



Model 300SCW-1 SelecTone®

Wall-Mounted Command Unit

2561090 Rev E1 0125

Limited Warranty: This product's limited warranty can be found at www.fedsig.com/SSG-Warranty.

SAFETY MESSAGES TO INSTALLERS AND USERS

It is important to follow all instructions shipped with this product. This device is to be installed by a trained electrician who is thoroughly familiar with the National Electrical Code and/or Canadian Electrical Code and will follow the NEC and/or CEC Guidelines as well as all local codes. This device should be considered a part of the warning system and not the entire warning system.

The selection of the mounting location for the device, its controls, and the routing of the wiring are to be accomplished under the direction of the facilities engineer and the safety engineer. Listed below are some other important safety instructions and precautions you should follow:

- Consult the authority having jurisdiction in your area regarding the proper use and installation of this product.
- Read and understand all instructions before installing or operating this equipment.
- Do not connect this unit to the system when power is on.
- Optimum sound distribution will be severely reduced if any objects are in front of the speaker. Ensure that the front of the speaker is clear of any obstructions.
- All effective warning speakers produce loud sounds that may cause, in certain situations, permanent hearing loss. Take appropriate precautions, such as wearing hearing protection.
- All effective warning speakers produce loud sounds that may cause, in certain situations, permanent hearing loss. The device should be installed far enough away from potential listeners to limit their exposure while still maintaining its effectiveness. The OSHA Code of Federal Regulations 1910.95 Noise Standard provides guidelines, which may be used regarding permissible noise exposure levels.
- After installation, test the sound system to ensure proper operation.
- Show these instructions to your Safety Engineer and all operating personnel, and then file them in a safe place and refer to them when maintaining and/or reinstalling the unit.
- Establish a procedure to routinely check the sound system for proper activation and operation.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

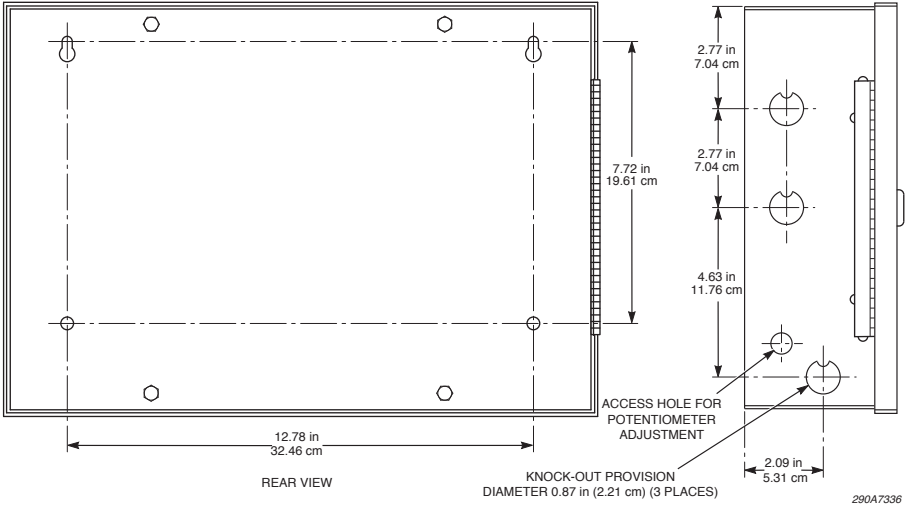
Unpacking the Device — After unpacking the device, examine it for damage and verify the parts. If a part is missing or damaged, do not attempt to install the device. Contact Federal Signal Customer Support.

Overview

The Model 300SCW-1 SelecTone® Command is a central control device that is capable of generating up to four different tone signals on an audio line that is connected to remote speaker/amplifiers in a SelecTone System. The 300SCW-1 can control signal lines to Federal Signal Models 300GC, 300GCX, 300X, 302GC, 302GCX, 302X, and 50GC speaker/amplifiers and to other devices. It can also operate with standard speakers designed for 25 V_{rms} line operation (15 W max). The 300SCW-1 has public address (PA) capability, allowing voice messages or instructions to be announced over the SelecTone system through an optional Model MNC-1 microphone. The microphone is a handheld, noise-canceling microphone that is ideal for use as a local microphone. The Command Unit can also play background music generated from an external source over the SelecTone® system.

