

# Delivering Connectivity Empowering Industries

## Full Selection Guide



Energy

Marine

Infrastructure

Manufacturing

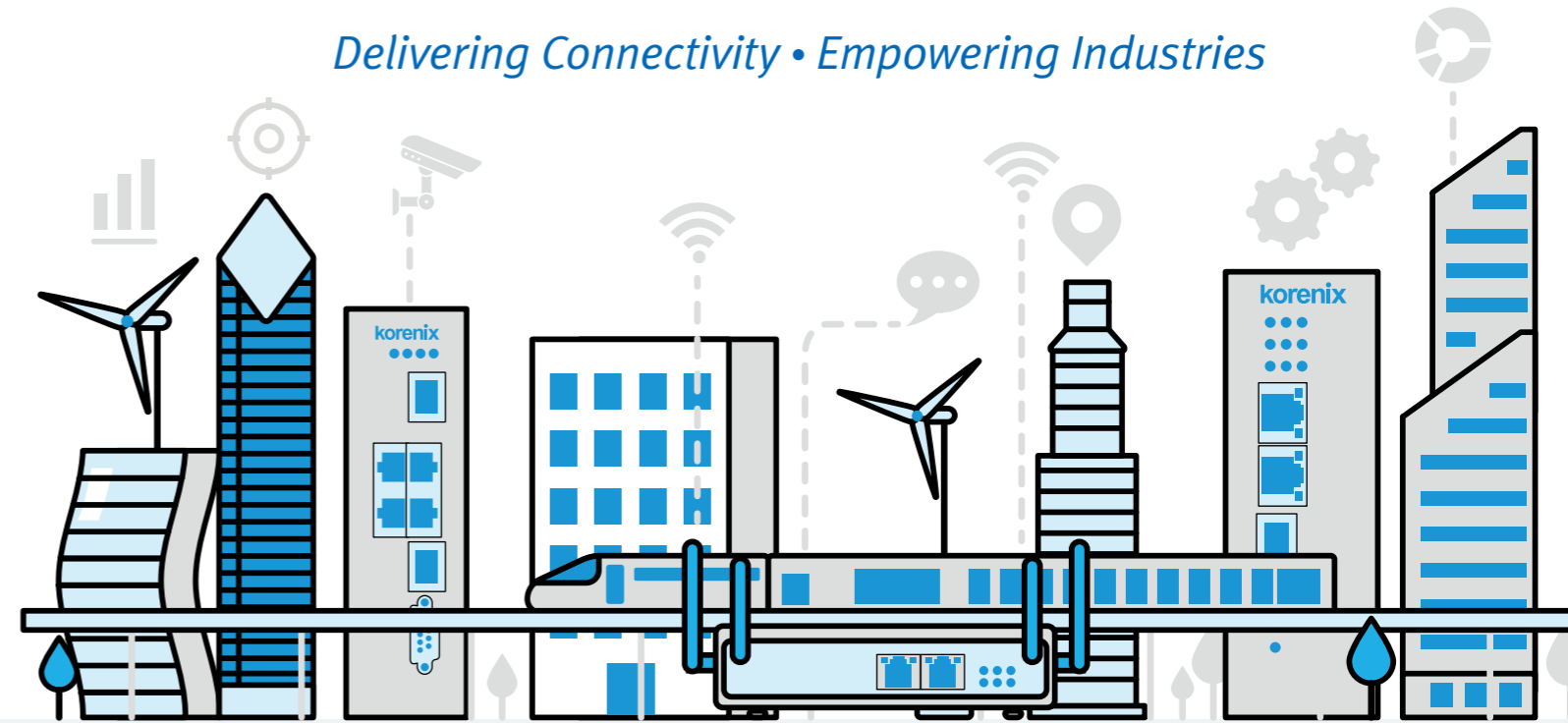
**Beijer**  
ELECTRONICS

*People & Technology. Connected.*

Beijer Electronics Proudly Distributed by Gross Automation.  
Please call +1 (262) 252-1600 or email [sales@grossautomation.com](mailto:sales@grossautomation.com).

# About Us

Delivering Connectivity • Empowering Industries



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Digitalization is a driver for business across most industries, but it can be challenging. Together with you, we want to make it easier. To achieve this, Korenix and Beijer Electronics have joined forces combining our expertise and competence. As one company, connecting people and technology, we help you drive success.

With decades of expertise in the automation and networking field, we have accumulated abundant experience in wired and wireless network communications industries all around the world and has achieved reliable network solutions for mission-critical applications. Beijer Electronics also establishes seamlessly converged OT/IT connectivity for the industrial digital transformation, and to achieve a connected IIoT future, we deploy robust and designed wire and wireless network backbone in industrial automation, vehicle, power substations, smart city, smart manufacturing, and etc.

### Enabling connectivity in automation network and critical environment

Network connections in factories and smart cities are crucial. A reliable network system requires collecting data from the OT side transferring to the control room or even the cloud seamlessly. Allowing cross-system collaboration and integration with open standards and technologies is also important, for networks and connection in automation are getting complex.

Our industrial data communication provides secure and reliable networks that connects different standard, machinery and improves the cybersecurity, productivity and efficiency in various industries. Our target markets include automation network, Surveillance/ IT, Vehicle/ ITS/ smart city, power & energy and wireless IoT.

### Our industrial network infrastructure

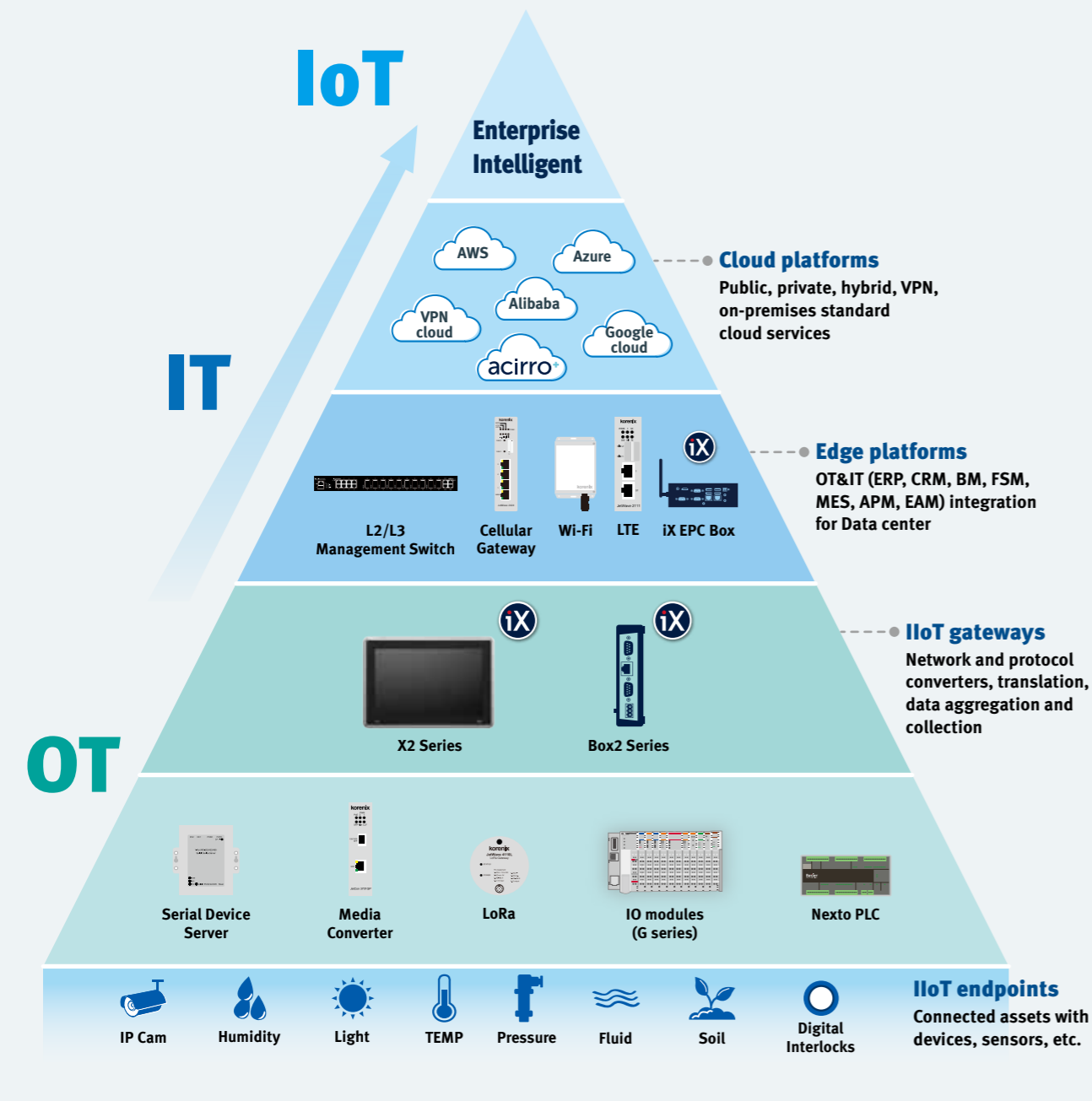
- Industrial Ethernet/ Power-over-Ethernet Switch: Rackmount, Wall-mount, Din-Rail, Managed, Unmanaged
- Industrial Wireless & Cellular Solution: LAN Access Point, WLAN Controller, Mobile Cellular Router/Gateway
- Industrial Media Converter: Ethernet, Serial, Fiber, PoE Injector
- Comprehensive cyber security functionality including TACACS+, IEEE802.1X, IP source guard, ACL etc
- Ethernet SFP/SFP+ Fiber Transceiver: 100M, 1000M, 10G

# About Industrial Communication & Digitalization

## Providing secure connectivity and integrated solutions for cross industry application

We provide a full range of industrial data communications products, including Industrial Ethernet/ Power-over-Ethernet Switch, Wireless & Cellular Solution, media converters, Industrial Computer, modbus gateway and network management software. The machineries allow secure data transmission, remote monitoring and while our software allows remote controlling network services on PC and mobile, providing in-time management and improving efficiency. Meeting different standards, such as EN 50155, IEC 61850-3, E-Mark certificate, our industrial data communications solutions can fit in different applications.

We have completed IoT construction across different protocols through IT, edge gateway, OT and cloud to fulfill the digitalization and visualization in the industries, so as to enhance efficiency and productivity.



## Our Technologies

Reliable data communication is critical for device connection in machine to machine(M2M) and information transmission. With decades of experience in the industrial network industry, We have successful applications in different segments. For manufacturing, we have various solutions in automation and wireless solutions for facility and environment. While in the infrastructure and building segment, we have also achieved worldwide solutions in surveillance and IT; vehicle, intelligent transportation system (ITS) and smart city; power & energy and smart grid.

### High Flexibility with open network and protocol standard

To provide open and flexible solutions, all our devices follow the network and protocols open standard. Compliant with open standard protocol, our solutions have the advantages of fewer limitations, higher interoperability and more choices and variety. Our devices helps users to not fix in a specific technology or vendor and therefore creating applications that are more functional and interoperable.

### Modular design for speedy customization

We design, develop and manufacture our hardware and software, all of which have a modular design. Thus, they are designed with high flexibility for on demand customization. Quality and speedy software customization reduces engineering time for our system integrators and OEMs in time to market purpose. The hardware design is industrial grade, it is able to operate in extreme conditions such as extreme temperatures, high levels of shock and vibration.

### Complete and rich wire and wireless product line

In system architecture, our product lines cover both of wired and wireless solutions. For industrial ethernet switch, we provide solution from unmanaged, L2 to L3; Din-Rail to Rackmount; PoE up to 90W; certifications for different applications. For wireless solution, a rich solution including 5G, 4G/LTE, Wi-Fi and LoRa is provided. Our total solutions in the data communications area can fulfill the users' requirement in typical industrial communications and wireless IoT network connectivity.

Beijer Electronics offers rich technology competence for communication and digitalization in our group. There are many successful experiences of real applications with our effective solutions. We wish to work together with our partners to share our knowledge and use cases for business development and and create innovative and reliable solutions for our customers.

### Our main segments

**Manufacturing**

Match the requirements of machine builders and plant owners with flexible solutions on new machines or retrofit of existing ones.

**Energy**

Support the ongoing transition to sustainable energy sources with new open technologies, products and software.

**Infrastructure**

Provide secure technological solutions for critical infrastructure assets and public transport.

**Marine**

Create fully certified solutions with dedicated marine features, great iX graphics and integrated CODESYS PLC functionality.



# Key Features – Cyber Security

The trends of Internet of things (IoT) and Industrial 4.0 brings more devices to be connected to networks. Security issues and hack attacks become even more critical nowadays. Our developed “Cyber Security” provides the features below.



## Network Level Defense

- DHCP Snooping
- Dynamic ARP Inspection
- IP Source Guard

## Traffic Level Defense

- L3/L4 ACL block untrusted traffic from a trusted device

## Device Level Defense

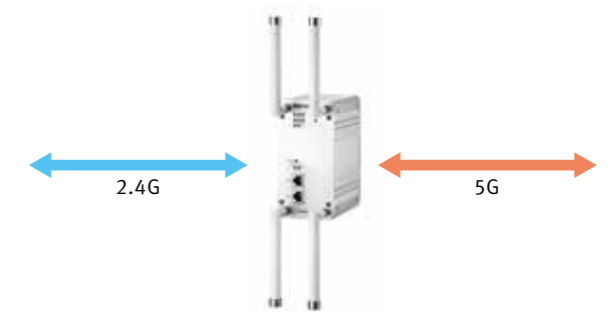
- L2 ACL identifies and authorizes a device
- Only trusted devices can access the network

Function	Application	Benefits
<b>DHCP Snooping</b>	Ensure clients obtain IP from authorized server	Preventing unauthorized DHCP attack
<b>Dynamic ARP Inspection (DAI)</b>	Binding IP + MAC on devices	Only authorized devices can access into the network
<b>IP Source Guard (IPSG)</b>	Validates incoming packets	Prevents IP address spoofing
<b>Multi-Level Authentication</b>	Different levels users' authentication	Different privileges according to different levels
<b>TACACS+</b>	Remote authentication for network access control	One-time authentication on devices, higher security

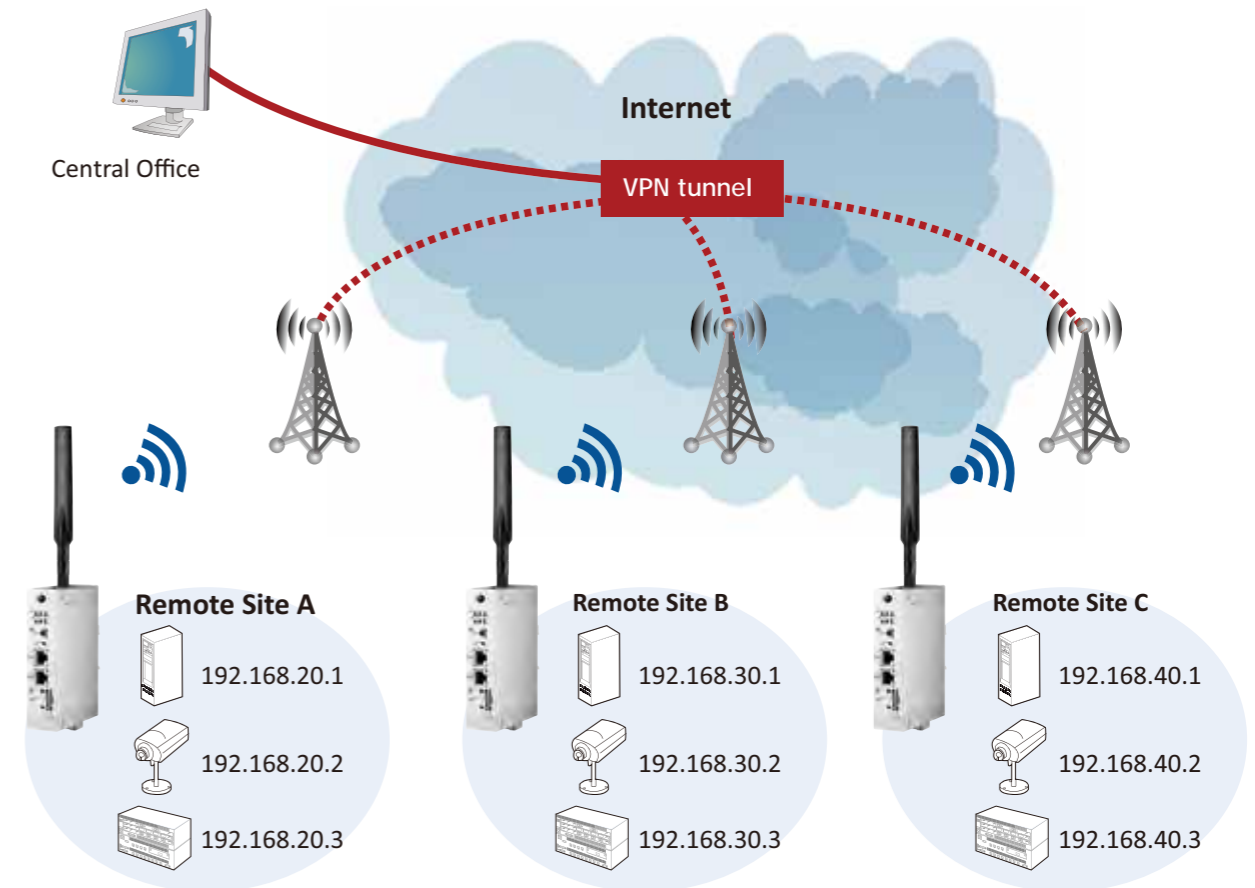
# Key Features – Dual Radio Connectivity

## Dual Radios for Wireless Connectivity

JetWave 3220 supports two Wifi interfaces that can be configured as 802.11a/b/g/n/ac and 2.4G/5G band. By connecting the two Wifi interfaces at the same time, it enhances the flexible connection quantity and supports more bandwidth and data flow for the user application.



