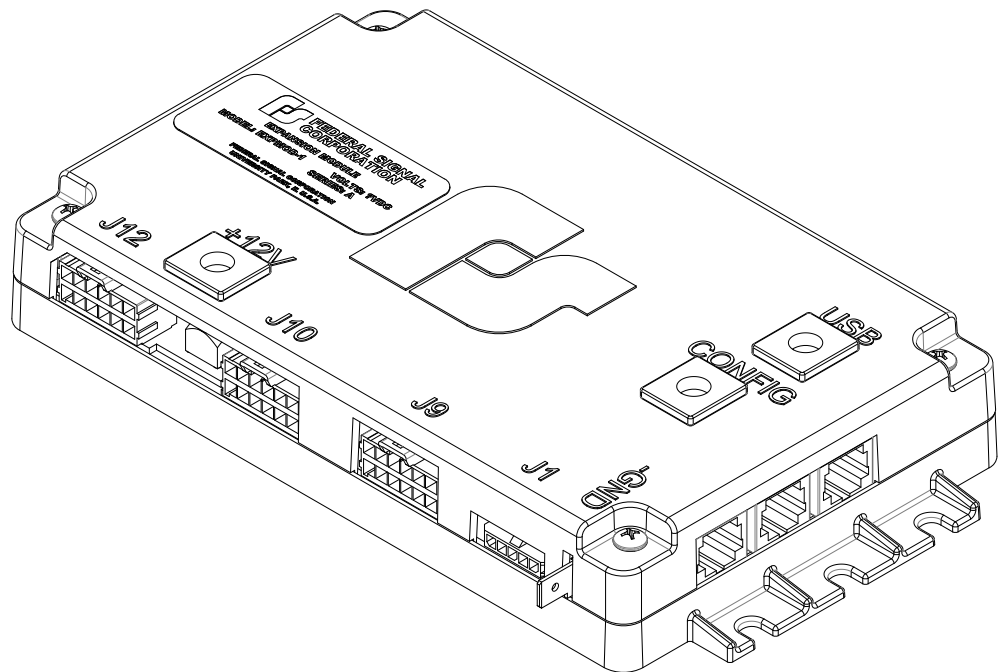


Pathfinder® Expansion Module



18-Channel Expansion Module, Taillight Flasher, Pathfinder® Siren Series Installation and Maintenance 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

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Safety Messages for Installers and Operators

For your safety, read and understand this manual thoroughly before installing, operating, and servicing the Pathfinder siren amplifier/relay module. The safety messages presented in this chapter and throughout the manual are reminders to exercise extreme care at all times. In addition, read and understand the safety instructions to installers (doc. no. 256A692), and keep it close at hand for reference.

To download copies of this manual, go to www.fedsig.com or call the Federal Signal Service Department at 1-800-433-9132 (708-534-3400) 7 a.m. to 5 p.m., Monday through Friday (CT).

Safety Messages to Installers of Sound/Light Systems

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. Listed below are some other important safety instructions and precautions you should follow:

Before Installation

Qualifications

- To properly install an electronic siren, you must have a good understanding of automotive 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.

Sound Hazards

- Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure."
- All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sound and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.
- Federal Signal siren amplifier/relay modules and speakers are designed to work together as a system. Combining a siren and speaker from different manufacturers may reduce the warning effectiveness of the siren system and may damage the components. You should verify or test your combination to make sure the system works together properly and meets federal, state and local standards or guidelines.

