INSTALLATION AND MAINTENANCE INSTRUCTIONS

Selectable Output Horns and Chimes – Wall Mount

SYSTEM SENSOR®
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800/736-7672, FAX: 630/377-6495
www.systemsensor.com

For use with the following models:
Horns: HRL, HWL
Compact Horns: HGRL, HGWL
Chimes: CHRL, CHWL

PRODUCT SPECIFICATIONS

Standard Operating Temperature:	32°F to 120°F (0°C to 49°C)
Humidity Range:	10 to 93% Non-condensing
Nominal Voltage:	Regulated 12VDC or regulated 24DC/FWR
Operating Voltage Range (includes fire alarm panels with built in sync):	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

WALL PRODUCTS	Length	Width	Depth
Horn/Chime	5.6" (143mm)	4.7" (119mm)	1.25" (32mm)
Compact Horn	5.25" (133 mm)	3.45" (88 mm)	1.25" (32 mm)
Horn/Chime with SBBRL/WL Surface Mount Back Box	5.9" (149 mm)	4.9" (125 mm)	1.9" (47 mm)
Compact Horn with SBBGRL/WL Surface Mount Back Box	5.5" (140.5 mm)	3.7" (94.5 mm)	1.6" (39 mm)
NOTE: SBBRL/WL Surface Mount Back Box intended only for standard horns and chimes. SBBGRL/WL Surface Mount Back Box intended for compact horns.			

MOUNTING BOX OPTIONS

Horn and Chime	Compact Horn
4" x 4" x 1½", Single Gang, Double Gang, 4" Octagon, SBBRL/WL	Single Gang, SBBGRL/WL

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 devices for life safety notification. Our horns and chimes come with 10 field selectable tone and volume combinations for a wide range of systems. Horns come in two attractive mounting designs, standard and compact. They are intended for indoor applications and approved for wall and ceiling mount installations.

Horns are public mode notification appliances intended to alert occupants of a life safety event. Chimes are private mode notification appliances used to alert trained personnel to investigate possible emergency situations and take appropriate action. Both the horn and the chime are listed to ANSI/UL 464 requirements.

System Sensor notification appliances 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. The power from these supplies can be either regulated or coded (pulsing) power supplies. Refer to the appropriate fire alarm control panel manufacturer or power supply for more information.

System Sensor wall horns and chimes 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 MDL (3) module to generate the synchronization protocol.

FIRE ALARM SYSTEM CONSIDERATIONS

The National Fire Alarm and Signaling Code, NFPA 72, requires that all audible 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 horn and chime tones for your life safety needs, including temporal 3 pattern (1/2 second on, 1/2 second off, 1/2 second on, 1/2 second off, 1/2 second on, 1-1/2 off and repeat) which is specified by ANSI and NFPA 72 for standard emergency evacuation signaling.

Both the horn and chime are compatible with coded power supplies. Coded power supplies power the NAC and all connected AV devices with certain power pattern that can be programmed from such power supplies. In this

mode there is no delay in device operations after the power is applied, the sound will stop after the power is removed.

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

FIGURE 1. AUDIO SETTINGS

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Available horn settings can be found in Table 1. Available chime settings can be found in Table 2. Tones listed as coded are intended to be used with coded power supplies.

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
9	Coded	High
10	3.1 KHz Coded	High

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
9	1 chime (coded)	High
10	NOT TO BE USED	

CURRENT DRAW AND AUDIBILITY RATINGS

For the horn, the current draw for each setting is listed in Table 3 and the audibility ratings can be found in Table 4. For chime, the current draw for each setting is listed in Table 5 and the audibility ratings can be found in Table 6. Tones listed as coded are intended to be used with coded power supplies.

TABLE 3. HORN CURRENT DRAW (mA)

Pos	Tone	Volume	8-17.5 Volts	16-33 Volts	
			DC	DC	FWR
1	Temporal	High	39	44	54
2	Temporal	Low	28	32	54
3	Non-Temporal	High	43	47	54
4	Non-Temporal	Low	29	32	54
5	3.1 KHz Temporal	High	39	41	54
6	3.1 KHz Temporal	Low	29	32	54
7	3.1 KHz Non-Temporal	High	42	43	54
8	3.1 KHz Non-Temporal	Low	28	29	54
9	Coded	High	43	47	54
10	3.1 KHz Coded	High	42	43	54

