

**MODELS 304GC, 304GCX,
314GC, and 314GCX**
**INSTALLATION AND SERVICE INSTRUCTIONS
FOR SELECTONE®**

Address all communications and shipments to:



FEDERAL SIGNAL CORPORATION
Electrical Products Division
2645 Federal Signal Drive
University Park, IL 60466-3195

**INSTALLATION AND SERVICE INSTRUCTIONS
FOR
MODELS 304GC, 304GCX, 314GC, AND 314GCX**

 SAFETY MESSAGE TO INSTALLERS

People's lives depend on your safe installation of our products. It is important to read, understand and follow all instructions shipped with these products. Listed below are some other important safety instructions and precautions you should follow:

- This unit must be installed by a qualified electrician in accordance with NFPA 72, all National and local Electrical and Fire Codes, and be acceptable to the authority having jurisdiction.
- Do not connect this unit to the system wiring when circuits are energized.
- For optimum sound distribution do not install this device where objects would block any portion of the front of the speaker.
- All effective warning speakers produce loud sounds, which in certain circumstances may cause permanent hearing loss. Take appropriate precautions such as wearing hearing protection. Recommendations in OSHA-Sound Level Standard (29 CFR 1910) should not be exceeded.
- After installation and completion of initial system test, a program for periodic testing of this device must be established. Refer to NFPA 72, local Fire Codes and the authority having jurisdiction for this information.
- After installation and completion of initial system test, provide a copy of this instruction sheet to all personnel responsible for operation, periodic testing and maintenance of this equipment.



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

I. GENERAL.

These four SelecTone® Models are 24VDC, polarized, high output (with internal volume adjustment), continuous duty, indoor/outdoor rated, audible signaling/amplified speaker devices for use in fire alarm systems. A plug-in tone module is required for tone generation. If the use of externally generated tones or voice signals from a remote amplifier is desired, the plug-in speaker connector cards may be used. See the specification section for compatible plug-in models. Speaker projectors on all models are adjustable and may be repositioned to obtain desired sound distribution.

The Models 304GCX and 314GCX are designed for use in areas where flammable gases, vapors, and liquids and combustible dusts are not normally present, except for abnormal conditions as defined by the National Electrical Code. These models are suitable for use in Class I, Division 2, Groups A, B, C, & D; Class II, Division 2, Groups F and G; Class III or non-hazardous locations only. Reference the product nameplate for additional information.

II. SPECIFICATIONS.

Operating Voltage:	Regulated 24VDC (16-33VDC)
Current (depends on tone card or signal used)	
Model 304GC & 304GCX:	0.7A max.
Model 314GC & 314GCX:	1.3A max.
Weight	
Model 304GC & 304GCX:	5 pounds (2.25kg)
Model 314GC & 314GCX:	7 pounds (3.2kg)

Construction

Amplifier Housing: Die-cast aluminum alloy with powder coated finish. Housing sealed with a neoprene rubber gasket. External mounting bracket on Models 304GCX & 314GCX.

Speaker Cone Tip & Projector: Spun aluminum alloy with powder coated finish.

Approval Agency Listings: Reference product nameplate.

Compatible Tone Modules:

TM2 or UTM

Compatible Speaker Connector Cards:

AM25CK*, AM70CK*, or 300CKS

* - Series A versions of these connector cards are not compatible.

Audibility Ratings: See Table 1.

III. INSTALLATION.

A. *Unpacking.*

After unpacking the speaker, examine it carefully for possible damage that may have occurred in transit. If equipment has been damaged, immediately file a claim with the carrier stating the extent of the damage. Carefully check all shipping labels and tags for special instructions before removing or destroying them.

B. *Mounting Arrangements (see figure 1).*



To maintain the hazardous location rating of the Models 304GCX and 314GCX, do not use the 7/8" knockout (concealed conduit mounting.)

The amplified speaker can be mounted on any relatively flat surface. Conduit connections can be made to the two 1/2" threaded openings at bottom of the housing. A 1/2" conduit plug is supplied for field installation if one of the 1/2" threaded openings is not utilized. After the mounting location and mounting method have been selected, proceed with the applicable instructions below.



Property damage, serious injury, or death could occur if an accumulation of water, snow, dust, etc. resides in the speaker projector, severely reducing or preventing operation of this device. Mount the unit so speaker projector is pointed horizontally or slightly downward.