The Model 300SCW-1 must be installed only indoors (NEMA 1) or in other protected installations. It can be mounted on any horizontal surface using #10 screws, appropriate for the type of mounting surface material, and the four mounting holes in the 300SCW-1 housing. See Figure 1.

Figure 1 Model 300SCW-1 installation dimensions



The Model 300SCW-1 can be used for a variety of prioritized signaling purposes, such as playing background music, auxiliary fire alarm, evacuation alarm, start and dismissal, paging, and other emergency warning applications. The system can be automated if external devices such as heat detectors, switches, or program clocks are connected to the remote control inputs. Additional advantages of the Model 300SCW-1 include economical system expansion along with long-term system flexibility.

The Model 300SCW-1 generates and amplifies tone and audio signals and applies them through signal lines to the remote SelecTone devices in the system. A Model AM25CK Connector Kit is required in each SelecTone device to connect the SelecTone devices to the signal line. Speakers designed for 25-volt operation can connect directly to the 25-volt output. The 300SCW-1 has provisions for up to four SelecTone tone modules of your choice. The tones are designated as Tone 1, Tone 2, Tone 3, and Tone 4. Each tone can be manually activated locally by its associated button switch on the control panel or by a contact closure at the associated remote control input. Whenever a tone is activated, either locally or remotely, its associated LED on the control panel button lights to indicate that the tone has been activated. The LED remains lit until the tone is deactivated and the contact closure is removed. All 300SCW-1 controls are located on the control panel.

Chassis Description

The Model 300SCW-1 is assembled in a red, powder-coated steel cabinet that is approximately 11.25 in (28.57 cm) high by 16.23 in (41.22 cm) wide by 4.06 in (10.31 cm) deep with a hinged front cover. The cover contains a window through which the button switches can be seen. The cover is secured to the housing through a hinge and key-operated lock. Space is provided along the right side of the enclosure for storage of the optional MNC-1 microphone.

Along the left side of the enclosure are two field wiring compartments that are baffled off from the printed circuit board area. Access to these compartments is gained by removing the fastening screw from the control panel, allowing it to open on a hinge. One compartment is for the connection of the Class II power and signal lines, and the other is for the connection of the Class I power lines. These areas are provided with knockouts to allow the external wiring to enter the unit through appropriate installer-supplied bushings.

Front Panel Features

The printed circuit board (PCB) for the switches is attached to the control panel with four screws. A wiring assembly connects the switchboard to the main PCB. The main PCB is attached to a subplate with eight screws. The control panel switches are designated as TONE 1 through TONE 4, AUX, TEST, and CANCEL. The tone corresponding to each switch can be labeled in the white area next to the switch with a permanent felt-tip marker. If you are changing a tone or message, remove the marking by lightly rubbing it with a rag dampened with denatured alcohol. To avoid damaging the switches, ensure that the alcohol does not come in contact with them.

Control Circuitry

The control circuitry in the 300SCW-1 has a built-in priority-level feature. If a given tone is already sounding when a higher priority tone is locally or remotely activated, the higher priority tone automatically overrides the lower priority tone. However, the button LED for the lower priority tone remains lit to indicate that the lower priority tone remains activated. When the higher priority tone is deactivated, the LED in the button lights and the lower priority tone resumes sounding. Pressing the CANCEL button deactivates any currently active tones. The local microphone has the highest priority. All of the tones have priority by number sequence, and all have priority over remote PA and background music.

Because Tone 1 has priority over all other tones, the TM9 "Slow Whoop" tone module is frequently installed in the Tone 1 position as a "Fire" signal. Whenever the 300SCW-1 is activated and is not in the test mode, a built-in relay causes a set of normally closed contacts to open and a set of normally open contacts to close, which makes it possible to send an alarm signal to other emergency services or circuits. Check with local codes for specific requirements regarding the types of tones to use.

