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INSTALLATION INSTRUCTIONS
WHEELOCK ELUXA LOW FREQUENCY SOUNDER AND SOUNDER STROBE WITH PRE-WIRE/PRE-TEST WALL MOUNT

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

GENERAL

The Wheelock Eluxa series ELFHN Sounder (520Hz) and ELFHS Sounder Strobe (110/177cd) appliances are designed for easy installation with a pre-wire capable mounting plate. All models are for 24V operation. The ELFHN Sounder and ELFHS Sounder Strobe are rated as low frequency devices per UL 464, suitable for sleeping areas per NFPA 72. The ELFHN sounder may be wall or ceiling mounted.

The Wheelock Eluxa Series meets NFPA 2016 20 millisecond light pulse duration code requirements. In addition, the Wheelock Eluxa and LED3 product lines have been UL/ULC listed as compatible with all Fire Alarm Control Panels (FACP) and accessories that have been determined to be compatible with Wheelock model RSS Strobe based products including the RSS, CH, E, EH, ET,ST,HS,MT,S8, SA, STH and Z Series. The maximum number of Eluxa devices per NAC is determined by dividing the maximum current rating of the FACP NAC by the total current rating of one Eluxa device, with a maximum of 105 Eluxa (or LED3) devices per NAC. Refer to FACP installation instructions for more detail. The Wheelock Eluxa Series and Exceder LED3 Series strobes may be installed in the same notification zone and field of view with any RSS Strobe based product.

Wheelock Eluxa Low Frequency Sounder Strobe can provide a non-synchronized strobe appliance when connected directly to a Fire Alarm Control Panel (FACP), or provide a synchronized strobe appliance when used in conjunction with an FACP that incorporates the sync protocol, a Dual Sync Module (DSM) or a Wheelock Power Supply. When set to the T3/4 setting, a DSM Sync Module can toggle the ELFHS and ELFHN between Code 3 for fire/emergency evacuation and Code 4 for carbon monoxide.

⚠WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, CANDELA SETTING, 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.

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

⚠ATTENTION: Ne pas modifiez les finitions appliquées en usine. "NE PAS PEINTURER"

Table 1: Specifications	
Agency	ELFHS/ELFHN:UL1971, UL 464 ., ULC-525-16, UL 1638., ULC-S526-16
Environmental	Indoor Use Only. 0° C - 50° C (32° F - 122° F) 93% R.H.
NAC Characteristics	Max. line resistance: 35Ω
Sounder Patterns	Non-Sync: Continuous, Code 3 (field selectable)
	Wheelock Sync Protocol: Code 3 Sync, Code 4 or T3/T4 Sync Selectable (with DSM)
	Coded Operation: Use Countinuos Setting on ELFHN Sounder Only Model
Input Voltage	DC or FWR, 24V Regulated, 16 to 33V (All models)
Strobe Candela	110 or 177 cd (field selectable)

Table 2a: ELFHS and ELFHN dBA Sound Output @ 24 Volts		
Description	Reverberant dBA at 10 Feet per UL 464	Anechoic dBA at 10 Feet per ULC-S525-16
Continuous	80	85
Code 3	80	85
Code 3/Code 4	80	85

Table 2b: ULC Directional Characteristics	
-3dB	+ / - 80 Degrees horizontal, + / - 80 vertical
-6dB	+ / - 90 Degrees horizontal, + / - 90 vertical

NOTE: 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. (Available with Sync or Non-Sync operation)

NOTE: 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. (Available with Sync operation only). Code 4 (T4) may not synchronize on multi-NAC (multi-zone) installations. To improve synchronization, NAC's must be energized simultaneously.

Table 3:Sounder and Strobe Current Draw @ 24 Volts				
Current	Sounder	ELFHS 110cd	ELFHS 177 cd	ELFHN
DC	Continuous (CONT)	0.164	0.256	0.098
	Code 3 (T3)	0.164	0.256	0.098
	Code 3/Code 4 (T3/4)	0.164	0.256	0.098
FWR	Continuous (CONT)	0.235	0.348	0.138
	Code 3 (T3)	0.235	0.348	0.138
	Code 3/Code 4 (T3/4)	0.235	0.348	0.138

NOTES:

1. Candela/Sounder Setting will determine the current draw of the product.
2. Strobes will produce 1 flash per second over the "Regulated Voltage" range.
3. Strobes are not designed to be used on coded systems in which the applied voltage is cycled on and off.
4. When calculating the total currents use Table 3 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, including audible signaling appliances powered by the same source, and to include any required safety factors.
5. Make sure that the total RMS current required by all appliances that are connected to the system's primary and secondary power sources, notification appliance circuits, DSM sync modules, or Wheelock power supplies does not exceed the power sourcesrated capacity or the current ratings of any fuses on the circuits to which these appliances are wired. Refer to Sync Module instruction sheets DSM (P83177) or Wheelock Power Supplies for additional information.
6. 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 device.
7. These appliances were tested to the regulated voltage limits of 16.0-33.0 Volts for 24 volt models using filtered DC or unfiltered DC. Do not apply voltage outside of this range.
8. These notification appliances are UL Listed as "Regulated". They are intended to be used with Fire Alarm Control Panels (FACPs) whose notification circuits are UL Listed as "Regulated". Refer to the FACP instructions or the Wheelock Strobe Compatibility Data Sheet (P85328) for special application and strobe synchronization compatibility. When using Sounder Only models on a FACP Listed as Special Application, do not exceed 85% of Maximum NAC current Rating.

⚠WARNING : OVERLOADING POWER SOURCES OR EXCEEDING FUSE RATINGS COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

NOTE: NFPA 72/ANSI 117.1 conform to ADAAG Equivalent Facilitation Guidelines in using fewer, higher intensity strobes within the same protected area.

⚠WARNING: WHEN INSTALLING STROBES IN AN OPEN OFFICE OR OTHER AREAS CONTAINING PARTITIONS OR OTHER VIEWING OBSTRUCTIONS, SPECIAL ATTENTION SHOULD BE GIVEN TO THE LOCATION OF THE STROBES SO THAT THEIR OPERATING EFFECT CAN BE SEEN BY ALL INTENDED VIEWERS, WITH THE INTENSITY, NUMBER, AND TYPE OF STROBES BEING SUFFICIENT TO MAKE SURE THAT THE INTENDED VIEWER IS ALERTED BY PROPER ILLUMINATION, REGARDLESS OF THE VIEWER'S ORIENTATION.

⚠WARNING A SMALL POSSIBILITY EXISTS THAT THE USE OF MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW, UNDER CERTAIN CIRCUMSTANCES, MIGHT INDUCE A PHOTO-SENSITIVE RESPONSE IN PERSONS WITH EPILEPSY. STROBE REFLECTIONS IN A GLASS OR MIRRORED SURFACE MIGHT ALSO INDUCE SUCH A RESPONSE. TO MINIMIZE THIS POSSIBLE HAZARD, COOPER WHEELOCK STRONGLY RECOMMENDS THAT THE STROBES INSTALLED SHOULD NOT PRESENT A COMPOSITE FLASH RATE IN THE FIELD OF VIEW WHICH EXCEEDS FIVE (5) HZ AT THE OPERATING VOLTAGE OF THE STROBES. COOPER WHEELOCK ALSO STRONGLY RECOMMENDS THAT THE INTENSITY AND COMPOSITE FLASH RATE OF INSTALLED STROBES COMPLY WITH LEVELS ESTABLISHED BY APPLICABLE LAWS, STANDARDS, REGULATIONS, CODES AND GUIDELINES.

⚠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 assure immunity from electrical noise (e.g., audio crosstalk).

WIRING, SETTINGS AND MOUNTING:

• All Eluxa horn/strobe appliances have 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. Do not fully back out terminal screws.

• Break all in-out wire runs on supervised circuits to ensure integrity of circuit supervision as shown in Figure 3. The polarity shown in Figure 2, the wiring diagram, is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

• T3/T4 Sync Selectable operation requires a DSM-12/24. Refer to DSM (P83177) instructions. All appliances must be set to T3/T4. Code 4 (T4) operation occurs when both Strobe NAC and Audible NAC remain active. Code 3 (T3) operation occurs when Strobe NAC is active, and Audible NAC is not acttive. (Audible Silence function is available only when using Continuos or T3 setting). The FACP's Notification Appliance Circuits (NAC) to DSM must be continuous DC in Alarm. Inputs to DSM may not be synchronized.

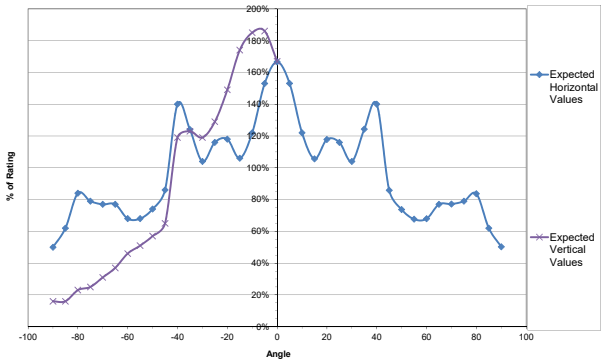


Figure 1: ELFHS Expected Light Output

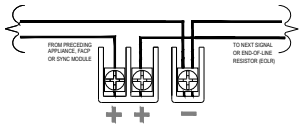
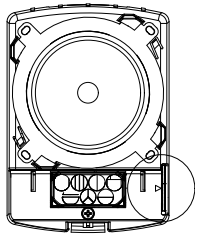


