



## INSTALLATION INSTRUCTIONS FOR MODEL AM302 and AM302GCX AUDIOMASTER® SPEAKER

### WARNING

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

### ⚠ SAFETY MESSAGE TO INSTALLERS

People's lives depend on your safe installation of our products. It is important to follow all instructions shipped with the products. 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.

The selection of the mounting location for the device, its controls and routing of the wiring is to be accomplished under the direction of the Facilities Engineer and the Safety Engineer. In addition, listed below are some other important safety instructions and precautions you should follow:

- Read and understand all instructions before installing or operating this equipment.
- This unit must be installed by a qualified electrician in accordance with National and local Electrical Codes, under the direction of the authority having jurisdiction.
- Do not connect this unit to the system when power is on.
- All effective warning speakers produce loud sounds which may cause, in certain situations, permanent hearing loss. You should take appropriate precautions such as wearing hearing protection.
- After installation, test the sound system to ensure proper operation.
- All effective warning speakers produce loud sounds, which 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.
- Show these instructions to your Safety Engineer and then file them in a safe place and refer to them when maintaining and/or reinstalling the unit.
- After installation and completion of initial system test, a program for periodic testing of this device must be established. Refer to the authority having jurisdiction for this information.
- Consult the authority having jurisdiction in your area regarding the proper use and installation of this product.

### I. GENERAL

The AudioMaster Model AM302 and AM302GCX are 25 Vrms and 70 Vrms, indoor/outdoor rated, selectable power output (9 to 30 watts) loudspeakers for use with general utility signaling systems such as Federal Signal's SelecTone system. They are designed to reproduce electronically generated warning tones, which command rapid recognition, and full range voice communication. They are suitable for use in areas with high ambient noise

levels. The speaker projector is adjustable and may be repositioned to obtain desired sound distribution.

The AM302GCX is suitable for use in Class I, Division 2, Groups A, B, C, & D; Class II, Division 2, Groups F & G; Class III Hazardous, and Non-hazardous Locations.

### II. SPECIFICATIONS.

|                             |  |
|-----------------------------|--|
| Operating Voltage           | 25 Vrms or 70 Vrms   |
| Power Input (selectable)    | 9 W, 15 W, and 30 W  |
| Maximum Supervisory Voltage | 50Vdc  |
| Weight (approx.)            | 7 lb. (3.2kg)  |
| Size                        | 14" (356mm) high, 10" (254mm) wide, 11" (279mm) deep.  |
| Construction                | Aluminum enclosure painted with grey electrostatic powder coating. Amplifier housing sealed with neoprene rubber gasket. |

Audibility information is shown in 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 extent of damage. Carefully check all shipping labels and tags for special instructions before removing or destroying them.

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

### CAUTION

To maintain the hazardous location rating of the Model AM302GCX, do not use the 7/8" knockout (concealed conduit mounting).

The speaker can be mounted on any relatively flat surface. Conduit connection can be made to 1/2" threaded opening at bottom of housing or to 7/8" knockout in rear of housing. After the mounting location and mounting method have been selected, proceed with the applicable instructions below.

| POWER TAP | UL Omnidirectional Sound Level @ 10' dB(A) per UL1480 | Sound Level dB(A) @ 10' on axis |
|-----------|---|---------------------------------|
| 9 watt    | 99  | 104                             |
| 15 watt   | 102   | 109                             |
| 30 watt   | 105   | 112                             |