TEST Button

The TEST button enables the testing of tones without activating speakers on the unbalanced signal lines. During the test, the tone is heard only from the monitor speaker inside the enclosure. The TEST button also cancels false alarms. When the button is pressed, the LED remains illuminated to remind the operator to press the CANCEL button after the test is completed or the false alarm is corrected.

CANCEL Button

The CANCEL button resets all the manually activated signaling functions of the 300SCW-1. It also provides a momentary dry-contact closure to facilitate remote resetting of any other alarm circuit. The contact stays closed as long as the CANCEL button is pressed. Resetting of remote activation does not occur if the closure occurring at the remote input has not been removed.

Audio Inputs

A microphone can be connected directly to the 300SCW-1 through two modular jacks provided on the right side of the unit inside the cover. These inputs have the highest priority. However, there are screw terminal provisions for a low-level, low-impedance audio signal to be input in the Class II wiring compartment of the unit, which allows audio to be coupled from a telephone system (PBX) with the proper interface equipment supplied by the phone company. This input is designed to also allow the direct connection of a low-impedance remote microphone with separate PTT, which has priority below the tones. An RCA jack is provided in the same area of the unit to accept a standard 1-volt audio signal from a background music source such as a radio receiver, CD player, or tape player.

Power Requirements

WARNING

SHOCK HAZARD — Do not perform any installation or maintenance on this system when power is on. Because the 300SCW-1 does not have a power switch, ensure that the power is disconnected before proceeding. Failure to heed this warning may cause serious injury or death.

The control panel has a green LED to indicate the presence of primary power. The 300SCW-1 can be operated from either a 120 Vac, 240 Vac, or 24 Vdc power source. The AC power is connected via a terminal block located in the Class I wiring compartment, and the 120/240 Vac operation must be manually switched internally while 24 Vdc connects via the terminals in the Class II wiring compartment.

Table 1 Product specifications

Power Input	
Input Voltage	120/240 Vac, 50 Hz to 60 Hz
Standby Voltage	50 mA, 120 Vac 25 mA, 240 Vac
Operating Current	210 mA (max.)
Power Consumption	26 W (max.)
Emergency Power Source Input	
Input Voltage	22 Vdc to 32 Vdc
Standby Current	90 mA
Operating Current	760 mA
Audio Inputs	
Local PA (use optional Model MSB-1 microphone)	
Input Impedance	5 k Ω
Input Voltage	16 mV _{rms} (max.)
Remote Microphone	
Input Impedance	5 k Ω
Input Voltage	16 mV _{rms} (max.)
Auxiliary Input	
Input Impedance	5 k Ω
Input Voltage	500 mV _{rms} (max.)
Audio Outputs	
Output Impedance	
Unbalanced Signal Line	25 Ω (max.)
Unbalanced Signal Line, Standby	120 Ω
Balanced Signal Line	40 Ω (max.)
Low-Level Signal Line	600 Ω
Output Voltage Levels, No Load (< 3% THD)	
Unbalanced Signal Line	9 V _{rms}
Balanced Signal Line	17 V _{rms}
Low-Level Signal Line	1 V _{P-P}
Output Voltage Levels, Max. Load (< 3% THD)	
Unbalanced Signal Line	8 V _{rms} (25 Ω load)
Balanced Signal Line	15 V _{rms} (40 Ω load)
Low-Level Signal Line	1 V _{P-P} (600 Ω load)
Tone Output Voltage Levels, No Load (sq. wave)	
Unbalanced Signal Line	12 V _{rms}
Balanced Signal Line	25 V _{rms}
Low-Level Signal Line	1 V _{P-P}
Tone Output Levels Max. Load (sq. wave)	
Unbalanced Signal Line	12 V _{rms} (25 Ω load)
Balanced Signal Line	20 V _{rms} (40 Ω load)
Low-Level Signal Line	0.56 V _{rms} (600 Ω load)

Table 1 Product specifications (cont.)

