COOPER Notification

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INSTALLATION INSTRUCTIONS
EXCEDER LED CEILING MOUNT HORN AND HORN STROBES

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

GENERAL

The Cooper Wheelock Exceder LED Series **LHNxC** horn, **LSTxC** strobe, and **LHSxC** horn/strobe appliances are designed for easy installation. All models are for 24V operation. The **LHNxC** horn is also for 12V operation. **LSTxC** and **LHSxC** are designed for ceiling mounting only; **LHNxC** may be mounted on the wall or ceiling.

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.

SPECIFICATIONS

Table 1: Specifications

Agency	LSTxC; LHSxC UL 1971; ULC-S526-07
	LHSxC; LHNxC UL 464; ULC-S525-07
Environmental	Indoor Use Only. 0° C -49° C (32° F - 120° F) 93% R.H.
NAC Characteristics	Max. line resistance: 35Ω
Horn Patterns	Continuous, Code 3 (field selectable)
	Code 3 synchronized when using Cooper Wheelock sync protocol
Horn Sound Output	High (HI), Low (LO) (field selectable)
Input Power	DC or FWR, 24V Regulated, 16 to 33V (All models)
	DC or FWR, 12V Regulated, 8 to 17.5V (LHN-C only)
Strobe Candela	15, 30, 75, 95cd (field selectable)

STROBE AND HORN STROBE APPLIANCES

Cooper Wheelock's Exceder LED Multi-Candela Strobes 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 Cooper Wheelock sync protocol, a Cooper Wheelock Sync Module, or the Cooper Wheelock Power Supply.

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.

Table 2A*: LHNxC and LHSxC dBA Sound Output

Description	Volume	Reverberant Dba Per UL 464					
		LHNxC at 12V			LHNxC and LHSxC at 24V		
		8.0V	12.0V	17.5V	16.0V	24.0V	33.0V
Continuous Horn	High	80	84	87	80	83	86
	Low	78	79	84	78	81	81
Code 3 Horn	High	75	80	83	76	79	81
	Low	73	77	80	75	77	77

Table 2B*: LHNxC and LHSxC dBA Sound Output

Description	Volume	Anechoic Per CAN/ULC-S525-07					
		LHNxC at 12V			LHNxC and LHSxC at 24V		
		8.0V	12.0V	17.5V	16.0V	24.0V	33.0V
Continuous Horn	High	85	89	92	91	94	97
	Low	79	84	87	86	90	92
Code 3 Horn	High	85	89	92	91	95	96
	Low	79	84	87	86	90	91

*when ordering, "x" designates the product color (W = White, R = Red)

Table 2C: ULC Directional Characteristics

Axis	dBA	Angle
Horizontal	-3 dBA	35 degrees left and right
	-6 dBA	90 degrees left and right
Vertical	-3 dBA	45 degrees down 30 degrees up
	-6 dBA	90 degrees up and down

When calculating the total currents use Tables 3 - 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, including audible signaling appliances powered by the same source, and to include any required safety factors.

Table 3: LSTxC Current Draw (Amps)

16.0 - 33.0 Volts				
Strobe Candela Settings (cd)				
Current	15	30	75	95
DC	0.040	0.058	0.155	0.258
FWR	0.056	0.078	0.195	0.330

Table 4: LHSxC Horn/Strobe Current Draw (Amps)

16.0-33.0 Volts					
Current	Horn Settings	Strobe Candela Settings (cd)			
		15	30	75	95
DC	High Continuous	0.049	0.063	0.174	0.273
	High Code 3	0.044	0.061	0.169	0.267
	Low Continuous	0.045	0.062	0.170	0.270
	Low Code 3	0.042	0.060	0.168	0.264
FWR	High Continuous	0.077	0.100	0.217	0.332
	High Code 3	0.066	0.087	0.209	0.324
	Low Continuous	0.068	0.088	0.213	0.328
	Low Code 3	0.060	0.083	0.206	0.322

Table 5: LHNxC Horn Current Draw (Amps)

Current	Horn Settings	8.0-17.5 Volts	16.0-33.0 Volts
DC	High Continuous	0.025	0.037
	High Code 3	0.024	0.030
	Low Continuous	0.020	0.026
	LowCode 3	0.018	0.022
FWR	High Continuous	0.051	0.059
	High Code 3	0.043	0.049
	Low Continuous	0.039	0.050
	Low Code 3	0.037	0.050

NOTE: Candela and Horn Setting will determine the current draw of the product.

NOTE: 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 Cooper Wheelock Strobe Compatibility Data Sheet (PN P85328) for special application and strobe synchronization compatibility.

NOTE: These appliances were tested to the regulated voltage limits of 16.0-33.0 Volts for 24 volt models and 8.0-17.5 Volts for 12 volt models using filtered dc for the 12 volt range and either filtered dc or unfiltered dc for the 24 volt range voltage. Do not apply voltage outside of this range.

NOTE: 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 maximum wire impedance between strobes shall not exceed 35 ohms.

