

Reliant™ Light Bar



Installation, Maintenance, and Service Manual

Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at www.fedsig.com/SSG-Warranty. A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to info@fedsig.com or call +1 708-534-3400.

This limited warranty is in lieu of all other warranties, express or implied, contractual or statutory, including, but not limited to the warranty of merchantability, warranty of fitness for a particular purpose and any warranty against failure of its essential purpose.



FEDERAL SIGNAL
Safety and Security Systems

2645 Federal Signal Drive
University Park, Illinois 60484-3167

www.fedsig.com

Customer Support

Police/Fire-EMS: 800-264-3578 • +1 708 534-3400

Work Truck: 800-824-0254 • +1 708 534-3400

Technical Support 800-433-9132 • +1 708 534-3400

All product names or trademarks are properties of their respective owners.

Contents

Safety Messages.....	5
Safety Message to Installers and Service Personnel of Warning Lights.....	5
Safety Messages to Operators of Federal Signal Sound/Light Systems	8
An Overview of the Reliant Light Bar	9
LED Lights, Colors, and Flash Patterns	9
Electrical System.....	9
Controller Options	9
Product Specifications.....	9
Reprogramming the Light Bar.....	10
Reprogramming the Light Bar	10
SignalMaster® Operation: Internal (Factory Default) or External.....	10
MODE 1, 2, 3, and INTERSECTION	10
FRONT and REAR lights: CUTOFF (default) or ENABLE	11
Making the Electrical Connections for Reprogramming.....	11
Wiring the Reliant Light Bar in the Vehicle	12
Planning the Electrical Installation.....	12
Connecting Power to the Light Bar	13
Low Power	15
Maintaining and Servicing the Reliant.....	16
Cleaning the Light Bar Lens.....	16
Replacing a PCB.....	17
Troubleshooting the Light Bar.....	19
Getting Technical Support and Service.....	19
Getting Repair Service.....	19
Ordering Replacement Parts	20

Figures

Figure 1 Electrical connections for reprogramming the light bar	11
Figure 2 Cable entry location.....	13
Figure 3 Relay for isolating devices with large filter capacitors.....	14
Figure 4 Ground screw	17
Figure 5 Separated side assemblies.....	17
Figure 6 Locations of ROC PCBs.....	18

Tables

Table 1 Dimensions.....	9
Table 2 Light specifications	10
Table 3 Electrical and temperature.....	10
Table 4 SignalMaster warning patterns (internal SM control))	15
Table 5 Troubleshooting tips.....	19
Table 6 Replacement parts	20

Safety Messages

For your safety, read and understand this manual thoroughly before installing, operating, and servicing the Reliant[™] light bar. The safety messages presented in this section and throughout the manual are reminders to exercise extreme care at all times. Read and understand the safety instructions and keep them close at hand for reference. To download copies of this manual, go to www.fedsig.com/resource-library or call the Federal Signal Service Department at 1-800-433-9132, 7 AM to 5 PM, Monday through Friday (CT).

Safety Message to Installers and Service Personnel of Warning Lights

WARNING

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

- In order 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 maintain safe vehicle operation.
- Federal Signal power supplies and light heads are designed to work together as a system. Combining light heads and a power supply from different manufacturers may reduce the warning effectiveness of the lighting system and may damage the components. Verify or test your combination to make sure 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. In order for the system to function properly, a separate negative (-) connection and positive (+) connection must be made. All negative connections should be connected to the negative battery terminal and a suitable fuse should be installed 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.

- 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. Disconnect power to the system and allow the system to cool down before handling any components of the system.
- Halogen light bulbs and strobe tubes are pressurized and, if broken, can burst and result in flying glass. Always wear gloves and eye protection when handling these components.
- Do not mount a radio antenna within 18 inches 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 this or any other electrical device while it is connected to its power source. Exposure to liquid while the product is connected to the power source may result in an electrical shock and personal injury and may short circuit and damage the product.

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 ensure there are no shavings present in or near the unit.
- To avoid a battery explosion, always disconnect the negative battery cable first and reconnect it last. Avoid causing a spark when connecting near or to the battery. The gases produced by a battery can cause a battery explosion that could result in vehicle damage and serious injury.
- 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 verify 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.

