

## INSTALLATION INSTRUCTIONS

POTTER TYPE 4X/3R WEATHERPROOF HORN STROBE,  
HORN AND STROBE WITH PRE-WIRE/PRE-TEST  
WALL/CEILING MOUNT (CLEAR OR AMBER LENS)

Use this product according to this instruction manual. Please keep this instruction manual for future reference.

### GENERAL:

The Potter Electric weatherproof series PE-4XHN/PE-3RHN horn, PE-4XST/PE-3RST strobe, and PE-4XHS/PE-3RHS horn/strobe appliances are designed for easy installation with a pre-wire capable PE-4XBB back box or PE-3RMP mounting plate. All models are for 24V operation. The 4X/3R horn is also for 12V operation. All 4X/3R models are for indoor/outdoor use and wall or ceiling mount.

The Potter PE series meets NFPA 2016 20 millisecond light pulse duration code requirements. The maximum number of PE series devices per NAC is determined by dividing the maximum current rating of the FACP NAC by the total current rating of one PE series device, with a maximum of 105 PE series strobe devices per NAC. Refer to FACP installation instructions for more detail.

The Potter PE series Multi-Candela Strobes provides a synchronized strobe appliance when used in conjunction with an FACP or power supply that incorporates the Wheelock Sync protocol.

**CAUTION:** Do not change factory applied finishes. "DO NOT PAINT".

**ATTENTION:** Ne pas modifier les finitions appliquées en usine. "NE PAS PEINTURER"

**IMPORTANT:** PLEASE READ THESE INSTRUCTIONS CAREFULLY. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

### SPECIFICATIONS:

**Table 1: Specifications**

Models*	PE-4XST, PE-4XHS, PE-4XHN, PE-3RST, PE-3RHS, PE-3RHN PE-4XSTA, PE-4XHSA, PE-3RSTA, PE-3RHSA. (Amber)
Agency	Horn: UL464, ULC525 Strobe: UL1638, UL1971, ULC526
Input Voltage	DC or FWR, 24V Regulated. 16 to 33V (All models) DC or FWR, 12V Regulated. 8 to 17.5V (PE-4XHN and PE-3RHN only)
Horn Settings	Non-Sync: Continuous, T3 (field selectable) Wheelock Sync Protocol: T3 or T3/T4 Sync Selectable w/Wheelock Sync Coded Operation: Use Continuous Setting on PE-4X/3R Horn Only Model
Horn Sound Output	High (H), Low (L). (field selectable)
Strobe Candela	Strobe (Clear): 15, 30, 75, 110, 150, 185cd (field selectable). Strobe (Amber): 15, 30, 75, 95, 150, 177cd (field selectable).
NAC Characteristics	Max. line resistance: 35Ω
Environmental	Indoor/Outdoor Use. -40° C to 66° C (-40° F to 150° F) 95% R.H.

\*Prefix "PE-WP" indicates "Subassembly". Requires PE-4XBB surface box or PE-3RMP mounting plate for installation.

**Table 2A: Horn Sound Pressure Level Ratings (SPL)**

Horn Setting	Reverberant dBA at 10ft per UL464/ULC525	
	SPL at 12V (HN Only)	SPL at 24V (HN and HS Models)
CONT, T3, T3/T4 (H)	83	90
CONT, T3, T3/T4 (L)	74	86

**Table 2B: Directional Characteristics**

-3dB	+/- 43 Degrees Horizontal, +/- 48 Degrees Vertical
-6dB	+/- 53 Degrees Horizontal, +/- 56 Degrees Vertical
-18dB	+/- 90 Degrees Horizontal/Vertical

**Table 3: Strobe Current Ratings (AMPS)**

	15cd	30cd	75cd	110cd	150cd	185cd
Strobe (Clear)						
Strobe (Amber)						
DC	0.026	0.038	0.070	0.097	0.179	0.206
FWR	0.034	0.053	0.098	0.137	0.235	0.308

**Table 4: Horn-Strobe Current Ratings at 24V (AMPS)**

Input	Horn Setting	Strobe Candela Setting					
		15cd	30cd	75cd	95/110cd	150cd	177/185cd
DC	CONT, T3, T3/T4 (H)	0.063	0.083	0.105	0.127	0.193	0.230
	CONT, T3, T3/T4 (L)	0.045	0.066	0.085	0.107	0.175	0.215
FWR	CONT, T3, T3/T4 (H)	0.095	0.119	0.162	0.197	0.291	0.339
	CONT, T3, T3/T4 (L)	0.076	0.096	0.136	0.169	0.267	0.321

**Table 5: Horn Current Ratings (AMPS)**

Input	Horn Setting	Regulated 12V (8-17.5V)	Regulated 24V (16-33V)
DC	CONT, T3, T3/T4 (H)	0.054	0.052
	CONT, T3, T3/T4 (L)	0.034	0.038
FWR	CONT, T3, T3/T4 (H)	0.102	0.102
	CONT, T3, T3/T4 (L)	0.075	0.075

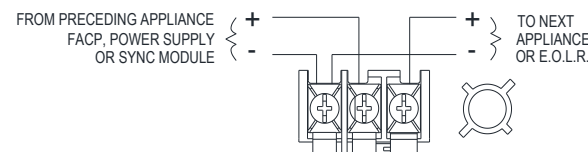
When calculating the total current, use Table 3, 4, and 5 to determine the highest value of "RMS Current" for an individual appliance, then multiply these values by the total number of appliances; be sure to add the currents for any other appliances powered by the same source and include any required safety factors.

