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INSTALLATION INSTRUCTIONS
EXCEDER 2-WIRE FIELD SELECTABLE HORN,
STROBE, AND HORN/STROBE APPLIANCES
(CEILING MOUNT)

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

GENERAL:

The Cooper Notification Series Exceder HN-C Horn, ST-C Strobe, and HS-C Horn/Strobe Appliances are designed for easy installation. All models are for 12V or 24V operation. The appliance comes in two main parts. The universal mounting back plate allows the ceiling appliance to be mounted to a single gang, double gang, 4" square, 4" octagon, or a 3 1/2" octagon backbox. Two wire appliance wiring is then connected to the mounting back plate. This allows a continuity check of the entire NAC circuit before any appliances are attached. It also allows the appliances to be installed after all finish work has been completed. The installer can snap or install the appliances when all other work is complete.

⚠ 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: Models and Settings						
Model	Regulated Voltage	Voltage Range Limit per UL/ULC	Strobe (cd)	Horn	Current Draw See Table	Mounting
ST-C	12 (VDC)	8.0-17.5	15	-----	3	Ceiling
	24 (VDC/VRMS)	16.0-33.0	15/30/60/75/95/115/150/177			
HS-C	12 (VDC)	8.0-17.5	15	X	4	Ceiling
	24 (VDC/VRMS)	16.0-33.0	15/30/60/75/95/115/150/177			
HN-C	12 (VDC/VRMS)	8.0-17.5	-----	X	5	Wall/Ceiling
	24 (VDC/VRMS)	16.0-33.0				

STROBE AND HORN STROBE APPLIANCES:

Cooper Notification's Exceder 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 Wheelock sync protocol, a Wheelock Sync Module, or the Wheelock Power Supply. The Strobe Appliances are UL Listed under Standard 1971 (Signaling Devices for the Hearing Impaired) for indoor Fire Protection Service. They are listed for **indoor use only**. Cooper Notification's Exceder Horn Appliances provide a selectable Continuous or Code 3 Horn tone when connected directly to the Fire Alarm Control Panel (FACP). They can also provide a synchronized Code 3 Horn tone when used in conjunction with an FACP that incorporates the Wheelock sync protocol, a Wheelock Sync Module, or the Wheelock Power Supply. The Horn Appliances can be field set for High (HI), Medium (MED), or Low (LO) dBA sound output. The Horn Appliances are UL Listed under Standard 464 for Audible Signal Appliances. They are listed for **indoor use only**. All models are designed for use with either filtered DC (VDC) or unfiltered Full-Wave-Rectified (VRMS) input voltage. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by an FACP. The ST-C Strobe, HS-C Horn/Strobe, and the HN-C Horn are for 12V or 24V operation. Strobe devices for 12V are only approved by UL to be set at 15cd and only to be powered by DC not FWR.

NOTE: The HN-C may be used on both wall and ceiling applications.

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. **The Code 3 Horn should be used only for fire evacuation signaling and not for any other purpose.**

Table 2A: HN-C and HS-C dBA Sound Output													
Description	Volume	Reverberant dBA Per UL 464						Anechoic Per CAN/ULC-S525-07					
		HN-C and HS-C at 12V			HN-C and HS-C at 24V			HN-C and HS-C at 12V			HN-C and HS-C at 24V		
		8.0V	12.0V	17.5V	16.0V	24.0V	33.0V	8.0V	12.0V	17.5V	16.0V	24.0V	33.0V
Continuous Horn	High	83	88	91	91	93	96	89	93	96	95	99	101
	Medium	79	82	86	86	89	92	85	89	92	91	95	97
	Low	72	76	79	78	82	85	79	84	87	86	90	92
Code 3 Horn	High	80	84	86	86	89	91	87	93	96	95	99	101
	Medium	74	78	81	81	85	84	85	89	92	91	95	97
	Low	67	71	74	74	78	80	79	84	87	86	90	92

