

## INSTALLATION INSTRUCTIONS LOW PROFILE WEATHERPROOF SPEAKER STROBE APPLIANCE

**IMPORTANT** – All audible and visual signaling appliances must be installed in accordance with all applicable national and local fire alarm codes and any other required regulatory agencies.

Series SET-WP 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 SET-WP must be mounted to a Weatherproof Backbox (MT-SUR-BOX). 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 connected to a notification appliance circuit running the Siemens sync protocol.

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.

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

**NOTE:** Refer to P/N 315-096363 for the maximum number of appliances on a single notification appliance circuit.

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

**SPECIFICATIONS:**

Model*	Voltage (VRMS)	Speaker							Strobe		
		Reverberant dBA at 10 Feet (Rated Watts)							Operating Voltage (Special Application) Per UL1638 and UL1971 (VDC/VRMS)	Rated Strobe Candela (cd)	
		1/8	1/4	1/2	1	2	4	8		(UL1971)	-40°C (UL1638)
SET-S17-CW-WP SET-CS17-CW-WP	25/70	77	80	83	86	83	91	93	16.0-33.0	15/180 **	115
SET-S17-WP SET-CS17-WP	25/70	77	80	83	86	88	91	93	16.0-33.0	30/180 **	115
SET-177-C-WP SET-C177-C-WP	25/70	77	80	83	86	88	91	93	16.0-33.0	177	75
SET-185-WP SET-C185-WP	25/70	77	80	83	86	88	91	93	16.0-33.0	185	90

\* Available in red and white.  
\*\* 180cd on Axis only.

**NOTES:**

1. Strobes will produce 1 flash per second over the Input 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.

Maximum RMS Current				
UL Voltage	30/180cd	177cd	185cd	
DC	16-33VDC	0.146	0.445	0.445
FWR	16-33VRMS	0.235	0.684	0.684

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: These notification appliances are UL Listed as "Special Application". They are intended to be used only with Siemens notification appliance circuits.

These strobes were tested to the 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.

Note: Refer to the installation instructions for the appropriate NAC to find the maximum allowed voltage drop. Use this value along with the current draw for the appliance to determine the allowable wire resistance. The maximum wire resistance 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.

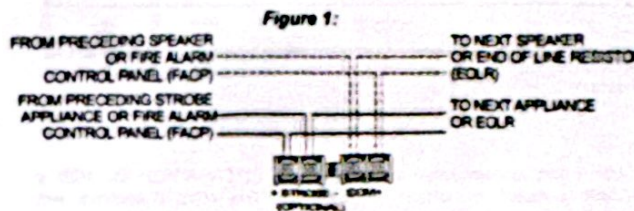
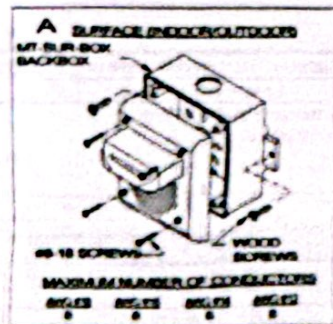
**WARNING:** MAKE SURE THAT THE TOTAL RMS CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES DO NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS OF ANY FUSES ON THE CIRCUITS TO WHICH THESE APPLIANCES ARE WIRED. OVERLOADING POWER 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.

**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.



- This 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 2. The polarity shown in the wiring diagrams is for operation of the appliances.

**Important Wiring Note**  
**For Speaker/Strobes with Strobe being used for Sync Operation**  
 Do not connect speaker part to a source of Siemens Sync Protocol  
 Strobe part must be connected to a source of Siemens Sync Protocol. The sync strobe lights must be connected to a compatible signal circuit with appropriate voltage, with a source of Siemens Sync Protocol wired electrically before the sync strobes. See the installation instructions provided with the source of Siemens Sync Protocol for additional wiring information for the strobe section.

**Important Wiring Note**  
 Individual wires (especially heavy gauge wire) should be bent at 90 deg before attaching to screw. Wiring should then carefully be pushed back into back box to minimize stress on the terminal blocks.

**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.

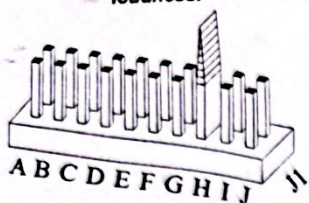


Figure 4: Tap Settings (Factory setting is 70V @ 1/2W (Tap F))

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 MT-SUR-BOX using the #8-18 screws supplied.