TABLE 4. HORN SOUND OUTPUT (dBA)

Pos	Tone	Volume	8-17.5 Volts	16-33 Volts	
			DC	DC	FWR
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83
9	Coded	High	85	90	90
10	3.1 KHz Coded	High	84	89	89

TABLE 5. CHIME CURRENT DRAW (mA)

Pos	Tone	Volume	8-17.5 Volts	16-33 Volts	
			DC	DC	FWR
1	1 second chime	High	5	8	9
2	1 second chime	Low	5	8	9
3	¼ second chime	High	6	10	10
4	¼ second chime	Low	5	9	9
5	Temporal 3 chime	High	7	10	10
6	Temporal 3 chime	Low	6	9	9
7	5 second whoop	High	12	15	16
8	5 second whoop	Low	7	10	11
9	1 chime (coded)	High	12	15	16
10	NOT TO BE USED				

TABLE 6. CHIME SOUND OUTPUT (dBA)

Pos	Tone	Volume	8-17.5 Volts	16-33 Volts	
			DC	DC	FWR
1	1 second chime	High	61	62	62
2	1 second chime	Low	56	55	55
3	¼ second chime	High	67	70	70
4	¼ second chime	Low	61	61	61
5	Temporal 3 chime	High	64	66	66
6	Temporal 3 chime	Low	59	60	60
7	5 second whoop	High	76	78	78
8	5 second whoop	Low	62	64	64
9	1 chime (coded)	High	76	78	78
10	NOT TO BE USED				

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 mm²) 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 ⅜" 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 2 for wiring terminals and strip guide reference.

⚠CAUTION

Factory finish should not be altered: Do not paint!

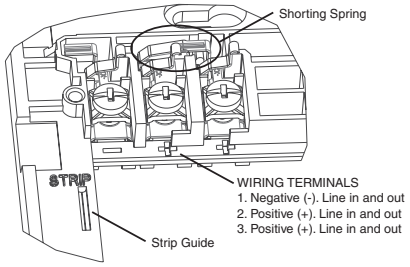
⚠CAUTION

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

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 2.) This spring will automatically disengage when the product is installed, to enable supervision of the final system.

FIGURE 2. WIRING TERMINALS, SHORTING SPRING, AND STRIP GUIDE



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MOUNTING

1. Attach mounting plate to junction box. The standard mounting plate is compatible with 4" square, single gang, double gang, and 4" octagon junction boxes. The compact mounting plate is compatible with single gang junction box. (See Figure 3 and Figure 4, respectively.)

FIGURE 3. STANDARD DEVICE

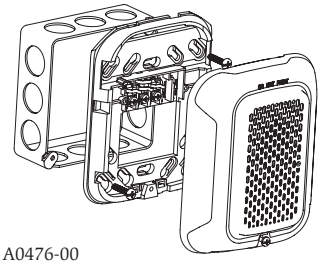

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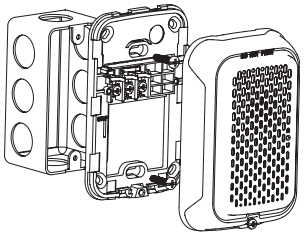
FIGURE 4. COMPACT DEVICE



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2. Connect field wiring according to terminal designations. (See Figure 2.)

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, hook tabs on the top of the product housing into the grooves on mounting plate. Then, hinge the product into position to engage the pins on the product with the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.

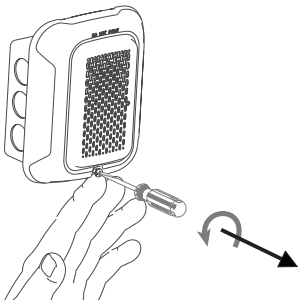
5. Secure product by tightening the single mounting screw in the front of the product housing.

TAMPER SCREW

For tamper resistance, the standard captive screw may be replaced with the enclosed Torx screw.

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 the supplied Torx screw. (See Figure 5.)

FIGURE 5. TAMPER SCREW



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SURFACE MOUNT BACK BOX MOUNTING

1. The surface mount back box may be secured directly to the wall or ceiling. A grounding bracket with ground screw capability is provided if needed. For standard horn and chimes see Figure 6, and for compact horns see Figure 7.