Table 2B: ULC Directional Characteristics		
Axis	dBA	Angle
Horizontal	-3dBA	60° left and right
	-6dBA	85° left and right
Vertical	-3dBA	45° up and down
	-6dBA	60° up and down

Table 3: ST-C Strobe Current Draw (Amps)										
Strobe Candela Settings (cd)										
16.0-33.0 Volts									8.0-17.5 Volts	
Current	15	30	60	75	95	115	150	177	Current	15
DC	0.061	0.085	0.103	0.135	0.163	0.182	0.205	0.253	DC	0.110
FWR	0.083	0.105	0.166	0.185	0.223	0.256	0.328	0.372	FWR	~

Table 4: HS-C Horn/Strobe Current Draw (Amps)										
Strobe Candela Settings (cd)										
Current	Horn Settings	16.0-33.0 Volts								8.0-17.5 Volts
		15	30	60	75	95	115	150	177	15
DC	High*	0.082	0.102	0.141	0.148	0.176	0.197	0.242	0.282	0.125
	Medium*	0.073	0.087	0.128	0.139	0.163	0.186	0.230	0.272	0.122
	Low*	0.065	0.084	0.120	0.136	0.157	0.184	0.226	0.267	0.120
FWR	High*	0.131	0.138	0.220	0.216	0.258	0.289	0.357	0.384	~
	Medium*	0.112	0.126	0.202	0.201	0.247	0.272	0.340	0.378	~
	Low*	0.106	0.120	0.186	0.196	0.235	0.265	0.331	0.375	~

* Current Draw is the same for the Continuous Horn and Code 3 Horn Settings.

Table 5: HN-C Horn Current Draw (Amps)			
Current	Horn Settings	8.0-17.5 Volts	16.0-33.0 Volts
DC	High*	0.047	0.084
	Medium*	0.026	0.044
	Low*	0.017	0.022
FWR	High*	0.073	0.092
	Medium*	0.048	0.079
	Low*	0.036	0.054

* Current Draw is the same for the Continuous Horn and Code 3 Horn Settings.

NOTE: Candela setting, horn setting and voltage will determine the current draw of the product.

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.

NOTE: The maximum number of strobes on a single notification appliance circuit shall not exceed 50.

NOTE: These notification appliances are UL Listed as "Regulated". They are intended to be used with FACP's whose notification circuits are UL Listed as "Regulated." These appliances shall not be used on UL Listed "Special Application" notification circuits unless the appliances are identified to be compatible in the installation instructions of the FACP or unless the FACP is identified to be compatible in this instruction manual.

NOTE: The HS-C, ST-C and HN-C carry the same existing compatibility listings as the Wheelock NS, RSS, and NH products respectively. These notification appliances are UL Listed as "Regulated". They are intended to be used with FACP's whose notification circuits are UL Listed as "Regulated." These appliances shall not be used on UL Listed "Special Application" notification circuits unless the appliances are identified to be compatible in the installation instructions of the FACP or unless the FACP is identified to be compatible in this instruction manual.

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.

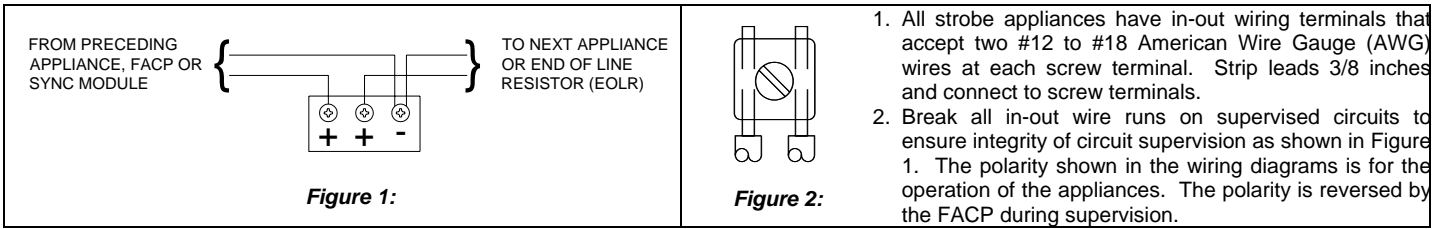
NOTE: CHECK THE MINIMUM AND MAXIMUM OUTPUT OF THE POWER SUPPLY AND STANDBY BATTERY AND SUBTRACT THE VOLTAGE DROP FROM THE CIRCUIT WIRING RESISTANCE TO DETERMINE THE APPLIED VOLTAGE TO THE STROBES. THE MAXIMUM WIRE IMPEDANCE BETWEEN STROBES SHALL NOT EXCEED 35 OHMS.

