4903 Horn/Visible Units Installation Instructions

Cautions and Warnings

DO NOT INSTALL ANY SIMPLEX PRODUCT THAT APPEARS DAMAGED. Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify Simplex.

ELECTRICAL HAZARD - Disconnect electrical power when making any internal adjustments or repairs. Servicing should be performed by qualified Simplex Representatives.

STATIC HAZARD - Static electricity can damage components. Therefore, handle as follows:

1. Ground yourself before opening or installing components.
2. Keep uninstalled component wrapped in anti-static material at all times (use the 553-484 Static Control Kit).

Introduction

The 4903 Horn/Visible Units are Notification Appliances listed by Underwriters Laboratories (UL). Notification Appliances provide an audible and/or visible warning indication of an alarm condition when activated from the control panel of a UL-listed, Simplex Protective Signaling System. **When Notification Appliances emit sound and/or flash a light, they indicate the possibility of an emergency situation that requires your immediate attention.**

The Horn/Visible Units have a switch to select Free-Run or Synchronous operation of the strobe appliance. Selecting Free-Run has the strobe flash independently at a rate determined by a timer circuit in the strobe. Selecting Synchronous operation forces the strobe to flash whenever the NAC voltage drops to zero.

Limitations, Safety, and Placement of Notification Appliances

Notification appliances, and the fire alarm system itself, have certain limitations and requirements for safety, placement, installation, and test. Since you must know the limitations and adhere to the requirements, **keep** these instructions at a central location for future reference so that all people who use, maintain, and test the fire alarm system have access to this information.

Limitations

Notification appliances do not sense any hazardous conditions such as smoke, fire, explosion, etc.; they are activated by a control panel as part of a system that does sense such conditions.

Notification appliances do not provide their own power. They receive their power from the fire alarm system. If power is not supplied to the notification appliances (for whatever reason), the notification appliances will not provide an audible/visible warning. THEREFORE, BACK-UP POWER SUPPLIES, OR OTHER BACK-UP POWER SOURCES, ARE REQUIRED FOR THE FIRE ALARM SYSTEM.

Notification appliances provide a specific rated output level of sound or light. The output level must meet the requirements of the intended protected area(s). Although the 4903 notification appliances meet the current UL standards for sound output and light intensity, the protected area(s) may have walls, doors, carpeting, furniture, insulation, or other obstacles that reduce or even block the sound and/or light. For all applications, the sound and light output must provide enough intensity to alert all occupants of the protected area(s) including those occupants that are sleeping or hearing impaired for whatever reason. If these occupants cannot hear and/or see the effect of the notification appliances within the protected area(s), you must increase the intensity of the sound/light output or add additional notification appliances so that the occupants can hear an/or see the effect of the notification appliances when activated. Refer to National Fire Protection Association (NFPA) National Fire Alarm Code 72, Chapter 4.

Notification appliances are not a substitute for insurance coverage. All users should have adequate levels of life and property insurance.

Safety

Always install, maintain, and test notification appliances within their specifications. **Failure to follow all safety precautions and instructions may result in loss of life and property due to non-functioning notification appliances.**

Some notification appliances use high voltage. To avoid electrical hazards and avoid damage to appliances, make sure that the electrical power for the Notification Appliance Circuit is disconnected at the control panel before installing, repairing, or internally adjusting any notification appliances.

Even with electrical power removed, some notification appliances (such as visible strobes) store a high voltage charge. The high voltage can cause injury resulting in death from electrical shock. DO NOT TOUCH EXPOSED CIRCUITRY.

Placement

The placement of notification appliances must conform to:

- Latest NFPA standards and guidelines (Refer to National Fire Alarm Code 72, Chapter 4)
- Sound (Sound Pressure Level) and/or Light Intensity Analysis of Intended Protected Areas
- Local Authority Having Jurisdiction (AHJ) Requirements

Notification appliances are not intended for installation within hazardous locations as defined by the National Electrical Code (NEC) or the NFPA. Contact Simplex for information on explosion-proof notification appliances designed for hazardous environments.

