FEDERAL SIGNAL
Safety and Security Systems / Industrial

# Global Series
## Model G-SND Sounder
### For Use in Hazardous Locations

Ex d Surface Mount

Ex de Surface Mount

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# *Installation and Maintenance Instructions*

*25500187*
*Rev. B5 0918*
*Printed in U.S.A.*

## Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at www.fedsig.com/SSG-Warranty. A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to info@fedsig.com or call +1 708-534-3400.

This limited warranty is in lieu of all other warranties, express or implied, contractual or statutory, including, but not limited to the warranty of merchantability, warranty of fitness for a particular purpose and any warranty against failure of its essential purpose.

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## Safety Messages to Installers and Users

**⚠ WARNING**

It is important to follow all instructions shipped with this product. This sounder is to be installed by a trained electrician who is thoroughly familiar with and will follow all applicable national and local codes in the country of use.

This sounder should be considered a part of the warning system and not the entire warning system.

The selection of the mounting location for the sounder, its controls and the routing of the wiring are to be accomplished under the direction of the facilities engineer and the safety engineer. In addition, listed below are some other important safety instructions and precautions you should follow:

- Read and understand all instructions before installing or operating this equipment.
- To avoid electrical shock hazards, do not connect wires when power is applied. Failure to observe this warning may lead to serious injury or death.
- Never alter the unit in any manner. Safety in hazardous locations may be endangered if additional openings or other alterations are made in units specifically designed for use in these locations.
- Do not connect this sounder to the system when power is on.
- All effective warning sounders produce loud sounds, which may cause, in certain situations, permanent hearing loss. Take appropriate precautions such as hearing protection. The device should be installed far enough away from potential listeners to limit their exposure while still maintaining its effectiveness.
- After installation, ensure that all threaded joints are properly tightened.
- After installation, test the sounder system to ensure that it is operating properly
- Keep the unit tightly closed when in operation.
- After testing is complete, provide a copy of this instruction sheet to all personnel.
- Brass inserts have the potential to store charge when they are not plugged. Consideration should be taken to prevent these from becoming a sparking hazard.

- Establish a procedure to routinely check the sounder system for proper activation and operation.
- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F and G; Class III or non-hazardous locations only.
- **WARNING: EXPLOSION HAZARD** — Do not disconnect the equipment unless power has been switched off or unless the area is known to be non-hazardous.
- **WARNING: EXPLOSION HAZARD** — Do not remove or replace the fuse when energized.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

With respect to the potential electrostatic charging hazard as mentioned in the certificate "Specific Conditions of Use", under normal conditions of use, these devices are for fixed installations and not generally in contact with people. The risk of ignition is low. In addition, maintenance, cleaning, and extreme environmental factors (ex. high velocity dust laden atmospheres or high pressure steam) should be taken into account by the end user, using local Explosive Atmosphere (Ex) Electrical installations design, selection, inspection, and maintenance Codes and Standards. Cleaning of the devices should only be done with a damp cloth.

## Certification

| | |
|---|---|
| Certificate Nos.: | ATEX Cert No.: Baseefa15ATEX0155X<br>IECEx Cert No.: IECEx BAS 15.0104X<br>ATEX coding: Ⓔx II 2 G D |
| Protection: | Ex db IIB T5 Gb or Ex db e IIB T5 Gb<br>Ex tb IIIC T100°C Db IP66 (Tamb= -55°C to + 49°C)<br>Ex db IIC T4 Gb or Ex db e IIC T4 Gb<br>Ex tb IIIC T135°C Db IP66 (Tamb= -55°C to + 70°C) |
| Standards: | EN60079-0: 2012 +A11:2013, EN60079-1: 2014,<br>EN60079-7: 2007, EN60079-31: 2014, IEC60079-0: 6th Ed.,<br>IEC 60079-1:7th Ed., IEC 60079-7: 4th Ed.,<br>IEC 60079-31:2nd Ed. |

**Specific Conditions of Use:**

1. The Modular Audible Device enclosure incorporates a sinter and the volume is greater than 100 $cm^3$, therefore use of the Modular Audible Device in carbon disulphide gas atmospheres is not permitted.
2. The Modular Audible Device has external non-metallic surfaces which may provide electrostatic charging hazard. See the manufacturer's instructions for further information.
3. The Modular Audible Device has metallic components in the non-metallic walls of the enclosure which can store electrical charge and therefore may provide a potential electrostatic discharge. The metallic brass inserts have a capacitance of 24 pF. See the manufacturer's instructions for further information.

**cULus Zone Certifications:**

The following models are C1, Zone 1 and 21 certified: G-SND-MV-D and G-SND-MV-T. Models not mentioned are not suitable for Class, Zone locations.