During Installation

- 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 to prevent metal shavings from entering 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 wiring is shorted to vehicle frame, high current conductors can cause hazardous sparks, resulting in electrical fires or flying molten metal.
- Ensure that the siren amplifier/relay module and speaker(s) in your installation have compatible wattage ratings.
- In order for the electronic siren to function properly, the ground connection must be made to the NEGATIVE battery terminal.
- Sound output will be severely reduced if any objects are in front of the speaker. If maximum sound output is required for your application, you should ensure that the front of the speaker is clear of any obstructions.
- Install the speaker(s) as far forward on the vehicle as possible, in a location that provides maximum signaling effectiveness and minimizes the sound reaching the vehicle's occupants. Refer to the National Institute of Justice guide 500-00 for further information.
- Mounting the speakers behind the grille will reduce the sound output and warning effectiveness of the siren system. Before mounting speakers behind the grille, make sure the vehicle operators are trained and understand that this type of installation is less effective for warning others.
- Sound propagation and warning effectiveness will be severely reduced if the speaker is not facing forward. Carefully follow the installation instructions and always install the speaker with the projector facing forward.
- Do NOT install the speaker(s) or route the speaker wires where they may interfere with the operation of airbag sensors.
- Installation of two speakers requires wiring speakers in phase.
- Never attempt to install aftermarket equipment, which 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 and safety functions or circuits. Always check vehicle for proper operation after installation.
- Do NOT install equipment or route wiring or 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.
- Locate the control head so the vehicle, controls, and microphone can be operated safely.

- When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged. 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. Additionally, all exterior drilled holes must be sealed with Motorcraft seam sealer T-A-2-B or equivalent to prevent the potential exposure to carbon monoxide or other potentially harmful fumes. Failure to observe this warning could cause serious injury or death.

After Installation

- After installation, test the siren and 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 installation has not affected vehicle operation or changed any vehicle safety function or circuit.
- After testing is complete, provide a copy of these instructions to the instructional staff and all operating personnel.
- File these instructions in a safe place and refer to them when maintaining or reinstalling the product.

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

RETAIN AND REFER TO THESE MESSAGES

Safety Messages to Operators of 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.

Safety Messages for Installers and Operators

- 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.
- It is important that you fully understand how to safely operate this warning system before use.
- Operate your vehicle and its light/sound system only 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, you should ensure that the entire warning light system and the siren system are securely attached and operating properly.
- 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.
- Suction cup mounting is for temporary applications only. The unit should be removed from the window and stored securely when not in use. Temperature changes and sunlight can cause suction cups to lose holding power. Periodically check the unit to be sure the suction cups have a firm grip on the mounting surface. An improperly secured light could fall off of the vehicle, causing injury and damage.
- The holding power of magnetic mounting systems is dependent upon surface finish, surface flatness, and thickness of the steel mounting surface.

Therefore, to promote proper magnetic mounting:

- The mounting surface and magnets must be kept clean, dry, and free of foreign particles that prevent good surface contact.
- Ensure that the mounting surface is flat.
- A magnet mounting system should not be used on vehicles with vinyl tops.
- To prevent the light assembly from sliding on mounting surface, avoid quick acceleration and hard stops.

Failure to follow these precautions may result in property damage, serious injury, or death.

RETAIN AND REFER TO THESE MESSAGES

An Overview of the Pathfinder Expansion Module

The Pathfinder siren is a full-featured, programmable, electronic siren and light control system. The Pathfinder Expansion Module provides an additional 16-7.5 A Max Flashing outputs and 2-20 A control outputs to a Pathfinder System. The Module can act as a Taillight Flasher flashing each individual Brake, Tail, Turn, and Reverse light and can Black Out those heads as well as the CHMSL light. The maximum output current for each relay can be set with the Pathfinder Configuration Software. The module has three easily accessible Pathfinder serial ports and can be used as a hub to any FS Convergence Network Federal Signal product.

A DIP Switch on the product allows for a second expansion module in the system if necessary. Normally the expansion module powers up when the Pathfinder Siren supplies power to the network. A switch on the DIP Switch can be positioned such that the Expansion Module could supply power to a remote control head.

Second Expansion Module in a System

There can be two Expansion Modules in a system. Each Expansion Module has its own MID (Module Identifier). The Expansion Module is shipped from the factory as a Primary Module. To change the configuration to a Secondary Module, move DIP Switch Position 1 from OFF to ON.

