

*Thank you for using our products.*

## INSTALLATION INSTRUCTIONS SERIES ET70WP LOW PROFILE WEATHERPROOF SPEAKER STROBE APPLIANCE

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

**GENERAL:**

Cooper Wheelock's Series ET70WP Low Profile Speaker Strobe appliance is UL Listed for indoor/outdoor use under Standard 1638 and Standard 1971 for Visual Signal Appliances, Fire Protective Service and UL Standard 1480 for Speaker Appliances. For outdoor applications the ET70WP must be mounted to a Weatherproof Backbox (IOB). They are designed for multiple power requirements with high dBA output at each power tap. This model offers a choice of field selectable taps, 1/8W to 8W for either 25.0VRMS or 70.0VRMS audio systems. The low profile design incorporates a high efficiency speaker for maximum output at minimum power across a frequency range of 400Hz to 4000Hz, and features a sealed back construction for extra protection and improved audibility. The Low Profile Speaker 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 a Sync Module (SM), Dual Sync Module (DSM), or Wheelock power supplies. The strobes use a xenon flashtube with solid state circuitry enclosed in a polycarbonate lens to provide maximum visibility and reliability for effective visible signaling.

**⚠ WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY. 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.**

**⚠ CAUTION: NOT RECOMMENDED FOR USE AT REFRIGERATOR / FREEZER DOOR ENTRANCES OR OTHER AREAS WITH PERSISTENT CONDENSATIONS.**

**SPECIFICATIONS:**

<i>Table 1: UL Listed Models and Ratings</i>												
Model	Voltage (VRMS)	Speaker							Strobe			
		Reverberant dBA at 10 Feet (Rated Watts)							Regulated Voltage (VDC/VRMS)	Regulated Voltage Range (VDC/VRMS)	Rated Strobe Candela (cd)	
		1/8	1/4	1/2	1	2	4	8			(UL1971)	-40°C (UL1638)
ET70WP-2475C	25/70	77	80	83	86	88	91	93	24	16.0-33.0	30/180 *	115
ET70WP-2475W	25/70	77	80	83	86	88	91	93	24	16.0-33.0	30/180 *	115
ET70WP-24115C	25/70	77	80	83	86	88	91	93	24	16.0-33.0	115	50
ET70WP-24135W	25/70	77	80	83	86	88	91	93	24	16.0-33.0	135	65
ET70WP-24177C	25/70	77	80	83	86	88	91	93	24	16.0-33.0	177	75
ET70WP-24185W	25/70	77	80	83	86	88	91	93	24	16.0-33.0	185	90

\* 180cd on Axis only.

**NOTES:**

1. Strobes will produce 1 flash per second over the "Regulated Voltage" range.
2. All models are listed for indoor and outdoor use. UL 1971 is tested from a temperature range of 32°F to 120°F (0°C to 49°C). UL 1638 is tested from a temperature range of -40°F to +150°F (-40°C to +66°C) with a maximum humidity of 95% RH. The effect of shipping and storage temperatures shall not adversely affect the performance of the appliances when it is stored in the original cartons and is not subjected to misuse or abuse.
3. The maximum supervision voltage is 33 volts DC.
4. Frequency range of speakers is 400-4000Hz. dBA is rated per UL Standard 1480 for Speaker Appliances.

**⚠ CAUTION:** Always operate audio amplifiers and speakers within their specified ratings. Excessive input may distort sound quality and may damage audio equipment. Do not exceed 100% of speaker input voltage per UL 1480. Improper input voltage can damage speaker. If distortion is heard, check for clipping of the audio appliance with an oscilloscope and reduce the amplifier input level or gain level to eliminate any clipping.

<i>Table 2: Strobe Current Ratings (AMPS)</i>						
Maximum RMS Current						
UL Voltage		2475	24115	24135	24177	24185
DC	16-33VDC	0.138	0.300	0.300	0.420	0.420
FWR	16-33VRMS	0.222	0.455	0.455	0.645	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 strobes 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.

**⚠ WARNING:** THESE STROBES 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 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. 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.

