

## Safety Message to Installers and Operators of Warning Lights

### **⚠ WARNING**

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

- To properly install a light assembly, you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- When installing equipment or wiring inside airbag equipped vehicles, the installer **MUST** ensure that the equipment or wiring is installed **ONLY** in areas recommended by the vehicle manufacturer. Failure to observe this warning will reduce the effectiveness of the airbag, damage the airbag, or potentially damage or dislodge the equipment, causing serious injury or death.
- When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged.
- A light system is a high current device. In order for it to function properly, a separate ground connection must be made. If practical, it should be connected to the negative battery terminal. At a minimum, it may be attached to a solid metal body or chassis part that will provide an effective ground path as long as the light system is to be used.
- Locate the light system controls so the **VEHICLE** and **CONTROLS** can be operated safely under all driving conditions.
- If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- This product contains high intensity LED devices. To prevent eye damage, **DO NOT** stare into the light beam at close range.
- Frequently inspect the light system to ensure that it is operating properly and is securely attached to the vehicle.
- 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.

### **Overview**

The Serial Interface Module with FSJoin is a device to communicate with Convergence Network controlled light bars. To minimize the number of discrete wires to the light bar, control lead functions are wired to the Interface Module. The information is converted to a digital format and communicated to the light bar via the serial communication cable. The serial interface module's default light bar configuration can be changed through the Convergence Network Configuration Software (available at [www.fedsig.com/software-downloads](http://www.fedsig.com/software-downloads)).

Control leads can also activate an Internal SignalMaster® controller. If preferred, an external Federal Signal SignalMaster controller can link with the Interface Module and directly control SignalMaster operation.

The Serial Interface Module can be identified by part number 858303641 on the nameplate located on the bottom of the housing. A 3-foot-long, 24-conductor, control-link cable harness is also provided for external

wire connections to the Interface Module.

All programming changes are made through the Convergence Network Configuration Software and loaded via a user-supplied USB into the Serial Interface Module. The module is preconfigured from the factory with default functionality.

## Unpacking the Product

After unpacking the product, inspect it for damage that may have occurred in transit. If it has been damaged or is missing a part, do not attempt to install or operate it. File a claim immediately with the carrier, stating the extent of 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 a.m. to 5 p.m., Monday through Friday (CT).

## Programming the Light Bar

### **⚠ WARNING**

**LIGHT HAZARD:** *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.*

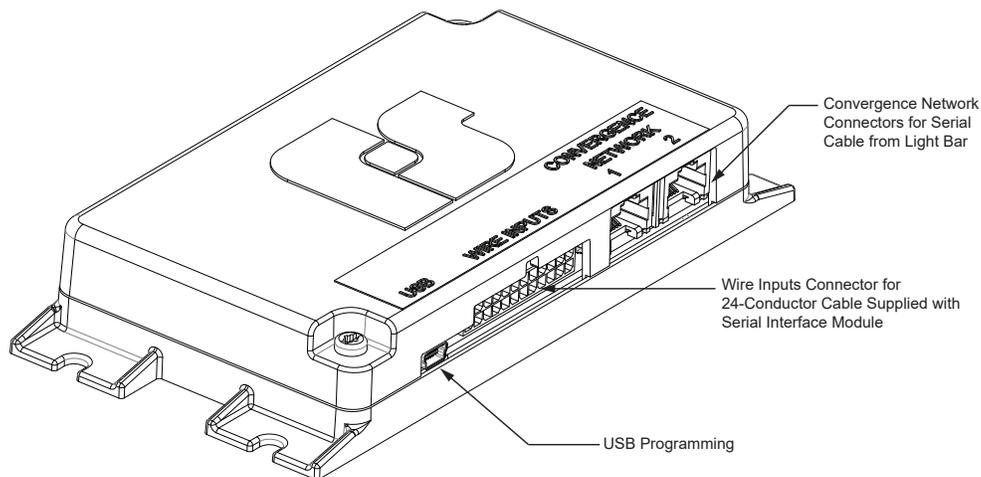
Before permanently installing the Serial Interface Module, test and program the light bar.

## Wiring the Interface Module for Testing and Programming

To wire the Interface Module for programming before permanent installation:

1. Connect the serial cable from the light bar to either Convergence Network Connector 1 or 2 of the Interface Module. See Figure 1.