Figure 1 DIP Switch

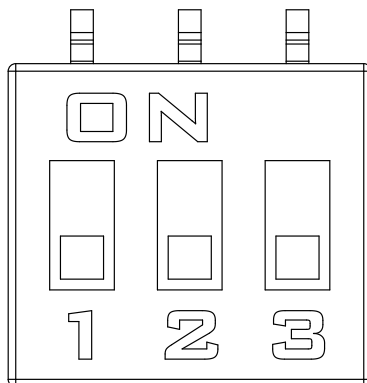


Table 1 DIP Switch Positions

DIP Switch Position	Description
1	2nd Module Configuration: OFF = Single Module; ON = Second Module
2	Power Module from Yellow Ignition Wire
3	Power Module from Convergence Network, Power Up from Pathfinder

Specifications

Table 2 Specifications

System Specifications	
Input Voltage	11 Vdc to 14.2 Vdc
Polarity	Negative ground only
Operating Temperature Range	-40°C to 80°C (-40°F to 176°F) - all relays at 50 percent power
Standby Current	Less than 0.1 A
Max Input Current	75 A
EXP-MOD2 - Dimensions	
Height x Width x Length	1.3 x 4.8 x 8.3 inches (3.3 x 12.2 x 21.1 cm)
Net Weight	1.1 lb (0.5 kg)
Relay Specifications	
Relays 1-16	7.5 A max (active high)
Relay 17 and 18	20 A max (active high)

Expansion Module Kit Contents

Table 3 lists the parts included with the Expansion Module kit. After unpacking the kit, examine it for damage that may have occurred in transit. If the product has been damaged, file a claim immediately with the carrier stating the extent of damage. Ensure that all parts in the packing list are included in the shipment. If any parts are missing, call Federal Signal Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday, Central Time.

Table 3 Expansion Module

Qty.	Description	Part Number
1	EXPMOD-2 Flasher	855402865
3	12-Conductor Output Cable	17501359A
1	Ring Terminal, #8, 6AWG	19001363B
1	0.250-inch Female Quick Connect Terminal GND	224A216A-01L
1	25-foot Convergence Cable	1751357-02
1	3-foot Convergence Cable	1751357-08
EXPMOD-2 Kit 77701021A		
1	6 mm M4 SEMS Pan Head Screw	70000451-06
4	#10 Type B Pan Head Steel TORX Screw	7011246A-06

Wiring the Pathfinder Expansion Module

General Guidelines for Wiring the Expansion Module on a Vehicle

⚠ WARNING

HIGH CURRENT ARCING: Do not connect this system to the vehicle battery until ALL other electrical connections are made and you have verified that no shorts exist. High current conductors can cause hazardous sparks or burning wire, resulting in electrical fires.

NOTICE

DRILLING PRECAUTIONS: When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged. 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. Additionally, all exterior drilled holes must be sealed with Motorcraft seam sealer T-A-2-B or equivalent to prevent the potential exposure to carbon monoxide or other potentially harmful fumes. Failure to observe this warning could cause serious injury or death.

Before permanently installing the Pathfinder Siren and Expansion Module system, plan all wire routings and select the mounting locations for the siren amplifier and Expansion module. Read and understand all instructions included with related equipment before installing it. Ensure that all wiring is protected from damage during normal operation of the vehicle and away from any sharp edges and screws. Splice joints should be soldered or crimped with butt connectors, and properly insulated. Splice joints that will be exposed to the elements should be adequately sealed and insulated. All wires that are extended should not be lesser gauges than their original mating wires. Make sure that connections are easily accessible for assembly and service.

Overview of the Pathfinder Connections

To prepare the vehicle for connecting the Convergence Network system:

1. After planning where to route the wires and cables for the system components — such as Federal Signal warning lights, directional lights, and speakers — drill the holes for the wiring. Smooth, deburr, and insert a grommet in the holes.
2. Mount the system components according to the instructions included with each product.

The next sections describe how to connect and wire each system component to the Expansion Module.

Convergence Network Ports

There are three “plug and play” serial ports that communicate on the Federal Signal Convergence Network. Federal Signal Convergence Network devices include exterior mount light bar, interior mount ILS systems, and remote keypads.

