



FEDERAL SIGNAL
Safety and Security Systems

Model LP800 Solaris[®] Beacon



Installation and Maintenance Manual



2645 Federal Signal Drive • University Park, IL 60484-3167
Phone: 708-534-3400 • 800-264-3578 • Fax: 800-682-8022
www.fedsig.com

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Safety Message

For Installers and Service Personnel of Warning Light Equipment

⚠ WARNING

People's lives depend on your proper installation and servicing of Federal Signal products. It is important to read and follow all instructions shipped with this product. In addition, listed below are some other important safety instructions and precautions you should follow:

Before Installation or Service

Qualifications

- To properly install or service this equipment, you must have a good understanding of automotive mechanical and electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment. Always refer to the vehicle's service manuals when performing equipment installations on a vehicle.

Light Hazards

- To be an effective warning device, this product produces bright light that can be hazardous to your eyesight when viewed at a close range. Do not stare directly into this lighting product at a close range or permanent damage to your eyesight may occur.
- Do not install the light system in an area that would block, impair or blind the driver's vision. Ensure that the light system is mounted in a position that is outside of the driver's field of vision, so the driver can safely operate the vehicle.
- Federal Signal power supplies and light heads are designed to work together as a system. Combining lighthoods and a power supply from different manufacturers may reduce the warning effectiveness of the lighting system and may damage the components. You should verify or test your combination to ensure the system works together and meets federal, state and local standards or guidelines.

Electrical Hazards

- Strobe systems present a shock hazard because they use high

voltage to operate. Do not handle strobe cables, the power supply or bulbs or remove the lens while the equipment is connected. Strobe systems can also hold their charge even after they have been turned off. After disconnecting power to the unit, wait five minutes before handling any parts of the strobe system.

- A light system is a high current system. For the system to function properly, make a separate negative (–) connection and positive (+) connection. Connect all negative connections to the negative battery terminal and install a suitable fuse on the positive battery terminal connection as close to the battery as possible. Ensure that all wires and fuses are rated correctly to handle the device and system amperage requirements.
- In order for it to function properly, make a separate ground connection. If practical, connect to the negative battery terminal. At a minimum, attach to a solid metal body or chassis part that provides an effective ground path as long as the equipment is to be used.
- Never attempt to install aftermarket equipment that connects to the vehicle wiring without reviewing a vehicle wiring diagram available from the vehicle manufacturer. Ensure that your installation will not affect vehicle operation or mandated safety functions or circuits. Always check the vehicle for proper operation after installation.
- The lighting system components, especially light bulbs, strobe tubes, LEDs, and the outer housing, get hot during operation. Be sure to disconnect power to the system and allow the system to cool down before handling any components of the system.
- Do not mount a radio antenna within 18 inches (45.7 cm) of the lighting system. Placing the antenna too close to the lighting system could cause the lighting system to malfunction or be damaged by strong radio fields. Mounting the antenna too close to the lighting system may also cause the radio noise emitted from the lighting system to interfere with the reception of the radio transmitter and reduce radio reception.

- Do not attempt to wash any unsealed electrical device while it is connected to its power source.

During Installation and Service

- DO NOT get metal shavings inside the product. Metal shavings in the product can cause the system to fail. If drilling must be done near the unit, place an ESD-approved cover over the unit. Inspect the unit after mounting to be sure there are no shavings present in or near the unit.
- DO NOT connect this system to the vehicle battery until ALL other electrical connections are made, mounting of all components is complete, and you have verified that no shorts exist. If the wiring is shorted to the vehicle body or frame, high current conductors can cause hazardous sparks resulting in electrical fires or flying molten metal.
- DO NOT install equipment or route wiring (or the plug-in cord) in the deployment path of an airbag.
- If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- Before mounting any components, check the manual to be sure that the component you are installing is suitable for use in that area of the vehicle. Many components are not suitable for use in the engine compartment or other extreme environmental exposure areas.
- Before drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged. Remove all burrs from drilled holes. To prevent electrical shorts, grommet all drilled holes through which wiring passes. Also, ensure that the mounting screws do not cause electrical or mechanical damage to the vehicle.
- Refer to the manual packed with the lighting system for proper electrical connections, additional precautions and information.
- Because vehicle roof construction and driving conditions vary, do not drive a vehicle with a magnetically mounted warning

light installed. The light could fly off the vehicle causing injury or damage. Repair of damage incurred because of ignoring this warning shall be the sole responsibility of the user.