MARKINGS

The candela rating of each strobe unit is marked on the reflector for easy visual identification.

Features

Table 1. 1 Hz 4903 Horn/Visible Units (60-70 Flashes Per Minute [Free-Running]) – Rating Chart

PROD ID (MODEL) NUMBERS	CANDELA (CD)			FIRE MARKING		WALL-MOUNTING			COLOR	
	15	30	110	FRONT VERT	FRONT HORIZ	RETRO-FIT	SURFACE	SEMI-FLUSH	RED	WHITE
4903-9252		X		X			X	X	X	
4903-9253			X	X			X	X	X	
*4903-9254			X		X	X	X		X	
4903-9255	X			X			X	X	X	
4903-9256	X				X	X	X		X	
4903-9257	X			X			X	X		X
4903-9258		X		X			X	X		X

*** Available for humid applications**
**** Sync flash requires STR series 4010 panel, 4009-9201, 4009 9301, 4009-9807 or use of 4905-9938, 4905-9914, 4905-9922 sync units.**

Refer to Table 2 for 4903 strobe current rating information.

Table 2. 4903 Horn/Visible Units – Strobe Current Rating Chart

CANDELA	INPUT (VDC)	IN-RUSH (mA)	PEAK (mA)	NOMINAL Avg. (mA)
15	16	145	145	90
	20			73
	24			62
	33			48
30	16	204	178	137
	20			108
	24			89
	33			68
110	16	476	380	293
	20			241
	24			198
	33			146

Horn Appliance Ratings

- 80.6 dBa for 16 V input at 13 mA
- 84.8 dBa for 33 V input at 16 ma

Note: Horn ratings are UL measurements. Sound power level measurements were made in UL's reverberant test chamber at a distance of 10 feet.

Free-Run/Synchronous Mode Switch

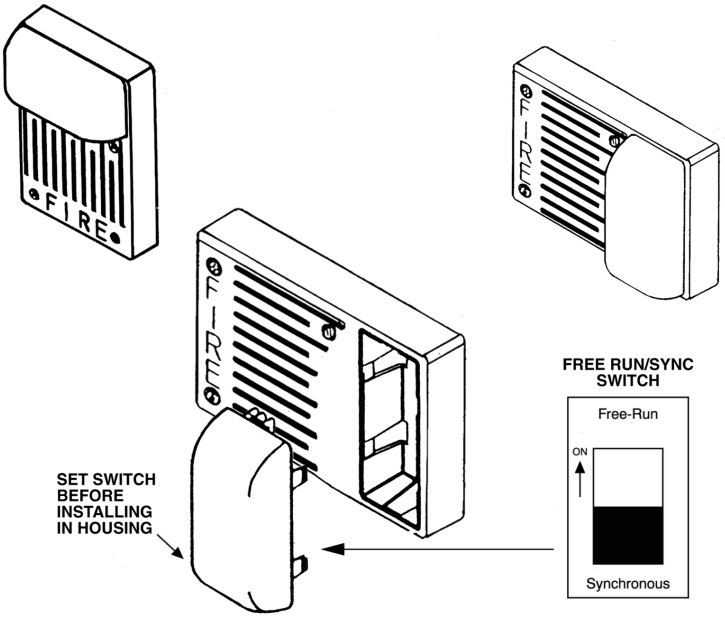


Figure 1. 4903 Horn/Visible Units Mode Switch (SW1) Location

Wiring the Horn/Visible

At the enclosure box, connect the contractor horn (audible) wires and the wires for the visible portion to the terminals at the rear of the unit. Refer to Figures 2 through 4.

Warning: Make sure that all electrical power is disconnected before starting the installation.