- The service life of light bulbs and strobes tubes will be shortened if the glass portion is touched during installation. Use gloves when handling these components. If the glass portion has been touched, clean the glass carefully with isopropyl alcohol.
- When drilling into a vehicle structure, ensure 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. Ensure that the mounting screws do not cause electrical or mechanical damage to the vehicle.
- To avoid denting the roof of the vehicle, place the light bar mounting feet as close to outer edge of the roof as possible.
- Roof damage can occur if the hook adjustment bolts are over-tightened. Torque the adjustment bolts to 6 ft-lb to 7 ft-lb. Install keeper plates.
- 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.
- If a seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- 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 will reduce 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 deactivate the light system control while driving in a hazardous situation.
- 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.
- Do not use a pressure washer to clean the light bar. Failure to heed this notice will damage the light bar.
- File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product.

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

Safety Messages to Operators of Federal Signal Sound/Light Systems

WARNING

People's lives depend on your safe operation of Federal Signal products. It is important to read and follow all instructions shipped with the products. Listed below are some other important safety instructions and precautions you should follow:

- Do not attempt to activate or deactivate the light system control while driving in a hazardous situation.
- Although your warning system is operating properly, it may not be completely effective. People may not see or heed your warning signal. You must recognize this fact and continue to drive cautiously.
- Situations may occur that obstruct your warning signal when natural and man made objects are between your vehicle and others, such as raising your hood or trunk lid. If these situations occur, be especially careful.
- All effective sirens and horns produce loud sounds that may cause, in certain situations, permanent hearing loss. You and your passengers should consider taking appropriate safety precautions, such as wearing hearing protection.
- The effectiveness of an interior mounted warning light depends on the clarity, the tinting, and the angle of the glass it is being placed behind. Tinting, dirt defects, and steeply angled glass reduce the light output of the warning light. This may reduce the effectiveness of the light as a warning signal. If your vehicle has dirty, tinted, or steeply angled glass, use extra caution when driving your vehicle or blocking the right of way with your vehicle.
- 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.
- It is important that you fully understand how to safely operate this warning system before use.
- Operate your vehicle and the light/sound system in accordance with your department's Standard Operating Procedures.
- If a selected function does not perform properly or if any of the lamps remain illuminated when the control is off, disconnect the power connector from the control unit and contact the nearest service center.
- At the start of your shift, ensure that the entire warning light system and the siren system is securely attached and operating properly.

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

An Overview of the Reliant Light Bar

The Reliant™ light bar is a single-level LED light bar with ROC (Reliable On-Board Circuitry™) and Solaris® LED technologies. ROC eliminates approximately 85 percent of potential failure points by incorporating a printed circuit board (PCB) in one assembly to substantially reduce the number of electrical connections. Solaris S2 LED modules use offset, complex reflector surfaces for accurate beam-shaping and the highest optical efficiency. The reflectors' overlapping, 360-degree lighting eliminates weak spots and provides off-axis warning around the light bar.

LED Lights, Colors, and Flash Patterns

The microprocessor inside the light bar supplies three priority operational modes and a library of flash patterns. To increase the safety of officers, pedestrians, and motorists, the light bar has standard front and rear cutoff, dimming, and intersection warning.

Multi-color heads are available with up to two different colored LEDs, eliminating the loss of primary warning colors in takedown, alley, and directional warning positions. Individual Reliant light heads can flash between red, blue, amber, or white.

Electrical System

The Reliant light bar is protected against reversed polarity damage. The Reliant Light Bar can be installed in any vehicle with a 12-volt negative-ground electrical system.

Controller Options

Flash patterns are controlled through the light bar CAT5 communication cable. The cable connects to Federal Signal Convergence network controllers or the Serial Interface Module (Part Number 858303641).

With the Serial Interface Module, the Reliant Light Bar can be activated by Federal Signal light bar controllers or by individual low-current switch boxes.

Other advanced features of the Reliant light bar include:

- A high degree of reliability through the use of advanced microprocessors and other integrated circuits.
- High output, long-life LEDs with no bulbs to change.

Product Specifications

Operating and technical specifications for the Reliant™ light bar are listed in this section by model.

