

**MODELS 224XST, 225XST, AND
225XST-I**
INSTALLATION AND SERVICE INSTRUCTIONS
FOR FEDERAL MODELS 224XST, 225XST, AND 225XST-I
FOR USE IN HAZARDOUS LOCATIONS

Address all communications and shipments to:



FEDERAL SIGNAL CORPORATION
Electrical Products Division
Service Department
2645 Federal Signal Drive
University Park, IL 60466-3195

**INSTALLATION AND SERVICE INSTRUCTIONS FOR FEDERAL MODEL 224XST,
225XST AND 225XST-I
FOR USE IN HAZARDOUS LOCATIONS**

 SAFETY MESSAGE TO INSTALLERS, USERS AND MAINTENANCE PERSONNEL

It is important to follow all instructions shipped with this product. This device is to be installed by a trained electrician who is thoroughly familiar with the National Electrical Code and/or Canadian Electrical Code and will follow the NEC and/or CEC Guidelines as well as local codes.

This device should be considered a part of the warning system and not the entire warning system.

The selection of the mounting location for the device, its controls and the routing of the wiring are to be accomplished under the direction of the facilities engineer and the safety engineer. In addition, listed below are some other important safety instructions and precautions you should follow:

- Read and understand all instructions before installing or operating this equipment.
- Never alter the unit in any manner. Safety may be compromised if additional openings or other alterations are made to the unit.
- Do not connect this light to the system when power is on.
- After installation, ensure that the setscrew and threaded joints are properly tightened.
- Keep unit tightly closed when in operation.
- After testing is complete; provide a copy of this instruction sheet to all operating personnel.
- Establish a procedure to routinely check the light installation for integrity and proper operation.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

I. GENERAL.

The Model 224XST, 225XST and 225XST-I Strobe Lights are Visual Signaling Devices intended for hazardous locations. The units are UL Listed Visual Signal Appliances for Hazardous Locations for indoor/outdoor use. Underwriters Laboratories has investigated the Models 224XST, 225XST and 225XST-I to ensure that they comply with the TYPE 4X (watertight and corrosion resistant) and IP66 (dust-tight and protection against heavy seas) enclosure requirements.

The Models 224XST and 225XST-I are available in 24VDC. The Model 225XST is available in 12-24VDC, 120 VAC at 50/60 Hz and 230-240VAC at 50/60 Hz. The Model 224XST is also available in 120VAC at 50/60 Hz and 230-240VAC at 50/60 Hz.

II. INSTALLATION.

A. *Unpacking.*

After unpacking the unit, examine it for damage that may have occurred in transit. If the equipment has been damaged, do not attempt to install or operate the

unit. File a claim immediately with the carrier, stating the extent of damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them.

B. *Mounting.*

NOTE

To comply with the Type 4X and IP66 enclosure requirements, the strobe light must be mounted in the DOME UP position.

The Model 224XST, 225XST and 225XST-I should be installed per the NFPA 70 & 72, STATE and LOCAL CODES and should only be performed with the approval of the authority having jurisdiction.

Pipe Mounting.

The Model 224XST, 225XST and 225XST-I can be mounted on 1/2-inch or 20 mm pipe. The conduit run from the device to the splice box shall not be longer than 10 inches. If metric threads are provided, the enclosure bottom will be identified with a "M20" marking. Mounting hardware and installation details are left to the installer.

NOTE

To prevent the connection from loosening, tighten the fixture to a MINIMUM torque of 5 ft.-lbs. (6.8 N m) after threading in onto the pipe.

C. *Electrical Connections.*



To avoid electrical shock hazards, do not connect wires when power is applied.

For four wire models, when installed, all four wires must be terminated. Failure to terminate both sets of wires (Black/red, or Black/White) will result in a shock or fire hazard.

1. AC Models.

NOTE

The 120 or 230-240 Vac Strobe units are designed to operate on both 50 and 60 Hz electrical power. Special modifications are NOT required for the two different AC line frequencies.