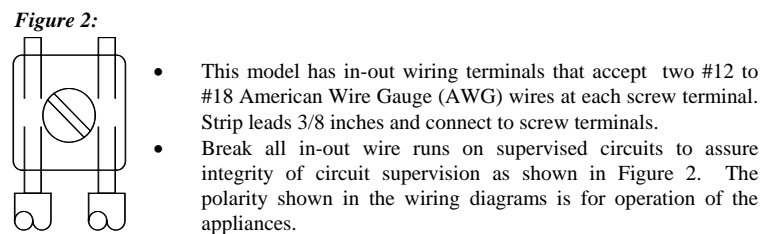
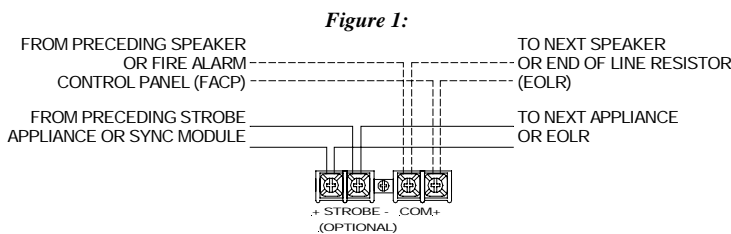
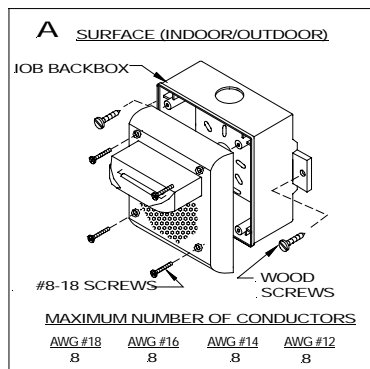
**WIRING AND MOUNTING INFORMATION:**

**⚠ CAUTION:** The following figure shows 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.

**⚠ WARNING:** THIS UNIT MUST BE MOUNTED ON A FLAT SURFACE, SO THAT THE SURFACE COVERS THE ENTIRE BACK SURFACE OF THE BACKBOX. WHEN USED IN AN OUTDOOR APPLICATION OR A NEMA 3R APPLICATION KNOCKOUTS IN THE REAR OF THE BACKBOX MUST REMAIN INTACT.

**⚠ CAUTION:** Two screws must be used to mount backbox securely using both tabs included with the backbox.

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.



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

**GROUNDING:** Connect ground wire to backbox. Install signaling appliance to backbox using mounting screws provided.

**⚠ WARNING:** CHECK ELECTRICAL RATINGS SPECIFIED IN TABLES 1 AND 2 (AS APPROPRIATE) TO ENSURE PROPER ELECTRICAL INPUT. BE SURE THAT SPEAKER WIRING IS CONNECTED TO SPEAKER TERMINALS ONLY AND STROBE WIRING IS CONNECTED TO STROBE TERMINALS ONLY. CHECK TO INSURE THAT WIRING AT FACP IS CORRECT. IMPROPER ELECTRICAL INPUT CAN DAMAGE THE PRODUCT OR CAUSE IT TO MALFUNCTION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

Figure 3: Jumper plug is used to select tap settings which = dBA loudness.

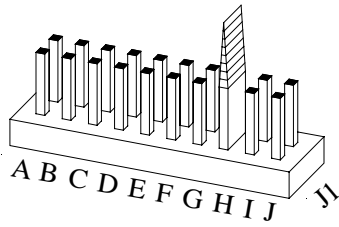


Figure 4: Tap Settings (Factory setting is 70V @ 1/2W (Tap F))

A	B	C	D	E	F	G	H	I	J
○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○

1. Each doubling of rated Watts increases sound output by 3 dBA. Field selectable input terminals are provided on each unit. The following wattage selections are available: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W, & 8W.
2. Each letter corresponds to a plug position of the header located on the printed circuit board. Select voltage and wattage as shown in Table 4.
3. A 10 µF blocking capacitor for DC supervision of audio lines by the FACP is factory wired in series with the speaker input.

NOTE: Use needle nose pliers to pull and properly insert the jumper plug to the desired tap setting.

**⚠ WARNING: THE SPEAKER STROBE APPLIANCE MUST BE FIELD SET TO THE DESIRED dBA SOUND OUTPUT LEVEL BEFORE IT IS INSTALLED. THIS IS DONE BY PROPERLY INSERTING JUMPER PLUGS 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.**

Position	25V	70V
A	8	-----
B	4	-----
C	2	-----
D	1	8
E	1/2	4
F	1/4	2
G	1/8	1
H	-----	1/2
I	-----	1/4
J	-----	1/8

**MOUNTING PROCEDURES:**

1. The knock-out opening on the backbox is sized for a 1/2" conduit and matching connector. Be sure that a proper watertight conduit fitting is used to connect the backbox for outdoor/severe environment applications. 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.
2. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the appliance.
3. 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.
4. Connect field wires to the terminal block (polarity must be observed).
5. Bend the field wires up 90° at the connection to the terminal block, then carefully push the field wires into the backbox by hand.
6. Carefully press the unit to the backbox, verifying that it is in contact with the gasket all the way around. It should not be resting on the lip of the backbox.
7. Screw the speaker strobe to the IOB using the #8-18 screws supplied.

**⚠ WARNING: THE ET70WP 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. 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, 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.**

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

If this appliance is required to produce a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to manufacturer's installation 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 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.

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

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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.