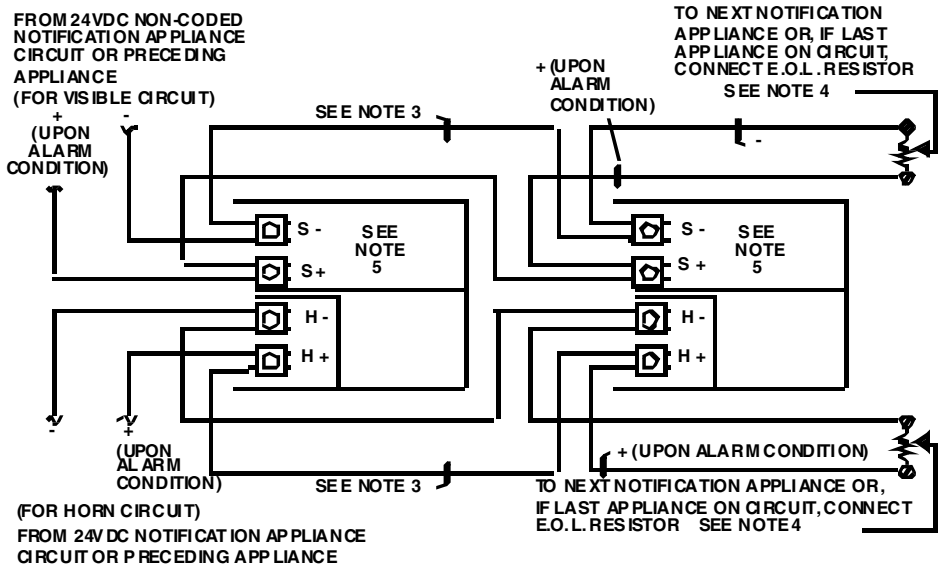
Caution: Connect wiring to terminals as shown. Break wire runs to provide supervision of connections. Do not bring conduit through the rear of the electrical box. Strip lead insulation to 3/8" maximum.

When connecting more than one Horn/Visible unit to a circuit, ensure that correct polarity is maintained on both audible and visible wiring. Refer to Figures 2 and 4.

1. When connecting the last Horn/Visible unit on a circuit, connect the E.O.L. resistor to the terminal block as shown in Figure 2 and 4. For ease of servicing or expanding the circuit, mark the last unit location "E.O.L.R" so that the E.O.L. resistor can be easily found.
2. Maximum 35 strobe appliances per circuit when synchronous operation is selected. Maximum 30 ohms wire resistance between strobe appliances. Refer to Field Wiring Drawings of the driving Fire Alarm Control Panel for further instructions.
3. These appliances were only tested to the operating voltage limits of 16 V to 33 V. Do not operate these appliances outside these limits: doing so may cause appliance to fail to operate as intended, and/or cause permanent damage to this equipment.

Caution: **When wiring Horn/Visible Units using separate horn and visible notification circuits (Figure 3), make certain that you remove (cut) jumper resistors R12 and R13 shown in Figure 3.**

Wiring – Continued



NOTES:

1. Notification appliance is rated per individual nameplate.
2. Maintain correct polarity.
3. Maximum 35 strobe appliances per circuit when synchronous operation is selected. Maximum 30 ohms wire resistance between strobe appliances. Refer to Field Wiring Drawings of the driving Fire Alarm Control Panel for further instructions.
4. These appliances were only tested to the operating voltage limits of 16 V to 33 V. Do not operate these appliances outside these limits: doing so may cause appliance to fail to operate as intended, and/or cause permanent damage to this equipment.
5. Remove (cut) jumper resistor wires R12 and R13 shown in Figure 3.

Figure 2. Wiring for Horn/Visible Only Units Using Separate Horn and Visible Notification Circuits (See Table 1 for Model Numbers)