Table 1 Dimensions

Size (L x W x H)	47.6 x 11.6 x 1.3 inches (120.9cm x 29.5cm x 3.3cm)
Weight*	20.5 lb (9.3 kg)

**with standard mounting feet*

Table 2 Light specifications

Lighting Option	Current Draw	Lamp Technology	Reflector Style
LED (all heads)	1.0 A in Steady-Burn Mode	High-brightness LED	Offset, compound curve, polished reflector

Table 3 Electrical and temperature

Electrical Potential	Current Draw (50 % Flash Rate)	Operating Temp.
12.8 Vdc	13.0 A	-40°F to 149°F (-40°C to 65°C)

Reprogramming the Light Bar

⚠ WARNING

HEAVY OBJECT: Use lifting aids and proper lifting techniques when removing or replacing this product. Failure to heed this warning may cause personal injury.

Carefully unpack the light bar assembly and any other products included in the shipment. Inspect them for damage that may have occurred during shipping. If a product has been damaged, do not install or operate it. Immediately file a claim with the carrier describing the damage.

Carefully check all envelopes, shipping labels, and tags before removing or destroying them. If you are missing any parts, contact Customer Support at 1-800-264-3578, 7 AM to 5 PM, Monday through Friday (CT).

Reprogramming the Light Bar

Although the Reliant™ light bar is configured and programmed at the factory, you may want to change the default settings and flash patterns before installation. Before you begin, decide if you want to change these default settings.

SignalMaster® Operation: Internal (Factory Default) or External

The internal operation uses the onboard SignalMaster controller in the light bar to generate directional warning patterns. With Internal operation, an external SignalMaster controller is not needed. A standard low current switch box can activate the internal SignalMaster controller.

MODE 1, 2, 3, and INTERSECTION

- MODES 1 through 3 are most often selected by a progressive slide switch, which enables the driver to turn on the light bar without looking down. You can select a pattern for each mode from the light bar's library of 26 patterns.
- The INTERSECTION flash pattern is typically a high activity pattern that attracts attention to the vehicle as it approaches an intersection. You can select a pattern from the library and choose one of three ways to turn on and off the pattern. The INTERSECTION flash pattern overrides the three priority modes.

NOTE: If the SignalMaster flash pattern is turned on, it overrides the current flash pattern.

FRONT and REAR lights: CUTOFF (default) or ENABLE

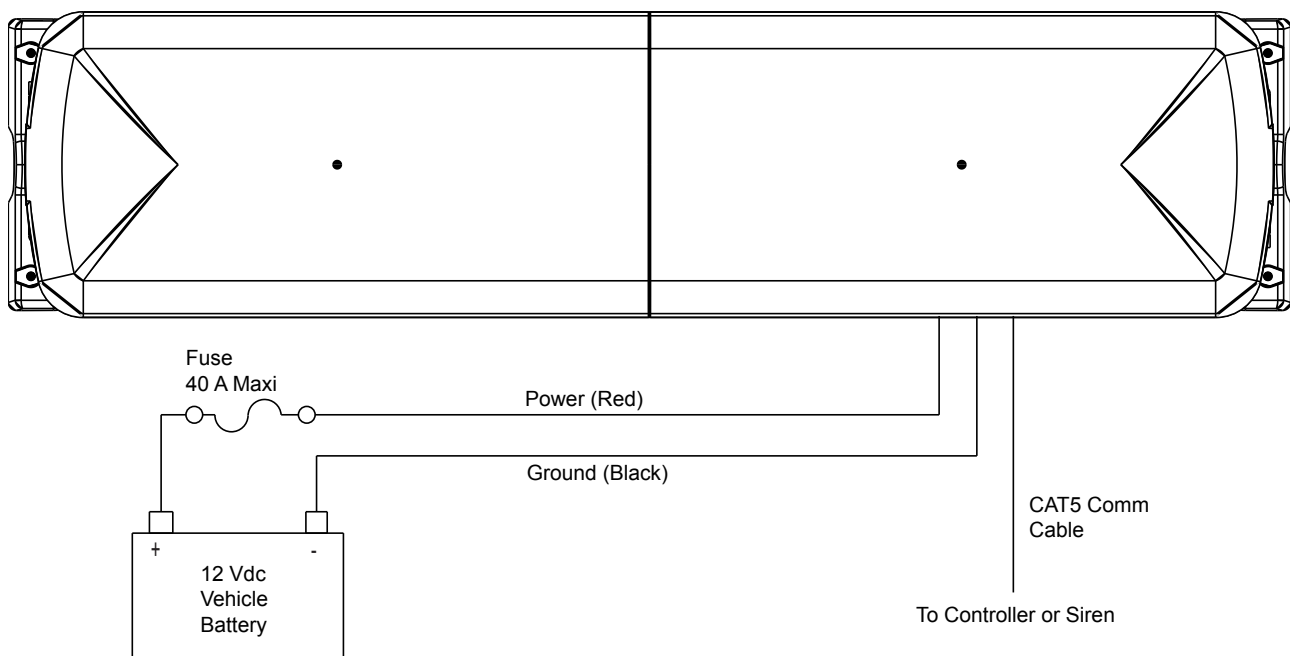
- Set these options after you change the default settings for MODE and INTERSECTION flash patterns. CUTOFF turns OFF the front or rear LEDs when 12 Vdc is applied to the FRONT or REAR light control wire. ENABLE turns ON the front or rear LEDs when 12 Vdc is applied.

