



**FEDERAL SIGNAL**  
Safety and Security Systems / **Industrial**

**MODEL FSEX-HI**  
**INSTALLATION AND SERVICE INSTRUCTIONS**  
**FOR FEDERAL MODEL FSEX-HI**  
**VISUAL SIGNAL APPLIANCES FOR**  
**THE HEARING IMPAIRED**  
**FOR USE IN HAZARDOUS LOCATIONS**

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**INSTALLATION AND SERVICE INSTRUCTIONS FOR FEDERAL MODEL FSEX-HI  
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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 and Fire Codes and will follow all 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 is 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 threaded joints are properly tightened.
- Keep the 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 FSEX-HI strobe light is a Visual Signaling Device for Hearing Impaired for use in Hazardous Locations and provides about 63 high intensity flashes per minute. The unit is UL Listed for indoor use on a wall or ceiling in a nonsleeping area and complies with the TYPE 4X (watertight and corrosion resistant) enclosure requirements and Marine Visual Signal Device (saltwater).

For the Electrical Ratings and Light Dispersion Pattern of the Model FSEX-HI, reference Table 1 and Figure 1.

This equipment is suitable for Class I, Division 1, Groups C and D; Class I, Division 2, Groups A, B, C and D, Class II, Division 1, Groups E, F and G; Class III and non-hazardous locations.

This device is intended for permanent installation and operation in accordance with Title 46, Code of Regulations, Parts 110-113, or Title 33, Code of Federal Regulations Part 183, Sub-part I, Section 183.410, and the applicable requirements of the American Boat and Yacht Council, Inc. and/or ANSI/NFPA 302, "Fire Protection Standard for Pleasure and Commercial Motor Craft."

## II. INSTALLATION

### A. *Unpacking*



Damaged domes can lead to explosions, which could result in serious injury or death.

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*

The Model FSEX-HI, strobes are designed for hearing impaired applications and should be installed per the NFPA 70 and 72, STATE and LOCAL CODES. Alternate installation locations and/or orientations should only be performed with the approval of the authority having jurisdiction. Reference Figure 1 for the light dispersion pattern of the FSEX-HI.



**EXPLOSION HAZARD—This light fixture is not backward compatible with older products. Do not use this light fixture with the Series A versions of model CMXC, CMXC-R, PMXC, PMXC-R, WMXC, or WMXC-R mounting accessories. Failure to follow this warning may result in personal injury or death.**

Refer to instruction manual 25500050 for ceiling mount, pipe mount, and wall mount instructions.

### C. *Electrical Connections*



**SHOCK HAZARD — To avoid electrical shock hazards, do not connect wires when power is applied.**

The DC Model's Operating Voltage Range Limits: 16 – 33 Vdc.



**TESTED LIMITS — This product was only tested to its rated operating voltage range. It was not tested to 80% and 110% of these limits.**

## CAUTION

**REVERSE POLARITY/MISWIRING** — 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.

Model FSEX units are provided with incoming and outgoing power-connection terminals to allow electrical supervision (see Figures 3 and 4).

1. Connect the incoming (+) positive side of the power source to the terminal marked “L+” and the outgoing (+) positive power source to the terminal marked “B.”
2. Connect the incoming (–) negative side of the power source to the terminal marked “N–” and the outgoing (–) negative side of the power source to the terminal marked “A.”
3. If required by local building codes, connect the earth ground wire to the green screw in the pendant mount.

C. To prevent galling and ease future maintenance, ensure that the pendant mount threads are clean and lubricated. Thread the fixture clockwise into the pendant mount and tighten it securely.

### III. MAINTENANCE

#### ▲WARNING

**EXPLOSION HAZARD—Do not disconnect the equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.**

#### ▲WARNING

**EXPLOSION HAZARD—To prevent ignition of hazardous atmospheres, disconnect the fixture from the supply circuit before opening.**

#### ▲WARNING

**EXPLOSION HAZARD—Substitution of any component may impair suitability for Class I, Division 2.**

### ▲ 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. The 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 the glass 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.

