

SpectrAlert Ceiling Mount Series Strobes and Horn/Strobes



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www.systemsensor.com



For use with the following models:

Strobes: 24 volt: SC2415W, SC241575W, SC2430W, SC2475W, SC2495W, SC24115W, SC24177W

Horn/Strobes: 24 volt: PC2415W, PC241575W, PC2430W, PC2475W, PC2495W, PC24115W, PC24177W

Remove suffix "W" for red models.

Add suffix "P" for models with plain housing.

The Products to which this manual applies may be covered by one or more of the following U.S. Patent numbers: 5,914,665; 5,850,178; 5,598,139; 6,049,446; 6,057,778; D424465; 5,931,569; 6,623,143

Specifications

Mechanical

Input Terminals:	12 to 18 AWG
Overall Dimensions:	6.8" diameter (173 mm)
Operating Temperature:	32° F to 120° F (0° C to 49° C)

Electrical

Voltage:	Regulated 24 DC/FWR
Operational Voltage Range:	16-33 Volts
Synchronous Applications with MDL Module:	17-33 Volts

NOTE: Horn units will operate on walk tests with on-time durations of .25 sec. or greater.

Flash Rate:	1 Flash Per Second
Light Output:	Models with 15 only in the model number are listed at 15 candela. Models with 1575 in the model number are listed at 15 candela per UL 1971 but will provide 75 candela on axis (straight down). Models with 30, 75, 95, 115, 177 are for that candela.
Sound Output:	Sound output levels are established at Underwriters Laboratories in their reverberant room. Always use the sound output specified as UL Reverberant Room when comparing products.
Listings:	UL S5512 Strobe, UL S4011 (Combo)

Note for Strobes – Do not exceed: 1) 16-33 Voltage range limit; 2) Maximum number of 70 strobe lights when connecting the MDL Sync module with a maximum line impedance of 4 Ohms per loop and; 3) Maximum line impedance as required by the fire alarm control manufacturer.

General Description

The SpectrAlert ceiling mount series notification appliances are designed to meet the requirements of most agencies governing these devices, including: NFPA, The National Fire Alarm Code, UL, FM, CSFM, MEA. Also, check with your local Authority Having Jurisdiction for other codes or standards that may apply.

The SpectrAlert ceiling mount series can be installed in systems using 24-volt panels having DC or full-wave rectified (FWR) power supplies. The series can also be installed in systems requiring synchronization (module MDL required) or systems that do not require synchronization (no module required).

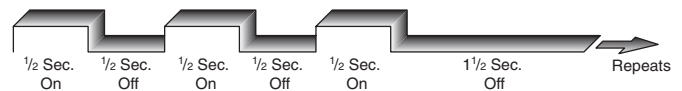
NOTICE: This manual shall be left with the owner/user of this equipment.

Fire Alarm System Considerations

Temporal and Non-Temporal Coded Signals:

The American National Standards Institute and the National Fire Alarm Code require that all horns used for building evacuation installed after July 1, 1996, must produce Temporal Coded Signals.

Signals other than those used for evacuation purposes do not have to produce the Temporal Coded Signal. Temporal coding is accomplished by interrupting a steady sound in the following manner:



Power Supply Considerations

Panels typically supply DC filtered voltage or FWR (full-wave rectified) voltage. The system design engineer must calculate the number of units used in a zone based on the type of panel supply. Be certain the sum of all the device currents do not exceed the current capability of the panel. Calculations are based on using the device current found in the subsequent charts and must be the current specified for the type of panel power supply used.

Wire Sizes

The designer must be sure that the last device on the circuit has sufficient voltage to operate the device within its rated voltage. When calculating the voltage available to the last device, it is necessary to consider the voltage drop due to the resistance of the wire. The thicker the wire, the less the voltage drop. Generally, for purposes of determining the wire size necessary for the system, it is best to consider all of the devices as “lumped” on the end of the supply circuit (simulates “worst case”).

