

L-Series Outdoor Selectable-Output Horns

Manual is for use with the following models:

Horns
 Wall Mount Horns: HGRKL, HGRKL-B

Language designators: “-B” are bilingual (English/French).
NOTE: When replacing outdoor units; device and back box must be replaced.

Table of Contents

Section 1: Introduction	2
1.1 Product Specifications	2
1.2 Dimensions and Mounting Options	2
1.3 Before Installing	2
1.4 General Description	2
1.5 Fire Alarm System Considerations	2
1.6 System Design	2
Section 2: Configurations for Notification Appliances	4
2.1 Available Tones	4
2.2 Current Draw and Audibility ratings	4
Section 3: Installation	5
3.1 Wiring and Mounting	5
3.2 Wiring Diagrams	5
3.3 Install Back Box	5
3.4 Install Weatherproof Back Plate and Appliance	6

Section 1: Introduction

1.1 Product Specifications

Standard Operating Temperature:	-40°F to 151°F (-40°C to 66°C)
Humidity Range:	0 to 95 ±5%
Strobe Flash Rate	1 flash per second
Nominal Voltage:	Regulated 24 VDC
Operating Voltage Range:	16 to 33V (24V nominal)
Wiring between Fire Alarm Control Panel (FACP) and weatherproof back plate:	12 to 18 AWG
Environmental Considerations:	Enclosure meets rating requirements for Type 4X (UL50E), NEMA 4X (FM), and IP56 as a standalone device (without the backbox)

1.2 Dimensions and Mounting Options

Wall Mounted Product	Length	Width	Depth	Mounting Options
Horn	5.84" (148 mm)	3.76" (95.5 mm)	1.3" (33 mm)	Two-Wire Outdoor Products: SBBGRL (wall)
Horn with SBBGRL Surface Mount Back Box	5.84" (148 mm)	3.76" (95.5 mm)	3.15" (80 mm)	
NOTE: SBBGRL Surface Mount Back Box intended for compact horns, horn strobes and strobes.				

NOTICE: This manual shall be left with the owner/user of this equipment.

1.3 Before Installing

Please read the System Sensor Audible Visible Application Reference Guide, which provides detailed information on notification devices, wiring and special applications. Copies of this manual are available from System Sensor. NFPA 72, UL50E/NEMA, and CAN/ULC S524 guidelines should be observed.

Important: The notification appliance used must be tested and maintained following requirements of NFPA 72 in UL applications or CAN/ULC S536 in ULC applications.

1.4 General Description

System Sensor series of notification appliances offer a wide range of audible devices for life safety notification. Horns come with 8 field selectable tone and volume combinations. L-Series outdoor notification appliances are designed to be used over a wider range of temperatures and are suitable for use in wet locations. **The devices are intended for outdoor applications and approved for wall-mount installations.**

They are public mode notification appliances intended to alert occupants of a life safety event. The horn is listed to ANSI/UL 464/ULC 525 requirements (public mode).

System Sensor notification appliances are designed to be used in 24VDC systems. System Sensor AV devices can be activated by a compatible fire alarm control panel or power supply. Refer to the appropriate fire alarm control panel or power supply manual for more information.

System Sensor outdoor horns are electrically backward compatible with the previous generation of notification appliances; new back plates can be connected to existing wires from the FACP. They come enabled with System Sensor synchronization protocol which requires connections to a power supply capable of generating the System Sensor synchronization pulses, a FACP Notification Appliance Circuit (NAC) output configured to System Sensor synchronization protocol, or the use of a synchronization module to generate the synchronization protocol.

1.5 Fire Alarm System Considerations

The National Fire Alarm and Signaling Code, NFPA 72, and The National Building Code of Canada require that all notification appliances used for building evacuation produce temporal coded signals. Signals other than those used for evacuation purposes do not have to produce the temporal coded signal. System Sensor recommends spacing notification appliances in compliance with NFPA 72 (UL applications) or CAN/ULC S524 (ULC applications).