1. Flat Surface Mounting.

- a. Remove and retain the two screws that secure cover to housing.

Remove the cover.



Property damage, serious injury, or death could occur if any objects are in front of the speaker, severely reducing optimum sound distribution. For maximum effectiveness, ensure that the front of the speaker is clear of obstructions.

- b. Select the mounting location and place rear of the housing against mounting surface.

c. Using the mounting holes (two (2) inside for Models 304GC and 314GC's housing or four (4) outside for the Models 304GCX and 314GCX's external housing bracket) as a template, scribe drill position marks on the mounting surface. See figure 1 for mounting hole locations and dimensions.



Before drilling holes in any surface, ensure that both sides of surface are clear of items that could be damaged.

d. Secure the unit to a wooden mounting surface with #10 x 1" wood screws. If mounting on a metal surface, drill 13/64" diameter holes and secure the unit with #10 screws, lockwashers and nuts.

e. Route wires through the 1/2" threaded openings into the SelecTone unit in accordance with national and local electrical and fire codes. Wire size depends upon the operating current and the distance from the power source.



Property damage, serious injury or death could occur if the projector is mishandled during installation or over time. DO NOT rotate the projector more than 180 degrees or internal speaker wiring may be damaged.

f. Reposition speaker projector if necessary to obtain desired sound coverage. Loosen collar nut (see figure 1) and move projector to desired position.

g. Before reinstalling the housing cover, read paragraph III.C. Electrical Connections below and make the necessary electrical connections.

2. Concealed Conduit Mounting (models 304GC and 314GC only).

- a. Remove and retain the two screws that secure cover to housing.

Remove the cover.

- b. Remove the 7/8" knockout at rear of housing.

- c. Install the conduit connection.

d. Route wires through the 1/2" threaded openings into the SelecTone unit in accordance with national and local electrical and fire codes. Wire size depends upon the operating current and the distance from the power source.

e. Select the mounting location and place rear of housing against mounting surface.

f. Using the two (2) mounting holes as a template, scribe drill position marks on the mounting surface. See figure 1 for mounting hole locations and dimensions.



Before drilling holes in any surface, ensure that both sides of surface are clear of items that could be damaged.

g. Secure the unit to a wooden mounting surface with #10 x 1" wood screws. If mounting on a metal surface, drill 13/64" diameter holes and secure the unit with #10 screws, lockwashers and nuts.



Property damage, serious injury, or death could occur if the projector is mishandled during installation or over time. DO NOT rotate the projector more than 180 degrees or internal speaker wiring may be damaged.

h. Reposition speaker projector if necessary to obtain desired sound coverage. Loosen collar nut (see figure 1) and move projector to desired position. Install 1/2" conduit plugs in the unused bottom entryways (one plug supplied).

i. Before reinstalling the housing cover, read paragraph III.C Electrical Connections below and make the necessary electrical connections.

C. *Electrical Connections.*



To avoid electrical shock, do not connect wires when circuits are energized.



Property damage, serious injury, or death could occur if the housing is not closed properly. To reduce possibility of explosion, the Model 304GCX and 314GCX's housing cover must be kept tight while circuits are energized.

National Electrical Codes as well as local codes must be adhered to in the installation of these models. All electrical wiring must be routed through approved conduit and fittings as specified.

1. *Power Connections.*

a. Use only 12 to 18 AWG [2.5 - 1.0 mm²] wire for the power connection. Strip no more than .25 inch [6 mm] of wire insulation from the ends of the power

leads. If stranded wire is used, be sure that there are no loose strands outside the connector plug that could touch the adjacent lead and cause a short circuit.

b. See figures 2 and 3. Connect the power source positive (+) lead to one of the (+) terminals of the connector plug. Connect the power source negative (-) lead to one of the (-) terminals of the connector plug. Connect the remaining (+) and (-) terminals on the connector plug to the next unit or an end of line device.

c. Plug the connector into the receptacle provided on the printed circuit board.



Property damage, serious injury, or death could occur if independent conductors are terminated together, both wires of the same polarity must be used as two separate connections. NFPA 72 requires that the wires be terminated independently to provide electrical supervision of the connection.