- Locate the light system controls so the VEHICLE and CONTROLS can be operated safely under all driving conditions.

After Installation or Service

- After installation, test the light system to ensure that it is operating properly.
- Test all vehicle functions, including horn operation, vehicle safety functions and vehicle light systems, to ensure proper operation. Ensure that the installation has not affected the vehicle operation or changed any vehicle safety function or circuit.
- Scratched or dull reflectors, mirrors or lenses reduces the effectiveness of the lighting system. Avoid heavy pressure and use of caustic or petroleum based products when cleaning the lighting system. Replace any optical components that may have been scratched or crazed during system installation.
- Do not attempt to activate or de-activate the light system controls while driving in a hazardous situation.
- You should frequently inspect the light system to ensure that it is operating properly and that it is securely attached to the vehicle.
- After installation and testing are complete, provide a copy of these instructions to instructional staff and all operating personnel.
- File these instructions in a safe place and refer to them when maintaining and/or re-installing the product.

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

Overview of the LP800 Solaris Beacon

The LP800 Solaris Beacon is an LED light source that provides a reliable signal with 14 flashing patterns. The LP800 Solaris Beacon has two Solaris reflectors with 15 powerful LEDs. The available colors are red, amber, or blue. The light can operate on 10- to 30-volt power source.

Unpacking the Product

After unpacking the product, inspect it for damage that may have occurred in transit. If it has been damaged, 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.

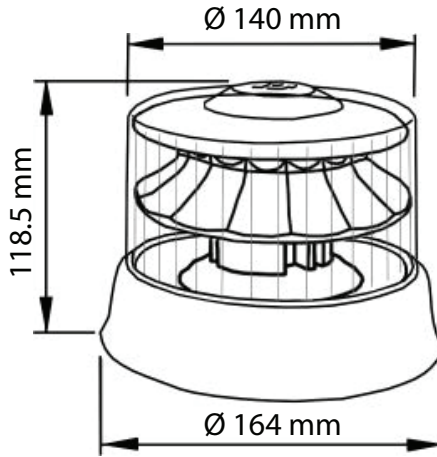
Preparing for the Installation

To prepare for the beacon installation, assemble these installer-supplied materials:

- 18 AWG (1 mm²) wire for lengths up to 15 ft (5 m) or minimum 16 AWG (1.5 mm²) wire for lengths greater than 15 ft (5 m).
- Fuseholder with 5 A fuse

Selecting a flash patten is optional and should be completed during the installation. For more information, see “Selecting a Flash Pattern” on page 18.

Figure 1 LP800 Solaris



Product Specifications

Input Voltage	10 Vdc to 30 Vdc
Nominal	12.8 Vdc or 25.6 Vdc
Input Current, Amber (nominal)	2 A at 12.8 Vdc pulsed, 0.8 avg. 1 A at 25.6 Vdc pulsed, 0.4 avg.
Dimensions	
Height	4.67 in (118.5 mm)
Diameter	6.45 in (164 mm)
Weight (permanent mount/ pipe mount)	1.54 lb (0.7 kg)
Approvals	SAE J1318, J845 Class 1, J845 Class 2
Operating temperature	-20°C to 50°C

Permanently Mounting the Beacon

⚠ WARNING

LIGHT HAZARD: *This product contains a high-intensity LED device. To prevent permanent eye damage, DO NOT stare into the light beam at close range.*

