

**INSTALLATION INSTRUCTIONS
SERIES E70H/E90H HIGH FIDELITY
LOW-PROFILE SPEAKERS**

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

GENERAL

The Wheelock Series E70H/E90H High Fidelity Low Profile Speakers are UL Listed under UL Standard 1480 for Speaker Appliances and ULC Listed under Standard CAN/ULC-S541-07 for Speaker Appliances. They are designed for multiple power requirements with high dBA output at each power tap. All models offer a choice of field selectable taps, 1/8W to 2W, for either 25.0 V_{RMS} or 70.0 V_{RMS} audio systems. The Low Profile design incorporates a high efficiency speaker for maximum output at minimum power across a frequency range of 300-8000Hz. The Series E70H/90 appliances also incorporate a Speaker Mounting Plate attached to the speaker for ease of installation. All models are Listed for **indoor use only** with the backboxes specified in these instructions (see wiring and mounting information). **1/8W tap setting for Private Mode only.**

NOTE: All Canadian Installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems - CAN/ULC-S524-01 and Canadian Electrical Code, Part 1. Final acceptance is subject to Authorities Having Jurisdiction.

WARNING: The speaker appliance is a "fire alarm device - do not paint".

WARNING: Please read these instructions carefully. Failure to comply with any of the following instructions, cautions and warnings 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 1A: UL Listed Models and Ratings						
Speaker						
Model	Voltage (V _{RMS})	dBA at 10 Feet (Rated Watts)				
		1/8	1/4	1/2	1	2
E70H	25/70	72	75	78	81	83
E90H	25/70	72	75	78	81	82

Table 1B: ULC Listed Models and Ratings						
Speaker						
Model	Anechoic dBA Per CAN/ULC-S541-07 (Rated Watts)					Mounting Options
		1/4	1/2	1	2	
E70H	74	77	80	83	85	A,B
E90H	73	76	79	82	85	A

Table 2: ULC Directional Characteristics		
25/70V	-3dBA	+/- 19 degrees horizontal; +/- 35 degrees vertical
	-6dBA	+/- 40 degrees horizontal; +/- 45 degrees vertical

NOTES

- Models are Listed for indoor use with a temperature range of +32°F to +120°F (0°C to +49°C) and maximum humidity of 93% RH. 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 is not subjected to misuse or abuse.
- The maximum supervision voltage is 33 volts DC.
- Frequency range of speakers is 300-8000Hz.

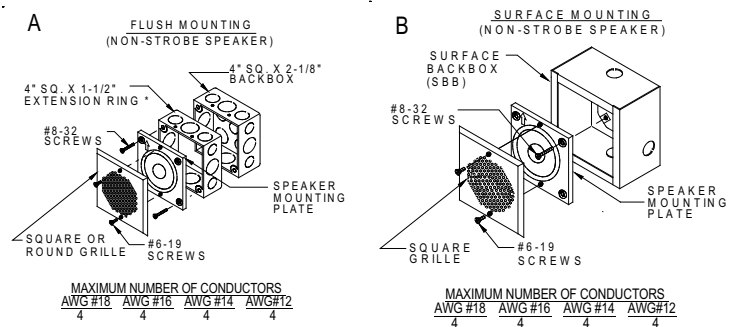
CAUTION: Always operate audio amplifiers and speakers within their specified ratings. Excessive input may distort sound quality and may damage audio equipment. Do not exceed 100% of speaker input voltage per UL 1480. Improper input voltage can damage speaker. If distortion is heard, check for clipping of the audio appliance with an oscilloscope and reduce the amplifier input level or gain level to eliminate any clipping.

WIRING AND MOUNTING INFORMATION

CAUTION: The following figures 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-inch (1.9-cm) conduit fittings are used.

Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Cooper Notification recommends use of the largest backbox option shown and the use of approved stranded field wires, whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.

NOTE: Surface backbox (SBB) in Figure B is compatible with wiremold and conduit, mounting holes are for single-gang, double-gang, 4-inch (10.16-cm) sq. (10.16-cm), 3-1/2-inch (8.9-cm) and 4-inch (10.16-cm) octagon or round backboxes.



NOTE: E90H has a round grille. E70H is shown.

- This model has in-out wiring terminals that accept two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8 inches (.96 cm) and connect to screw terminals.
- Break all in-out wire runs on supervised circuits to ensure integrity of circuit supervision as shown in Figure 1. The polarity shown in the wiring diagrams is for operation of the appliances.

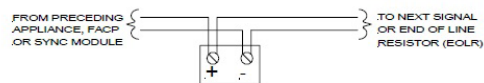


Figure 1

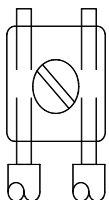


Figure 2

GROUNDING: Connect ground wire to backbox. Install signaling appliance to backbox using mounting screws provided.

WARNING: Check electrical ratings specified in tables 1 and 2 (as appropriate) to ensure proper input. Check to ensure that wiring at fACP is correct. Improper electrical input can damage the product or cause it to malfunction, which could result in property damage and serious injury or death to you and/or others.

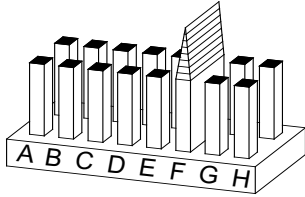


Figure 3: Jumper plug is used to select tap settings which = dBA loudness.

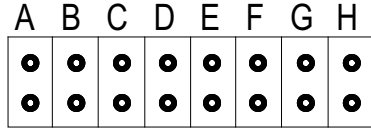


Figure 4: Tap Settings (Factory setting is 70V @ 1/2W (Tap F))

1. Each doubling of rated Watts increases sound output by 3 dBA. Field selectable input terminals are provided on each unit. The following wattage selections are available: 1/8W, 1/4W, 1/2W, 1W and 2W.
2. Each letter corresponds to a plug position of the header located on the printed circuit board. Select voltage and wattage as shown in Table 3 below.
3. A 1.5µF blocking capacitor for DC supervision of audio lines by the FACP is factory wired in series with the speaker input.

NOTE: Use needle nose pliers to pull and properly insert the jumper plug to the desired tap setting.

Position	25V	70V
A	2	-----
B	1	-----
C	1/2	-----
D	1/4	2
E	1/8	1
F	-----	1/2
G	-----	1/4
H	-----	1/8

MOUNTING PROCEDURES

1. These models can be flush mounted to a 4-inch (10.16) square by 2-1/8-inch (5.52-cm) deep backbox with a 4-inch (10.16-cm) sq. 1-1/2-inch (3.81-cm) extension ring (Figure A) or surface mounted to a surface backbox (Figure B). Mounting hardware for each mounting option is supplied.
2. 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.
3. 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. 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.
5. These models have an integrated speaker mounting plate which must be oriented correctly when it is mounted to the backbox. Turn the speaker mounting plate so that the arrows above the word "Top" point to the top side of the speaker mounting plate.
6. Mount the speaker mounting plate to the backbox. Next slide the grille over the speaker mounting plate and attach with (2) screws.

WARNING: The E70H/E90H speaker appliance is a "fire alarm device - do not paint."

If this appliance is required to produce a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to manufacturer's installation manual for details.

CAUTION: 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 ensure electrical noise immunity (e.g., audio crosstalk).

NOTE: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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