

**L-Series with LED  
Indoor Selectable-Output  
Chime Strobes**



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Manual is for use with the following models:

Standard Wall Mount Chime Strobes: CHSRLED, CHSRLED-B, CHSWLED, CHSWLED-B

Standard Ceiling Mount Chime Strobes:  
CHSCRLED, CHSCRLED-B, CHSCWLED, CHSCWLED-B

Language designators: “-B” are bilingual (English/French).

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## Section 1: Introduction

### 1.1 Product Specifications

Standard Operating Temperature:	32°F to 120°F (0°C to 49°C)
Humidity Range:	10 to 93% Non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage (Strobe):	Regulated 24 VDC
Operating Voltage Range (Strobe):	16 to 33V (24V nominal)
Input terminal wire gauge:	12 to 18 AWG

### 1.2 Dimensions and Mounting Options

Wall Mounted Product	Length	Width	Depth	Mounting Options
Standard Chime Strobe (including lens)	5.67" (144 mm)	4.7" (119.4 mm)	2.07" (52.6 mm)	Standard 2-Wire Indoor Products: 4" x 4" x 1½", Single Gang, Double Gang, 4" Octagon, SBBRL/WL (wall), SBBGRL/WL (wall) Compact 2-Wire Indoor Products: Single Gang, SBBGRL/WL (wall)
Standard device (including lens) with SBBRL/WL Surface Mount Back Box	5.77" (146.7 mm)	4.82" (122.3 mm)	3.92" (99.6 mm)	
NOTE: SBBRL/WL Surface Mount Back Box intended only for standard chime strobes.				

Ceiling Mounted Product	Diameter	Depth	Mounting Options
Chime Strobe (including lens)	6.83" (173.5 mm)	2.07" (52.6 mm)	2-Wire Indoor Products: 4" x 4" x 1½", Single Gang, Double Gang, 4" Octagon, SBBGRL/WL (ceiling)
Chime Strobe (including lens) with SBBGRL/WL Surface Mount Back Box	6.92" (175.8 mm)	4.57" (116 mm)	

**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 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 and visible devices for life safety notification. Our 2-wire chime strobes come with 8 field selectable tone and volume combinations and 7 field selectable candela settings. The devices are intended for indoor applications and approved for wall-mount and ceiling-mount installations.

The 2-wire chime strobe is a private mode notification appliance intended to alert occupants of a life safety event.

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 2-wire chime strobes are electrically backward compatible with the previous generation of notification appliances. They come enabled with System Sensor synchronization protocol which requires connections to a power supply capable of generating the System Sensor synchronization pulses, a Fire Alarm Control Panel (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](http://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. Total number of strobes on a single NAC must not draw more current than supported by the FACP.

## 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.)

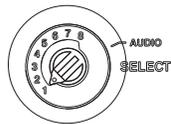
Available chime settings can be found in Table 1.

### 2.2 Available Candela Settings

System Sensor offers a wide range of candela settings for your life safety needs. To select your candela output, turn the rotary switch on the back of the product to the desired candela setting. (See Figure 2.)

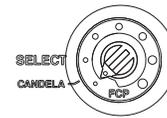
The candela setting can be verified from the front of the unit by looking through a small window on the front of the product. (See Figure 19 for window location on device.) All products meet the light output profiles specified in the appropriate UL Standards. (See Figures 3, 4, and 5.)

Figure 1 Audio Selector



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Figure 2 Candela Selector



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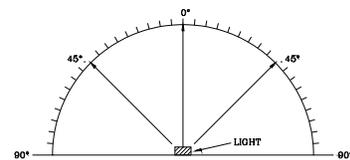
Table 1 Chime Tone Patterns

Pos	Tone	Volume Setting
1	1 Second	High
2	1 Second	Low
3	¼ Second	High
4	¼ Second	Low
5	Temporal	High
6	Temporal	Low
7	5 Second Whoop	High
8	5 Second Whoop	Low