The 224XST AC units are provided with five leads; two black, two white, and one green/yellow. To achieve electrical supervision connect one black to the phase side of the incoming power source and the other black lead to the phase side of the outgoing power. Then connect one white lead to the common (neutral) side of the incoming power source and the other white lead to the common (neutral) side of the outgoing power. Connect the green/yellow lead to earth ground.

The 225XST AC units are provided with three leads; one black, one white, and one green/yellow. Connect the black lead to the phase side of the AC power source. Connect the white lead to the common (neutral) side of the AC power source. Connect the green/yellow lead to earth ground.

2. DC Models.

CAUTION

The DC units are polarity sensitive, and **MAY BE DAMAGED** by incorrect electrical hookup. When connecting the DC strobe unit to the voltage supply lines, **POLARITY MUST BE OBSERVED**. In addition, damage will result if the voltage rating of the model is exceeded.

The Model 224XST DC units are provided with five leads; two red, two black and one green/yellow. To achieve electrical supervision, connect one red (+) lead to the positive side of the incoming power source and the other red (+) lead to the outgoing power source. Then connect one black (-) lead to the negative side of the incoming power source and the other black (-) lead to the negative side of the outgoing power source. If required local building codes, connect the earth ground to the grounding screw located in the mounting hood.

The Model 225XST and 225XST-I, DC units are provided with three leads; one red, one black and one green/yellow. Connect one red (+) lead to the positive side (+) power source terminal and the black (-) lead to the outgoing power source. Then connect one black (-) lead to the negative (-) power source terminal. If required local building codes, connect the earth ground to the grounding screw located in the mounting hood.

III. MAINTENANCE.

WARNING

To prevent receiving an electrical shock, disconnect the fixture from the supply circuit before opening. High voltages are present inside the light assembly. Wait at least 5 minutes after disconnecting power before servicing this unit.

SAFETY MESSAGE TO MAINTENANCE PERSONNEL

Listed below are some important safety instructions and precautions you should follow:

- Read and understand all instructions before operating this system.
- Any maintenance to the light system must be done with the power turned off.
- Any maintenance to the light system must be performed by a trained electrician in accordance with all applicable national and local codes in the country of use.
- Never alter the unit in any manner. Safety of the unit may be compromised if additional openings or other alterations are made.
- The nameplate should not be obscured, it contains cautionary and/or other information of importance to maintenance personnel. Ensure the nameplate remains readable if the housing's exterior is painted.
- If dome is damaged in any way, it **MUST** be replaced.
- After performing any maintenance, test the light system to ensure that it is operating properly.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

A. *Flash Tube Replacement.*

As strobe lights are used, the flash tubes begin to darken, causing the light output to decrease. This darkening is characteristic of flash tubes. The darkening will begin near the base of the tube and progress upward. In addition, as flash tubes age, they may have a tendency to misfire (not fire periodically).

After extended operation, occasionally check for flash tube degradation. Should the flash tube misfire, have a noticeable decrease in light output, glow continuously or darken to a point beyond that shown in Figure 1 — it should be replaced.



High voltages are present inside the light assembly. Wait at least 5 minutes after shutting off the power before servicing this unit.

To change the flash tube, proceed as follows:

1. Disconnect power.
2. Loosen the setscrew, located on the bottom of dome.
3. Grasp the top of the dome and push down while turning the dome counterclockwise approximately 3/4-inch (19 mm).
4. Gently lift dome away. Ensure that the gasket between the dome and base is not lost.
5. Loosen the retaining ring fastening screws approximately 1/2 turn. The retaining ring can then be turned counterclockwise approximately 1/2-inch (13mm) allowing the retaining ring to be lifted free of the unit. The interior lens can now be removed from the unit.
6. Grasp the flash tube by its base and pull it out of the socket, using a gentle “rocking” motion. Install new flash tube, ensuring that the flash tube is fully seated in the socket.
7. Reinstall interior lens.
8. Before replacing the dome, ensure that the gasket is properly seated and shows no signs of cracking or other deterioration. Replace the gasket if it is damaged or shows signs of deterioration.
9. Place the dome over the base, aligning the recesses inside the dome lip with the four pins on the base. Push down on the dome and turn clockwise until it locks in place [approximately 3/4-inch (19mm)].
10. Replace the screw into the bottom of the dome.
11. Test the light for proper operation.

