INSTALLATION AND MAINTENANCE INSTRUCTIONS

MA12/24D* Electronic Sounder, SS12LO, SS24LO*, SS24M* Electronic Strobe, MASS12LO, MASS12M, MASS24LO*, MASS24M* Sounder/Strobe Combined

***ULC models add suffix "A"; strobes and sounder/strobes available in 24VDC only**

SYSTEM SENSOR®
A Division of Pittway
3825 Ohio Avenue, St. Charles, Illinois 60174
1-800-SENSOR2, FAX: 630-377-6495
www.systemsensor.com

The Products to which this manual applies may be covered by one or more of the following U.S. Patent numbers: 5,546,293 and 5,488,462

Table 1. SS12/24 electrical and light ratings:

Model	Supply Voltage (VDC)	Operating Current from Regulated Supply (mA)	Operating Current from Rectified Unfiltered Supply (mA, RMS)	Peak Current (mA)	Minimum Output @ 100% Viewing Angle (see Fig. 3) (Candela)
SS12LO SS24LOA	12-17 22.5-30	50	80	550	1.5 (.22@-35° C)
SS24MA	22.5-30	180	300	440	(5.9 @-35° C)
SS24LO	22.5-30	25	45	225	1.5 (.22@-35° C)
SS24M	22.5-30	75	125	450	15 (5.9 @-35° C)

Under no circumstances can the SS24 or MASS24 input voltage exceed 33 VDC or be less than 18 VDC. Under no circumstances can the SS12 or MASS12 input voltage exceed 18.7 VDC or be less than 9.6 VDC. Under no circumstances can the MA12/24D input voltage exceed 33 VDC or be less than 9.6 VDC.

General Description

The National Fire Protection Association has published standards and recommended practices for the installation and use of the listed appliances. It is recommended that the installer be familiar with these requirements, with local codes, and any special requirements of the authority having jurisdiction.

The electronic Multi-Alert™ sounder and the signaling strobe are intended to be connected to the alarm indicating circuit of a listed fire alarm control panel. Both are compatible with DC line supervision. The model MA12/24D is suitable for connection to either a 12 or 24 volt panel. Models SS24LO, SS24M, MASS24LO and MASS24M require 24 volt panels; models SS12LO, MASS12LO and MASS12M require 12 volt panels. Horn, strobe, or combination strobe models may be used with panels that have full wave rectified, unfiltered supplies. The MA12/24D sounder and MASS12/24 sounder/strobes are suitable for outdoor applications (–35°C to 66°C) when used with a Weatherproof Back Box (Model WBB) as tested by UL. In Canada, rigid steel conduit must be used when installing the Weatherproof Back Box. The light output of the SS12LO, SS24LO, MASS12LO and MASS24LO is 1.5 cd min @100% viewing angle. The light output of the SS24M, MASS12M, and MASS24M is 15 cd min @100% viewing angle (See Figure 3).

There are eight different sounds which can be selected on the electronic sounder by adding or removing tab clips (see Figure 4). The sound selected will determine the maximum current and sound power output per device. See Table 2 for these values.

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

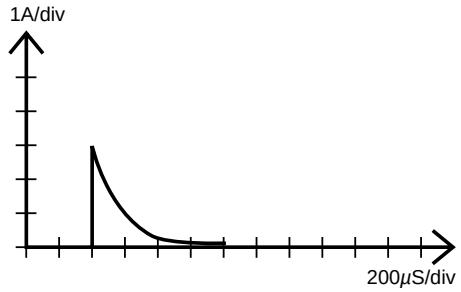
Table 2. Sound output and current ratings for the MA12/24D:

Sound (Hz) (Note 4)	Clips on Tabs DC Regulated/	Current (mA) (Note 1) (Note 2) FWR Unfiltered			Output (dBA) (Note 3)		UL (dBA) Ratings		UL (dBA) w/MDL Module Temp. Tone (Note 6)	
		12V	24V	30V	12V	24V	12V	24V	12V	24V
Slow Whoop	ABC	21/40	38/56	46/72	85	92	79	85	N/A	N/A
800 Continuous	BC	15/24	28/45	35/55	87	93	79	85	75	79
800/1000 Alternating	AC	17/32	34/46	43/58	85	92	79	85	N/A	N/A
2400 Interrupted	AB	19/23	35/56	43/64	89	90	79	85	N/A	N/A
2400 Continuous	C	21/31	38/59	46/73	85	94	79	85	75	79
1200 Interrupted	B	13/19	23/33	27/41	85	91	75	82	N/A	N/A
Swept Frequency	A	17/24	34/47	43/60	85	92	79	85	N/A	N/A
Fast Warble	NONE	15/27	30/47	38/59	85	92	79	85	N/A	N/A

Note 1: Total current for horn/strobe combinations = horn current + strobe current; refer to tables 1 and 2.
Note 2: Sound output measured in anechoic room at 10 feet.
Note 3: Sound output measured in UL reverberant room.
Note 4: See Figure 4 for tab clip removal & storage.
Note 5: All horn or combination strobe models can be powered using full wave rectified unfiltered supplies.
Note 6: Only continuous tones (800Hz, 2400 Hz) can be temporally coded per UL. Strobes cannot be used on an MDL module providing temporal coding to Multi-Alert™ horns.

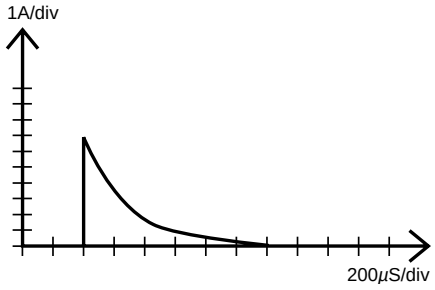
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Figure 1. 12V strobe in-rush current:



To calculate battery requirements, use current values shown on page 1. It should be noted, however, that there is an in-rush current associated with strobe power-up. This information may be used in consideration of fuse selection.

Figure 2. 24V strobe in-rush current:



This in-rush current, as can be seen in Figure 1 for the 12V strobe, typically peaks at 3A and drops to nominal in 600μS.
For the 24V strobe, as shown in Figure 2, the in-rush current typically peaks at 7.0A, then drops to nominal in 800μS.

Independent Sounder/Strobe Operation:

There may be applications where it is desirable to drive the sounder and strobe as independent devices. The System Sensor sounder/strobe combination model MASS12 or MASS24 is easily configured for this feature. The terminal connection for this application is shown in the wiring diagram Figure 8. It must be noted that for this particular operation the PC TABS must be broken off. Independent strobe operation in a "coded" system requires a separate "non-coded" power supply for the strobe.

Installation

A. **General:**

Slotted head screws are used to attach each device or combination of devices to the electrical outlet box. Phillips head screws are used to attach accessories to the horn. Refer to Figures 5, 6, 7 and 8 for wiring methods.

⚠CAUTION

Do not loop wires under the terminal screw. Wires connecting the device to the panel must be broken at the device terminal connection in order to maintain electrical supervision.

The sounder is 1-1/4″ deep. Back boxes should be 4″ square by 1-1/2″ deep minimum; 2-1/8″ deep is recommended.

B. **Sounder/Strobe combination mounting:**

Determine the two holes which will be used to mount the sounder/strobe combination to the electrical outlet box. Use the remaining holes to attach the strobe to the sounder with two phillips head screws.

1. Surface Mount: (See Fig. 11)
2. Semi Flush Mount: (See Fig. 12 and 15)

C. **Sounder mounting:**

1. Surface Mount : (See Fig. 9)
2. Semi Flush Mount: (See Fig. 12 and 15)
3. Flush Mount: (See Fig. 14)

Flush mounting requires the use of the deep box BB-D or equivalent. Determine which of the two holes will be used to attach the device to the box. Mount the flush plate to the sounder using the two 1-5/16-inch phillips head screws and two square nuts through the remaining two holes.