Figure 3 Light Output –Horizontal Dispersion

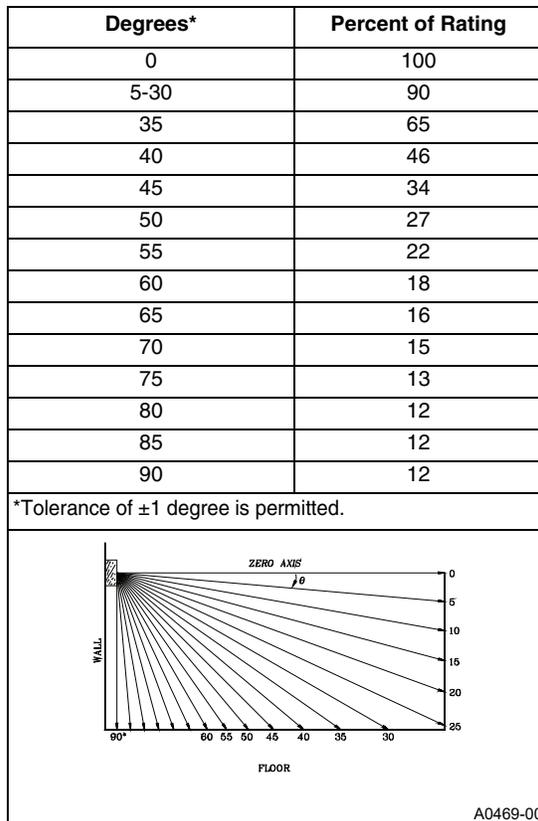
Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25
Compound 45 to the left	24
Compound 45 to the right	24

\*Tolerance of ±1 degree is permitted.

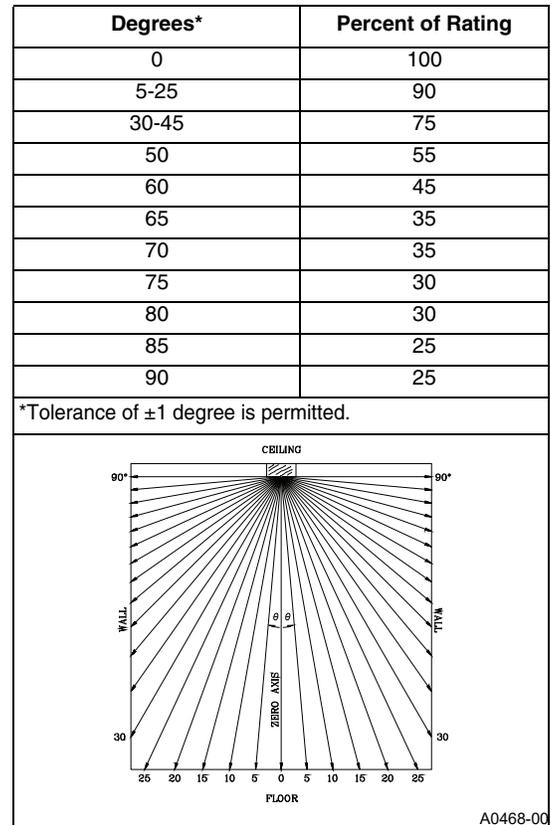


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**Figure 4 Light Output – Vertical Dispersion, Wall to Floor**



**Figure 5 Light output – Vertical Dispersion, Ceiling to Walls to Floor**



### 2.3 Current Draw and Audibility ratings

Chime strobe current draw and audibility settings are listed in Table 2. Reference binational harmonized standard UL 464/ULC-S525 for minimum sound level requirements.

**Table 2 UL/ULC Maximum Chime Strobe Current Draw (mA) and Sound Output (dBA)**

Pos	Tone	Volume Setting	Current Draw (mA RMS), Chime Strobe, Candela Range (15-185 cd), FCP*										Sound Output (dBA)
			16-33 Volts										16-33 V
			15cd	30cd	75cd	95cd	110cd WALL	115cd CEILING	135cd WALL	150cd CEILING	177cd CEILING	185cd WALL	DC
1	1 Second	High	40	42	92	92	89	93	130	145	186	218	65
2	1 Second	Low	47	44	93	94	90	94	116	137	189	225	58
3	¼ Second	High	50	48	96	96	98	94	114	136	187	204	69
4	¼ Second	Low	36	37	90	95	91	95	116	137	184	210	62
5	Temporal	High	37	38	91	93	90	94	149	178	187	206	68
6	Temporal	Low	38	36	91	94	89	94	150	154	180	221	61
7	5 Second Whoop	High	36	38	93	94	94	95	120	138	189	212	80
8	5 Second Whoop	Low	37	40	91	93	92	93	114	140	186	214	65

To calculate sound dispersal per UL464 or ULC-S525, refer to Table 3.

**Table 3 Directional Characteristics**

<b>Horizontal Axis</b>	
<b>Angle</b>	<b>Decibal loss (dBA)</b>
0° (ref)	0 (ref)
+/- 20	-3
No degradation angle	-6
+/- 90	-3.4
<b>Vertical Axis</b>	
<b>Angle</b>	<b>Decibal loss (dBA)</b>
0° (ref)	0 (ref)
+/- 60	-3
+/- 65	-6
+/- 90	-4.9

## 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.

Wire sizes up to 12 AWG (2.5 mm<sup>2</sup>) may be used with the mounting plate. The mounting plate ships with the terminals set for 12 AWG field wiring.