Audio Frequency Response, Balanced Signal Line	
40 Ω Max. Load, from 250 Hz to 80 kHz (Reference 1 kHz)	-3 dB
40 Ω Max. Load, from 450 Hz to 60 kHz (Reference 1 kHz)	-1 dB
No Load, from 100 Hz to 90 kHz (Reference 1 kHz)	-3 dB
No Load, from 200 Hz to 60 kHz (Reference 1 kHz)	-1 dB
Signal to Noise Ratio (< 3 % THD)	
Local PA	60 dB
Remote Microphone	40 dB
Auxiliary Input	80 dB
Audio Distortion from Auxiliary Input to Balanced Signal	
Line Output (40 Ω load)	2%
Internal Speaker	
Sound Level at 1 meter	65 dB
Remote Tone Activation Circuit	
Type	Dry contact closure
Line Impedance	100 Ω (max.)
Circuit Current	50 mA (max.) (12 Vdc)
Remote Microphone Activation Circuit (PTT)	
Type	Dry contact closure
Line Impedance	100 Ω (max.)
Circuit Current	10 mA (max.) (12 Vdc)
Remote Contact Closure Outputs	
Tone 1, Tone 2, Tone 3, Tone 4, Sig. Out, Aux., Test and Cancel Relays	
Type	Dry contact closure
Rating	24 Vdc, 1 A, resistive
Fuses	
F1	Type GMC-1, 1 A, 250 V
F2	Type GMC-1/2, 1/2 A, 250 V
Physical Specifications	
Shipping Weight	15.0 lb (6.8 kg)
Net Weight	13.4 lb (6.1 kg)
Dimensions (HxWxD)	11.25 x 16.23 x 4.06 in (28.6 x 41.2 x 10.3 cm)

Recommendation for the Signal Lines

WARNING

REDUCED SOUND OUTPUT – If too small a diameter cable is used, an unacceptable signal voltage drop in the signal line will cause reduced sound output from the remote signal device. Only use a cable having wire diameter of at least 18 AWG.

The signal lines transfer tone signals and verbal messages from the 300SCW-1 to the remote SelecTone® devices. To reduce the possibility of cross-talk, hum, and static noise pickup, the signal lines must be twisted-pair, shielded audio cable. In the majority of systems, use AWG 18 twisted-pair audio cables. Federal Signal does not recommend that new or existing telephone lines be used as signal lines in a SelecTone system for the following reasons:

- Interference from other services or systems, or interference from the system to other services
- Cross-talk, interference, or hum induced by other telephone lines
- Extended downtime because of the second-party involvement required to service the lines

- The additional cost of installation, interfacing devices, and monthly charges as opposed to a one-time cost of performing the installation

Connecting Signal Lines of the SelecTone System to the 300SCW-1

⚠ WARNING

CROSS-TALK INTERFERENCE – Mixing signal lines with power lines could cause electrical interference, which could impede or render the system inoperable. Do not install signal lines in the same conduit with power lines.

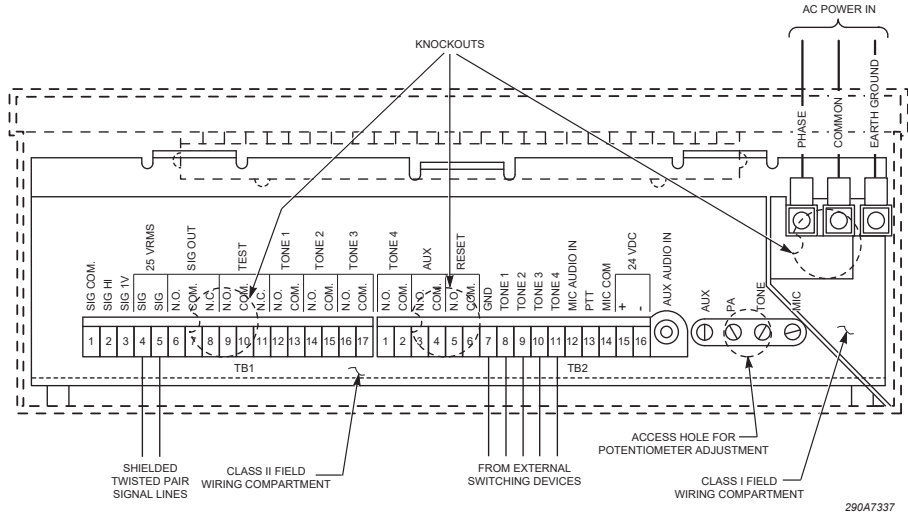
⚠ WARNING

SHOCK HAZARD – Do not install signal lines in the same conduit with power lines. Avoid routing signal lines on cable trays with high-voltage power lines.