Table 1. Power Tap Settings vs. Sound Output on Models AM302 and AM302GCX

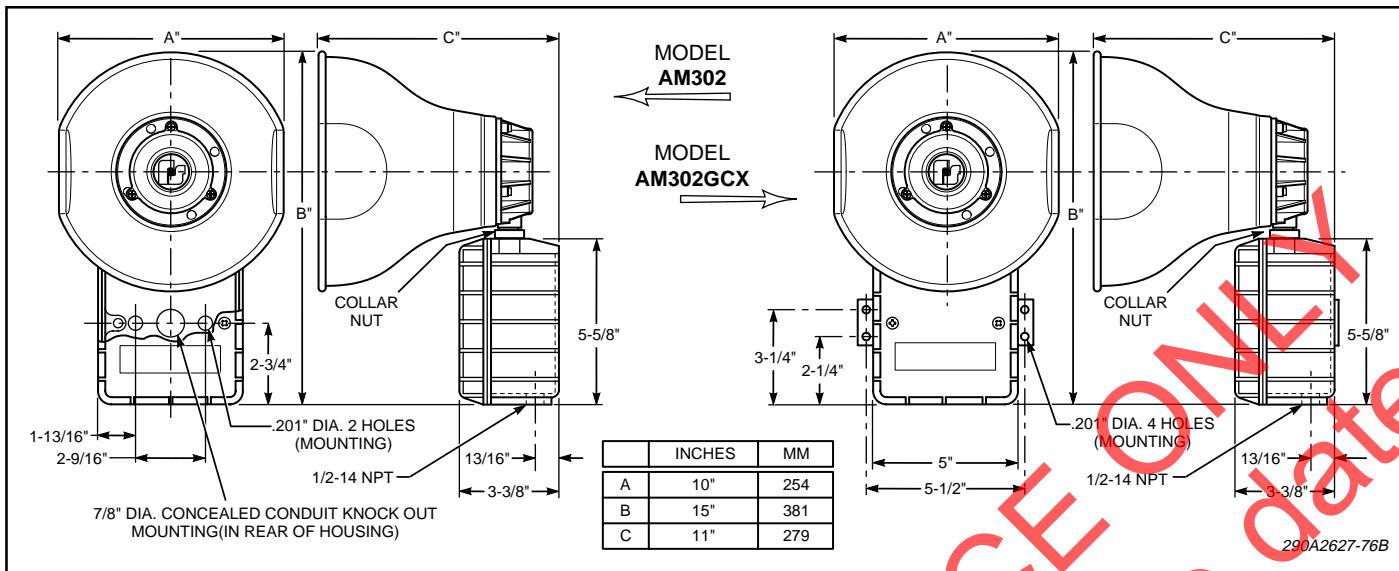


Figure 1. Models AM302 and AM302GCX Speaker Dimensions.

### WARNING

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.

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

### WARNING

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

- Select the mounting location and place rear of housing against mounting surface.
- Using the mounting holes (two (2) inside the Model AM302's housing or four (4) in the AM302GCX's external mounting bracket) as a template, scribe drill position marks on the mounting surface. See figure 1 for mounting hole locations and dimensions.

### CAUTION

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

- Secure the unit to the mounting surface with #10 screws appropriate for the type of mounting surface material.

### WARNING

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.

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

- Before reinstalling the housing cover, read paragraph 4 in section C, Electrical Connections, and make the necessary electrical connections.

#### 2. Model AM302 Concealed Conduit Mounting.

- Remove and retain the two screws that secure cover to housing. Remove the cover.
- Remove the 7/8" knockout at rear of housing.
- Install the conduit connection.
- Select the mounting location and place rear of housing against mounting surface.
- 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.

### CAUTION

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

- Secure the unit to the mounting surface with #10 screws appropriate for the type of mounting surface material.

### WARNING

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.

- Reposition speaker projector if necessary to obtain desired sound coverage. Loosen collar nut (see figure 1) and move projector to desired position.
- Before reinstalling the housing cover, read paragraph 4 in section C, Electrical Connections, and make the necessary electrical connections.

## C.Electrical Connections.

### **DANGER**

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

### **WARNING**

Audio wires should be sized properly by your licensed installation electrician for your service application. This cable requires a twisted shielded pair with an 18AWG minimum and should produce no more than 15% signal loss over the length of the cable run.

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

1. See figures 2 and 3. Connect the audio common (-) leads to the speaker's common terminal.
2. Refer to figures 2 and 3. Connect the audio positive (+) leads to the 25V or 70V terminal, depending on the external signal source voltage.
3. Create a 4-inch long jumper using 14 - 22 AWG wire. Connect one end of the jumper wire to the terminal marked with the desired wattage (see figure 3). Connect the other end to the terminal marked "SPK".

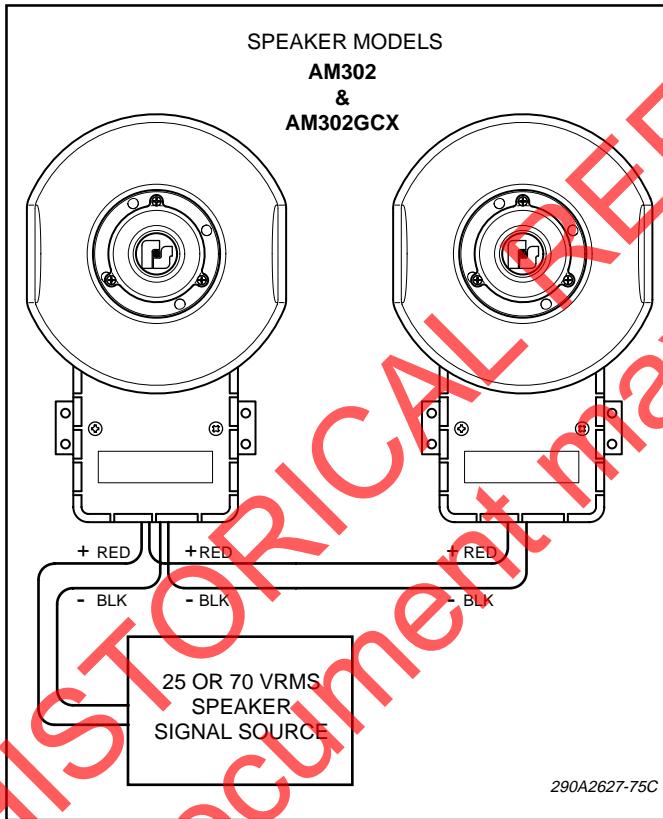


Figure 2. Typical Installation Wiring.

