



# Selectable Output Horn Strobes, Chime Strobes and Strobes – Ceiling Mount

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www.systemsensor.com

For use with the following models:  
Ceiling Mount Horn Strobes: PC2RL, PC2WL  
Ceiling Mount Chime Strobes: CHSCRL, CHSCWL  
Ceiling Mount Strobes: SCRL, SCWL, SCWL-CLR-ALERT

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:	Regulated 12VDC or regulated 24DC/FWR
Operating Voltage Range:	8 to 17.5V (12V nominal) or 16 to 33V (24V nominal)
Operating Voltage with MDL3 Sync Module:	8.5 to 17.5V (12V nominal) or 16.5 to 33V (24V nominal)
Input terminal wire gauge:	12 to 18 AWG

DIMENSIONS FOR PRODUCTS AND ACCESSORIES		
CEILING PRODUCTS	Diameter	Depth
Strobe, Chime Strobe and Horn Strobe	6.83" (173.5mm)	2.47" (62.7mm)
Strobe, Chime Strobe, and Horn Strobe with SBBCRL/WL Surface Mount Back Box	6.92" (175.8mm)	2.50" (63.5mm)

MOUNTING BOX OPTIONS
2-Wire Indoor Products
4" x 4" x 1½", Single Gang, Double Gang, 4" Octagon, SBBCRL/WL (ceiling)

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

**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 NEMA guidelines should be observed.

**Important:** The notification appliance used must be tested and maintained following NFPA 72 requirements.

**GENERAL DESCRIPTION**

System Sensor series of notification appliances offer a wide range of audible and visible devices for life safety notification. Our 2-wire horn strobes, chime strobes and strobes come with 8 field selectable tone and volume combinations and 7 field selectable candela settings. Intended for indoor applications and approved for ceiling mount installations.

2-wire horn strobes and strobes are public mode notification appliances intended to alert occupants of a life safety event. The 2-wire chime strobe is a private mode notification appliance. The horn is listed to ANSI/UL 464 requirements (public mode) and the strobe is listed to ANSI/UL 1638 (public mode). 2-wire chime strobe is a private mode notification appliances intended to alert trained personnel to investigate a life safety event and take appropriate actions. The chime portion of the chime strobe is listed to ANSI/UL 464 (private mode) and the strobe portion is listed to ANSI/UL 1638 (private mode).

System Sensor strobes are designed to be used in 12 VDC, 24VDC, or 24V FWR (full wave rectified) 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 manufacturer or power supply for more information.

System Sensor ceiling 2-wire horn strobes, 2-wire chime strobes, and strobes are electrically backward compatible with the previous generation, since 1996, 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 FACP NAC output configured to System Sensor synchronization protocol, or the use of MDL3 module to generate the synchronization protocol.

**FIRE ALARM SYSTEM CONSIDERATIONS**

The National Fire Alarm and Signaling Code, NFPA 72, requires that all notification appliances, used for building evacuation installed after July 1, 1996,

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.

**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 exceed 69 for 24 volt applications.

**AVAILABLE TONES**

System Sensor offers a wide variety of tones for your life safety needs, including temporal 3 pattern (½ second on, ½ second off, ½ second on, ½ second off, ½ second on, 1 ½ off and repeat) which is specified by ANSI and NFPA 72 for standard emergency evacuation signaling.

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. Available chime settings can be found in Table 2.

**AVAILABLE CANDELA SETTINGS**

System Sensor offers a wide range of candela settings for your life safety needs. In order to select your candela output, adjust the slide switch on the rear of the product to the desired candela setting on the selector switch. (See Figure 2.)

The candela setting can also be verified by looking into the small window on the front of the unit. See Table 3 for candela settings for ceiling products. All products meet the light output profiles specified in the appropriate UL Standards. (See Figures 3 to 5.)

**FIGURE 1. AUDIO SELECTOR**

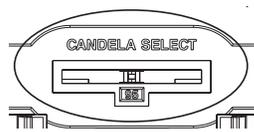


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**TABLE 1. HORN TONES**

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

**FIGURE 2. CANDELA SELECTOR**



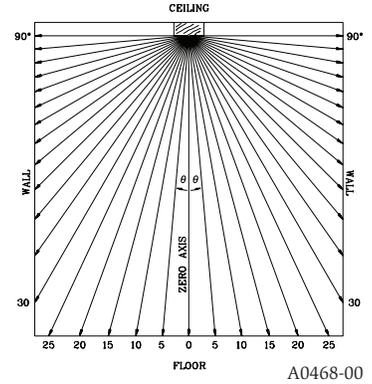
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**TABLE 2. CHIME TONES**

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

**FIGURE 3. LIGHT OUTPUT - VERTICAL DISPERSION, CEILING TO WALLS TO FLOOR**

Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
60	45
65	35
70	35
75	30
80	30
85	25
90	25



**TABLE 3. CEILING-MOUNT STROBE CURRENT DRAW (mA)**

Candela	8-17.5 Volts		16-33 Volts	
	DC	DC	FWR	
15	87	41	60	
30	153	63	86	
75	-	111	142	
95	-	134	164	
115	-	158	191	
150	-	189	228	
177	-	226	264	

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V DC operation when set to any other candela settings.