Figure 2: Sounder-Strobe Wiring

Figure 3: Wire Connection



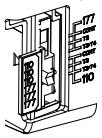


Figure 4: Settings

Cover Removed (110cd; T3/T4 Shown)

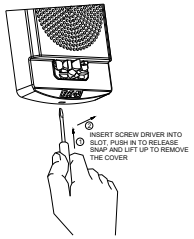


Figure 5: Cover Removal

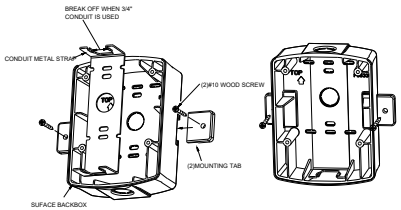


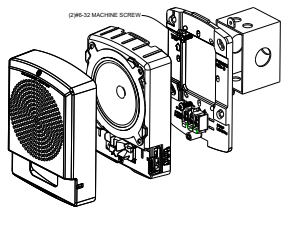
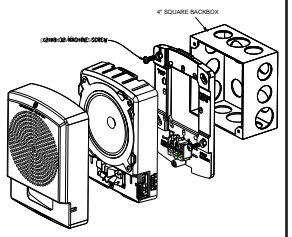
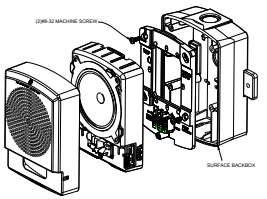
Figure 6: ELSPKBB Surface Back Box

IMPORTANT: Strobe device has only one mounting orientation. LED light element should be oriented toward the floor.

⚠**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.**

Although the limits shown for the mounting option comply with the National Electrical Code (NEC), Cooper Wheelock recommends use of the largest single gang backbox option available 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.

MOUNTING OPTIONS:

Figure A: Single/Double Gang Mount	*Figure B: Flush (4" Box) Mount*	*Figure C: Surface Mount (ELSPKBB)*
		
Maximum Number of Conductors	**Maximum Number of Conductors**	**Maximum Number of Conductors**
AWG#18 AWG#16 AWG#14 AWG#12	AWG#18 AWG#16 AWG#14 AWG#12	AWG#18 AWG#16 AWG#14 AWG#12
4 4 4 4	4 4 4 4	4 4 4 4

⚠**CAUTION: 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 conduit fittings are used.**

Wiring method 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.

MOUNTING PROCEEDURE:

1. Select a mounting option and install the backbox. ELSPKBB requires 5 1/8" spacing for surface mounting. Screws are provided. 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. Install the Mounting Plate on the backbox with "TOP" facing up. Use 6-32 screws for Single/Double Gang back-box, 8-32 screws for 4" back-box or hi-lo screws for the ELSPKBB.
3. **Pre-Wire:** Connect field wires to terminals on mounting plate (reference Figure 2 and 3). 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:** Mounting Plate contains a SHUNT between adjacent "+" terminals to facilittate testing before device is attached. Note: Shunt will open permanently when device is installed on mounting plate.
5. Verify appliance settings are correct for your application. Settings are shown in Figure 4. Factory settings is Code 3 (T3), and 110cd. Use Code 3 for fire emergency only, and Code 4 for carbon monoxide emergency only.
6. Place the ELUXA appliance over the mounting plate. Engage TOP hook on mounting plate, then secure with screw at the bottom. Use care to prevent speaker cone damage when driving the screw.
7. Align cover to the ELUXA appliance with strobe opening over LED lens. Then, snap the cover in place.
8. To remove the appliance, insert a small flat-bladed screwdriver into the bottom opening ½" as shown in Figure 5. Then pry off beauty cover with the screwdriver.
9. Accessories for ELUXA Low Frequency Sounder Strobes: ELSPKBB (Red: CN110754; White: CN110755).

NOTE: Final acceptance is subject to Authorities Having Jurisdiction.

⚠**CAUTION: Do not over tighten mounting screws. Excessive torque can distort the base and may affect operation. When using power tools to screw down the mounting plate to the electrical backbox, ensure the torque is set to the lowest setting available.**

NOTE: 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 Réglement sur le matériel brouilleur du Canada.

Any material extrapolated from this document or from Cooper Wheelock manuals or other documents describing the product for use in promotional or advertising claims, or for any other use,including description of the product's application, operation, installation and testing is used at the sole risk of the user and Cooper Wheelock will not have any liability for such use.

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