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INSTALLATION INSTRUCTIONS

SERIES CH70-24MCW MULTI-CANDELA ELECTRONIC CHIME STROBE

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

GENERAL:

Wheelock's Series CH70-24MCW Multi-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 CH70-24MCW 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 to 83dBA (peak anechoic) at 10 feet, and has a chime tone adjustable from 800 to 1200Hz. The CH70-24MCW Multi-Candela strobe provides four 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 the PS-12/24-8 Power Booster. The strobe uses a Xenon flashtube with solid state circuitry enclosed in a rugged Lexan® lens to provide maximum visibility and reliability for effective visible signaling. The CH70-24MCW is Listed for **indoor use, wall mount only** with the backboxes specified in these instructions (see Mounting Options).

NOTE: All **CAUTIONS** and **WARNINGS** are identified by the symbol . All warnings are printed in bold capital letters.

WARNING: READ THESE INSTRUCTIONS CAREFULLY. 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/FWR	Voltage Range VDC/VRMS	Rated Average Current For Chimes (AMPS)		dBA at 10 Feet			Candela	Mounting Options
			Nom	Max	Peak Anechoic	Reverberant			
					24VDC	Min	Max		
CH70- 2415MCW	24	16.0-33.0	.020	.022	83	52	58	15/30/75/110	A,B

NOTES:

1. The strobe will produce 1 flash per second over the "Regulated Voltage" range.
2. The CH70-24MCW 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.
3. The Chime must be set at maximum volume for Private Mode Fire Protective Service per UL 1638 listing requirements (see Wiring Information Note 2).
4. Anechoic dBA is measured in an anechoic chamber with peak meter response. Reverberant dBA is rated per UL Standard 464.
5. 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: THE UL LISTED "REGULATED VOLTAGE" RANGE IS 16.0-33.0 VOLTS USING EITHER FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED VOLTAGE (FWR). THIS APPLIANCE WAS NOT TESTED OUTSIDE THE 16.0-33.0VDC/RMS LIMITS BY UL. 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 STROBE SPEAKERS.

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⚠ WARNING: THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR RATED INPUT VOLTAGE RANGE. THE APPLICATION OF IMPROPER VOLTAGE MAY RESULT IN DEGRADED OPERATION OR DAMAGE TO THESE PRODUCTS, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

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

Table 2: Strobe Current Ratings (AMPS) for 24VDC				
Rated Average Current (RMS)				
Voltage	15cd	30cd	75cd	110cd
16.0VDC	0.070	0.114	0.220	0.289
24.0VDC	0.049	0.085	0.137	0.180
33.0VDC	0.043	0.065	0.105	0.143
16.0VRMS	0.113	0.190	0.339	0.458
24.0VRMS	0.095	0.138	0.224	0.282
33.0VRMS	0.098	0.133	0.202	0.244
Rated Peak Current *				
Voltage	15cd	30cd	75cd	110cd
16.0VDC	0.125	0.182	0.356	0.454
24.0VDC	0.110	0.149	0.260	0.334
33.0VDC	0.145	0.195	0.294	0.368
16.0VRMS	0.450	0.630	1.310	1.560
24.0VRMS	0.525	0.665	1.030	1.215
33.0VRMS	0.905	1.030	1.290	1.410

* Time duration of Strobe Peak Current is 1 millisecond.

NOTE: Strobe Inrush Current is less than Rated Peak Current.

⚠ WARNING: MAKE SURE THAT THE TOTAL AVERAGE CURRENT AND TOTAL PEAK CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NAC CIRCUITS, SM, DSM SYNC MODULES AND THE PS-12/24-8 POWER BOOSTER DO 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.

When calculating the total average or peak currents: Use Table 2 to determine the highest value of "Rated Average Current" for an individual chime strobe (across the expected operating voltage range of the chime strobe), or the highest value of "Rated Peak Current" (whichever is higher) of an individual chime strobe (across the expected voltage range of the chime strobe), then multiply the value by the total number of chime strobes; be sure to add the currents for the chimes and any other appliances, including audible signaling appliances, powered by the same source and include any required safety factors.