B. *Circuit Board Replacement.*



High voltages are present inside the light assembly. Wait at least 5 minutes after shutting off the power before servicing unit.

1. Disconnect power.
2. Remove the setscrew located at the bottom of the dome.
3. Grasp the top of the dome and push down while turning the dome counterclockwise approximately 3/4-inch (19mm).
4. Gently lift dome away. Ensure that the gasket between the dome and base is not lost.
5. Loosen the retaining ring fastening screws approximately 1/2 turn. The retaining ring can then be turned counterclockwise approximately 1/2-inch (13mm), allowing the retaining ring to be lifted free of the unit. The interior lens can now be removed from the unit.
6. Remove and retain the screws and heat sink clip (DC model only) which secure the power supply circuit board to its mounting plate. Remove the power connector(s) from the P.C. board. Since some strobes are polarity sensitive, connect matching colored wires together.
7. Secure the new circuit board to the mounting plate with the previously removed screws. For DC circuit board, reattach heat sink clip.
8. Install flash tube as described in Section III. A (Flash Tube Replacement). Ensure that the flash tube is fully seated in the socket.
9. Reinstall interior lens.
10. Before replacing the dome, ensure that the gasket is properly seated and shows no signs of cracking or other deterioration. Replace the gasket if it is damaged or shows signs of deterioration.
11. Place the dome over the base, aligning the recesses inside the dome lip with the four pins on the base. Push down on the dome and turn clockwise until it locks in place [approximately 3/4-inch (19mm)].
12. Replace the screw into the bottom of the dome.
13. Test the light for proper operation.

C. *Cleaning Enclosure.*

NOTE

The circuit must be turned OFF and fixture globe MUST be allowed to cool to ambient room temperature before cleaning.

The fixture should be cleaned periodically to maintain maximum light output. Only mild, non-abrasive cleaning agents should be used. The dome should be regularly inspected for scratches and chips, and if damaged, must be replaced.

D. *Service.*

Federal Signal will service your equipment and provide technical assistance with any problems that cannot be handled locally by Federal Signal's Distributor or Manufacturer Representative.

Any unit returned to Federal Signal for service, inspection, or repair must be accompanied by a Return Material Authorization number with a brief explanation of the service being requested and/or the nature of the malfunction. This R.M.A. can be obtained from the local Federal Signal Distributor or Manufacturer's Representative.

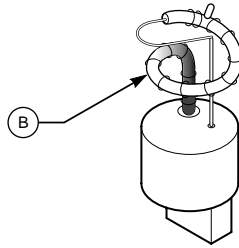
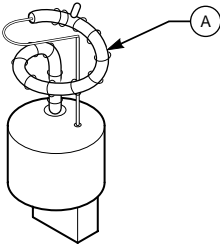
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E. *Replacement Parts.*

Description	Part Number
Exterior Dome, Clear, 120VAC, 240VAC 12-24VDC, 225XST; 24VDC, 224XST; 24VDC, 225XST-I	K8444219C-04
Interior- Lens, Clear	K8550C095A
Interior- Lens, Red	K8550C095A-03
Interior- Lens, Blue	K8550C095A-01
Interior- Lens, Amber	K8550C095A-02
Interior- Lens, Green	K8550C095A-04
Interior- Lens, Magenta	K8550C095A-07
Flash Tube/Trigger Coil Assy.	K8107177A
Circuit Board Assy., 12-24 VDC & 24 VDC	K2001202C-01
Circuit Board Assy., 120 VAC	K2001905A
Circuit Board Assy., 230-240 VAC	K2001905A-01
In-Rush PCB Assy. (24VDC ONLY)	K2001918A
Gasket	K8444286B

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English

A. New flash tube.

B. Used flash tube tends to discolor in areas shown, and should be replaced.



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