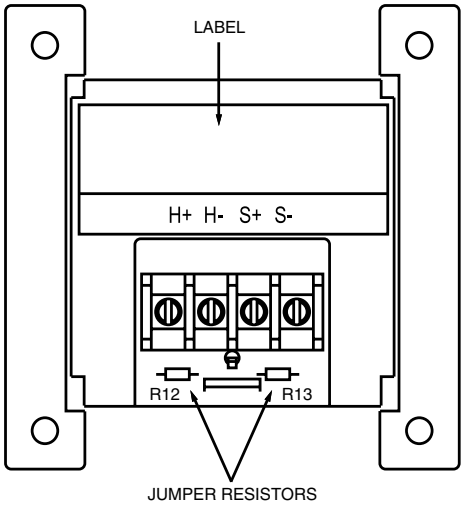
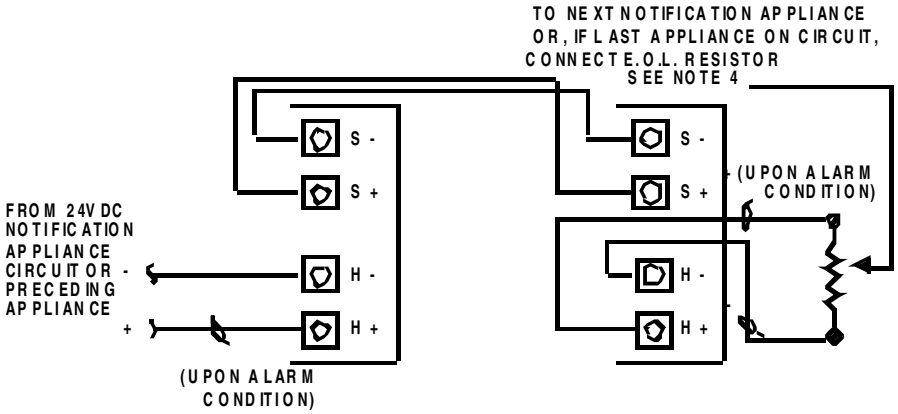


Figure 3. Location of Resistors R12 and R13 for Horn/Visible Units

Wiring – Continued



Notes:

1. Notification appliance is rated per individual nameplate.
2. For system wiring specifications, see 900-036 for 2120 controls or 900-082 for 4100+/4120 controls.
3. Maintain contain polarity.
4. Maximum 35 strobe appliances per circuit when synchronous operation is selected. Maximum 30 ohms wire resistance between strobe appliances. Refer to Field Wiring Drawings of the driving Fire Alarm Control Panel for further instructions.

Figure 4. Wiring for Horn/Visible Only Units Using a Single Horn and Visible Notification Circuit (See Table 1 for Model Numbers)

MOUNTING – HORN/VISIBLE UNITS

Caution: Do not bring conduit through the rear of any electrical box.

See Figures 5 through 7 for mounting Horn/Visible units (and adapter plate if required for surface installation) to the enclosure box.

Notes:

1. Tighten screws snugly (do not overtighten).
2. For semi-flush mounting, you must install box either flush or with a maximum 0.25-inch (0.64cm) recess.

When done, check for proper operation.