Making the Electrical Connections for Reprogramming

To supply power to the light bar, use a fully-charged 12-volt automotive battery and follow these steps:

- Place the light bar on a sturdy, flat surface.
- Plug the CAT5 communication cable from the light bar into the controller. See Figure 1.

Figure 1 Electrical connections for reprogramming the light bar



- Attach the black ground power line to the negative battery (–GND) terminal.
- Attach the red power line through a 40 A MAXI® fuse to the positive battery (+BAT) terminal.

Refer to the instructions supplied with the controller or Serial Interface for additional connections and programming information.

Wiring the Reliant Light Bar in the Vehicle

Before proceeding, ensure that the light bar has been installed on the vehicle roof in accordance with the instructions included with the mounting kit. Depending on the type of vehicle and mounting system feature, there are two options available for installing the light bar to the roof of the vehicle: hook-on mounting or permanent mounting.

⚠ WARNING

INSTALLATION PRECAUTION: Do not mount a radio antenna within 18 inches 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.

Planning the Electrical Installation

The light bar is completely wired at the factory and does not require any additional internal wiring. All the conductors necessary for control of any and all basic and optional functions are contained in the CAT5 cable. The basic light functions of the Reliant™ must be controlled by a installer-supplied control head.

To prevent damage to the light bar and vehicle and to ensure that all equipment operates properly, carefully plan where to mount and wire the light bar and controlling equipment:

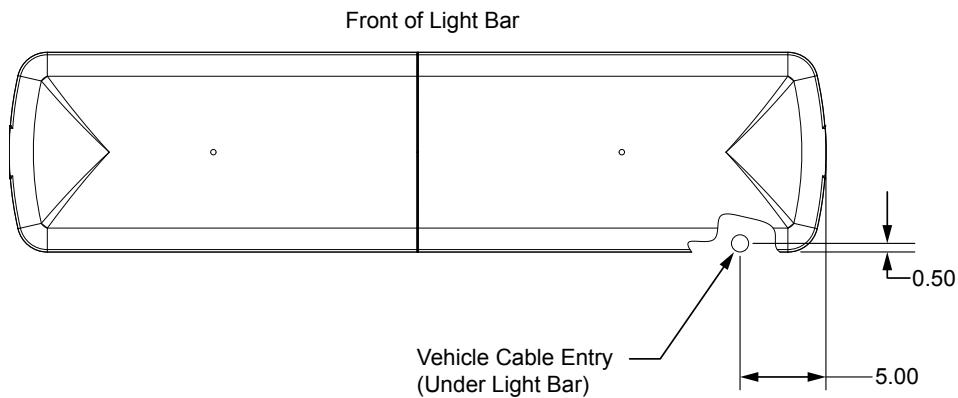
1. Verify that the light bar and mounting hardware fit the vehicle.
2. Determine where to mount the light bar on the vehicle.
3. Determine where to mount the controlling equipment:
 - Trunk or remote location
 - Console

⚠ WARNING

AIRBAG DEPLOYMENT: Do not install equipment or route wiring in the deployment path of an airbag. Failure to observe this warning will reduce the effectiveness of the airbag or potentially dislodge the equipment, causing serious injury or death.