Make wire connections by stripping about  $\frac{3}{8}$ " of insulation from the end of the field wire. Then slide the bare end of the wire under the appropriate clamping plate and tighten the clamping plate screw.

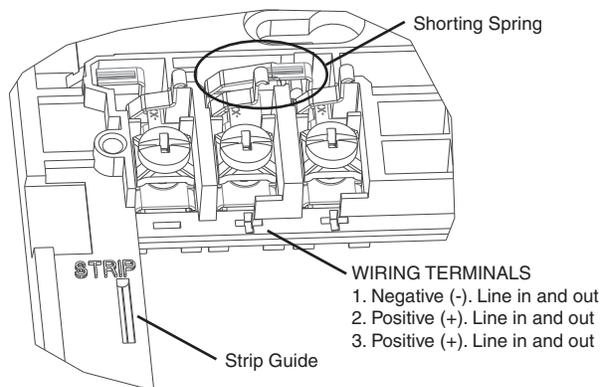
We provide a wire strip guide. See Figure 6 for wiring terminals and strip guide reference.

### 3.2 Wiring Diagrams

The 2-wire chime strobe requires two wires for power and supervision. (See Figure 7.)

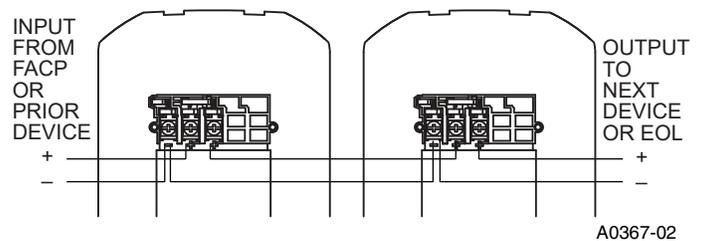
**Shorting Spring Feature.** These appliances enable system continuity checks of field wiring on the mounting plate before appliances are installed. The mounting plate has a shorting spring between terminals 2 and 3 that will automatically disengage when the product is installed, to enable supervision of the final system. (See Figure 6.)

**Figure 6 Wiring Terminals, Shorting Spring, and Strip Guide**



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**Figure 7 System Wiring**



### 3.3 Install Back Box

1. Attach back box to wall or ceiling.
  - Junction boxes are mounted per industry standard. (See Figures 8, 9 and 12.)
  - The surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figures 10, 11 and 13.)
  - **Note for positioning:** *Wall mount back boxes:* Mount with the up arrow pointing up. (See Figure 16.)
  - **Note for positioning:** *Ceiling mount back boxes:* Ceiling surface mount back box SBBCR/WL is a common back box for ceiling chime strobes, horn strobes, strobes, speakers, and speaker strobes. Use the top (SPK) mounting holes for ceiling speaker and speaker strobe products. Use the bottom (STR) mounting holes for ceiling chime strobes, horn strobe, and strobe installation needs. (See Figure 15.)
2. 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 17a.)
  - **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 17b.)

### 3.4 Install Mounting Plate and Appliance

1. Attach mounting plate using the provided Philips head screws. Junction box uses 2 screws. Surface mount backbox uses 4 screws. (See Figures 8 – 13.)
2. Connect field wiring according to terminal designations. (See Figures 6 and 7.)
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 mounting plate:
  - Remove the protective dust cover.
  - Hook the tabs on the top of the product housing into the grooves on mounting plate.

- Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
- Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.



**CAUTION:**

The “hold in place” snaps are not intended to secure the product to the back box. The product must be secured to the back box using the screws provided



**CAUTION:**

Factory finish should not be altered: Do not paint!



**CAUTION:**

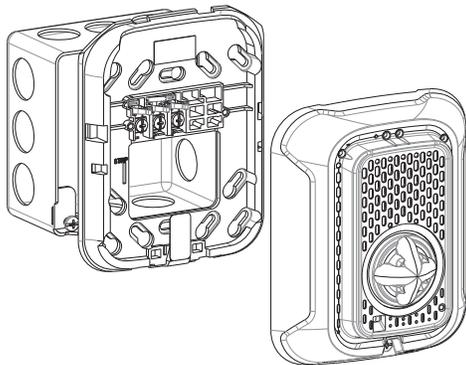
Do not over tighten mounting plate screws; this may cause mounting plate to flex.