If the peak current exceeds the power supplies' inrush capacity, the output voltage provided by the power supplies may drop below the listed voltage range of the appliances connected to the supply and the voltage may not recover in some types of power supplies. For example, an auxiliary power supply that lacks filtering at its output stage (either via lack of capacitance and/or lack of battery backup across the output) may exhibit this characteristic.

⚠ CAUTION: The Chime Strobe is not designed to be used on coded systems in which the applied voltage is cycled on and off.

LIGHT DISTRIBUTION:

Table 3A: Horizontal Plane								
Horizontal Angle (in deg.)	15cd		30cd		75cd		110cd	
	UL Min.	Typ. 15cd	UL Min.	Typ. 30cd	UL Min.	Typ. 75cd	UL Min.	Typ. 110cd
0	15.0	22	30.0	44	75.0	110	110.0	158
5	13.5	22	27.0	42	67.5	114	99.0	162
10	13.5	23	27.0	42	67.5	110	99.0	156
15	13.5	22	27.0	41	67.5	110	99.0	153
20	13.5	21	27.0	40	67.5	108	99.0	153
25	13.5	20	27.0	38	67.5	102	99.0	139
30	11.3	20	22.5	38	56.3	103	82.5	142
35	11.3	18	22.5	36	56.3	97	82.5	135
40	11.3	18	22.5	35	56.3	93	82.5	130
45	11.3	20	22.5	39	56.3	103	82.5	143
50	8.3	19	16.5	37	41.3	93	60.5	133
55	6.8	14	13.5	27	33.8	71	49.5	98
60	6.0	15	12.0	30	30.0	73	44.0	102
65	5.3	15	10.5	28	26.3	71	38.5	97
70	5.3	14	10.5	25	26.3	64	38.5	88
75	4.5	12	9.0	23	22.5	54	33.0	76
80	4.5	10	9.0	17	22.5	47	33.0	64
85	3.8	5	7.5	10	18.8	25	27.5	33
90	3.8	7	7.5	15	18.8	39	27.5	52

Table 3B: Vertical Plane								
Vertical Angle (in deg.)	15cd		30cd		75cd		110cd	
	UL Min.	Typ. 15cd	UL Min.	Typ. 30cd	UL Min.	Typ. 75cd	UL Min.	Typ. 110cd
0	15.0	23	30.0	45	75.0	113	110.0	160
5	13.5	24	27.0	48	67.5	119	99.0	166
10	13.5	21	27.0	39	67.5	101	99.0	143
15	13.5	19	27.0	39	67.5	102	99.0	136
20	13.5	19	27.0	37	67.5	98	99.0	122
25	13.5	18	27.0	35	67.5	88	99.0	122
30	13.5	15	27.0	31	67.5	80	99.0	106
35	9.8	17	19.5	31	48.8	84	71.5	112
40	6.9	13	13.8	24	34.5	62	50.6	86
45	5.1	7	10.2	12	25.5	33	37.4	44
50	4.1	6	8.1	11	20.3	29	29.7	41
55	3.3	6	6.6	11	16.5	28	24.2	38
60	2.7	5	5.4	10	13.5	27	19.8	37
65	2.4	5	4.8	10	12.0	27	17.6	37
70	2.3	6	4.5	10	11.3	27	16.5	37
75	2.0	5	3.9	10	9.8	26	14.3	36
80	1.8	5	3.6	9	9.0	25	13.2	33
85	1.8	5	3.6	9	9.0	24	13.2	33
90	1.8	2	3.6	5	9.0	12	13.2	17

WIRING INFORMATION:

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 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.