1.6 System Design

The system designer must make sure that the total current draw by the devices on the loop does not exceed the current capability of the panel supply, and that the last device on the circuit is operated within its rated voltage. The current draw information for making these calculations can be found in the tables within the manual. For convenience and accuracy, use the voltage drop calculator on the System Sensor website (www.systemsensor.com).

When calculating the voltage available to the last device, it is necessary to consider the voltage due to the resistance of the wire. The thicker the wire, the smaller the voltage drop. Wire resistance tables can be obtained from electrical handbooks. Note that if Class A wiring is installed, the wire length may be up to twice as long as it would be for circuits that are not fault tolerant. The total number of strobes on a single NAC must not draw more current than supported by the Fire Alarm Control Panel (FACP).

Wiring terminals or leads corresponding to the rating of the device shall be provided for connection of conductors of at least the size required by:

- a) In Canada only: CSA22.1, Section, Section 32, Fire alarm systems, smoke alarms, carbon monoxide alarms, and fire pumps.
- b) In the United States only: NFPA 70.

Section 2: Configurations for Notification Appliances

2.1 Available Tones

System Sensor offers a wide variety of tones for your life safety needs. Temporal 3 pattern is specified by ANSI and NFPA 72 for standard emergency evacuation signaling: ½ second on, ½ second off, ½ second on, ½ second off, ½ second on, 1½ off, and repeat.

To select the tone, turn the rotary switch on the back of the product to the desired setting. (See Figure 1.)

Available horn settings can be found in Table 1.

Figure 1 Audio Selector



A0473-00

Table 1 Horn Tones

Pos	Tone	Volume Setting
1	Temporal 3	High
2	Temporal 3	Low
3	Non-Temporal	High
4	Non-Temporal	Low
5	3.1 KHz Temporal 3	High
6	3.1 KHz Temporal 3	Low
7	3.1 KHz Non-Temporal	High
8	3.1 KHz Non-Temporal	Low

2.2 Current Draw and Audibility ratings

The current draw for each setting is listed in Table 2. Reference binational harmonized standard UL 464/ULC 525 for minimum sound level requirements.

To calculate sound dispersal per UL464 or ULC 525, refer to Table 3.

Table 2 UL/ULC Maximum Horn Current Draw (mA) and Sound Output (dBA)

Pos	Sound pattern	Volume Setting (dB)	Current Draw (mA RMS), Horn	Sound Output (dBA)
			16-33 Volts	16-33 Volts
			DC	DC
1	Temporal	High	35	85
2	Temporal	Low	35	77
3	Non-Temporal	High	50	85
4	Non-Temporal	Low	35	77
5	3.1KHz Temporal	High	35	82
6	3.1KHz Temporal	Low	35	75
7	3.1KHz Non-Temporal	High	40	82
8	3.1KHz Non-Temporal	Low	35	75

Table 3 Directional Characteristics

Horizontal Axis	
Angle	Decibel loss (dBA)
0° (ref)	0 (ref)
+/- 65	-3
+/- 75	-6
Vertical Axis	
Angle	Decibel loss (dBA)
0° (ref)	0 (ref)
+/- 65	-3
N/A, no drop	-6

Section 3: Installation

3.1 Wiring and Mounting

All wiring must be installed in compliance with the National Electric Code (UL applications), (Canadian Electric Code (ULC applications), and local codes as well as the authority having jurisdiction. Wiring must not be of such length or wire size which would cause the notification appliance to operate outside of its published specifications. Improper connections can prevent the system from alerting occupants in the event of an emergency.

