

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

# V400R(Red), V400B(Beige), and V400W(White) Speakers for Fire Protective Signaling Systems

V400R and V400B also for use with these listed strobes:  
SS12LO, SS24LO, SS24LOC, SS24M, and SS24MC



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### Specifications

Voltage Input:	25 V <sub>rms</sub> or 70.7 V <sub>rms</sub>
Input Power Taps:	1/4 Watt, 1/2 Watt, 1 Watt, or 2 Watts
Frequency Range:	400 to 4000 Hz
Supervision:	Capacitive input for supervisory DC voltage
Grille Size:	4" X 4"
Cone Material:	Weather resistant
Mounting:	Standard 4" X 4" electrical box Surface mount directly to box Semiflush mount, using model MP-SF, MP-SFB, or MP-SFW Flush mount, using Model MP-F, MP-FB, or MP-FW Ceiling mount, using flush mount kit MP-F or MP-FB; use Models SS24LOC and SS24MC Strobes (optional) for ceiling-mounted installations.
Input Terminals:	14 to 18 AWG
Operating Temperature Range:	32° to 120° F

### General Description

The National Fire Protection Association has published standards and recommended practices for the installation and use of the appliances described in these instructions. System Sensor recommends that the installer become familiar with these standards and practices, local codes, and any special requirements of the authority having jurisdiction.

The speaker can operate at any one of four input power levels (1/4, 1/2, 1, or 2 watts) at either of two input voltages (25V<sub>rms</sub> or 70.7V<sub>rms</sub>). The rms voltage and power levels are selected at the time of installation, but can be changed, if necessary.

The speaker is equipped with a capacitive input to allow for DC supervision.

Optional strobes are available for use with the speaker. Although they are assembled into a unit at the time of installation, the strobe and speaker are electrically independent and require separate power sources. Strobes must be powered by means of an uncoded full-wave rectified, filtered or unfiltered supply. Model SS12LO is for use with 12 volt panels and Models SS24LO and SS24M are for 24 volt panels. The strobe CANNOT be supervised when it is attached to the speaker and is considered a supplementary signaling device.

### Installation

#### Electrical

Install the electrical wiring in compliance with all applicable local codes as well as any special requirements of the authority having jurisdiction, using the proper wire size.

1. Connect the speaker and strobe as shown in Figure 1. Keep in mind that if an optional strobe has been attached to the speaker, the speaker and strobe are electrically independent. The speaker must be connected to a 25V<sub>rms</sub> or 70.7V<sub>rms</sub> amplifier and the strobe to an uncoded DC power supply.

Even though V400 series speakers can be used with 25V<sub>rms</sub> or 70.7V<sub>rms</sub> amplifiers, permanent damage can result if the speaker is improperly connected. Therefore, be sure to use the COM and 25 terminals when a 25V<sub>rms</sub> amplifier is being used. Similarly, use the COM and 70 terminals if a 70.7V<sub>rms</sub> amplifier is in the system.

**NOTE:** Do NOT loop electrical wiring under terminal screws. Wires connecting the device to the control panel must be broken at the device terminal connection to ensure electrical supervision.

2. See Figure 1. The speaker is equipped with five posts and an associated plug with red and black wires. The center post is labeled COM (common) while the others are labeled 2W, 1/4W, 1/2W, and 1W, respectively.

These posts enable the installer to select any one of four power levels by installing the plug onto COM and the

appropriate power post. When connecting this plug, make sure the black wire is connected to the COM post and the red wire to the numbered post.

**NOTE:** The plug **MUST** be installed for the speaker to operate. The speaker cannot sound or produce a trouble indication at the panel if the plug is not installed.

### Mounting

**NOTE:** The descriptions in this section assume that all preparations necessary for the installation of the speakers have been completed. This includes the installation of all conduit, electrical boxes, and wiring.

#### A. General

Both slotted head and phillips head screws are supplied with the speaker/strobe. Use the slotted head screws to mount the device or combination of devices on the electrical box. Use the phillips head screws in the two remaining holes when only a speaker is being installed.