4. Decide where to route wiring around airbag areas.
5. Decide where to route the light bar power and ground wires. When planning wire routing, ensure that there is at least a 10-inch service loop between the light bar cables' exit and where the cables enter the vehicle. This distance is noted by a wire tie on the power and ground wires. See Figure 2 for recommend vehicle cable entry location relative to the light bar.

Figure 2 Cable entry location



6. To make wiring easier, remove the seats, spare tire, and pull down the headliner where needed.
7. Separate all electronic equipment wiring from two-way radio equipment wiring.
8. To avoid interference, keep two-way radio antennas a minimum of 18 in (45.7 cm) away from warning equipment.
9. Whenever possible, run full wire lengths. DO NOT splice the wires.
10. Do not coil excess wire.
11. After drilling holes for wires, de-burr them, smooth sharp edges, and insert grommets to protect the wires from chafing.
12. When you frame ground the equipment, use the manufacturer-supplied ground locations in the vehicle. Ensure that the location is free of paint, dirt, and other contaminants.

IMPORTANT: After the installation, frequently inspect the light bar and mounting feet to ensure that all fasteners and brackets are tight.

Connecting Power to the Light Bar

NOTE: Plan the location of the wire routing hole in the vehicle roof so that the power and communication cables do not have tight bends and have some slack to allow disconnection on removal.

⚠ WARNING

BATTERY EXPLOSION: To avoid a battery explosion, always disconnect the negative battery cable first and reconnect it last. Avoid causing a spark when connecting near or to the battery. The gases produced by a battery can cause a battery explosion that could result in vehicle damage and serious injury.

⚠ WARNING

SEAT REMOVAL PRECAUTION: If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment. Failure to follow this warning can cause serious injury or death.

NOTICE

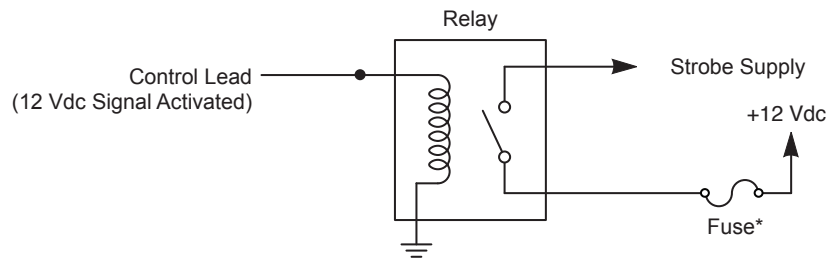
REVERSE POLARITY / MISWIRING: Reverse polarity or incorrect voltage may damage the light. To avoid damage to the light, ensure that the battery voltage is the same as the voltage rating of the light and that the correct polarity is observed. If you are connecting to a cigarette lighter plug or 12 V outlet, connect the positive wire to the center terminal and connect the negative wire to the outer terminal.

To make the power connections:

1. Ensure that the lines are adequately fused as shown in Figure 1 on page 11.
2. From the light bar, route the cables into the vehicle cab. The connectors are not waterproof. Position the connectors near the edge of the headliner or other easily accessible location to minimize disassembly should service ever be required.
3. Crimp the supplied terminals to the user-supplied 10 AWG red and black wires. Use the appropriate tool (Molex hand tool 0638114700). Insert the red wire into the #1 position on the connector and the black wire into the #2 position. (See the connector on the light bar harness for reference.) Connect the CAT5 cable to the user-supplied CAT5 extension with the supplied coupler.
4. Route and connect the black lead from the light bar to the vehicle battery's ground (–GND) terminal.
5. Route and connect the red lead from the light bar through a 40 A MAXI® fuse at the source, which is the positive battery terminal (+BAT).