**Figure 1 Connectors for Convergence Network light bars**



2. Connect the three-foot-long, 24-conductor cable to the wire inputs connector of the Interface Module.
3. Connect the white wire from the supplied wire input cable harness on the Interface Module to a 1 A fuse.
4. Connect the fuse end of the white wire from the supplied wire input cable harness as close as possible to switched ignition power. Power should also be present in the cranking start position.
5. Connect the black and black/white wire from the supplied wire input cable harness to the battery ground. Use 16 AWG wire to extend the cable length.

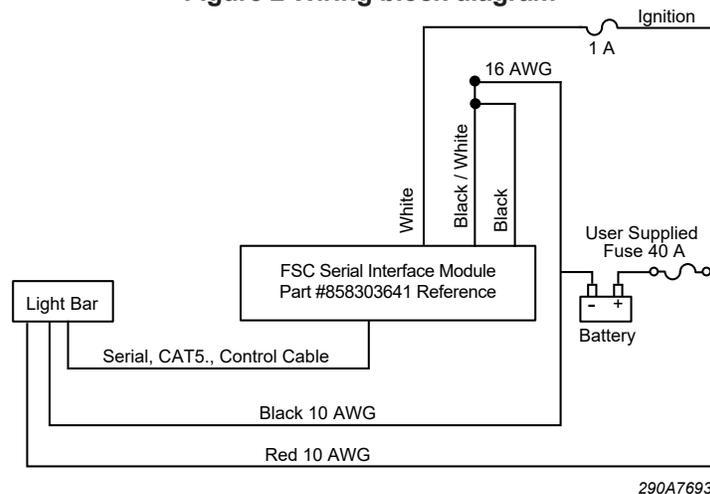
## Light Bar Functions Activated via the CAT5 Cable (Excluding SignalMaster)

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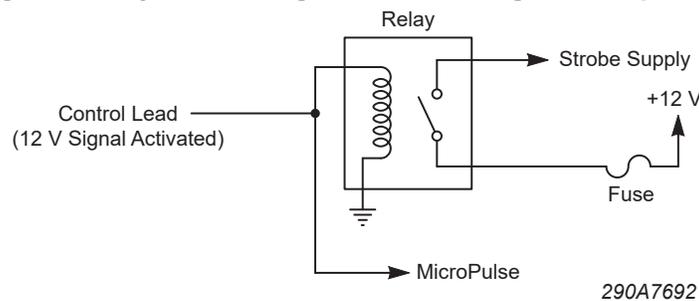
For a block wiring diagram, see Figure 2. For wiring schematics of the controller’s functions to the cable harness supplied with the Interface Module, see Figure 4 (internal control) on page 7. If additional wire is necessary for the harness (except ground), 22 AWG wire is adequate. The ground wires must be extended with a wire that is 16 AWG or better. All inputs are active HIGH.

Figure 2 Wiring block diagram



**NOTE:** Powering multiple devices with a common control lead may cause one or more units 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 for the schematic.

Figure 3 Relay for isolating devices with large filter capacitors



To activate a mode, apply 12 Vdc to a MODE control lead. There are three prioritized modes of operation available, with MODE 3 as the highest priority. MODE 3 overrides MODE 2, and MODE 2 overrides MODE 1. One of the available flash patterns can be programmed to each mode input. To program a flash pattern, use the Convergence Network Configuration Software.

### Steady Burn Red

12 Vdc applied to the STEADY BURN RED LED control lead causes that module to operate.

### Front Cutoff

12 Vdc applied to the FRONT CUT OFF control lead deactivates the selected MODE operation to the front of the light bar. Only the rear lights will function. Additionally, with FLASH TAKEDOWN/ALLEY active, only the alley lights flash.

### Rear Cutoff

12 Vdc applied to the REAR CUT OFF control lead deactivates the selected MODE operation on the rear of the light bar. Only the front lights function.

### Flash Takedown Alley

Applying 12 Vdc to the FLASH TAKEDOWN/ALLEY control lead flashes the ALLEY lights and TAKEDOWN lights.

### Alley Lights

Applying 12 Vdc to the LEFT or RIGHT ALLEY control leads activates the corresponding alley light.

