 130006-2107 | 151 |
| 2R6006A20A120 | 130014-0025 | 162 | 4030P1A10M020 | 120086-0421 | 70 | 41437-001 | 130039-0358 | 219 |
| 2R7004A20A120 | 130014-0037 | 161 | 4030P1B09M020 | 120086-0009 | 70 | 41437-002 | 130039-0359 | 219 |
| 2R7006A20A120 | 130014-0050 | 162 | 4030P1E02M020 | 120027-0115 | 126 | 41481 | 130018-0210 | 153 |
| 2R8004A20A120 | 130014-0061 | 161 | 4030P1P02M020 | 120086-8337 | 126 | 41593 | 130006-2109 | 151 |
| 2R8006A20A120 | 130014-0078 | 162 | 404000A10M020 | 120086-0144 | 70 | 41627-M010 | 130010-1657 | 218 |
| 301000A01F060 | 130008-0025 | 164 | 404000B09M020 | 120086-0171 | 70 | 41671-0030 | 130013-0991 | 219 |
| 301000A01F120 | 130008-0028 | 154 | 404000E02M020 | 120027-0127 | 126 | 443030A10M010 | 120087-0074 | 72 |
| 301001A01F060 | 130008-0098 | 164 | 404000P02M020 | 120086-8156 | 126 | 443030E02M010 | 120087-8258 | 128 |
| 301002A01F060 | 130008-0117 | 165 | 404001A10M020 | 120086-0175 | 70 | 443030P02M010 | 120087-8140 | 128 |
| 302000A01F060 | 130008-0157 | 164 | 404001B09M020 | 120086-0042 | 70 | 443031A10M010 | 120087-0243 | 72 |
| 302000A01F120 | 130008-0161 | 155 | 404001E02M020 | 120027-0152 | 126 | 443031E02M010 | 120028-0016 | 128 |
| 302001A01F060 | 130008-0212 | 164 | 404001P02M020 | 120086-8159 | 126 | 443031P02M010 | 120087-8316 | 128 |
| 302002A01F060 | 130008-0231 | 165 | 404006A10M020 | 120086-0183 | 71 | 443032A10M010 | 120087-0253 | 72 |
| 302101P80M100 | 130008-0476 | 29, 54, 91, 116 | 404006B09M020 | 120086-0048 | 71 | 443032E02M010 | 120087-8321 | 128 |
| 302201P80M100 | 130008-8006 | 29, 54, 91, 116 | 404006E02M020 | 120086-8368 | 127 | 443032P02M010 | 120087-8324 | 128 |
| 302301P80M100 | 130008-8009 | 29, 54, 91, 116 | 404006P02M020 | 120086-8373 | 127 | 443033A10M010 | 120087-0088 | 72 |
| 303000P80M050 | 130008-0303 | 169 | 404007A10M020 | 120086-0186 | 71 | 443033E02M010 | 120087-8329 | 128 |
| 303001P80M050 | 130008-0315 | 169 | 404007B09M020 | 120086-0052 | 71 | 443033P02M010 | 120087-8502 | 128 |
| 303001P80M100 | 130008-0316 | 30, 56, 92, 117 | 404007E02M020 | 120027-0483 | 127 | 444030A10M010 | 120087-0093 | 72 |
| 303201P80M100 | 130008-5006 | 30, 56, 92, 117 | 404007P02M020 | 120086-8382 | 127 | 444030E02M010 | 120087-8349 | 128 |
| 309000A01F060 | 130008-0325 | 164 | 405000A10M020 | 120086-0191 | 70 | 444030P02M010 | 120087-8359 | 128 |
| 309000A01F120 | 130008-0329 | 155 | 405000B09M020 | 120086-0196 | 70 | 444031A10M010 | 120087-0103 | 72 |
| 309001A01F060 | 130008-0351 | 164 | 405000D12M010 | 130029-0001 | 272 | 444031E02M010 | 120087-8365 | 128 |
| 309002A01F060 | 130008-0366 | 165 | 405000E02M020 | 120086-8099 | 126 | 444031P02M010 | 120087-8372 | 128 |
| 331020A01F060 | 130012-0009 | 166 | 405000P02M020 | 120027-0709 | 126 | 444032A10M010 | 120087-0281 | 72 |
| 332020A01F060 | 130012-0113 | 166 | 405001A10M020 | 120086-0200 | 70 | 444032E02M010 | 120087-8503 | 128 |
| 333030P80M050 | 130012-0339 | 169 | 405001B09M020 | 120086-0386 | 70 | 444032P02M010 | 120087-8504 | 128 |
| 339020A01F060 | 130012-0385 | 166 | 405001D12M010 | 130029-0002 | 272 | 444033A10M010 | 120087-0108 | 72 |
| | | | 405001E02M020 | 120086-8178 | 126 | 444033E02M010 | 120087-8507 | 128 |
| | | | 405001P02M020 | 120086-8391 | 126 | 444033P02M010 | 120087-8380 | 128 |

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| 444A30 | 120089-5002 | 78 | 504001A10M020 | 120088-0054 | 79 | 705000D02F060 | 120072-0471 | 62 |
| 445030A10M010 | 120087-0112 | 72 | 504001B09M020 | 120088-0130 | 79 | 705001A03F060 | 120072-0508 | 62 |
| 445030D12M010 | 130030-0003 | 274 | 504001E02M020 | 120088-8124 | 135 | 705001D02F060 | 120072-0515 | 62 |
| 445031A10M010 | 120087-0287 | 72 | 504001H08M020 | 120088-8126 | 135 | 705006A03F060 | 120072-0546 | 63 |
| 445031D12M010 | 130030-0088 | 274 | 504001P02M020 | 120088-8125 | 135 | 705006D02F060 | 120072-0551 | 63 |
| 445032A10M010 | 120087-0290 | 72 | 504006A10M020 | 120088-0059 | 79 | 705007A03F060 | 120072-1010 | 63 |
| 445032D12M010 | 130030-0004 | 274 | 504006B09M020 | 120088-0014 | 79 | 705007D02F060 | 120072-0558 | 63 |
| 445033A10M010 | 120087-0117 | 72 | 504006E02M020 | 120088-8120 | 135 | 706000D02F060 | 120072-0568 | 62 |
| 445033D12M010 | 130030-0089 | 274 | 504006H08M020 | 120088-8127 | 135 | 706001D02F060 | 120072-0595 | 62 |
| 485030D12M010 | 130030-0010 | 276 | 504006P02M020 | 120088-8131 | 135 | 706006D02F060 | 120072-0616 | 63 |
| 485031D12M010 | 130030-0090 | 276 | 51149 | 130018-0184 | 151 | 706007D02F060 | 120072-0626 | 63 |
| 485032D12M010 | 130030-0091 | 276 | 51180-M020 | 130018-0125 | 218 | 772030D02F030 | 120073-0057 | 64 |
| 485033D12M010 | 130030-0022 | 276 | 55-0198 | 130070-0018 | 217 | 772031D02F030 | 120073-5009 | 64 |
| 4R3F06E02C3003 | 120031-0004 | 130 | 55-0298 | 130070-0019 | 217 | 772032D02F030 | 120073-5010 | 65 |
| 4R3F30E02C3003 | 120031-0015 | 129 | 55-0426 | 130201-1224 | 153 | 772033D02F030 | 120073-0068 | 65 |
| 4R3H400013 | 120090-5001 | 73 | 55-0466 | 130201-1226 | 163 | 773030A03F030 | 120073-0085 | 64 |
| 4R3H40E02C3003 | 120031-0046 | 73, 129 | 55-0496 | 130201-1228 | 171 | 773030D02F030 | 120073-0100 | 64 |
| 4R3L40001 | 120149-0016 | 129 | 61056 | 130018-0217 | 152 | 773031A03F030 | 120073-0140 | 64 |
| 4R3P00A27C300 | 120090-0016 | 73 | 61451-ESIN | 130035-0030 | 218 | 773031D02F030 | 120073-0151 | 64 |
| 4R3P06A27C300 | 120090-0020 | 74 | 61451-ESOUT | 130035-0031 | 218 | 773032A03F030 | 120073-0172 | 65 |
| 4R4F06E02C3003 | 120031-0006 | 130 | 65-0085 | 130201-1109 | 153, 217 | 773032D02F030 | 120073-0178 | 65 |
| 4R4F30E02C3003 | 120031-0049 | 129 | 65-0086 | 130201-1111 | 153, 217 | 773033A03F030 | 120073-0185 | 65 |
| 4R4H400013 | 120031-0118 | 73 | 65-0102 | 130201-1115 | 163 | 773033D02F030 | 120073-0190 | 65 |
| 4R4H40E02C3003 | 120031-0022 | 73, 129 | 65-0103 | 130201-1116 | 163 | 774030A03F030 | 120073-0391 | 64 |
| 4R4L40001 | 120149-0064 | 129 | 65-0104 | 130201-1118 | 171 | 774030D02F030 | 120073-0215 | 64 |
| 4R4P00A27C300 | 120090-0029 | 73 | 65-0105 | 130201-1120 | 171 | 774031A03F030 | 120073-0237 | 64 |
| 4R4P06A27C300 | 120090-0032 | 74 | 65-0300 | 130058-0033 | 354 | 774031D02F030 | 120073-0241 | 64 |
| 4R5F06E02C3003 | 120031-0027 | 130 | 65-0301 | 130058-0034 | 354 | 774032A03F030 | 120073-0246 | 65 |
| 4R5F30E02C3003 | 120031-0028 | 129 | 66200A-10 | 130070-0020 | 217 | 774032D02F030 | 120073-0250 | 65 |
| 4R5H40E02C3003 | 120031-0050 | 73, 129 | 67-0065 | 130188-0033 | 246 | 774033A03F030 | 120073-0390 | 65 |
| 4R5L40001 | 120149-0095 | 129 | 67-0075 | 130188-0034 | 246 | 774033D02F030 | 120073-5011 | 65 |
| 4R5P00A27C300 | 120090-0037 | 73 | 67-0300 | 130058-0035 | 354 | 775030A03F030 | 120073-0272 | 64 |
| 4R5P06A27C300 | 120090-0038 | 74 | 67-0301 | 130058-0036 | 354 | 775030D02F030 | 120073-0293 | 64 |
| 503000A10M020 | 120088-0022 | 79 | 702000D02F060 | 120072-0061 | 62 | 775031A03F030 | 120073-5012 | 64 |
| 503000B09M020 | 120088-0002 | 79 | 702001D02F060 | 120072-0085 | 62 | 775031D02F030 | 120073-0335 | 64 |
| 503000E02M020 | 120088-8001 | 135 | 702006D02F060 | 120072-0108 | 63 | 775032A03F030 | 120073-0346 | 65 |
| 503000H08M020 | 120088-8122 | 135 | 702007D02F060 | 120072-0118 | 63 | 775032D02F030 | 120073-5013 | 65 |
| 503000P02M020 | 120088-8083 | 135 | 703000A03F060 | 120072-0130 | 62 | 775033A03F030 | 120073-0351 | 65 |
| 503001A10M020 | 120088-0032 | 79 | 703000D02F060 | 120072-0171 | 62 | 775033D02F030 | 120073-0354 | 65 |
| 503001B09M020 | 120088-0040 | 79 | 703001A03F060 | 120072-0219 | 62 | 776030D02F030 | 120073-0357 | 64 |
| 503001E02M020 | 120088-8086 | 135 | 703001D02F060 | 120072-0250 | 62 | 776031D02F030 | 120073-0376 | 64 |