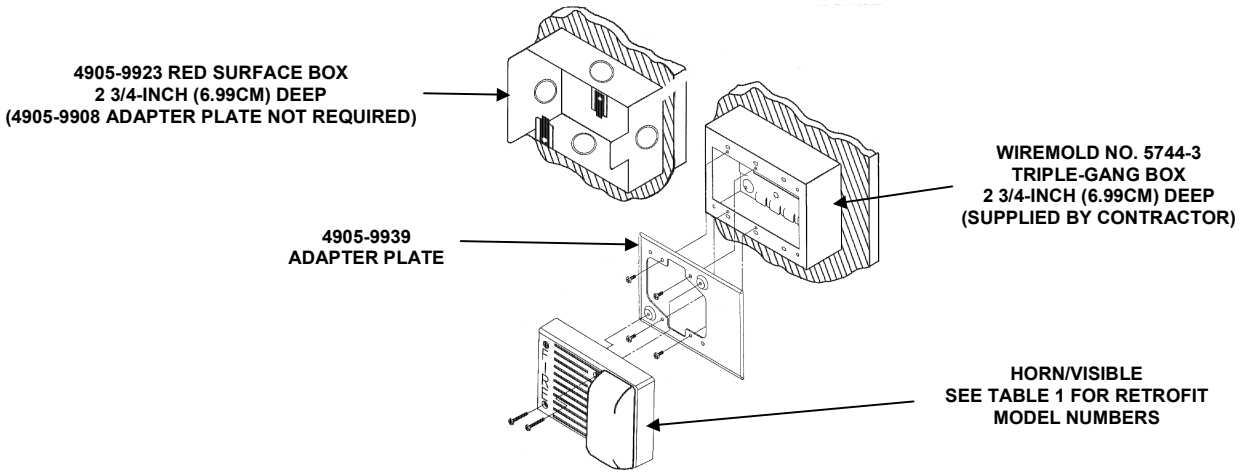


Figure 5. Surface Mounting of Horn/Visible Units

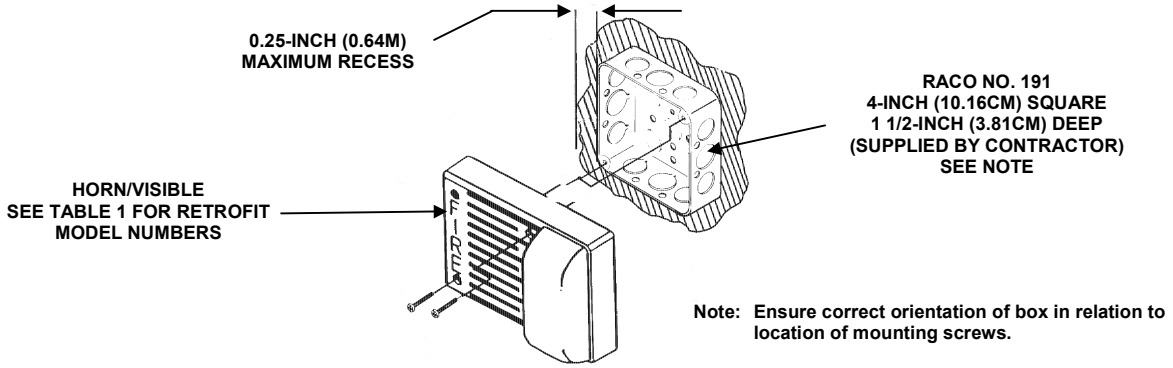


Figure 6. Semi-Flush Mounting of Horn/Visible Units

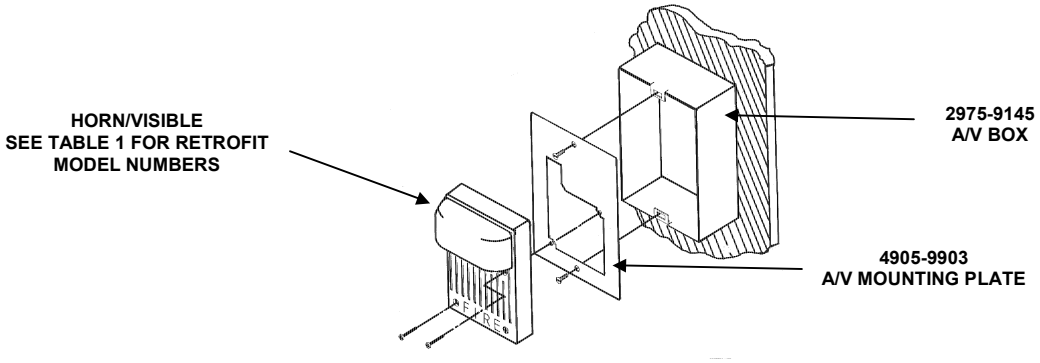


Figure 7. Retrofit Mounting of Horn/Visible Units

Testing

Only Qualified Simplex Representatives may perform tests and adjustments for proper operation and sound/light output.
Simplex Representatives check for proper functioning of the Protective Signaling System as well as sound level and light operation of Notification Appliances. Although Notification Appliances are designed to last for many years, units could fail or malfunction at any time. Do not attempt to repair failed or malfunctioning units. Replace these units immediately, or as soon as replacement units are available.

Protective Signaling Systems and Notification Appliances require testing at least twice a year by qualified Simplex Representatives.