### Takedown

Applying 12 Vdc to the Takedown control lead illuminates the TAKEDOWN lights. TAKEDOWN overrides the FLASH TAKEDOWN/ALLEY and FRONT CUTOFF modes of operation.

### Low Power

#### **▲ 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.***

LOW POWER mode is disabled when the light bar is in MODE 3 or INTERSECTION Mode (default configuration).

Applying 12 Vdc to the control lead for LOW POWER mode dims the LEDs to 25 percent of their full brightness. The default file does not allow dimming in Mode 3, but it is configurable. LOW POWER is disabled when switching to another mode of operation.

Under dark conditions, a light bar with an ambient light sensor automatically dims. Under bright conditions, the light bar returns to full brightness. If MODE 3 is activated, the light bar returns to full brightness in the dark and dims when MODE 3 is deactivated.

### Scene Light, Left

The SCENE LIGHT, LEFT option is available only in light bars with SpectraLux® Technology (Valor®, Vision® SLR, Integrity®, Allegiant®, Spectralux ILS, and CN SignalMaster™).

### Scene Light, Right

The SCENE LIGHT, RIGHT option is available only in light bars with SpectraLux Technology (Valor, Vision SLR, Integrity, Allegiant, Spectralux ILS, and CN SignalMaster).

## Installing the Serial Interface Module

### NOTICE

**INSTALLATION PRECAUTIONS:** Do not install the Interface Module in an area where it cannot dissipate heat into the air. Do not mount the unit near a heater duct. The Interface Module also is not waterproof. It must be mounted in a location which is sheltered from falling rain, snow, standing water, etc.

Plan all wiring and cable routing before the installation.

User-supplied #8 mounting hardware is required.

**Table 1 Specifications**

Input Voltage	11 to 24 Vdc
Current Draw	0.1 A Standby, 1 A Maximum
Dimensions (L x W x H)	6.25 x 3.16 x 1.06 inches (15.9 x 8.0 x 2.7 cm)
Weight	0.25 lb (0.11 kg)

To install the Interface Module:

1. Use the Interface Module as a template and scribe four drill position marks at the selected mounting location. Mounting centers are 2 by 5.95 inches (51 by 151 mm).

### ⚠ WARNING

**DRILLING PRECAUTIONS:** DO NOT drill holes in ANY part of the Interface Module. Damage to the unit, serious injury, or death to you or others may result. When drilling holes, check the area you are drilling into to ensure that you do not damage vehicle components while drilling. All drilled holes should be deburred, and all sharp edges should be smoothed. All wire routings going through drilled holes should be protected by a grommet or convolute/split loom tubing.

2. Drill four mounting holes sized for #8 mounting hardware at the position marks.
3. Secure the Interface Module to the mounting surface.

## Wiring the Serial Interface Module to Power and Ground

### **⚠ 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.

### **⚠ 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.

To wire the Serial Interface Module to power and ground:

1. Connect the white wire from the supplied wire input cable harness on the Interface Module to a 1 A fuse.
2. Connect the fuse end of the white wire as close as possible to switched ignition power. Power should also be present in the cranking start position.
3. Connect the black and black/white wire from the supplied cable harness to battery ground. Use 16 AWG wire to extend the cable length.
4. Insulate spliced leads with twist-on wire connectors. Fold and seal unused leads. Use wire ties and hold-downs for strain relief.

## Wiring the SignalMaster

### **⚠ WARNING**

**LIGHT HAZARD:** 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.

Depending on the length, light bars have a four-, six-, or eight-head SignalMaster®. Be sure to use the proper controller to match the number of SignalMaster heads in the light bar.

If SignalMaster operation is not initiated by a control head or external controller, the SignalMaster LED heads flash according to the selected mode (1, 2, or 3) of operation.