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, SM, DSM SYNC MODULES, OR COOPER NOTIFICATION 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.

Table 6: Horizontal and Vertical HS-C and ST-C Light Output		
Angle on Axis	UL Min Required of Rated Candela	Typical Percentage of Rated Output Candela
-90	25%	44%
-85	25%	62%
-80	30%	88%
-75	30%	108%
-70	35%	114%
-65	35%	130%
-60	40%	144%
-55	45%	130%
-50	55%	135%
-45	75%	135%
-40	75%	191%
-35	75%	161%
-30	75%	153%
-25	90%	140%
-20	90%	152%
-15	90%	172%
-10	90%	169%
-5	90%	330%
0	100%	500%
5	90%	380%
10	90%	196%
15	90%	186%
20	90%	164%
25	90%	185%
30	75%	202%
35	75%	214%
40	75%	239%
45	75%	182%
50	55%	196%
55	45%	164%
60	40%	167%
65	35%	149%
70	35%	155%
75	30%	120%
80	30%	108%
85	25%	75%
90	25%	44%

WIRING AND MOUNTING BASE:



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

WIRING AND MOUNTING SETTINGS:

NOTE: The HS-C and ST-C are factory set for the most common application of 15cd. The HS-C and HN-C are factory set for the most common application of Medium dB and Code 3.

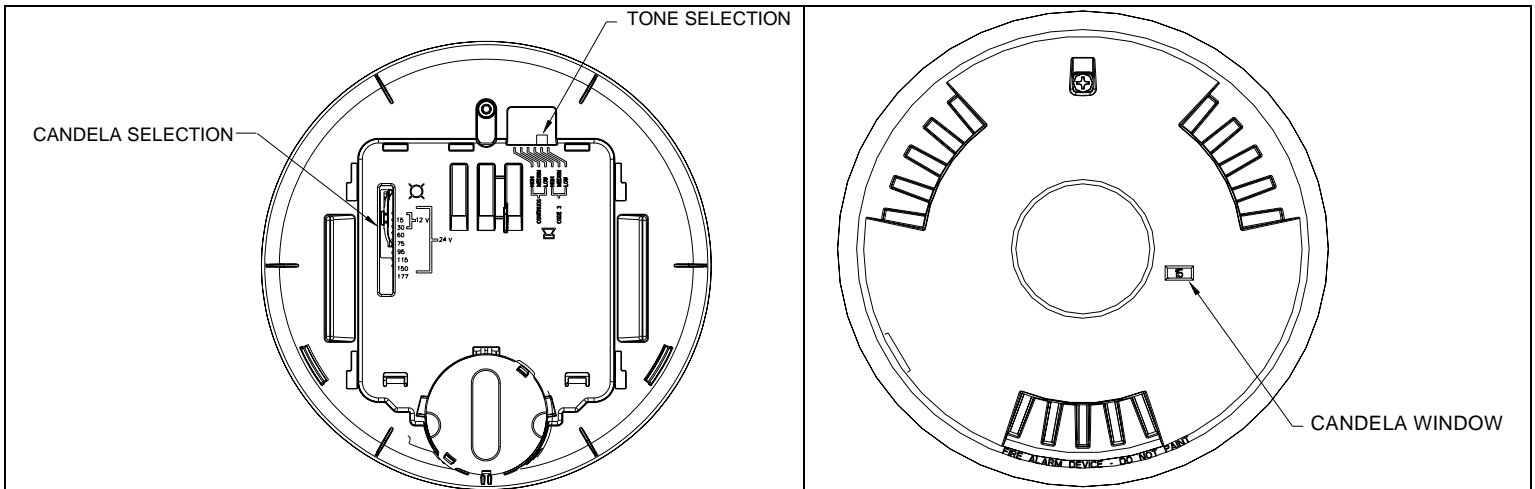


Figure 3: Selector Switch

NOTE: Candela factory settings are shown in above illustrations.