NOTE: Strobes are not designed to be used on coded systems in which the applied voltage is cycled on and off.

NOTE: 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 Cooper Wheelock 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. 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.

WIRING AND MOUNTING BASE

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

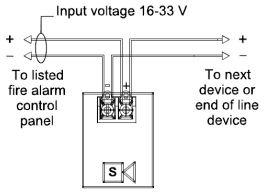

Figure 1: LED Strobe Wiring

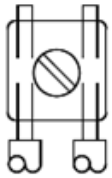

Figure 2: Wire Connection

NOTE: Wiring method shall be in accordance with CSA C22.1, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations, Section 32.

NOTE: Do not fully back out terminal screws.

WIRING AND MOUNTING SETTINGS

NOTE: The LHSxC and LHNxC are factory set for the most common application of High dB and Code 3. The LHSxC and LSTxC are factory set to 15 candela.

NOTE: Candela factory settings are shown in Figure 4.

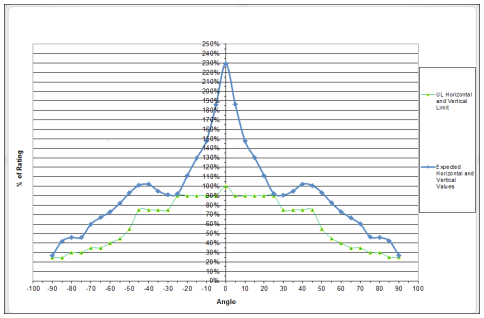

Figure 3: Horizontal/Vertical LHSxC/LSTxC Light Output

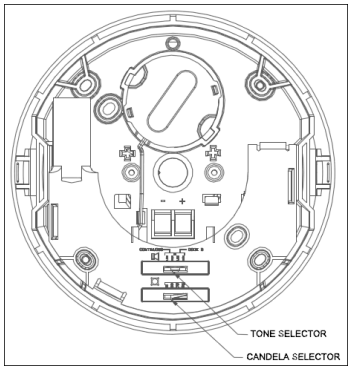

Figure 4: Horn Strobe Candela Selector

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.

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.

CAUTION: Do not over tighten mounting screws. Excessive torque can distort the base and may affect operation.

CAUTION: When using power tools to screw down the mounting plate to the electrical backbox, ensure the torque is set to the lowest setting available.

MOUNTING OPTIONS

1. Connect field wiring to contacts on back of device.
2. Dress wires back into backbox.
3. Install device as shown in Figure 5 or Figure 6 (4" square backbox) with the screws provided.
4. Snap beauty cover over device.

   NOTE: Backbox must be recessed flush with the wall surface.

   IMPORTANT: Device only has one mounting orientation. LED light element should be pointed towards ground.
5. To remove the appliance, insert a small flat-bladed screwdriver into the side opening ½" as shown in Figure 7. Then pry off the beauty cover with the screw driver and remove mounting screws.

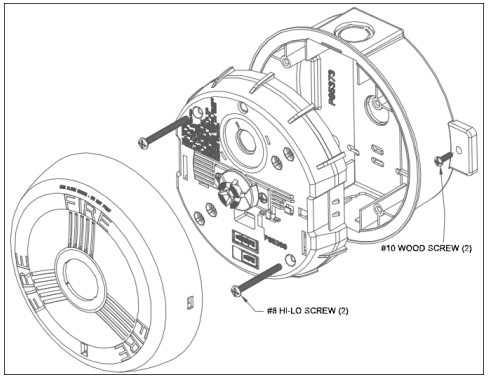

Figure 5: Ceiling Horn Strobe with LSPKBBC Surface Mounting Box

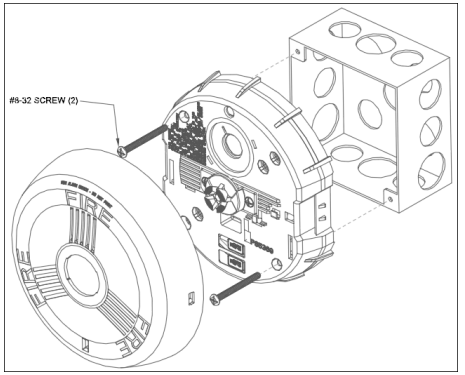

Figure 6: Horn Strobe Installation with 4" Backbox

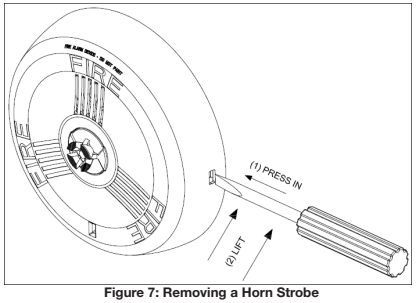

Figure 7: Removing a Horn Strobe

NOTE: Remove the lens protector tape before replacing the appliance cover grille.

NOTE: For surface mounting options please use the LSPKBB-C accessory products.

WARNING: DO NOT PAINT THIS DEVICE.

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 notification 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.

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

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 electrical noise immunity (e.g., audio crosstalk).

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.

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