These models use protections:

Class I, Zone 1, A Ex db IIC T4

AEx tb IIIC T4/135°C IP66 (Tamb= -55°C to +70°C)

Ex db IIC T4

Ex tb IIIC T4/135°C IP66 (Tamb= -55°C to +70°C)

**UL Fire Alarm Certifications:** See page 30.

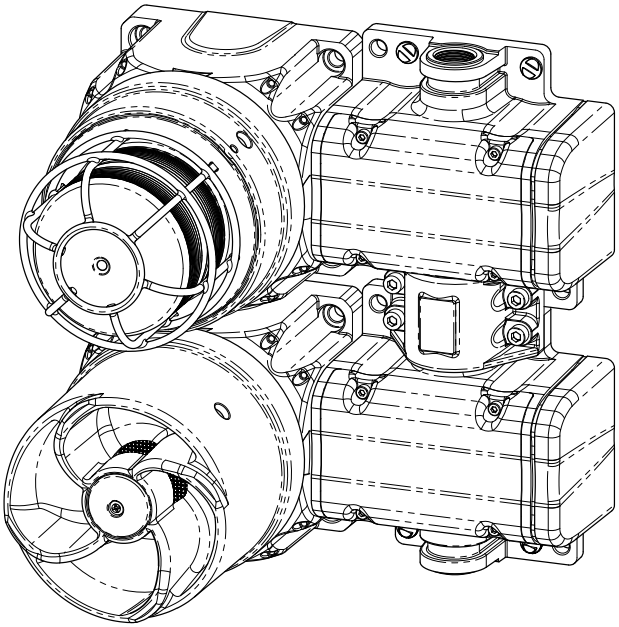
## Unpacking the Sounder

After unpacking the sounder, examine it for damage that may have occurred in transit. If it has been damaged, do not attempt to install or operate it. File a claim immediately with the carrier, stating the extent of the damage. Carefully check all envelopes, shipping labels, and tags before removing or discarding them. Disposal of all shipping materials must be carried out in accordance with national and local codes and standards. If any parts are missing, please call Federal Signal Customer Support at +1 708-534-4756 or +1 877-289-3246.

## Creating Combination Fixtures in the Field

The Federal Signal Global Series Ex de products can be connected together in the field using interchangeable E-box end caps and a proprietary coupling system (Figure 1).

**Figure 1** Sounder and sounder combination fixture



The proprietary coupling system allows for simple and cost effective, wiring from product to product, often eliminating the need for expensive Ex wiring practices and Ex rated glands. The E-box is available only when factory installed on an Ex d unit or when used as a E-box spacer adjoining an existing E-box. Please refer to the accessories listed on page 28 for available options. When creating certain fixture combinations, it is necessary to replace E-box end caps before mounting the product. If you are creating combination fixtures, refer to instruction manual 25500259 for specific instructions and details.

A note about combination fixtures: If the product is Ex db marked only, it is for use in gas atmospheres. If the product is Ex db e marked, it uses the increased-safety terminal enclosures and is only for gas atmospheres. If the product is Ex tb marked, it is for installation in dust atmospheres.

## Mounting the G-SND Sounder

**⚠ WARNING**

***ATTACH THE SOUNDER SECURELY: To prevent injury, this apparatus must be securely attached to the mounting surface in accordance with the installation instructions. Use installer-supplied fasteners suitable for the mounting surface.***

The mounting method and the installer-supplied mounting hardware depend on which of the two G-SND models you are installing:

### *Mounting the Surface-Mount Ex d Sounder*

Mount the sounder to a flat surface using the four 8.5 mm mounting holes. Use installer-supplied fasteners suitable for the surface to which the device will be mounted.

**Figure 2** Side view of Ex d sounder

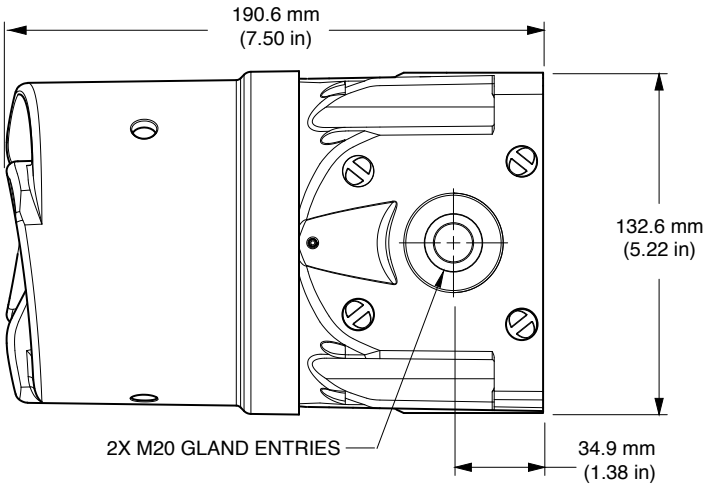
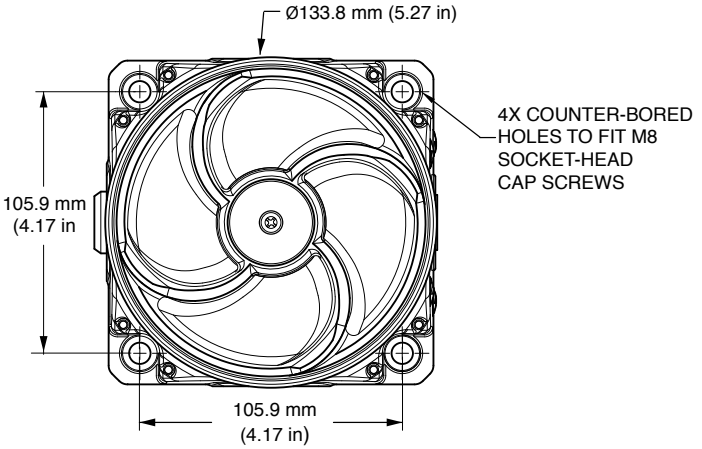


**Figure 3** Front view of Ex d sounder




## *Mounting the Ex d e Surface-Mount Sounder*

Mount the sounder to a flat surface using the six 8.5 mm mounting holes. Use installer-supplied fasteners suitable for the surface to which the device will be mounted.

