

**INSTALLATION INSTRUCTIONS**  
**SERIES CH90-24MCCH MULTI-HIGH-CANDELA ELECTRONIC CHIME STROBE**  
**(CEILING MOUNT VERSION)**

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

**GENERAL:**

Wheelock's Series CH90-24MCCH Multi-High-Candela Electronic Chime Strobe is UL Listed under Standard 1971 for Signaling Devices for the Hearing Impaired and UL Standard for Private Mode Audible Signal Appliances. The CH90-24MCCH Chime Strobe is designed for low current draw and versatile performance. This model offers a choice of single stroke or vibrating operation, has adjustable sound level, and has a chime tone adjustable from 800 to 1200Hz. The CH90-24MCCH Multi-High-Candela strobe provides two selectable light output intensities in one unit. This appliance also incorporates a Chime Mounting Plate attached to the chime for ease of installation. The Chime Strobe model 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 a Sync Module (SM), Dual Sync Module (DSM) or Wheelock's Power Supplies. The strobe uses a xenon flashtube with solid state circuitry enclosed in a polycarbonate® lens to provide maximum visibility and reliability for effective visible signaling. The CH90-24MCCH is Listed for **indoor use, ceiling mount only** with the backboxes specified in these instructions (see wiring and mounting information).

**⚠ 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: UL Listed Models and Ratings						
Models	Regulated Voltage (VDC/VRMS)	Voltage Range (VDC/VRMS)	Maximum RMS Current (Chime Only) (ADC)	dBA at 10 Feet Reverberant		Strobe Candela
				Min	Max	
CH90-24MCCH	24	16.0-33.0	0.022	52	58	115/177

**NOTES:**

- The strobe will produce 1 flash per second over the "Regulated Voltage" range.
- The strobes meet the required light distribution patterns defined in UL 1971.
- The CH90-24MCCH model is UL Listed for indoor use with a temperature range of +32°F to +120°F (0°C to +49°C) and maximum humidity of 85% 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 Chime must be set at maximum volume for Private Mode Fire Protective Service per UL 464 listing requirements (see page 3).
- The chime produces a brief inrush current of 0.100 Amps with filtered DC input (0.140 Amps with full-wave-rectified (VRMS) input) with a time duration of 100 milliseconds.

**⚠ WARNING: CANDELA SETTING WILL DETERMINE THE CURRENT DRAW OF THE PRODUCT.**

Table 2: UL Current Ratings (Strobe Only)			
Maximum RMS Current (Amps)			
UL Voltage		115cd	177cd
DC	16-33VDC	0.300	0.420
FWR	16-33VRMS	0.455	0.645

When calculating the total currents use Table 2 to determine the highest value of RMS current for an individual strobe, then multiply these values by the total number of strobes. 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.

**⚠ CAUTION:** These notification appliances are UL Listed as "Regulated". They are intended to be used with FACPs 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.

**⚠ WARNING: THESE APPLIANCES WERE TESTED TO THE REGULATED VOLTAGE LIMITS OF 16.0-33.0 VOLTS FOR 24V MODELS USING FILTERED DC OR UNFILTERED FULL-WAVE-RECTIFIED VOLTAGE. DO NOT APPLY VOLTAGE OUTSIDE OF THIS RANGE.**

**⚠ WARNING: 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.**

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

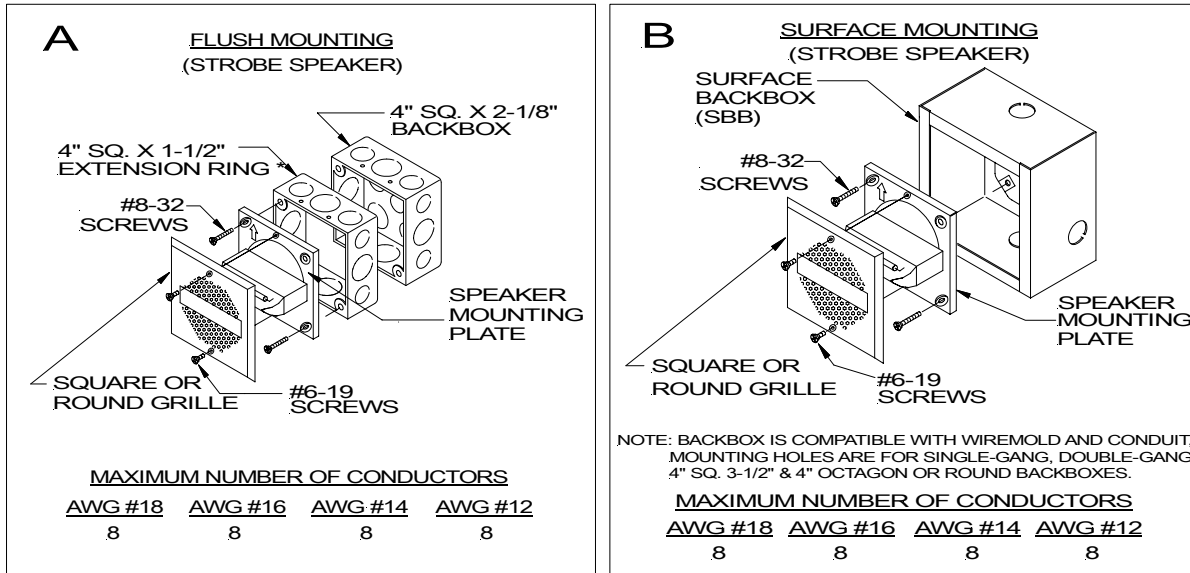
**⚠ WARNING:** MAKE SURE THAT THE TOTAL RMS CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NOTIFICATION APPLIANCE CIRCUITS, SM, DSM SYNC MODULES, OR WHELOCK POWER SUPPLIES DOES NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS 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 INFORMATION:**