Wiring the Pathfinder Expansion Module

For instructions on mounting network devices, refer to the instructions included with those products. For instructions on configuring the operation of the devices connected through the Convergence Network ports, see the help menu in the Convergence Network Configuration Software.

Expansion Module Relay Outputs

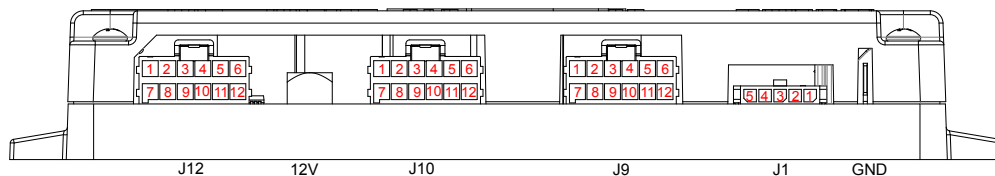
The Pathfinder Expansion Modules has a total of 18 solid-state relay outputs. See Figure 2. Relays 1-16 are intended for flashing lights and can each provide up to seven 0.5 A switched from the battery terminal. These relays can be programmed to flash various patterns and dim levels.

Relays 17 and 18 are intended to control DC loads in the car and can be programmed to turn them on and off through timers.

All of the relays (1-18) have a software-programmable current limit. By default, the current limit setting is disabled.

See the Pathfinder Configuration Software for all available programming options available for the Pathfinder relay outputs.

Figure 2 Relays



System Power

The EXPMOD-2 Expansion Module has a Power Stud to connect the B+ power input. Included in the Expansion Module kit is a 6 mm, pan head, M4 SEMS Screw and a #8 Insulated Ring Terminal. The power stud is designed to accept a 6 AWG wire. If you use a different terminal, it should accept an M4 screw. Fusing of the Expansion Module is required and left for the installer to complete. The fuse must be of an amperage capacity sufficient to handle the electrical loads of the Expansion Module.

Convergence Network Connections

The EXPMOD-2 has three ports on the side for FS Convergence Network. See Figure 3