#### 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 5, it should be replaced.



**SHOCK HAZARD — Strobe and HID light systems generate high voltages. Disconnect power and wait 5 minutes before opening the unit. Failure to follow this warning could result in serious injury or death.**



**HANDLE STROBE LAMPS CAREFULLY — Strobe lamps get hot enough to burn you. Always allow these lamps to cool before handling them. Strobe lamps are also pressurized and, if broken, can result in flying glass. Failure to follow this warning may result in personal injury.**



**DO NOT TOUCH LAMP WITH BARE HANDS — Oil deposits on the glass portion of the strobe lamp can cause the glass to fracture during use. If you are unsure if the glass has been handled without gloves, clean the glass using a soft cloth and isopropyl alcohol before installing the lamp.**

To change the flash tube:

1. Disconnect power.
2. Remove the glass dome assembly from the main casting by rotating the dome assembly counterclockwise.



**EXPLOSION HAZARD — The effectiveness of the explosion-proof enclosure must be maintained. Do not damage the dome or threads while disassembling or reassembling the unit. Lubricated joints exposed for long periods of time may attract small particles of dirt or other foreign materials. Body and cover joints should be reassembled immediately.**

4. Gently pull the flash tube from the socket. A rocking motion is most helpful when installing or removing the tube.
5. Replace the flash tube with the appropriate replacement part listed in paragraph III. E. Replacement Parts.
6. Replace the glass dome assembly and tighten it securely.

B. *Cleaning the Enclosure*

**NOTE**

**Maintenance procedures sometime require fixtures to be hosed down for good housekeeping. The circuit must be turned OFF and fixture dome 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 glass dome should be regularly inspected for scratches and chips, and if damaged, must be replaced.

C. *Lubrication*

The threaded joints should be kept well lubricated with a corrosion-inhibiting grease such as petrolatum or soap-thickened mineral oils. If corrosive products have accumulated on explosion-proof joints and cannot readily be removed with solvents, the parts should be discarded and replaced.



**EXPLOSION HAZARD — Never use an abrasive material or file to remove corrosive products from threaded surfaces. In extremely corrosive locations, equipment should be periodically inspected to guard against unusual deterioration and possible porosity, since this may weaken the enclosure structurally.**

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.

If 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.

Address all communications and shipments to:

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E. *Replacement Parts*

<b>Description</b>	<b>Part Number</b>
Flash Tube	K8107159
Glass Dome Assy., Red	K8436147-01
PCBA Low-Inrush	K2001918-01
Mechanism, 24 Vdc	K8436107-04

F. *Optional Accessories*

<b>Description</b>	<b>Model</b>
Ceiling Mount, Red	CMXC-R-SB
Wall Mount, Red	WMXC-R-SB
Pendant Mount, Red	PMXC-R-SB

Table 1

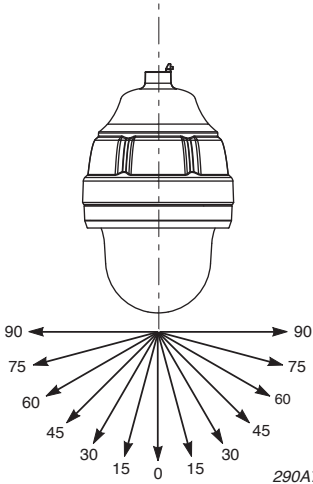
Electrical Ratings	
Operational Voltage Range	16-33 Vdc
On-Axis Candelas	150
Flashes/minute	63 ± 2
Frequency, Hz	DC
Max. DC Operating Current, A	1.9

Underwriters Laboratories only evaluated this product to the stated operational voltage range. It was not evaluated to 80% to 110% of the voltage range.



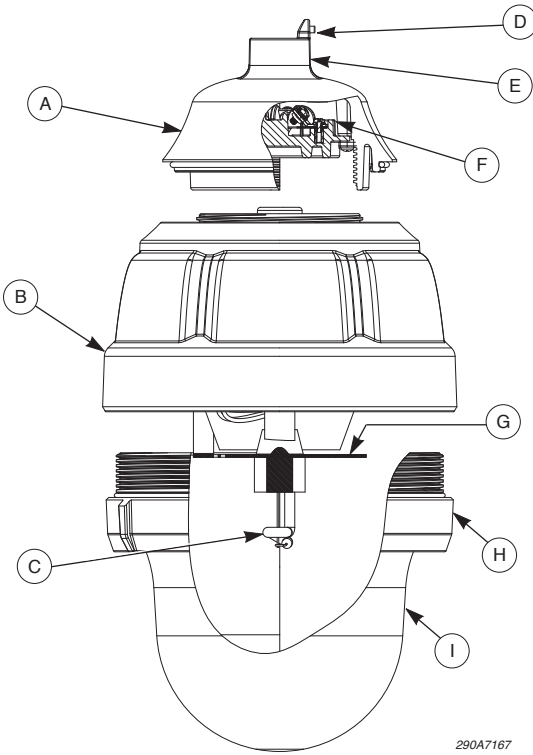
**1**

Model FSEX-HI Signaling Device for the Hearing Impaired Light Dispersion Pattern per UL1971.