**⚠ CAUTION:** The following figures (A,B) 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.

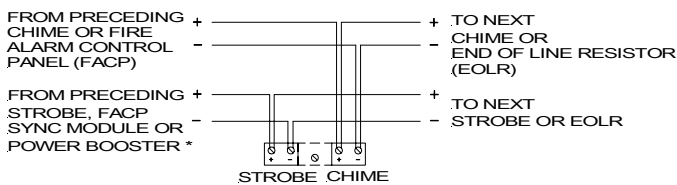
**⚠ CAUTION:** Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Wheelock 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.



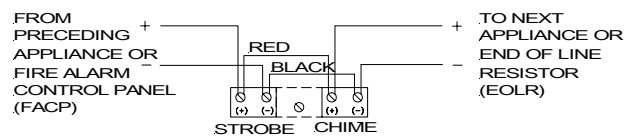
**Figure 1:**

Chime Appliance and Strobe Appliance operate independently. Recommended for coded systems where the chime is set on single stroke (SS) mode and is cycled on and off while the strobe flashes continuously.



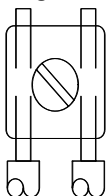
**Figure 2:**

Chime Appliance and Strobe Appliance operate in unison. Red and black wires are supplied. The chime must be set for vibrating mode (VIB). (Use of Sync Module is not recommended in this wiring option)



\* Refer to instruction sheets for SM (P83123), DSM (P83177) or Wheelock power supplies for additional information.

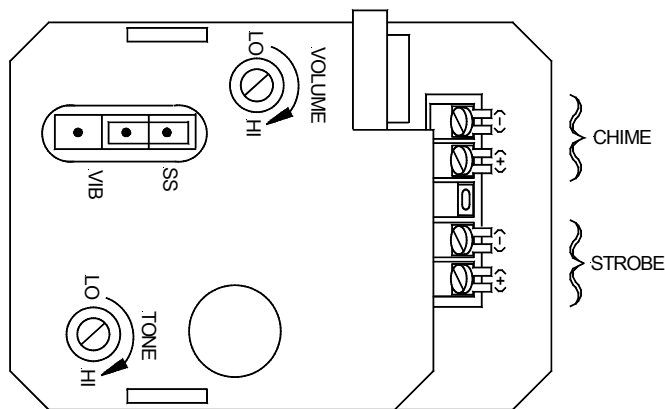
**Figure 3:**



- The Chime Strobe 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 and connect to screw terminals.
- Break all in-out wire runs on supervised circuits to assure integrity of circuit supervision as shown in Figure 3. The polarity shown in the wiring diagrams is for operation of the appliances. The polarity is reversed by the FACP during supervision.