NOTE: Powering multiple devices with a common control wire may cause one or more devices to briefly remain functional after signal power is removed. For example, due to the high input filter capacitance, a strobe supply can briefly supply the current required to signal a light bar function to remain on. If necessary, use a relay to isolate devices with large filter capacitors. See Figure 3. All components/wires are user-supplied.

Figure 3 Relay for isolating devices with large filter capacitors



290A7446

*Fuse Amperage depends on amperage of devices.

⚠ WARNING

SHOCK HAZARD: Strobe and HID light systems generate high voltages. Disconnect power from the system and wait at least 5 minutes before opening the unit. Do not apply power to the unit while the unit is open. Failure to follow this warning could result in serious injury or death.

Low Power

NOTE: Low Power Mode and the optional AutoDim feature are disabled when the light bar is in MODE 3 or displaying the Intersection flash pattern.

⚠ WARNING

LOW LIGHT HAZARD: *Enabling the Low Power function in the light bar may cause the light output to fall below certain current light output standards and guidelines for emergency warning lights. Use extreme caution when using this function. Ensure that the ambient light conditions are low enough that you are seen and that the reduction of glare from the light bar is safer than full light output in the situation. Failure to heed this warning may result in serious injury or death to you or others in your vicinity.*

When Low Power is selected, the LEDs are dimmed to approximately 50 percent of their full brightness. Low Power is only functional in MODE 1 or MODE 2. Low Power is disabled when switching to another flash pattern, including Intersection. To use Low Power again, disconnect Low Power reapply Low Power after a change in flash pattern occurs.

Table 4 SignalMaster warning patterns (internal SM control))

Warning Pattern	Description						
LEFT	Rear LEDs flash from right to left <table><tr><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr></table>	6	5	4	3	2	1
6	5	4	3	2	1		
CENTER OUT	Rear LEDs flash from center out to both sides <table><tr><td>3</td><td>2</td><td>1</td><td>1</td><td>2</td><td>3</td></tr></table>	3	2	1	1	2	3
3	2	1	1	2	3		
RIGHT	Rear LEDs flash from left to right <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	1	2	3	4	5	6
1	2	3	4	5	6		
WARN 1	Outer LEDs alternate <table><tr><td>1</td><td></td><td></td><td></td><td></td><td>2</td></tr></table>	1					2
1					2		
WARN 2	Two outer LEDs alternate <table><tr><td>1</td><td>1</td><td></td><td></td><td>2</td><td>2</td></tr></table>	1	1			2	2
1	1			2	2		
WARN 3	Right three LEDs alternate with left three LEDs <table><tr><td>1</td><td>1</td><td>1</td><td>2</td><td>2</td><td>2</td></tr></table>	1	1	1	2	2	2
1	1	1	2	2	2		
WARN 4	Two outer LEDs flash, then the two LEDs between the inner/outer LEDs flash <table><tr><td>1</td><td>1</td><td>2</td><td>2</td><td>1</td><td>1</td></tr></table>	1	1	2	2	1	1
1	1	2	2	1	1		
FAST	Operates the selected pattern 50 percent faster						

Maintaining and Servicing the Reliant

This section describes how to maintain and service the Reliant light bar. Establishing a regular maintenance and inspection schedule extends the life of the light bar and ensures safety. For service, support, or replacement parts, contact the Federal Signal Service Department at 1-800-433-9132, 7 AM to 5 PM, Monday through Friday (CT).

WARNING

SHOCK HAZARD: *Disconnect ALL power to the light bar before any maintenance is performed. Failure to do so may result in property damage, serious injury, or death.*

WARNING

BURN HAZARD: *After a prolonged operation, the unit gets hot and can cause burns. Do not touch the unit while or shortly after it has been operating. Always allow the unit to cool before handling it.*

WARNING

HEAVY OBJECT: *Use lifting aids and proper lifting techniques when removing or replacing this product. Failure to follow this warning may cause personal injury.*

Cleaning the Light Bar Lens

NOTICE

CRAZING/CLEANING SOLUTIONS: *The use of cleaning solutions, such as strong detergents, solvents, and petroleum products, can cause crazing (cracking) of the light bar lens and reflectors. To clean the reflectors, use a soft, damp cloth. To clean the lens, use a soft cloth and a solution of water and a mild detergent.*

