

INSTALLATION INSTRUCTIONS WHELOCK EXCEDER LED3 LOW FREQUENCY SOUNDER STROBES (WALL MOUNT)

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

GENERAL

The Wheelock Exceder LED3 series LFHSH3 Sounder Strobe appliances are designed for easy installation. All models are for 24V operation. The LFHSH3 Sounder Strobes are rated as low frequency devices per UL 464 suitable for sleeping areas per NFPA 72.

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.

The Wheelock Exceder LED3 series LFHSH3 meets NFPA 2016 20 millisecond light pulse duration code requirements. In addition, the Wheelock Exceder LED3 series LFHSH3 product line has 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 LFHSH3 devices per NAC is determined by dividing the maximum current rating of the FACP NAC divided by the total appropriate current rating of the LFHSH3 devices. Refer to FACP installation instructions for more detail. The Wheelock Exceder LED3 based LFHSH3 strobes may be installed in the same notification zone and field of view with any ST Strobe and RSS based product.

Table 1: Specifications	
Agency	LFHSH3: UL 1971, UL 464 10th Ed., ULC-525-16, UL 1638 5th Ed., 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	Continuous, Code 3, Code 4, Code 3/Code 4* (field selectable)
	Code 3 or Code 4 synchronized when using Wheelock Sync Module
Input Power	DC or FWR, 24V Regulated, 16 to 33V (All models)
Strobe Candela	177 cd

* Code 3/Code 4 operation requires the use of the Cooper Wheelock DSM module

SOUNDER STROBE APPLIANCES

Wheelock Exceder LFHSH3 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 LFHSH3 between Code 3 for fire and Code 4 for carbon monoxide.

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.

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.

Table 2A: LFHSH3 dBA Sound Output		
Description	LFHSH3 24V Reverberant dBA per UL 464	LFHSH3 24V Anechoic dBA per CAN/ULC-S525-16 For Dwelling Use Only
	24.0V	24.0V
Continuous	80	80
Code 3	80	80
Code 4	80	80
Code 3/Code 4	80	80

Table 2B: ULC Directional Characteristics	
-3dB	+ / -35 Degrees horizontal, +45 / -30 vertical
-6dB	+ / -90 Degrees horizontal, + / - 90 vertical

CURRENT DRAW

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.

Table 3: Sounder and Strobe Current Draw		
		24 Volts
Current	Sounder Settings	LFHSH3 Sounder Strobe Current (A) 177 cd
DC	Continuous (CONT)	0.344
	Code 3 (T3)	0.344
	Code 4 (T4)	0.344
FWR	Code 3/Code 4 (T3/4)	0.344
	Continuous (CONT)	0.460
	Code 3 (T3)	0.460
	Code 4 (T4)	0.460
	Code 3/Code 4 (T3/4)	0.460

LIGHT OUTPUT

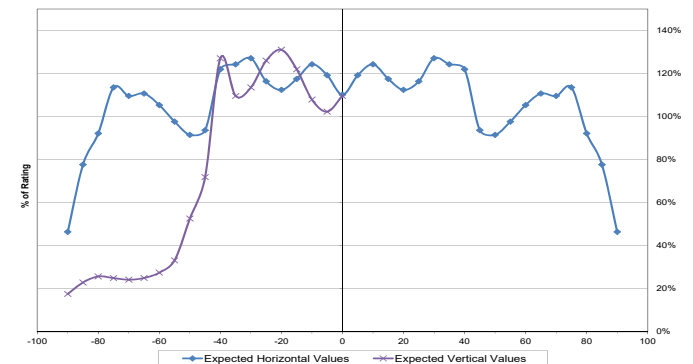


Figure 1: LFHSH3 EXPECTED LIGHT OUTPUT

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 Wheelock Strobe Compatibility Data Sheet 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 using filtered DC or unfiltered DC. 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 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.

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: Ensure the device is set for the proper application: Code 3 for fire emergency only, Code 4 for carbon monoxide emergency only.

WIRING, SETTINGS AND MOUNTING

- 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 Figure 3, the wiring diagram, is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

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.

NOTE: The LFHSH3 is factory set for the most common application of Code 3.