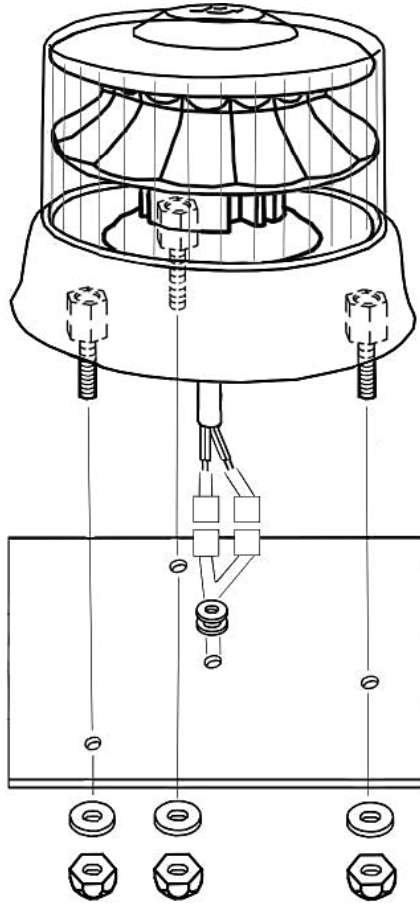
NOTICE

DRILLING PRECAUTIONS: *Before drilling holes, check the area to ensure you do not damage vehicle components. All drilled holes should be deburred and all sharp edges should be smoothed. All wires going through drilled holes should be protected by a grommet or convolute/split-loom tubing*

To permanently mount the beacon, do the following:

1. Place the supplied template (“Figure 8 Template for Permanent Mounting” on page 21) on the mounting surface and scribe the locations of the three mounting holes and hole for the cable.
2. Remove the template.
3. Drill three $\text{\O} 9/32$ in (7 mm) holes at the scribed mounting hole locations. Drill one $\text{\O} 25/64$ (10 mm) hole at the scribed hole for the cable.
4. Place the supplied grommet in the hole drilled for the cable, and then feed the cable through the grommet.
5. Using the supplied hardware, mount the beacon to the mounting surface.

Figure 2 Vehicle permanent mount

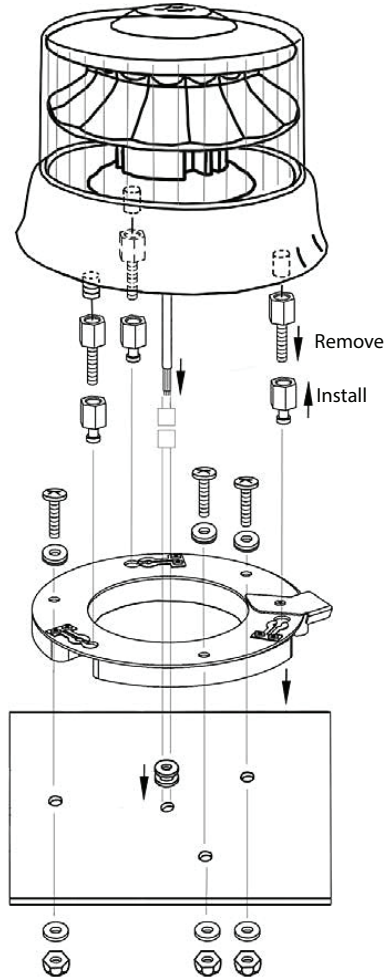


Needed material (Not supplied)

The following list the materials you need to install the light:

- Drill
- 6 mm wrench
- Ø 9/32" Bit (7 mm)
- Ø 25/64" Bit (10 mm)

Figure 3 LP800-BASE

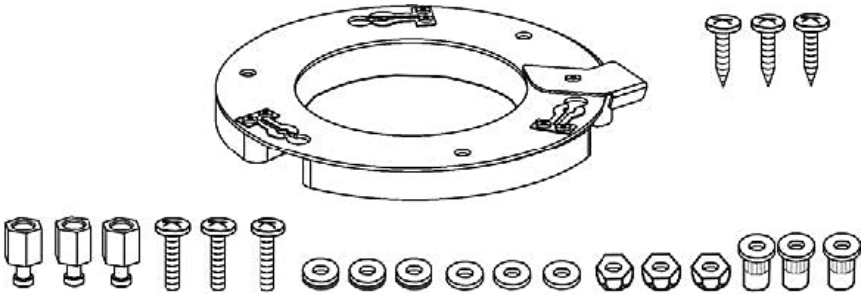


Needed material (Not supplied)