WARNING

CRAZING/CHEMICALS: *Crazed, cracked or faded lenses or reflectors reduce the light output and the effectiveness of the lighting system. A lens or reflectors showing this type of aging must be replaced. Failure to follow this warning may result in bodily injury or death.*

NOTICE

EQUIPMENT DAMAGE: *Do not use a pressure washer to clean the light bar. Failure to heed this notice will damage the light bar.*

To clean the light bar lens:

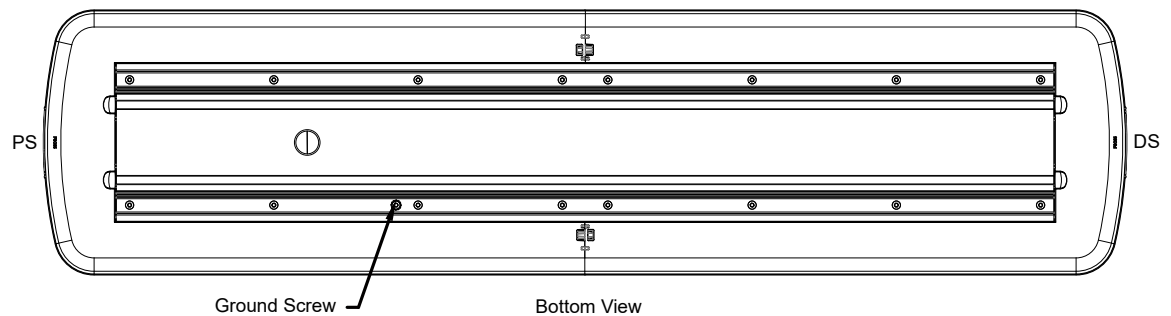
1. Rinse the lens with lukewarm water to loosen dirt and debris.
2. Use a mild detergent, lukewarm water, and a soft cloth to gently clean the lens. To avoid damaging the finish, do not use heavy pressure or caustic, abrasive, or petroleum-based cleaners.
3. Rinse and dry the lens with a soft cloth to prevent water spots.

4. To remove fine scratches and haze, use a soft cloth and a high-quality automotive paste cleaner/wax that is non-abrasive.

Replacing a PCB

The Reliant™ light bar has two end and two intermediate ROC (Reliable Onboard Circuitry™) PCBs. The passenger side intermediate ROC contains the controller circuitry. See Figure 4.

Figure 4 Ground screw



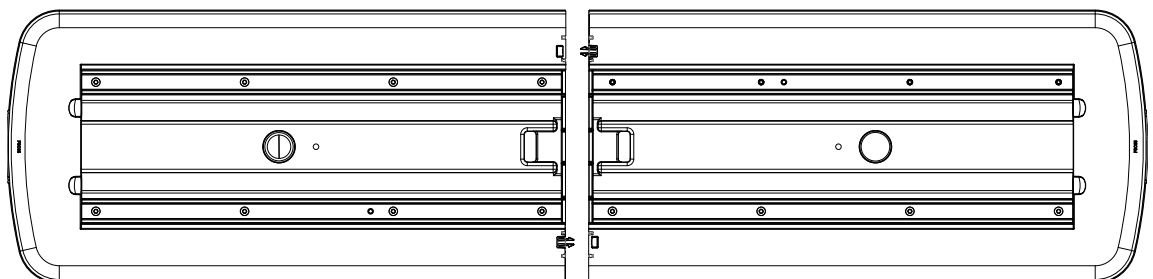
NOTICE

STATIC SENSITIVE DEVICE: This light bar circuitry can be damaged by electrostatic discharge (ESD). Follow anti-static procedures when servicing this light bar.