#### B. Surface Mount

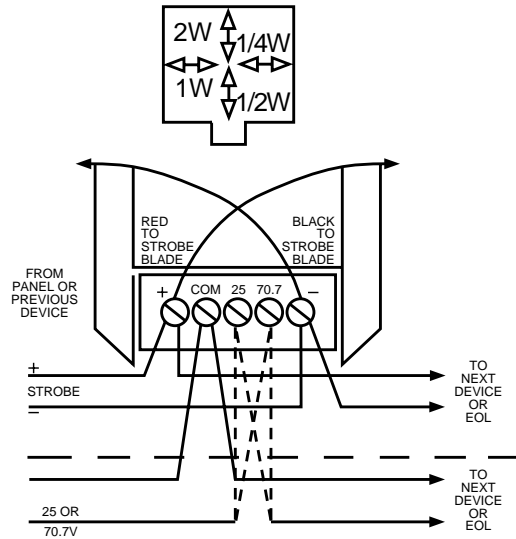
##### 1. Speaker Only (Figure 2)

- (a) Wire the speaker as described in Electrical.
- (b) Attach the speaker to a standard 4-inch electrical box, using the two 8-32 X 1<sup>7</sup>/<sub>16</sub> slotted screws provided. Fill the remaining holes with the short #8 sheet metal screws.

##### 2. Speaker with Strobe (Figure 3)

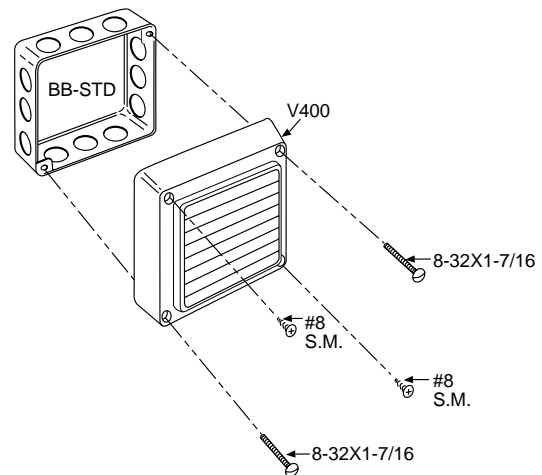
- (a) Use a small bladed screwdriver to remove the plastic flash from the two strobe lug slots on the speaker.
- (b) Identify the two diagonally opposite speaker holes that will be needed for mounting the speaker on the electrical box. The other two holes will be used to attach the strobe and flush mount plate to the speaker.
- (c) Position the strobe over the speaker and guide its two power lugs into the slots formed when the flash was removed in step 2(a). Attach the strobe and flush mount plate to the speaker using #8 phillips head sheet metal screws through the pair of strobe mounting holes that was selected in step 2(b).
- (e) Slide the right angle connector on the red wire onto the strobe power lug nearest the "F" in "FIRE". Similarly, connect the right angle connector on the black wire to the remaining lug on the opposite side of the speaker.
- (f) Connect the free end of the red wire to the STROBE + terminal (1) and black wire to STROBE - (5). Then, connect a source of uncoded (continuous) 12 VDC or 24 VDC, as appropriate for the strobe model, to the STROBE + and STROBE - terminals (1 and 5, respectively). Be sure to observe polarity.
- (g) Wire the speaker as described in Electrical and attach it to the box, using two 8-32 X 1<sup>7</sup>/<sub>16</sub>" slotted screws.

**Figure 1. Wiring diagram shown in alarm condition:**



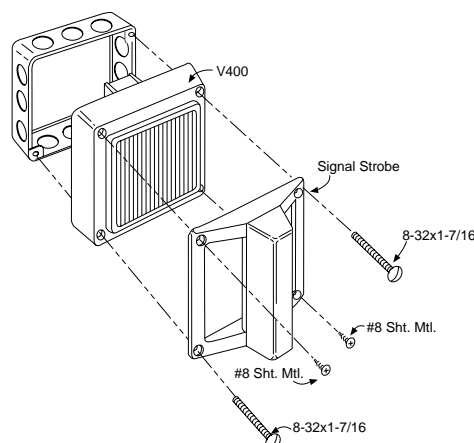
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**Figure 2. Surface Mount:**



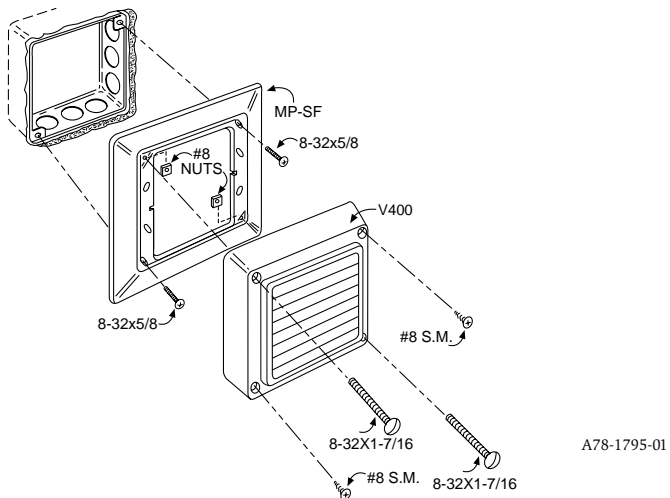
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**Figure 3. Speaker/Strobe Surface Mount:**