The following list the materials you need to install the light:

- Drill
- 6 mm wrench
- Ø 13/64" Bit (5 mm)
- Ø 25/64" Bit (10 mm)

Figure 4 LP800-BASE Kit Contents



Wiring the Mounted Beacon

NOTICE

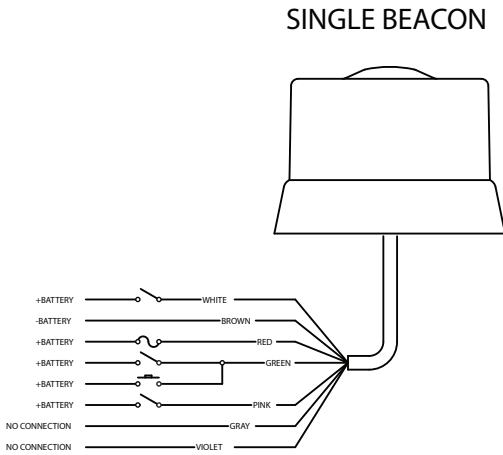
ENSURE CORRECT INPUT VOLTAGE: To avoid damage to the light, ensure that the input voltage is the same as the voltage rating of the light. Ensure that correct polarity is observed. Also ensure that unit is properly fused.

Wiring the Single Beacon

To wire the single beacon, do the following:

1. See Figure 5. Connect the red, white, green, and pink conductors as required. “Table 1 Wire Functions” on page 18 details the function of each conductor.
2. Connect the brown wire from the beacon to a known good vehicle ground as close to the beacon as possible.

Figure 5 Wiring the Single Beacon

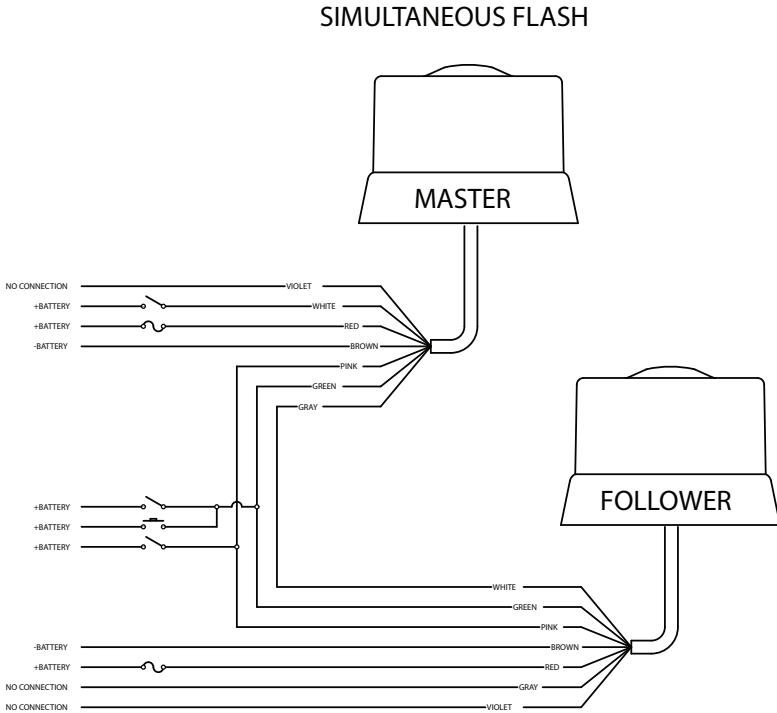


**Wiring the Dual Beacon
Simultaneous Flash**

To wire the simultaneous beacon, do the following:

1. See Figure 6. Connect the gray, red, white, green, and pink conductors as required. “Table 1 Wire Functions” on page 18 details the function of each conductor.
2. Connect the brown wire from the beacon to a known good vehicle ground as close to the beacon as possible.