| 503001H08M020 | 120088-8128 | 135 | 703006A03F060 | 120072-0292 | 63 | 776032D02F030 | 120073-0577 | 65 |
| 503001P02M020 | 120088-8090 | 135 | 703006D02F060 | 120072-0302 | 63 | 776033D02F030 | 120073-5014 | 65 |
| 503006A10M020 | 120088-0042 | 79 | 703007A03F060 | 120072-0315 | 63 | 7A3000-31 | 120075-0014 | 68 |
| 503006B09M020 | 120088-0112 | 79 | 703007D02F060 | 120072-0318 | 63 | 7A3000-32 | 120075-0015 | 68 |
| 503006E02M020 | 120088-8093 | 135 | 704000A03F060 | 120072-0334 | 62 | 7A3001-31 | 120075-0016 | 68 |
| 503006H08M020 | 120088-8129 | 135 | 704000D02F060 | 120072-0356 | 62 | 7A3006-31 | 120075-0017 | 68 |
| 503006P02M020 | 120088-8130 | 135 | 704001A03F060 | 120072-0387 | 62 | 7A3006-32 | 120075-0018 | 68 |
| 5030P1A10M020 | 120088-0099 | 79 | 704001D02F060 | 120072-0402 | 62 | 7A3007-31 | 120075-0019 | 68 |
| 5030P1B09M020 | 120088-0001 | 79 | 704006A03F060 | 120072-0435 | 63 | 7R2006A19A120 | 120074-0042 | 67 |
| 504000B09M020 | 120088-0116 | 79 | 704006D02F060 | 120072-0445 | 63 | 7R2A00A19A120 | 120074-0014 | 66 |
| 504000E02M020 | 120088-8095 | 135 | 704007A03F060 | 120072-5019 | 63 | 7R2A06A19A120 | 120074-0030 | 67 |
| 504000H08M020 | 120088-8121 | 135 | 704007D02F060 | 120072-1022 | 63 | 7R3006A19A120 | 120074-0106 | 67 |
| 504000P02M020 | 120088-8123 | 135 | 705000A03F060 | 120072-0459 | 62 | 7R3A00A19A120 | 120074-0058 | 66 |

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|---------------|------------------------|------------------|-------------|
| 7R3A06A19A120 | 120074-0079 | 67 | 804007A09M020 | 120065-1662 | 40 | 845031D12M010 | 130030-0041 | 275 |
| 7R4006A19A120 | 120074-0160 | 67 | 804007E03M020 | 120006-1975 | 102 | 845032D12M010 | 130030-0061 | 275 |
| 7R4A00A19A120 | 120074-0122 | 66 | 804007H09M020 | 120065-8736 | 102 | 845033D12M010 | 130030-0070 | 275 |
| 7R4A06A19A120 | 120074-0140 | 67 | 804007K05M020 | 120065-1691 | 40, 102 | 848549317 | 84854-9317 | 391 |
| 7R5006A19A120 | 120074-0222 | 67 | 804007P03M020 | 120006-0592 | 102 | 848549318 | 84854-9318 | 391 |
| 7R5A00A19A120 | 120074-0178 | 66 | 8040P0A09M020 | 120067-0027 | 46 | 85-0001 | 130211-0032 | 303 |
| 7R5A06A19A120 | 120074-0190 | 67 | 8040P0B03M020 | 120067-5229 | 46 | 883030A09M010 | 120066-0166 | 42 |
| 803000A09M020 | 120065-0129 | 38 | 8040P0E03M020 | 120067-5094 | 108 | 883030E03M010 | 120007-0083 | 104 |
| 803000E03M020 | 120006-0001 | 100 | 8040P0H09M020 | 120067-8327 | 108 | 883030H09M010 | 120066-8374 | 104 |
| 803000H09M020 | 120065-8175 | 100 | 8040P0K05M020 | 120067-5230 | 46, 108 | 883030K05M010 | 120066-0676 | 42, 104 |
| 803000K05M020 | 120065-1108 | 38, 100 | 8040P0P03M020 | 120067-5063 | 108 | 883030P03M010 | 120066-0498 | 104 |
| 803000P03M020 | 120006-0004 | 100 | 8040P1A09M020 | 120067-0257 | 46 | 883031A09M010 | 120066-1137 | 42 |
| 803001A09M020 | 120065-1444 | 38 | 8040P1B03M020 | 120067-5231 | 46 | 883031E03M010 | 120007-0119 | 104 |
| 803001E03M020 | 120006-0007 | 100 | 8040P1E03M020 | 120067-5014 | 108 | 883031H09M010 | 120065-8763 | 104 |
| 803001H09M020 | 120065-8715 | 100 | 8040P1H09M020 | 120067-8309 | 108 | 883031K05M010 | 120066-0222 | 42, 104 |
| 803001K05M020 | 120065-1489 | 38, 100 | 8040P1K05M020 | 120067-5232 | 46, 108 | 883031P03M010 | 120007-0142 | 104 |
| 803001P03M020 | 120006-0011 | 100 | 8040P1P03M020 | 120006-0618 | 108 | 883032A09M010 | 120066-1177 | 44 |
| 803006A09M020 | 120065-0200 | 40 | 805000A09M020 | 120065-0471 | 38, 283, 323 | 883032E03M010 | 120007-0160 | 106 |
| 803006E03M020 | 120006-0240 | 102 | 805000E03M020 | 120006-0634 | 100, 325 | 883032H09M010 | 120007-2879 | 106 |
| 803006H09M020 | 120065-8655 | 102 | 805000H09M020 | 120065-8172 | 100 | 883032K05M010 | 120066-0231 | 44, 106 |
| 803006K05M020 | 120065-1114 | 40, 102 | 805000K03M020 | 120065-1367 | 283, 323, 325 | 883032P03M010 | 120007-0172 | 106 |
| 803006P03M020 | 120006-0257 | 102 | 805000P03M020 | 120006-0647 | 100 | 883033A09M010 | 120066-1199 | 44 |
| 803007A09M020 | 120065-1497 | 40 | 805001A09M020 | 120065-1697 | 38, 283, 323 | 883033E03M010 | 120066-5399 | 106 |
| 803007E03M020 | 120006-0273 | 102 | 805001E03M020 | 120006-0652 | 100, 325 | 883033H09M010 | 120066-8498 | 106 |
| 803007H09M020 | 120065-8722 | 102 | 805001H09M020 | 120065-8296 | 100 | 883033K05M010 | 120066-1223 | 44, 106 |
| 803007K05M020 | 120065-1501 | 40, 102 | 805001K03M020 | 120065-1720 | 283, 323, 325 | 883033P03M010 | 120007-0216 | 106 |
| 803007P03M020 | 120006-0288 | 102 | 805001P03M020 | 120006-0663 | 100 | 8830P6A09M010 | 120067-0037 | 47 |
| 8030P0A09M020 | 120067-0185 | 46 | 805006A09M020 | 120065-0523 | 40 | 8830P6B03M010 | 120067-5233 | 47 |
| 8030P0B03M020 | 120067-0192 | 46 | 805006E03M020 | 120006-0667 | 102 | 8830P6E03M010 | 120067-8064 | 109 |
| 8030P0E03M020 | 120067-5227 | 108 | 805006H09M020 | 120065-8743 | 102 | 8830P6H09M010 | 120067-8331 | 109 |
| 8030P0H09M020 | 120067-8328 | 108 | 805006P03M020 | 120006-0680 | 102 | 8830P6K05M010 | 120067-0040 | 47, 109 |
| 8030P0K05M020 | 120067-5228 | 46, 108 | 805007A09M020 | 120065-1724 | 40 | 8830P7A09M010 | 120067-0046 | 47 |
| 8030P0P03M020 | 120067-5008 | 108 | 805007E03M020 | 120065-8096 | 102 | 8830P7B03M010 | 120067-0058 | 47 |
| 8030P1A09M020 | 120067-0227 | 46 | 805007H09M020 | 120065-8750 | 102 | 8830P7E03M010 | 120067-8068 | 109 |
| 8030P1B03M020 | 120067-0241 | 46 | 805007P03M020 | 120006-0697 | 102 | 8830P7H09M010 | 120067-8295 | 109 |
| 8030P1E03M020 | 120067-5067 | 108 | 808000H08M020 | 120065-8644 | 101 | 8830P7K05M010 | 120067-0065 | 47, 109 |
| 8030P1H09M020 | 120067-8308 | 108 | 808000P02M020 | 120065-0951 | 39, 101 | 8830P7P03M010 | 120067-5078 | 109 |
| 8030P1K05M020 | 120067-0198 | 46, 108 | 808001H08M020 | 120065-8649 | 101 | 8830P8A09M010 | 120067-5235 | 48 |
| 8030P1P03M020 | 120067-5069 | 108 | 808001P02M020 | 120065-0960 | 39, 101 | 8830P8B03M010 | 120067-5236 | 48 |
| 804000A09M020 | 120065-0255 | 38 | 808006H08M020 | 120065-8660 | 103 | 8830P8E03M010 | 120067-5237 | 110 |
| 804000E03M020 | 120006-0014 | 100 | 808006P02M020 | 120065-0964 | 41, 103 | 8830P8H09M010 | 120067-8334 | 110 |
| 804000H09M020 | 120065-8178 | 100 | 808007H08M020 | 120065-8757 | 103 | 8830P8K05M010 | 120067-0072 | 48, 110 |
| 804000K05M020 | 120065-1121 | 38, 100 | 808007P02M020 | 120065-1800 | 41, 103 | 8830P8P03M010 | 120067-5238 | 110 |
| 804000P03M020 | 120006-0018 | 100 | 80C000H45M020 | 120065-5040 | 39, 101 | 8830P9A09M010 | 120067-0074 | 48 |
| 804001A09M020 | 120065-1551 | 38 | 80C001H45M020 | 120065-5099 | 39, 101 | 8830P9B03M010 | 120067-5239 | 48 |
| 804001E03M020 | 120006-0021 | 100 | 80C006H45M020 | 120065-5045 | 41, 103 | 8830P9E03M010 | 120067-5088 | 110 |
| 804001H09M020 | 120065-8513 | 100 | 80C007H45M020 | 120065-5109 | 41, 103 | 8830P9H09M010 | 120067-8329 | 110 |
| 804001K05M020 | 120065-1639 | 38, 100 | 81590R | 120068-0169 | 52, 114 | 8830P9K05M010 | 120067-0079 | 48, 110 |
| 804001P03M020 | 120006-0024 | 100 | 81594R | 120068-0170 | 52, 114 | 8830P9P03M010 | 120067-8087 | 110 |
| 804006A09M020 | 120065-0414 | 40 | 81611 | 130031-0023 | 262 | 884030A09M010 | 120066-0266 | 42 |
| 804006E03M020 | 120006-0560 | 102 | 81612 | 130031-0026 | 262 | 884030E03M010 | 120007-0473 | 104 |
| 804006H09M020 | 120065-8729 | 102 | 81688-030 | 120099-0025 | 308 | 884030H09M010 | 120066-8379 | 104 |
| 804006K05M020 | 120065-1129 | 40, 102 | 81689-030 | 120099-0024 | 308 | 884030K05M010 | 120066-0687 | 42, 104 |
| 804006P03M020 | 120006-0570 | 102 | 845030D12M010 | 130030-0027 | 275 | 884030P03M010 | 120007-0488 | 104 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|---------------|------------------------|------------------|-------------------|------------------------|------------------|--------------------|