To replace a PCB:

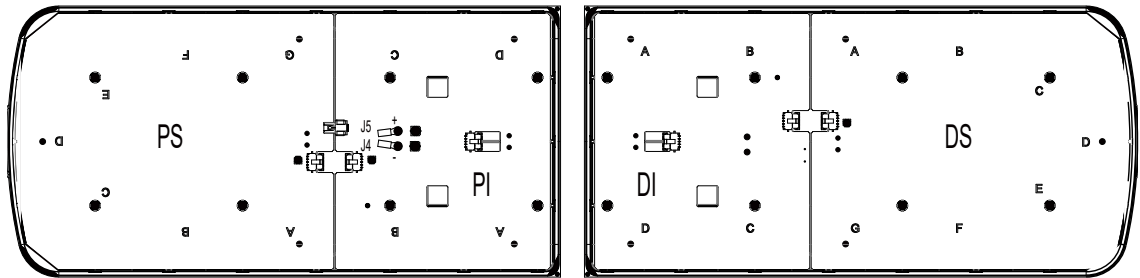
1. Disconnect all power to the light bar.
2. Refer to the instructions supplied with the mounting kit to detach the light bar from the vehicle.
3. Remove the two cable clamps that secure the service loop to free the cable loop. Flip the bar upside down. To service the bar on a bench, disconnect the cables inside the vehicle and remove the bar.
4. Mark the position of the mounting feet, and then loosen the 5/16-inch nuts securing the mounts to the extrusion so the mounts can be moved for screw access.
5. Remove the seventeen six-lobe screws securing the extrusion. Note the ground screw has a lockwasher. See Figure 4.
6. Remove the extrusion and separate the side assemblies about an inch. See Figure 5.

Figure 5 Separated side assemblies



7. Loosen the bases from the domes. The lip seal makes it a snug fit. Lift the DS (Driver Side) base and disconnect the harness connected to the PS (Passenger Side).
8. Lift the PS base and disconnect the harness connected to the DS. Remove the bases.
9. Disconnect the CAT5 and power and ground wires.
10. Remove the reflectors and PCBs. See Figure 6.

Figure 6 Locations of ROC PCBs



11. Inspect all components and replace damaged, aged, or questionable parts.

To reassemble, perform this procedure in reverse. Note the following:

- The reflectors are properly seated to the PCBs.
- J5 is +12V, J4 is ground. Do not reverse polarity.
- Dress the PS-DS harness so that it is not pinched when the extrusion is installed.
- Reseal the harness and wire exits with RTV before installing extrusion.
- Do not cut new threads. Back the screw counter-clockwise until you feel the screw click into the existing thread, and then tighten. Start the ground screw with the lockwasher first. Do not overtighten.
- Tighten the mounting feet according to the mounting feet kit instructions.

Troubleshooting the Light Bar

This section provides troubleshooting assistance for common problems. If you have any questions left unanswered, call the Federal Signal Service Department at 1-800-433-9132, 7 AM to 5 PM, Monday through Friday (CT).

Table 5 Troubleshooting tips

Problem	Corrective Action
The light bar does not light	- Verify that the light bar's red power line (+BAT) and the black ground- power line (–GND) are properly connected to a good, fully charged 12-volt battery. Check the 40 A fuse. - Verify that the CAT5 cable is connected to the controller and there are no damaged pins in the sockets. - Try a new CAT5 cable.
An LED module does not light	- Swap the LED board with a good board to see if the board is bad. - Check the connections of the cable that goes from the light bar controller to the LED ROC (Reliable Onboard Circuitry™) board.
Half of an LED module does not light	Replace the ROC board that the LED is on.

Getting Technical Support and Service

For technical support and service, please contact:

Service Department
 Federal Signal Corporation
 Phone: 1-800-433-9132
 Email: empserviceinfo@fedsig.com
www.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 Drive
 University Park, IL 60484-3167

Ordering Replacement Parts

To order replacement parts, call Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday (CST) or contact your nearest distributor.

Table 6 Replacement parts

Description	Part No.
Clear Dome	858003474
Amber Dome	858003474-02
Blue Dome	858003474-03
Red Dome	858003474-04
Clear Lip Seal (6 feet per section)	8583020-01
End PCB Assembly (Configured)	Contact Factory
Intermediate PCB Assembly (Configured)	Contact Factory



FEDERAL SIGNAL Safety and Security Systems

2645 Federal Signal Drive
University Park, Illinois 60484-3167

www.fedsig.com

Customer Support

Police/Fire-EMS: 800-264-3578 • +1 708 534-3400

Work Truck: 800-824-0254 • +1 708 534-3400

Technical Support 800-433-9132 • +1 708 534-3400