<b>Horizontal Light Dispersion Pattern</b>		
Degrees	Min. Output (cd) w/o Internal Lens	Min. Output (cd) w/ Internal Lens
0°	150.0	15.00
5-25°	135.0	13.50
30-45°	112.5	11.25
50°	82.5	8.25
55°	67.5	6.75
60°	60.0	6.00
65°	52.5	5.25
70°	52.5	5.25
75°	45.0	4.50
80°	45.0	4.50
85°	37.5	3.75
90°	37.5	3.75

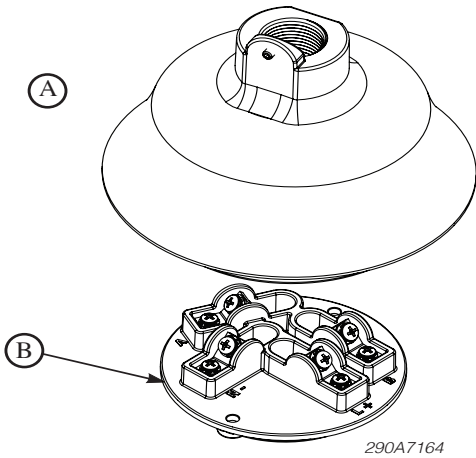
2



- A. Pendant mount
- B. Main housing
- C. Strobe flash tube
- D. Set screw
- E. 3/4" N.P.T. conduit
- F. Terminal block
- G. Mechanism assembly
- H. Glass dome assembly
- I. Glass dome

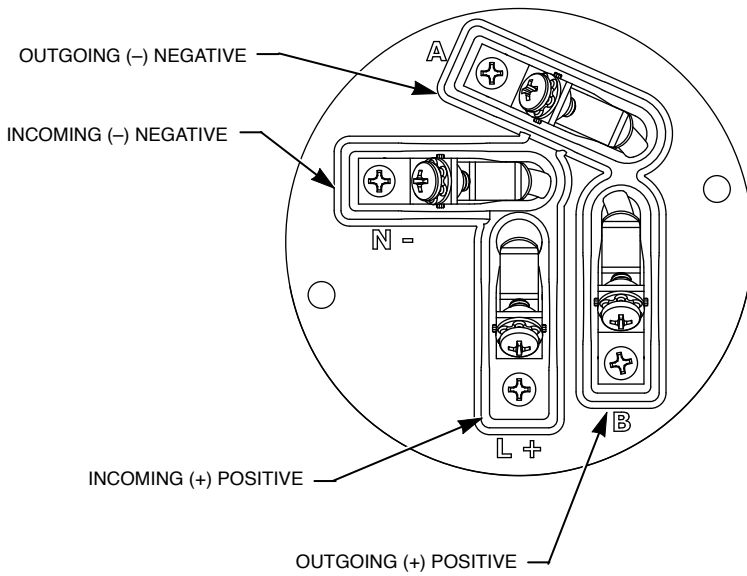
290A7167

3



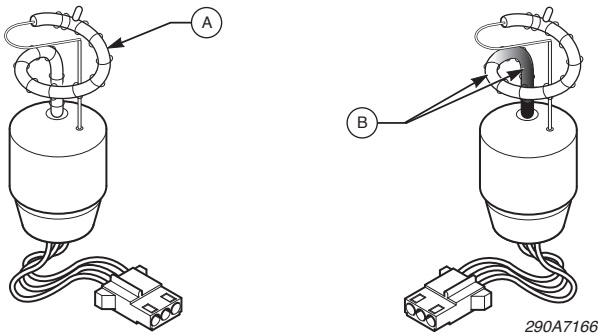
- A. Not suitable for use with through branch circuit conductors.
- B. Terminal block

4



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5



**English**

A. New flash tube.

B. Used flash tubes tend to discolor in the areas shown, and should be replaced.