| 884031A09M010 | 120066-1262 | 42 | 885031A09M010 | 120066-1389 | 42 | 8R4J460003 | 120011-0281 | 50, 112 |
| 884031E03M010 | 120007-0509 | 104 | 885031E03M010 | 120066-8189 | 104 | 8R5000A18A120 | 120070-5206 | 49 |
| 884031H09M010 | 120066-8484 | 104 | 885031H09M010 | 120066-8496 | 104 | 8R5006A18A120 | 120070-0252 | 50 |
| 884031K05M010 | 120066-0376 | 42, 104 | 885031P03M010 | 120066-8188 | 104 | 8R5A00A18A120 | 120070-0201 | 49, 285, 327 |
| 884031P03M010 | 120006-0056 | 104 | 885032A09M010 | 120066-1399 | 44 | 8R5J20E03C3003 | 120070-5207 | 111, 328 |
| 884032A09M010 | 120066-1307 | 44 | 885032E03M010 | 120007-1271 | 106 | 8R5J26E03C3003 | 120011-0036 | 112 |
| 884032E03M010 | 120066-8073 | 106 | 885032H09M010 | 120066-8493 | 106 | 8R5J400013 | 120011-0238 | 49, 111 |
| 884032H09M010 | 120066-8494 | 106 | 885032P03M010 | 120066-5401 | 106 | 8R5J460003 | 120070-0235 | 50, 112 |
| 884032K05M010 | 120066-0400 | 44, 106 | 885033A09M010 | 120066-1634 | 44, 284, 324 | 8R5L30 | 120070-0237 | 263, 285, 327, 328 |
| 884032P03M010 | 120007-1407 | 106 | 885033E03M010 | 120066-5402 | 106, 326 | | | |
| 884033A09M010 | 120066-1336 | 44 | 885033H09M010 | 120066-8499 | 106 | 8R8J20E02C3003 | 120070-5208 | 49, 111 |
| 884033E03M010 | 120007-0554 | 106 | 885033K03M010 | 120066-1421 | 284, 324 | 8R8J26E02C3003 | 120070-5209 | 50, 112 |
| 884033H09M010 | 120066-8492 | 106 | 885033P03M010 | 120066-8094 | 106 | 8R8J400013 | 120070-5210 | 49, 111 |
| 884033K05M010 | 120066-1382 | 44, 106 | 888030H08M010 | 120066-8491 | 105 | 8R8J460003 | 120070-5180 | 50, 112 |
| 884033P03M010 | 120007-1523 | 106 | 888030P02M010 | 120066-0579 | 43, 105 | 8W4A30A09M003 | 120080-0033 | 28 |
| 8840P6A09M010 | 120067-0095 | 47 | 888031H08M010 | 120065-8909 | 105 | 8W4A30E03M003 | 120080-5092 | 90 |
| 8840P6B03M010 | 120067-5240 | 47 | 888031P02M010 | 120066-1626 | 43, 105 | 8W4A30H09M003 | 120082-8004 | 90 |
| 8840P6E03M010 | 120067-5241 | 109 | 888032H08M010 | 120066-8495 | 107 | 8W4A30K05M003 | 120080-0108 | 28, 90 |
| 8840P6H09M010 | 120067-8333 | 109 | 888032P02M010 | 120066-5403 | 45, 107 | 8W4A30P03M003 | 120080-5093 | 90 |
| 8840P6K05M010 | 120067-0101 | 47, 109 | 888033H08M010 | 120065-8908 | 107 | 8W4A31A09M003 | 120080-0037 | 28 |
| 8840P6P03M010 | 120067-8255 | 109 | 888033P02M010 | 120066-0479 | 45, 107 | 8W4A31E03M003 | 120080-5094 | 90 |
| 8840P7A09M010 | 120067-0107 | 47 | 88C030H45M010 | 120066-5404 | 43, 105 | 8W4A31H09M003 | 120080-8024 | 90 |
| 8840P7B03M010 | 120067-0112 | 47 | 88C031H45M010 | 120066-5405 | 43, 105 | 8W4A31K05M003 | 120080-0116 | 28, 90 |
| 8840P7E03M010 | 120067-5090 | 109 | 88C032H45M010 | 120066-5406 | 45, 107 | 8W4A31P03M003 | 120080-5095 | 90 |
| 8840P7H09M010 | 120067-8332 | 109 | 88C033H45M010 | 120066-5407 | 45, 107 | ACAUX4000 | 130060-0067 | 157 |
| 8840P7K05M010 | 120067-0117 | 47, 109 | 8A4000-31 | 120071-0035 | 51, 113 | ACAUX8000 | 130060-0068 | 157 |
| 8840P7P03M010 | 120067-5040 | 109 | 8A4000-32 | 120071-0036 | 51, 113 | APP-EPB-PCIE | 112000-5028 | 292, 336 |
| 8840P8A09M010 | 120067-5242 | 48 | 8A4001-31 | 120071-0037 | 51, 113 | APP-EPB-PCU-C | 112000-0001 | 292, 336 |
| 8840P8B03M010 | 120067-5243 | 48 | 8A4006-31 | 120071-0038 | 51, 113 | APP-ESR-PCIE | 112000-5027 | 336, 381 |
| 8840P8E03M010 | 120067-5244 | 110 | 8A4006-32 | 120071-0039 | 51, 113 | APP-ESR-PCU-C | 112000-0003 | 336, 381 |
| 8840P8H09M010 | 120067-8335 | 110 | 8A4007-31 | 120071-0040 | 51, 113 | APP-ETH-PCIE | 112000-5026 | 336 |
| 8840P8K05M010 | 120067-0122 | 48, 110 | 8A5000-31 | 120071-0041 | 51, 113 | APP-ETH-PCU-C | 112000-0005 | 336 |
| 8840P8P03M010 | 120067-5245 | 110 | 8A5000-32 | 120071-0043 | 51, 113, 286, 329 | APP-PFB-PCIE | 112011-5026 | 292 |
| 8840P9A09M010 | 120067-5246 | 48 | 8A5000-32DN | 130034-0007 | 264 | APP-PFB-PCU-C | 112011-0004 | 292 |
| 8840P9B03M010 | 120067-5247 | 48 | 8A5001-31 | 120071-0044 | 51, 113 | APP-PS7-PCIE | 112011-5027 | 292 |
| 8840P9E03M010 | 120067-5248 | 110 | 8A5006-31 | 120071-0045 | 51, 113 | APP-PS7-PCU-C | 112011-0006 | 292 |
| 8840P9H09M010 | 120067-8330 | 110 | 8A5006-32 | 120071-0047 | 51, 113, 286, 329 | APP-SR1-PCIE | 112020-5018 | 381 |
| 8840P9K05M010 | 120067-5249 | 48, 110 | 8A5006-32DN | 130034-0008 | 264 | APP-SR1-PCU-C | 112020-5017 | 381 |
| 8840P9P03M010 | 120067-8211 | 110 | 8A5007-31 | 120071-0049 | 51, 113 | B05500PP4M010 | 120098-0084 | 304 |
| 884A30A09M003 | 120068-0175 | 53 | 8R3000A18A120 | 120070-5200 | 49 | B05501PP4M010 | 120039-0132 | 304 |
| 884A30E03M003 | 120068-8096 | 115 | 8R3006A18A120 | 120070-0093 | 50 | B05506 | 120102-0002 | 311 |
| 884A30H09M003 | 120068-8138 | 115 | 8R3A00A18A120 | 120070-0056 | 49 | B05506PP4M010 | 120098-0099 | 305 |
| 884A30K05M003 | 120068-0195 | 53, 115 | 8R3J20E03C3003 | 120070-5201 | 111 | B05507PP4M010 | 120039-0158 | 305 |
| 884A30P03M003 | 120009-0091 | 115 | 8R3J26E03C3003 | 120070-5202 | 112 | B152000N2 | 121012-0009 | 191 |
| 884A31A09M003 | 120068-0199 | 53 | 8R3J400013 | 120070-5203 | 49, 111 | B153000N2 | 121012-0010 | 191 |
| 884A31E03M003 | 120068-5031 | 115 | 8R3J460003 | 120070-5204 | 50, 112 | B202000N2 | 121012-0013 | 188 |
| 884A31H09M003 | 120068-8137 | 115 | 8R4000A18A120 | 120070-0173 | 49 | B203000N2 | 121012-0019 | 188 |
| 884A31K05M003 | 120068-0211 | 53, 115 | 8R4006A18A120 | 120070-0184 | 50 | B292000N2 | 121012-0102 | 192 |
| 884APO | 120068-5035 | 52, 114 | 8R4A00A18A120 | 120070-0114 | 49 | BA5500-32 | 120100-0001 | 310 |
| 885030A09M010 | 120066-0427 | 42, 284, 324 | 8R4J20E03C3003 | 120070-5205 | 111 | BA5506-32 | 120100-0002 | 310 |
| 885030E03M010 | 120007-0906 | 104, 326 | 8R4J26E03C3003 | 120011-0019 | 112 | BB5S30PP4M010 | 120098-0006 | 306 |
| 885030H09M010 | 120066-8497 | 104 | 8R4J460003 | 120011-0237 | 49, 111 | BB5S31PP4M010 | 120098-5021 | 306 |
| 885030K03M010 | 120066-1034 | 284, 324, 326 | | | | BB5S32PP4M010 | 120098-0024 | 306 |
| 885030P03M010 | 120066-8084 | 104 | | | | BB5S33PP4M010 | 120098-0029 | 306 |

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| BEY401P-FBP-05 | 120113-0006 | 77, 133 | BNY603P-FBP-05 | 120054-0044 | 78, 134 | BTY803P-FBB | 120114-0083 | 56, 117 |
| BEY403P-FBP-05 | 120054-0034 | 78, 134 | BNY801P-FBC | 120113-0029 | 76, 132 | BTY803P-FBC | 120114-0084 | 57, 119 |
| BEY601P-FBP-05 | 120113-0011 | 77, 133 | BNY801P-FBP-05 | 120113-0032 | 77, 133 | BTY8050-FBP-05 | 120114-0092 | 60, 122 |
| BEY603P-FBP-05 | 120054-0043 | 78, 134 | BNY803P-FBP-05 | 120054-0004 | 78, 134 | BTY805N-FBP-05 | 120114-0202 | 60, 122 |
| BEY801P-FBP-05 | 120113-0014 | 77, 133 | BNYA01P-FBC | 120113-0020 | 76, 132 | BTY805P-FBP-05 | 120114-0089 | 60, 122 |
| BEY803P-FBP-05 | 120113-0017 | 78, 134 | BNYA01P-FBP-05 | 120113-0022 | 77, 133 | BTY8120-FBP-050 | 120114-0099 | 61, 123 |
| BEYA01P-FBP-05 | 120113-0002 | 77, 133 | BNYA03P-FBP-05 | 120054-0046 | 78, 134 | BTY812N-FBP-05 | 120114-0095 | 61, 123 |
| BEYA03P-FBP-05 | 120054-0045 | 78, 134 | BP5S32PP4M010 | 120098-0183 | 317 | BTY812P-FBP-05 | 120114-0097 | 61, 123 |
| BKY400P-FBP-05 | 120119-0001 | 34, 96 | BP5S33PP4M010 | 120098-0077 | 317 | C03000A48M020 | 130063-0003 | 205 |
| BKY401P-FBB | 120119-0002 | 29, 91 | BP5S62PP4M010 | 120098-0079 | 317 | C03001A48M020 | 130063-0037 | 205 |
| BKY401P-FBC | 120119-0003 | 31, 93 | BP5S63PP4M010 | 120098-0181 | 317 | C03006A48M020 | 130063-0042 | 206 |
| BKY4030-FBC | 120119-0038 | 32, 94 | BR5L30 | 120099-0001 | 309 | C03007A48M020 | 130063-0194 | 206 |
| BKY403P-FBA | 120119-0004 | 33, 95 | BR5U70PP4M0103 | 120099-0005 | 307 | C03100A48M020 | 130063-0056 | 205 |
| BKY403P-FBB | 120119-0005 | 30, 92 | BR5U76PP4M0103 | 120099-0013 | 307 | C03101A48M020 | 130063-0199 | 205 |
