



**Limited Warranty:** This product's limited warranty can be found at [www.fedsig.com/SSG-Warranty](http://www.fedsig.com/SSG-Warranty)

**SAFETY MESSAGES TO INSTALLERS AND USERS**   
Products should be installed by a licensed electrician and follow all safety instructions. Failure to do so may result in property damage, serious injury, or death.

- To avoid electrical shock hazards, do not connect wires when power is applied.
- To be an effective warning device, this product produces bright light that could be hazardous to eyesight. Do not stare directly at the light. Rapid flashing could induce photosensitive epilepsy.
- Never alter the unit in any manner. Safety in hazardous locations may be endangered if additional openings or alternations are made.
- **WARNING - EXPLOSION HAZARD:** Do not disconnect while circuit is live or unless the area is known to be free of ignitable concentrations.

**OVERVIEW** - The 191XL is suitable for use in Class I, Division 2, Groups A, B, C and D; Class II, Division 1, Groups E, F & G; Class III OR non-hazardous locations only.

The 191XL-CN is suitable for use in Class I, Zone 2, and Zone 22 or non-hazardous locations only.

This strobe light can be mounted to a Federal Signal Model LHWB bracket. If installed in this way, the entire assembled device is suitable only for Class I, Div. 2, Groups A, B, C, and D; Class II, Div. 2, Groups F and G; Class III locations.

The Model 191XL Series LED Beacon is a UL listed visual signal for operation in harsh environments and hazardous locations and has been investigated by UL as meeting Type 4X and IP66 enclosure requirements. The unit is rated for operation on 100 Vac to 265 Vac, 50/60 Hz, 0.21 A; 277 Vac, 50/60 Hz, 0.13A; or 24 Vdc/ac 50/60 Hz, 0.40 A. The 191XL Series can be supplied with colors of red, amber, green, blue, and clear. The 191XL Series is factory-set to operate at 60 flashes per minute. There is an option to operate the LED Beacon in Steady Mode. (See "Changing from Flash Mode to Steady Mode.") Models are available for pipe mounting (191XL Series) or surface mounting (191XL-S Series).

These devices are intended for permanent installation and operation in accordance with Title 46, Code of Federal 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."

**Unpacking the Device:** After unpacking the device, examine it for damage and verify parts. If a part is missing or damaged, do not attempt to install, and contact Federal Signal Customer Support.

**Table 1 Electrical ratings**

|                           |                                                          |                  |         |
|---------------------------|----------------------------------------------------------|------------------|---------|
| Operating Voltage         | 24 Vdc/ac                                                | 100–265, 277 Vac | 277 Vac |
| Flashes/Minute            | 60 FPM                                                   | 60 FPM           | 60 FPM  |
| Maximum Operating Current | 380 mA                                                   | 210 mA           | 130 mA  |
| Frequency                 | DC/50/60                                                 | 50/60            | 50/60   |
| DC In-Rush Current        | 1.75 A at 24 Vdc for 5 ms                                |                  |         |
| AC In-Rush Current        | 2.0 A at 85 Vac and 1.5 A at 265 and 277 Vac for 0.25 ms |                  |         |

**Table 2 Installation environment ratings**

|                                                                                  |                                                      |
|----------------------------------------------------------------------------------|------------------------------------------------------|
| Ambient Storage Rating                                                           | –55°C to +70°C                                       |
| Ambient Operating Rating                                                         | –50°C to +66°C (191XL),<br>–35°C to +66°C (191XL-CN) |
| Type 4X (watertight and corrosion-resistant) and indoor/outdoor use              |                                                      |
| IP66 (dust-tight and protection against heavy seas) and outside type (saltwater) |                                                      |