D. **Strobe mounting:**

1. Surface Mount: (See Fig. 10)
2. Semi Flush Mount: (See Fig. 13)

Installation procedures must conform to appropriate agency requirements including but not limited to the following:
NFPA 72, NEC ART. 760 ET.AL., CAN/ULC-S524, CEC PART 1 SEC 32 (ULC models have suffix "A").

⚠CAUTION

The rated output of the sounder is specified at 10 feet. It should not be assumed that the output will meet the NFPA requirement of 15 dB over ambient noise at all locations within a room. Additional sounders may be needed to ensure sound output level complies with NFPA requirements.

Please refer to insert for the Limitations of Fire Alarm Systems

⚠WARNING

Limitations Of Sounder/Strobes

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

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

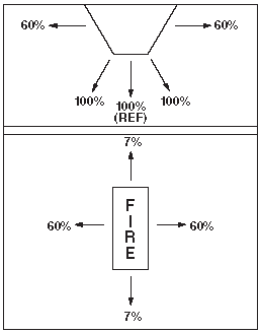
The signal strobe may not be seen. The electronic visual warning signal uses an extremely reliable xenon flash tube. It flashes at least once every three seconds and exceeds current Underwriters Laboratories standards for private mode viewing. The visual warning signal is suitable for direct viewing and must be installed within an area where it can be seen by building occupants. 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 and is not intended to meet American Disabilities Act (ADA) requirements.

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

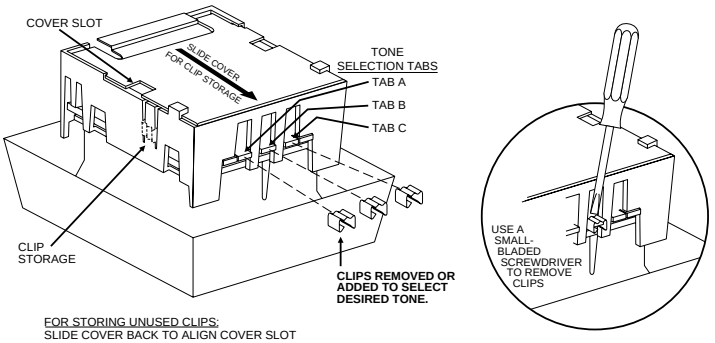
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Figure 3: Light output vs. viewing angle:



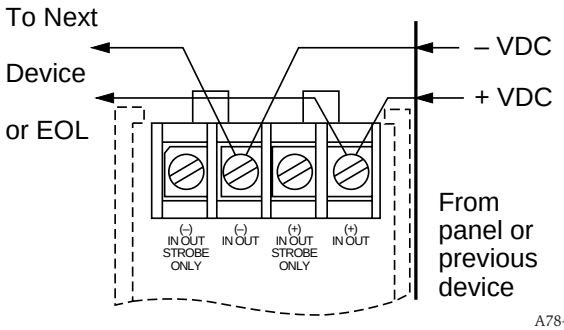
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Figure 4:



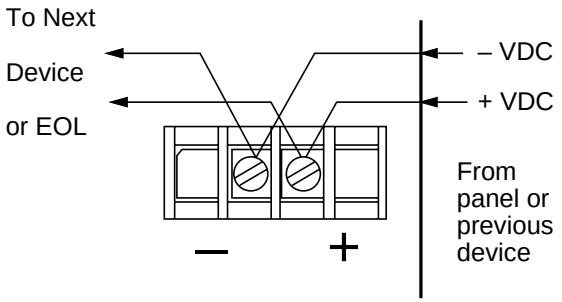
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Figure 5. Multi-Alert Sounder:



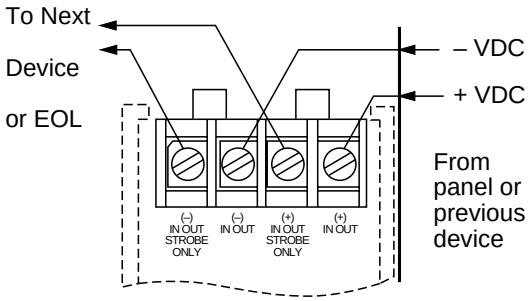
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Figure 6. Strobe only (SS Series only):