| BKY403P-FBC | 120119-0006 | 32, 94 | BTY4000-FBP-05 | 120055-0586 | 59 | C03106A48M020 | 130063-0200 | 206 |
| BKY405P-FBP-05 | 120119-0007 | 35, 97 | BTY400N-FBP-05 | 120114-8008 | 59, 121 | C03107A48M020 | 130063-0201 | 206 |
| BKY4120-FBP-01 | 120119-0008 | 36, 98 | BTY400P-FBP-05 | 120114-8011 | 59, 121 | C04000A48M020 | 130063-0089 | 205 |
| BKY600P-FBP-05 | 120119-0009 | 34, 96 | BTY4010-FBB | 120114-0027 | 54, 116 | C04001A48M020 | 130063-0135 | 205 |
| BKY601P-FBB | 120119-0010 | 29, 91 | BTY4010-FBC | 120055-0308 | 55, 118 | C04006A48M020 | 130063-0150 | 206 |
| BKY601P-FBC | 120119-0011 | 31, 93 | BTY401N-FBB | 120114-0014 | 54, 116 | C04007A48M020 | 130063-0169 | 206 |
| BKY603P-FBA | 120119-0012 | 33, 95 | BTY401N-FBC | 120114-0211 | 55, 118 | C04100A48M020 | 130063-0181 | 205 |
| BKY603P-FBB | 120119-0013 | 30, 92 | BTY401P-FBB | 120114-0019 | 54, 116 | C04101A48M020 | 130063-0183 | 205 |
| BKY605P-FBP-05 | 120119-0015 | 35, 97 | BTY401P-FBC | 120114-0020 | 55, 118 | C04106A48M020 | 130063-0012 | 206 |
| BKY800P-FBP-05 | 120119-0016 | 34, 96 | BTY4030-FBA | 120114-0034 | 58, 120 | C04107A48M020 | 130063-0189 | 206 |
| BKY801P-FBB | 120119-0017 | 29, 91 | BTY4030-FBB | 120114-0035 | 56, 117 | C22200NOR | 121202-0002 | 189 |
| BKY801P-FBC | 120119-0018 | 31, 93 | BTY4030-FBC | 120055-0313 | 57, 119 | C25200NOT | 121204-0001 | 191 |
| BKY8030-FBC | 120055-0925 | 32, 94 | BTY403N-FBA | 120055-0669 | 58, 120 | C25300NOT | 121204-0005 | 191 |
| BKY803P-FBA | 120119-0019 | 33, 95 | BTY403P-FBA | 120114-0029 | 58, 120 | C28200NOR | 121201-0001 | 188 |
| BKY803P-FBB | 120119-0020 | 30, 92 | BTY403P-FBB | 120114-0030 | 56, 117 | C28300NOR | 121201-0002 | 188 |
| BKY803P-FBC | 120119-0021 | 32, 94 | BTY403P-FBC | 120114-0031 | 57, 119 | C29200NOT | 121205-0001 | 192 |
| BKY805P-FBP-05 | 120119-0023 | 35, 97 | BTY4050-FBP-05 | 120114-0042 | 60, 122 | C29300NOT | 121205-0005 | 192 |
| BKY8120-FBP-01 | 120119-0025 | 36, 98 | BTY405N-FBP-05 | 120114-0037 | 60, 122 | C92200NOT | 121203-0001 | 190 |
| BM5G30PP4M010 | 120098-0190 | 318 | BTY405P-FBP-05 | 120114-0039 | 60, 122 | CA3000-39 | 130070-0021 | 211 |
| BM5G31PP4M010 | 120098-0194 | 318 | BTY4120-FBP-05 | 120114-0048 | 61, 123 | CA3006-39 | 130070-0022 | 211 |
| BM5G32PP4M010 | 120098-0192 | 318 | BTY412N-FBP-05 | 120114-0192 | 61, 123 | CA4000-39 | 130070-0023 | 211 |
| BM5G33PP4M010 | 120098-0196 | 318 | BTY412P-FBP-05 | 120114-0045 | 61, 123 | CA4006-39 | 130070-0024 | 211 |
| BM5G60PP4M010 | 120098-0150 | 318 | BTY601P-FBB | 120114-0055 | 54, 116 | CC3030A48M020 | 130064-0065 | 207 |
| BM5G61PP4M010 | 120098-0151 | 318 | BTY6030-FBA | 120114-0057 | 58, 120 | CC3130A48M020 | 130064-0401 | 207 |
| BM5G62PP4M010 | 120098-0186 | 318 | BTY603N-FBA | 120055-0670 | 58, 120 | CC4030A48M020 | 130064-0187 | 207 |
| BM5G63PP4M010 | 120098-0188 | 318 | BTY603P-FBA | 120114-0056 | 58, 120 | CC4130A48M020 | 130064-0356 | 207 |
| BM5G70PP4M010 | 120098-0048 | 318 | BTY8000-FBP-05 | 120055-0583 | 59, 121 | CR3000A30M005 | 130066-0110 | 210 |
| BM5G72PP4M010 | 120098-0051 | 318 | BTY800N-FBP-05 | 120114-8020 | 59, 121 | CR3006A30M005 | 130066-0255 | 210 |
| BM5S30PP4M010 | 120098-0155 | 317 | BTY800P-FBP-05 | 120114-8022 | 59, 121 | CR3100A30M005 | 130066-0256 | 210 |
| BM5S31PP4M010 | 120098-0184 | 317 | BTY8010-FBB | 120114-0079 | 54, 116 | CR3106A30M005 | 130066-0257 | 210 |
| BM5S32PP4M010 | 120098-0057 | 317 | BTY8010-FBC | 120055-0321 | 55, 118 | CR3C00A30M005 | 130066-0134 | 210 |
| BM5S33PP4M010 | 120098-5007 | 317 | BTY801N-FBB | 120114-0059 | 54, 116 | CR3C06A30M005 | 130066-0143 | 210 |
| BM5S60PP4M010 | 120098-0062 | 317 | BTY801N-FBC | 120114-0060 | 55, 118 | CR3D00A30M005 | 130066-0258 | 210 |
| BM5S61PP4M010 | 120098-0223 | 317 | BTY801P-FBB | 120114-0065 | 54, 116 | CR3D06A30M005 | 130066-0259 | 210 |
| BM5S62PP4M010 | 120098-0065 | 317 | BTY801P-FBC | 120114-0066 | 55, 118 | CR4000A30M005 | 130066-0152 | 210 |
| BM5S63PP4M010 | 120098-0070 | 317 | BTY8030-FBA | 120114-0086 | 58, 120 | CR4006A30M005 | 130066-0170 | 210 |
| BNY401P-FBC | 120113-0023 | 76, 132 | BTY8030-FBB | 120114-0087 | 56, 117 | CR4100A30M005 | 130066-0260 | 210 |
| BNY401P-FBP-05 | 120113-0025 | 77, 133 | BTY8030-FBC | 120055-0328 | 57, 119 | CR4106A30M005 | 130066-0186 | 210 |
| BNY403P-FBP-05 | 120113-5100 | 78, 134 | BTY803N-FBA | 120055-0672 | 58 | CR4C00A30M005 | 130066-0189 | 210 |
| BNY601P-FBC | 120113-0026 | 76, 132 | BTY803P-FBA | 120114-0082 | 58, 120 | CR4C06A30M005 | 130066-0203 | 210 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| CR4D00A30M005 | 130066-0261 | 210 | DND02A-M010 | 130027-0012 | 257 | DNDF12A-M010 | 130039-0523 | 260 |
| CR4D06A30M005 | 130066-0262 | 210 | DND03A-M010 | 130027-0037 | 257 | DNDF13A-M010 | 130039-0245 | 260 |
| DN-MTR (E) | 112008-0013 | 227 | DND09A-M010 | 130024-0207 | 241 | DNDF19A-M010 | 130025-0013 | 243 |
| DN-MTR-BAG | 112008-0003 | 227 | DND100 | 130039-0382 | 265 | DNDF20A-M010 | 130027-0171 | 256 |
| DN-MTR-CAL | 112008-0004 | 227 | DND100L | 120039-0001 | 265 | DNDF21A-M010 | 130039-0248 | 259 |
| DN-MTR-KIT (E) | 112008-0014 | 227 | DND101 | 130039-0125 | 265 | DNDF22A-M010 | 130028-0132 | 258 |
| DN-PT1 | 130039-0390 | 281 | DND10A-M010 | 130024-0215 | 239 | DNDF23A-M010 | 130028-0163 | 258 |
| DN-PT2 | 130039-0391 | 281 | DND11A-M010 | 130025-0287 | 243 | DNDF29A-M010 | 130039-0257 | 259 |
| DN-PT3 | 130039-0393 | 281 | DND12A-M010 | 130039-0145 | 260 | DNDF30A-M010 | 130027-0161 | 256 |
| DN00A-M500 | 130039-0368 | 234 | DND13A-M010 | 130039-0151 | 260 | DNDF31A-M010 | 130039-0259 | 259 |
| DN00A-T100 | 130039-0369 | 234 | DND150 | 130039-0385 | 265 | DNDF32A-M010 | 130028-0172 | 258 |
| DN01A-M010 | 130024-0028 | 240 | DND150L | 120039-0003 | 265 | DNDF33A-M010 | 130028-0183 | 258 |
| DN09A-M010 | 130024-0059 | 240 | DND151 | 130039-0386 | 265 | DNDF39A-M010 | 130039-0263 | 259 |
| DN100 | 130039-0370 | 249 | DND19A-M010 | 130025-0313 | 243 | DNDF40-M010 | 130039-0545 | 269 |
| DN100L | 130039-0371 | 249 | DND20A-M010 | 130027-0048 | 256 | DNDF41A-M010 | 130039-0546 | 270 |
| DN10A-M010 | 130024-0073 | 238 | DND21A-M010 | 130039-0157 | 259 | DNDF42A-M010 | 130039-0548 | 270 |
| DN11A-M010 | 130025-0054 | 242 | DND22A-M010 | 130028-0028 | 258 | DNDF43A-M010 | 130039-0549 | 270 |
| DN150 | 130039-0376 | 249 | DND23A-M010 | 130028-0070 | 258 | DNDF49A-M010 | 130039-0547 | 270 |
| DN150L | 130039-0072 | 249 | DND29A-M010 | 130039-0175 | 259 | DNDF90A-M010 | 130024-0355 | 239 |
| DN2100 | 130039-0336 | 255 | DND3020 | 130039-0341 | 252 | DNDF91A-M010 | 130025-0546 | 243 |
| DN3020 | 130035-0057 | 252 | DND30A-M010 | 130027-0075 | 256 | DNDF92A-M010 | 130039-0266 | 260 |
| DN3020PM-1 | 130035-0060 | 250 | DND31A-M010 | 130039-0179 | 259 | DNDF93A-M010 | 130039-0551 | 260 |
| DN3020PM-3 | 130035-0061 | 250 | DND32A-M010 | 130028-0085 | 258 | DNDF99A-M010 | 130025-0513 | 243 |
| DN3200 | 130035-0071 | 252 | DND33A-M010 | 130028-0104 | 258 | DNDG00A-T100 | 130039-0346 | 237 |
| DN4000 | 130036-0005 | 254 | DND39A-M010 | 130039-0188 | 259 | DNE00A-M500 | 130039-0347 | 235 |
| DN4100 | 130036-0006 | 255 | DND40-M010 | 130039-0127 | 269 | DNE00A-T100 | 130039-0348 | 235 |
| DN5000-M010 | 130039-0284 | 245 | DND41A-M010 | 130039-0132 | 270 | DNE01A-M010 | 130024-0249 | 240 |
| DN5100-M010 | 130039-0299 | 245 | DND4200 | 130037-0004 | 268 | DNE10A-M010 | 130024-0260 | 238 |
| DN5210A-M010 | 130039-0096 | 244 | DND42A-M010 | 130039-0190 | 270 | DNE11A-M010 | 130025-0352 | 242 |
| DN5290A-M010 | 130039-0098 | 244 | DND4300-02 | 130037-0005 | 267 | DNESJ | 130035-0077 | 282 |
| DN5301A-M010 | 130039-0101 | 244 | DND43A-M010 | 130039-0204 | 270 | DNEST | 130035-0081 | 282 |