Typical wire size resistance:

18 AWG solid: Approximately 8 ohms/1,000 ft.

16 AWG solid: Approximately 5 ohms/1,000 ft.

14 AWG solid: Approximately 3 ohms/1,000 ft.

12 AWG solid: Approximately 2 ohms/1,000 ft.

Example: Assume you have 10 devices on a zone and each requires 50 mA average and 2000 Ft. of 14 AWG wiring (total length = outgoing + return). The voltage at the end of the loop is 0.050 amps per device x 10 devices x 3 ohms/1,000 ft. x 2000 ft = 3 volts drop.

The same number of devices using 12 AWG wire will produce only 2 volts drop. The same devices using 18 AWG wire will produce 8 volts drop. Consult your panel manufacturer’s specifications, as well as SpectraAlert’s operating voltage range to determine acceptable voltage drop.

NOTE: If class “A” wiring is installed, the wire length may be up to 4 times the single wire length in this calculation.

Figure 1D: 24V DC Horn/Strobe Current Draw Measurements (mA RMS)

Candela Setting	Temporal				Non-Temporal			
	Low Volume		High Volume		Low Volume		High Volume	
	Electromechanical	3000 Hz	Electromechanical	3000 Hz	Electromechanical	3000 Hz	Electromechanical	3000 Hz
15	73	73	76	78	75	75	81	86
15/75	89	89	91	92	89	90	96	98
30	126	125	128	128	125	125	131	134
75	225	222	222	222	219	219	221	222
95	272	270	271	271	266	265	269	270
115	297	297	296	296	291	290	292	293
177	512	504	501	496	491	493	491	496

Figure 1A: Current Draw Measurements (RMS)

NOTE: All SC and PC strobes were only tested at the 16-33 Volt-FWR/DC limits. This does not include the 80% low end or 110% high end voltage limits.

Candela	FWR Max. Operating Current – Strobe (mA RMS)	DC Max. Operating Current – Strobe (mA RMS)
15	68	64
15/75	77	78
30	107	113
75	197	205
95	239	274
115	298	325
177	399	489

Figure 1B: Horn Sound Measurements (dBA)

Selectable Horn Tones			16-33V
Temporal	Low Volume	Electromechanical	75
		3000 Hz Interrupted	75
	High Volume	Electromechanical	80
		3000 Hz Interrupted	81
Non-Temporal	Low Volume	Electromechanical	79
		3000 Hz Interrupted	79
	High Volume	Electromechanical	84
		3000 Hz Interrupted	86

Figure 1C: Horn Current Draw Measurements (RMS)

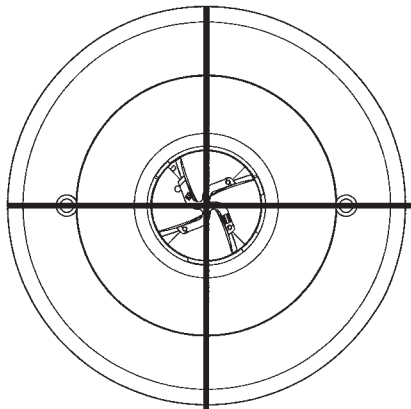
Selectable Horn Tones			16-33 (VDC)	16-33 (VFWR)
Temporal	Low Volume	Electromechanical	23	23
		3000 Hz Interrupted	33	23
	High Volume	Electromechanical	53	44
		3000 Hz Interrupted	57	40
Non-Temporal	Low Volume	Electromechanical	37	29
		3000 Hz Interrupted	32	33
	High Volume	Electromechanical	49	49
		3000 Hz Interrupted	56	58

NOTE: Regulated 24 VDC, max operating current 57.0 mA
24 V FWR, max operating current 57.5 mA

NOTE: 24VDC 2-wire horn/strobe current is shown in Figure 1D. Current draw for other horn/strobe power supplies can be calculated by adding the strobe current draw (Figure 1A) for chosen candela setting to the horn current draw (Figure 1C) for chosen setting.

Figure 1E: Positioning for Maximum Brightness

NOTE: For maximum brightness, unit must be mounted with flash angles as shown.