**VPN (Virtual Private Network)** extends a private network across a public network as if it were directly connected to the private network. It provides security by the use of tunneling protocol and often through procedures such as encryption.



# Automation Network

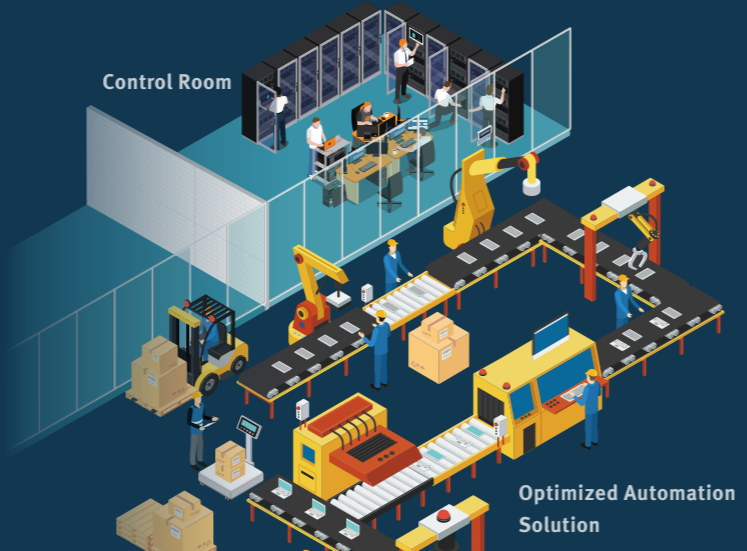
Increasing automation in the process industry is producing considerably more data and necessitating end-to-end communication down to the field level. As a result, secure and reliable industrial communication networks are essential. Our variable ethernet switch series provides flexible solutions from Din rail in control cabinet to managed switch for critical network, our robust solution fulfills the special requirements of the process industry.

## Form Factor

- DIN rail mounting type for control cabinet installation
- Heavy Industrial EMC certified

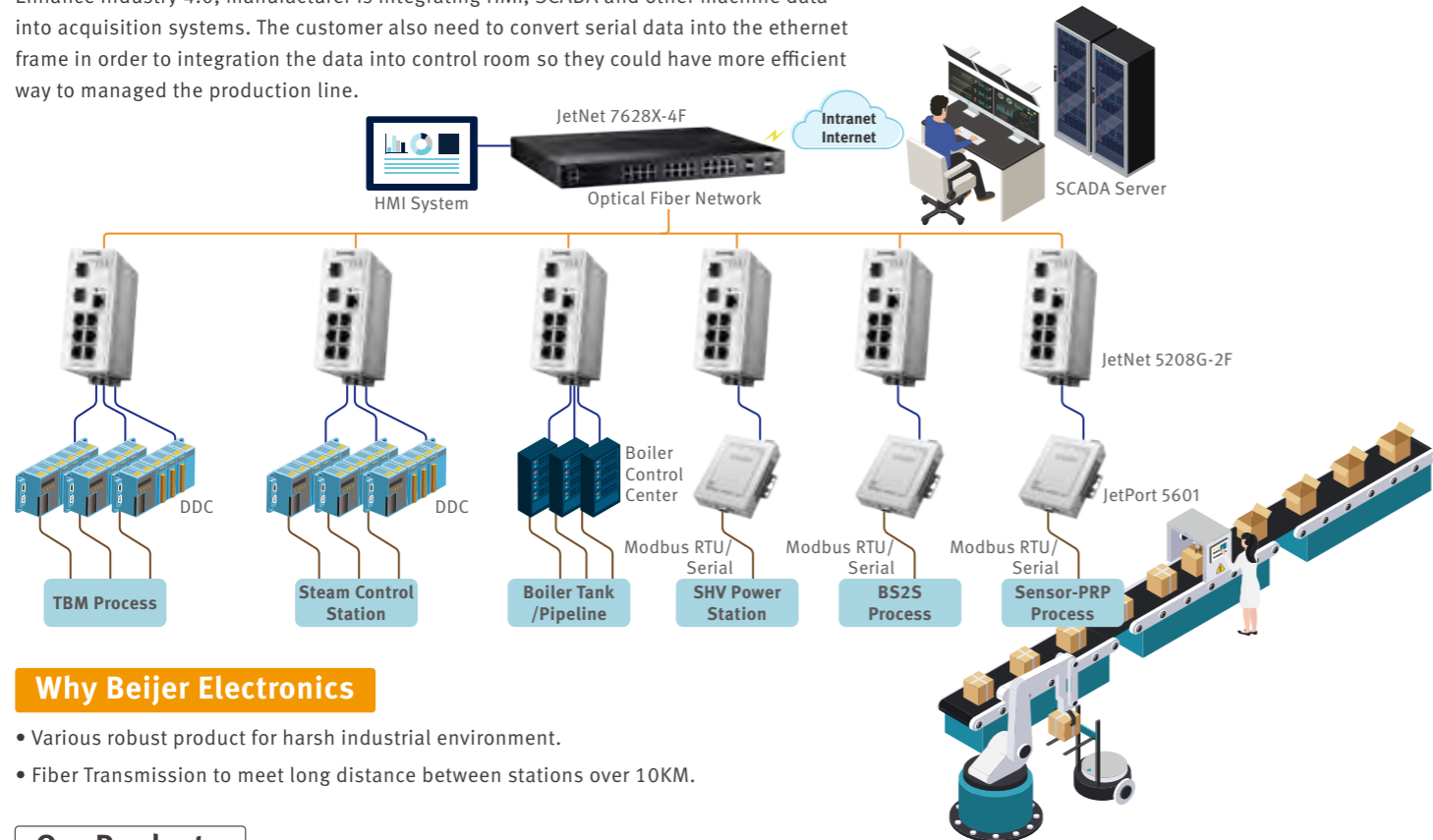
## Solution Requirement

- Industrial Ethernet for control network – JetNet DIN Rail series
  - » Unmanaged Switch for general purpose controller network
  - » Managed Switch for critical network (primary control network & control redundant network infrastructure)
- Device Server for Serial to Ethernet – JetPort



## Optimized Automation Solution

Enhance industry 4.0, manufacturer is integrating HMI, SCADA and other machine data into acquisition systems. The customer also need to convert serial data into the ethernet frame in order to integration the data into control room so they could have more efficient way to managed the production line.



### Why Beijer Electronics

- Various robust product for harsh industrial environment.
- Fiber Transmission to meet long distance between stations over 10KM.

### Our Products



**JetNet 7628X-4F**  
Industrial 28G Full Gigabit with 4\*10G SFP L3 Managed Ethernet Switch



**JetNet 5208G-2F**  
Industrial Managed Ethernet Switch

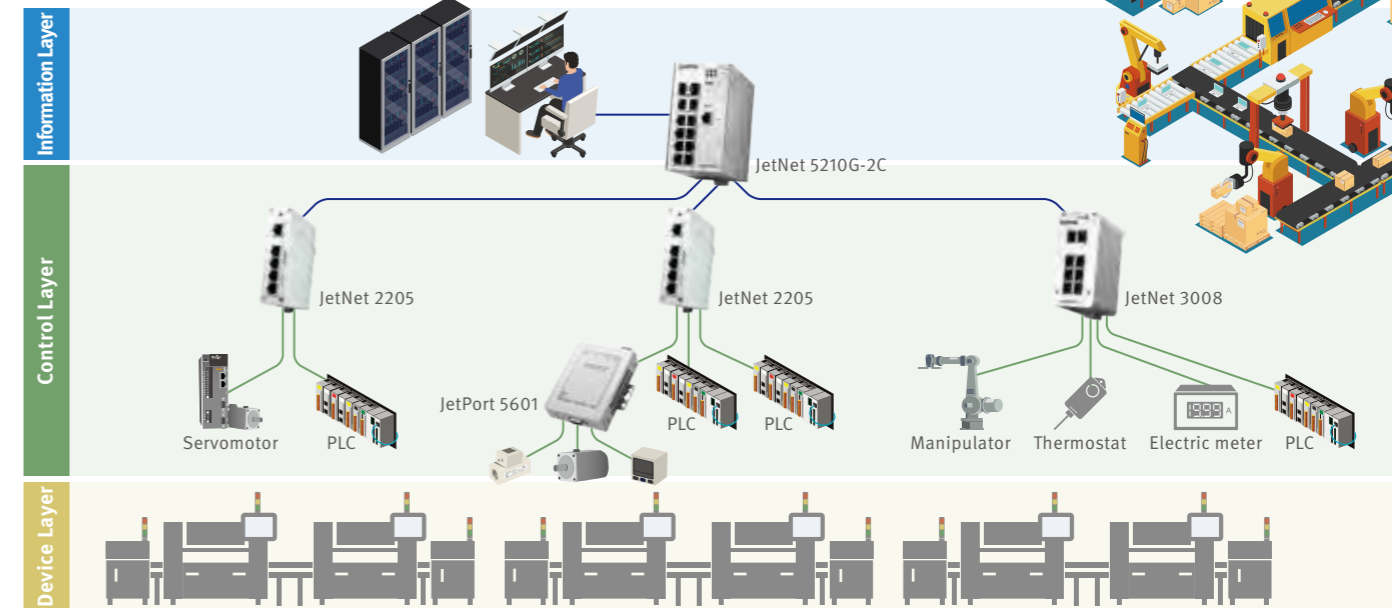


**JetPort 5601**  
1-port RS-232/422/485 Serial Device Server

## Control Room & Network Backbone System

More digital management in factory each function such as quality, equipment life cycle, alarm management, the more requirement in acquisition the machine data.

To achieve the above goal, the related machine data will be collected and transfer to the control room. With the various switch in ports, speed, wire or wireless, we could provide diversity industrial switch.



### Why Beijer Electronics

- Various robust product for harsh industrial environment.
- Fiber Transmission to meet long distance between stations over 10KM

### Our Products



**JetNet 2205**  
Industrial 5-port Compact Fast Ethernet Switch



**JetNet 3008**  
Industrial 8-port Fast Ethernet Switch



**JetNet 5210G-2C**  
Industrial 8G RJ-45 + 2G Combo Managed Ethernet Switch



**JetPort 5601**  
1-port RS-232/422/485 Serial Device Server

## Control Room & Network Backbone System Why Beijer Electronics

With the increased adoption of Industry 4.0, more devices in the control cabinet require ethernet-based communication. This resulted in the rise in numbers of network switches being installed in control cabinets.

Due to the nature of the devices that are usually present in the control cabinets, such as Programmable Logic Controller(s) (PLCs) or Variable Frequency Drive(s) (VFDs), switches that are installed in such cabinets are required to have high electronic magnetic immunity (EMI).

### Why Beijer Electronics

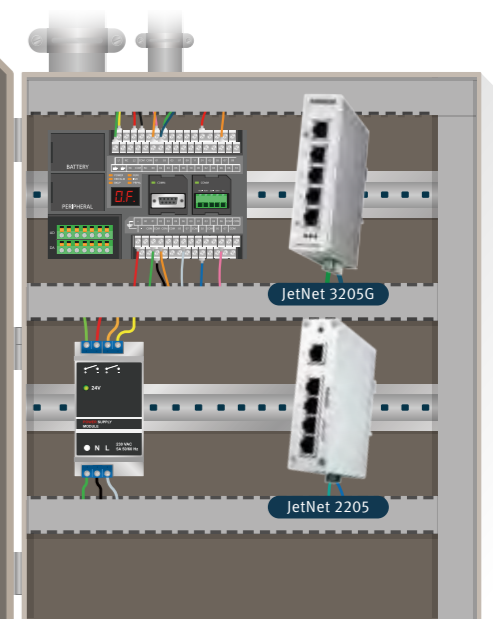
- Compact size to fit in the limited space on the cabinet.
- Meeting heavy industrial standard: IEC61000-6-2/-6-4 which allows the switch to work smoothly in the harsh environment.



**JetNet 3205G**  
Industrial 5-port Gigabit Ethernet Switch



**JetNet 2205**  
Industrial 5-port Compact Fast Ethernet Switch





# Surveillance & IT

The central monitoring system integrates real-time video with notification systems. These technologies can enhance environmental safety, reduce residents' complaints, and improve living quality effectively.

The Data Center needs the high bandwidth for the video and data transmissions. The backup and the minimize of the downtime are the key points of the reliability and stability in data translation.

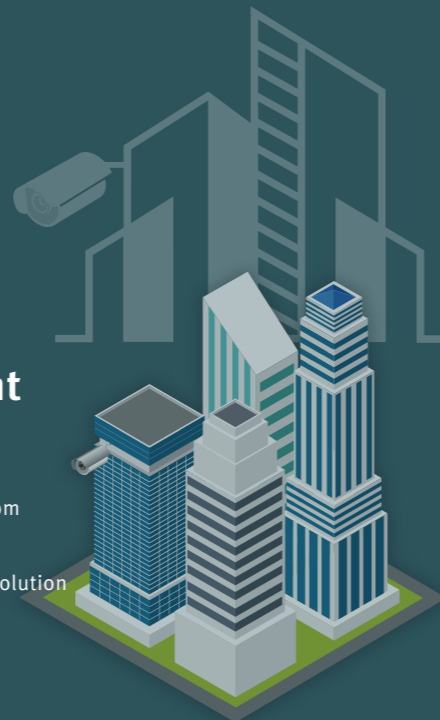
## Form Factor

- Rack in main control room & IT backend infrastructure: 19" rackmount type switch
- Surveillance camera connection: DIN rail or rackmount with PoE solution



## Solution Requirement

- Surveillance/IT ethernet infrastructure: JetNet rackmount, PoE series
- JetNet rackmount for IT/main control room
- PoE solution for camera connection
- High speed: Up to 10G for IT backbone solution



## Fast Recovery within Surveillance Monitoring

Our surveillance solution can provide outdoor and long-distance surveillance data transmission. With the Multiple Super Ring (MSR), network recovery time is less than 50ms, securing real-time and unstoppable data. Also, the multiple SFP ports can support massive video and long-distance data transmission from the camera, providing a reliable surveillance system.

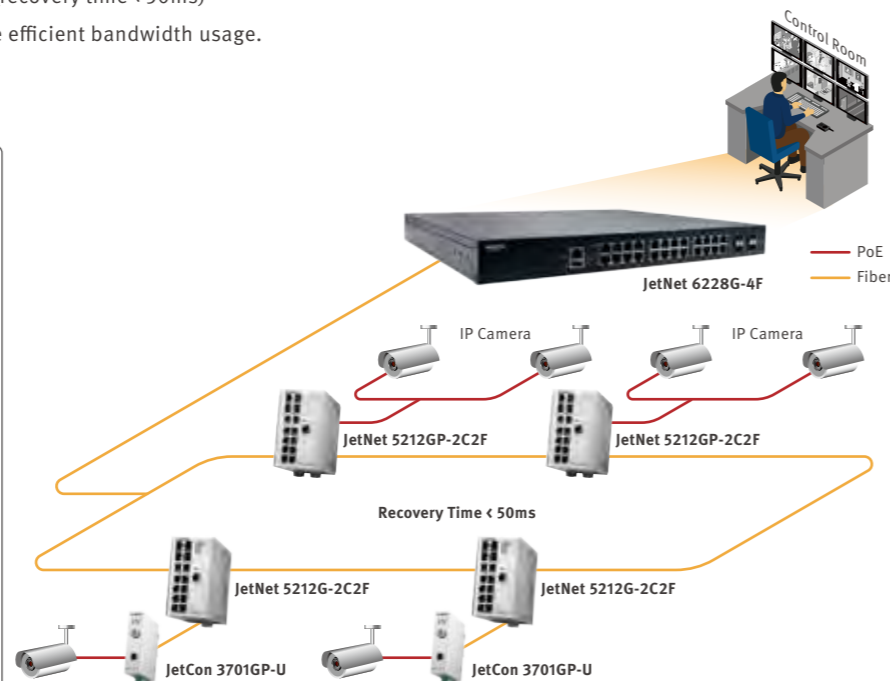


## Why Beijer Electronics

- Provides multiple ports for uplink solution to support massive video and data transmissions.
- ITU-T G.8032 ERPS to minimize network downtime (recovery time < 50ms)
- Supports IGMP snooping and tagged VLAN for more efficient bandwidth usage.

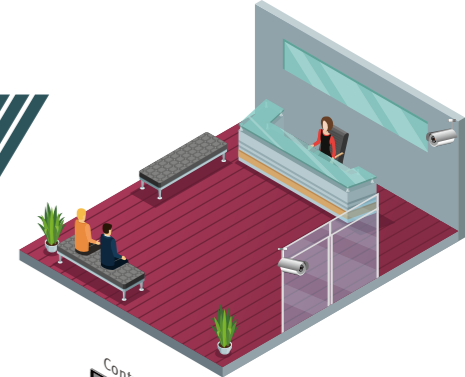
## Our Products

- JetNet 6228G-4F**  
Industrial 28G Full Gigabit with 4\* SFP L2 Managed Ethernet Switch
- JetNet 5212GP-2C2F**  
Industrial 8G RJ45 + 2G Combo + 2G SFP Managed PoE Switch
- JetNet 5212G-2C2F**  
Industrial 8G RJ45 + 2G Combo + 2G SFP Managed Ethernet Switch
- JetCon 3701GP-U**  
Industrial IEEE 802.3bt Gigabit PoE Media Converter



## Simultaneous Data Uplink and Multiple PoE Ports for IP Surveillance Camera

The JetNet 7628XP-4F are equipped with up to 24 PoE + ports and 4 10G SFP ports. The multiple PoE ports can provide power to large number of IP surveillance cameras. Moreover, the 10G SFP port allows large amounts of video and data to be transferred quickly across the network.