**Table 3 Ambient and operating temperature range**

|                                       | Temperature Code or Maximum Temperature, °C |             |         |              |             |         |              |             |         |
|---------------------------------------|---------------------------------------------|-------------|---------|--------------|-------------|---------|--------------|-------------|---------|
|                                       | 40°C Ambient                                |             |         | 55°C Ambient |             |         | 66°C Ambient |             |         |
| Hazardous Locations                   | 24 V                                        | 100–265 Vac | 277 Vac | 24 V         | 100–265 Vac | 277 Vac | 24 V         | 100–265 Vac | 277 Vac |
| Class I, Div 2, Groups A, B, C, and D | T6                                          | T6          | T5      | T5           | T5          | T5      | T4A          | T4A         | T5      |
| Class II, Div 1, Groups E, F, and G   | T6                                          | T6          | T6      | T6           | T6          | T6      | T6           | T6          | T6      |
| Class III                             | T6                                          | T6          | T6      | T6           | T6          | T6      | T6           | T6          | T6      |

**Table 4 Ambient and operating temperature range**

| Temperature Code at 66°C Ambient |        |
|----------------------------------|--------|
| Hazardous Locations              | T-code |
| Class I, Zone 2                  | T4     |
| Zone 22                          | T85°C  |

**IMPORTANT:** To prevent the connection from loosening, tighten the fixture to a MINIMUM torque of 5 ft-lb (6.8 N-m) after threading it onto the pipe.

4. Thread the fixture onto the 3/4" pipe and secure it with the set screw.

## Mounting the Beacon

### Pipe Mounting

#### **⚠ WARNING**

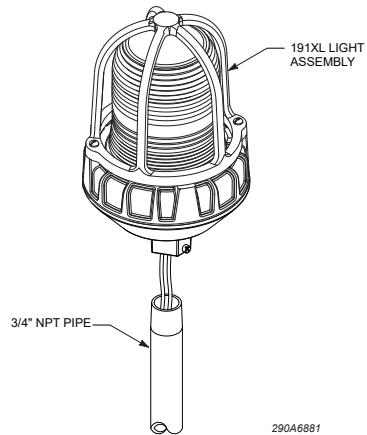
**EXPLOSION HAZARD:** To reduce the risk of fire or explosion, do not install the beacon in a hazardous location if the operating temperature exceeds the hazardous atmosphere's ignition temperature. Before proceeding, consult the product nameplate, and determine the operating temperature of the beacon.

**NOTE:** To comply with NEC Section 300-14, which requires a minimum of 6 inches (15.25 cm) of free conductor at a junction, when mounting the Model 191XL Series, the mounting pipe used to join the unit to a splice box should be no longer than 10 inches (25.4 cm).

The Model 191XL Series has provisions for mounting a 3/4" pipe and can be mounted in any position.

1. Before mounting the beacon, ensure that the mating threads are clean.
2. To prevent the ingress of water and dust, apply conductive sealant to the conduit threads prior to mounting. If non-conductive sealant is used, the enclosure must be earthed via the provided internal grounding wire/grounding screw to ensure proper grounding continuity.
3. In high-humidity environments when units are mounted dome down, condensation may occur in the conduit system. Use properly rated conduit seals/drains to prevent moisture from entering the fixture.

**Figure 1 Pipe Mounting**

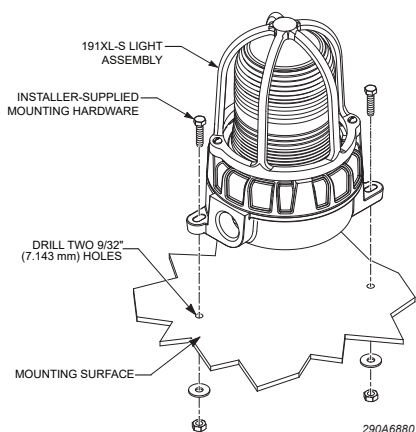


### Surface Mounting

To surface mount the beacon:

1. Use the mounting base as a template to mark the location of the two mounting holes.
2. Drill a 9/32" (7.143 mm) hole at each mark.
3. Secure the beacon to the mounting surface with installer-supplied hardware.

**Figure 2 Surface-mounted beacon**



## Wiring the Beacon

### **⚠ WARNING**

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

### **⚠ WARNING**

**EXPLOSION HAZARD:** Do not disconnect the beacon while the circuit is live unless the area is known to be free of ignitable concentrations. Keep the beacon tightly closed when in operation.