| DN5309A-M010 | 130039-0103 | 244 | DND4500-02 | 130037-0006 | 267 | DNETAUXPT | 130035-0085 | 152, 282 |
| DN6000 | 130036-0008 | 254 | DND49A-M010 | 130039-0122 | 270 | DNF00A-M500 | 130039-0349 | 234 |
| DN6100 | 130036-0009 | 255 | DND5304-M010 | 130039-0087 | 271 | DNF00A-T100 | 130039-0350 | 234 |
| DN8000 | 130036-0010 | 254 | DND8200 | 130037-0008 | 268 | DNF01A-M010 | 130024-0265 | 240 |
| DN90A-M010 | 130024-0133 | 238 | DND8300-02 | 130037-0010 | 267 | DNF09A-M010 | 130025-0538 | 240 |
| DN91A-M010 | 130025-0173 | 242 | DND8500-02 | 130037-0011 | 267 | DNF10A-M010 | 130024-0337 | 238 |
| DN99A-M010 | 130025-0197 | 242 | DND90A-M010 | 130024-0232 | 239 | DNF11A-M010 | 130025-0408 | 242 |
| DNAPT | 130035-0072 | 282 | DND91A-M010 | 130025-0322 | 243 | DNF90A-M010 | 130024-0341 | 238 |
| DNAUX4000 | 130060-0065 | 157 | DND92A-M010 | 130039-0209 | 260 | DNF91A-M010 | 130025-0468 | 242 |
| DNAUX8000 | 130060-0066 | 157 | DND93A-M010 | 130039-0216 | 260 | DNF99A-M010 | 130025-0482 | 242 |
| DNB00A-M500 | 130039-0339 | 235 | DND99A-M010 | 130025-0543 | 243 | DNTA14114A1 | 130038-0016 | 277 |
| DNB00A-T100 | 130039-0340 | 235 | DNDC220A-M005 | 130039-0223 | 261 | DNYG001 | 130039-0396 | 266 |
| DNB01A-M010 | 130024-0146 | 240 | DNDC230A-M010 | 130031-0014 | 261 | DRL-241P-MSC | 112036-0043 | 343 |
| DNB09A-M010 | 130024-0163 | 240 | DNDC302A-M005 | 130039-0230 | 261 | DRL-241P-MST | 112036-0044 | 343 |
| DNB10A-M010 | 130024-0169 | 238 | DNDC303A-M005 | 130031-0012 | 261 | DRL-250M | 112036-0036 | 343 |
| DNB11A-M010 | 130025-0233 | 242 | DNDC304-M005 | 130033-0003 | 271 | DRL-250P | 112036-0035 | 343 |
| DNB5000-M010 | 130039-0312 | 245 | DNDF00A-T100 | 130039-0344 | 236 | DRL-280M | 112036-0038 | 343 |
| DNB5100-M010 | 130039-0318 | 245 | DNDF01A-M010 | 130024-0005 | 241 | DRL-280P | 112036-0037 | 343 |
| DNB90A-M010 | 130024-0178 | 238 | DNDF02A-M010 | 130027-0103 | 257 | DRL-281P-MSC | 112036-0045 | 343 |
| DNB91A-M010 | 130025-0259 | 242 | DNDF03A-M010 | 130027-0115 | 257 | DRL-281P-MST | 112036-0046 | 343 |
| DNB99A-M010 | 130025-0267 | 242 | DNDF09A-M010 | 130024-0356 | 241 | DRL-332M-MSC | 112036-0047 | 343 |
| DND00A-T100 | 130039-0381 | 236 | DNDF10A-M010 | 130024-0353 | 239 | DRL-332M-MST | 112036-0048 | 343 |
| DND01A-M010 | 130024-0191 | 241 | DNDF11A-M010 | 130025-0502 | 243 | DRL-332M-SSC | 112036-0049 | 343 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| DRL-332M-SST | 112036-0050 | 343 | E11A06003M010 | 130048-0088 | 361 | E66A06003M010 | 130048-0031 | 346 |
| DRL-350M | 112036-0039 | 343 | E11A06004M010 | 130048-0095 | 361 | ENDR2FB5 | 130053-0002 | 349 |
| DRL-362M-MSC | 112036-0051 | 343 | E11A06005M010 | 120108-0188 | 361 | ENP1105M010 | 130050-0071 | 347 |
| DRL-362M-MST | 112036-0052 | 343 | E11A06010M010 | 130048-0114 | 361 | ENP1115M010 | 130050-0076 | 348 |
| DRL-362M-SSC | 112036-0053 | 343 | E11A06011M010 | 120108-0236 | 361 | ENP1135M010 | 130050-0093 | 348 |
| DRL-362M-SST | 112036-0058 | 343 | E11A06015M010 | 130048-0122 | 361 | ENP1305M010 | 130050-0105 | 344 |
| DRL-380M | 112036-0040 | 343 | E11A06203M010 | 130048-0137 | 361 | ENP1335M010 | 130050-0107 | 345 |
| DRL-3F0M | 112036-0041 | 343 | E11A06205M010 | 120108-0189 | 361 | ENP2105M010 | 130050-0112 | 347 |
| DRL-3H0M | 112036-0042 | 343 | E11A06210M010 | 130048-0145 | 361 | ENP2115M010 | 130050-0122 | 348 |
| DRL-3H0M-1MLC | 112036-0054 | 343 | E11A06211M020 | 120108-0201 | 361 | ENP2135M010 | 130050-0140 | 348 |
| DRL-3H0M-1SLC | 112036-0055 | 343 | E11A06215M010 | 130048-0153 | 361 | ENP2335M010 | 130050-0150 | 345 |
| DRL-3H0M-2MLC | 112036-0056 | 343 | E11A06303M010 | 130048-0161 | 361 | ENP3105M010 | 130050-0162 | 347 |
| DRL-3H0M-2SLC | 112036-0057 | 343 | E11A06304M010 | 120108-0167 | 361 | ENP3115M010 | 130050-0170 | 348 |
| DRL-750 | 112111-5001 | 342 | E11A06305M010 | 120108-0174 | 361 | ENP3135M010 | 130050-8036 | 348 |
| DRL-780 | 112105-5002 | 342 | E11A06310M010 | 130048-0170 | 361 | ENP3335M010 | 130050-0457 | 345 |
| DRL-781 | 112105-5004 | 342 | E11A06311M020 | 120108-0200 | 361 | ENPR1FF5 | 130053-0004 | 350 |
| DRL-ALL-SWF-S | 112027-0002 | 335, 382 | E11A06315M010 | 130048-0179 | 361 | ENQ3105M010 | 130050-0506 | 347 |
| DRL-ALL-SWF-U | 112027-0003 | 335, 382 | E11B03003M002 | 130048-0193 | 362 | ENQ3115M010 | 130050-0251 | 348 |
| DRL-ALL-SWL-S | 112027-0005 | 335, 382 | E11B03015M002 | 130048-0195 | 362 | ENQ3135M010 | 130050-0262 | 348 |
| DRL-ALL-SWL-U | 112027-0006 | 335, 382 | E152N3N10011 | 121040-0140 | 193 | ENQ3335M010 | 130050-0507 | 345 |
| DRL-CNO-104 | 112023-0007 | 379 | E152N3N10K11 | 121040-0146 | 193 | ENQAM315 | 130057-0001 | 354 |
| DRL-CNO-104-B25 | 112023-5001 | 379 | E152N3N20011 | 121040-0159 | 193 | ENS1105M010 | 130050-0277 | 347 |
| DRL-CNO-PCIE | 112086-5018 | 380 | E152N3N50011 | 121040-0589 | 193 | ENS1115M010 | 130050-0284 | 348 |
| DRL-CNO-PCU | 112021-0014 | 380 | E153N3N10021 | 121040-0210 | 193 | ENS1335M010 | 130050-0324 | 345 |
| DRL-DPM-104 | 112013-0003 | 290 | E153N3N10K21 | 121040-1257 | 193 | ENS2105M010 | 130050-0328 | 347 |
| DRL-DPM-CPI | 112018-5004 | 296 | E153N3N20021 | 121040-0219 | 193 | ENS2115M010 | 130050-0336 | 348 |
| DRL-DPM-PCIE | 112011-5028 | 293 | E153N3N50021 | 121040-0230 | 193 | ENS2135M010 | 130050-0371 | 348 |
| DRL-DPM-PCU | 112011-0008 | 293 | E162N3N10021 | 121040-0295 | 194 | ENS2305M010 | 130050-0392 | 344 |
| DRL-DPS-SRM | 112026-0013 | 300 | E162N3N10K21 | 121040-0299 | 194 | ENS2335M010 | 130050-0394 | 345 |
| DRL-EIP-PCIE | 112000-5033 | 337 | E162N3N20021 | 121040-0305 | 194 | ENS3105M010 | 130050-0408 | 347 |
| DRL-EIP-PCU | 112000-5030 | 337 | E162N3N50021 | 121040-0320 | 194 | ENS3115M010 | 130050-0412 | 348 |
| DRL-EMB-PCIE | 112000-5034 | 337 | E16A03003M010 | 130048-0197 | 363 | ENS3135M010 | 130050-0429 | 348 |
| DRL-EMB-PCU | 112000-5029 | 337 | E16A03011M010 | 120108-0264 | 363 | ENS3305M010 | 130050-0436 | 344 |
| DRL-EPN-PCIE | 112000-5032 | 337 | E1AS00-52 | 130047-0017 | 364 | ENS3335M010 | 130050-0503 | 345 |
| DRL-EPN-PCU | 112000-5031 | 337 | E1AS06-52 | 130047-0018 | 364 | ENSAM315 | 130057-0003 | 354 |
| DRL-EPN-SWF-S | 112027-5007 | 334 | E1WB03003M002 | 130048-0207 | 366 | ENSP1F5 | 130055-0001 | 352 |
| DRL-MPI-PCU | 112034-0018 | 292 | E1WB03010M002 | 130048-0208 | 366 | ENSP1F5M010 | 130055-0005 | 352 |
| DRL-MPI-USB | 112035-0001 | 290 | E1WB03015M002 | 130048-0209 | 366 | ENSP6F5 | 130055-0014 | 352 |
| DRL-MPI-USB-DLL | 112035-0002 | 290 | E332N2N10011 | 121040-0422 | 197 | ENSR1FB5 | 130055-0016 | 351 |
| DRL-PFB-USB | 112026-0014 | 290 | E332N2N10K11 | 121040-0428 | 197 | ENSR1FB5M010 | 130055-0020 | 351 |
| DRL-PFB-USB-DLL | 112026-0015 | 290 | E332N2N20011 | 121040-0436 | 197 | ENV3105M010 | 130050-8023 | 347 |
| DRL-SIE-SWF-S | 112027-5014 | 335, 382 | E332N2N50011 | 121040-0451 | 197 | ENV3115M010 | 130050-8025 | 348 |
| DRL-SIE-SWF-U | 112027-5015 | 335, 382 | E333N2N10021 | 121040-1260 | 197 | ENV3135M010 | 130050-8029 | 348 |
| DRL-UPG-SWF | 112027-0010 | 335, 382 | E333N2N10K21 | 121040-0703 | 197 | ENV3335M010 | 130050-0512 | 345 |
| E10A00603M010 | 130048-0038 | 360 | E333N2N20021 | 121040-0470 | 197 | ER1PADAPTER | 130054-0009 | 371 |
| E10A00605M010 | 120108-0186 | 360 | E333N2N50021 | 121040-0887 | 197 | ER1PADAPTER90 | 130054-0010 | 371 |
| E10A00610M010 | 130048-0046 | 360 | E432N2N10011 | 121040-0491 | 196 | ERWAAJ3000C050 | 120109-0004 | 367 |
| E10A00611M050 | 130048-0281 | 360 | E432N2N10K11 | 121040-0493 | 196 | ERWAAJ4002M002 | 130054-0012 | 369 |
| E10A00615M010 | 130048-0054 | 360 | E432N2N20011 | 121040-0496 | 196 | ERWAAJ4002M020 | 130054-0013 | 369 |