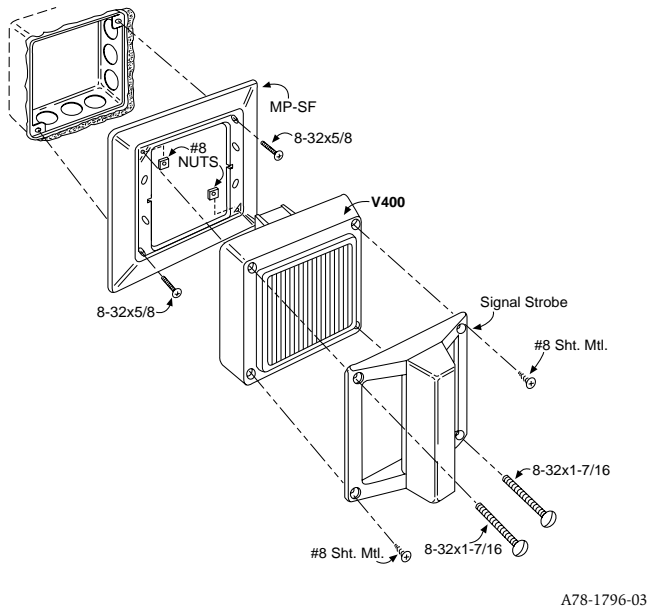


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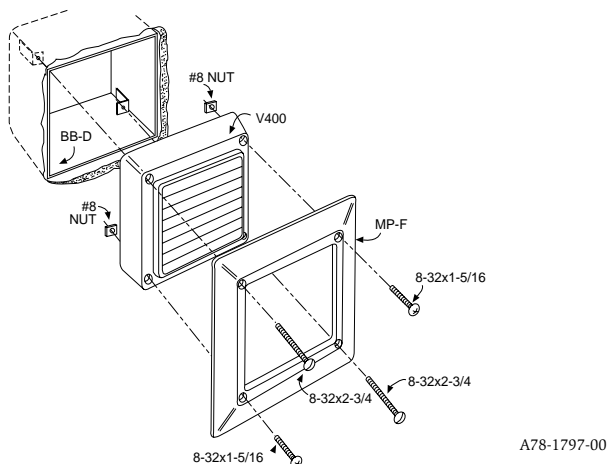
**Figure 4. SemiFlush Mount:**



**Figure 5. Speaker, Strobe Semiflush Mount:**



**Figure 6. Speaker Flush Mount:**



**C. Semiflush Mount**

**1. Speaker Only (Figure 4)**

- (a) System Sensor semiflush mounting plates are shipped with #8 nuts already installed from the back.
- (b) Route wiring through the opening in the semiflush mounting plate opening and attach the plate to a standard 4-inch square electrical box at diagonally opposite corners, using the two 8-32 X 5/8 slotted screws, provided.
- (c) Wire the speaker/strobe as described in Electrical and mount it on the plate using two 8-32 X 1 7/16" slotted screws in diagonally opposite corners. Thread a #8 sheet metal screw into each of the two remaining holes in the speaker/strobe.

**2. Speaker with Strobe (Figure 5)**

Attach the mounting plate to the electrical box as described in paragraph C.1 before wiring the speaker/strobe assembly as described in paragraph B.2.

**D. Flush Mount**

Flush mounting requires the use of a System Sensor BBD deep box, or equivalent.

**1. Speaker Only (Figure 6)**

- (a) Identify the two diagonally opposite speaker holes that will be needed for mounting the speaker on the electrical box.
- (b) Use two 8-32 X 1 5/16" phillips head screws and square nuts through the holes not used for mounting to attach the flush plate to the speaker.
- (c) Wire the speaker as described in Electrical and mount the speaker/plate assembly in the electrical box using two 8-32 X 2 3/4" screws.

**2. Speaker with Strobe (Figure 7)**

- (a) Use a small bladed screwdriver to remove the plastic flash from the two strobe blade slots on the speaker and flush mount plate.
- (b) See Figure 3. Identify the two diagonally opposite speaker holes that will be needed for mounting the speaker on the electrical box. The other two holes will be used to attach the strobe to the speaker.
- (c) Position the strobe over the speaker and guide its two power lugs into the slots formed when the flash was removed in step 2(a). Attach the strobe to the speaker using the #8 phillips head sheet metal screws through the pair of strobe mounting holes that was selected in step 2(b).
- (e) Slide the right angle connector on the red wire on to the strobe power lug nearest the "F" in "FIRE". Similarly, connect the right angle connector on the black wire to the remaining lug on the opposite side of the speaker.
- (f) Connect the free end of the red wire to the STROBE + terminal (1) and black wire to STROBE - (5). Then, connect a source of uncoded (continuous) 12

VDC or 24 VDC, as appropriate for the strobe model, to the STROBE + and STROBE - terminals (1 and 5, respectively). Be sure to observe polarity.