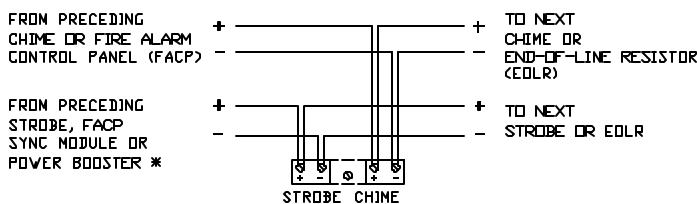
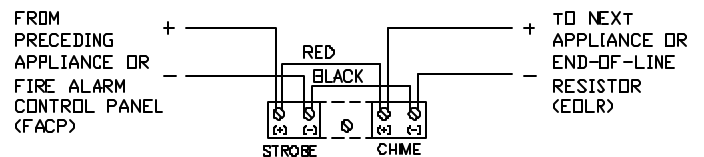


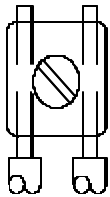
Figure 2.

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 Sync Module instruction sheets SM (P83123), DSM (P83177) or PS-12/24-8 (P83862) for additional information.

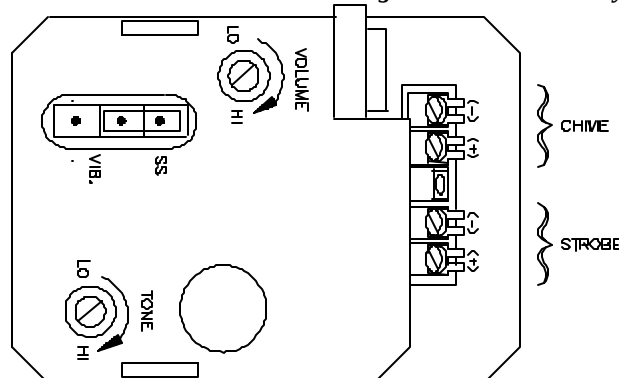
Figure 3.



1. 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.
2. 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

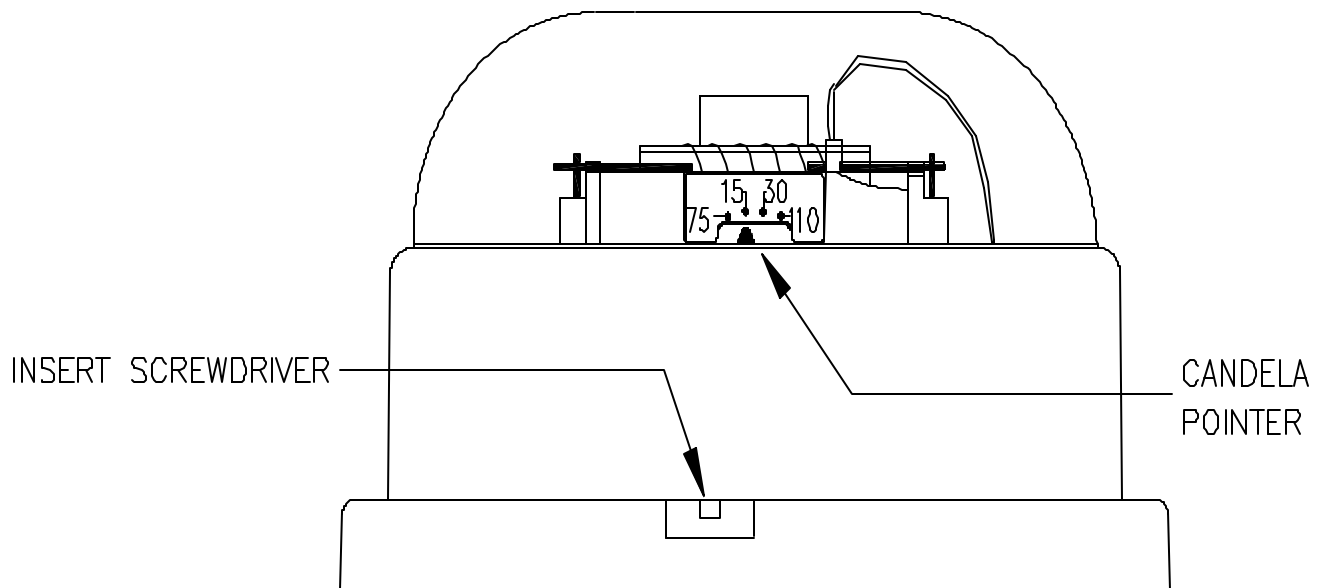


MOUNTING PROCEDURES:

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.

1. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product.
2. 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. Mounting hardware for each mounting option is supplied.
4. 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.
5. To move selector switch, insert screwdriver into slot shown on the bottom side of the strobe. The setting is indicated by a pointer and can be seen on the bottom side of the lens. See Figure 4.
6. This model can be flush mounted to a 4" square by 1-1/2" deep backbox with a 4" square 2-1/8 extension ring (Figure A). surface mounted to a Surface Backbox (Figure B).
7. 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.
8. CH70-24MCW models have an integrated Chime Mounting Plate.
9. The Chime Mounting Plate must be oriented correctly when it is mounted to the backbox. Turn the Chime Mounting Plate so that the arrow above the words "Horizontal Strobe" or "Top" points to the top side of the Chime Mounting Plate.
10. 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.

Figure 5.



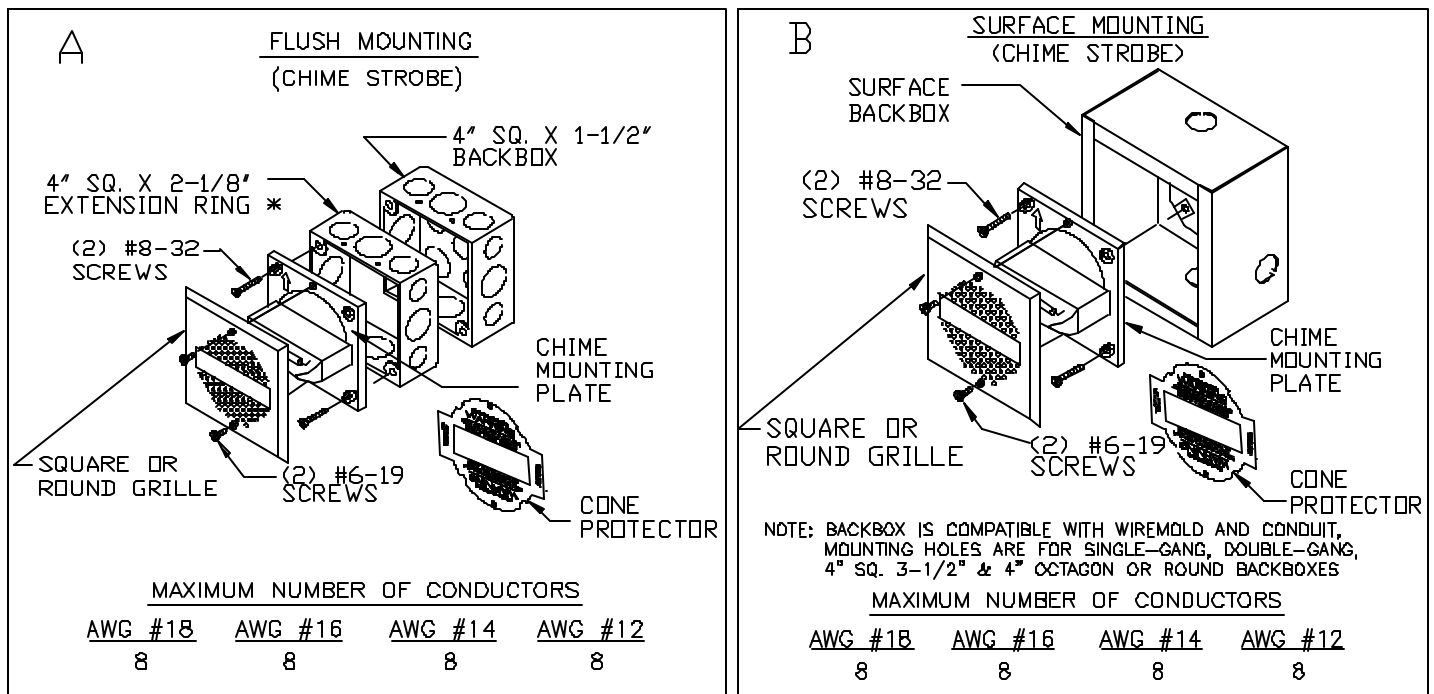
NOTE: The CH70-24MCW comes pre-set at 15cd.