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" 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.

WARNING: DO NOT OVER TIGHTEN MOUNTING SCREWS. EXCESSIVE TORQUE CAN DISTORT THE BASE AND MAY AFFECT OPERATION.

MOUNTING OPTION:

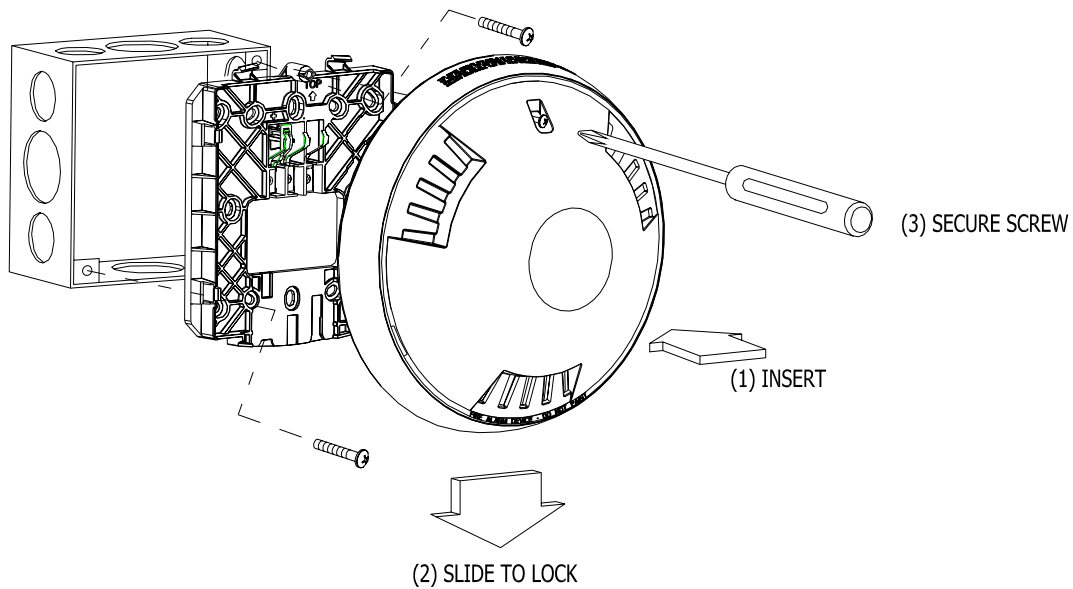


Figure 4: Installation

1. Install mounting plate as shown in Figure 4 to a single-gang, double-gang, 4" square or octagon backbox with the provided pan head screws.
2. Connect field wiring per Figures 1 and 2.
3. Dress wires back into backbox.
4. While performing wiring continuity check, leave terminal cover in place.
5. Remove terminal cover before snapping or installing the appliance into the mounting plate per Figure 4.
6. **Important:** Device only has one mounting orientation. Match the top of the base to the top of the device.
7. Secure screw at the top of the device. (This is required.)
8. To remove the appliance, disengage screw, slide appliance up and then pull appliance away from mounting plate.

⚠ WARNING: THESE APPLIANCES ARE A "FIRE ALARM DEVICE - DO NOT PAINT."

⚠ 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 NOTIFICATION 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.

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).

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and 4) Consult the dealer or an experienced radio/TV technician for help.

COMPATIBLE "COOPER NOTIFICATION" DEVICES: SM-12/24 and DSM-12/24

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