**FIGURE 4. LIGHT OUTPUT – HORIZONTAL DISPERSION**

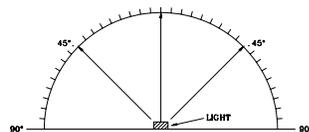
Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25
Compound 45 to the left	24
Compound 45 to the right	24

**FIGURE 5. VERTICAL DISPERSION, WALL TO FLOOR**

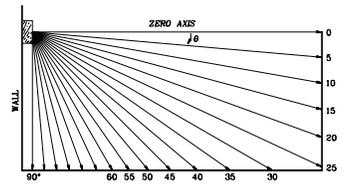
Degrees*	Percent of Rating
0	100
5-30	90
35	65
40	46
45	34
50	27
55	22
60	18
65	16
70	15
75	13
80	12
85	12
90	12

**CURRENT DRAW AND AUDIBILITY RATINGS**

For the horn strobe, the current draw and audibility ratings for each setting is listed in Table 4. For the chime strobe, the current draw and audibility ratings for each setting is listed in Table 5. For the strobe, the current draw for each setting is listed in Table 3.



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\*Tolerance of ± 1 degree is permitted.

**TABLE 4. CEILING-MOUNT HORN STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)**

Pos	Tone	Volume Setting	Current draw (mA)															Sound Output (dBA)			
			8-17.5 VDC		16-33 VDC						16-33 FWR							8-17.5 V		16-33 V	
			15	30	15	30	75	95	115	150	177	15	30	75	95	115	150	177	DC	DC	FWR
1	Temporal	High	103	167	71	90	143	165	187	217	254	107	135	179	198	223	254	286	84	89	89
2	Temporal	Low	96	165	54	71	137	161	185	211	249	78	101	151	172	199	229	262	75	83	83
3	Non-Temporal	High	106	173	71	90	141	165	187	230	273	107	135	179	198	223	254	286	85	90	90
4	Non-Temporal	Low	95	166	54	71	124	161	170	216	258	78	101	151	172	199	229	262	76	84	84
5	3.1 KHz Temporal	High	111	164	69	94	147	163	184	229	257	108	135	179	200	225	255	289	83	88	88
6	3.1 KHz Temporal	Low	103	163	54	88	143	155	185	212	252	79	101	150	171	196	229	260	76	82	82
7	3.1 KHz Non-Temporal	High	111	172	69	94	144	164	202	229	271	108	135	179	200	225	255	289	84	89	89
8	3.1 KHz Non-Temporal	Low	103	169	54	88	131	155	187	217	259	79	101	150	171	196	229	260	77	83	83

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

## WIRING AND MOUNTING

All wiring must be installed in compliance with the National Electric Code and the 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 wiring.

Make wire connections by stripping about 3/8" of insulation from the end of the 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.

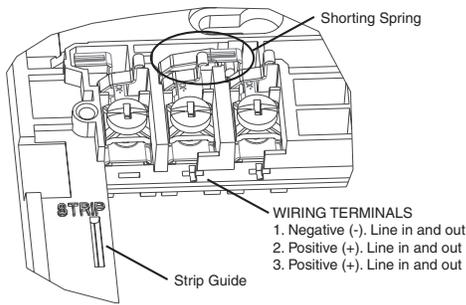
### CAUTION

Factory finish should not be altered: Do not paint!

### CAUTION

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

**FIGURE 6. WIRING TERMINALS, SHORTING SPRING, AND STRIP GUIDE**

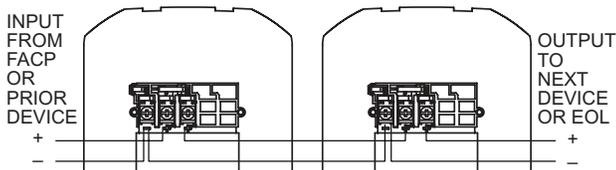


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## SYSTEM WIRING

The 2-wire horn strobe, chime strobe and strobe only require two wires for power and supervision. (See Figure 7.) Please consult your FACP manufacturer or power supply manufacturer for specific wiring configurations and special cases.

**FIGURE 7. 2-WIRE CIRCUIT**



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## SHORTING SPRING FEATURE

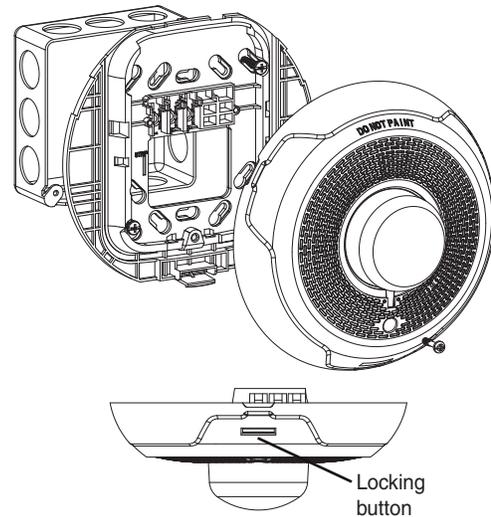
System Sensor notification appliances come with a shorting spring that is provided between terminals 2 and 3 of the mounting plate to enable system continuity checks after the system has been wired, but prior to installation of the final product. (See Figure 6.) This spring will automatically disengage when the product is installed, to enable supervision of the final system.