**Figure 4** Front view of Ex d e surface mount

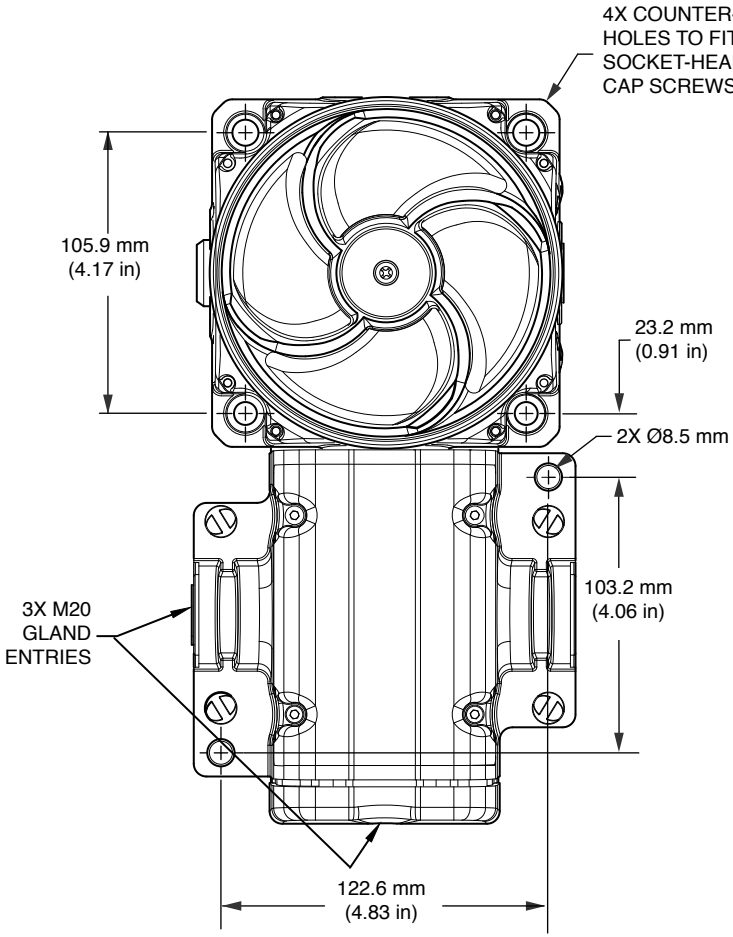
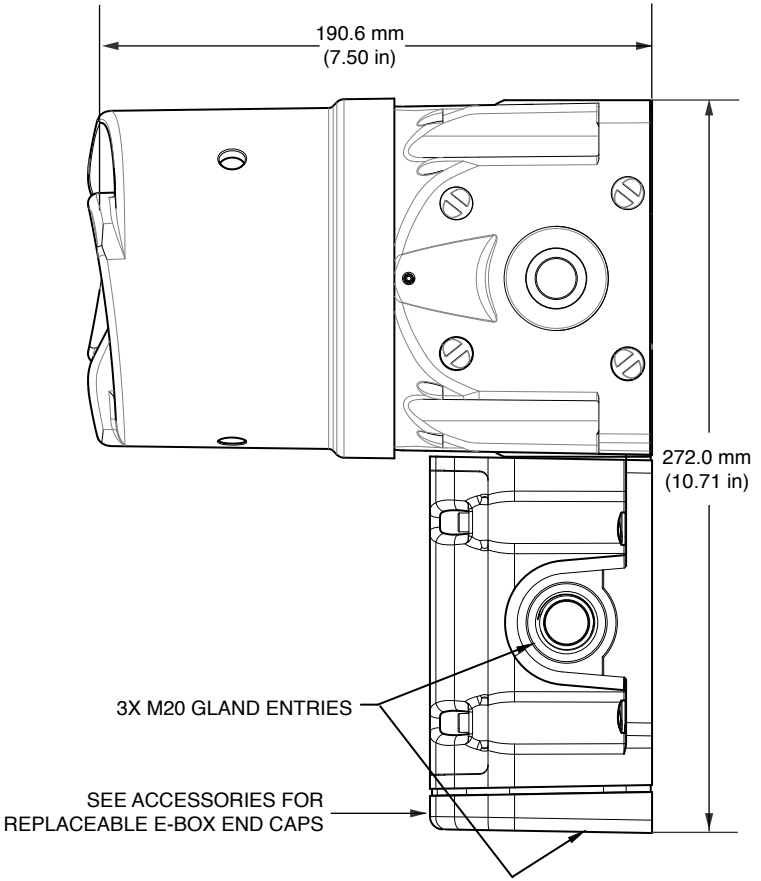


**Figure 5** Side view of Ex d e surface mount



## Safety Messages for Wiring

When installing and operating flame-proof electrical equipment, the relevant national regulations for installation and operation (e.g., EN60079-14, IEC Wiring Regulations and NEC/CEC) must be observed.