Make sure that the total RMS current required by all appliances that are connected to the system's PRIMARY and SECONDARY power sources, NAC circuits, Sync Modules or Potter Power Supplies does not exceed the power sources' rated capacity or the current ratings of any fuses on the circuits to which these appliances are wired.

Check the minimum and maximum output of the power supply and standby battery, and subtract the voltage drop from the circuit wiring resistance to determine the applied voltage to the appliance.

### WIRING DIAGRAMS:

**Figure 1: PE series 4X/3R STROBE, HORN or STROBE-HORN**



\*Refer to Potter power supply or sync module instructions for additional information.

**Figure 2:**



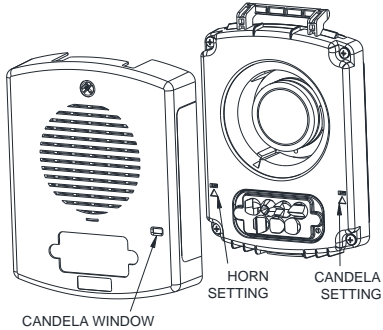
1. This model has in-out wiring terminals that accept #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8 inches and connect to screw terminals.
2. Break all in-out wire runs on supervised circuits to assure integrity of circuit supervision as shown in Figure 2. The polarity shown in the wiring diagrams is for operation of the appliances. The polarity is reversed by the FACP during supervision.

### NOTES:

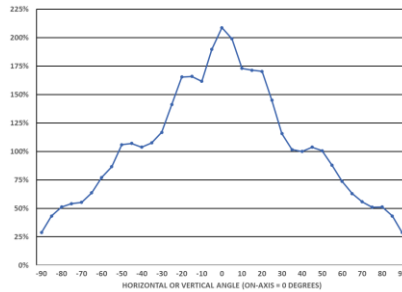
1. Horn and Strobe settings will determine the current draw of the product.
2. The strobe will produce 1 flash per second over the "Regulated Voltage" range.
3. Strobe is not designed to be used on coded systems in which the applied voltage is cycled on and off.
4. The maximum number of PE series strobes on a single notification appliance circuit shall not exceed 105.
5. **Amber strobe is certified as Emergency Warning Visual Signal.**
6. These appliances are UL Listed as "Regulated". They are intended to be used with FACP's whose notification circuits are UL Listed as "Regulated." Refer to the FACP instructions for special application and strobe synchronization compatibility.
7. These appliances were tested to the regulated voltage limits of 16.0-33.0 Volts. Do not apply voltage outside of this range. Check the minimum and maximum output of the power supply and standby battery and subtract the voltage drop from the circuit wiring resistance to determine the applied voltage to the strobes. The max wire impedance between strobes shall not exceed 35 ohms.
8. The Code 3 temporal 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) is specified by ANSI and NFPA 72 for standard emergency evacuation signaling. Code 3 shall be used only for fire evacuation signaling and not for any other purpose.
9. The Code 4 temporal pattern (100 ms on, followed by 100 ms off, for 4 cycles, followed by 5 seconds of silence and repeat), is specified by ANSI and NFPA 720 for carbon monoxide emergency signaling.
10. The effect of shipping and storage temperatures shall not adversely affect the performance of the appliance when it is stored in the original cartons and not subjected to misuse or abuse.

**SETTINGS:** To set candela, slide the selector switch to the desired setting. See Figure 3.

**Figure 3: Settings - Set from rear (PCB Side)**  
Factory Setting is 15cd and T3(H).



**Figure 4: Light Distribution**  
(Expected % of Rated Candela)

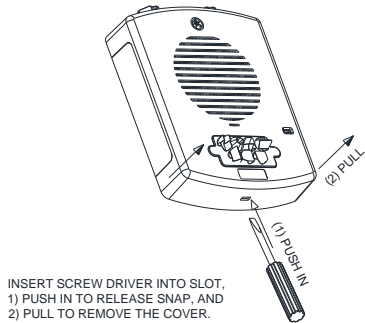


NFPA 72/ANSI 117.1 provide means for determining equivalent illumination using fewer, higher intensity strobes within the same area.

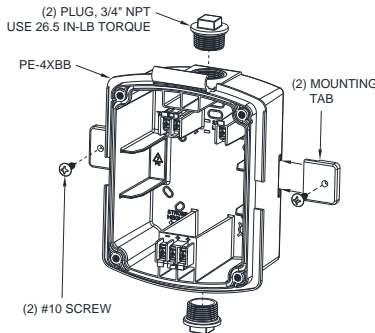
**Application Notes: T3/T4 Operation**

When the application requires T4; field devices must be set to T3/T4 Horn setting and in the Potter Programming Software the corresponding circuit must be set to Wheelock T4.