Figure 3 Convergence Network Serial Ports

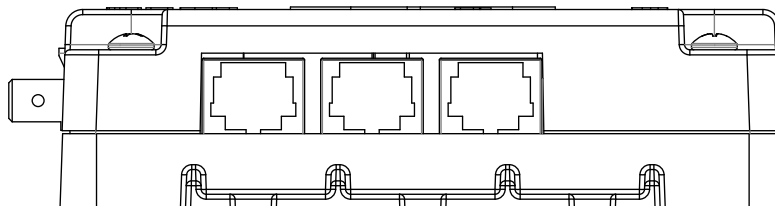


Figure 4 Bottom View

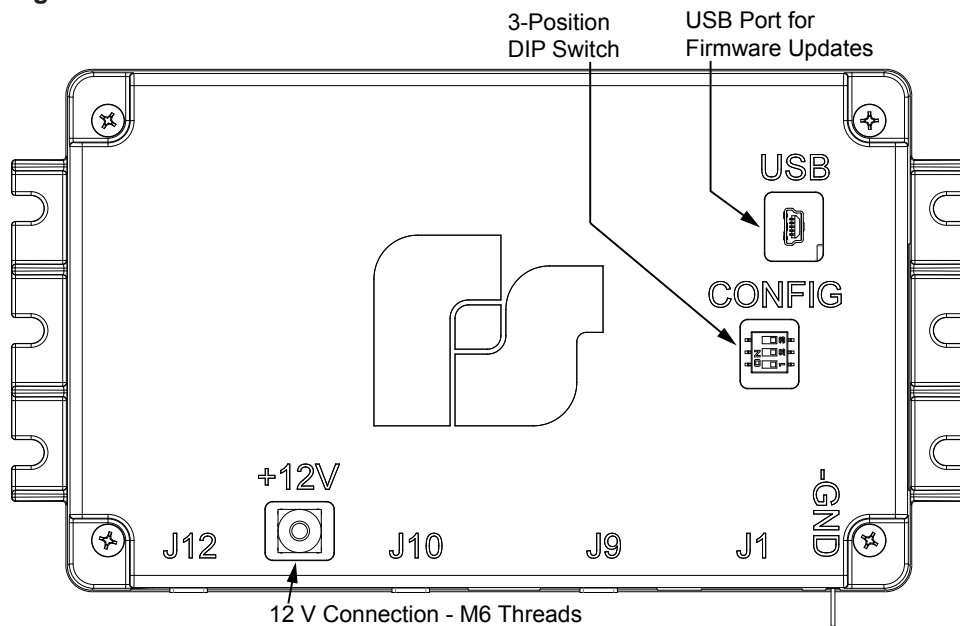


Table 4 J10 Blackout Relays

Wire Color	Blackout Relay	Relay Output #	Description	Connector Pin
Orange	Input (BCM Disconnect 1)		Feed from BCM to Passenger Side Tail Light	J10-12
Tan	Output (Relay 15 + BCM 1)	Relay 15	Feed to Passenger Side Tail Light Panel + Relay 15	J10-6
Yellow	Input (BCM Disconnect 2)		Feed from BCM to Driver Side Tail Light	J10-11
Pink	Output (Relay 12 + BCM 2)	Relay 12	Feed to Driver Side Tail Light Panel + Relay 12	J10-5
White	Input (BCM Disconnect 3)		Feed from BCM to Passenger Side Turn Light	J10-10
Brown	Output (Relay 16 + BCM 3)	Relay 16	Feed to Passenger Side Turn Light Panel + Relay 16	J10-4
Green	Input (BCM Disconnect 4)		Feed from BCM to Passenger Side Reverse Light	J10-9
Violet	Output (Relay 11 + BCM 4)	Relay 11	Feed to Passenger Side Reverse Light Panel + Relay 11	J10-3
Black	Input (BCM Disconnect 5)		Feed from BCM to Driver Side Reverse Light	J10-8
Red	Output (Relay 10 + BCM 5)	Relay 10	Feed to Driver Side Reverse Light Panel + Relay 10	J10-2
Gray	Input (BCM Disconnect 6)		Feed from BCM to Driver Turn / Trunk Center Panel Tail Light	J10-7
Blue	Output (Relay 9 + BCM 6)	Relay 9	Feed to Driver Turn / Trunk Center Panel Light + Relay 9	J10-1

Wiring the Pathfinder Expansion Module

Table 4 J9 Blackout Relays and Flashing Outputs

Wire Color	Blackout Relay Output	Flashing Output #	Description	Connector Pin
Orange	Input (BCM Disconnect 7)		Feed from BCM to Passenger Side Brake Light	J9-12
Tan	Output (Relay 13 + BCM 7)	Relay 13	Feed to Passenger Side Brake Light Panel + Relay 13	J9-6
Yellow	Input (BCM Disconnect 8)		Feed from BCM to Driver Side Brake Light	J9-11
Pink	Output (Relay 14 + BCM 8)	Relay 14	Feed to Driver Side Brake Light Panel + Relay 14	J9-5
White	Input (BCM Disconnect 9)		Feed from BCM to Center High Mount (CHMSL) Stop Light	J9-10
Brown	Output (BCM 9)		Feed to Center High Mount (CHMSL) Stop Light	J9-4
Violet			No Connection	J9-3
Green			No Connection	J9-9
Red		Relay 1	Flashing Relay Output 1	J9-2
Blue		Relay 2	Flashing Relay Output 2	J9-1
Gray		Relay 3	Flashing Relay Output 3	J9-7
Black		Relay 4	Flashing Relay Output 4	J9-8