| E10A00703M010 | 130048-0062 | 360 | E432N2N50011 | 121040-0500 | 196 | ERWAAU3000C050 | 120109-5001 | 367 |
| E10A00705M010 | 120108-0187 | 360 | E433N2N10021 | 121040-1258 | 196 | ERWAAU7000C050 | 120109-5002 | 367 |
| E10A00710M010 | 130048-0070 | 360 | E433N2N10K21 | 121040-1109 | 196 | ERWD2J30 | 120109-5003 | 368 |
| E10A00711M050 | 130048-0286 | 360 | E433N2N20021 | 121040-1259 | 196 | ERWD2U30 | 120109-5004 | 368 |
| E10A00715M010 | 130048-0078 | 360 | E433N2N50021 | 121040-0511 | 196 | ERWD2U70 | 120109-5005 | 368 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| ERWPAU7003M006 | 120109-0005 | 370 | KRP6G06-103 | 120234-0005 | 184 | M03S06PP4M010 | 120098-0202 | 314 |
| ERWPAU7011M010 | 120108-0252 | 370 | KRP6G07-1012 | 120234-0009 | 184 | M03S07PP4M010 | 120098-8025 | 314 |
| EWWA06003M010 | 120108-0066 | 365 | KRP6G07-1052 | 120234-0013 | 184 | MA9D00-32 | 120100-0004 | 313 |
| EWWA06010M010 | 120108-0090 | 365 | KRP6G46-1031 | 120234-0017 | 184 | MA9D00-42 | 120103-5001 | 313 |
| EWWA06015M010 | 120108-0042 | 365 | KRP6P46-100 | 120234-0021 | 184 | MA9DP0-32 | 120100-0003 | 313 |
| EWWA06203M010 | 120108-0074 | 365 | KRP8G00-113 | 120234-0003 | 183 | MICT555 | 130035-0090 | 266 |
| EWWA06210M010 | 120108-0098 | 365 | KRP8G06-113 | 120234-0007 | 184 | MM3G60PP4M010 | 120098-0204 | 316 |
| EWWA06215M010 | 120108-0050 | 365 | KRP8G07-1112 | 120234-0011 | 184 | MM3G61PP4M010 | 120098-0207 | 316 |
| EWWA06303M010 | 120108-0082 | 365 | KRP8G07-1152 | 120234-0015 | 184 | MM3G70PP4M010 | 120098-0211 | 316 |
| EWWA06304M010 | 120108-5020 | 365 | KRP8G46-1131 | 120234-0019 | 184 | MM3G72PP4M010 | 120098-8035 | 316 |
| EWWA06310M010 | 120108-0106 | 365 | KRP8P46-110 | 120234-0023 | 184 | MM3S60PP4M010 | 120098-0198 | 315 |
| EWWA06315M010 | 120108-0058 | 365 | KRS6G20-403 | 120231-0002 | 176 | MM3S62PP4M010 | 120098-0200 | 315 |
| K02100P80M100 | 120094-5022 | 180 | KRS6G26-4031 | 120231-0023 | 177 | MM3S63PP4M020 | 120098-0120 | 315 |
| K02101P80M100 | 120094-0125 | 31, 55, 93, 118, 180 | KRS6G27-4012 | 120231-0044 | 177 | MP3G62PP4M010 | 120098-0206 | 316 |
| K02201P80M100 | 120094-8013 | 31, 55, 93 | KRS6G46-4041 | 120231-0066 | 178 | MP3G63PP4M010 | 120098-0209 | 316 |
| K02301P80M100 | 120094-5023 | 31, 55, 93, 118 | KRS6P46-400 | 120231-0094 | 179 | MP3G72PP4M010 | 120098-0213 | 316 |
| K03000P80M100 | 120094-5003 | 180 | KRS7G20-403 | 120231-0005 | 176 | MP3S62PP4M010 | 120098-0199 | 315 |
| K03001P80M100 | 120094-0044 | 32, 57, 94, 119, 180 | KRS7G26-4031 | 120231-0026 | 177 | MP3S63PP4M020 | 120098-0122 | 315 |
| K03201P80M100 | 120094-8027 | 32, 57, 94, 119 | KRS7G27-4012 | 120231-0047 | 177 | N03FA03124 | 120091-0001 | 75, 131 |
| K03301P80M100 | 120094-8045 | 32, 57, 94 | KRS7G46-4041 | 120231-0070 | 178 | N03FA04124 | 120091-0003 | 75, 131 |
| KA-FLANGE | 120155-0016 | 185 | KRS7P46-400 | 120231-0098 | 179 | N03MA03124 | 120091-0004 | 75, 131 |
| KAP6S00-105 | 120233-0001 | 181 | KRS9G20-423 | 120231-0008 | 176 | N03MA04124 | 120091-0006 | 75, 131 |
| KAP6S01-105 | 120233-0009 | 181 | KRS9G26-4131 | 120231-0029 | 177 | N04FA03124 | 120091-0007 | 75, 131 |
| KAP6S06-105 | 120233-0017 | 182 | KRS9G27-4112 | 120231-0050 | 177 | N04FA04124 | 120091-0009 | 75, 131 |
| KAP8S00-115 | 120233-0005 | 181 | KRS9G46-4141 | 120231-0074 | 178 | N04MA03124 | 120091-0010 | 75, 131 |
| KAP8S01-115 | 120233-0013 | 181 | KRS9P46-410 | 120231-0102 | 179 | N04MA04124 | 120091-0012 | 75, 131 |
| KAP8S06-115 | 120233-0021 | 182 | KRSCG20-023 | 120231-0011 | 176 | P03S07PP4M010 | 120098-0203 | 314 |
| KAS6S00-405 | 120230-0005 | 174 | KRSCG26-0131 | 120231-0032 | 177 | PA9D01-42 | 120103-0001 | 313 |
| KAS6S06-405 | 120230-0110 | 175 | KRSCG27-0112 | 120231-0053 | 177 | PA9D0B-42 | 120103-0003 | 313 |
| KAS7S00-405 | 120230-0014 | 174 | KRSCG46-0141 | 120231-0078 | 178 | PA9S01-42 | 120103-0005 | 313 |
| KAS7S01-405 | 120230-0072 | 174 | KRSCP46-010 | 120231-0106 | 179 | PBAPT | 120101-0001 | 152, 322 |
| KAS7S06-405 | 120230-0119 | 175 | KRSHG20-023 | 120231-0106 | 176 | PDT501 | 120101-0002 | 312 |
| KAS9S00-425 | 120230-0023 | 174 | KRSHG26-0131 | 120231-0035 | 177 | PICS-PRO-AB | 112029-0008 | 384 |
| KAS9S01-425 | 120230-0078 | 174 | KRSHG27-0112 | 120231-0056 | 177 | PICS-PRO-OPC | 112029-0011 | 384 |
| KAS9S06-415 | 120230-0128 | 175 | KRSHG46-0141 | 120231-0082 | 178 | PICS-PRO-PBMS | 112029-0012 | 384 |
| KASCS00-025 | 120230-0032 | 31, 55, 93, 118, 174 | KRSHP46-010 | 120231-0110 | 179 | RJBG16821 | 130058-0057 | 353, 353 |
| KASCS01-025 | 120230-0084 | 174 | KRSJG20-023 | 120231-0017 | 176 | SDK-CIP-EDS-SAF | 112115-0005 | 231, 341 |
| KASCS06-015 | 120230-0137 | 175 | KRSJG26-0131 | 120231-0038 | 177 | SDK-DEP-SAP-SAF | 112115-0003 | 231, 341 |
| KASHS00-025 | 120230-0041 | 174 | KRSJG27-0112 | 120231-0059 | 177 | SDK-DEP-SAP-SAF-O | 112115-0004 | 231, 341 |
| KASHS01-025 | 120230-0090 | 174 | KRSJG46-0141 | 120231-0086 | 178 | SDK-DNS-SAF | 112115-0001 | 231, 341 |
| KASHS06-015 | 120230-0146 | 175 | KRSJP46-010 | 120231-0114 | 179 | SDK-DNS-SAF-L | 112116-0001 | 231, 341 |
| KASJS00-025 | 120230-0050 | 174 | KRSLG20-223 | 120231-0020 | 176 | SDK-DNS-SAF-O | 112115-0002 | 231, 341 |
| KASJS01-025 | 120230-0096 | 174 | KRSLG26-1131 | 120231-0041 | 177 | SDK-EIP-ADP | 112106-0000 | 333 |
| KASJS06-015 | 120230-0155 | 175 | KRSLG27-1112 | 120231-0062 | 177 | SDK-EIP-ADP-SAF | 112117-0001 | 231, 341 |
| KASLS01-225 | 120230-0102 | 174 | KRSLG46-1141 | 120231-0090 | 178 | SDK-EIP-ADP-SAF-L | 112116-0002 | 231, 341 |
| KASLS06-115 | 120230-0164 | 175 | KRSLP46-110 | 120231-0118 | 179 | SDK-EIP-ADP-SAF-O | 112117-0002 | 231, 341 |
| KP-LOC-01 | 120155-0018 | 185 | KS-LOC-01 | 120155-0013 | 185 | SDK-EIP-ADP-UPD | 112106-5000 | 333 |
| KP-LOC-02 | 120155-0019 | 185 | KS-LOC-02 | 120155-0014 | 185 | SDK-EIP-CON-CNF-U | 112106-5011 | 333 |
| KP-TOOL-01 | 120155-0017 | 185 | KS-TOOL-01 | 120155-0012 | 185 | SDK-EIP-EDS | 860000-0141 | 333 |
| KRP6G00-103 | 120234-0001 | 183 | KS-TOOL-02 | 120155-0015 | 185 | SDK-EIP-EML | 112106-5008 | 334 |
| | | | L04101M78M100 | 130023-0055 | 76, 132 | SDK-EIP-SCA | 112106-5003 | 333 |
| | | | L04201M78M100 | 130023-0059 | 76, 132 | SDK-EIP-SCA-UPD | 112106-5004 | 333 |
| | | | L04301M78M100 | 130023-0063 | 76, 132 | SDK-EIP-TRN | 860000-0143 | 333 |
| | | | L04A01M78M100 | 130023-0068 | 76, 132 | SDK-PFN-CON | 112106-5005 | 332 |

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|---------------|------------------------|------------------|-------------|------------------------|------------------|-------------|
| SDK-PFN-CON-CNF-U | 112106-5012 | 332 | TBDCO-8YXX-804 | 112098-5008 | 383 | TCDEI-8YXX-DYU | 112095-5020 | 340 |
| SDK-PFN-CON-UPD | 112106-5006 | 332 | TBDDN-444N-88U | 112092-5004 | 233 | TCDEM-888N-D1U | 112095-0001 | 339 |
| SDK-PFN-DEV | 112106-5001 | 332 | TBDDN-444P-88U | 112092-0006 | 233 | TCDEM-888N-DYU | 112095-5024 | 339 |
| SDK-PFN-DEV-UPD | 112106-5002 | 332 | TBDDN-480N-80U | 112092-0018 | 233 | TCDEM-888P-D1U | 112095-0002 | 339 |
| SDK-PFN-EDS | 860000-0142 | 332 | TBDDN-480P-80U | 112092-0007 | 233 | TCDEM-888P-DYU | 112095-5028 | 339 |
| SDK-PFN-MRP | 112106-5007 | 332 | TBDDN-880N-804 | 112092-0022 | 233 | TCDEM-8B4N-D1U | 112095-0003 | 339 |
| SDK-PFN-TRN | 860000-0144 | 332 | TBDDN-880P-804 | 112092-0008 | 233 | TCDEM-8B4N-DYU | 112095-5023 | 339 |
| SST-ASI-SLC | 112019-0004 | 378 | TBDPB-408P-B8U | 112038-0003 | 302 | TCDEM-8B4P-D1U | 112095-0004 | 339 |
| SST-CCS-PCU | 112079-7002 | 379 | TBDPB-444N-88U | 112038-0005 | 302 | TCDEM-8B4P-DYU | 112095-5027 | 339 |
| SST-CCS-PCU-B50 | 112079-7001 | 379 | TBDPB-444P-88U | 112038-0006 | 302 | TCDEM-8C2N-D1U | 112095-0005 | 339 |