- To avoid electrical shock hazards, do not connect wires when power is applied. Failure to observe this warning may lead to serious injury or death.
- To maintain the flame-proof integrity of the enclosure, DO NOT damage the cover or threads while disassembling or reassembling the unit.
- Painting and surface finishes, other than those applied by Federal Signal Corporation, are not permitted.
- Cable termination should be in accordance with specifications applying to the application. Federal Signal recommends that all cables and cores should be fully identified.
- Ensure that only the correct equipment-certified glands are used and that the assembly is shrouded and correctly earthed. Gland entries are M20-1.5 6H with an option for the M25 entry on the end of the increased safety box models. See Table 4 on page 29 for choosing correct cable entry devices for Equipment in Potentially Explosive Atmospheres.
- Because of space limitations, ensure the cable cores within the unit are not too slack.
- In all countries, the wiring must comply with all national and local codes and standards.
- Ensure that all nuts, bolts, and fixings are secure.

## Preparing to Wire the Ex d Flameproof Models

**⚠ WARNING**

***SHOCK HAZARD: To avoid electrical shock hazards, do not connect wires when power is applied. Failure to observe this warning may lead to serious injury or death.***

***NOTICE***

***CIRCUIT BOARD DAMAGE: The DC sounders are polarity sensitive, and MAY BE DAMAGED by incorrect electrical hookup. When connecting the DC sounder to the voltage supply lines, POLARITY MUST BE OBSERVED. In addition, damage will result if the voltage rating of the particular model is exceeded by more than 10 percent.***

This section has wiring instructions for the flameproof models G-SND 24 Vdc, 120 Vac, 220-240 Vac.

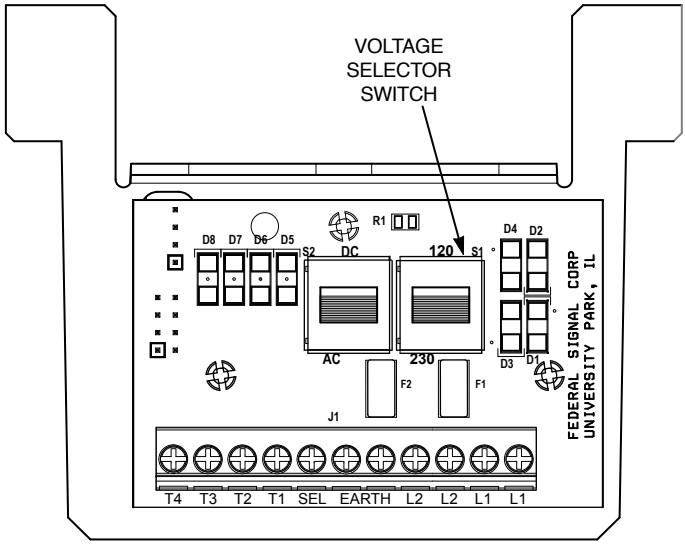
Ex d units are supplied with an eleven-position PCB mounted screw terminal block. The maximum wire gauge is 4 $mm^2$ (12 AWG). The wire must be rated 85 °C or higher. Use only stranded cable to terminate the sounder. The cross-sectional area of the primary earth (ground) must equal the cross-sectional area of the phase conductor.

Cable termination for these models should be in accordance with specifications applying to the application. It is recommended that all cables and cores should be fully identified. Use the appropriate cable gland for the application. Gland entry threads are M20-1.5 x 6H.

**Tools needed:**

- 1.5 mm A/F hexagon key
- 2 mm flat-tip screwdriver
- No. 1 Phillips screwdriver
- Wire stripper

**Figure 6** Ex d in/out PCB connections




## *Wiring the Ex d Models*

To wire the Ex d flameproof sounder:

1. Unscrew the M3 hex set screw on the side of the housing one full turn.

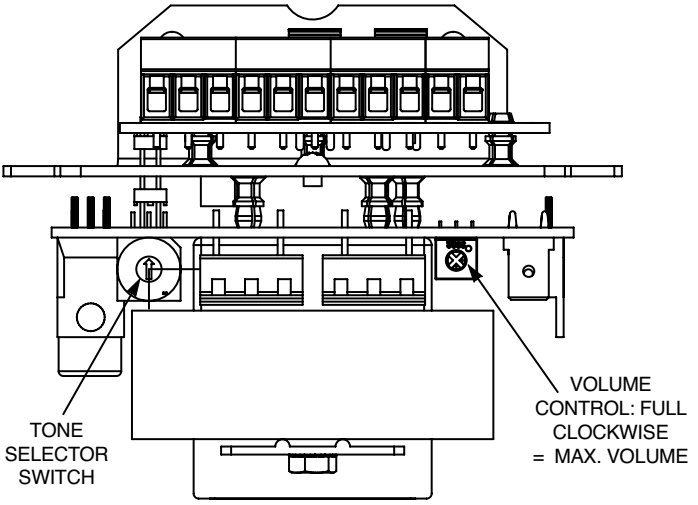
2. Remove the cover from the housing by turning the cover counter-clockwise. Three 120-degree spaced reliefs are provided for a 3/8 inch spanner wrench if needed. If the cover will not unscrew, back out the set screw a few additional turns.

3. Loosen the captive Phillips screw retaining the driver/printed circuit board (PCB).

4. Slide out the PCB until the terminals clear the housing. Strip the wire insulation 6.5 mm (0.25 in). Maximum screw tightening torque is 0.5 N•m (4.5 in-lb).