Table 5 J12 Flashing Outputs and 20 Ampere Outputs

Wire Color	Blackout Relay Output	Flashing Output #	Description	Connector Pin
Orange		Relay 5	Flashing Relay Output 5	J12-12
Yellow		Relay 6	Flashing Relay Output 6	J12-11
Tan		Relay 7	Flashing Relay Output 7	J12-6
Pink		Relay 8	Flashing Relay Output 8	J12-5
Blue		Relay 17	Blue & Gray Wire to Be Tied Together. Steady On/Off Only.	J12-1
Gray		Relay 17	Blue & Gray Wire to Be Tied Together. Steady On/Off Only.	J12-7
Violet		Relay 18	Green & Violet Wire to Be Tied Together. On/ Off Only.	J12-3
Green		Relay 18	Green & Violet Wire to Be Tied Together. On/Off Only.	J12-9
Black	Input (Driver Sense Line)		Dodge Vehicles Sense Line - Pole Driver Side Sense Line	J12-8
Red	Output (Driver Sense Line)		Dodge Vehicles Sense Line - NC Driver Side	J12-2
White	Input (Passenger Sense Line)		Dodge Vehicles Sense Line - Pole Passenger Sense Line	J12-10
Brown	Output (Passenger Sense Line)		Dodge Vehicles Sense Line - NC Passenger Side	J12-4

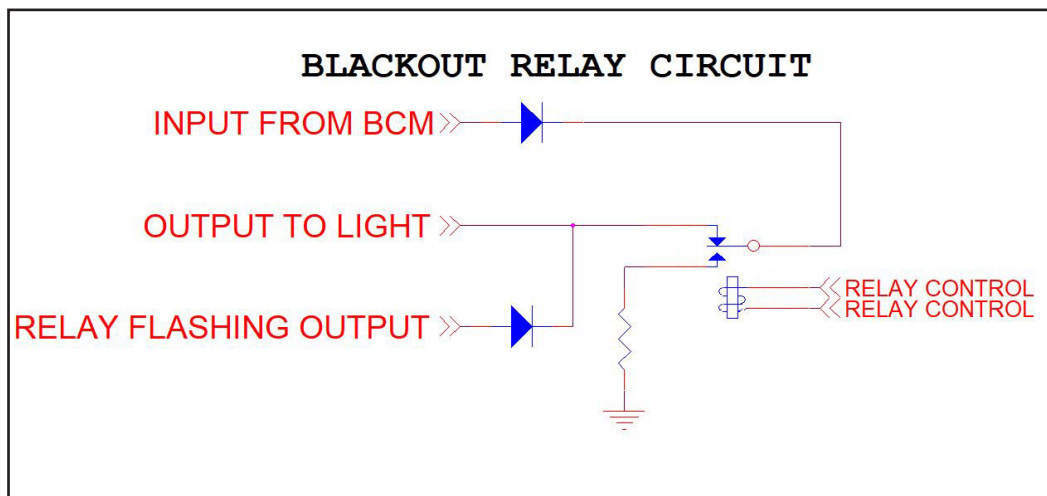
Blackout Relay Circuit

When the Expansion Module is installed, the signal from the Body Control Module (BCM) is brought into the module and travels through a diode. The signal is then applied to the pole of a Single Pole Double Throw (SPDT) relay. The Normally Closed (NC) contact passes the signal to the output to the light. The flashing output is connected to the output to the light through a diode.

During normal operation, the tail/brake/reverse light turns on when either the Body Control Module applies a signal to the light or the flashing signal turns on. A convergence command can be issued to “black out” the output to the light. When this command is issued, the relays are switched and the signal from the Body Control Module are switched to drive a resistive load.

The diodes in the circuit isolate the signals so they do not interfere with each other.

Figure 5 Circuit



Relay 1 - 16 = 7.5 A Maximum
Relay 17 & 18 = 20 A Maximum

Mounting the Pathfinder Expansion Module

After wiring and connecting the system, the next step is to permanently mount the siren in the vehicle. Verify that the mounting locations you selected earlier are safe for installing these components. Review the following precautions before mounting the equipment.

⚠ 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.

NOTICE

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.

⚠ WARNING

UNIT REQUIRES AIR FLOW: Do not install the siren in areas where the air flow is restricted. Do not mount the unit near a heater duct or under the hood.

⚠ WARNING

MODULE IS NOT WATERPROOF: The housing of the siren is NOT waterproof.