2. Tone Card Installation

NOTE

Tone card is purchased separately.

a. Plug the desired tone card into the socket as shown in figure 2.

b. To ensure a proper seal, be sure that the neoprene rubber cover gasket is properly seated in the housing groove and reinstall the housing cover.

3. Speaker Connector Card Installation (Models AM25CK and AM70CK).

NOTE

Connector card is purchased separately.

a. Route the audio signal leads into the enclosure. Connect the input pair of white leads from the connector card to the audio output of the fire alarm panel and the output pair of white leads to the connector card in the next unit or to an appropriate end of line device. Refer to the connector card installation manual provided with the connector card kit for additional wiring information.

b. Plug the desired connector card into the socket as shown in figure 2.

c. To ensure a proper seal, be sure that the neoprene rubber cover gasket is properly seated in the housing groove and reinstall the housing cover.

NOTE

Check with authority having jurisdiction for proper application of EOL resistor and power supervision relay required (see figure 4).



Property damage, serious injury, or death could occur if independent conductors are terminated together, both wires of the same polarity must be used as two separate connections. NFPA 72 requires that the wires be terminated independently to provide electrical supervision of the connection, for both the 24VDC speaker power and 25 VRMS or 70 VRMS audio lines.



Property damage, serious injury, or death could occur if the housing is not closed properly. To reduce possibility of explosion, the housing cover must be kept tight while circuits are energized.

IV. TESTING/OPERATING.



Under certain conditions these devices are capable of producing sounds loud enough to cause hearing damage. Adequate hearing protection should be worn if standing within close proximity to device while testing. Recommendations in the OSHA Sound Level Standard (29 CFR 1910F) should not be exceeded.

A. After installation is complete, be sure to test the system to verify that each amplified speaker operates satisfactorily. If it is found that the unit is too loud for its location, an internal volume control can be adjusted. Remove the housing cover. Using a slotted screwdriver with an 1/8" blade, gently turn control to desired loudness. See figure 3. Reinstall the housing cover.



Property damage, serious injury or death could occur if the housing is not closed properly. To reduce possibility of explosion, housing cover must be kept tight while circuits are energized.

B. After completion of initial system test, establish a program for periodic testing of this device. Refer to NFPA 72, local Fire Codes and the authority having jurisdiction for this information.

C. Provide a copy of these instructions for the Safety Engineer, system operator(s) and maintenance personnel.

SAFETY MESSAGE TO OPERATORS

Even if your warning system is operating properly, it may not be completely effective. People may not hear or heed your warning signal. You must recognize this fact and ensure that your warning signal achieves its intended effect through proper test/training sequences within your specific application(s).

V. MAINTENANCE.

SAFETY MESSAGE TO MAINTENANCE PERSONNEL

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

- Read and understand all instructions before performing maintenance on this unit.
- To reduce the risk of electrical shock or ignition of hazardous atmospheres, do not perform maintenance or service on this unit when circuits are energized.
- Periodic checks should be made to ensure that effectiveness of this device has not been reduced because speaker has become clogged with a foreign substance or because objects have been placed in front of the speaker.
- Any maintenance to this unit **MUST** be performed by a trained electrician in accordance with NEC guidelines and local codes.
- Never alter this unit in any manner. Safety in hazardous locations may be jeopardized if additional openings or alterations are made to Models 304GCX or 314GCX.
- The nameplates, which contain cautionary or other information of importance to maintenance personnel, should not be obscured if exterior of device is painted.

A. Periodically check this device to verify that there are no foreign substances in, or in front of the speaker, which will reduce its effectiveness.

B. Testing should be periodically performed. Refer to NFPA 72G, local Fire Codes and the authority having jurisdiction for information.

C. In the event a volume adjustment or other repair is required, be sure to refer to the Safety Message For Maintenance Personnel before proceeding.

WARNING

Unauthorized repair/servicing of the unit may result in degradation of performance and/or property damage, serious injury, or death to you or others. If a malfunctioning unit is encountered, do not attempt any field repair/retrofit of parts.

WARNING - EXPLOSION HAZARD

Substitution of components may impair suitability for Class I, Division 2 and Class I, Zone 2.

VI. SERVICE.

Federal Signal will service your equipment or provide technical assistance with any problems that cannot be handled locally.

