**Flex-Tone™ Signals**

**ETH Series, Model M2**

**APPLICATION**

ETH Series factory sealed explosionproof signaling devices are used as independent audible signal or warning devices or as part of plant-wide communication and paging systems.

ETH Series devices are suitable for use in Class I, Groups B, C, D, Class II, Groups F, G and Class III hazardous (classified) areas as defined by the National Electrical Code® (NEC).

ETH Series devices are supplied in normal (102 dB) power audible sound pressure level ratings with 24V DC, 24V AC, 120V AC, or 240V AC voltage ratings. The unit can be adjusted to direct the projector.

*Sound pressure level at 10 feet on axis.

**ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>CAT. NO.</th>
<th>VOLTS</th>
<th>OPERATING CURRENT A</th>
<th>STANDBY CURRENT A</th>
<th>TONE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AC</td>
<td>DC</td>
<td>AC</td>
</tr>
<tr>
<td>ETH840*</td>
<td>24V DC</td>
<td>1.2</td>
<td>0.6</td>
<td>0.06</td>
</tr>
<tr>
<td>ETH640*</td>
<td>24V AC</td>
<td>1.2</td>
<td>0.6</td>
<td>0.06</td>
</tr>
<tr>
<td>ETH620</td>
<td>120V AC</td>
<td>0.3</td>
<td>N/A</td>
<td>0.04</td>
</tr>
<tr>
<td>ETH660</td>
<td>240V AC</td>
<td>0.15</td>
<td>N/A</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*ETH840 and 640 will operate on 24 volts AC or DC.

**SIGNAL SELECTION**

<table>
<thead>
<tr>
<th>Signal Terminal</th>
<th>Sound Description</th>
<th>Audible Frequency</th>
<th>Repetition Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>Whoop, ascending low to high, repeated</td>
<td>Low Tone - 400 Hz</td>
<td>48 cy/min.</td>
</tr>
<tr>
<td>#5</td>
<td>Wail</td>
<td>High Tone - 850 Hz</td>
<td></td>
</tr>
<tr>
<td>#6</td>
<td>Hi-Lo</td>
<td>Low Tone - 650 Hz</td>
<td>24 cy/min.</td>
</tr>
<tr>
<td>#7</td>
<td>Horn</td>
<td>High Tone - 850 Hz</td>
<td></td>
</tr>
</tbody>
</table>

**INSTALLATION**

**WARNING**

To prevent electrical shock, all power must be turned OFF before and during installation and maintenance.

1. Remove the two hex head screws and washers that secure the trunnion arm to the assembled unit. Remove trunnion arm.

2. Select mounting location that will provide suitable strength and rigidity for supporting the unit. (Normal power units weigh 17 lbs. each.) Be sure to provide adequate space for cover removal and positioning of projector.

**WARNING**

Hazardous location information specifying class and group listing is marked on the nameplate of each unit.

3. Secure trunnion arm to mounting surface. Use 1/2" dia. bolts or screws through the three trunnion arm holes.

4. The ETH Series signaling device has four built-in distinctive tones for individual signaling application: horn (steady), wail (conventional siren), hi-lo (alternating high and low), or whoop (ascending low to high, repeated). The signaling device has been factory-wired to provide the steady horn tone. Proceed with step 5 if another tone selection is desired, if not, go to step 8.

Figure 1. Normal Power ETH

*National Electrical Code is a Registered Trademark of the National Fire Protection Association.*
5. Position signaling device projector downward on flat surface. Remove threaded cover from body assembly and carefully set aside. (Safety-cable from cover to body holds cover when access is required after installation for maintenance.)

**CAUTION**
Avoid handling any of the electronic components. Improper handling could result in damage to the assembly.

6. Jumper wire from terminal #1 to #4, #5, #6 or #7 provides desired tone. Loosen screw on terminal #7 and remove wire. Retighten terminal #7 screw securely. Loosen screw on desired tone selection terminal (see Figure 2), insert wire, and retighten terminal screw securely.

![Diagram of Amplifier Module Terminal Block](image)

**Figure 2. Wiring Diagram of Amplifier Module Terminal Block.**

7. Rethread cover onto body assembly.

8. Reassemble the unit on the trunnion arm loosely with hex head screws and washers previously removed, adjust the unit to the desired position, then tighten hardware securely.

**CAUTION**
Do not adjust position by pushing or pulling on projector.


**WARNING**
Housing must be securely attached into a permanently grounded system in accordance with Article 250 of NEC.

**Using rigid conduit and fittings:**
The use of Crouse-Hinds type UNF or UNY union is recommended. A Crouse-Hinds type EABE conduit outlet body (or GUJC/GUAC/GUFC if installed in Class I, Groups C, D area only) can be used as a splice box for connecting supply conductors to input leads. Since the ETH unit is factory sealed, no external sealing is required.

**Using flexible coupling:**
If slight adjustment of the ETH unit is desirable, the use of a Crouse-Hinds type ECLK flexible coupling with a maximum length of 30 inches is recommended. Refer to Crouse-Hinds catalog for further selection and application information. Minimum bend radius recommendations are listed in Table 1.

**Minimum Recommended Radius of Bend**

<table>
<thead>
<tr>
<th>Conduit Size</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>1&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

**Table 1**

*NOTE: Maximum recommended length for use with ETH Flex Tone Signals is 30".*

A Crouse-Hinds type EABE conduit outlet body (or GUJC/ GUAC/GUFC if installed in Class I, Groups C, D area only) can be used as a splice box for connecting supply conductors to input leads. Since the ETH unit is factory sealed no external seals are required.

10. Connect the supply wires to the two input leads using approved wire nut connectors and in accordance with the NEC. If a separate grounding conductor is used, it can be attached to the green ground wire provided.

11. Test unit by applying power.

**WARNING**
Cover must be tight when applying power to prevent explosion of hazardous atmospheres.

**MAINTENANCE**

**WARNING**
Always disconnect primary power source before opening housing for inspection.

1. Frequent inspections should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.

2. Perform visual, electrical, and mechanical checks on all components on a regular basis.
   - Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
   - Electrically check to make sure that all connections are clean and tight.
   - Mechanically check that all parts are properly assembled.

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All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Crouse-Hinds 'Terms and Conditions of Sale', and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection therewith.

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