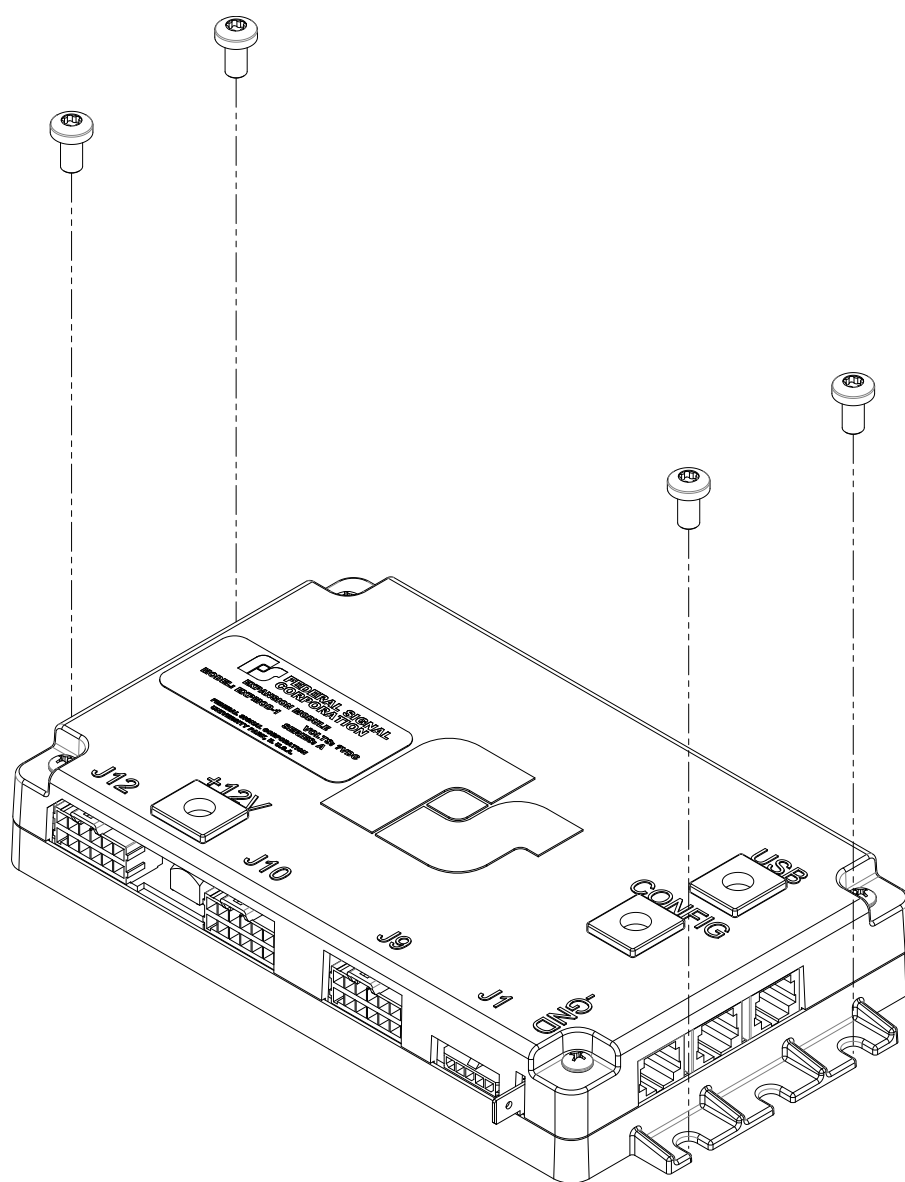
Select a mounting location that allows the vehicle, controls, and microphone to be operated safely under all driving conditions. To identify safe mounting areas for equipment inside the vehicle, consult the vehicle manufacturer's guidelines. To avoid driver distraction and unreliable switch activation, the mounting location must not allow any movement of the unit. Installer-supplied mounting hardware is required to mount the siren.