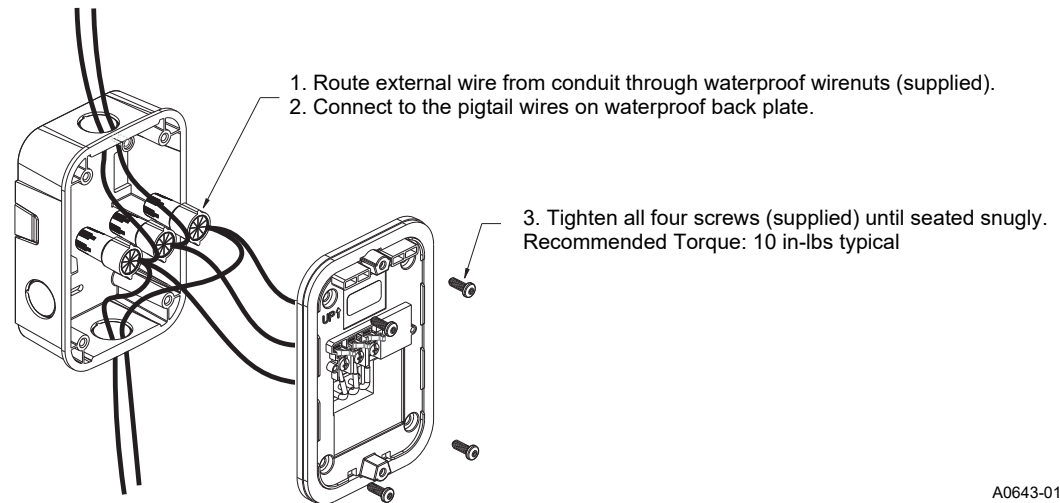
The gasketed back plate ships with wire leads stripped and installed at the factory; weatherproof wire nuts are required and provided. Wire sizes up to 12 AWG (2.5 mm²) may be used for field wiring.

Make wire connections by stripping about $\frac{3}{8}$ " of insulation from the end of the field wire. Then twist the bare end of the field wire with respective back plate wire lead and secure the wiring by twisting a weatherproof wire nut into place.

3.2 Wiring Diagrams

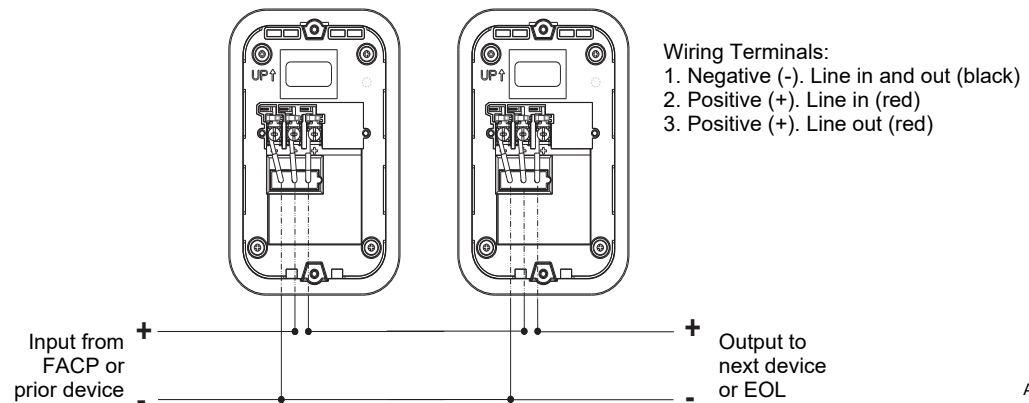
The horn requires two wires for power and supervision. (See Figure 3.) Please consult your FACP manufacturer or power supply manufacturer for specific wiring configurations and special cases.

Figure 2 Wiring Terminals and Wire Leads



A0643-01

Figure 3 System Wiring



A0644-00

3.3 Install Back Box

1. Attach surface mount back box directly to wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figure 4.)
2. Mounting position: Mount with the up arrow pointing up. (See Figure 5.)
3. Select appropriate knockouts and open as needed.
 - Threaded knockout holes are provided for the sides of the box for $\frac{3}{4}$ inch and $\frac{1}{2}$ inch conduit adapter. Knockout holes in the back of the box can be used for $\frac{3}{4}$ inch and $\frac{1}{2}$ inch rear entry.
 - If using the $\frac{3}{4}$ inch knockout: To remove the $\frac{3}{4}$ inch knockout, place the blade of a flat-head screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver. (See Figure 6.)