5. Follow the instructions starting below for your line voltage and continue to Step 6 on page 19. Refer to Figure 6 for the voltage selector switch and page 20 for the tone chart.

**Figure 7** Locations of tone and volume switches




**220-240 Vac Operation (no remote switching of tones)**

**a.** Set the voltage selector switches to **230** and **AC**.

**b.** Turn the tone selector switch to the desired tone.

**c.** Connect the line (hot) power source wire to the terminal block position marked **L1** on the PCB.

**d.** Connect the neutral (common) power source wire to the terminal block position marked **L2** on the PCB.

**e.** Connect ground wire to the terminal block position marked **EARTH**.

**120 Vac operation (no remote switching of tones)**

**a.** Set the voltage selector switches to **120** and **AC**.

**b.** Turn the tone selector switch to the desired tone.

**c.** Connect the line (hot) power source wire to the terminal block position marked **L1** on the PCB.

**d.** Connect the neutral (common) power source wire to the terminal block position marked **L2** on the PCB.

**e.** Connect ground wire to the terminal block position marked **EARTH**.

**24 Vdc operation (no remote switching of tones)**

**a.** Set the voltage selector switches to **230** and **DC**.

**b.** Turn the tone selector switch to the desired tone.

**c.** Connect the positive (**+**) power source wire to the terminal block position marked **L1** on the PCB.

**d.** Connect the negative (**–**) power source wire to the terminal block position marked **L2** on the PCB.

**e.** Connect ground wire to the terminal block position marked **EARTH**.

**220-240 Vac operation (remote switching of tones)**

**a.** Set the voltage selector switches to **230** and **AC**.

**b.** Set the tone selector switch to **0**.

**c.** Connect the line (hot) power source wire to the terminal block position marked **L1** on the PCB.

**d.** Connect the neutral (common) power source wire to the terminal block position marked **L2** on the PCB.

**e.** Connect ground wire to the terminal block position marked **EARTH**.

**f.** Connect the common wire from the remote switching device to the terminal block position marked **SEL**.

**g.** Connect the tone select wires from the remote switching device to the terminal block positions marked **T1**, **T2**, **T3**, and **T4**.

**For 120 Vac operation (remote switching of tones)**

**a.** Set the voltage selector switches to **120** and **AC**.

**b.** Set the tone selector switch to **0**.

**c.** Connect the line (hot) power source wire to the terminal block position marked **L1** on the PCB.

**d.** Connect the neutral (common) power source wire to the terminal block position marked **L2** on the PCB.

**e.** Connect the ground wire to the terminal block position marked **EARTH**.

**f.** Connect the common wire from remote switching device to the terminal block position marked **SEL**.

**g.** Connect the tone select wires from remote switching device to the terminal block positions marked **T1**, **T2**, **T3**, and **T4**.

**24 Vdc operation (remote switching of tones with local power)**

**a.** Set the voltage selector switches to **230** and **DC**.

**b.** Set the tone selector switch to **0**.

**c.** Connect the negative (**–**) power source wire to the terminal block position marked **L2** on the PCB.

**d.** Connect the positive (**+**) power source wire to the terminal block position marked **L1** on the PCB.

**e.** Connect the ground wire to the terminal block position marked **EARTH**.

**f.** Connect common wire from remote switching device to the terminal block position marked **SEL**.

**g.** Connect tone select wires from remote switching device to the terminal block positions marked **T1**, **T2**, **T3**, and **T4**.

**For 24 Vdc operation (remote switching of tones with remote power)**

**a.** Set the tone selector switch to 0.

**b.** Connect the negative (**–**) power source wire to the terminal block position marked **L2** on the PCB.

**c.** Connect the positive (**+**) power source/select wires to the terminal block positions marked **T1**, **T2**, **T3**, and **T4**.

**d.** Connect the ground wire to the terminal block position marked **EARTH**.

**6.** Insert the PCB into the enclosure and fully tighten the PCB captive screw.

**7.** Place the cover on the housing and tighten it by turning it clockwise.

**8.** To ensure O-ring compression, the cover must be fully seated against the housing when the threads are tightened. Turn the M3 set screw on the side of the housing until the screw contacts the housing.

**9.** Ensure that the unused wire entry is sealed with the provided brass M20-1.5 x 6 g stopping plug (equipment-certified).

**Table 1** Tone chart

| Tone (Position) | Description | Frequency | Duration |
|---|---|---|---|
| 0 (0) | Off | | |
| 1 (1) | Two Tone | 588 Hz<br>714 Hz | 0.25 s<br>0.25 s |
| 2 (2) | Swept | 600 Hz to 700 Hz | 0.5 s |
| 3 (3) | Warble | 1000 Hz/1400 Hz<br>Silence<br>Warble<br>Silence | 0.4 s<br>0.25 s<br>0.4 s<br>0.2 s |
| 4 (4) | Constant 700 Hz | 700 Hz | |
| 5 (5) | Simulated Bell | ~ 3 rings per s | |
| 6 (6) | Swept | 1.6 kHz to 1.2 kHz<br>1.2 kHz to 2.6 kHz | <br>6 cycles per s |
| 7 (7) | Two Tone | 1 kHz<br>700 Hz | 0.4 s<br>0.4 s |
| 8 (8) | 700 Hz | 700 Hz<br>Silence | 0.25 s<br>0.25 s |
| 9 (9) | Swept | 400 Hz to 1.6 Hz<br>Constant 1.2 kHz<br>1.2 kHz to 400 kHz<br>Silence | 1 s<br>2 s<br>1 s<br>5 s |
| 10 (A) | Swept | 500 Hz to 770 Hz | 0.5 s |
| 11 (B) | 1 KHz | 1 KHz<br>Silence | 1 s<br>1 s |
| *12 (C) | Constant 1 kHz | 1 kHz | |
| 13 (D) | Two Tone | 700 Hz<br>500 Hz | 0.5 s<br>0.5 s |
| 14 (E) | Warble | 1 kHz to 1.4 kHz | 10 cycles per s |
| 15 (F) | Swept | 1.2 kHz 400 Hz | 1 s |