To connect signal lines of the SelecTone® system to the 300SCW-1, connect a color-coded twisted pair of audio cables with conductors no smaller than 18 AWG to TB1-4 and TB1-5 terminals on TB1. Every remote SelecTone signaling device in the system can be connected in parallel or series to these lines. See Figure 2.

For non-SelectTone 25 V_{rms} speakers, such as ceiling speakers, connect the signal lines directly to TB1-4 and TB1-5 of terminal block TB1. Signal line losses need to be considered when calculating how many speakers can be connected to the 300SCW-1.

Figure 2 Connections on the back of Model 300SCW-1



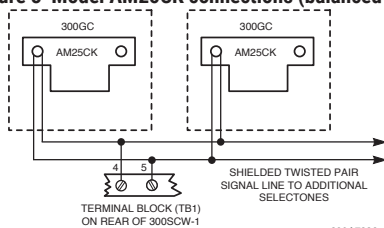
Connecting to Remote Devices

Physically install the remote SelecTone device(s) following the instructions included with the device.

Balanced Line Application

For 300GC, 300GCX, 300X, 302GC, 302GCX, 302X, or 50GC speakers, an AM25CK Connector Kit is required for connection to the balanced signal output of the 300SCW-1. The AM25CK properly terminates the balanced signal lines to the amplifier in the 300GC, 300GCX, 300X, 302GC, 302GCX, 302X, and 50GC. Connect the white input wires on the AM25CK to the terminals TB1-4 and TB1-5 of terminal block TB1 on the 300SCW-1 as shown in Figure 3. The AM25CK and AM70CK Connector Kits are NOT polarity-sensitive, but polarity must be observed when placing speakers in close proximity to each other.

Figure 3 Model AM25CK connections (balanced line)

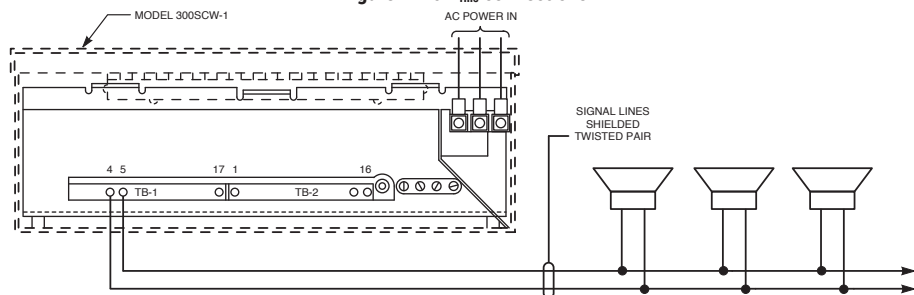


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For 25 V_{rms} line-operated speakers, connect them directly to the balanced signal output of the 300SCW-1. Connect the speakers in parallel to the terminals TB1-4 and TB1-5 of terminal block TB1 on the 300SCW-1. Unlike the unbalanced line output, this output is not switched. See Figure 4.

IMPORTANT: Use the balanced signal output only if there are no SelecTone® system devices connected to the unbalanced signal output (across TB1-1 and TB1-2).