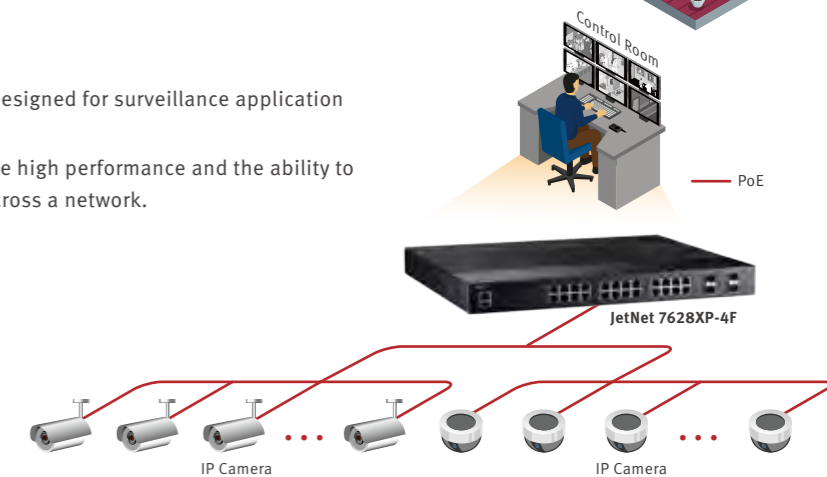


## Why Beijer Electronics

- L3 Full Gigabit Industrial PoE Plus switch and is specially designed for surveillance application that operate in extremely harsh environments.
- With full Gigabit capability, the JetNet 7628XP-4F to provide high performance and the ability to quickly transfer large amounts of video, voice, and data across a network.

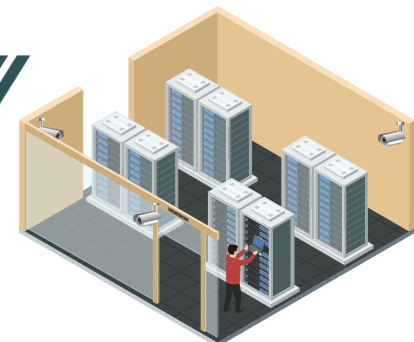
## Our Products

- JetNet 7628XP-4F**  
Industrial 28G Full Gigabit with 4\*10G SFP L3 Managed PoE Plus Ethernet Switch.



## Data Center and Data Transmission Network

The JetNet 7628X-4F provides up to 4 10G SFP+ ports for redundant ring and uplink solution to support massive video and data transmissions. With less than 50ms downtime recovery, our surveillance solution ensures reliable and stable network for data center and data transmission network.

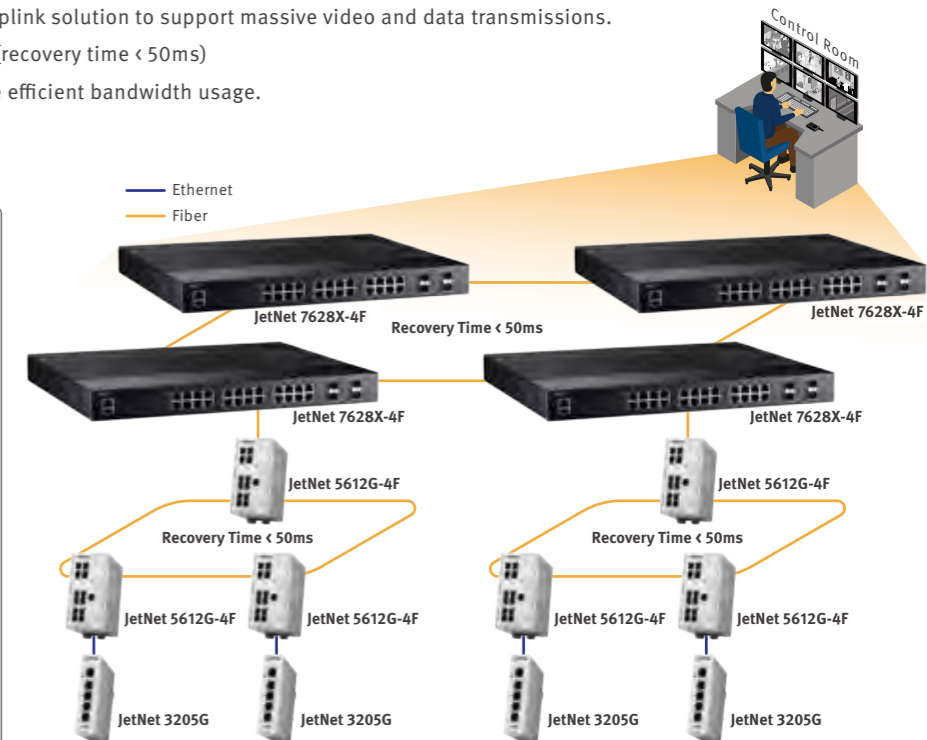


## Why Beijer Electronics

- Provides 4 10G SFP+ ports for redundant ring and uplink solution to support massive video and data transmissions.
- ITU-T G.8032 ERPS to minimize network downtime (recovery time < 50ms)
- Supports IGMP snooping and tagged VLAN for more efficient bandwidth usage.

## Our Products

- JetNet 7628X-4F**  
Industrial 28G Full Gigabit with 4\*10G SFP L3 Managed Ethernet Switch
- JetNet 5612G-4F**  
Industrial 8 ports RJ-45, 4 ports Gigabit SFP Managed Ethernet Switch
- JetNet 3205G**  
Industrial Unmanaged Gigabit Ethernet Switch





# Intelligent Bus

Bus transportation foundation is to provide efficient and convenient transportation services. A company with IoT (Internet of things) trend, will transform traditional bus to intelligent bus. The key of intelligent bus is network implementation to enable data transition, location positioning, entertainment service and so on. We provide a great variety of wired and wireless solutions to produce intelligent buses.

## Form Factor

- Wall Mounting and Din-rail for on-vehicle installation
- Easy installation with PoE



## Solution Requirement

- Industrial Ethernet for control network: JetNet Wall Mount
- M12 Connector
- PoE Port for camera connection
- E-Mark certification



## Passengers Wi-Fi Access

Onboard Wi-Fi access is key to increase the satisfaction of travelling. The bandwidth is crucial to provide service to many passengers in the same time. This can ensure passengers to keep productive and entertained while onboard.

### Why Beijer Electronics

- High-bandwidth wireless solution serve many users simultaneously.
- M12 connector Wi-Fi solution of high anti-vibration.

## Our Products Transportation Data

Real-time transportation data is the fundamental for fleet management. It can help companies improve efficiency and reduce costs. Besides, real-time transportation data can provide information for bus operators to analyze vehicle health to reduce risks.

### Why Beijer Electronics

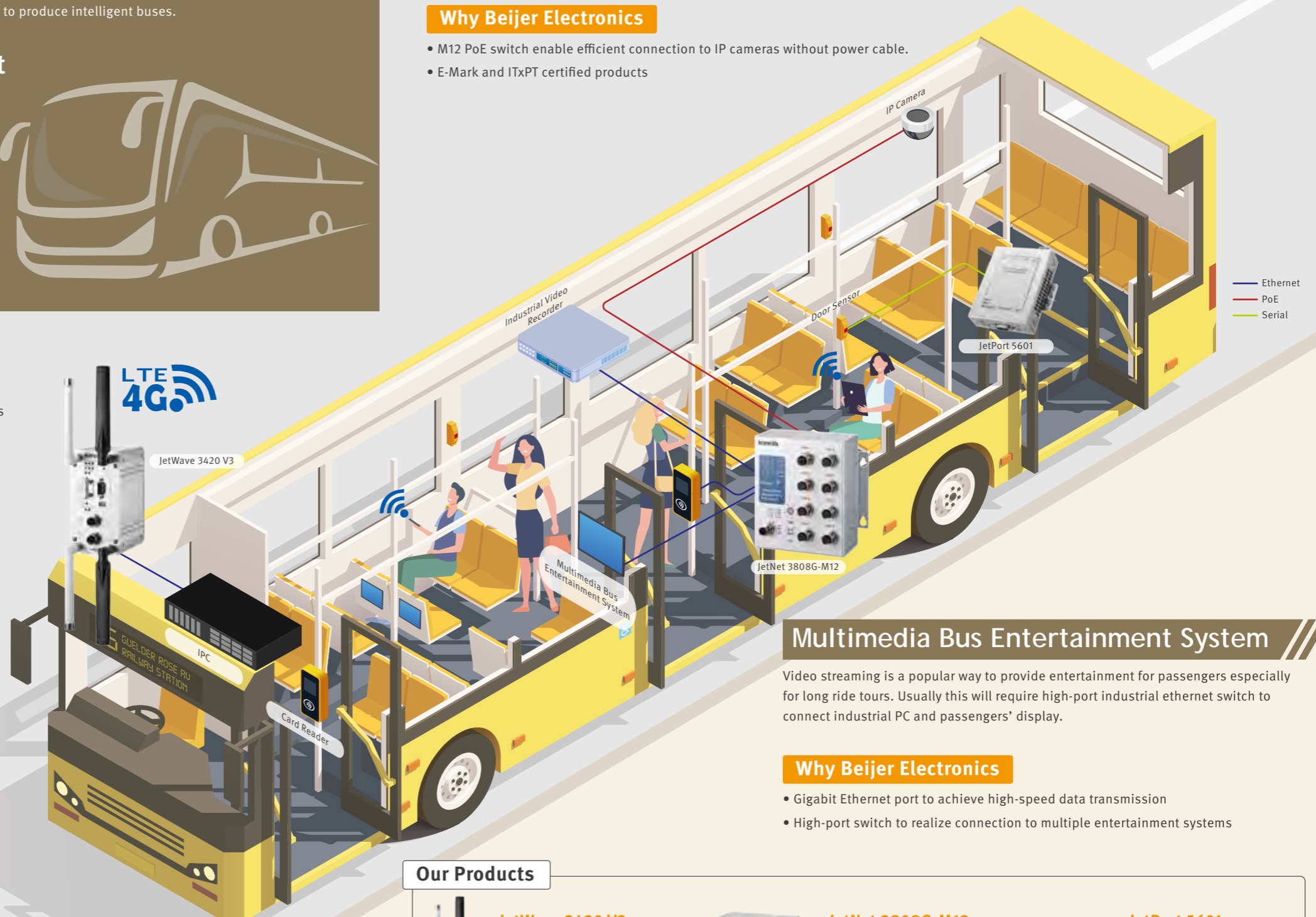
- Cellular and Wi-Fi integrated solution
- Dual-sim to enhance redundancy
- Serial to ethernet seamless transition

## Real-time Video Surveillance

As the public safety is getting more and more important nowadays, real-time video surveillance is critical to enhance passengers and vehicle safety. Given that high vibrations are produced when the bus is moving, an anti-vibration design M12 connector is needed to take into consideration.

### Why Beijer Electronics

- M12 PoE switch enable efficient connection to IP cameras without power cable.
- E-Mark and ITxPT certified products






## Multimedia Bus Entertainment System

Video streaming is a popular way to provide entertainment for passengers especially for long ride tours. Usually this will require high-port industrial ethernet switch to connect industrial PC and passengers' display.

### Why Beijer Electronics

- Gigabit Ethernet port to achieve high-speed data transmission
- High-port switch to realize connection to multiple entertainment systems

### Our Products

 <p><b>JetWave 3420 V3</b></p> <ul style="list-style-type: none"> <li>• Industrial LTE plus 802.11ac Wi-Fi Wireless IP Gateway</li> <li>• Gigabit PoE+ power input</li> </ul> <p>LTE Gateway    Wi-Fi AP</p>	 <p><b>JetNet 3808G-M12</b></p> <ul style="list-style-type: none"> <li>• Industrial Unmanaged Booster PoE Switch</li> <li>• Rugged M12 Ethernet</li> </ul> <p>EN50155    +75/-40 Wide Temp.    EN50121-4</p>	 <p><b>JetPort 5601</b></p> <ul style="list-style-type: none"> <li>• RS-232/422/485 Serial Device Server</li> <li>• Dual Ethernet Ports for Daisy Chain or RTTD</li> </ul> <p>Dual Power    RS-232/422/485    Dual Ethernet</p>
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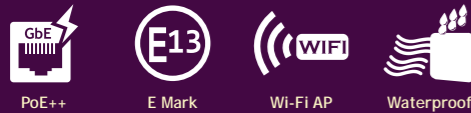


# Intelligent Transportation System & Smart City

All countries are striving to provide citizens convenience and quality of living. Intelligent transportation systems & smart cities are indispensable factors. There are a great variety of applications that can make people experience new technology benefits such as highway and airports. With leading technology and features, we provide various efficient solutions.

## Form Factor

• Din Rail mounting



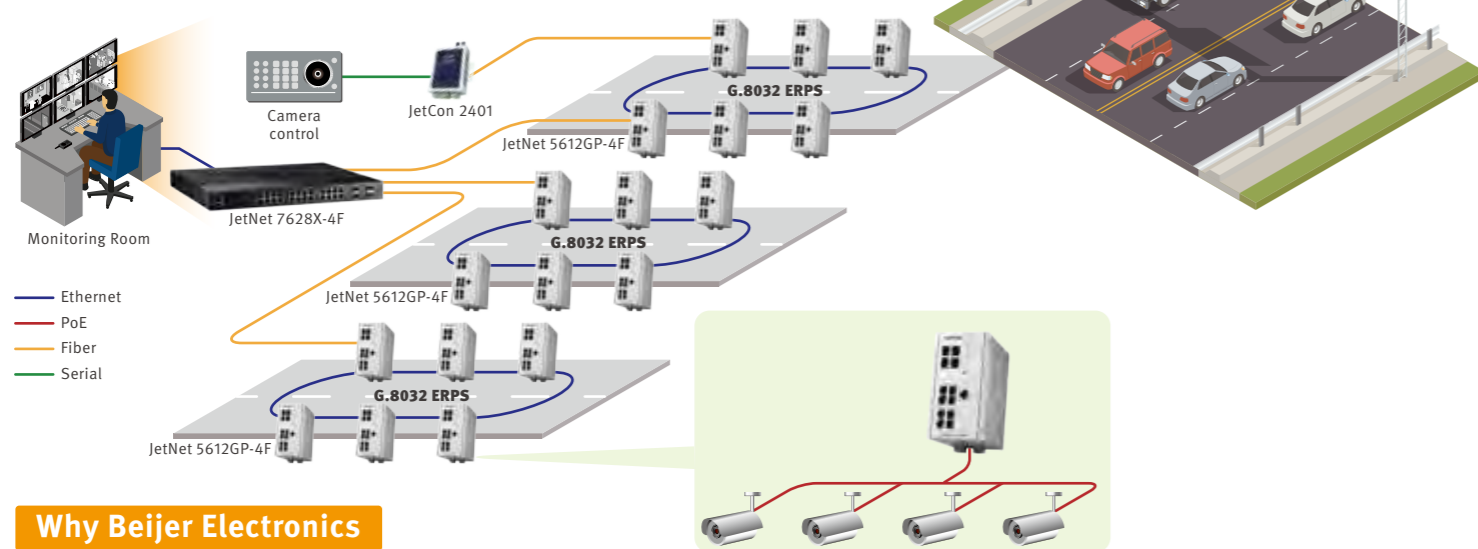
## Solution Requirement

- **Industrial Ethernet for control network** - JetNet DIN Rail Mount for cabinet installation
- \* **Fiber**: for long distance network transmission
- \* **PoE port**: for street/traffic camera connection
- **Media converter for serial/Ethernet to Fiber for long distance network** - JetCon



## ETC Highway

Infrastructure is a fundamental for cities especially highway infrastructures. There are many ethernet based applications such as traffic monitoring, Electronic Toll Collection and real-time information transmission. All applications need high speed transmission, some might even need 10G uplink for control center.



### Why Beijer Electronics

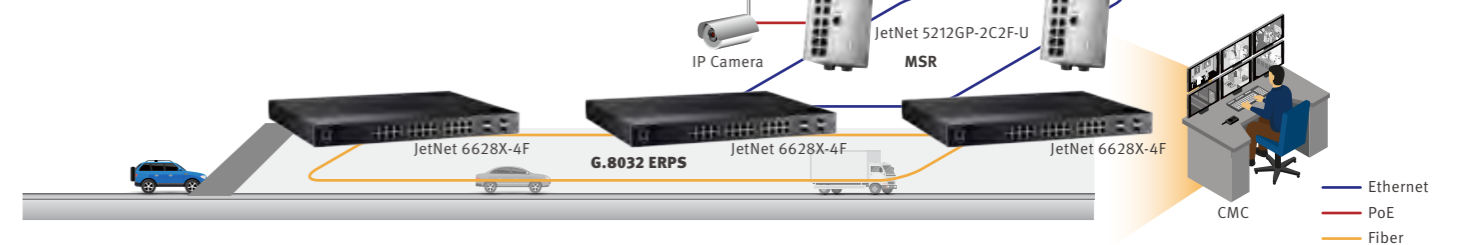
- Slim size PoE switch
- 10G uplink L3
- Easy to use serial to fiber converter

### Our Products

 <p><b>JetNet 7628X-4F</b> Industrial 28G Full Gigabit with 4*10G SFP L3 Managed Ethernet Switch</p>	 <p><b>JetNet 5612GP-4F</b> Industrial 12 ports Gigabit Managed PoE Switch</p>	 <p><b>JetCon 2401</b> Industrial Serial to Fiber Media Converter</p>
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## Tunnel Surveillance

Surveillance is widely implemented in different areas. Tunnel surveillance requires high video resolution for the insufficient light in the environment. It is common to apply high power PoE to enable infrared cameras. Furthermore, wired & wireless combined solutions for achieving network redundancy is highly recommended, benefiting users to transmit data in different ways simultaneously.



