

273 Branchport Avenue Long Branch, NJ 07740 (800) 631-2148 www.cooperwheelock.com

#### Thank you for using our products.

# INSTALLATION INSTRUCTIONS SERIES AH-WP INDOOR/OUTDOOR AUDIBLE HORN APPLIANCES

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

#### GENERAL:

Cooper Wheelock's AH-WP Audible Horn Appliances are designed to provide a selectable continuous horn or code 3 tone when connected directly to the Fire Alarm Control Panel (FACP), or provide a synchronized code 3 horn when used in conjunction with a Sync Module (SM), Dual Sync Module (DSM) or Wheelock's Power Supplies. The AH-WP Appliances are UL Listed under UL Standard 464 for Audible Signal Appliances. The AH-24WP is ULC Listed under Standard CAN/ULC-S525-99 for Audible Signaling Appliances. They are listed for indoor and outdoor use and can be mounted to a 4" backbox (See Mounting Options).

AH-WP Appliances can be field set to provide either High (HI) dBA, Medium (MED) dBA or Low (LO) dBA sound output.

All AH-WP models are designed for use with either filtered DC (VDC) or unfiltered Full-Wave-Rectified (FWR) input voltage. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by a FACP.

**NOTE:** The code 3 horn incorporates the temporal pattern (1/2 second on, 1/2 second off, 1/2 second off, 1/2 second off, 1/2 second on, 1-1/2 off and repeat) specified by ANSI/NFPA for standard emergency evacuation signaling. *The code 3 horn shall be used only for fire evacuation signaling and not for any other purpose.* 

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

riangle warning: the ah-wp appliance is a "fire alarm device - do not paint."

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, 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/ULC Listed Models and Ratings									
	Regulated UL Voltage	ULC Voltage	Maximum RMS Current (AMPS)						
Model	Voltage	ge Range Range	DC		FWR				
	(VDC/VRMS)		_	Lo	Med	Hi	Lo	Med	Hi
AH-24WP	24	16-33	20-31	0.021	0.043	0.080	0.041	0.051	0.090
AH-12WP	12	8-17.5		0.058	0.108	0.192	0.059	0.109	0.209

Model AH-12WP is not ULC listed.

Table 1A: ULC Current Ratings 24VDC Models						
Model	ULC Voltage	Average Current (AMPS)				
	(VDC/VRMS)	Lo	Med	Hi		
AH-24	20.0	.014	.020	.035		
	24.0	.017	.025	.050		
	31.0	.021	.030	.065		

Table 2: dBA Sound Output for 24VDC Models								
Description	Volume	Reverberant dBA Per UL 464			Anechoic Per CAN/ULC-S525-99			
		16.0VDC	24VDC	33.0VDC	16.0VDC	24VDC	33.0VDC	
	Low	80	83	86	88	90	92	
Continuous Horn	Medium	85	88	91	90	95	97	
	High	88	91	93	92	97	99	
	Low	75	79	82	88	90	92	
Code 3 Horn	Medium	80	84	86	90	95	97	
	High	84	87	90	92	97	99	

Table 2A: dBA Sound Output for 12VDC Models						
Description	Volume	Reverberant Per UL 464				
		8.0VDC	12VDC	17.5VDC		
	Low	80	83	86		
Continuous Horn	Medium	85	88	91		
	High	88	91	93		
	Low	75	79	82		
Code 3 Horn	Medium	80	84	86		
	High	84	87	89		

#### NOTES:

 All models are UL/ULC Listed for indoor and outdoor use with a temperature range of -31°F to +151°F (-35°C to 66°C) and maximum humidity of 98% RH

Table 2B: ULC Directional Characteristics
-3 dBA: 48 degrees left, 41 degrees right
-6 dBA: 50 degrees left, 58 degrees right

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 SIGNALING APPLIANCE.

WARNING: FOR UL APPLICATIONS THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 16-33 VOLTS FOR 24V MODELS AND 8-17.5 VOLTS FOR 12V MODELS USING FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED (FWR). DO NOT APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OPERATION.