NOTE: Sounder setting Tone Selector switch is shown in Figure 4; settings are CONT, T3, T4, T3/4 for Continuous, Code 3, Code 4, and Code 3/Code 4 respectively

CAUTION: Check that the installed product will have sufficient clearance and with 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 a 4-inch square backbox 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.



Figure 2: Wire Connection

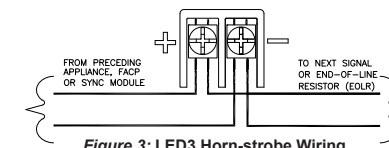


Figure 3: LED3 Horn-strobe Wiring

MOUNTING OPTIONS

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

1. Connect field wiring to contacts on back of device.
2. Dress wires back into backbox.
3. Install device as shown in Figure 6 to a 4-inch square backbox, Figure 7 to a surface mount backbox, Figure 8 to a single-gang backbox, or Figure 9 to a double gang backbox with the provided pan head screws.
4. Snap beauty cover over device.

NOTE: backbox must be recessed or flush with the wall surface.

IMPORTANT: Device only has one mounting orientation. LED light element should be pointed towards ground.

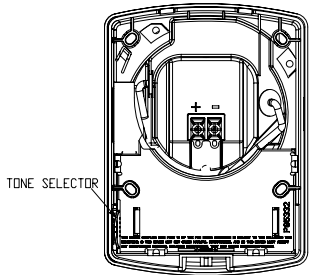
5. To remove the appliance, insert a small flat-bladed screwdriver into the bottom opening 1/2" as shown in Figure 5. Then pry off beauty cover with the screwdriver and unscrew the device.

NOTE: For the surface mount backbox, please use the LPSKBB-R (Red) or LPSKBB-W (White) 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 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.



TONE SELECTOR

Figure 4: Tone Selector

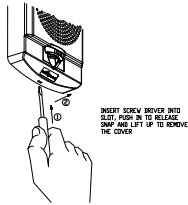


Figure 5: Cover Removal (See step 5)

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

NOTE: Final acceptance is subject to Authorities Having Jurisdiction.

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).

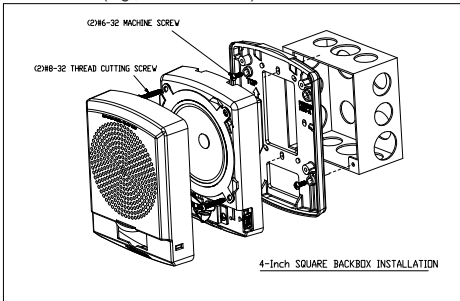


Figure 6: 4-Inch Square Backbox Installation

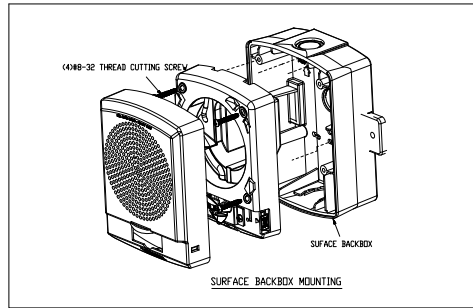


Figure 7: Surface Backbox Installation

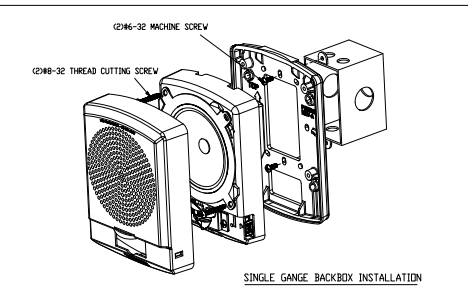


Figure 8: Single Gang Backbox Installation

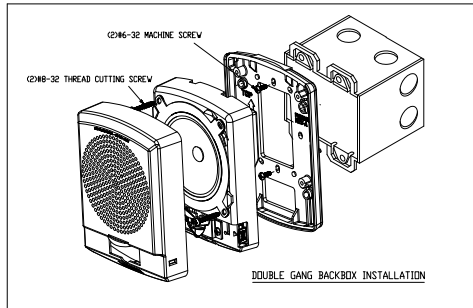


Figure 9: Double Gang Backbox Installation

APPLICATIONS AND COMPATIBILITY

The following diagrams provide information with respect to configuring the NAC circuits for Sounder Strobe appliances synchronization

NOTE: For T3/4 Application, refer to the following Warnings:

WARNING: BOTH NAC 1 AND NAC 2 MUST REMAIN ACTIVE FOR T4 OPERATION.