**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, SIEMENS 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. SIEMENS 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 185cd and 177cd setting is listed for use in sleeping or non-sleeping areas when installed in accordance with appropriate NFPA Standards and the AHJ.

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.

**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.

# IMPORTANT PRODUCT WARNING AND LIMITATION INFORMATION FOR AUDIBLE AND VISUAL NOTIFICATION DEVICES

## GENERAL INFORMATION



### **WARNING-**

Failing to read, understand and follow the information in this document and the associated product installation documentation could result in **serious** injury and damage of property or **severe loss** of life and property.

### **IMPORTANT-**

The following information should be read and understood thoroughly **BEFORE INSTALLATION** by the installing party **AND AFTER INSTALLATION** by the using and maintaining parties. The following information should also be kept on file and made available for future reference by subsequent re-installing, using and maintaining parties.

It is the original purchaser's/installer's responsibility to insure the above occurs. Additional copies of the information contained and referred to in this document are available upon request from the original manufacturer as labeled on the product. This document is not intended as a training manual or a substitute for the services of qualified personnel in the system design, application, installation, maintenance and testing of notification devices nor does it cover all possible conditions which might arise in improper use of these devices. Notification devices are designed for use as a component of a complete and properly functioning protective signalling system as defined by (but not limited to) the latest codes of The National Fire Protection Association (NFPA), Underwriter's Laboratories (UL), The National Electrical Code (NEC), The Occupational Safety And Health Administration (OSHA), and The Local Authority Having Jurisdiction (AHJ) (i.e., Local, County, state and Federal agencies and/or Building/Fire Protection Codes, guidelines and laws.) The above listed should also be consulted in matters of system design, installation, operation, maintenance and testing. As a component, the notification device(s) must rely on the rest of the system for both primary and backup operating power as well as activation and supervision. Because of this it is **IMPERATIVE** that these Notification Devices be electronically compatible with, and installed in accordance with, other system components and their associated installation requirements. Reference should be made to documentation supplied with other system components to insure compatibility and proper installation. The entire system as a whole should be tested regularly by qualified personnel to insure proper operation of all system components including the notification device(s). Overall system design, compatibility, application, installation, maintenance and testing operations should be performed and/or overseen by competent qualified personnel and approved by the Local Authority Having Jurisdiction.

In general, Notification Devices are to be used to warn (or alarm/alert) local personnel of a serious situation. When the device(s) activate it requires immediate attention to the situation indicated and action according to a predetermined plan. Plans which do not include components of both evacuation and notification of the appropriate local authorities are not recommended. Plans which do not call for immediate attention to the condition indicated should not be considered.

## GENERAL APPLICATION INFORMATION

### **IMPORTANT-**

Proper notification device location and coverage (i.e., number of devices used and, type of sound output, quantity of sound and/or light output, etc.) must be engineered into the design of the overall system. To do this successfully requires proper product, code and guideline knowledge along with extraordinary care and good judgment. In all cases it is strongly recommended that the services of a qualified professional be obtained and that the final results be approved by the Local Authority Having Jurisdiction.

Adverse environmental or hazardous area location of notification devices **NOT** specifically designed for these applications can cause malfunction of the device and the associated signaling system. Reference should be made to the manufacturers specific product installation data to determine proper device usage. Even though a device may be approved or listed for application in a specialized environment or location (i.e., explosion-proof, outdoors, etc.) special care and good judgement should be exercised both in installation and maintenance of these devices. Often times the useful service life of a product will be shortened when it is subjected to severe or adverse conditions.


Coverage or the ability of the notification device to alert local personnel may be affected by various conditions, including but not limited to, ambient noise and light levels, other signaling devices operating concurrently, physical constraints (i.e., relationship of device to occupant in distance; building construction such as: floor, wall and ceiling treatments/doors, walls, insulation; environmental furnishings such as: furniture, drapes, appliances, etc.) and the general physical condition of the occupants (i.e., sight and/or hearing impaired, under the influence of drugs or alcohol, wakened or sleeping, etc.). **VISUAL DEVICES MAY NOT BE SEEN AND AUDIBLE DEVICES MAY NOT BE HEARD IN EVERY CIRCUMSTANCE!**



### **WARNING-**

If you are installing these products you must install them in accordance with all instructions supplied with these products as well as instructions supplied with other associated products connected to them. Remember, property and lives are at risk and rely on your knowledge of current fire protection codes and laws as well as your sound judgement and skill in compatibility, application, installation, testing and maintenance of these products.