Wiring must comply with the National Electrical Code or Canadian Electrical Code and the local authority having jurisdiction.

The Model 191XL Series LED Beacon should be installed per the NEC or CEC, STATE and LOCAL CODES. Alternate installation locations and/or orientations should be performed only with the approval of the authority having jurisdiction. In addition, the unit can be mounted using an optional ceiling mount or optional wall mount.

### **⚠ WARNING**

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

**NOTE:** 191XL Series beacons that are 24 V models are designed to operate on AC and DC supply voltages. The 120-240 Vac model is designed to operate 100 Vac to 265 Vac at 50/60 Hz. See Table 1 for electrical ratings.

## **NOTICE**

**REVERSE POLARITY/MISWIRING:** The 191XL Series is not polarity sensitive, but **MAY BE DAMAGED** by incorrect electrical hookup. Damage will result if the voltage rating of the particular model is exceeded.

**NOTE:** Field terminations made inside the surface mount enclosure will require the printed circuit board (PCB) assembly to be removed from the housing. See Figure 3 and follow steps 1-4 and 6-8 of "Changing from Flash Mode to Steady Mode" for the PCB removal and installation process.

The surface mount enclosure is not suitable for feed-through branch-circuit conductors.

## Wiring 120-240 Vac, 277 Vac Models

The 120-240 Vac and 277 Vac models are supplied with three 24-inch leads: white, black, and green/yellow. Connect the black lead to the phase (hot) side of the power source and the white lead to the common (neutral) side of the power source. If required, the green/yellow lead in the housing is provided for connection to an earth ground.

## Wiring 24 Vac/dc Models

The 24 Vac/Vdc models are supplied with two 24" leads, one red and one black. Connect the red (+) lead to the positive or phase (hot) side of the power source and the black (-) lead to the negative or common (neutral) side of power source.

## Safety Message to Maintenance Personnel

### **⚠ WARNING**

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 power turned off.
- Any maintenance to the light system must be performed by a trained electrician who is thoroughly familiar with all applicable national and local codes in the country of use.
- Do not connect this beacon to the system when power is on.
- Do not disconnect the beacon while the circuit is live unless the area is known to be free of ignitable concentrations. Keep the beacon closed tightly when in operation.

- Never alter the unit in any manner. Safety of the unit may be affected if additional openings or other alterations are made to the internal components or housing.
- The nameplate should NOT be obscured, as it contains cautionary and/or other information of importance to maintenance personnel. Ensure that the nameplate remains readable if the housing exterior is painted.
- If the 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.

## Changing from Flash Mode to Steady Mode

### **⚠ WARNING**

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

### **⚠ WARNING**

**EXPLOSION HAZARD:** Do not disconnect the beacon while the circuit is live unless the area is known to be free of ignitable concentrations. Keep the beacon closed tightly when in operation.

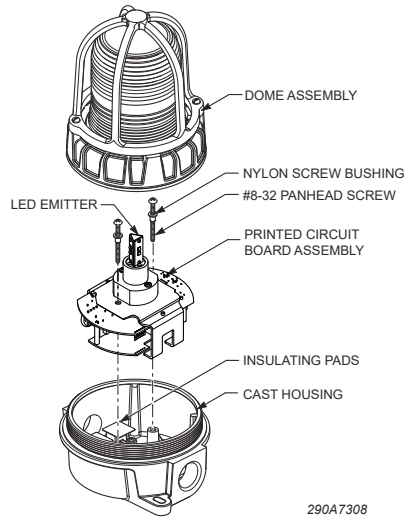
### **⚠ WARNING**

**EXPLOSION HAZARD:** To maintain the vapor-tight enclosure, do not damage the dome or threads while disassembling or reassembling the unit. Lubricated threaded joints exposed for long periods of time may attract small particles of dirt or other foreign materials. Housing and cover joints should be reassembled immediately, with all the threads fully engaged.