- (g) Wire the speaker as described in Electrical and attach it to the box, using two 8-32 X 2<sup>3</sup>/<sub>4</sub>" slotted screws.

**E. Plaster Ring Mount**

1. Speaker Only (Figure 8)

Follow the Semiflush Mount procedure, except attach the semiflush plate to the electrical box, using the two slotted 6-32 X 5/8" screws.

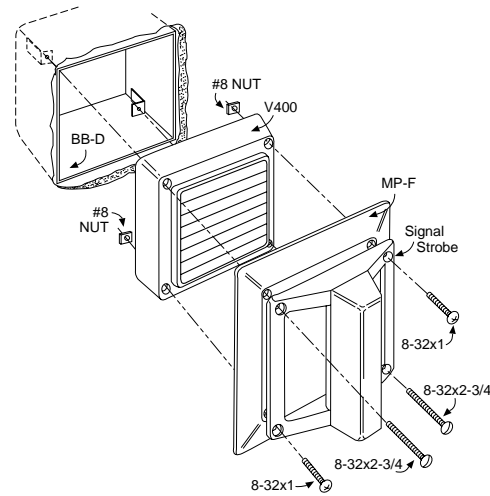
2. Speaker with Strobe

Follow the Semiflush Mount procedure, except attach the semiflush plate to the electrical box, using the two slotted 6-32 X 5/8" screws.

**F. Ceiling Mount (Models V400R, V400B, V400W, SS24LOC and SS24MC only)**

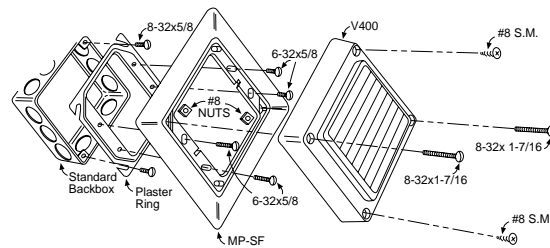
Models SS24LOC and SS24MC can be mounted on a ceiling with the V400R or V400B only, using any of the methods described in this manual. Therefore, follow the appropriate procedure to mount the speaker or speaker/strobe on a ceiling.

**Figure 7. Speaker/Strobe Flush Mount:**



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**Figure 8. Plaster Ring Mount:**



A78-1799-02

**▲WARNING**

**Limitations Of Speakers And Speaker/Strobes**

If the power option plug is not plugged into one of the option positions, the speaker will not sound and there will be no trouble indication at the panel. Always make sure that the individual speakers are tested after installation per NFPA regulations.

**The speaker may not be heard.** The loudness of the speaker meets (or exceeds) the current Underwriters Laboratories standards. However, the speaker may not attract the attention of a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The speaker may not be heard if it is placed on a different floor from the person in hazard or if placed too far away to be heard over the ambient noise, such as traffic, air conditions, machinery, or music appliances that may prevent alert persons from hearing the alarm. **The speaker may not be heard by persons who are hearing impaired.**

**The signal strobe may not be seen.** The electronic visual warning signal uses an extremely reliable xenon flash tube. It flashes at least once every three seconds and exceeds current Underwriters Laboratories standards for private mode viewing. The visual warning signal is suitable for direct

viewing and must be installed within an area where it can be seen by building occupants. The strobe must not be installed in direct sunlight or areas of high light intensity (over 60 foot candles) where the visual flash might be disregarded or not seen. **The strobe may not be seen by the visually impaired and is not intended to meet American Disabilities Act (ADA) requirements.**

**The signal strobe may cause seizures.** Individuals who have positive photic response to visual stimuli with seizures, such as persons with epilepsy, should avoid prolonged exposure to environments in which strobe signals, including this strobe, are activated.

**The signal strobe cannot operate from coded power supplies.** Coded power supplies produce interrupted power. The strobe must have an uninterrupted source of dc power in order to operate correctly. System Sensor recommends that the speaker and signal strobe always be used in combination so that the risks from any of the above limitations are minimized.

**Three-Year Limited Warranty**

System Sensor warrants its enclosed sounder to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this sounder. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the sounder which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Repair Depart-

ment, RA # \_\_\_\_\_, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.