Any units returned to Federal Signal for service, inspection, or repair, must be accompanied by a Return Material Authorization. This R.M.A. can be obtained from the local Distributor or Manufacturer's Representative.

At this time a brief explanation of the service requested or the nature of the malfunction, should be provided.

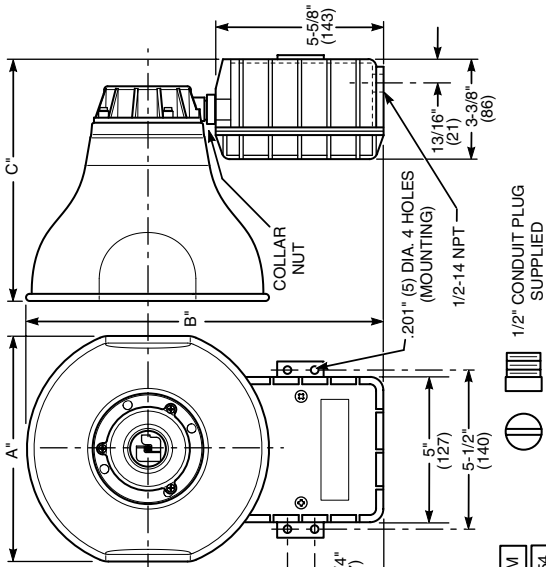
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Electrical Products Division
Service Department
2645 Federal Signal Drive
University Park, IL 60466-3195

Table 1. Tone and Connector Card UL Audibility Ratings.

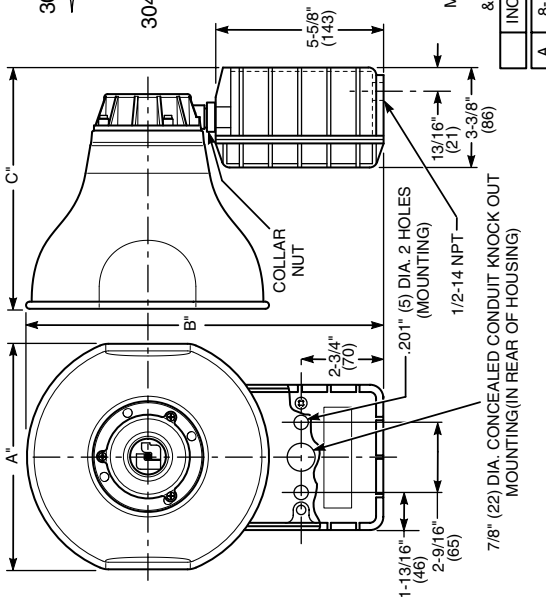
RATING	UL dB (A) SOUND PRESSURE PER UL1480	
	Model 304 GC and 304GCX	Model 314GC and 314GCX
Tone Card*	95	100
AM25CK	101	103
AM70CK	101	103

* Based on TM6, Horn



MODELS
304GC & 314GC

MODELS
304GCX & 314GCX

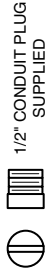


MODELS
304GC
& 304GCX

MODELS
314GC
& 314GCX

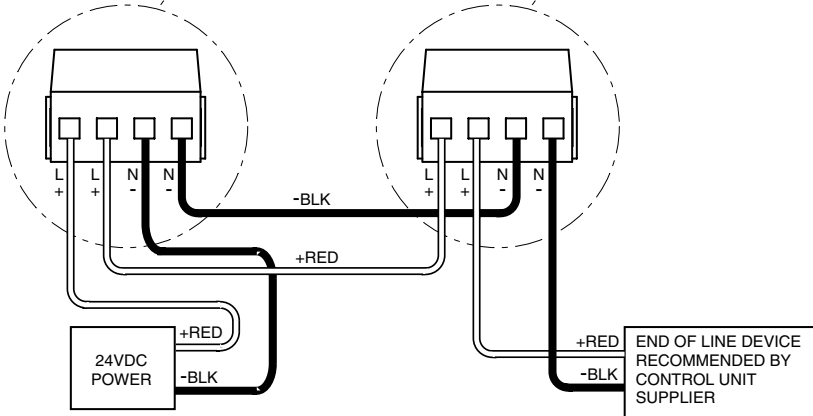
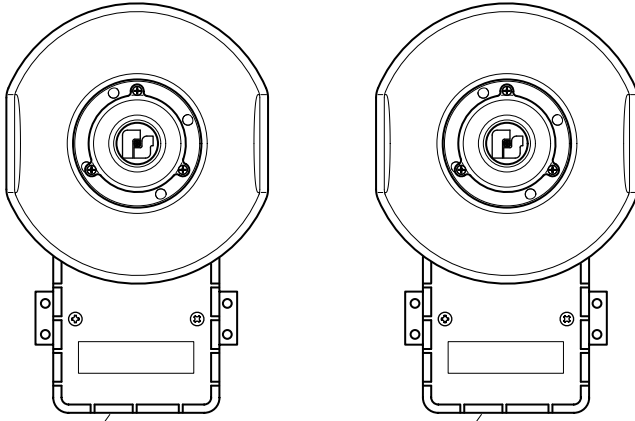
	INCHES	MM	INCHES	MM
A	8-1/8"	206	10"	254
B	12-5/8"	320	15"	381
C	8-1/4"	206	11"	279