### Why Beijer Electronics

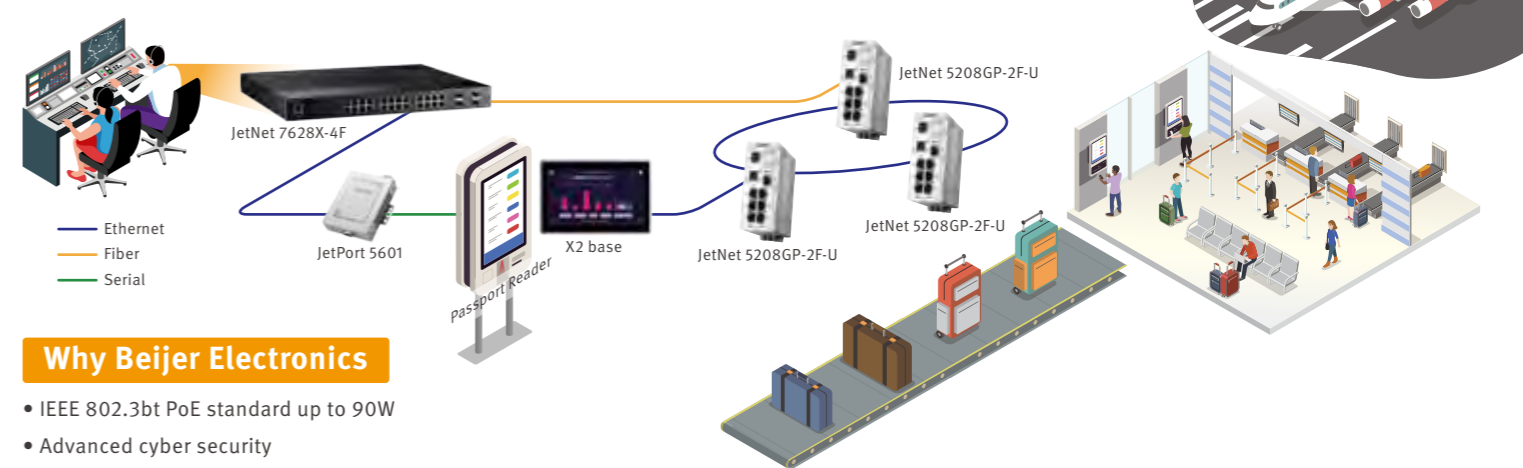
- High throughput cellular Gateway
- High ports PoE switch
- The latest ring standard ITU-T G.8032 ERPS

### Our Products

 <p><b>JetNet 6628X-4F</b> Industrial 28G Full Gigabit with 4*10G SFP L2 Managed Ethernet Switch</p>	 <p><b>JetNet 5212GP-2C2F-U</b> Industrial 90W 8G RJ-45 + 2G Combo + 2G SFP Managed PoE Switch</p>	 <p><b>JetWave 3420 V3</b> Industrial LTE plus 802.11ac Wi-Fi Wireless IP Gateway</p>
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## Airport - Self Check-in and Luggage Control

Ethernet transmission solutions are highly required in airports. From check-in to terminal and PIS to runway surveillance, all applications demand flexible products installation, wired to wireless mixed solution. Some applications even demand 90W PoE to provide power to multiple power devices (PD) such as smart lighting or digital signage.



### Why Beijer Electronics

- IEEE 802.3bt PoE standard up to 90W
- Advanced cyber security
- L3 Ethernet switch to collect data to data center from various stations

### Our Products

 <p><b>JetNet 7628X-4F</b> Industrial 28G Full Gigabit with 4*10G SFP L3 Managed Ethernet Switch</p>	 <p><b>JetNet 5208GP-2F-U</b> Industrial Managed PoE Switch</p>	 <p><b>JetPort 5601</b> 1-port RS-232/422/485 Serial Device Server</p>
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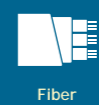
# Wayside Network

Reliable and tailored wayside solution can ensure passenger security. Our devices meet multiple railway certificates such as EN 50155, EN 50121-4, EN 50121-3-2. Furthermore, it provides fast and easy configurations, abundant power supply and rugged outer design, which can endure extreme operating temperatures, M12 ports, waterproof ability, all fundamental aspects to keep your projects safe and secure.



## Form Factor

- **On-board**
  - » M12 connector for vibration and shock application
  - » Wall Mounting for on-board installation
- **Trackside**
  - » DIN-rail and rack mounting
  - » Long distance fiber transmission
  - » Easy installation with PoE



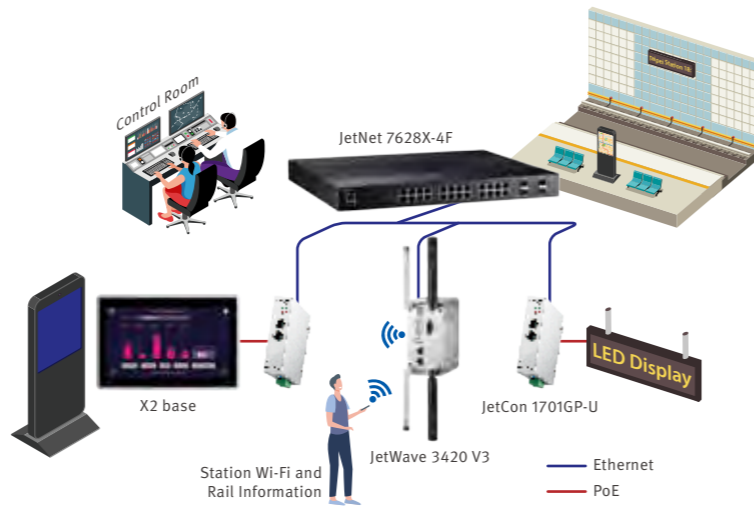
## Solution Requirement

- **Railway On-board:** JetNet with EN50155
- **Railway Trackside:** JetNet with EN50121-4



## Passenger Information System

Passenger Information system (PIS) includes in-time and accurate public transportation information and on-board Wi-Fi to passengers. It is an essential part of modern public transportation service nowadays, we provides reliable passenger information for the entire solution.



### Why Beijer Electronics

- PoE budget reaches to 90 watt.
- Switch, Cellular & Wireless Gateway to link last mile data connection.
- HMI constructed for indoor and outdoor use to provide a degree of protection to personnel against access to hazardous parts with NEMA4.

### Our Products



**JetNet 7628X-4F**  
28G Full Gigabit with 4\*10G SFP  
L3 Managed Ethernet Switch



**JetCon 1701GP-U**  
IEEE 802.3bt Gigabit PoE  
Injector



**JetWave 3420 V3**  
Cellular +Wi-Fi+ Gigabit  
Switch IP Gateway



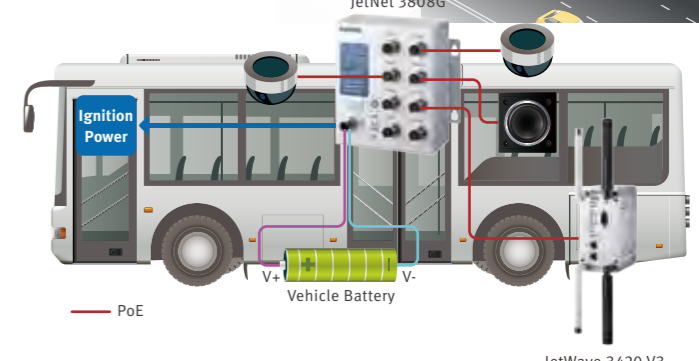
**X2 base**  
HMI with iX runtime

## In-Vehicle Surveillance

Surveillance in public transportation ensures the safety of passengers and drivers. PoE camera is commonly used on bus transportation. Our E-Mark PoE switch equipped with rugged, plug-and-play and robust M12 connector, so the device can operate well in the vibrating environment.

### Why Beijer Electronics

- **DC-to-DC power booster technology.** Power input range from 9 to 36V and boost to 54V to the powered devices.
- **Power ignition.** The feature will set the switch to power off automatically after a certain time to prevent the battery from running out.
- **Certifications.** Includes EN 50155, E-Mark and EN 50121-4 to ensure high availability and wide usage particularly for bus, train and track side.



### Our Products



**JetNet 3808G-M12**  
Unmanaged PoE Booster  
Switch



**JetNet 3908G-M12**  
Full Gigabit Unmanaged  
PoE Booster Switch



**JetNet 3508-LVDC**  
Unmanaged Switch



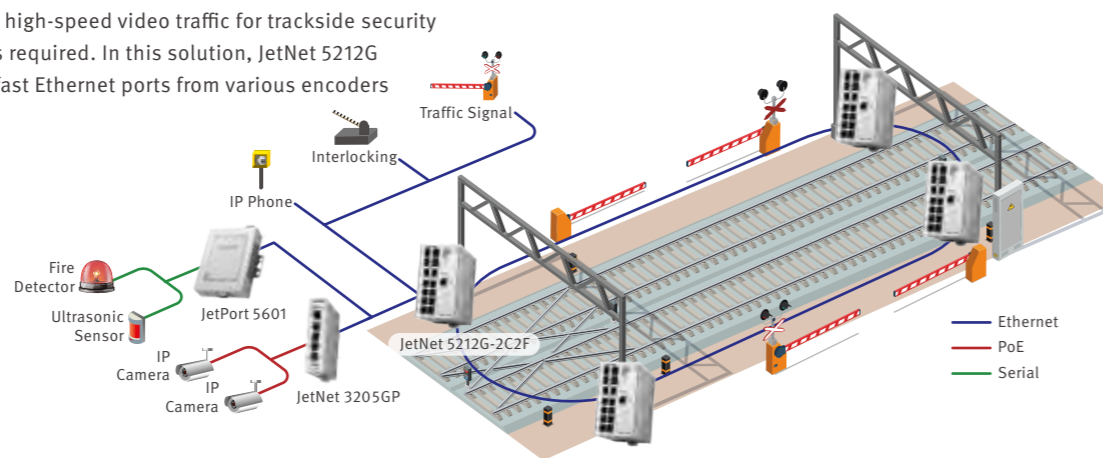
**JetNet 3508G-LVDC**  
Full Gigabit Unmanaged  
Switch

## Trackside Surveillance

To fulfill the needs of high quality and high-speed video traffic for trackside security staff, a reliable network deployment is required. In this solution, JetNet 5212G collects recorded video data through fast Ethernet ports from various encoders located in the control rooms.

### Why Beijer Electronics

- Full GbE high speed solution ensure high bandwidth traffic
- Up to 25W per port for High Power solution by Forced powering mode
- Up to 80W for total power budget



### Our Products



**JetNet 5212G-2C2F**  
Industrial 8G RJ-45 + 2G Combo +  
2G SFP Managed Ethernet Switch



**JetNet 3205GP**  
Industrial Unmanaged Gigabit  
PoE Ethernet Switch



**JetPort 5601**  
1-port RS-232/422/485 Serial  
Device Server

## Rail Electrification

Railway electrification system allows transmitting power status from RTU in each sub-station to the control center. To provide reliable and secure travel experience, the network system from each substation should be integrated and transmitted through long distance to the main control station.

### Why Beijer Electronics

- High fiber ports availability for long-term connection application
- IEC 61850-3, IEEE 1613, EN50121-4 compliance
- Industrial design to overcome harsh environment, operating temperature ranges from -40 to 75°C

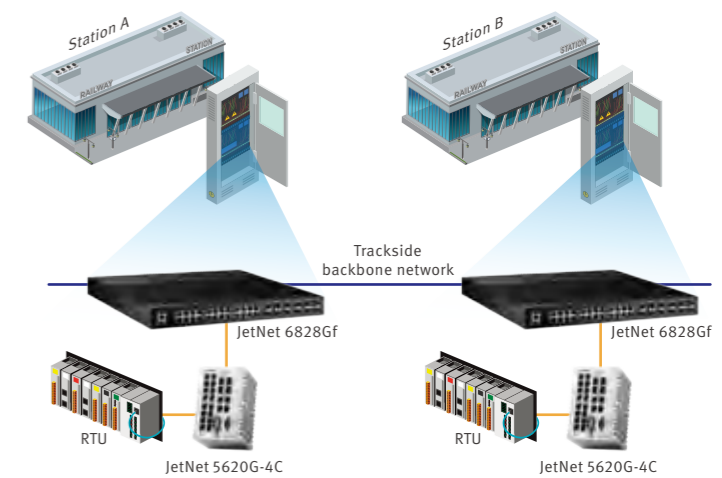
### Our Products



**JetNet 6828Gf**  
28G L3 Full Gigabit Managed  
Ethernet Switch



**JetNet 5620G-4C**  
L2 Full Gigabit Ethernet Switch





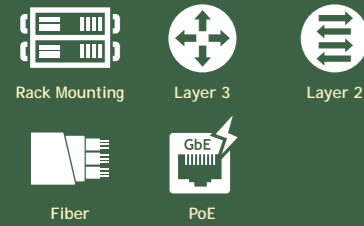
# Power Energy

The Substation is the Critical Link Between Transmission, Distribution and Customers. Among the power substation standard, IEC 61850 is most popular.

IEC 61850 allows devices from different vendors to talk to one another directly over an Ethernet connection that operates in a similar way to a local area network (LAN).

## Form Factor

- Substation/Wind Power



## Solution Requirement

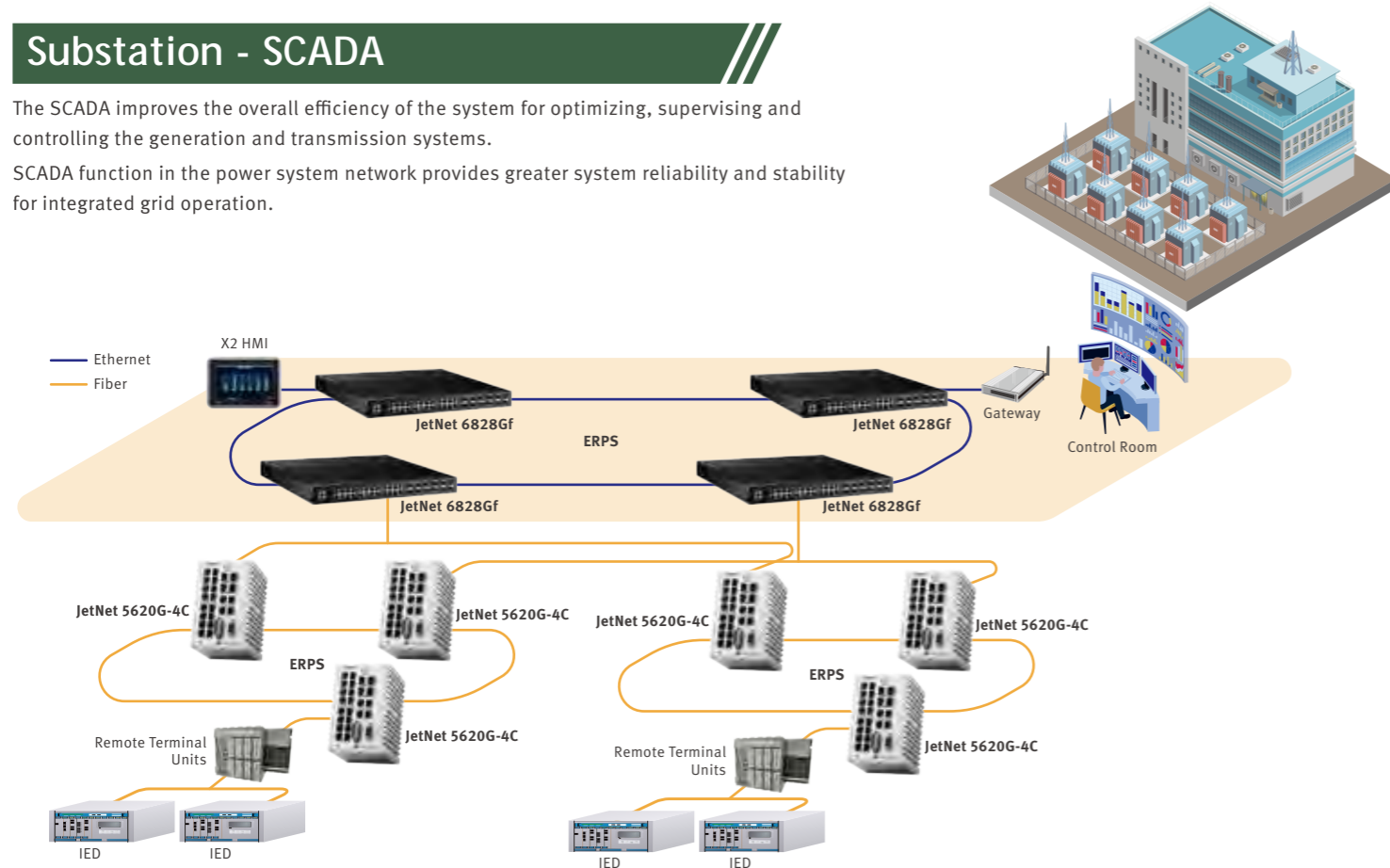
- IEC 61850: Substation automation
- IEEE 1613: Standard detailing environmental and testing requirements for communications networking devices in electric power substations



## Substation - SCADA

The SCADA improves the overall efficiency of the system for optimizing, supervising and controlling the generation and transmission systems.