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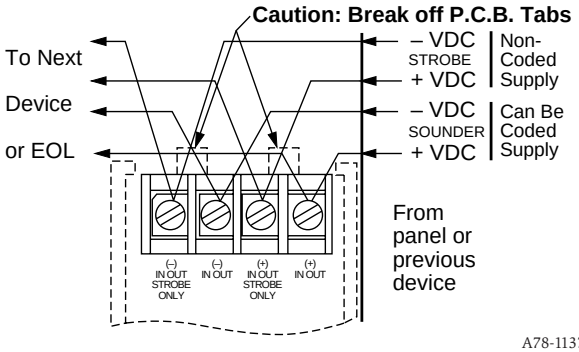
Figure 7. Multi-Alert Sounder and Strobe Multi-Alert Sounder and Strobe operating in tandem:



Note: Use uncoded supply only.

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Figure 8. Operating independently:

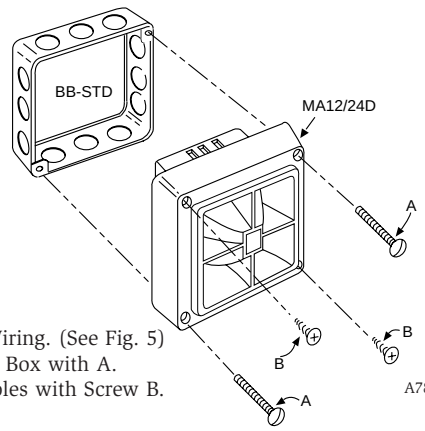


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Screw types used in Figures 9 through 15

A = 8-32x1-7/16" Slot
B = #8 Sheet Metal Phillips
C = 8-32x1-5/16" Phillips
D = #8 Square Nut
E = 8-32x5/8" Slot
F = 8-32x2-3/4" Slot
G = 6-32x5/8" Slot

Figure 9. Sounder surface mount:

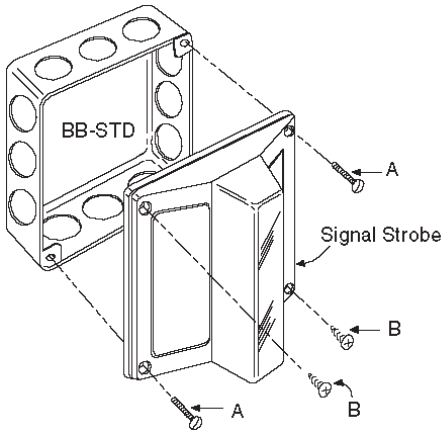


1. Complete Field Wiring. (See Fig. 5)
2. Screw Sounder to Box with A.
3. Fill Remaining Holes with Screw B.

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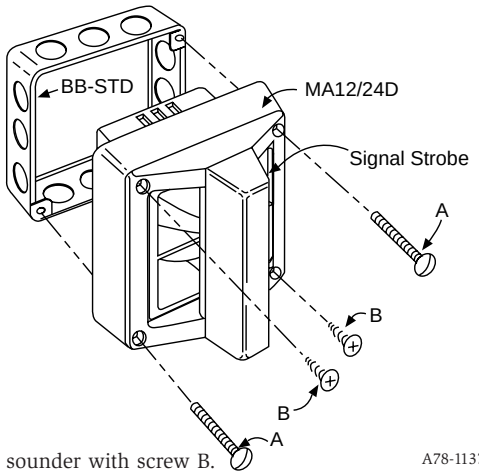
Figure 10. Strobe surface mount:



1. Complete field wiring. (See Fig. 6)
2. Screw strobe to box with screw A.
3. Fill remaining holes with screw B.

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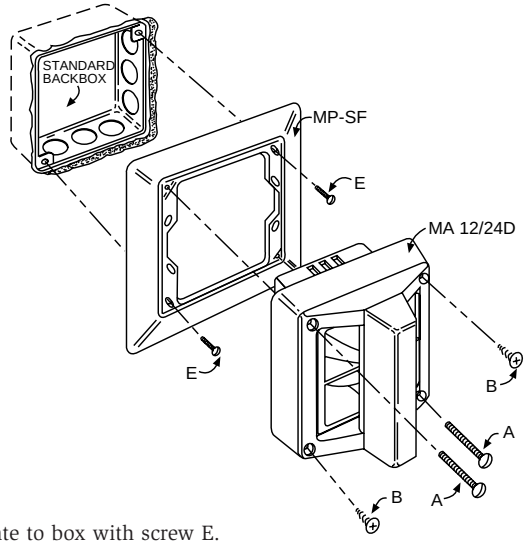
Figure 11. Sounder/Strobe surface mount:



1. Screw strobe to sounder with screw B.
2. Complete field wiring. (See Fig. 7 & 8)
3. Screw sounder/strobe to box with screw A.

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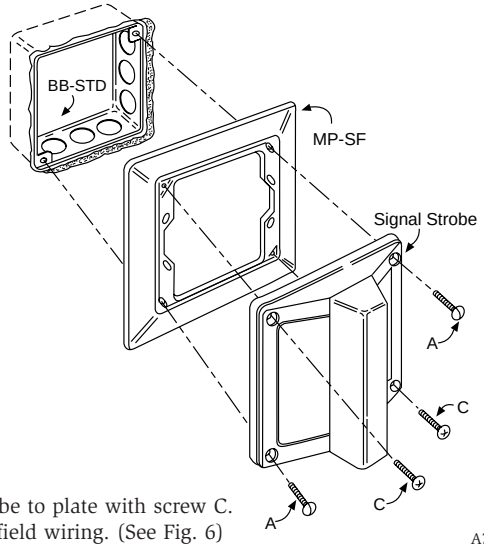
Figure 12. Sounder or Sounder/Strobe semi-flush mount:



1. Screw plate to box with screw E.
2. Complete field wiring. (See Fig. 5, 7, and 8)
3. Screw sounder or sounder/strobe to plate with screw A.
4. Fill remaining holes with screw B.

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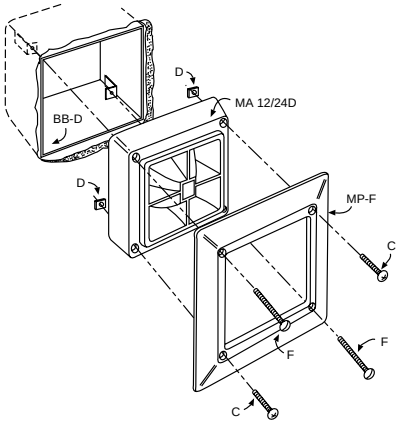
Figure 13. Strobe semi-flush mount:



1. Screw strobe to plate with screw C.
2. Complete field wiring. (See Fig. 6)
3. Screw strobe plate to box with screw A.

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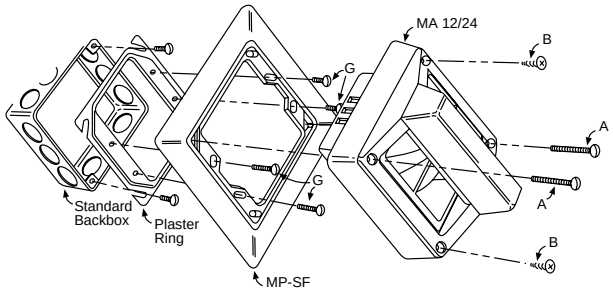
Figure 14. Sounder flush mount (deep box required):



1. Fasten MP-F plate to sounder with screws C and nuts D.
2. Complete field wiring. (See Fig. 5)
3. Screw plate sounder to box with screws F.

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Figure 15. Sounder or Sounder/Strobe semi-flush mount with plaster ring:



1. Plaster ring should be properly mounted to electrical box with screws supplied with box.
2. Screw plate to plaster ring with screw G.
3. Complete field wiring. (See Fig. 5, 7, and 8)
4. Screw sounder or sounder/strobe to plate with screw A.
5. Fill remaining holes with screw B.

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