Figure 4 25 V_{rms} connections

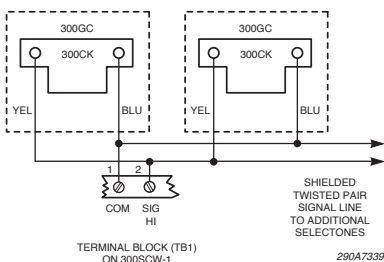


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Unbalanced Line Application

For existing SelecTone systems using the 300CK Connector Kit, use the unbalanced signal outputs on the 300SCW-1. A 300CK Connect Kit is required to connect a 300GC, 300GCX, 300X, 302GC, 302GCX, 302X, or 50GC to the unbalanced signal lines. The 300CK properly terminates the signal lines to the amplifier in the 300GC, 300GCX, 300X, 302GC, 302GCX, 302X, and 50GC. Connect the blue wire on the 300CK to the SIG COM wire from the 300SCW-1, and connect the yellow wire on the 300CK to the SIG HI wire from the 300SCW-1 as shown in Figure 5.

Figure 5 Model 300CK connections (unbalanced line)

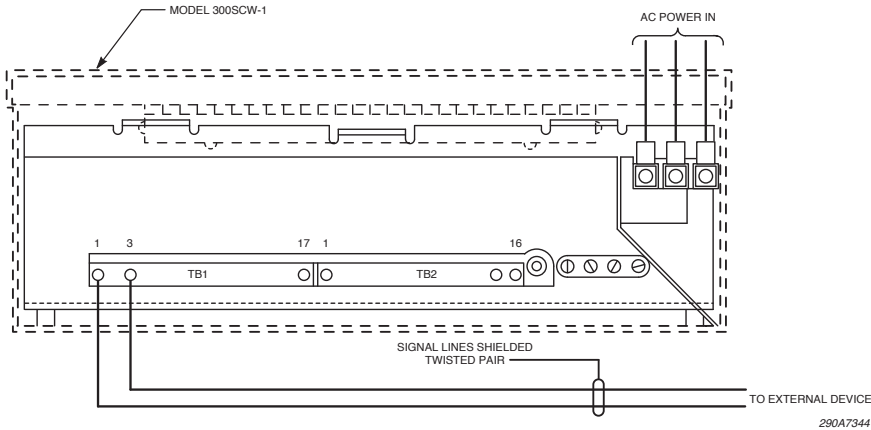


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Connecting a Low-Level Audio Output

The 300SCW-1 also has a 1 V_{P-P} audio output that can be coupled to the audio input of another amplifier. This low-level output is available across terminals TB1-1 and TB1-3. It can also be connected to an analog fiber optic transmitter so that audio can be transmitted over a fiber optic link in an electrically noisy environment. See Figure 6.

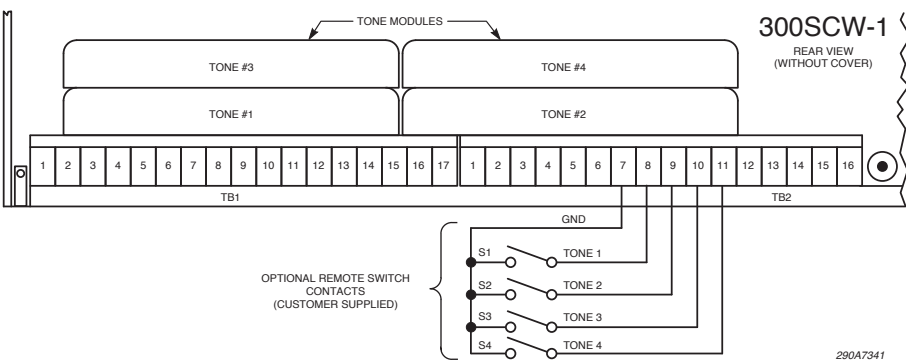
Figure 6 Low-level audio output connections



Connecting to Remote Switches for Tone Activation

The 300SCW-1 tones can be activated remotely by any normally open, low-current switch contacts with a current capacity of at least 50 mA inductive. Figure 7 illustrates the connection of switch contacts to the 300SCW-1. The designations S1, S2, S3, and S4 represent remote switch contacts such as those found in flow switches, program clocks, heat detectors, and smoke detectors. The remotely activated tone sounds as long as the activating contacts remain closed.

Figure 7 Remote switch contacts for tone modules 1 through 4



Installing SelectTone Tone Modules

⚠ WARNING

SHOCK HAZARD – Do not perform any installation or maintenance on this system when power is on. Because the 300SCW-1 does not have a power switch, ensure that the power is disconnected before proceeding. Failure to heed this warning may cause serious injury or death.