WARNING: 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 (FLASH RATE MUST BE BETWEEN 60-64 FLASHES PER MINUTE). IMPROPER SETTING OF THE CANDELA SELECT SWITCH, WHETHER IT IS ON AN INCORRECT SETTING OR IN BETWEEN TWO CANDELA POSITIONS, MAY RESULT IN DEGRADED OPERATION OR DAMAGE TO THE PRODUCT, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

MOUNTING OPTIONS:

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 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.



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.

The 110 Candela Chime Strobe model is Listed for use in sleeping or non-sleeping areas when installed in accordance with appropriate NFPA Standards and the Authority Having Jurisdiction.

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, 1999 Edition 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.

⚠ WARNING: INSTALLATION OF WHEELock 110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS SHOULD BE WALL MOUNTED AT LEAST 24" BELOW THE CEILING AS FOLLOWS: (1) THE ON-AXIS (DIRECTLY IN FRONT OF LENS) LIGHT OUTPUT SHOULD BE DIRECTED AT THE EYE-LIDS OF THE SLEEPING PERSON, E.G. PILLOW END OF BED, BED HEAD; (2) NO PART OF THE BED SHALL BE MORE THAN SIXTEEN (16) FEET FROM THE STROBE NOTIFICATION APPLIANCE. INSTALLERS MUST ADVISE OWNERS AND OPERATORS OF BUILDINGS WITH SLEEPING OCCUPANTS, E.G. HOTELS AND MOTELS, TO WARN GUESTS, RESIDENTS AND EMPLOYEES TO NOT MOVE THE BED LOCATION TO A POSITION VIOLATING POINTS (1) AND (2) ABOVE OR SERIOUS INJURY AND/OR LOSS OF LIFE MAY OCCUR DURING A FIRE EMERGENCY.

⚠ 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.

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 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.

Limited Warranty

Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained and operationally tested in accordance with these instructions at the time of installation and at least twice a year or more often and in accordance with local, state and federal codes, regulations and laws. Specification, application, installation, operation, maintenance and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), Underwriters' Laboratories of Canada (ULC), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal and other applicable building and fire standards, guidelines, regulations, laws and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ). Wheelock products when properly specified, applied, installed, operated, maintained and operationally tested as provided above are warranted against mechanical and electrical defects for a period of three years from date of manufacture (as determined by date code). Correction of defects by repair or replacement shall be at Wheelock's sole discretion and shall constitute fulfillment of all obligations under this warranty. THE FOREGOING LIMITED WARRANTY SHALL IMMEDIATELY TERMINATE IN THE EVENT ANY PART NOT FURNISHED BY WHEELOCK IS INSTALLED IN THE PRODUCT. THE FOREGOING LIMITED WARRANTY SPECIFICALLY EXCLUDES ANY SOFTWARE REQUIRED FOR THE OPERATION OF OR INCLUDED IN A PRODUCT. WHEELOCK MAKES NO REPRESENTATION OR WARRANTY OF ANY OTHER KIND, EXPRESS, IMPLIED OR STATUTORY WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER.

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