SCADA function in the power system network provides greater system reliability and stability for integrated grid operation.



## Why Beijer Electronics

- Support ERPS (ITU-T G.8032) ring for fast recovery less than 50ms
- IEC 61850-3 certificate for power substation

## Our Products



**JetNet 6828Gf**  
Industrial 28G L3 Full Gigabit Managed Ethernet Switch



**JetNet 5620G-4C**  
Industrial Full Gigabit Ethernet L2 Switch

## Offshore Wind Power

Offshore wind power is the use of wind farms constructed in bodies of water, usually in the ocean, to harvest wind energy to generate electricity. Higher wind speed is available offshore compared to on land, so offshore wind power's electricity generation is higher per amount of capacity installed.

## Why Beijer Electronics

- Advanced Cyber Network Security – MAC security, IEEE 802.1x Port Based access control, IEEE 802.1x Radius Server authentication, 802.1x MAB, Distributed Denial of Service (DDoS), IP Source Guard, Denial of ARP Inspection.

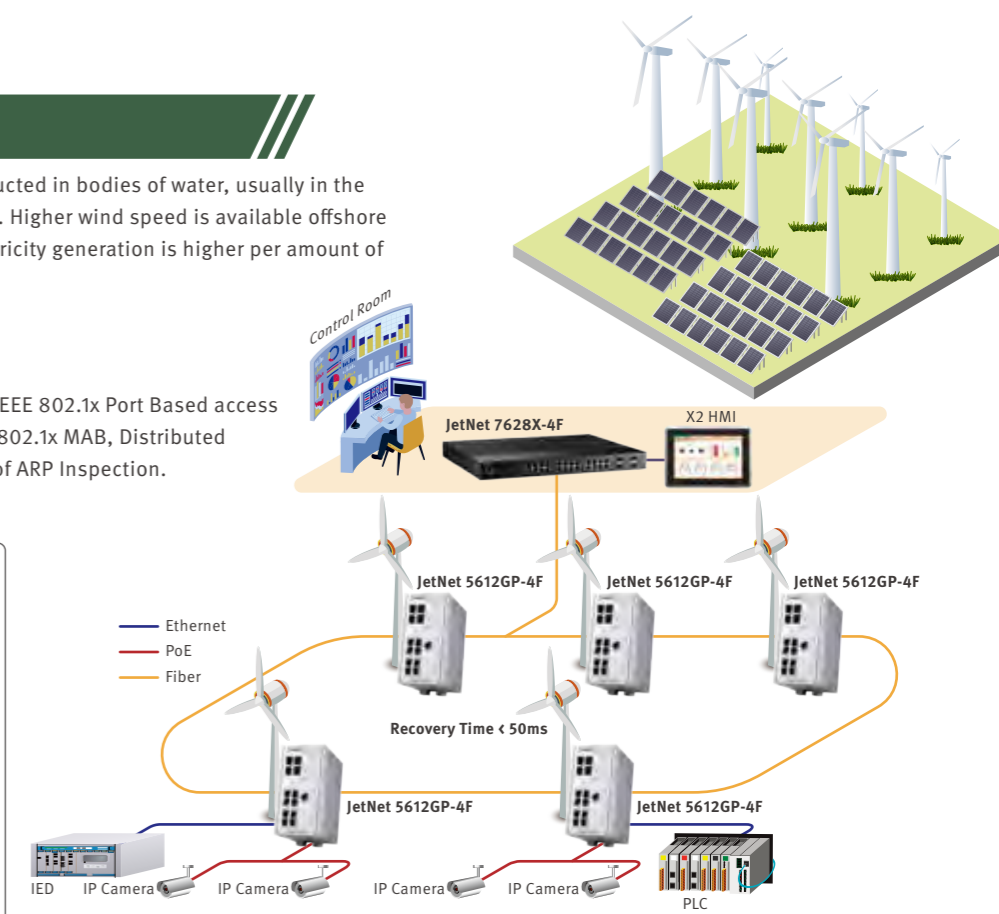
## Our Products



**JetNet 7628X-4F**  
Industrial 28G Full Gigabit with 4\*10G SFP L3 Managed Ethernet Switch



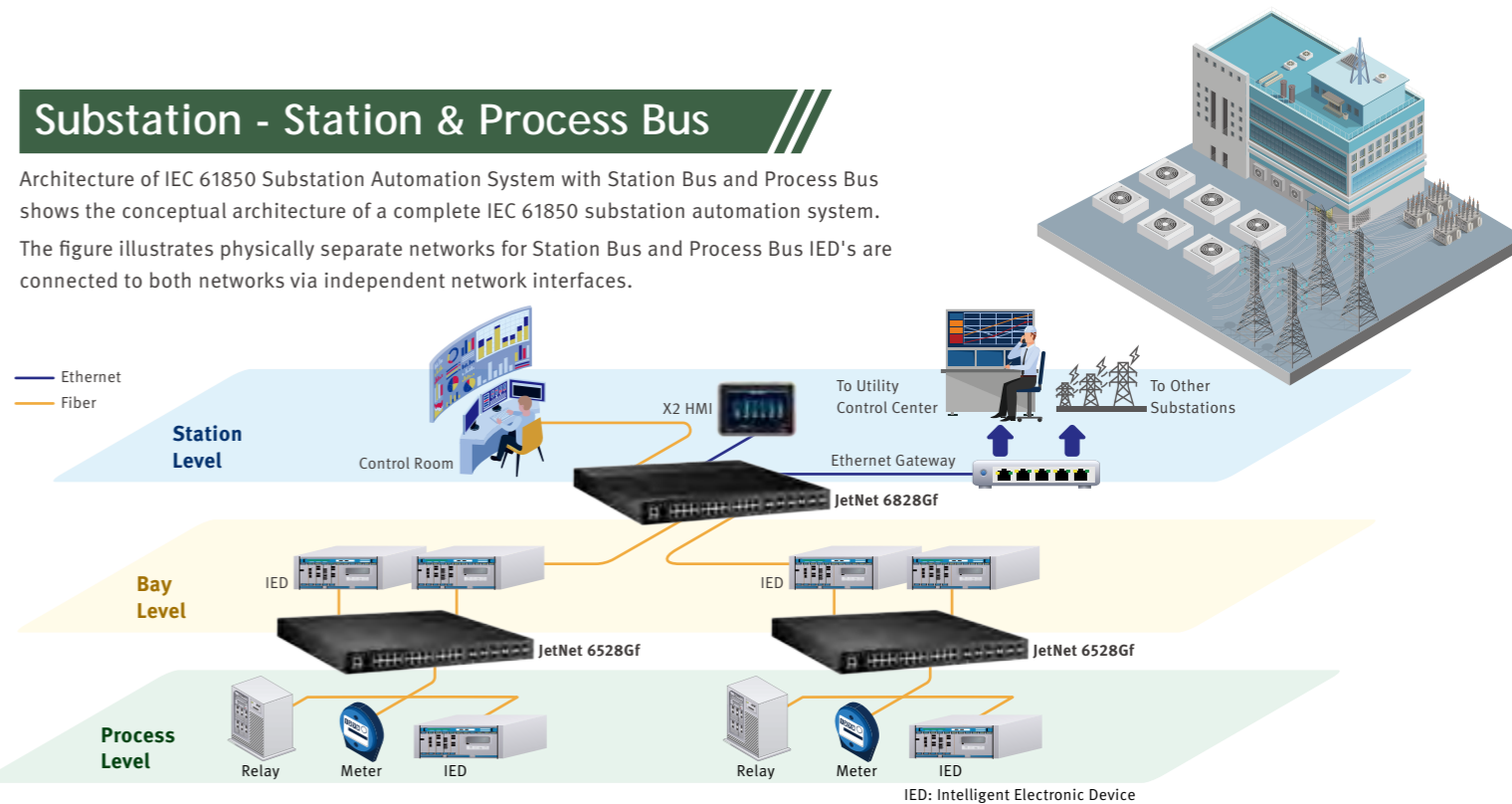
**JetNet 5612GP-4F**  
Industrial 12 ports Gigabit Managed PoE Switch



## Substation - Station & Process Bus

Architecture of IEC 61850 Substation Automation System with Station Bus and Process Bus shows the conceptual architecture of a complete IEC 61850 substation automation system.

The figure illustrates physically separate networks for Station Bus and Process Bus IED's are connected to both networks via independent network interfaces.



## Why Beijer Electronics

- Support multiple protocol transparent such as GOOSE, SMV.
- L3 JetNet 6828Gf support routing function.
- High-port density to interconnect with abundant devices.

## Our Products



**JetNet 6528Gf**  
Industrial 28G Full Gigabit Managed Ethernet Switch



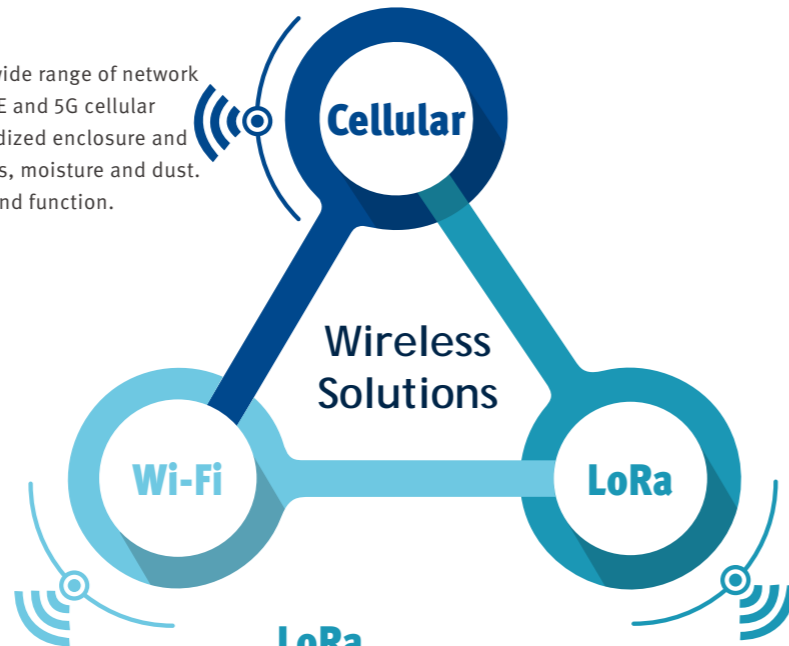
**JetNet 6828Gf**  
Industrial 28G L3 Full Gigabit Managed Ethernet Switch



# Wireless Solutions

## Cellular

Our Industrial Cellular Gateways help facilitate a wide range of network technologies from Fast Ethernet ports to 3G/4G LTE and 5G cellular communication. We provide a device with a ruggedized enclosure and internal components built to extreme temperatures, moisture and dust. Which allows establish for a smooth installation and function.



## Wi-Fi

Wi-Fi technology is extensively used in today's industrial networks as it offers easy wireless installation and simple manageability features. Our range of industrial wireless local area network (WLAN) devices has been designed to ensure reliable, continuous, high-speed data communications in extreme operational environments, with 3 in 1 (AP/Client/Bridge) design JetWave Wi-Fi series offering better resiliency. They can be configured for building a reciprocal network to reduce network downtime.

## LoRa

LoRa stands for Long Range Radio and is mainly targeted at M2M and IoT networks. Which is Low-Power and Long-Range transmission protocol and features good anti-interference performance to prevent electronic jamming. Our LoRa gateway provides RS-485 MODBUS RTU's industrial interface is available that can connect to the existing industrial control host (ex. PLC).



## Power & Energy 4G Cellular Monitoring

Existing competitor's router failed to endure extreme temperature in field site, thus our partner introduced the JetWave 2424 as the perfect alternative.

Wireless data communication & monitoring is a fundamental application for outdoor devices in electricity network, this kind of success can be easily duplicated into another project.

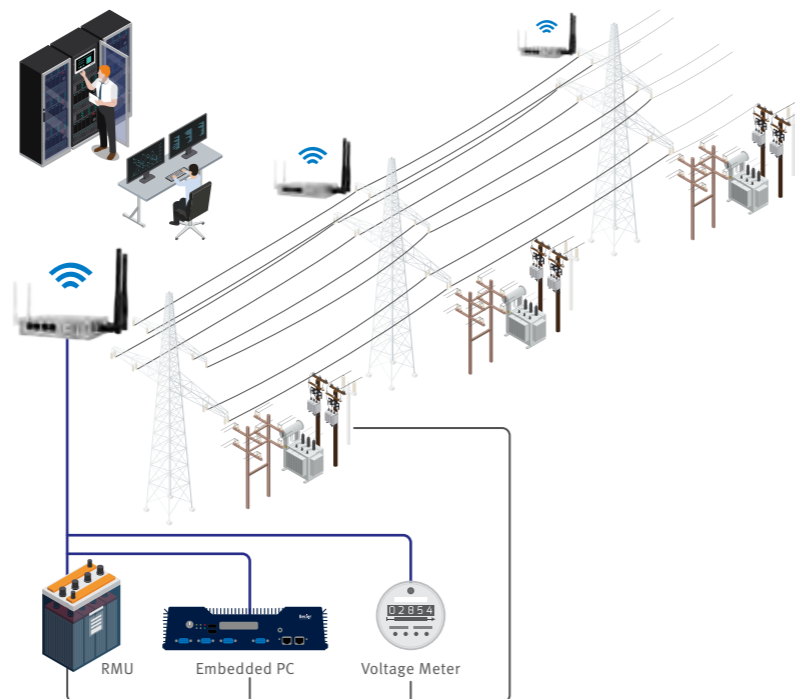
### Why Beijer Electronics

- Flexible design with Cellular 4G LTE and Wi-Fi function build in.
- Industrial grade temperature -40 ~ 70°C.
- Wan to Cellular failover redundant.

### Our Products

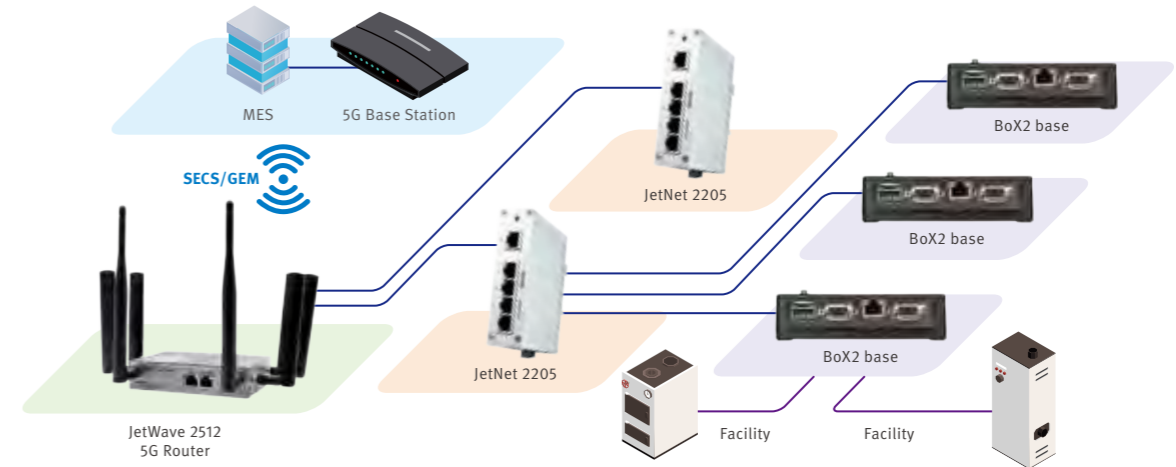
#### JetWave 2424

Industrial Cellular Router/Gateway



## Real-time Dry Pump Monitoring Inside The Semiconductor Fab.

In this application, there're around 3,500 dry pumps in each of four foundries, with a mix of different models (including Japanese brands) with different specs. The customer uses our BoX2 base to read data from dry pumps by C# script then transfer it into SECS (Semiconductor Equipment Communication Standard) for MES and Modbus TCP for SCADA, then submit it through our 5G router and Ethernet switch to the customer's IT and shop floor control system.



### Why Beijer Electronics

- SECS driver and most popular IT protocol supported.
- C# script for develop specific dry pump protocol.
- 5G reliable data transmit solution.

### Our Products



#### BoX2 base

Cost-effective protocol converter



#### JetNet 2205

Industrial 5-port Compact Fast Ethernet Switch



#### JetWave 2512

Industrial Grade Quality 4G/5G Cellular Gateway



## Wi-Fi Solution for Taipei Intersection

The impetus for this project hoped to facilitate the wireless transfer of CCTV imagery on intersections in Taipei city to a central control center via a wireless solution, as it is difficult to connect wiring on intersections.



### Why Beijer Electronics

- Products are industrial grade and could work under inclement weather conditions while providing reliable wireless solution.
- Wider frequency support range, including both 2.4GHz and 5GHz frequencies.
- Has in-built Auto Channel Survey (ACS) functions allowing the device to be on the "best" Wi-Fi frequency.