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Horn Selections

The horns on SpectrAlert horn/strobe combo units are factory set for high volume, temporal code, and electromechanical tone.

Tones:

Electromechanical or 3kHz tones may be field-selected using the DIP switch selector (See Figs. 2B and 3B for DIP switch location).

NOTE: When powered from FWR supply, tones will be modulated (turned on and off) by 120Hz causing the tones to sound different from DC power.

Temp/Non-Temp:

Temporal coding or Non-Temporal coding can also be field-selected using the DIP switch.

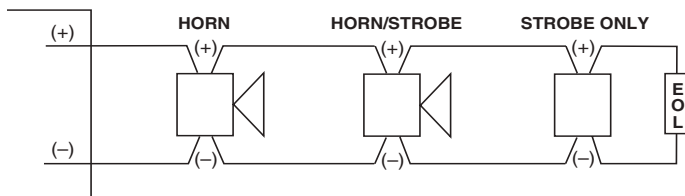
High/Low Volume:

High or low volume may also be field-selected using the DIP switch.

System Operation: Non-Synchronized Devices

Figure 2A: Any combination of models powered by a 2-wire circuit

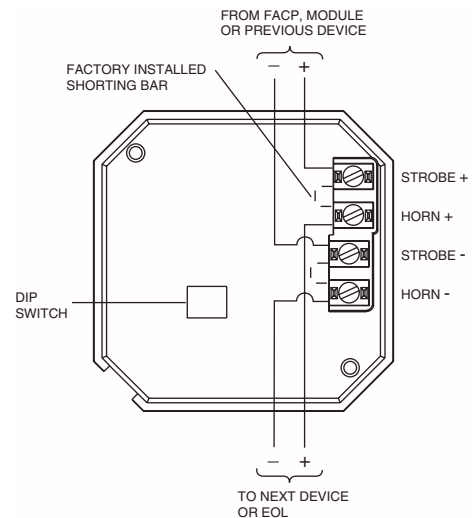
NOTE: Supply power must be continuous for proper operation.



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Figure 2B: Horns and strobes powered in tandem

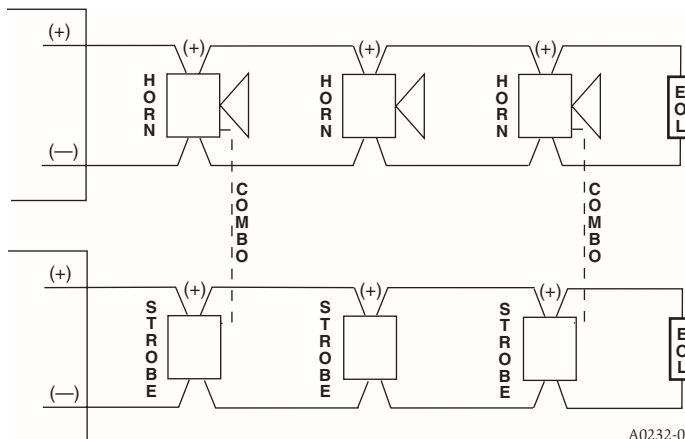
NOTE: Supply power must be continuous for proper operation.



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Figure 3A: Any combination of models powered by a 4-wire circuit to provide independent horn and strobe operation (Remove factory installed jumpers, see Figure 3B)

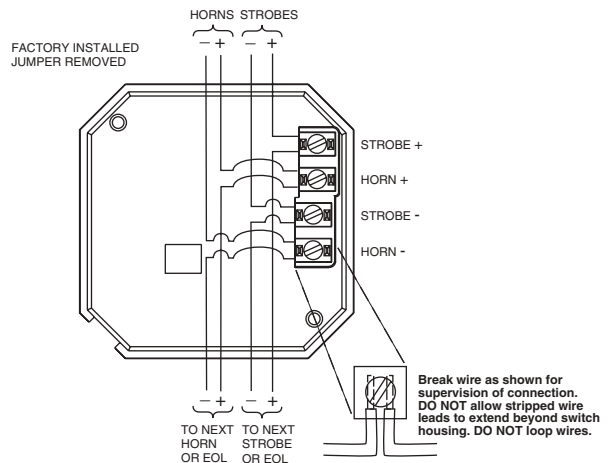
NOTE: Strobes must be powered continuously for horn operation.