| SST-DN3-CNF-U | 112030-0007 | 230 | TBDPB-462N-88U | 112038-0007 | 302 | TCDEM-8C2N-DYU | 112095-5022 | 339 |
| SST-DN3-OPC | 112027-0014 | 230 | TBDPB-462P-88U | 112038-0008 | 302 | TCDEM-8C2P-D1U | 112095-0006 | 339 |
| SST-DN4-104-1 | 112005-0040 | 228 | TBDPB-480N-88U | 112038-0009 | 302 | TCDEM-8C2P-DYU | 112095-5026 | 339 |
| SST-DN4-104-2 | 112005-0048 | 228 | TBDPB-480P-88U | 112038-0011 | 302 | TCDEM-8DON-D1U | 112095-0007 | 339 |
| SST-DN4-PCU | 112113-0007 | 228 | TBDPB-808P-B84 | 112038-0014 | 302 | TCDEM-8DON-DYU | 112095-5021 | 339 |
| SST-DN4-PCU-2 | 112113-0005 | 228 | TBDPB-844N-B84 | 112038-0015 | 302 | TCDEM-8DOP-D1U | 112095-0008 | 339 |
| SST-DN4-PCU-H | 112113-0001 | 228 | TBDPB-844P-B84 | 112038-0016 | 302 | TCDEM-8DOP-DYU | 112095-5025 | 339 |
| SST-DN4-USB | 112076-0001 | 229 | TBDPB-862N-B84 | 112038-0017 | 302 | TCDEM-8YXX-D1U | 112095-0009 | 339 |
| SST-DN4-USB-SM | 112076-0002 | 229 | TBDPB-862P-B84 | 112038-0018 | 302 | TCDEM-8YXX-DYU | 112095-5038 | 339 |
| SST-DNMS4-PCU | 112113-0009 | 228 | TBDPB-880N-B84 | 112038-0019 | 302 | TCDEP-8C2P-D1U | 112095-5034 | 340 |
| SST-DNMS4-PCU-H | 112113-0010 | 228 | TBDPB-880P-B84 | 112038-0021 | 302 | TCDEP-8DON-D1U | 112095-5029 | 340 |
| SST-EDN-1 | 112034-0021 | 226 | TC30130-200 | 130068-0034 | 208 | TCDEP-8DOP-D1U | 112095-5033 | 340 |
| SST-EDN-1-C2 | 112034-0026 | 226 | TC30200A45M010 | 130068-0039 | 208 | TCDEP-8YXX-D1U | 112095-5037 | 340 |
| SST-ENM-DN1 | 112008-0008 | 227 | TC30200A46M010 | 130068-0042 | 208 | TCDPB-888N-B1U | 112038-0024 | 301 |
| SST-ENM-PTU | 112008-0016 | 227 | TC30C30-200 | 130068-0045 | 208 | TCDPB-888P-B1U | 112038-0025 | 301 |
| SST-ENM-SKT | 112008-0012 | 227 | TC31130-200 | 130068-0051 | 208 | TCDPB-8B4N-B1U | 112038-0026 | 301 |
| SST-ESR2-CLX-RLL | 112073-0001 | 338 | TC31C31-200 | 130068-0055 | 208 | TCDPB-8B4P-B1U | 112038-0027 | 301 |
| SST-NAS-DN1 | 112008-0011 | 227 | TC40140-200 | 130068-0069 | 208 | TCDPB-8C2N-B1U | 112038-0028 | 301 |
| SST-PB3-104 | 112013-0013 | 291 | TC40200A45M010 | 130068-0072 | 208 | TCDPB-8C2P-B1U | 112038-0029 | 301 |
| SST-PB3-104-B25 | 112013-0015 | 291 | TC40200A46M010 | 130068-0075 | 208 | TCDPB-8DON-B1U | 112038-0030 | 301 |
| SST-PB3-CLX-RLL | 112016-0018 | 299 | TC40C40-200 | 130068-0079 | 208 | TCDPB-8DOP-B1U | 112038-0031 | 301 |
| SST-PB3-CLX-RLL-CC | 112016-0023 | 299 | TC41140-200 | 130068-0082 | 208 | W03000A09M020 | 120079-0138 | 20 |
| SST-PB3-CNF-P | 112030-0008 | 291, 294, 297 | TC41C41-200 | 130068-0086 | 208 | W03000E03M020 | 120079-5102 | 82 |
| SST-PB3-CNF-U | 112030-0009 | 291, 294, 297 | TCDDN-888N-11U | 112092-0020 | 232 | W03000H09M020 | 120079-8042 | 82 |
| SST-PB3-OPC | 112028-0030 | 291, 294 | TCDDN-888P-11U | 112092-0009 | 232 | W03000K05M020 | 120079-0130 | 20, 82 |
| SST-PB3-PCIE-1 | 112011-0031 | 294 | TCDDN-8DON-10U | 112092-0019 | 232 | W03000P03M020 | 120079-5103 | 82 |
| SST-PB3-PCIE-2 | 112011-0032 | 294 | TCDDN-8DOP-10U | 112092-0010 | 232 | W03001A09M020 | 120079-0216 | 20 |
| SST-PB3-PCU | 112011-0021 | 294 | TCDEI-888N-D1U | 112095-5006 | 340 | W03001E03M020 | 120079-5048 | 82 |
| SST-PB3-PCU-2 | 112011-0022 | 294 | TCDEI-888N-DYU | 112095-5015 | 340 | W03001H09M020 | 120079-8047 | 82 |
| SST-PB3-PCU-2-B | 112011-0027 | 294 | TCDEI-888P-D1U | 112095-5010 | 340 | W03001K05M020 | 120079-0211 | 20, 82 |
| SST-PB3-PCU-B25 | 112011-0024 | 294 | TCDEI-888P-DYU | 112095-5019 | 340 | W03001P03M020 | 120079-5104 | 82 |
| SST-PB3-SLC | 112016-0022 | 298 | TCDEI-8B4N-D1U | 112095-5005 | 340 | W03006A09M020 | 120079-0175 | 21 |
| SST-PB3-VME-1 | 112014-0004 | 297 | TCDEI-8B4N-DYU | 112095-5014 | 340 | W03006E03M020 | 120079-5105 | 83 |
| SST-PB3-VME-2 | 112014-0006 | 297 | TCDEI-8B4P-D1U | 112095-5009 | 340 | W03006H09M020 | 120079-8049 | 83 |
| SST-PBMS-PCI | 112011-0025 | 295 | TCDEI-8B4P-DYU | 112095-5018 | 340 | W03006K05M020 | 120079-0155 | 21, 83 |
| SST-PICS-PRO-U | 112029-0027 | 384 | TCDEI-8C2N-D1U | 112095-5004 | 340 | W03006P03M020 | 120079-5106 | 83 |
| SST-SR4-CLX-RLL | 112078-0001 | 378 | TCDEI-8C2N-DYU | 112095-5013 | 340 | W03007A09M020 | 120079-0220 | 21 |
| TBDCO-808P-804 | 112098-5001 | 383 | TCDEI-8C2P-D1U | 112095-5008 | 340 | W03007E03M020 | 120079-5107 | 83 |
| TBDCO-844N-804 | 112098-5002 | 383 | TCDEI-8C2P-DYU | 112095-5017 | 340 | W03007H09M020 | 120079-8041 | 83 |
| TBDCO-844P-804 | 112098-5003 | 383 | TCDEI-8DON-D1U | 112095-5003 | 340 | W03007K05M020 | 120079-0226 | 21, 83 |
| TBDCO-862N-804 | 112098-5004 | 383 | TCDEI-8DON-DYU | 112095-5012 | 340 | W03007P03M020 | 120020-0002 | 83 |
| TBDCO-862P-804 | 112098-5005 | 383 | TCDEI-8DOP-D1U | 112095-5007 | 340 | W04000A09M020 | 120079-0164 | 20 |
| TBDCO-880N-804 | 112098-5006 | 383 | TCDEI-8DOP-DYU | 112095-5016 | 340 | W04000E03M020 | 120079-0266 | 82 |
| TBDCO-880P-804 | 112098-5007 | 383 | TCDEI-8YXX-D1U | 112095-5011 | 340 | W04000H09M020 | 120079-8054 | 82 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> | <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|--------------|------------------------|------------------|------------------|------------------------|------------------|--------------|
| W04000K05M020 | 120079-0149 | 20, 82 | WA4007-31 | 120085-0007 | 27, 89 | WW3032H09M010 | 120080-8029 | 85 |
| W04000P03M020 | 120079-8012 | 82 | WA5000-31 | 120085-0012 | 27, 89 | WW3032K05M010 | 120080-0281 | 23, 85 |
| W04001A09M020 | 120079-0232 | 20 | WA5000-32 | 120085-0014 | 27, 89, 286, 329 | WW3032P03M010 | 120080-5063 | 85 |
| W04001E03M020 | 120079-0269 | 82 | WA5001-31 | 120085-0016 | 27, 89 | WW3033A09M010 | 120080-0351 | 23 |
| W04001H09M020 | 120079-8051 | 82 | WA5006-31 | 120085-0004 | 27, 89 | WW3033E03M010 | 120080-5064 | 85 |
| W04001K05M020 | 120079-0221 | 20, 82 | WA5006-32 | 120085-0006 | 27, 89, 286, 329 | WW3033H09M010 | 120080-8025 | 85 |
| W04001P03M020 | 120079-8013 | 82 | WA5007-31 | 120085-0008 | 27, 89 | WW3033K05M010 | 120080-0364 | 23, 85 |
| W04006A09M020 | 120079-0107 | 21 | WR4000A18C300 | 120084-0007 | 25 | WW3033P03M010 | 120080-5065 | 85 |
| W04006E03M020 | 120079-0263 | 83 | WR4006A18C300 | 120084-0008 | 26 | WW4030A09M010 | 120080-0403 | 22 |
| W04006H09M020 | 120079-8053 | 83 | WR4J20E03C3003 | 120084-5154 | 87 | WW4030E03M010 | 120080-0469 | 84 |
| W04006K05M020 | 120079-0156 | 21, 83 | WR4J26E03C3003 | 120084-5103 | 88 | WW4030H09M010 | 120080-8031 | 84 |
| W04006P03M020 | 120079-8006 | 83 | WR4U20E03C3003 | 120084-5107 | 87 | WW4030K05M010 | 120080-0417 | 22, 84 |
| W04007A09M020 | 120079-0187 | 21 | WR4U26E03C3003 | 120084-5108 | 88 | WW4030P03M010 | 120080-5045 | 84 |
| W04007E03M020 | 120079-5108 | 83 | WR4W400003 | 120084-5175 | 25, 87 | WW4031A09M010 | 120080-0337 | 22 |
| W04007H09M020 | 120079-8052 | 83 | WR4W40E03C3003 | 120084-5189 | 87 | WW4031E03M010 | 120080-5066 | 84 |
| W04007K05M020 | 120079-0192 | 21, 83 | WR4W460003 | 120084-5180 | 26, 88 | WW4031H09M010 | 120080-8027 | 84 |
| W04007P03M020 | 120079-5109 | 83 | WR4W46E003C3003 | 120084-5183 | 88 | WW4031K05M010 | 120080-0300 | 22, 84 |
| W05000A09M020 | 120079-0109 | 20, 283, 323 | WR5000A18A120 | 120084-0016 | 285, 327 | WW4031P03M010 | 120080-5067 | 84 |
| W05000E03M020 | 120079-0277 | 82, 325 | WR5000A18C300 | 120084-0016 | 25 | WW4032A09M010 | 120080-0347 | 23 |
| W05000H09M020 | 120079-8045 | 82 | WR5006A18C300 | 120084-0017 | 26 | WW4032E03M010 | 120080-5068 | 85 |
| W05000P03M020 | 120079-5110 | 82 | WR5J20E03C3003 | 120084-5159 | 87, 328 | WW4032H09M010 | 120080-8036 | 85 |
| W05001A09M020 | 120079-0223 | 20, 283, 323 | WR5J26E03C3003 | 120084-5109 | 88 | WW4032K05M010 | 120080-0306 | 23, 85 |
| W05001E03M020 | 120079-0281 | 82, 325 | WR5U20E03C3003 | 120084-5113 | 87 | WW4032P03M010 | 120080-5069 | 85 |