## MOUNTING AND REMOVING APPLIANCE

1. Attach mounting plate to junction box using two of the provided Philips head screws. (See Figure 8.)
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:
  - a. Remove the protective dust cover.
  - b. Hook the tabs on the top of the product housing into the grooves on mounting plate.
  - c. 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.
  - d. Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

*Ceiling Models only:* To remove product from the mounting plate, loosen the captive mounting screw and press the locking button.

**FIGURE 8. MOUNTING**



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**TABLE 5. CEILING-MOUNT CHIME STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)**

Pos	Chime Tone	Volume Setting	Current draw (mA)																Sound Output (dBA)		
			8-17.5 VDC		16-33 VDC						16-33 FWR								8-17.5 V		16-33 V
			15	30	15	30	75	95	115	150	177	15	30	75	95	115	150	177	DC	DC	FWR
1	1 Second	High	96	165	47	69	117	137	165	202	238	63	90	147	169	184	212	245	61	62	62
2	1 Second	Low	93	162	47	68	116	137	165	200	238	63	88	147	169	183	212	244	56	55	55
3	1/4 Second	High	94	161	48	70	117	138	166	202	237	65	90	149	170	184	213	246	67	70	70
4	1/4 Second	Low	93	157	48	69	116	137	164	199	236	64	89	148	168	184	216	244	61	61	61
5	Temporal	High	93	163	48	70	116	138	165	199	238	64	89	148	169	184	212	245	64	66	66
6	Temporal	Low	92	160	47	69	116	136	164	198	237	63	88	147	169	183	212	245	59	60	60
7	5 Second Whoop	High	98	169	54	77	124	146	173	206	245	75	100	155	178	193	221	255	76	78	78
8	5 Second Whoop	Low	95	166	49	71	117	144	168	202	239	68	91	148	170	186	217	248	62	64	64

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

### TAMPER SCREW

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

1. 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 9.)

FIGURE 9. TAMPER SCREW



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### INSTALLING A SURFACE MOUNT BACK BOX

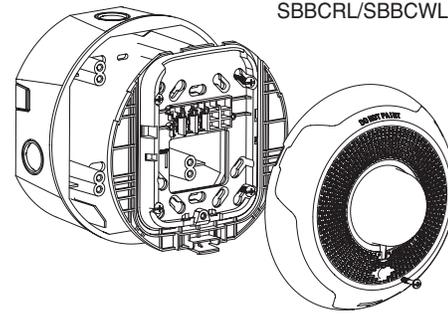
1. The ceiling surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figure 10.)
2. The ceiling mount box can be used on ceiling horn strobe, chime strobe, strobe as well as ceiling speaker and speaker strobe models. Use the STR cut-outs for ceiling horn strobe, chime strobe and strobe installation needs. (See Figure 11.)
3. Threaded knockout holes are provided for the sides of the box for 3/4 inch and 1/2 inch conduit adapter. Knockout holes in the back of the box can be used for 3/4 inch and 1/2 inch rear entry.
4. To remove the 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 12.)

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

5. V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications.
6. To remove the knockout, turn pliers up. (See Figure 12.)

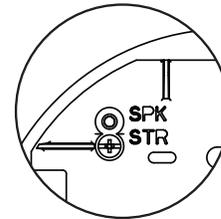
FIGURE 10. SURFACE MOUNTING ON CEILING

SBBCRL/SBBCWL



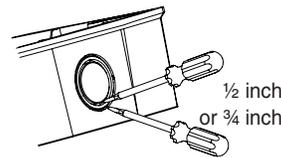
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FIGURE 11. CUT-OUTS FOR SPEAKER (SPK) AND STROBE (STR)

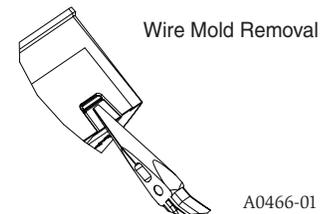


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FIGURE 12. KNOCKOUT AND V500/V700 REMOVAL FOR SURFACE MOUNT BACK BOX



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### WARNING

#### THE LIMITATIONS OF HORN/STROBES

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

**NOTE:** Strobes must be powered continuously for horn operation.

**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 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 horn and signal strobe always be used in combination so that the risks from any of the above limitations are minimized.

#### FCC STATEMENT

System Sensor Strobes and Horn/Strobes have 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.

#### 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/156-1558.pdf>

Speakers only: For the latest Important Assembly Information, please go to:  
<http://www.systemsensor.com/en-us/Documents/156-6556.pdf>



Warranty



Limitations of  
Fire Alarm Systems



Speakers Only:  
Assembly Information