### 3.5 Remove a Ceiling Model Appliance

*Ceiling models only:* To remove the product from the mounting plate, loosen the captive mounting screw and press the locking button. (See Figure 14.)

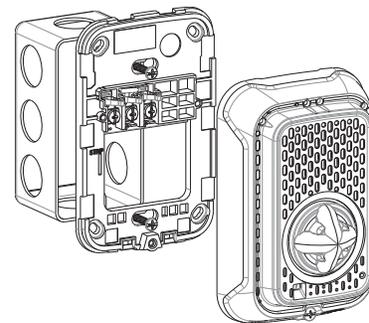
#### 3.5.1 Mounting Drawings

**Figure 8 Mounting a Standard Wall Device (Double-gang box)**



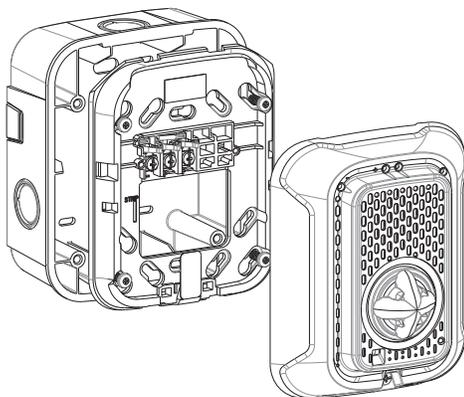
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**Figure 9 Mounting a Compact Wall Device (Single-gang box)**



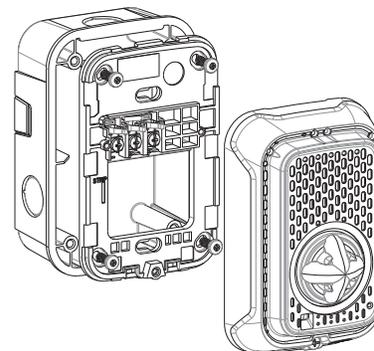
A0619-00

**Figure 10 Surface Mounting a Standard Wall Device (SBBRL/SBBWL)**



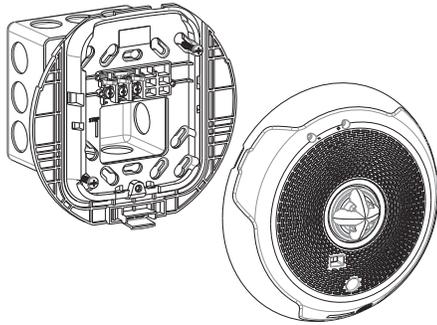
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**Figure 11 Surface mounting a Compact Wall Device (SBBGRL/SBBGRL/SBBGWL)**



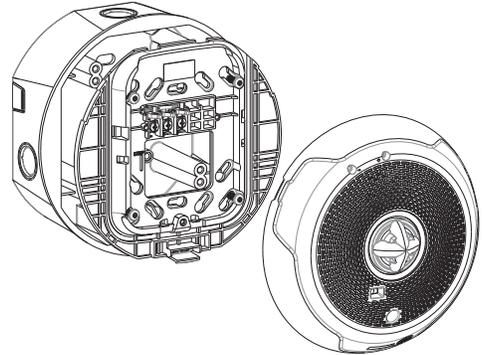
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**Figure 12 Mounting a Ceiling Device (Double-Gang Box)**



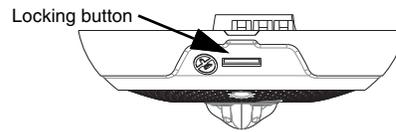
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**Figure 13 Surface Mounting a Ceiling Device (SBBCLR/SBBCWL)**



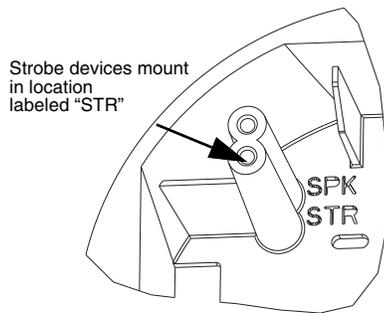
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**Figure 14 Ceiling Device - Location of Locking Button**



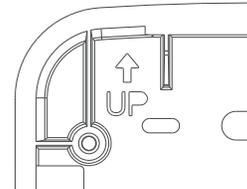
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**Figure 15 Selecting screw location in a ceiling installation of a surface-mount back box**