Mounting the Expansion Module

To mount the Expansion Module:

1. Use the Expansion Module as a template to mark the mounting holes.
2. Choose a bit appropriate for the installer-supplied mounting hardware and drill the center of the mounting holes.
3. Use the (4) supplied #10 Type B screws or user-supplied mounting hardware to mount the Expansion Module. Place the screws through a combination of the six holes on the sides of the unit, ensuring that the Expansion Module is fastened securely.

Figure 6 Mounting the Module



Programming the Pathfinder Expansion Module

The Expansion Module can be programmed through the Pathfinder Configuration program. Download the software at <https://www.fedsig.com/software-downloads>. The screen shot shown in Figure 7 allows you to specify the desired settings.

Figure 7 Pathfinder Expansion Module Page

BlackOut Relay / Expansion Module : Primary Module ▼

	Name	BCM Disconnect ?	Relay Function	Phase	Change Intensity?
Relay 1	<input type="text" value="Relay 1"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 2	<input type="text" value="Relay 2"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 3	<input type="text" value="Relay 3"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 4	<input type="text" value="Relay 4"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 5	<input type="text" value="Relay 5"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 6	<input type="text" value="Relay 6"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 7	<input type="text" value="Relay 7"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 8	<input type="text" value="Relay 8"/>		<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 9	<input type="text" value="Relay 9"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 10	<input type="text" value="Relay 10"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 11	<input type="text" value="Relay 11"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 12	<input type="text" value="Relay 12"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 13	<input type="text" value="Relay 13"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 14	<input type="text" value="Relay 14"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 15	<input type="text" value="Relay 15"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 16	<input type="text" value="Relay 16"/>	<input type="text" value="Clear"/> ▼	<input type="text" value="Clear"/> ▼	<input type="text" value="Phase 0"/> ▼	
Relay 17	<input type="text" value="Relay 17"/>		<input type="text" value="Clear"/> ▼		
Relay 18	<input type="text" value="Relay 18"/>		<input type="text" value="Clear"/> ▼		
CHMSL	<input type="text" value="Clear"/> ▼			Sense Line <input type="text" value="Clear"/> ▼	

Each relay function can be programmed individually and phased between different channels. The intensity of each light can be set, and you can specify whether the Expansion Module is a Primary or Secondary Module as shown below. BCM disconnect allows the user to Black Out / disconnect those particular heads. The screen shot in Figure 8 shows a sample combination of selections.

Figure 8 Pathfinder Expansion Module Programming

BlackOut Relay / Expansion Module : Primary Module

	Name	BCM Disconnect ?	Relay Function	Phase	Change Intensity?
Relay 1	Spoiler Channel A		Triple 92.3	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 2	Spoiler Channel B		Triple 92.3	Phase 180	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 3	Spoiler Amber 1		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 4	Spoiler Amber 2		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 5	Spoiler Amber 3		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 6	Spoiler Amber 4		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 7	Spoiler Amber 5		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 8	Spoiler Amber 6		Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 9	Tag Driver	Clear	Common Double 120	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 10	Tag Passenger	Clear	Common Double 120	Phase 180	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 11	Bumper Channel A	Clear	Triple 92.3	Phase 180	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 12	Bumper Channel B	Clear	Triple 92.3	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 13	Hatch Driver Blue	Clear	Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 14	Hatch Passenger Blue	Clear	Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 15	Hatch Driver Amber	Clear	Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 16	Hatch Passenger Amber	Clear	Clear	Phase 0	<input type="checkbox"/> Cruise <input type="checkbox"/> Low Power <input type="checkbox"/> Max Intensity
Relay 17	Tag Reverse		Clear		
Relay 18	Relay 18		Clear		
CHMSL	Clear		Sense Line	Clear	

Getting Technical Support

For technical support, please contact:

Federal Signal Corporation

Phone: 1-800-443-9132

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 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 (CT) or contact your nearest distributor.

Downloading Pathfinder Configuration Software

To download the Pathfinder Configuration software, access <https://www.fedsig.com/software-downloads> and click the Download Pathfinder Configuration Software Now link.



2645 Federal Signal Drive
University Park, Illinois 60484

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

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