The 300SCW-1 can accommodate up to four SelectTone® modules of your choice. To install the tone modules, insert them into the corresponding receptacles on the printed circuit board. The receptacles for TONE 1 module and TONE 2 module are located on the motherboard. Receptacles for the TONE 3 module and TONE 4 module are located on the card that plugs into the motherboard.

Two Methods of Supplying Power to the SelecTone System

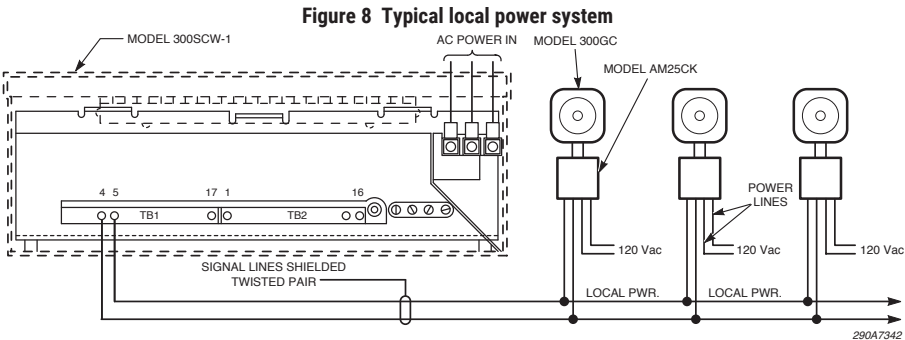
The two basic methods of supplying power to a SelecTone® system are 120 Vac, 50/60 Hz local power, and 24 Vdc central power. The following paragraphs describe each method along with the advantages and disadvantages.

120 Vac 50/60 Hz Local Power System

⚠ WARNING

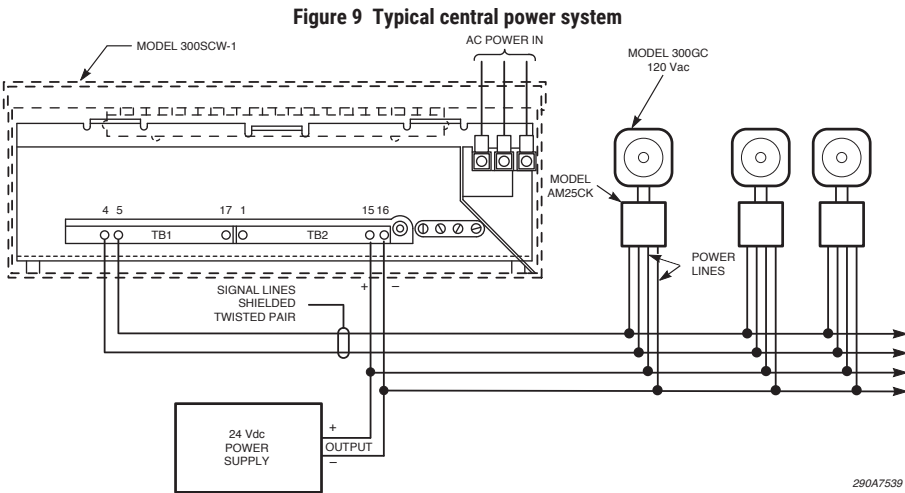
INSTALLATION PRECAUTION — Improper installation could render this system inoperable, interfering with the warning nature of this product. The installation must conform to applicable local and/or National Electrical codes.

In this system, power is supplied to each remote SelecTone device by connecting it to a 120 Vac supply in the immediate vicinity of the device. See Figure 8. If an emergency power source is required, use a central power system as described in "24 Vdc Central Power System" below.



24 Vdc Central Power System

In the central power system, all of the remote amplifier power lines are connected in parallel to one or more centrally located power sources that are 24 Vdc. See Figure 9.



The advantages of a central power system:

- The entire system may be independent of local line voltage.
- The entire system can be switched to an emergency standby power source in the event of a power failure.
- The central power system has the added advantage that an auxiliary power supply, such as the Federal Signal Model PS250, can be used to power the remote devices in the SelecTone® system. If the PS250 is used, it is not necessary to switch the power source if a power failure occurs.