To change from the default Steady Mode to Flashing Mode.

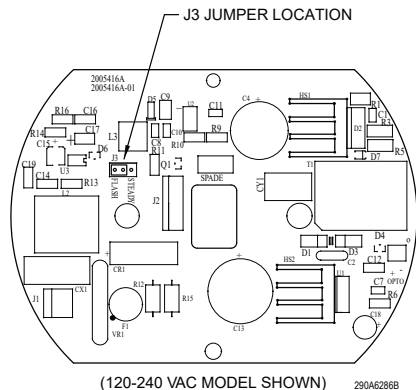
1. Disconnect power to the beacon.
2. Remove the threaded dome assembly by twisting it counterclockwise. See Figure 3.

**Figure 3 PCB removed from housing**



3. Using a No. 2 Phillips screwdriver, remove two #8-32 panhead screws holding the printed circuit board assembly to the diecast housing. Be sure to retain the two nylon screw bushings isolating the bracket from the screws.
4. Gently lift the printed circuit board (PCB) assembly from the housing and turn the assembly over to access the component side of the printed circuit board.
5. Locate jumper J3 and lift the jumper to remove it from "Flash" setting. Re-seat the jumper over the pins labeled "Steady." See Figure 4.

**Figure 4 Location of jumper J3 on PCB**



6. Place the printed circuit board assembly back into the housing, making sure that four insulating pads are seated between the metal bracket and diecast housing. The bracket must be oriented so that the notch in the bracket is aligned with the ground

screw in the diecast housing. This step must be followed carefully to prevent arcing and dielectric failure.

- Slide two #8-32 panhead screws into the screw bushings and tighten the screws to secure the printed circuit board assembly to the diecast housing.
- Thread the dome assembly back onto the housing by turning it clockwise to tighten it.

#### **WARNING**

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

- Reconnect the beacon to the power.
- Test the device by applying power and verifying the steady operation of the LED lamp.

## Cleaning the Fixture

#### **WARNING**

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

Maintenance procedures sometimes require fixtures to be hosed down for good housekeeping. The circuit should be turned off prior to hosing down the fixture.

Clean the fixture periodically to maintain maximum light output. Use only mild, non-abrasive cleaning agents. Inspect the glass dome regularly for scratches and chips. If damaged, it **MUST** be replaced.

## Lubricating the Threaded Joint

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

## Maintenance and Service

**Technical Assistance:** Contact our Technical Support Team at +1 708-587-3587 or [signalsupport@fedsig.com](mailto:signalsupport@fedsig.com).

**Repair Service:** A return authorization is required. Contact your Authorized Distributor or Federal Signal Customer Support. Defective products under warranty will be repaired or replaced at Federal Signal's discretion.

**Product Returns:** Returns require authorization from Federal Signal. Contact your Authorized Distributor for more information on our return policy or to request a return.

## Replacement Parts

#### **WARNING**

**EXPLOSION HAZARD: Substitution of components may impair suitability for Class I, Division 2.**

Contact the factory for spare parts availability and part numbers. Typical spare parts are listed below. Due to certification, certain component parts are not available for field replacement. Units with this type of damage must be either replaced entirely or returned to Federal Signal for service.

| Description            | Part Number |
|------------------------|-------------|
| Dome Assembly, Amber   | K8449078-01 |
| Dome Assembly, Blue    | K8449078-06 |
| Dome Assembly, Clear   | K8449078-04 |
| Dome Assembly, Green   | K8449078-07 |
| Dome Assembly, Red     | K8449078    |
| Dome Assembly, Magenta | K8449078-05 |
| Gasket                 | K8449080    |
| Grease, 8 oz Tube      | KR81-05-01  |
| Dome Guard             | K8449090    |
| LED Emitter, Amber     | K14700030-A |
| LED Emitter, Blue      | K14700030-B |
| LED Emitter, Green     | K14700030-G |
| LED Emitter, Red       | K14700030-R |
| LED Emitter, White     | K14700030-W |



**FEDERAL SIGNAL®**

**Safety and Security Systems**

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