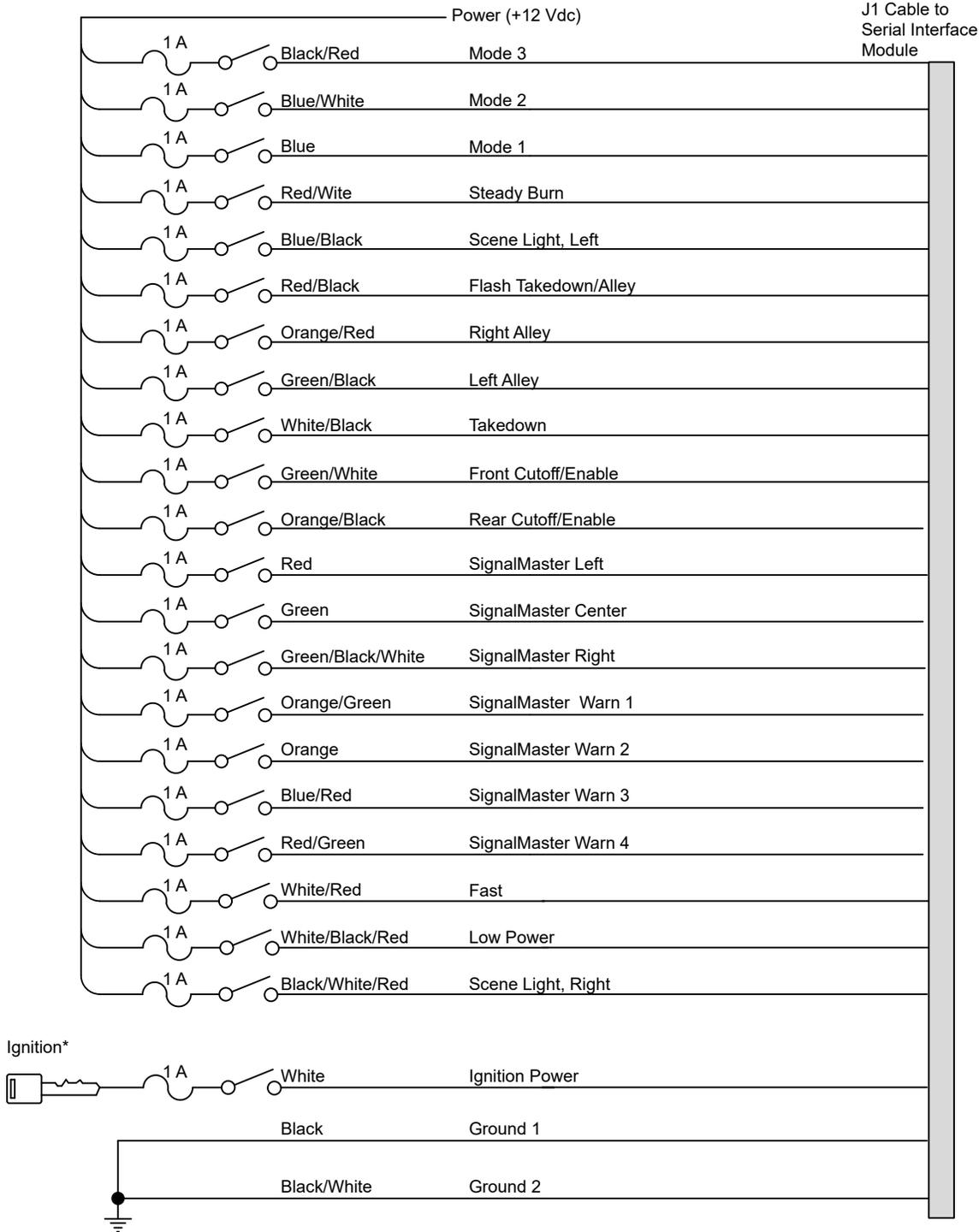
## External SignalMaster

The Interface Module can be programmed with the Convergence Network Configuration Software from the factory default of Internal operation (see the next section) to External operation. The Interface Module drives each SignalMaster head independently via an external Federal Signal SignalMaster controller or an SS2000SM or SSP3000B series siren. Either device will provide an independent ground signal to illuminate each head.

## Internal SignalMaster (Factory Default)

The SignalMaster can be configured from External to Internal operation. +BAT applied to the specified control lead activates the internal SignalMaster controller in the light bar. See Figure 4.

Figure 4 SignalMaster control functions wired to 12 Vdc for Internal Control (factory default)



\* Ignition power includes power in the cranking position

## **Getting Technical Support**

For technical support, please contact:

Federal Signal Corporation  
Service Department  
Phone: 1-800-433-9132  
Email: [empserviceinfo@fedsig.com](mailto:empserviceinfo@fedsig.com)

## **Getting Repair Service**

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

## **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](http://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](mailto: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.



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[www.fedsig.com](http://www.fedsig.com)

Customer Support

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