WARNING: FOR ULC APPLICATIONS THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 20-31 VOLTS FOR 24V MODELS AND 10.5-15.6 VOLTS FOR 12V MODELS USING FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED (FWR). APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OPERATION.

WARNING: MAKE SURE THAT THE TOTAL RMS CURRENT, 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 OR WHEELOCK'S POWER SUPPLIES 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 currents: Use Table 1 to determine the highest value of "RMS Current" for an individual AH Appliance (across the expected operating voltage range of the AH Appliance) or use Table 1A to determine the highest value of "Rated Average Current" of an individual AH Appliance (across the expected voltage range of the AH Appliance), then multiply these values by the total number of AH Appliances; be sure to add the currents for any other appliances, powered by the same source and include any required safety factors.

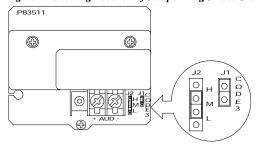
If the peak current exceeds the power supplies' peak capacity, the output voltage provided by the power supplies may drop below the listed voltage range of the appliances connected to the supply and the voltage may not recover in some types of power supplies. For example, an auxiliary power supply that 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: Audible Horn appliances are not designed to be used on coded systems in which the applied voltage is cycled on and off.

WARNING: THE AUDIBLE HORN APPLIANCES MUST BE FIELD SET TO THE DESIRED TONE AND dBA SOUND OUTPUT LEVEL BEFORE THEY ARE INSTALLED. THIS IS DONE BY PROPERLY INSERTING A JUMPER PLUG IN ACCORDANCE WITH THESE INSTRUCTIONS. INCORRECT SETTINGS WILL RESULT IN IMPROPER PERFORMANCE, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

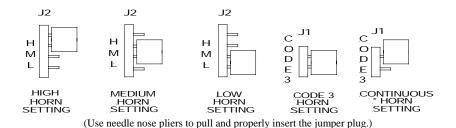
## SOUND OUTPUT (SPL) SETTINGS:

Figure 1: Showing Location of Jumper Plug J1 and J1.



Factory setting is on Medium dB and Code 3.

Figure 2: Jumper Plug Settings for High, Medium, Low dB, Code 3 Horn and Continuous Horn Setting

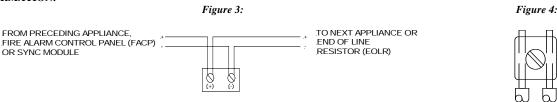


No jumper plug is needed for continuous horn setting. However, it is recommended that the jumper plug be retained in the unit for future use (if needed) as shown in Figure 2.

**NOTE**: The Audible Horn must be set for code 3 when used with the sync module.

\* Continuous horn operation without sync module.

#### WIRING INFORMATION:



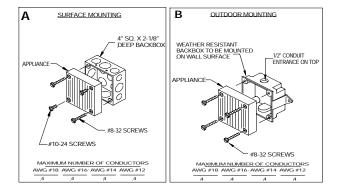
Refer to Sync Module instruction sheets SM (P83123) DSM (P83177) and Wheelock's Power Supplies for additional information.

- AH-WP Appliances have in-out wiring terminals that accepts two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8" inches for connection to screw terminals.
- 2. Break all in-out wire runs on supervised circuit supervision as shown in Figure 4. The polarity shown in the wiring diagrams is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

## 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), Cooper 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.



## MOUNTING NOTES:

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. For weather resistant installation, use outdoor mounting option.
- 2. All models can be surface mounted to a 4" square by 2-1/8" deep electrical backbox (Figure A) or a weatherproof backbox (Figure B).
- 3. Mounting hardware for each mounting option is supplied. For proper mounting, be sure to use the mounting screws supplied with the unit.
- 4. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product.
- 5. 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 with thick insulation or sheathing.
- 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.
- 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.
- 8. The knock-out opening on the backbox is sized for a ½" conduit and matching connector. Be sure that a proper watertight conduit fitting is used to connect the backbox for outdoor/severe environment applications.

These appliances can produce a distinctive three pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72.