| W05001H09M020 | 120079-8048 | 82 | WR5U26E03C3003 | 120025-0007 | 88 | WW4033A09M010 | 120080-0391 | 23 |
| W05001P03M020 | 120079-5088 | 82 | WR5W400003 | 120084-5179 | 25, 87 | WW4033E03M010 | 120080-5070 | 85 |
| W05006A09M020 | 120079-0092 | 21 | WR5W40E03C3003 | 120084-5190 | 87 | WW4033H09M010 | 120080-8037 | 85 |
| W05006E03M020 | 120079-0273 | 83 | WR5W460003 | 120084-5181 | 26, 88 | WW4033K05M010 | 120080-0396 | 23, 85 |
| W05006H09M020 | 120079-8046 | 83 | WR5W46E03C3003 | 120084-5185 | 88 | WW4033P03M010 | 120080-5071 | 85 |
| W05006P03M020 | 120079-5055 | 83 | WR8U20E02C3003 | 120084-5095 | 25, 87 | WW4A30A09M003 | 120080-0001 | 28 |
| W05007A09M020 | 120079-0239 | 21 | WR8U26E02C3003 | 120084-5096 | 26, 88 | WW4A30E03M003 | 120080-5072 | 90 |
| W05007E03M020 | 120079-5111 | 83 | WR8W400003 | 120084-0048 | 25, 87 | WW4A30H09M003 | 120080-8048 | 90 |
| W05007H09M020 | 120079-8050 | 83 | WR8W40E02C300 | 120084-5191 | 25, 87 | WW4A30K05M003 | 120080-0081 | 28, 90 |
| W05007P03M020 | 120079-5112 | 83 | WR8W460003 | 120084-0047 | 26, 88 | WW4A30P03M003 | 120080-5073 | 90 |
| W08000H08M020 | 120079-5023 | 82 | WR8W46E02C300 | 120084-5187 | 26, 88 | WW4A31A09M003 | 120080-0005 | 28 |
| W08000P02M020 | 120079-5113 | 20, 82 | WRCU20E01C3003 | 120084-5013 | 25, 87 | WW4A31E03M003 | 120080-5074 | 90 |
| W08001H08M020 | 120079-8043 | 82 | WRCU26E01C3003 | 120084-5015 | 26, 88 | WW4A31H09M003 | 120080-8049 | 90 |
| W08001P02M020 | 120079-5114 | 20, 82 | WRCW400003 | 120084-5176 | 25, 87 | WW4A31K05M003 | 120080-0089 | 28, 90 |
| W08006H08M020 | 120079-5026 | 83 | WRCW40E01C300 | 120084-5192 | 25, 87 | WW4A31P03M003 | 120080-5075 | 90 |
| W08006P02M020 | 120079-5115 | 21, 83 | WRCW460003 | 120084-5182 | 26, 88 | WW5030A09M010 | 120080-0325 | 22, 284, 324 |
| W08007H08M020 | 120079-8044 | 83 | WRCW46E01C300 | 120084-5188 | 26, 88 | WW5030E03M010 | 120080-5076 | 84, 326 |
| W08007P02M020 | 120079-5116 | 21, 83 | WW3030A09M010 | 120080-0276 | 22 | WW5030H09M010 | 120080-8039 | 84 |
| W08500P19M020 | 120079-5029 | 24, 86 | WW3030E03M010 | 120080-5058 | 84 | WW5030P03M010 | 120080-5050 | 84 |
| W08506P19M020 | 120079-5033 | 24, 86 | WW3030H09M010 | 120080-8026 | 84 | WW5031A09M010 | 120080-0382 | 22 |
| W0C000H45M020 | 120079-5001 | 20, 82 | WW3030K05M010 | 120080-0414 | 22, 84 | WW5031E03M010 | 120080-5077 | 84 |
| W0C001H45M020 | 120079-5117 | 20, 82 | WW3030P03M010 | 120080-5059 | 84 | WW5031H09M010 | 120080-8028 | 84 |
| W0C006H45M020 | 120079-5006 | 21, 83 | WW3031A09M010 | 120080-0429 | 22 | WW5031P03M010 | 120080-5078 | 84 |
| W0C007H45M020 | 120079-5118 | 21, 83 | WW3031E03M010 | 120080-5060 | 84 | WW5032A09M010 | 120080-0378 | 23 |
| W0C500P45M020 | 120083-5010 | 24, 86 | WW3031H09M010 | 120080-8030 | 84 | WW5032E03M010 | 120080-5079 | 85 |
| W0C506P45M020 | 120083-5015 | 24, 86 | WW3031K05M010 | 120080-0286 | 22, 84 | WW5032H09M010 | 120080-8038 | 85 |
| WA4000-31 | 120085-0011 | 27, 89 | WW3031P03M010 | 120080-5061 | 84 | WW5032P03M010 | 120080-5080 | 85 |
| WA4000-32 | 120085-0013 | 27, 89 | WW3032A09M010 | 120080-0419 | 23 | WW5033A09M010 | 120080-0431 | 23, 284, 324 |
| WA4001-31 | 120085-0015 | 27, 89 | WW3032E03M010 | 120080-5062 | 85 | WW5033E03M010 | 120080-5081 | 85, 326 |
| WA4006-31 | 120085-0003 | 27, 89 | | | | WW5033H09M010 | 120080-8040 | 85 |
| WA4006-32 | 120085-0005 | 27, 89 | | | | WW5033P03M010 | 120080-5082 | 85 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

Engineering No. Index

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|
| WW8030H08M010 | 120080-8033 | 84 |
| WW8030P02M010 | 120080-5083 | 22, 84 |
| WW8031H08M010 | 120080-8034 | 84 |
| WW8031P02M010 | 120080-5084 | 22, 84 |
| WW8032H08M010 | 120080-8035 | 85 |
| WW8032P02M010 | 120080-5085 | 23, 85 |
| WW8033H08M010 | 120080-8032 | 85 |
| WW8033P02M010 | 120080-5086 | 23, 85 |
| WW8530P19M010 | 120083-5183 | 24, 86 |
| WWC030H45M010 | 120080-5088 | 22, 84 |
| WWC031H45M010 | 120080-5089 | 22, 84 |
| WWC032H45M010 | 120080-5090 | 23, 85 |
| WWC033H45M010 | 120080-5023 | 23, 85 |
| WWCS30P45M010 | 120083-5044 | 24, 86 |
| 84586-0017 | | 393 |
| 84586-0018 | | 392 |
| 84586-0019 | | 392 |
| 84695-9095 | | 386 |
| 84700-0001 | | 358 |
| 84700-0002 | | 359 |
| 84700-0003 | | 359 |
| 84700-0003 | | 407 |
| 84702-0005 | | 358 |
| 84702-0006 | | 358 |
| 84702-0007 | | 358 |
| 84702-0008 | | 358 |
| 84702-0009 | | 358 |
| 84702-1003 | | 356 |
| 84702-1006 | | 356 |
| 84702-1010 | | 356 |
| 84702-1020 | | 356 |
| 84702-2003 | | 357 |
| 84702-2007 | | 357 |
| 84702-2010 | | 357 |
| 84702-2012 | | 357 |
| 84702-2015 | | 357 |
| 84702-2020 | | 357 |
| 84702-2021 | | 357 |
| 84702-3020 | | 355 |
| 84727-1001 | | 404 |
| 84727-1002 | | 404 |
| 84727-1003 | | 404 |
| 84727-1004 | | 404 |
| 84727-1005 | | 404 |
| 84728-1001 | | 405 |
| 84728-1002 | | 405 |
| 84728-1003 | | 405 |
| 84728-1004 | | 405 |
| 84728-1005 | | 405 |
| 84729-0001 | | 406 |
| 84729-0003 | | 405 |
| 84729-0004 | | 405 |
| 84729-0005 | | 405 |
| 84729-0006 | | 405 |

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|
| 84729-0007 | | 405 |
| 84729-0008 | | 405 |
| 84729-0009 | | 406 |
| 84730-0010 | | 406 |
| 84732-0001 | | 404 |
| 84732-0002 | | 404 |
| 84732-0003 | | 404 |
| 84732-0004 | | 404 |
| 84732-0005 | | 404 |
| 84854-6034 | | 389 |
| 84854-6035 | | 389 |
| 84854-6036 | | 389 |
| 84854-6037 | | 389 |
| 84854-6038 | | 389 |
| 84854-6039 | | 389 |
| 84854-6041 | | 389 |
| 84854-6042 | | 389 |
| 84854-6043 | | 389 |
| 84854-6044 | | 389 |
| 84854-6055 | | 389 |
| 84854-7021 | | 387 |
| 84854-7022 | | 387 |
| 84854-7023 | | 387 |
| 84854-7024 | | 387 |
| 84854-7025 | | 387 |
| 84854-7026 | | 387 |
| 84854-7027 | | 387 |
| 84854-7028 | | 387 |
| 84854-7029 | | 387 |
| 84854-7030 | | 387 |
| 84854-7031 | | 387 |
| 84854-8021 | | 388 |
| 84854-8022 | | 388 |
| 84854-8023 | | 388 |
| 84854-8024 | | 388 |
| 84854-8025 | | 388 |
| 84854-8026 | | 388 |
| 84854-8027 | | 388 |
| 84854-8028 | | 388 |
| 84854-8029 | | 388 |
| 84854-8030 | | 388 |
| 84854-8031 | | 388 |
| 84854-9019 | | 402 |
| 84854-9300 | | 402 |
| 84854-9316 | | 386 |
| 84854-9319 | | 392 |
| 84856-1200 | | 396 |
| 84856-1201 | | 396 |
| 84856-1202 | | 396 |
| 84856-1203 | | 396 |
| 84856-1204 | | 396 |
| 84856-1205 | | 396 |
| 84856-1206 | | 396 |
| 84856-1207 | | 396 |

| <i>Engineering No.</i> | <i>Order No.</i> | <i>Page</i> |
|------------------------|------------------|-------------|
| 84856-1208 | | 396 |
| 84856-1209 | | 396 |
| 84856-1210 | | 396 |
| 84856-9101 | | 397 |
| 84856-9102 | | 397 |
| 84856-9103 | | 402 |
| 84856-9104 | | 399 |
| 84856-9105 | | 399 |
| 84856-9106 | | 402 |
| 84856-9107 | | 402 |
| 84856-9108 | | 398 |
| 84856-9109 | | 398 |
| 84856-9110 | | 398 |
| 84856-9111 | | 398 |
| 84856-9112 | | 400 |
| 84856-9113 | | 401 |
| 84856-9114 | | 401 |
| 84856-9115 | | 401 |
| 84859-9001 | | 395 |
| 84859-9002 | | 395 |
| 84859-9003 | | 395 |
| 84859-9004 | | 395 |
| 84863-9001 | | 394 |
| 84863-9002 | | 394 |
| 84863-9003 | | 394 |
| 84864-9001 | | 390 |
| 84864-9002 | | 390 |
| 84864-9003 | | 390 |
| 84864-9004 | | 390 |
| 84864-9005 | | 390 |
| 84864-9006 | | 390 |

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

All trademarks used herein are the property of their respective owners. Reference to any non-Molex trademarks is not intended to claim any endorsement or association between Molex and the respective trademark owners, and should not be construed.

www.molex.com/automation.html

Brad by Molex Distributed by Gross Automation. | +1 (262) 252-1600 or email sales@grossautomation.com.

molex[®]
one company › a world of innovation