in (mm)



1/2" CONDUIT PLUG
SUPPLIED

2

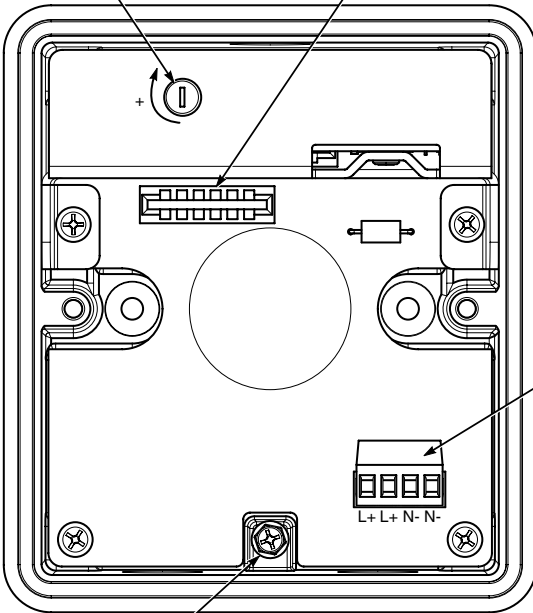


290A5442

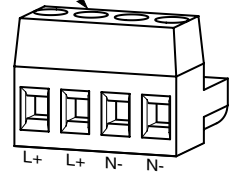
3

VOLUME CONTROL

TONE/CONNECTOR
CARD SOCKET



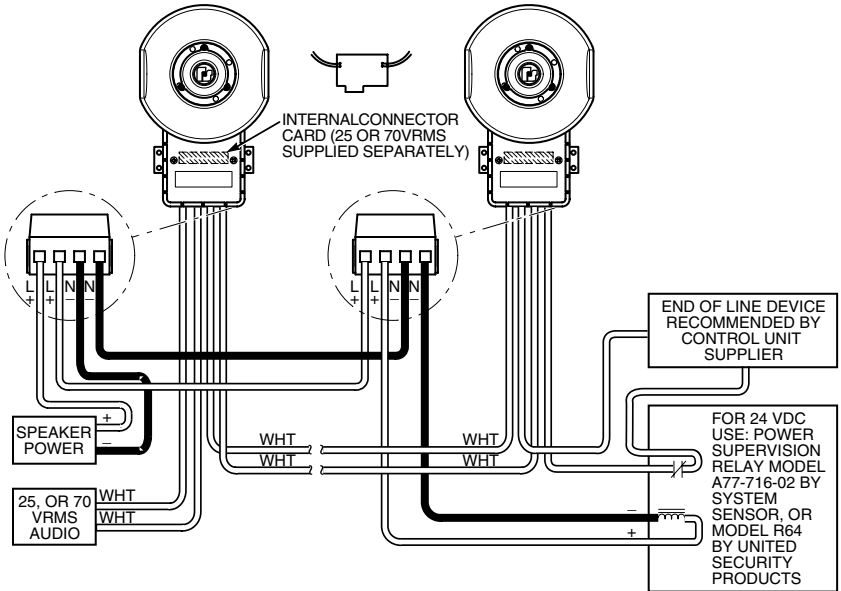
POWER CONNECTOR PLUG



EARTH
GROUNDING
TERMINAL

290A5443

4



290A5444B