**Figure 5: Cover/Grille Removal \*\***



**Figure 6: Type 4X Surface BackBox (PE-4XBB)\*\***

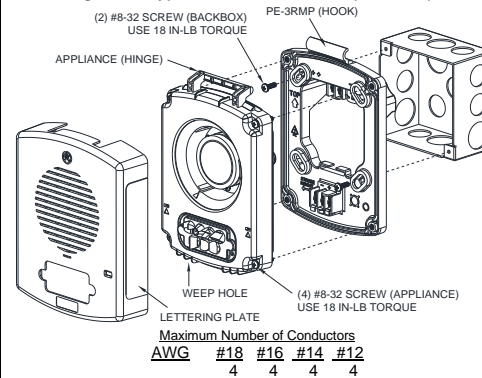


**MOUNTING OPTIONS:**

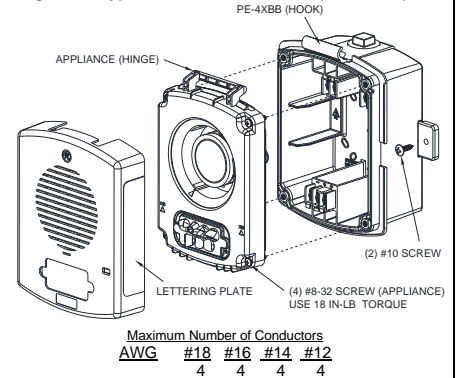
The following figures (A and B) show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product.

Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

**Figure A: Type 3R/IP54 Flush Mount (PE-3RMP)\*\***



**Figure B: Type 4X/IP66 Surface Mount (PE-4XSBB)\*\***



**All installations shall be in accordance with:**

- 1) In the United States, the National Electrical Code, NFPA 70, and the National Fire Alarm and Signaling Code, NFPA 72.
- 2) In Canada, CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32; and the Canadian Standard for the Installation of Fire Alarm Systems ULC524.

**MOUNTING PROCEDURES:**

1. **Preliminary Info:** Use PE-3RMP for flush mount, or PE-4XBB for surface mount. Screws are provided for installation. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product. Do not pass additional wires (used for other than the signaling appliance) through the backbox. Such additional wires could result in insufficient wiring space for the signaling appliance.
2. **A: Install the PE-3RMP Mounting Plate** on the 4" square 2-1/8" deep backbox (flush mount only) using 8-32 screws. PE-3RMP is suitable for mounting to brick, ceramic tile, concrete and masonry surfaces. For Type 3R/IP54 wall mount applications, a weep hole knock-out is provided below the strobe. See Figure A. To open the weep hole knock-out (1/8" dia.), use a small screwdriver.  
**B: Install the PE-4XBB Back Box** – Two external mounting tabs must be used along with two #10 screws (provided). See Figure 6. Mounting hole spacing is 5-9/16". Conduit fittings must be rated Type 4X/IP66 and UL certified. Installer must ensure ground continuity when metallic conduit is used. Teflon tape must be used on all conduit fittings. 3/4" NPT Plugs must be installed using Teflon tape and O-Ring (provided). Secure NPT plug with **26.5 in-lb torque**.  
Note: "HOOK" must be on top for wall mounting.
3. **Pre-Wire: Connect field wires to terminals** on PE-3RMP or PE-4XBB (reference Figure 1 and 2). Use care and proper techniques to position the field wires in the backbox so that they use minimum space and produce minimum stress on the product. This is especially important for stiff, heavy gauge wires and wires with thick insulation or sheathing. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the signaling appliance.
4. **Pre-Test: PE-3RMP and PE-4XBB contain a SHUNT** between adjacent "+" terminals to facilitate testing before device is attached. Note: Shunt will open permanently when device is installed.
5. **Verify appliance settings** are correct for your application. Settings are shown in Figure 3. Factory settings are 15cd and T3(H).
6. **Place the appliance "HINGE"** over the "HOOK" on the PE-3RMP or PE-4XBB. Verify the appliance is aligned, then secure with four #8-32 screws attached to appliance with **18 in-lb torque**. Verify the gasket is seated correctly and not "pinched".
7. **Align grille with lettering plates** to the appliance and snap in place. (Note: Insert letter plates with "T" tab down on strobe/logo-side).
8. **Recommend** applying outdoor rated silicone to all outdoor Type 4X/3R installations.
9. **To remove** the appliance grille, insert a small flat-bladed screwdriver into the bottom opening to release snap as shown in Figure 5. Then "pull" to remove the cover/grille.

**Important: Do not fully back out terminal screws. Do not over tighten screws or terminals. Excessive torque may affect operation. When using power tools, ensure the torque is set to the lowest setting available.**

NOTE: Final acceptance is subject to Authorities Having Jurisdiction.

Check the installation instructions of the manufacturers of other equipment used in the system for any guidelines or restrictions on wiring and/or locating Notification Appliance Circuits (NAC) and notification appliances. Some system communication circuits and/or audio circuits, for example, may require special precautions to assure immunity from electrical noise (e.g. audio crosstalk).

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.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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