2. The wall mount box must be mounted with the up arrow pointing up. (See Figure 8.)

FIGURE 6. STANDARD SMBB

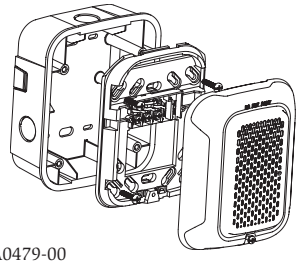

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FIGURE 7. COMPACT SMBB

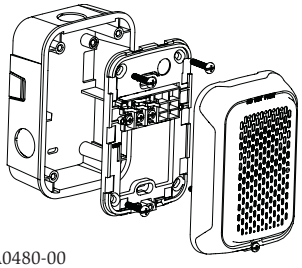

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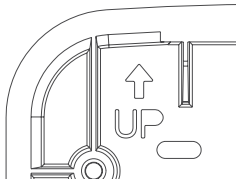
FIGURE 8. SMBB UP ARROW



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3. Threaded knockout holes are provided for the sides of the box for ½ inch conduit adapter. Knockout holes in the back of the box can be used for ½ inch rear entry.

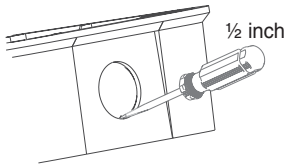
4. To remove the ½ inch knockout, we recommend you use a flat head screwdriver, place the blade of the flat head screwdriver in the inner edge of the knockout. Strike the screwdriver as you work your way around as shown in Figure 9.

NOTE: For ½ in. installation, 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, as shown in Figure 10.

FIGURE 9 AND 10 . KNOCKOUT AND WIRE MOLD REMOVAL FOR SURFACE MOUNT BACK BOX



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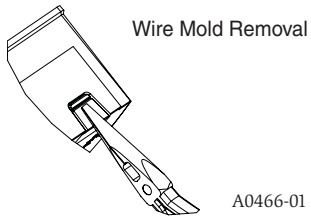

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NOTE: Use caution not to strike the knockout near the top edge of the wall version of the surface mount back box.

SYSTEM WIRING

The horn and chime only require two wires for power and supervision. (See Figure 11.) Please consult your FACP manufacturer or power supply manufacturer for specific wiring configurations and special cases. (See Figure 12.)

FIGURE 11. 2-WIRE CIRCUIT

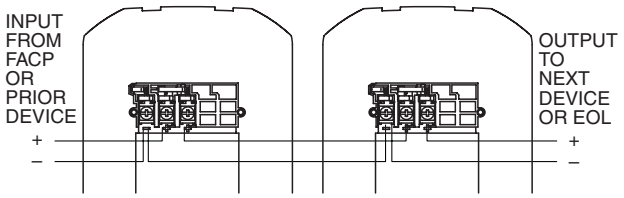

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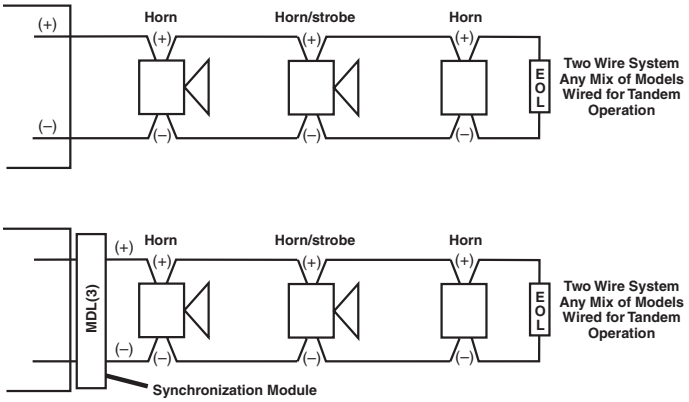
FIGURE 12.



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NOTE: 2W horn strobe shown in these figures.

Please refer to insert for the Limitations of Fire Alarm Systems

⚠WARNING

THE LIMITATIONS OF HORNS AND CHIMES

The horn or chime will not work without power. The horn and chime gets 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 or chime may not be heard. The loudness of the horn or chime meets (or exceeds) current Underwriters Laboratories' standards. However, the horn or chime may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. **The horn or 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 horn or chime may not be heard by persons who are hearing impaired.

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed product 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 product. 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 replacement of any part of the product 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: Honeywell, 12220 Rojas Drive, Suite 700, El Paso TX 79936, USA. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to 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.

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.