*Factory setting

## Preparing to Wire the Ex de Increased Safety Models

**⚠ WARNING**

***SHOCK HAZARD: To avoid electrical shock hazards, do not connect wires when power is applied. Failure to observe this warning may lead to serious injury or death.***

This section has wiring instructions for the three increased safety models:

- G-SND 24 Vdc
- G-SND 120 Vac
- G-SND 240 Vac

Ex de units are supplied with a six-pole, spring-tension clamp style terminal block. The maximum wire gauge is 4.0 $mm^2$ (12 AWG). The wire must be rated 85 °C or higher. Use only stranded cable to terminate the sounder. The cross-sectional area of the primary earth (ground) must equal the cross-sectional area of the phase conductor.

Cable termination should be in accordance with specifications applying to the application. It is recommended that all cables and cores should be fully identified. Use the appropriate cable gland for the application. Gland entry threads are M20-1.5 6H.

Conductive metalwork, including cable glands, must be a minimum of 5 mm away from the terminals.

Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1 mm of the metal of the terminal throat.

The G-SND terminal block is supplied with two conductors per pole. The terminal block allows for easy supply-in and loop-out wiring to connect sounders in series.

Tools needed:

- 3.0 mm A/F hexagon key
- No. 1 Phillips screwdriver
- Wire stripper

## Wiring the Ex de Models

**NOTICE**

***CIRCUIT BOARD DAMAGE: The DC sounders are polarity sensitive, and MAY BE DAMAGED by incorrect electrical hookup. When connecting the DC sounder to the voltage supply lines, POLARITY MUST BE OBSERVED. In addition, damage will result if the voltage rating of the particular model is exceeded by more than 10 percent.***

To wire the Ex de models:

1. Unscrew the four M4 socket-head cap screws and remove the terminal box cover.

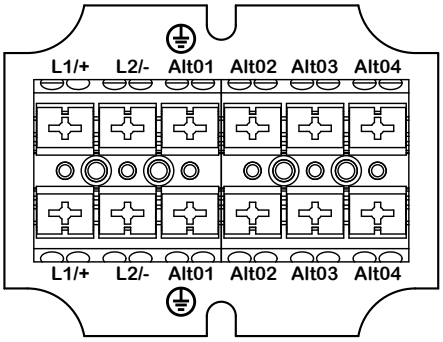
2. Strip the wire insulation 8 mm to 9 mm (0.33 in).

   **NOTE:** When using more than one single or multiple strand lead, the connection into either side of any terminal must be joined in a suitable manner, e.g. two conductors into a single insulated crimped bootlace ferrule.

3. To connect wires, press the pushbutton on the terminal block with a Phillips screwdriver and insert the wire into the round opening. Release pushbutton to make connection.

4. Follow the instructions starting below for your line voltage and continue to Step 5 on page 25. Refer to Figure 6 on page 15 for the voltage selector switch and page 20 for the tone chart.

**Figure 8** Connections for DC or AC Ex d e sounder



**220-240 Vac operation (no remote switching of tones)**

**a.** Connect the line (hot) power-source wire to the position marked **L1/+** on the terminal block.

**b.** Connect the neutral (common) power-source wire to the position marked **L2/-** on the terminal block.

**c.** Connect the ground wire to the position marked ⏚ **Alt01** on the terminal block.

**120 Vac operation (no remote switching of tones)**

**a.** Connect the line (hot) power-source wire to the position marked **L1/+** on the terminal block.

**b.** Connect the neutral (common) power-source wire to the position marked **L2/-** on the terminal block.

**c.** Connect the ground wire to the position marked ⏚ **Alt01** on the terminal block.

**24 Vdc operation (no remote switching of tones)**

**a.** Connect the positive (**+**) power-source wire to the position marked **L1/+** on the terminal block.

**b.** Connect the negative (**–**) power-source wire to the terminal block position marked **L2/-** on the terminal block.

**c.** Connect the ground wire to the position marked ⏚ **Alt01** on the terminal block.

**220-240 Vac operation (remote switching of tones)**

**a.** Connect the line (hot) power-source wire to the position marked **L1/+** on the terminal block.

**b.** Connect the neutral (common) power-source wire to the position marked **L2/-** on the terminal block.

**c.** Connect the ground wire to the position marked ⏚ **Alt01** on the terminal block.

**d.** Connect the common wire from remote switching device to the terminal block position marked **Alt02**.

**e.** Connect the tone-select wires from the remote switching device to the terminal block positions marked **Alt03** and **Alt04**. Please note that only two tones are remotely selectable on Ex de 220-240 Vac units.