NOTE: Use caution not to strike the knockout near the top edge of the surface mount back box.

- V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications. To remove the knockout, turn pliers up. (See Figure 6.)

3.4 Install Weatherproof Back Plate and Appliance

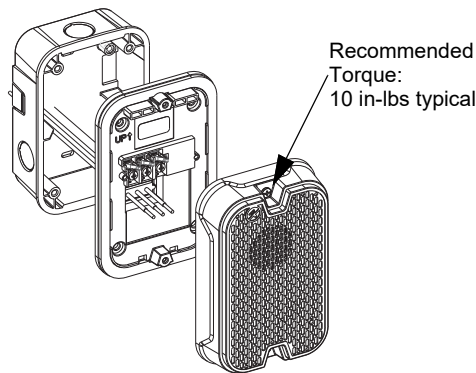
1. Connect field wiring to wire leads according to terminal designations on weatherproof back plate using the provided weatherproof wire nuts. (See Figures 2 and 3.)
2. Attach weatherproof back plate to the surface mount back box using the four Philips head screws provided. (See Figure 4.)
3. If the product is not to be installed at this point, use the protective dust cover to prevent contamination of the wiring terminals on the mounting plate.
4. To attach product to weatherproof back plate:
 - Remove the protective dust cover.
 - Align the product housing with the guideposts located on the weatherproof back plate.
 - Slide the product into position to engage the terminals on the weatherproof back plate.
 - Hold product in place with one hand and secure product by tightening the two mounting screws on the front of the housing. (See Figure 4.)
 - Tighten the screws by hand to ensure screws are completely engaged.



CAUTION:

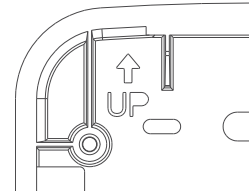
Factory finish should not be altered: Do not paint!

Figure 4 Surface Mounting an Outdoor Wall Device with SBBGRL



A0647-01

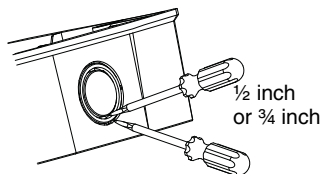
Figure 5 Surface Mount Back Box “Up” Arrow



A0481-00

Figure 6 Knockout and V500/V700 Removal for Surface Mount Back Box

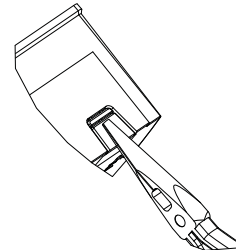
Figure 6A Knockout size



A0465-01

NOTE: Use caution not to strike the knockout near the top edge of the wall version of the surface mount back box.

Figure 6B Wire Mold Removal



A0466-01



THE LIMITATIONS OF HORNS

The horn will not work without power. The horn get its power from the fire/security panel monitoring the alarm system. If power is cut off for any reason, the notification appliance will not provide the desired audio warning.

The horn may not be heard. The loudness of the horn meets (or exceeds) current Underwriters Laboratories' standards. However, the horn may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The horn 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 conditioners, machinery or music appliances that may prevent alert persons from hearing the alarm. The horn may not be heard by persons who are hearing impaired.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

 This symbol (shown left) on the product(s) and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, contact your local authorities or dealer and ask for the correct method of disposal.

Electrical and electronic equipment contains materials, parts and substances, which can be dangerous to the environment and harmful to human health if the waste of electrical and electronic equipment (WEEE) is not disposed of correctly.

Supplemental Information

For the latest Warranty information, please go to:
<http://www.systemsensor.com/en-us/Documents/E56-4000.pdf>

For Limitations of Fire Alarm Systems, please go to:
<http://www.systemsensor.com/en-us/Documents/I56-1558.pdf>

Speakers only: For the latest Important Assembly Information, please go to:
<http://www.systemsensor.com/en-us/Documents/I56-6556.pdf>



Warranty Information



Limitations of
Fire Alarm Systems



Speakers Only:
Assembly Information