### Our Products

#### JetWave 2460E

Industrial 802.11 a/b/g/n 2.4G/5G 2T2R MIMO Outdoor Wireless AP/Client External

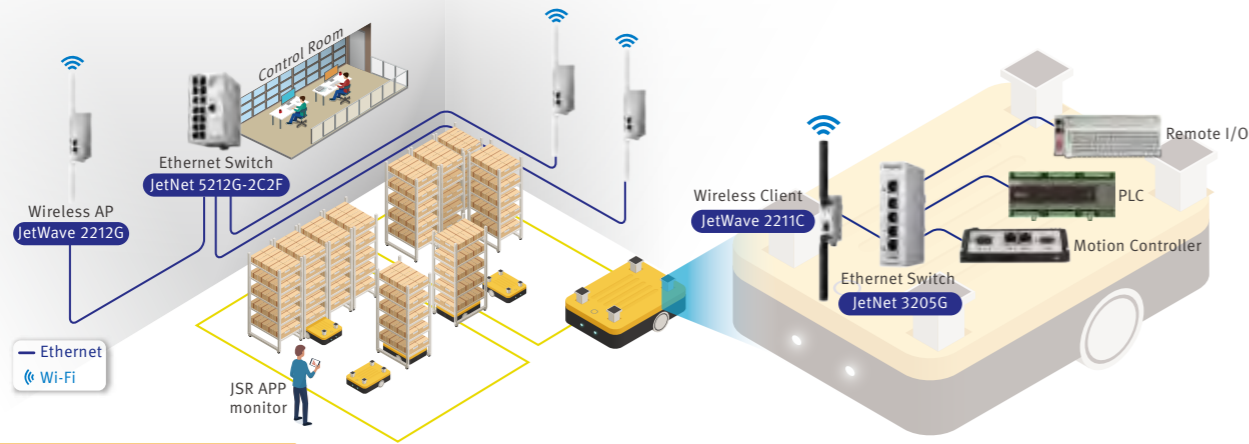




## Automatic Warehouse

Automated storage system is the main trend of warehouse management now. In an automated warehouse, goods can be moved by robots, along with conveyors and overhead pulley systems, known as AS/RS system. And also integrate with control by local or remote computer.





A warehouse premises are usually physically separated but need operate as one. Pursuit of space utilization ratio, access efficiency and scalability is the main goal. In view of this, it's common way to construct AS/RS system is through wireless network to offer many advantages.



### Why Beijer Electronics

- Less AP's (Access Point) to cover the complete factory. Our competitor requires more AP quantity to achieve the same Wi-Fi performance.
- Our AP/Client support stable fast roaming to fulfill uninterrupted communication.
- Our JSM provides a simple and easy way to set up an Wi-Fi environment.

### Our Products

	<b>JetNet 5212G-2C2F</b> Industrial 8G RJ-45 + 2G Combo + 2G SFP Managed Ethernet Switch		<b>JetWave 2211C</b> Industrial 802.11a/b/g/n 2.4G/5G 2T2R MIMO Wireless Client		<b>JetWave 2212G</b> Wireless Access Point		<b>JetNet 3205G</b> Industrial 5-port Gigabit Ethernet Switch
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## Water Treatment

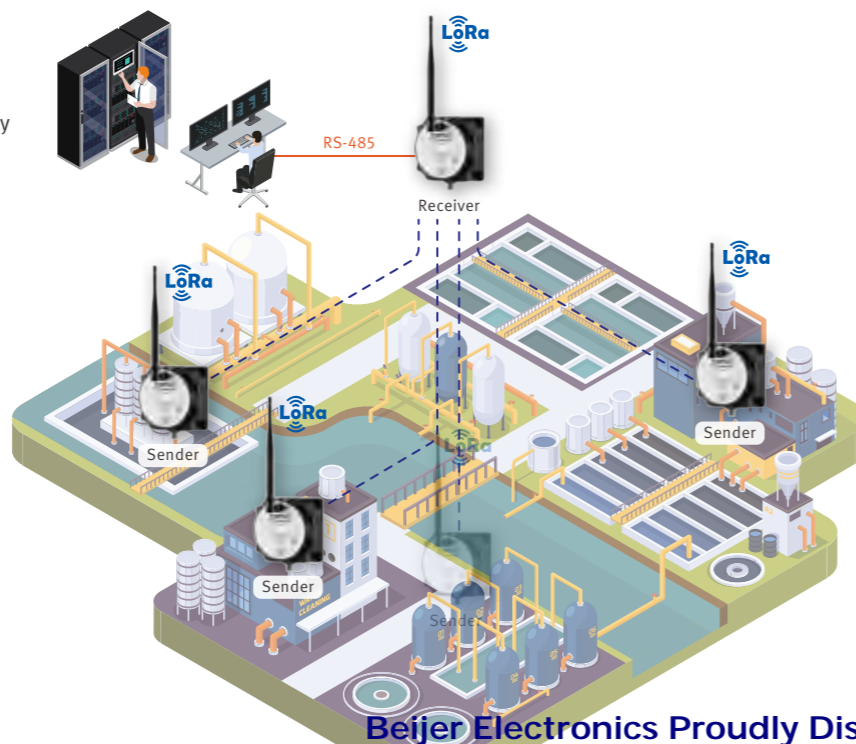
Smart treatment transition requires control and management of all equipment and area. It is for sure a complex task that requires thousands of measurement devices to provide constant data to various locations. Lots of buildings and heavy machines in this area may cause high interference risk. It will require an anti-interference wireless technology network product for its implementation.

### Why Beijer Electronics

- Anti-interference performance.
- Wireless Long range distance cover (over 10km).
- Support Modbus RTU protocol.

### Our Products

**JetWave 4110L**  
Industrial LoRa Private Gateway



Beijer Electronics Proudly Distributed by Gross Automation.  
Please call +1 (262) 252-1600 or email sales@grossautomation.com.

## Industrial Managed Ethernet Switch

### Rackmount Gigabit Core Switches

### Rackmount Ethernet Switches



Interface					
Total Port Number	28	28	28	28	28
10/100/1000TX Ports	24	16	24	16	24
100/1000M Combo		8		8	
SFP Ports	4 x 10GbE/1G	4 x 1000M	4 x 10GbE/1G	4 x 1000M	4 x 100/1000M
Console/USB	RS-232/USB	RS-232/USB	RS-232/USB	RS-232/USB	RS-232/USB
DC Power Input	2 x 44-57VDC	DC24 (18-36V) DC48 (36-75V)	2x44-57VDC	DC24 (18-36V) DC48 (36-75V)	2 x 18-75VDC
AC Power Input	1 x 90-264VAC	AC110/220 (90-264V)	1x90-264VAC	AC110/220 (90-264V)	1 x 100-240VAC
Features					
MSR, MultiRing, TrunkRing, RDH, SuperChain, ERPS	•	•	•	•	•
Broadcast Storm/Loop Protection	•	•	•	•	•
L2+ Security (L2/3/4 ACL)	•	•	•	•	•
DHCP Server (Opt82, Port Based)	•	•	•	•	•
L3 Protocols					
L3 Routing	IPv4/IPv6 routing, RIPv1/v2, OSPF v2	static/Dynamic Routing/ VLAN routing RIP, OSPF v2			
Multicast Routing	IGMP, Mroute	IGMP, Mroute			
VRPP Gateway Redundancy	•	•			
SW/Protocols					
IPv6 Management	•	•	•	•	•
Traffic Priority (QoS)	8 Queues/port	8 Queues/port	8 Queues/port	8 Queues/port	8 Queues/port
VLAN, P-VLAN, QinQ, GVRP	4k VLANs	4k VLANs	4k VLANs	4k VLANs	4k VLANs
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE 802.1AB LLDP Network Discovery	•	•	•	•	•
IEEE 802.3ad LACP, Static Trunk	•	•	•	•	•
IEEE 1588 PTP v1/v2	•	•	•	•	•
Jumbo Frame/MAC Address	9.2Kbytes/16K	9.2Kbytes/16K	9.2Kbytes/16K	9.2Kbytes/16K	9.2Kbytes/16K
Port Mirroring	•	•	•	•	•
DDM SFP	•	•	•	•	•
IEEE 802.1x, IP/Port Security/SSL/HTTPS, SSH/Telnet	•	•	•	•	•
TACACS+, Radius	•	•	•	•	•
SNMP/RMON/Trap	•	•	•	•	•
CLI/Web/Telnet	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP40	IP40	IP40	IP40	IP40
Dimension (H x W x D mm)	44 x 440 x 378.5	44 x 440 x 378.5	44 x 440 x 378.5	44 x 438 x 375	43.6 x 431 x 375
Mounting	Rackmount	Rackmount	Rackmount	Rackmount	Rackmount
Operating Temperature	-40~75°C	-40~85°C	-40~75°C	-40~75°C	-40~75°C
MTBF (hrs)	>202,000	>445,000	>202,000	>445,000	>234,000
Certifications					
Regulatory/Approval	CE/FCC	CE/FCC IEEEE1613/IEEC61850-3	CE/FCC	CE/FCC IEEEE1613/IEEC61850-3	CE/FCC/EN 62368-1
Railway	EN50121-4	EN50121-4	EN50121-4	EN50121-4	EN50121-4

• Supported

# Industrial Managed Ethernet Switch

## DIN-Rail Managed Ethernet Switches



JetNet 5620G-4C



JetNet 5612G-4F



JetNet 4508f / JetNet 4508f-w  
JetNet 4508if / JetNet 4508if-w



JetNet 4508 / JetNet 4508-w  
JetNet 4508i / JetNet 4508i-w

Interface				
Total Port Number	20	12	8	8
10/100TX Ports			6	8
10/100/1000TX Ports	16	8		
100/1000M Combo	4			
SFP Ports		4 x 100/1000M	2 x 100M(SC)	
DI/DO (Dry Relay)	1 DI, 1 DO	1 DI, 1 DO	1 DI, 1 DO	
DC Power Input	2 x DC24V (10-60V)	2 x DC24V (10-36V)	2 x DC24V (10-60V)	
Console	RS-232	RS-232	RS-232	
Features				
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, ERPS, RSTP, MSTP, LACP)	•	•	•	•
Broadcast Storm/ Loop Protection	•	•	•	•
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•		
DHCP Server (Opt82, Port Based)	•	•	•	•
SW/Protocols				
IPv6 Management	•	•		
Traffic Priority (QoS)	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	IGMP Query, Snooping	
IEEE802.1AB LLDP Network Discovery	•	•	•	•
IEEE802.3ad LACP, Static Trunk	•	•	•	•
IEEE 1588 PTP v1/v2	•	•	•	•
Jumbo Frame	•	•	•	•
Port Mirroring	•	•	•	•
DDM SFP	•	•	•	•
IP Security/Port Security/SSL/ HTTPS/SSH/Telnet	•	•	•	•
User Security	•	•	•	•
SNMP/RMON/Trap	•	•	•	•
CLI/Web/Telnet	•	•	•	•
HW/ME				
Housing Protection (IP)	IP30 (total 44 models)/Aluminum	IP30 (total 44 models)/Aluminum	IP30 (total 44 models)/Aluminum	
Dimension (H x W x D mm)	147 x 98 x 126	160 x 84 x 136	149 x 55 x 131	
Mounting	DIN Rail	DIN Rail	DIN Rail	
Operating Temperature	-40~75°C	-40~75°C	-10~70°C / -40~75°C(-w)	
MTBF (hrs)	308,000	578,000	425,000	
Certifications				
Regulatory/Approval	CE/FCC/IEEE1613/IEC61850-3	CE/FCC/EN50121-4	4508i/4508if Series: CE/FCC/IEEE1613/IEC61850-3	
Safety	UL 62328-1	UL 62328-1		
Railway	EN50121-4		EN50121-4	EN50121-4

• Supported

# Industrial Managed Ethernet Switch

## DIN-Rail Managed Switches



JetNet 5208G



JetNet 5208G-2F



JetNet 5210G-2C



JetNet 5212G-2C2F



JetNet 5216G-4C4F

Interface					
Total Port Number	8	8	10	12	16
10/100/1000TX Ports	8	6	8	8	8
100/1000M Combo			2	2	4
SFP Ports		2 x 100/1000M		2 x 100/1000M	4 x 100/1000M
DI/DO (Dry Relay)	1 DI, 1 DO	1 DI, 1 DO	1 DI, 1 DO	1 DI, 1 DO	1 DI, 1 DO
DC Power Input	2 x DC24V (10-60V)	2 x DC24V (10-60V)	2 x DC24V (10-60V)	2 x DC24V (10-60V)	2 x DC24V (10-60V)
Console	RS-232	RS-232	RS-232	RS-232	RS-232
Features					
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, RSTP, MSTP, LACP)	•	•	•	•	•
Broadcast Storm/ Loop Protection	•	•	•	•	•
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•	•	•	•
DHCP Server (Opt82, Port Based)	•	•	•	•	•
SW/Protocols					
Traffic Priority (QoS)	•	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE802.1AB LLDP Network Discovery	•	•	•	•	•
IEEE802.3ad LACP, Static Trunk	•	•	•	•	•
Jumbo Frame	•	•	•	•	•
Port Mirroring	•	•	•	•	•
DDM SFP*	•	•	•	•	•
IP Security/Port Security/SSL/ HTTPS/SSH/Telnet	•	•	•	•	•
User Security	•	•	•	•	•
SNMP/RMON/ Trap	•	•	•	•	•
CLI/Web/Telnet	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum
Dimension (H x W x D mm)	135 x 54 x 120	135 x 54 x 120	135 x 74 x 132	135 x 74 x 132	189 x 74 x 132
Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~75°C	-40~75°C	-40~75°C	-40~75°C
MTBF (hrs)	734,700 hrs	734,700 hrs	832,875 hrs	832,875 hrs	1,252,145 hrs.
Certifications					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Railway	EN50121-4	EN50121-4	EN50121-4	EN50121-4	EN50121-4

• Supported

\* Coming Soon

## Industrial Unmanaged Ethernet Switch

### Unmanaged Ethernet Switches



JetNet 3212G-2C2F



JetNet 2205



JetNet 2205f



JetNet 3205G  
JetNet 3205G-1F



JetNet 3018G

Interface					
Total Port Number	12	5	5	5	18
10/100TX Ports		5	4		16
10/100/1000TX Ports	8			5 (3205G) 4 (3205G-1F)	
100/1000M Combo	2 x 1000M				2
SFP Ports	2 x 1000M		1 x 100M(SC)	1 X1000M (3205G-1F)	
DI/DO (Dry Relay)	1 DO			1 DO	2 DO
DC Power input	2 x DC 24 (10-60V)	1 x DC 24 (12-40V)	1 x DC 24 (12-40V)	2 x DC 24 (10-60V)	2 x DC 24 (10-60V)
Features					
Qos Traffic Priority	4 Queues	•	•		4 Queues
Broadcast Storm filtering	•	•	•		• (DIP Switch)
Port/Power Event Alarm	Power Alarm			Power Alarm	Port 17, 18 Alarm Power Alarm
Jumbo Frame	10K Bytes			9K Bytes	9K Bytes
HW/ME					
Housing Protection (IP)	IP30 (total 44 models)/ Metal	IP30/Aluminum	IP30/Aluminum	IP30 (total 44 models)/ Metal	IP30 (total 44 models)/ Aluminum
Dimension (H x W x D mm)	135 x 74 x 141	111.8 x 30 x 89.4	111.8 x 30 x 89.4	120 x 30 x 108	136.5 x 96 x 149.2
Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~75°C(-w)	-40~75°C	-40~75°C	-40~75°C (-w)
MTBF (hrs)				380,000	>200,000
Certifications					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Safety				UL62328-1	
Railway	EN50121-4			EN50121-4	

• Supported

## Industrial Unmanaged Ethernet Switch

### Unmanaged Ethernet Switches



JetNet 3008G V2



JetNet 3008  
JetNet 3008-w



JetNet 3008f  
JetNet 3008f-w



JetNet 3508G-LVDC



JetNet  
3508-LVDC

Interface					
Total Port Number	8	8	8	8	8
10/100TX Ports		8			7 x M12-D
10/100/1000TX Ports	8				1 x M12-X
100/1000M Combo					
SFP Ports				2 x 100M(SC)	
DI/DO (Dry Relay)	1 DO	1 DO	1 DO		
DC Power input	2 x DC24 (9-60VDC)	2 x DC 24 (10-60V)	2 x DC 24 (10-60V)	2 x DC 12-24V	2 x DC 12-24V
Features					
Qos Traffic Priority	4 Queues	2 Queues	2 Queues	•	•
Broadcast Storm filtering	•	•	•		
Port/Power Event Alarm	•	•	•		
Jumbo Frame	10K Bytes			10K Bytes	10K Bytes
HW/ME					
Housing Protection (IP)	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum	IP30 (total 44 models)/ Aluminum	IP41 Steel Metal IP54 Steel Metal by request	
Dimension (H x W x D mm)	120 x 55 x 112	120 x 55 x 108	120 x 55 x 108	116 x 58 x 146	
Mounting	DIN Rail	DIN Rail	DIN Rail	Wall Mount	
Operating Temperature	-40~70°C	-20~70°C/ -40~75°C(-w)	-20~70°C/ -40~75°C(-w)	-40~75°C	
MTBF (hrs)	382,000	400,000	400,000	379,940	
Certifications					
Regulatory/Approval	CE/FCC	CE/FCC/ UL C1D2 (3008-w)	CE/FCC/ UL C1D2 (3008f-w)	CE/FCC/EN50155/EN50121-4/EN50121-3-2/E-Mark 13	
Safety		UL62328-1 EN62328-1	UL62328-1		
Railway	EN50121-4				