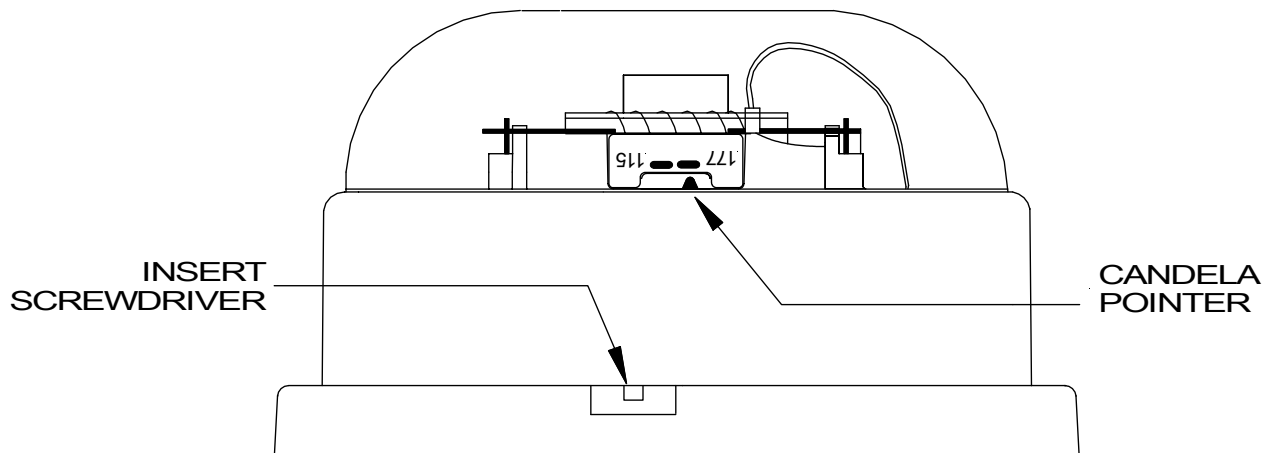
**GROUNDING:** Install the appliance to a grounded backbox (Per NFPA 70, the National Electrical Code) using the lockwashers provided in hardware bag under the head of each mounting screw for the appliance.

**Figure 4: PC Board Layout**



1. The chime is factory set in single stroke (SS) mode. It can be changed to vibrating (VIB) mode before wiring the appliance with the provided jumper. Refer to PC Board layout shown in Figure 4. (SS = single stroke, VIB = vibrating)  
**SINGLE STROKE OPERATION:** The minimum input pulse duration must be at least 160 milliseconds "on" time and 160 milliseconds "off" time. The chime will only operate once each time it is pulsed. This mode is recommended for coded systems.  
**VIBRATING OPERATION:** Continuous input voltage must be applied to the chime to activate the chime at one second intervals.
2. The volume and tone controls have been adjusted at the factory to insure maximum dBA output. However, once the mode is selected, the installer may want to fine tune the appliance to better suit the application.

Figure 5:



NOTE: The CH90-24MCCH comes pre-set at 177cd.

**⚠ WARNING: THE CANDELA SELECT SWITCH MUST BE FIELD SET TO THE REQUIRED CANDELA INTENSITY BEFORE INSTALLATION. WHEN CHANGING THE SETTING OF THE CANDELA SELECT SWITCH, MAKE CERTAIN THAT IT "CLICKS" IN PLACE. AFTER CHANGING THE CANDELA SETTING, THE APPLIANCE MUST BE RETESTED TO VERIFY PROPER OPERATION. IMPROPER SETTING OF THE CANDELA SELECT SWITCH, MAY RESULT IN OPERATION AT THE WRONG CANDELA, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

#### MOUNTING PROCEDURES:

1. This model can be flush mounted to a 4" square by 2-1/8" deep backbox with a 4" square 1-1/2" extension ring (Figure A). 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. CH90-24MCCH model has an integrated mounting plate which must be oriented correctly when it is mounted to the backbox. Turn the mounting plate so that the arrow above the words "Horizontal Strobe" or "Top" points to the top side of the mounting plate
6. To move selector switch, insert screwdriver into slot shown on the bottom side of the strobe. See Figure 5.
7. Mount the chime mounting plate to the backbox with the cone protector on. After the chime mounting plate is attached to the backbox, remove the cone protector before installing the grille. Next, attach the grille to the chime mounting plate and attach with (2) screws.

**⚠ WARNING: THE CHIME STROBE APPLIANCE IS 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. FAILURE TO DO SO COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

**⚠ 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, 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. 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.**

The 177 cd Setting is Listed for use in sleeping or non-sleeping areas when installed in accordance with appropriate NFPA Standards and the Authority Having Jurisdiction.

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

This control unit does not generate a temporal pattern signal. If the distinctive three-pulse temporal pattern fire alarm evacuation signal (or total evacuation) in accordance with NFPA 72 is required, the control unit must be used with appliances that can generate the temporal pattern signal. Refer to Manufacturer's instruction 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 assure electrical noise immunity (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.

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**IMPORTANT: READ SEPARATE "GENERAL INFORMATION" SHEET FOR INFORMATION ON THE PLACEMENT, LIMITATIONS, INSTALLATION, FINAL CHECKOUT, AND PERIODIC TESTING OF NOTIFICATION APPLIANCES.**

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