WARNING: WHEN USING THE T3/4 OPERATING CODE ON SOUNDER AND SOUNDER STROBES, THE DSM WILL PROVIDE SYNCHRONIZATION; THEREFORE, THE FACP'S NOTIFICATION APPLIANCE CIRCUITS CANNOT USE WHEELLOCK PROTOCOL.

NOTE: Refer to the Wheelock, Installation Instructions, Series DSM Synchronization (Sync) Module for additional information regarding connection of a DSM.

NOTE: Audio silence function is available when using the Continuous, Code 3, and Code 4 settings.

NOTE: When using the LFHSH3 520 Hz Low Frequency Sounder Strobes in the T3/4 mode, connect a standard NAC circuit to the (+) and (-) Audible Inputs on the DSM. In the T3/4 mode, the DSM utilizes NAC 1 and/or NAC 2 in conjunction with the Audible Input NAC signal to actively toggle between T3/fire and T4/CO. Refer to the Wheelock, Installation Instructions, Series DSM Synchronization (Sync) Module for additional information and wiring diagrams when connecting to a DSM.

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.

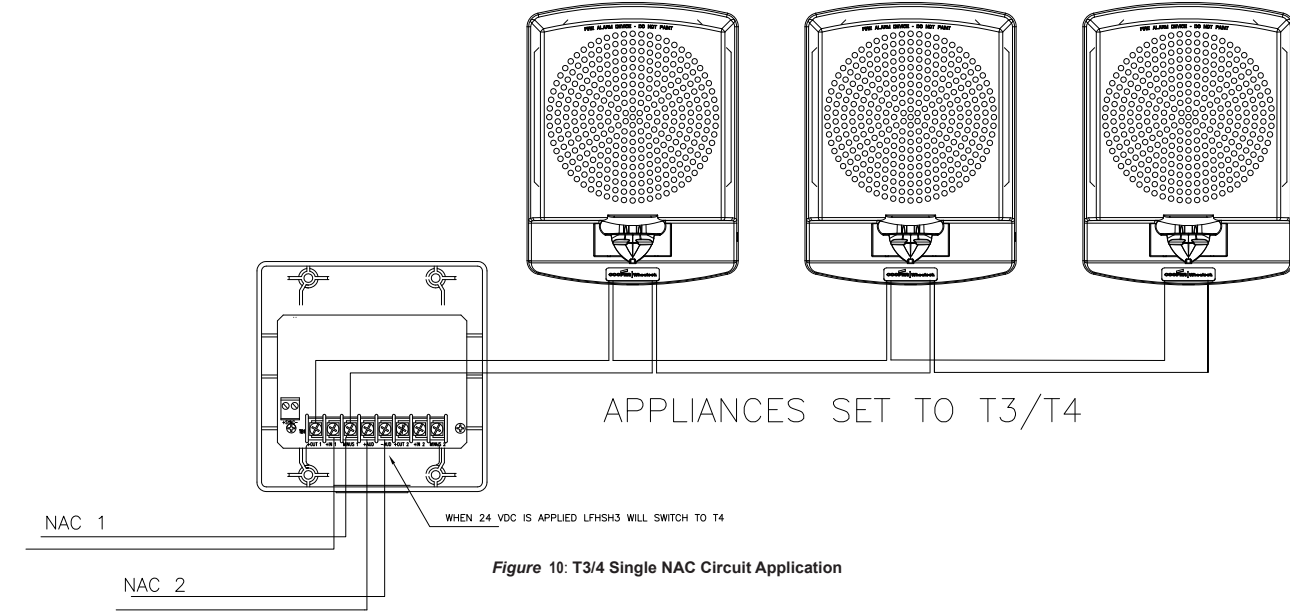


Figure 10: T3/4 Single NAC Circuit Application

The following Notes 1-3 provide information with respect to Figure10:

NOTE 1: Code 3/Code 4 operation requires the use of the Wheelock DSM sync module

NOTE 2: Both NAC 1 and NAC 2 must remain active for T4 Operation.

NOTE 3: All LFHSH3 appliances must be set to T3/4 mode.

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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