• Supported

# Industrial PoE Switch

## M12 Managed Industrial PoE Switch



Interface					
Total Port Number	20	16	12	14	10
100/1000TX Ports	2 x M12-X 2 x M12-X (w/Bypass)	2 x M12-X 2 x M12-X(w/Bypass)	2 x M12-X 2 x M12-X(w/Bypass)	4 x M12-A	1 x M12-X(PoE+) 2 M12-X (w/Bypass)
10/100TX Ports	16 x M12-D	12 x M12-D	8 x M12-D	10 X M12-D	7 x M12-D
DI/DO (Dry Relay)	1 DO	1 DO	1 DO		
Console	M12-A RS-232, USB	M12-A RS-232, USB	M12-A RS-232, USB	M12-A RS-232, USB	M12-A RS-232, USB
Power Input	2 x DC 110V (77-137.5V)(-HVDC) 2 x DC 24V (10-57V)(-LVDC)		2 x DC 110V (77-137.5V)	2 x DC 110V (77-137.5V)(HVDC) 2 x DC 24V (16.8-30V)(LVDC)	
Features					
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, ERPS, RSTP, MSTP,LACP)	•	•	•	•	MSR, RSTP/MSTP,LACP
IP Security/Port Security/SSL/HTTPS/SSH/Telnet	•	•	•	Port, IEEE 802.1x Port w / Radius Server, SSL/HTTPS, SSH/Telnet	Port, IEEE 802.1x Port w / Radius Server, SSL/HTTPS, SSH/Telnet
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•	•	•	
Power over Ethernet					
PoE Ports	16	12	8	8	8
Power Feeding Mode	M12-D: V+(1,3), V-(2,4)	M12-D: V+(1,3), V-(2,4)	M12-D: V+(1,3), V-(2,4)	M12-D: V+(1,3), V-(2,4)	M12-X: V+(1,2), V-(3,4) M12-D: V+(1,3), V-(2,4)
PoE Mode	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at
PoE Scheduling	•	•	•	•	•
System PoE Budget	120W/70°C (-HVDC) 100W/70°C (-LVDC)		100W/70°C	100W/70°C	
L3 Protocols					
L3 Routing	•	•	•	•	
Multicast Routing	•	•	•	•	
VRRP Gateway Redundancy	•	•	•	•	
SW/Protocols					
Management (SNMP V1/2c/3, CLI, Web, Trap, RMON)	•	•	•	•	•
Traffic Priority (QoS)	•	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE 802.1AB LLDP	•	•	•	•	•
IEEE 1588 PTP v1/v2	•	•	•	•	•
Jumbo Frame	9.2Kbytes	9.2Kbytes	9.2Kbytes	9.2Kbytes	9.2Kbytes
DHCP (Server, Client, Opt 82, Port Based Server)	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP41 Steel Metal/IP54 Steel Metal by request			IP30	IP30
Dimension (H x W x D mm)	162.2 x 206 x 70		145.2 x 198 x 120	145.2 x 198 x 120	
Mounting	Wall Mount/ DaiRail		Wall Mount	Wall Mount	
Operating Temperature	-40~70°C		-40~70°C	-40~70°C	
MTBF (hrs)	426,523		>375,000	>365,000	
Certification					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Safety	IEC62236-4	IEC62236-4	IEC62236-4		
Railway	EN50155/EN50121-4	EN50155/EN50121-4	EN50155/EN50121-4	EN50155	EN50155

• Supported

# Industrial PoE Switch

## M12 Giga Managed Industrial PoE Switch



## Managed Industrial PoE Switch

Interface					
Total Port Number	20	12	12	10	12
100/1000TX Ports	2 x M12-X 2 x M12-X (w/Bypass)	2 x M12-X 2 x M12-X (w/Bypass)	2 x M12-X 2 x M12-X (w/Bypass)	8	8
10/100TX Ports	16 x M12-D	12 x M12-D	8 x M12-D		
SFP Ports				2 x 100/1000M	4 x 100/1000M
DI/DO (Dry Relay)	1 DO	1 DO	1 DO	1 DI, 1 DO	1 DI, 1 DO
Console	M12-A RS-232, USB	M12-A RS-232, USB	M12-A RS-232, USB	RS-232	RS-232
Power Input	2 x DC 110V (77-137.5V)(-HVDC) 2 x DC 24V (10-57V)(-LVDC)			2 x DC 48V (46-57V)	2 x DC 48V (46-57V)
Features					
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, ERPS, RSTP, MSTP,LACP)	•	•	•	•	•
IP Security/Port Security/SSL/HTTPS/SSH/Telnet	•	•	•	•	•
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•	•	•	•
Power over Ethernet					
PoE Ports	16	8	8	8	8
Power Feeding Mode	M12-D: V+(1,3), V-(2,4)	M12-D: V+(1,3), V-(2,4)	M12-D: V+(1,3), V-(2,4)	1,2,3,6 (A)	1,2,3,6 (A)
PoE Mode	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at
PoE Scheduling	•	•	•	•	•
System PoE Budget	120W/70°C (-HVDC) 100W/70°C (-LVDC)	120W/70°C (-HVDC) 100W/70°C (-LVDC)		240W/75°C	240W/75°C
L3 Protocols					
L3 Routing				•	
Multicast Routing				•	
VRRP Gateway Redundancy				•	
SW/Protocols					
Management (SNMP V1/2c/3, CLI, Web, Trap, RMON)	•	•	•	•	•
Traffic Priority (QoS)	•	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE 802.1AB LLDP	•	•	•	•	•
IEEE 1588 PTP v1/v2	•	•	•	•	•
Jumbo Frame	9.2Kbytes	9.2Kbytes	9.2Kbytes	9Kbytes	9Kbytes
DHCP (Server, Client, Opt 82, Port Based Server)	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP41 Steel Metal/IP54 Steel Metal by request			IP30	IP30
Dimension (H x W x D mm)	162.2 x 206 x 70		162.2 x 206 x 70	160 x 108 x 136	160 x 84 x 136
Mounting	Wall Mount/ DaiRail		Wall Mount/ DaiRail	DIN Rail	DIN Rail
Operating Temperature	-40~70°C		-40~70°C	-40~75°C	-40~75°C
MTBF (hrs)	426,523		426,523	499,000	605,279
Certification					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Safety	IEC62236-4	IEC62236-4	IEC62236-4		
Railway	EN50155/EN50121-4	EN50155/EN50121-4	EN50155/EN50121-4	EN50121-4	EN50121-4

• Supported

# Industrial PoE Switch

## Managed Industrial PoE Switch



JetNet 5208GP    JetNet 5208GP-2F    JetNet 5208GP-U    JetNet 5208GP-2F-U    JetNet 5210GP-2C

Interface					
Total Ports Number	8	8	8	8	10
100/1000TX Ports	8	6	8	6	8
100/1000M Combo					2
SFP Ports		2 x 100/1000M		2 x 100/1000M	
DI/DO (Dry Relay)	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO
Console	RS-232	RS-232	RS-232	RS-232	RS-232
Power Input	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)
Features					
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, ERPS, RSTP, MSTP, LACP)	•	•	•	•	•
IP Security/Port Security/SSL/HTTPS/SSH/Telnet	•	•	•	•	•
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•	•	•	•
Power over Ethernet					
PoE Ports	8	8	8	8	8
Power Feeding Mode	1,2,3,6 (A)	1,2,3,6 (A)	1,2,3,6 (A) 1,2,3,4,5, 6,7,8 (bt)	1,2,3,6 (A) 1,2,3,4,5, 6,7,8 (bt)	1,2,3,6 (A)
PoE Mode	IEEE 802.3af/at	IEEE 802.3af/at	IEEE 802.3af/at/bt	IEEE 802.3af/at/bt	IEEE 802.3af/at
PoE Scheduling	•	•	•	•	•
System PoE Budget	180W/75°C	180W/75°C	180W/75°C	180W/75°C	240W/75°C
SW/Protocols					
Management (SNMP V1/2c/3, CLI, Web, Trap, RMON)	•	•	•	•	•
Traffic Priority (QoS)	•	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE 802.1AB LLDP	•	•	•	•	•
Jumbo Frame	9Kbytes	9Kbytes	9Kbytes	9Kbytes	9Kbytes
DHCP (Server, Client, Opt 82, Port Based Server)	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)
Dimension (H x W x D mm)	135 x 54 x 120	135 x 54 x 120	135 x 54 x 120	135 x 54 x 120	135 x 96 x 132
Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~75°C	-40~75°C	-40~75°C	-40~75°C
MTBF (hrs)	730,941 hrs	730,941 hrs	730,941 hrs	730,941 hrs	551,403 hrs
Certification					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Railway	EN50121-4	EN50121-4	EN50121-4	EN50121-4	EN50121-4

• Supported

# Industrial PoE Switch

## Managed Industrial PoE Switch



JetNet 5210GP-2C-U    JetNet 5212GP-2C2F    JetNet 5212GP-2C2F-U    JetNet 5216GP-4F    JetNet 5216GP-4F-U

Interface					
Total Ports Number	10	12	12	16	16
100/1000TX Ports	8	8	8	12	12
100/1000M Combo	2	2	2		
SFP Ports		2 x 100/1000M	2 x 100/1000M	4 x 100/1000M	4 x 100/1000M
DI/DO (Dry Relay)	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO	1 x DI, 1 x DO
Console	RS-232	RS-232	RS-232	RS-232	RS-232
Power Input	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)	2 x DC 48V (46-57V)
Features					
Network Redundancy (MSR, RDH, TrunkRing, MultiRing, SuperChain, RSTP, MSTP, LACP)	•	•	•	•	•
IP Security/Port Security/SSL/HTTPS/SSH/Telnet	•	•	•	•	•
Advanced Security (L2/3/4 ACL) DHCP Snooping, IP Source Guard, DAI	•	•	•	•	•
Power over Ethernet					
PoE Ports	8	8	8	8	8
Power Feeding Mode	1,2,3,6 (A) 1,2,3,4,5, 6,7,8 (bt)	1,2,3,6 (A)	1,2,3,6 (A) 1,2,3,4,5, 6,7,8 (bt)	1,2,3,6 (A)	1,2,3,6 (A) 1,2,3,4,5, 6,7,8 (bt)
PoE Mode	IEEE 802.3af/at/bt	IEEE 802.3af/at	IEEE 802.3af/at/bt	IEEE 802.3af/at	IEEE 802.3af/at/bt
PoE Scheduling	•	•	•	•	•
System PoE Budget	480W/75°C	240W/75°C	480W/75°C	360W/75°C	480W/75°C
SW/Protocols					
Management (SNMP V1/2c/3, CLI, Web, Trap, RMON)	•	•	•	•	•
Traffic Priority (QoS)	•	•	•	•	•
VLAN, P-VLAN, QinQ, GVRP	•	•	•	•	•
IGMP Query, Snooping, GMRP	•	•	•	•	•
IEEE 802.1AB LLDP	•	•	•	•	•
Jumbo Frame	9Kbytes	9Kbytes	9Kbytes	9Kbytes	9Kbytes
DHCP (Server, Client, Opt 82, Port Based Server)	•	•	•	•	•
HW/ME					
Housing Protection (IP)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)	IP30 (total 44 models)
Dimension (H x W x D mm)	135 x 96 x 132	135 x 96 x 132	135 x 96 x 132	189 x 96 x 132	189 x 96 x 132
Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~75°C	-40~75°C	-40~75°C	-40~75°C
MTBF (hrs)	551,403 hrs	551,403 hrs	551,403 hrs	1,243,697 hrs.	1,243,697 hrs.
Certification					
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Railway	EN50121-4	EN50121-4	EN50121-4	EN50121-4	EN50121-4

• Supported

# Industrial PoE Switch

## Rackmount Managed PoE Switch



		Interface	
Total Ports Number	28	28	28
10/100/1000TX Ports	24(PoE+)	24(PoE+)	24(PoE+)
10/100TX Ports			20(PoE+)
SFP Ports	4 x 10GbE/1G	4 x 10GbE/1G	4 x 1000M
DI/DO (Dry Relay)	DO		DO
Console/USB	RS-232/USB		RS-232/USB
DC Power input	2 x 44-57VDC (IEEE 802.3af) 2 x 50-57VDC (IEEE 802.3at)	2 x 44-57VDC (IEEE 802.3af) 2 x 50-57VDC (IEEE 802.3at)	2 x 44-57VDC (IEEE 802.3af) 2 x 50-57VDC (IEEE 802.3at)
AC Power input	1 x 90-264VAC		1 x 90-264VAC
Features			
Cyber Redundancy+ (MSR, MultiRing, TrunkRing, RDH, SuperChain, ITU-T G.8032 ERPS)	•	•	•
Cyber Security+ (DHCP Snooping, IP Source Guard, DAI, DOS)	•	•	•
IPV4/IPV6 ACL (L2/L3/L4) Security	•	•	•
EEE Energy Saving	•	•	•
PoE Features			
PoE Wiring	1,2,3,6		1,2,3,6
PoE Specification	IEEE802.3af, IEEE802.3at		IEEE802.3af, IEEE802.3at
PoE Technology	PoE Priority Control, PD keep alive checking, PoE Scheduling		PoE Priority Control, PD keep alive checking, PoE Scheduling
Embedded AC power	300W		300W
Total Power Budget	230W@AC (75°C), 300W@AC (-40~60°C), 720W@DC (-40~75°C)	230W@AC (75°C), 300W@AC (-40~60°C), 480W@DC (-40~75°C)	230W@AC (75°C), 300W@AC (-40~60°C), 720W@DC (-40~75°C)
180W@AC (75°C), 270W@AC (-40~60°C), 650W@DC (-40~75°C)			
SW/Protocols			
IPv6 Management	•	•	•
Traffic Priority (QoS)	8 Queues/port		8 Queues/port
VLAN,P-VLAN, QinQ, GVRP	4k VLANs		4k VLANs
IGMP Query, Snooping, GMRP	•	•	•
IEEE 802.1AB LLDP Network Discovery	•	•	•
IEEE 802.3ad LACP	•	•	•
IEEE 1588 PTP v1/v2	HW time stamping		HW time stamping
Jumbo Frame/MAC Address	9.2Kbytes/16K		9.2Kbytes/16K
Broadcast Storm Protection	•	•	•
DDM SFP	•	•	•
IEEE 802.1x, IP/Port Security SSL/HTTPS, SSH/Telnet	•	•	•
TACACS+, Radius	•	•	•
SNMP/RMON/Trap	•	•	•
CLI/Web/Telnet	•	•	•
HW/ME			
Ingress Protection/Housing	IP40		IP40
Dimension (H x W x D mm)	44 x 440 x 378.5		44 x 431 x 375
Mounting	Rackmount		Rackmount
Operating Temperature	-40~75°C (fanless)		-40~75°C (fanless)
MTBF (hrs)	>202,000		>202,000
Certification			
Regulatory/Approval	CE/FCC		CE/FCC
Safety			UL60950-1
Railway	EN50121-4		EN50121-4

• Supported

# Industrial PoE Switch

## Unmanaged Industrial PoE Switch



		Interface					
Total Ports Number	8	8	6	10/6	10	10	5
100/1000TX Ports	8 x M12-X	1 x M12-X	4 x 100/1000M 1 x 1000M	2 x RJ-45 (3810G/3806G)	2	8	4 (3205GP-1F) 5 (3205GP)
10/100 TX Ports		7 x M12-D		8 x (3810G)/ 4 (3806G)	8		
100/1000M Combo						2	
SFP Ports			1 x 100/1000M	2 x 1000M (3810Gf) 2 x 100M (3810f)			1 x 1000M (JetNet 3205GP-1F)
DI/DO (Dry Relay)			1 x DO	1 x DO		1 x DO	1 x DO
DC Power input	2 x 12-24V		2 x 12-36V	1 x 12-24V 1 x 8-32V (3810G V2)	1 x 48V	2 x 12V-56V	2 x 44V-57V
Hi-Pot	AC 1KV		AC 1.5KV	AC 1.5KV		AC 1.2KV	AC 1.2KV
Power over Ethernet							
PoE Ports	8	8	4	8/4 (3806G)	8	8	4
Power Feeding Mode	M12-X: V+(1,2), V-(3,4)	M12-X: V+(1,2), V-(3,4) M12-D: V+(1,3), V-(2,4)	1,2,3,6 (A)	4,5,7,8 (B)		1,2,3,6 (A)	1,2,3,6 (A)
PoE Mode	IEEE 802.3af/at		IEEE 802.3af/at	IEEE 802.3af		IEEE 802.3af/at	IEEE 802.3af/at
System PoE Budget	180W@24V	120W@24V 60W@12V	110W@24V, 65°C 90W@24V, 75°C	65W@24V, 60°C	65W@48V, 70°C	240W	112W
Features							
QoS	•	•		•	•	•	
Failure Alarm			Port, Power	Port		Power	Power
Jumbo Frame	10Kbytes	10Kbytes	9Kbytes			10Kbytes	9Kbytes
HW/ME							
Housing Protection (IP)	IP41 Steel Metal IP54 Steel Metal by request		IP30 (total 44 models) Steel Metal	IP30 (total 44 models) Aluminum	IP30 (total 44 models) Aluminum	IP30 (total 44 models) Metal	IP30 (total 44 models) Metal
Dimension (H x W x D mm)	116 x 58 x 146	116 x 58 x 146	140 x 55 x 119	149 x 66 x 131.2	149 x 66 x 131.2	135 x 96.18 x 132	120 x 30 x 108
Mounting	Wall Mount	Wall Mount	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~75°C	-40~75°C	-25~60°C	-25~70°C	-40~75°C	-40~75°C
Certification							
Regulatory/Approval	CE/FCC/EN50121-3-2		CE/FCC	CE/FCC		CE/FCC	CE/FCC
Railway	EN50155/EN50121-4						
Vehicle	E-Mark/ITxPT			E-Mark (JetNet 3810G v2)		E-Mark	
Safety				UL 62328-1			UL 62328-1