### **NOTE**

Only three (3) of the five (5) wattage terminals marked on the terminal block are for use on the AM302 and AM302GCX.

For proper operation, the speaker wire should be connected to one (1) of these terminals as indicated in figure 3. The remaining two (2) wattage terminals are not used.

4. Be sure the neoprene rubber cover gasket is properly seated in the housing groove and reinstall the housing cover.

### **WARNING**

Property damage, serious injury or death could occur if the housing is not closed properly. To reduce the possibility of explosion, the Model AM302GCX's housing cover must be kept tight while circuits are energized.

## IV. TESTING/OPERATING.

### **WARNING**

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 1910) should not be exceeded.

- A. After installation is complete, be sure to test the system to verify that each speaker operates satisfactorily. If it is found that the unit is too loud for its location, a lower wattage tap may be selected. Carefully remove the housing cover and move the speaker internal yellow lead to a lower wattage tap (see Figure 3). Reinstall the housing cover and retest.

### **WARNING**

Property damage, serious injury or death could occur if the housing is not closed properly. To reduce the possibility of explosion, the Model AM302GCX's 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 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).

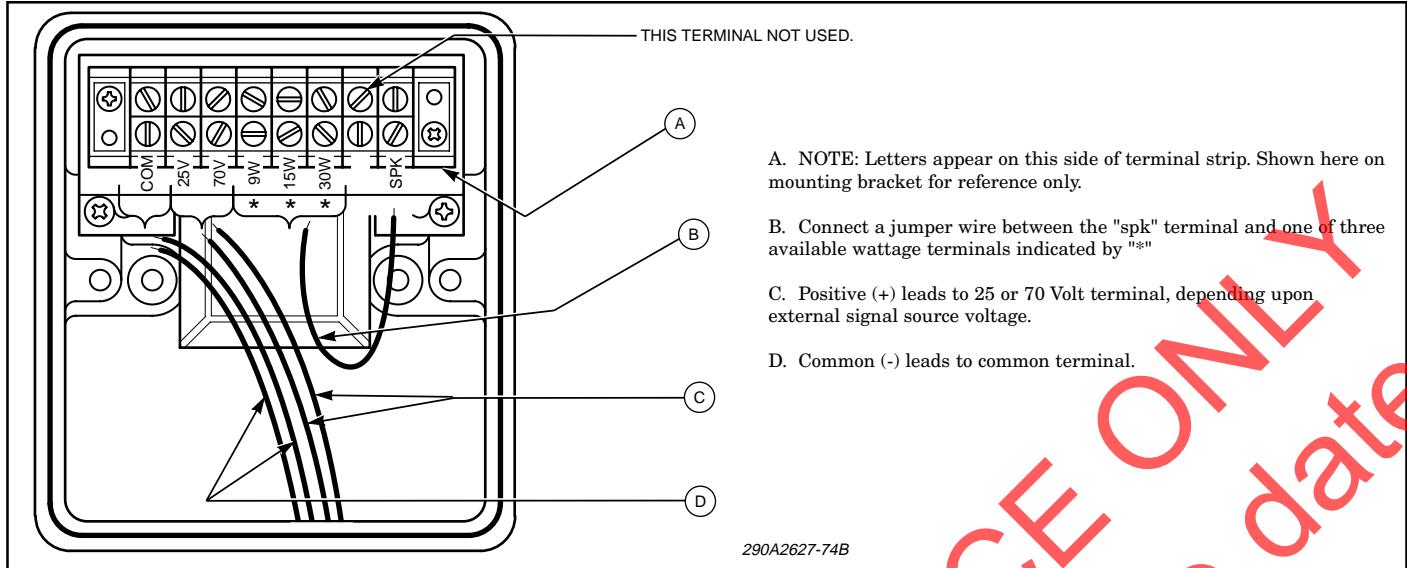


Figure 3. Internal Multi-tap Wiring Set-up.

## 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 Model AM302GCX.
- 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 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.

## VI. SERVICE.

### ⚠ 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.

Do not replace transformer or capacitor unless power has been switched off or area is known to be non-hazardous.

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 given.

Address all communications and shipments to:

#### FEDERAL SIGNAL CORPORATION

Electrical Products Division

Service Department

2645 Federal Signal Drive

University Park, IL 60466-3195