**120 Vac operation (remote switching of tones)**

**a.** Connect the line (hot) power source wire to the position marked **L1/+** on the terminal block.

**b.** Connect the neutral (common) power source wire to the position marked **L2/-** on the terminal block.

**c.** Connect the ground wire to the position marked **Alt01** on the terminal block.

**d.** Connect the common wire from the remote switching device to the terminal block position marked **Alt02**.

**e.** Connect the tone-select wires from the remote switching device to the terminal block positions marked **Alt03** and **Alt 04**. Please note that only two tones are remotely selectable on Ex de 120 Vac units.

**24 Vdc operation (remote switching of tones with remote power)**

**a.** Connect the negative (**–**) power source wire to the position marked **L2/-** on the terminal block.

**b.** Connect the positive (**+**) power source/select wires to the terminal block positions marked **Alt02**, **Alt03**, **Alt04**. Please note that only three tones are remotely selectable on Ex de 24 Vdc units.

**c.** Connect the ground wire to the position marked ⏚ **Alt01** on the terminal block.

5. Secure the cover on the terminal box with the four M4 screws. Ensure that the gasket is properly seated to maintain IP rating. Do not overtighten the screws.

## Selecting the Tone for Ex de Models

**⚠ WARNING**

***All effective warning sounders produce loud sounds, which may cause, in certain situations, permanent hearing loss. Take appropriate precautions such as hearing protection.***

To select the tone for Ex de models:

1. Unscrew the M3 hex set screw on the side of the housing one full turn.
2. Remove the cover from the housing by turning the cover counter-clockwise. Three 120-degree spaced reliefs are provided for a 3/8 inch spanner wrench if needed. If the cover will not unscrew, back out the set screw a few additional turns.
3. Loosen the captive Phillips screw retaining the driver/printed circuit board (PCB).
4. Slide out the PCB and set the tone selector switch to the desired tone.
5. Insert the driver/PCB into the enclosure taking care not to pinch the wiring and fully tighten the PCB captive screw.
6. Place cover on housing and tighten it by turning it clockwise.
7. To ensure O-ring compression, the cover must be fully seated against the housing when the threads are tightened. Turn the M3 set screw on the side of the housing until the screw contacts the housing.

## Safety Messages to Maintenance Personnel

**⚠ WARNING**

Listed below are some important safety instructions and precautions you should follow:

- Read and understand all instructions before operating this system.
- Repair of flamepaths is not recommended.
- If you acquired a significant quantity of units, then it is recommended that spares are also made available.
- To avoid electrical shock hazards, do not connect wires when power is applied. Failure to observe this warning may lead to serious injury or death.
- Any maintenance to the sounder system must be performed by a trained electrician who is thoroughly familiar with all applicable national and local codes in the country of use.
- Any maintenance to the sounder system must be done with power turned off.
- Check the sounder periodically to ensure that the effectiveness of the device has not been reduced because it has been clogged with a foreign substance or because objects have been placed in front of it.
- Never alter the unit in any manner. Safety of the unit may be affected if additional openings or other alterations are made to the internal components or housing.
- The nameplate, which may contain cautionary or other information of importance to maintenance personnel, should NOT be obscured in any way. Ensure that the nameplate remains readable.
- After performing any maintenance, test the sounder system to ensure that it is operating properly.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

## Maintaining the Sounder

**⚠ WARNING**

***EXPLOSION HAZARD: To prevent ignition of hazardous atmosphere, disconnect the sounder from the supply circuit before opening it. Do not open the sounder in the presence of explosive gases in the atmosphere. Failure to follow this warning may result in serious injury or death.***

During the working life of the sounder, it should require little or no maintenance. The non-metallic housing will resist attack by most acids, alkalis, and chemicals and is as resistant to concentrated acids and alkalis as most metal products. However, if abnormal or unusual environment conditions occur due to plant damage or accident, etc., visual inspection of the sounder is recommended.

### *Cleaning the Enclosure*

The enclosure should be cleaned periodically with a damp cloth to maintain maximum sound output. Periodic checks should be made to ensure the effectiveness of this device has not been reduced because the sounder has become clogged with a foreign substance or because objects have been placed in front of the sounder.

### *Lubricating the Threaded Joints*

A silicone based, non-hardening, chemically compatible grease can be applied if required.

**⚠ CAUTION**

***Do not paint this device after installation and do not change the factory-applied finish.***

## Ordering Replacement Parts and Accessories

A replacement part for the driver/PCB assembly and accessories are listed in Tables 2 and 3 on page 28. Due to certification, certain component parts are not available for field replacement. Sounders with this type of damage must be either replaced entirely or returned to Federal Signal for service. Refer to instruction manual 25500259 for accessory and replacement part assembly and operating instructions.

To order, call Federal Signal Customer Support at 708-534-4756 or 877-289-3246.