Figure 6 Wiring the Simultaneous Flash



Alternate Flash

To wire the alternate beacon, do the following:

1. See Figure 7. Connect the violet, red, white, green, and pink conductors as required. “Table 1 Wire Functions” on page 18 details the function of each conductor.
2. Connect the brown wire from the beacon to a known good vehicle ground as close to the beacon as possible.

Figure 7 Wiring the Alternate Flash

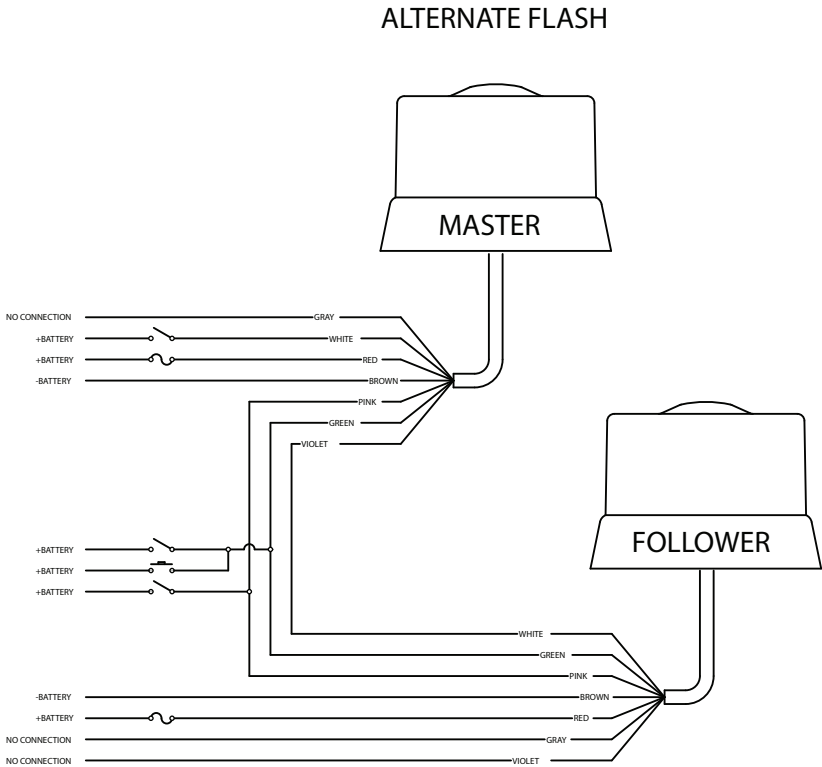


Table 1 Wire Functions

Wire Color	Function (Switch Type)
White	(On/Off)
Brown	Ground
Red	+ Battery, 5 A fuse
Green	Pattern select (Momentary) and/or cruise (on/off)
Pink	Dim mode (on/off)
Gray	Simultaneous flash
Violet	Alternating flash

Selecting a Flash Pattern

Selecting a flash pattern is optional and should be done during installation. The flash pattern is advanced by momentarily touching the green wire to positive voltage. See Table 2 for a list of flash patterns. Once you have selected the flash pattern, connect the green wire to an on/off switch to use the cruise feature of the beacon or to cut and insulate to ensure it does not make unwanted contact with the vehicle.

Table 2 Flash Patterns

Number	Flash Pattern
1	Medium Single
2	Fast Single
3	Single
4	4 x single/ 2 x quad
5	7 x strobe
6	Chopped double
7	Double
8	Fast double
9	Triple
10	Fast Triple
11	Pulsing double
12	Quad
13	Pulsing quad
14	5 x
15	Test (steady)

Maintaining the Beacon

Frequently inspect the beacon to ensure that it is securing attached to the vehicle and operates properly. Clean the beacon with a mild soap and a soft rag.