The disadvantages of a central power system:

- Heavy power lines are required from the power source to the remote devices in the system. The size of the power lines is dependent upon the number of amplifiers and the total distance of the power loop in order to minimize the voltage drop while a tone signal is being generated.
- Future expansion is limited by the current capacity of the power source and the power lines that were initially installed.
- Central power installations must comply with local electrical codes. Most power circuits are Class I circuits. Therefore, conduit will probably be required. Installation costs are higher than a local power system.

Connecting Power to the SelecTone System

WARNING

QUALIFIED INSTALLERS ONLY – This device is to be installed by a trained electrician who is thoroughly familiar with the National Electric Code and will follow the NEC guidelines as well as local codes.

WARNING

SHOCK HAZARD – Do not perform any installation or maintenance on this system when power is on. Because the 300SCW-1 does not have a power switch, ensure that the power is disconnected before proceeding. Failure to heed this warning may cause serious injury or death.

WARNING

CROSS-TALK/INTERFERENCE HAZARD – Mixing power lines with signal lines can cause cross-talk, interference, or hum in the signal lines, which interferes with the emergency warning capability of this equipment. Do not install power lines in the same conduit as signal lines.

Operating power is connected to 300SCW-1 through the three-position field wiring terminal block located in the Class I wiring compartment. See Figure 2 on page 6. The knockout should be removed and provided with a bushing through which the power lines can be routed into the field wiring compartment. The 300SCW-1 is factory-set for 120 Vac, 50/60 Hz operation.

For 240 Vac Operation

For 240 Vac operation, open the control panel and slide the voltage selector switch S1, which is located near the line fuses on the motherboard, to the 240 Vac position.

For 24 Vdc Operation

For 24 Vdc operation, either as a primary or auxiliary source of power, connect the “+” terminal of the 24 Vdc power supply to terminal TB2-15 (+24 Vdc) located in the Class II field wiring compartment. Connect the “-” terminal of the 24 Vdc power supply to terminal TB2-16 (-24 Vdc).

SAFETY MESSAGES TO MAINTENANCE PERSONNEL

This device is to be serviced by a trained electrician who is thoroughly familiar with the National Electric Code and will follow the NEC guidelines as well as local codes.

This service information is for qualified personnel only. To avoid electric shock, do not perform any servicing other than changing fuses, unless qualified to do so. Refer all servicing to qualified service personnel.

Listed below are some important safety instructions and precautions you should follow:

- Do not perform any maintenance on this system when power is on. Because the 300SCW-1 does not have a power switch, ensure that the power is disconnected before proceeding.
- Read and understand all instructions before operating this system.
- Always ensure that the power to the 300SCW-1 is disconnected before removing the metal cover.
- Do not connect this unit to the system when power is on.
- All effective warning speakers produce loud sounds that may cause, in certain situations, permanent hearing loss. Take appropriate precautions, such as wearing hearing protection.
- After installation, test the sound system to ensure proper operation.
- Establish a procedure to routinely check the sound system for proper activation and operation.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

Maintenance and Service

Technical Assistance: Contact our Technical Support Team at +1 708-587-3587 or signalsupport@fedsig.com.

Repair Service: A return authorization is required. Contact your Authorized Distributor or Federal Signal Customer Support. Defective products under warranty will be repaired or replaced at Federal Signal’s discretion.

Product Returns: Returns require authorization from Federal Signal. Contact your Authorized Distributor for more information on our return policy or to request a return.

Ordering Replacement Parts

Typical replacement parts are listed in Table 2. To order accessories and replacement parts, please call Federal Signal Customer Support at 708-534-4756 or 877-289-3246.

Table 2 Replacement parts

Description	Part Number
Tone Card Connector Board	K2001164A
Connector Plug, TB1, 17-Position	K140A332A-17
Connector Plug, TB2, 16-Position	K140A332A-16



FEDERAL SIGNAL
Safety and Security Systems

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