**Table 2** Replacement Part

| Description | Part Number |
|---|---|
| Multi-voltage G-SND Sounder Kit (Includes PCBAs, Bracket, Driver, & Mounting Screws) | K859501404 |

**Table 3** Accessories

| Description | Part Number |
|---|---|
| Indicator Ring/Legend Kit, Black | G-KIT-RP-BK |
| Indicator Ring/Legend Kit, Blue | G-KIT-RP-B |
| Indicator Ring/Legend Kit, Green | G-KIT-RP-G |
| Indicator Ring/Legend Kit, Magenta | G-KIT-RP-M |
| Indicator Ring/Legend Kit, Red | G-KIT-RP-R |
| Indicator Ring/Legend Kit, Yellow | G-KIT-RP-Y |
| E-Box Endcap with M20 Opening | K859500805-02 |
| E-Box Endcap with M25 Opening | K859500805-01 |
| E-Box Cover Assembly (Includes two terminal blocks, mounting plate, retention hardware) | K859501414 |
| In-Line E-Box Coupler Kit | G-KIT-EC180 |
| 90-Degree E-Box Coupler Kit | G-KIT-EC90 |
| Extension Box Spacer Kit | G-KIT-EXTB |
| Single Trunnion Kit | G-KIT-ST |
| Dual Trunnion Kit | G-KIT-DT |
| Adapter, M20 Male to 1/2” Female NPT | K231246A |
| Adapter, M20 Male to 3/4” Female NPT | K231247 |

**Table 4** Choosing cable-entry devices for Equipment in Potentially Explosive Atmospheres

| **Models** | **Ex Atmospheres** | **Cable Entry Devices (cable glands, stopping plugs, etc.** |
|---|---|---|
| G-SND-XXX-D (Ex db surface mount) | Gas | Cable entry devices shall be equipment certified as flameproof. To maintain the ingress protection of the flameproof sounder enclosure, we recommend the cable entry device be IP66 certified. |
| G-SND-XXX-E | Gas | For the flameproof enclosure, cable entry devices shall be equipment certified as flameproof. To maintain the ingress protection of the flameproof enclosure we recommend the cable entry device be IP66 certified. For the increased safety terminal enclosures (terminal boxes), cable entry devices shall be equipment certified as increased safety and shall maintain an IP rating of IP54. |
| G-SND-XXX-D (Ex db surface mount)<br><br>G-SND-XXX-E (Ex db e surface mount) | Dust | Cable entry devices for the and terminal enclosures shall be equipment certified as dust protected. To maintain the ingress protection of the sounder and terminal enclosures the cable entry devices shall be IP6X certified. |

**UL Fire Alarm Certifications**

The audible sounder models that are powered using 24 Vdc input are Listed by Underwriters Laboratories (UL) for use in fire alarm applications. The 120 Vac and 230 Vac inputs have not been evaluated. These models have the following nomenclature:

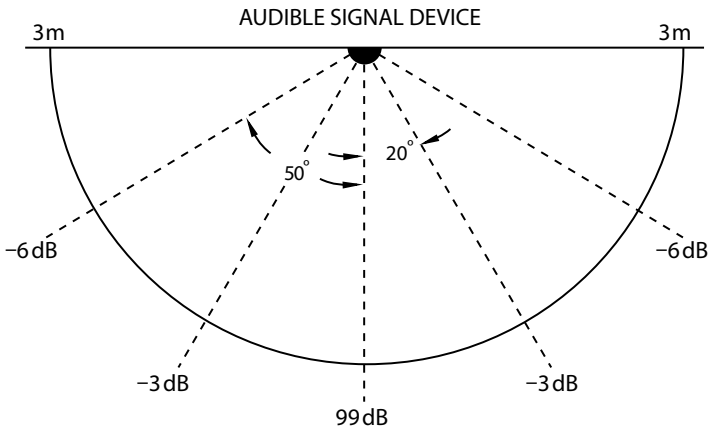
G-SND-MV-D, G-SND-MV-D, G-SND-MV-T, and G-SND-024-E. They have an electrical rating of 515 mA maximum at 24 regulated voltage Vdc (16 Vdc to 33 Vdc).

**NOTE**: *UL only evaluated this product to the stated operational voltage range. It was not evaluated to 80% to 110%. of the voltage range.*

The sounder is factory-set with the tone selector switch set to the No. 12 setting. This is a constant 1 kHz tone. This is the only tone setting that has been evaluated for fire alarm applications. At this tone the sounder has a sound pressure level of 79.0 dB. See Figure 9 for the dispersion characteristics.

The units can be mounted on a wall or ceiling and have no mounting orientation restriction. For specific installation and wiring requirements, refer to local codes such as the National Code (NFPA70) and the National Fire Alarm and Signaling Code (NFPA72).

**Figure 9** Dispersion characteristics for audible signal devices



**⚠ CAUTION**

***Do not paint this device after installation and do not change the factory -applied finish.***

## Getting Technical Support and Service

The Federal Signal factory provides technical assistance with any problems that cannot be handled locally. Any units returned to Federal Signal for service, inspection, or repair must be accompanied by a Return Material Authorization (RMA). Obtain a RMA from a local Distributor or Manufacturer's Representative. Please provide a brief explanation of the service requested, or the nature of the malfunction.

For technical support and service, visit:

https://www.fedsig.com/technical-support

https://www.fedsig.com/service-center

FEDERAL SIGNAL
Safety and Security Systems

2645 Federal Signal Drive
University Park, IL 60484-3167

www.fedsig.com

Customer Support: 800-344-4634 I 708-534-4756

Technical Support: 1-800-755-7621 I 1-708-587-3587