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Figure 3B: Horns and strobes powered independently (Horn operated on coded power supply)

NOTE: Strobes must be powered continuously for horn operation.



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Mounting Diagrams:

Screw types used for mounting:

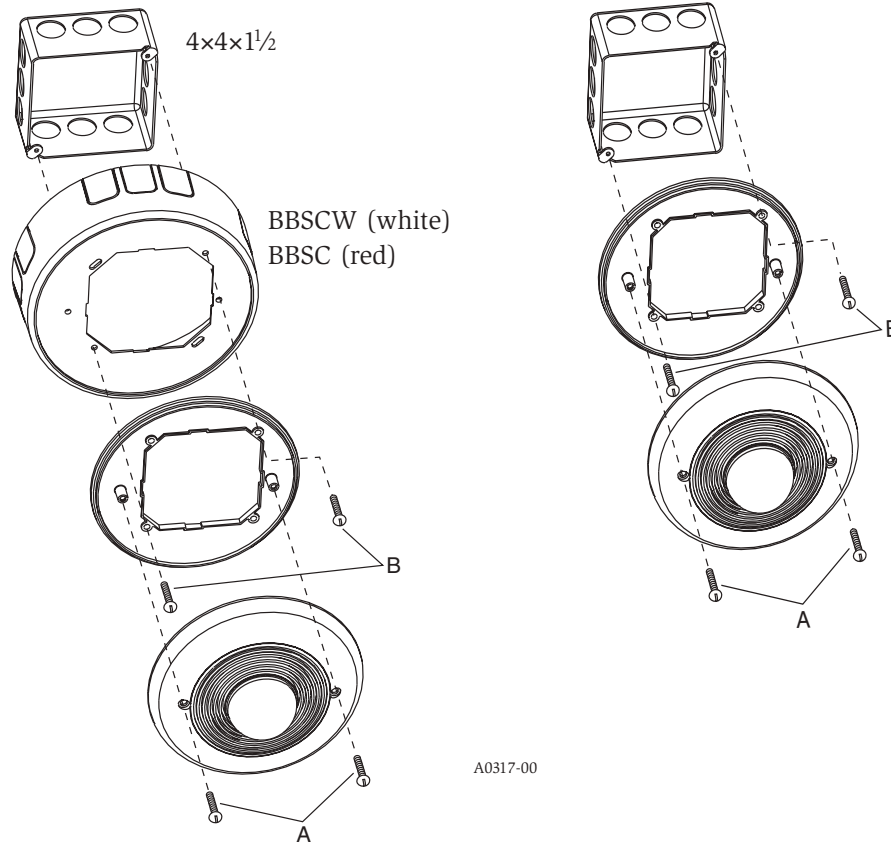
- A = #8 plastite
- B = 8-32 x 3/4 pan head

Strobe or Horn/Strobe with universal mounting plate:

1. Mount adapter plate to back box with screws B.
2. Complete field wiring.
3. Secure unit to plate with screws A.

Strobe or Horn/Strobe surface mount:

1. Mount adapter plate and back box skirt to back box with screws B.
2. Complete field wiring.
3. Secure unit to skirt with screws A.



Please refer to insert for the Limitations of Fire Alarm Systems

WARNING

The Limitations of Ceiling Mount 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.

Three-Year Limited Warranty

System Sensor warrants its enclosed horn, strobe, or horn/strobe 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 horn, strobe, or horn/strobe. 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 repair or replacement of any part of the horn, strobe, or horn/strobe 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: System Sensor,

Returns Department, RA # _____, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or 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

NOTE: This equipment has been tested and found to comply with the limits for a Class A 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.