Cleaning the Lens

Polycarbonate and ABS parts

To extend the life of this product, Federal Signal recommends periodic cleaning using correct methods and cleaners. For general cleaning, do not use an abrasive cleaner or highly alkaline. Furthermore, do not scratch the plate with a rubber brush, razor blade, or with other sharpened instrument. Do not clean polycarbonate and ABS parts under strong sunlight or high temperatures, as this could cause staining.

To clean this product, apply warm water and wash it with neutral pH soap. Use a soft cloth or sponge to remove any remaining dirt. Finally, rinse with cold water and dry with a soft cloth to avoid water spots.

Should fine scratches or a haze appear on the lenses, remove with a nonabrasive, high quality, one-step automotive paste cleaner/wax and a soft cloth.

NOTICE

CLEANING LENSES: The use of other materials such as strong detergents, solvents, petroleum products, etc. can cause crazing (cracking) of the plastic lenses. If crazing of lenses does occur, reliability of light for emergency purposes may be reduced until lenses are replaced.

Getting Technical Support

For technical support, please contact:
Federal Signal Corporation
Service Department
Phone: 1-800-433-9132
Fax: 1-800-343-9706
Email: empserviceinfo@fedsig.com

Getting Repair Service

The Federal Signal factory provides technical assistance with any problems that cannot be handled locally.

Any units returned to Federal Signal for service, inspection, or repair must be accompanied by a Return Material Authorization (RMA). Obtain a RMA from a local Distributor or Manufacturer's Representative.

Provide a brief explanation of the service requested, or the nature of the malfunction.

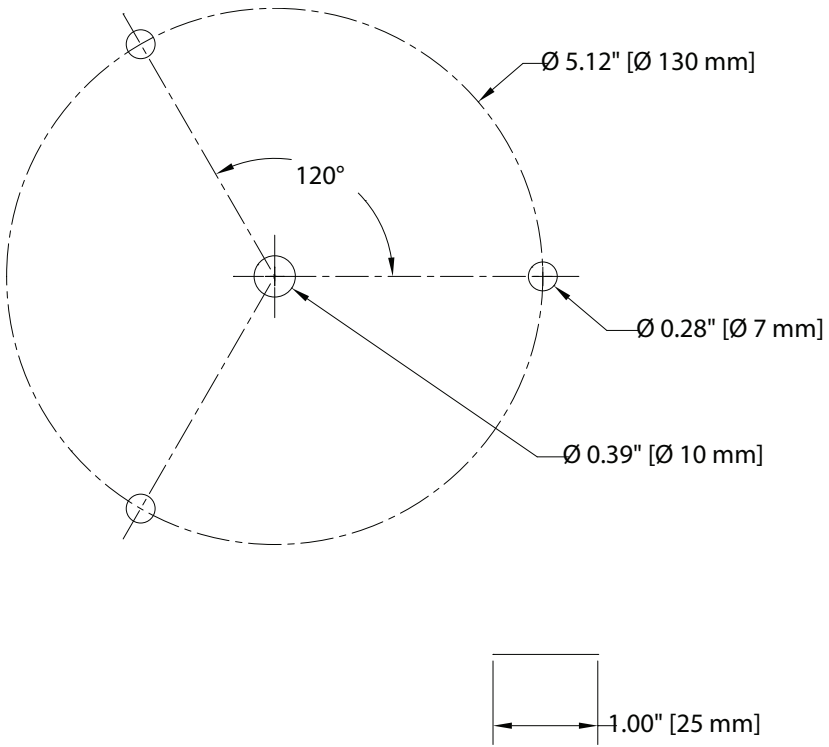
Address all communications and shipments to the following:

Federal Signal Corporation
Service Department
2645 Federal Signal Dr.
University Park, IL 60484-3167

Getting Replacement Parts

This product contains no user serviceable parts. Contact Federal Signal at the phone number below for warranty repairs.

Figure 8 Template for Permanent Mounting





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