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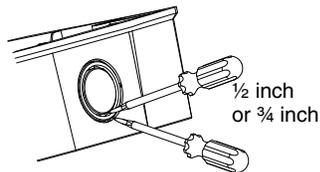
**Figure 16 Surface Mount Back Box "Up" Arrow**



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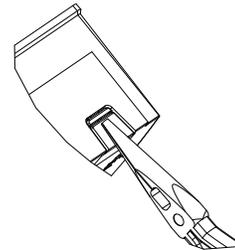
**Figure 17 Knockout and V500/V700 Removal for Surface Mount Back Box**

Figure 17A Knockout size



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Figure 17B Wire Mold Removal



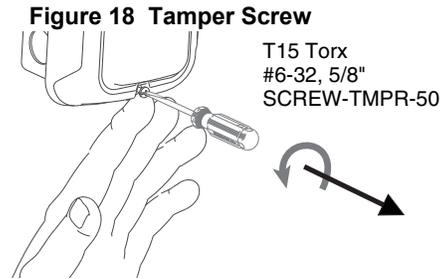
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NOTE: Use caution not to strike the knockout near the top edge of the wall version of the surface mount back box.

### 3.6 Tamper Screw

For tamper resistance, the standard captive screw may be replaced with a Torx screw, ordered separately.

To remove the captive screw, back out the screw and apply pressure to the back of the screw until it disengages from the housing. Replace with Torx screw. (See Figure 18.)



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### 3.7 Test Points

System Sensor L-Series with LED notification appliances come with diagnostic test points for ease of access with use of a digital voltage meter to measure device voltage without removing from the wall or ceiling.

1. Insert digital voltage meter positive probe into (+) test point.
2. Insert digital voltage meter negative probe into (-) test point.

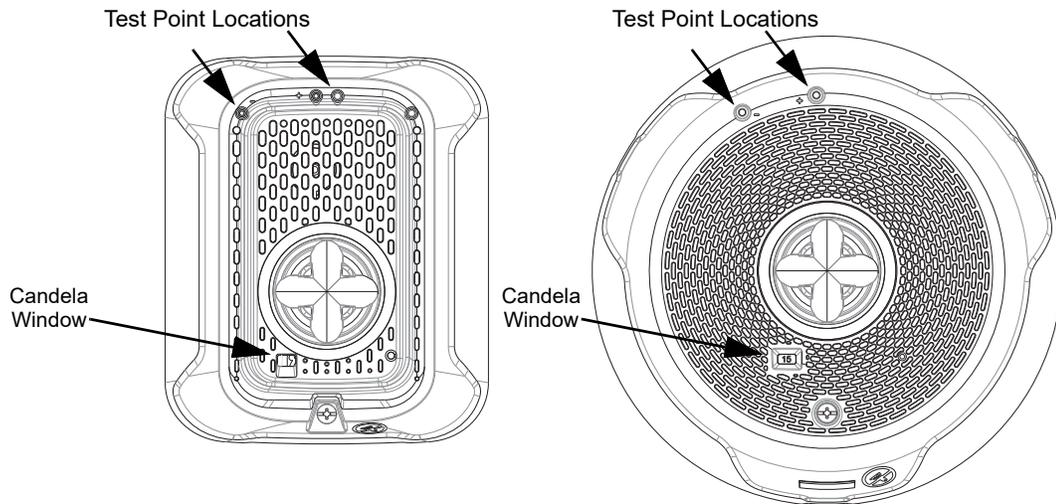
NOTE: Marking indicates signal polarity when the circuit is active.



**CAUTION:**

Short circuiting of these test points may result in improper device operation.

**Figure 19 Test Point Locations**



A0624-00, A0625-00



**THE LIMITATIONS OF CHIME/STROBES**

**The chime and/or strobe will not work without power.** The chime/strobe gets its power from the fire/security panel monitoring the alarm system. If power is cut off for any reason, the chime/strobe will not provide the desired audio or visual warning.

**The chime may not be heard.** The loudness of the chime meets (or exceeds) current Underwriters Laboratories' standards. However, the chime may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The chime 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 chime may not be heard by persons who are hearing impaired.

with associated lens system. It flashes at least once every second. 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.

**The signal strobe may cause seizures.** Individuals who have positive photoic 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 power in order to operate correctly. System Sensor recommends that the chime and signal strobe always be used in combination so that the risks from any of the above limitations are minimized.

**NOTE:** Strobes must be powered continuously for chime operation.  
**The signal strobe may not be seen.** The electronic visual warning signal uses LEDs

**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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off

and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- This Class B digital apparatus complies with Canadian ICES-003.



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