• Supported

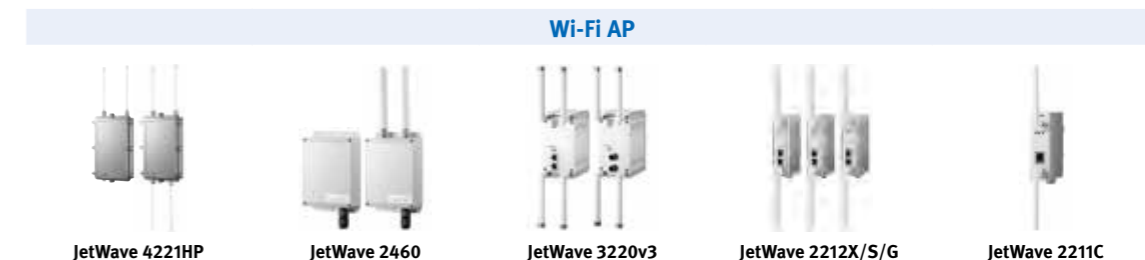
# Media Converter



Interface							
Total Ports Number	2	3	2	2	2	2	4
Number of 10/100TX ports		1	1				
Number of 10/100/1000TX port	1					1	2
Fiber Ports	1 X 100/1000SFP		1 x 100FX/SC 2km (1301-m) 30km (1301-s)	1 x 100/1000SFP	1 x 100/1000SFP		
Other Ports		1 x VDSL2					
Power Input	2 x DC 10-60V	2 x DC 12~48V (1 Terminal & 1 Power Jack)	DC 18~32V	2 x DC 44-57V	2 x DC 44-57V	2 x DC 44-57V	1 x DC 44-57V
Event Alarm	•						
Hi-Pot (AC 1.5KV)	•	•	•	•	•	•	•
Power over Ethernet							
PoE ports				1	1	1	2
Power Feeding Mode				1,2,3,6 (A)	1,2,3,6 (A)	1,2,3,6 (A)	1,2,3,6 (A) 4,5,7,8 (B)
PoE Mode				IEEE 802.3 af/ at/bt	IEEE 802.3 af/at	IEEE 802.3 af/ at/bt	IEEE 802.3 af/at
System Power Budget				90W	30W	90W	60W
Features							
QoS				•	•	•	
Failure Alarm				•	•	•	
SW/Protocols							
Link Loss Forwarding	•		•				
Switch Mode with Store & Forward	•	•	•				
Pure Converter Mode			•				
Quality of Service	•	•					
Broadcast storm Filtering		•					
HW/ME							
Housing Protection (IP)	IP30 (total 44 models) Steel	IP30 Aluminum	IP30 (total 44 models) Aluminum	IP30 (total 44 models) Steel	IP30 (total 44 models) Steel	IP30 (total 44 models) Steel	IP30 Steel
Dimension (H x W x D mm)	120 x 30 x 108	114.8 x 110 x 29.6	70 x 30 x 89	120 x 30 x 108	120 x 30 x 108	120 x 30 x 108	111.8 x 30 x 98.5
Mounting	DIN Rail	DIN Rail Wall mount	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Operating Temperature	-40~75°C	-40~70°C	-10~70°C -40~80°C (-w)	-40~75°C	-40~75°C	-40~75°C	-40~75°C
MTBF (hurs)	>313,000	>897,000	>506,000	>313,000			>313,000
Certificate							
Regulatory/Approval	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Compliance Standard	EN50121-4 Compliance			EN50121-4 Compliance	EN50121-4 Compliance	EN50121-4 Compliance	

• Supported

# Wireless



Interfaces					
Ethernet	1 x GE RJ-45	1 x FE RJ-45	2 x GE RJ-45 (or M12)	2 x FE RJ-45	1 x FE RJ-45
Wi-Fi	(JetWave 4221HP) 1 x 2.4G 802.11n + 1 x 5G 802.11ac (JetWave 4221HP) 1 x 2.4G 802.11n or 1 x 5G 802.11ac	1 x 2.4G/5G 802.11n	2 x 2.4G/5G 802.11n/ac	(JetWave 2212X/S) 1 x 2.4G/5G 802.11n (JetWave 2212G) 1 x 2.4G 802.11n or 1 x 5G 802.11ac	1 x 2.4G/5G 802.11n
Wi-Fi Antenna Socket	(JetWave 4221HP) 4 (Dual 2T2R MIMO) (JetWave 4221HP) 2 (2T2R MIMO)	(JetWave 2460E) 2 (2T2R MIMO)	4 (Dual 2T2R MIMO)	2 (2T2R MIMO)	2 (2T2R MIMO)
Serial				2 x RS-232/422/485 JetWave 2212S only	
PoE	PoE PD	Passive PoE	PoE PD	Passive PoE	Passive PoE
DI/DO			1/1	0/1	1/1
Power Input	802.3at PoE (Eth 1)	Passive PoE (Eth 1) DC 24/48V	802.3at PoE (Eth 1) Dual DC 24V(12~48V)	2212X/S Dual DC 9-30V 2212G Dual DC 12-48V	DC 12-48V
Protocols					
Wireless Mode	AP, Client, repeater WDS-AP/Client	AP, Client, repeater WDS-AP/Client	AP, Client, repeater WDS-AP/Client	AP, Client, repeater WDS-AP/Client	Client
NAT/Firewall	•	•	•		
VPN	OpenVPN/Ipsec	OpenVPN/Ipsec	OpenVPN/Ipsec		
Fast Roaming	•	•	•	•	•
802.1x, MAC Access Control	•	•	•	•	•
Configuration	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP
JetWave Smart Mapping	•	•	•	•	•
Event Alarm	E-mail, Syslog, SNMP Trap	E-mail, Syslog, SNMP Trap	DO, E-mail, Syslog, SNMP Trap	DO, E-mail, Syslog, SNMP Trap	DO, E-mail, Syslog, SNMP Trap
Mechanical					
Dimension (H x D x W mm)	262 x 186 x 55	268 x 150 x 55	149 x 120.6 x 74	140 x 108 x 40	100 x 100 x 35
Operating Temperature	-40~70°C	-40~70°C	-40~70°C	-40~70°C	-40~70°C
Housing	Aluminum (IP67)	Plastic (IP67)	Aluminum (IP30)	Aluminum (IP30)	Iron (IP30)
Certification					
CE/FCC	•	•	•	•	•
Railway EMC	EN50121-4	EN50121-4	EN50121-4	EN50121-4	EN50121-4

• Supported

Wireless

Mobile Cellular Router / Gateway



JetWave 3420v3  
JetWave 3420v3-M12



JetWave 2111L  
JetWave 2411L



JetWave 2111  
JetWave 2411

Interfaces			
Ethernet	2 x GE RJ-45 (or M12)	1 x FE RJ-45	1 x FE RJ-45
Wi-Fi	1 x 2.4G 802.11n or 1 x 5G 802.11ac		
Cellular	LTE CAT4 E/A/U	LTE CAT1/4 E/A/U	LTE CAT1/4 E/A/U
Wi-Fi Antenna Socket	2 (2T2R MIMO)		
Serial	1 x RS-232/422/485		1 x RS-232/422/485
PoE	PoE	Passive PoE	
DI/DO	1/1	1/1	1/1
Power Input	802.3at PoE (Eth 1) Dual DC 24V(12~48V)	DC 12-48V	DC 9-30V
Protocols			
Wireless Mode	AP, Client, WDS-AP/Client		
Routing	LAN/Wi-Fi to LTE/WAN	LAN to 3G or LTE	LAN to 3G or LTE
NAT/Firewall	•	•	•
VPN	OpenVPN/Ipsec	OpenVPN/IPSec	OpenVPN/IPSec/PPTP
WAN Redundancy	WAN/LTE		
Link Fault Pass-Through	•		
Fast Roaming	•		
802.1x, MAC Access Control	•		
Configuration	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP
Link Test Tools	•		
Event Alarm	DO, E-mail, Syslog, SNMP Trap	DI/DO, E-mail, Syslog, SNMP Trap	DI/DO, E-mail, Syslog, SNMP Trap
Mechanical			
Dimension (H x D x W mm)	149 x 120.6 x 74	100 x 100 x 30	100 x 100 x 35
Operating Temperature	-40~70°C	-40~70°C	-40~70°C
Housing	Aluminum (IP30)	Iron (IP30)	Aluminum (IP30)
Certification			
CE/FCC	•	•	•
Railway EMC	EN50121-4	EN50121-4	EN50121-4

• Supported

**Standard**

- Wi-Fi IEEE802.11a/b/g/n/ac
- 3G 3GPP Release 4,6,7
- LTE 3GPP Release 8,9

**Operating Frequency**

- 2.4G Wi-Fi FCC: 2.412~2.462GHz; CE: 2.412~2.472GHz
- 5G Wi-Fi FCC: 5.170~5.250GHz and 5.745~5.825GHz, CE: 5.170~5.250GHz
- 5G 2100(n1)/1900(n2)/1800n(3)850(n5)/2600(n7)/900(n8)/700(n12)/800(n20)/700(28)/2500(n41)/1700 2100 (n66)/600(n71)/3500(n78)/4700(n79)
- 3G GSM/GPRS/EDGE: Quad band 850/900/1800/1900MHz, UMTS/HSPA+: Five band 800/850/900/1900/2100MHz
- LTE LTE-E: 800(20)/900(8)/1800(3)/2600(7)MHz  
LTE-U: 700(17)/850(5)/AWS1700 and 2100(4)/1900(2)MHz

\*DI: Digital Input; DO: Digital Output

Wireless

Mobile Cellular Router / Gateway



JetWave 2114  
JetWave 2414



JetWave 2424



JetWave 2512



JetWave 4110L

Private LoRa

Interfaces				
Ethernet	4 x FE RJ-45	4 x FE RJ-45	2 x GE RJ-45	
Wi-Fi		1 x 2.4G	1 x 2.4G	
Cellular	LTE CAT1/4 E/A/U	LTE CAT4 E/A/U	5G /4G LTE	
LoRa				Private LoRa
Wi-Fi Antenna Socket		2 (2T2R MIMO)	2 (2T2R MIMO)	
Serial	2 x RS-232/422/485			1 x RS-485
PoE	Passive PoE		PoE PD	
DI/DO	2/2			1(DI or AI)/1
Power Input	DC 12-48V	DC 12-48V	802.3at PoE DC 9-36V	DC 12-36V
Protocols				
Wireless Mode		AP, Client, WDS-AP/Client	AP, Client, WDS-AP/Client	
Routing	LAN to 3G or LTE	LAN to 3G or LTE	LAN to 5G or LTE	
NAT/Firewall	•	•	•	
VPN	OpenVPN/IPSec/PPTP	OpenVPN/IPSec/PPTP	OpenVPN/IPSec/PPTP	
Configuration	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility, SNMP	CLI, Web, Utility,
Auto IP Report	•	•	•	
Event Alarm	DI/DO, E-mail, Syslog, SNMP Trap	E-mail, Syslog, SNMP Trap	E-mail, Syslog, SNMP Trap	DI/DO
Mechanical				
Dimension (H x D x W mm)	100 x 100 x 55	140 x 110 x 33	131 x 100 x 30	100 x 100 x 48
Operating Temperature	-40~70°C	-40~70°C	-30~60°C	-40~80°C
Housing	Aluminum (IP30)	Aluminum (IP30)	Aluminum (IP30)	Plastic (IP68)
Certification				
CE/FCC	•	CE	CE	•
Railway EMC	EN50121-4			

• Supported

**Standard**

- Wi-Fi IEEE802.11a/b/g/n/ac
- 3G 3GPP Release 4,6,7
- LTE 3GPP Release 8,9

**Operating Frequency**

- 2.4G Wi-Fi FCC: 2.412~2.462GHz; CE: 2.412~2.472GHz
- 5G Wi-Fi FCC: 5.170~5.250GHz and 5.745~5.825GHz, CE: 5.170~5.250GHz
- 5G 2100(n1)/1900(n2)/1800n(3)850(n5)/2600(n7)/900(n8)/700(n12)/800(n20)/700(28)/2500(n41)/1700 2100 (n66)/600(n71)/3500(n78)/4700(n79)
- 3G GSM/GPRS/EDGE: Quad band 850/900/1800/1900MHz, UMTS/HSPA+: Five band 800/850/900/1900/2100MHz
- LTE LTE-E: 800(20)/900(8)/1800(3)/2600(7)MHz  
LTE-U: 700(17)/850(5)/AWS1700 and 2100(4)/1900(2)MHz
- LoRa 410~525MHz/862~1020MHz (According to the local regulatory compliance)

\*DI: Digital Input; DO: Digital Output; AI: Analog Input

## Antenna & Cable

### Omni Antenna

	JWA-2.4/5G-2dBi-SM-00	JWA-2.4G-5dBi-NF-00	JWA-2.4G-7dBi-NF-00	JWA-2.4G-9dBi-NF-00	JWA-5G-7dBi-NF-00	JWA-2.4/5G-5/7dBi-NF-00	JWA-5G-12dBi-NF-00
Application	Indoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
Connector Type	SMA Male	N-Type Male	N-Type Male	N-Type Female	N-Type Male	N-Type Male	N-Type Female
Gain (dBi)	2dBi	5dBi	7dBi	9dBi	7dBi	2.4G 5dBi/5G 7dBi	12dBi
Angle	Horz	360°	360°	360°	360°	360°	360°
	Vert	360°	10° - 12°	10° - 12°	10° - 12°	10° - 12°	10° - 12°
Dimension (mm)	81 x 14.5 x 14.5	187 x 20 x 22.8	286.5 x 15 x 19.8	438.5 x 20 x 23.2	187 x 20 x 22.8	187 x 20 x 22.8	455 x 20 x 22
Remark	AGV application Point to multipoint	Point to multipoint	Point to multipoint	Point to multipoint	Point to multipoint	Point to multipoint	Point to multipoint

### Directional Panel Antenna

	JWDA-2.4G-12dBi-NF-00	JWDA-2.4G-14dBi-SM-00	JWDA-5G-14dBi-NF-00	JWDA-5G-22dBi-SM-00
Frequency	2.4G	2.4G	5G	5G
Application	Outdoor	Outdoor	Outdoor	Outdoor
Connector Type	N-Type Female	SMA Female	N-Type Female	SMA Female
Gain (dBi)	12dBi	14dBi	14dBi	22dBi
Angle	Horz	35°	32°	9°
	Vert	30°	30°	9°
Dimension (mm)	199.7 x 120 x 47.6	220 x 220 x 31	199.7 x 120 x 47.6	380 x 380 x 18
Remark	Point to Point Long distance	Point to Point Long distance	Point to Point Long distance	Point to Point Long distance

### RF Cable

	JWA-Cable-SM-to-SM-00	JWA-Cable-NM-to-NM-00	JWA-Cable-NM-to-NM-WP-00	JWA-Cable-NM-to-SM-WP-00
Connector	RP-SMA Male to RP-SMA Female	N-Type Male to N-Type Male	N-Type Male to N-Type Male	N-Type Male to SMA Male
Length	1500mm	1500mm	1500mm	1500mm

\*The distance is based on the measurement in the open space and lab calculation. The distance still vary with the environment in each field sites.

## Wi-Fi AP/Antenna Distance Reference Table

### Omni Antenna

Model Name	Connector type	Frequency	Default Antenna	JWA-2.4/5G-2dBi-SM-00	JWA-2.4G-5dBi-NF-00	JWA-2.4G-7dBi-NF-00	JWA-2.4G-9dBi-NF-00	JWA-5G-7dBi-NF-00	JWA-2.4/5G-5/7dBi-NF-00	JWA-5G-12dBi-NF-00
				2.4G/5G 2dBi	2.4G 5dBi	2.4G 7dBi	2.4G 9dBi	5G 7dBi	2.4/5G-5/7dBi	5G 12dBi
JetWave 2211C	SMA	2.4G	0.2km	0.15km	0.6km	1km	1.5 km		0.6 km	
		5G	0.15km	0.1km			1km	1.5 km	1.5 km	
JetWave 2212 & 3000 series	SMA	2.4G	0.3km	0.15km	0.6km	1km	1.5 km		1.5 km	
		5G	0.2km	0.1km			1km	1.5 km	1.5 km	
JetWave 2460	Embedded	2.4G/5G	1.5km	n/a						
JetWave 2460E	N-Type	2.4G	0.6km	0.15km	0.6km	1km	1.5 km		1.5 km	
		5G	1.5km	0.1km			1km	1.5 km	1.5 km	
JetWave 4221/4211	N-Type	2.4G	n/a	0.15km	0.6km	1km	1.5 km		1.5 km	
		5G		0.1km				1km	1.5 km	1.5 km
JetWave 4221/4211 HP	N-Type	2.4G	n/a		1.5km	2.4km	3 km		3 km	
		5G						3 km	4km	4km

### Directional Panel Antenna

Model Name	Connector type	Frequency	Default Antenna	JWDA-2.4G-12dBi-NF-00	JWDA-2.4G-14dBi-SM-00	JWDA-5G-14dBi-NF-00	JWDA-5G-22dBi-SM-00
				2.4G 12dBi	2.4G 14dBi	5G 14dBi	5G 22dBi
JetWave 2211C	SMA	2.4G	0.2km	2.5 km	3 km		
		5G	0.15km			2.5 km	3.5km
JetWave 2212 & 3000 series	SMA	2.4G	0.3km	2.5 km	3 km		
		5G	0.2km			2.5 km	3.5km
JetWave 2460	Embedded	2.4G/5G	1.5km	n/a			
JetWave 2460E	N-Type	2.4G	0.6km	2.5 km	3 km		
		5G	1.5km			2.5 km	3.5km
JetWave 4221/4211	N-Type	2.4G	n/a	2.5 km	3 km		
		5G				2.5 km	3.5km
JetWave 4221/4211 HP	N-Type	2.4G	n/a	4 km	4.5km		
		5G				7km	10km

## About Beijer Electronics

Beijer Electronics is a multinational, cross-industry innovator that connects people and technologies to optimize processes for business-critical applications. Our offer includes operator communication, solution engineering, digitalization and communication, and support. As experts in user-friendly software, hardware and services for the Industrial Internet of Things, we empower you to meet your challenges through leading-edge solutions.

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