 **WARNING-** Some products may have construction such that multiple parts must be assembled (i.e., bell gongs, enclosure doors and backboxes, device connections to a wall or ceiling mounted box, etc.). When installing these products be certain these connections are secure. It will also be prudent to periodically recheck and tighten these connections as part of a regular testing and maintenance program. Failure to do this can cause severe property damage, bodily injury and possibly death.

**WARNING-** Remove all electrical power before installing or performing mechanical maintenance on these products. There are no user serviceable parts inside these products. Electrical shock can cause serious injury or death.

**WARNING-** These products can contain circuitry which can hold high electrical currents even though primary power has been removed. This current can be discharged accidentally if you come into contact with this circuitry. Service should be performed on electrical connections and circuitry only after the product has been properly discharged for a period of time not less than one hour by a knowledgeable electronics technician. Electrical shock can cause serious injury or death.

**WARNING-** These products are designed as a component of a properly functioning fire protection signaling system. As such, all appliances used in this system must be judged and listed electronically compatible and properly installed according to all installation documentation supplied with all components of the system as supplied by the respective manufacturers. Extreme care must be taken to insure the above because once connected all components rely on each other for proper operation (i.e., smoke detectors trip the control panel which in turn trips the notification devices etc.). Failure to follow the above will lead to extreme property loss, injury and death.

**WARNING-** Do not paint over or re-paint these products as it will lead to improper operation along with identification and future maintenance problems.

**WARNING-** Electrical compatibility of these products depends on proper inter-wiring for both supervision and operation. Proper operation of these products also depends on system supplied voltage and current (i.e., Filtered voltage vs. Unfiltered Full Wave voltage; DC current vs. AC current; supply voltage and current capacities with respect to Device loading, connecting wire size, distance, capacity, type and ampacity; etc.) All manufacturer's supplied product information must be consulted and followed for recommendations to insure proper system component operations.

**WARNING-** During construction and throughout the service life of these products environmental dust, dirt, moisture, extreme humidity, harsh chemicals and extreme temperatures can effect the serviceability of these products. Care should be taken to avoid these conditions. Care should also be taken that the product is not damaged during installation and testing. If a product is subjected to the above conditions or appears damaged it should be immediately replaced. An active preventative maintenance, inspection and testing program will aid in identifying the above.

**WARNING-** The quantity and size of wiring used within the system also determines the volume of conductors allowed in electrical boxes per the National Electrical Code (NEC). Boxes should be chosen for the proper device connection physically as well as electrically. Be sure all clearances are maintained so as not to effect the product's operation.

**WARNING-** Qualified personnel should be retained for initial as well as subsequent system testing and maintenance operations. The end user/owner may not have the appropriate knowledge and experience to properly perform these functions. There is no substitution for a regular and thorough testing and maintenance program. To insure they are functional when needed they must be tested for serviceability regularly within a schedule plan which insures all devices will be checked and replaced as needed. A log should be kept to document this testing and maintenance.

**WARNING-** Some visual devices will have sufficient output to cause seizures under certain conditions in people who are positive to visual photic response, such as Epileptics. Direct prolonged viewing of high output visual devices should be avoided. Placarding should be considered and may be required by the Local Authorities Having Jurisdiction.

**WARNING-** Some audible devices are capable of sound pressure levels which will cause temporary and/or permanent hearing loss and damage. Close range and prolonged listening exposure to high output audible devices should be avoided. Placarding should be considered and may be required by the Local Authorities Having Jurisdiction.

**IMPORTANT-** The manufacturer provides a limited equipment warranty on these products to the original purchaser. This warranty is in no way transferrable. The end user may be provided with a separate non-contingent warranty from the original purchaser. In no circumstance will the manufacturer be held liable in matters of damage due to either failure to comply with published product instructions or in the design, specification, application, installation, testing or maintenance of the products supplied. All information provided is subject to change without notice. If specific questions arise please contact the manufacturer.

**IMPORTANT-** This document should be given to the End User/ Owner and kept on file by them for future reference.