CAUTION: If Audible Horn appliances are operated within 15 inches of a person's ear, they can produce a sound pressure level that exceeds the maximum 120dBA permitted by ADA and OSHA rules. Exposure to such sound levels can result in damage to a person's hearing.

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.

The Audible Horn products and these instructions are copyrighted by Cooper Wheelock and the Audible Horn products contain proprietary, confidential and trade secrets of Cooper Wheelock. No part of the Audible Horn products and these instructions may be photocopied, printed or reproduced in any form or modified, adapted, changed or enhanced, or converted to another programming language, or used to create updated, related or derivative works, without the prior written consent of Cooper Wheelock. No part of the Audible Horn products shall be decomposed, disassembled or reverse engineered.

ANY MATERIAL EXTRAPOLATED FROM THIS DOCUMENT OR FROM COOPER WHEELOCK MANUALS OR OTHER DOCUMENTS DESCRIBING THE PRODUCT FOR USE IN PROMOTIONAL OR ADVERTISING CLAIMS, OR FOR ANY OTHER USE, INCLUDING DESCRIPTION OF THE PRODUCT'S APPLICATION, OPERATION, INSTALLATION AND TESTING IS USED AT THE SOLE RISK OF THE USER AND COOPER WHEELOCK WILL NOT HAVE ANY LIABILITY FOR SUCH USE.

## Limited Warranty

Cooper Wheelock, Inc. 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 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). Cooper Wheelock, Inc. 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 Cooper Wheelock, Inc providing repairs or a replacement shall be at Cooper Wheelock, Inc.'s sole discretion and shall constitute fulfillment of all warranty obligations. The foregoing limited warranty shall immediately terminate in the event any part not furnished by Cooper Wheelock, Inc. is installed in the product. The foregoing limited warranty specifically excludes any software required for the operation of or included in a product. COOPER WHEELOCK, INC. 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.

Users are solely responsible for determining whether a product is suitable for the user's purposes, or whether it will achieve the user's intended results. There is no warranty against damage resulting from misapplication, improper specification, abuse, accident, or other operating conditions beyond Cooper Wheelock, Inc.'s control.

Some Cooper Wheelock, Inc. products contain software. With respect to those products, Cooper Wheelock, Inc. does not warranty that the operation of the software will be uninterrupted or error-free or that the software will meet any other standard of performance, or that the functions or performance of the software will meet the user's requirements. Cooper Wheelock, Inc. shall not be liable for any delays, breakdowns, interruptions, loss, destruction, alteration, or other problems in the use of a product arising out of or caused by the software.

The liability of Cooper Wheelock, Inc. arising out of the supplying of a product, or its use, whether based on warranty, negligence, or otherwise, shall not in any case exceed the cost of correcting defects as stated in the limited warranty and upon expiration of the warranty period all such liability shall terminate. Cooper Wheelock, Inc. is not liable for labor costs incurred in removal, reinstallation, or for damage of any type whatsoever, including but not limited to, loss of profit or incidental or consequential damages. The foregoing shall constitute the sole remedy of the purchaser and the exclusive liability of Cooper Wheelock, Inc.

In no case will Cooper Wheelock, Inc.'s liability exceed the purchase price paid for a product.

# Limitation of Liability

Cooper Wheelock, Inc.'s liability on any claim of any kind, including negligence, breach of warranty, or otherwise, for any loss or damage resulting from, arising out of, or connected with any contract, or from the manufacture, sale, delivery, resale, repair or use of any product shall be limited to the price applicable to the product or part thereof which gives rise to the claim. Cooper Wheelock, Inc.'s liability on any claim of any kind shall cease immediately upon the installation in the product of any part not furnished by Cooper Wheelock, Inc. In no event shall Cooper Wheelock, Inc. be liable for any claim of any kind unless it is proven that our product was a direct cause of such claim. FURTHER, IN NO EVENT, INCLUDING IN THE CASE OF A CLAIM OF NEGLIGENCE, SHALL COOPER WHEELOCK, INC. BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the preceding limitation may not apply to all purchasers.