

## Safety Message to Installers of Warning Light Equipment

### **▲ WARNING**

For your safety, read this manual thoroughly before installing and operating the Federal Signal Perimeter Breach Warning System. The safety messages in this section are reminders to always exercise extreme care. To download copies of the manual, go to [www.fedsig.com](http://www.fedsig.com) or call the Federal Signal Service Department at 1-800-433-9132, 7 a.m. to 5 p.m., Monday through Friday (Central Time).

The Federal Signal Perimeter Breach Warning System is compatible only with the Pathfinder® Controller.

Before installing the Perimeter Breach Warning system, plan all wire routing. 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 that will be exposed to the elements should be adequately sealed and insulated. Any wire that is extended should not be a lesser gauge than its original mating wire. Make sure that connections are easily accessible for assembly and service.

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

- To properly install this item, you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- Do not install equipment or route wiring 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.
- When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged.
- 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.

## Unpacking the Kit

After unpacking the kit, inspect it for damage that may have occurred in transit. If it has been damaged, do not attempt to install or operate it. 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. Ensure that the parts in the Kit Contents List are included in the package. 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).

**Table 1 PBW-System Kit Content**

Qty	Description	Part Number
6	Radar sensor	828303790
2	Connector Harness	17502435
12	5/8-inch No. 6 Pan Head Phillips Screw	70001583

Table 2 PBWK-FPIU20 Kit Contents

Qty	Description	Part Number
1	Front Center Bracket	828304339
2	Driver/Passenger Side Bracket	828304338
3	Rear Bracket	828304340
8	5/8-inch No. 6 Self-Tapping Screws	70001582
2	6-32 x 1/2-inch Hex Head Screw	7000427-08
2	6-32 Nylon Insert Nut	7058006
1	5/16-18 Hex Cap Screw	7002A005-14
1	0.41 x 1-inch Flat Washer	7072225
2	5/16 x 3/4-inch Flat Washer	7072A031
1	5/16-inch Nylon Insert Nut	7058049

## Introduction

The Federal Signal Perimeter Breach Warning System (PBW) is a Vehicle Radar detection system. The PBW System uses the sensors provided in the kit, an FS Join™-compatible light bar, and a Pathfinder® siren to alert the user of a potential threat within a 25-foot radius of the vehicle in which it is installed.

When routing the Front wire harness, attach sensors:

1. Driver Front (DF)
2. 12 o'clock position
3. Passenger Front (PF)

When routing the Rear wire harness, attach sensors:

4. Passenger Rear (PR)
5. 6 o'clock position
6. Driver Rear (DR)

See Figure 1.

The rear wire harness should be attached to the chassis frame and run through the driver or passenger grommet using a standard waterproofing method.

All sensors must be locked securely into their respective connectors on harness. Failure to latch will eventually result in loose connections.

Figure 1 Sensor locations



## Mounting the Perimeter Breach Warning Sensors

### **⚠ 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.

### NOTES:

- Spacers are not supplied and must be custom fit for each vehicle type if adjustments are necessary.
- Connectors MUST always be on the horizontal (left/right), not vertical (up/down). See Figure 2.
- Affixing all sensors to the brackets prior to installation using two no. 6 5/8-inch pan head Phillips® screws to mount each sensor to bracket a bracket is recommended.

Figure 2 Sensors



To mount the sensors:

1. Remove the front fascia and rear fascia according to manufacturer guidelines.
2. For mounting the Front Driver and Passenger sensors, remove the bolt called out in Figures 3 and 4.

Figure 3 Front driver bolt



Figure 4 Front passenger bolt



3. Mount the bracket using the removed bolt and ensure that the sensor harness is facing away from the vehicle with the connector pointing toward the vehicle. See Figures 3 and 4.

**NOTE:** Do NOT completely tighten the screws before leveling the sensors. The sensors should be mounted so that they are level to the ground. The vehicle must be on level ground during installation and alignment.

**NOTICE**

**DRILLING PRECAUTIONS:** Before drilling holes, check the area into which you plan to drill to ensure that you do not damage vehicle components. All drilled holes should be deburred, and all sharp edges should be smoothed. 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.

4. Drill an 11/32-inch through-hole in the plastic grille frame. See Figure 5.
5. With the sensor mounted on the U-Channel bracket, align the bracket with the drilled through-hole mounting, and secure it using the 5/16-inch bolt, 5/16-inch washer, and the 5/16-inch nylon nut.
6. To mount the rear driver-side and passenger-side bracket, align the rear bracket with the emboss on the rear driver-side and passenger-side bracket. See Figures 5 and 6.

Figure 5 Align and secure sensor



Figure 6 Align and secure sensor



7. Secure the driver-side and passenger-side rear bracket using the no. 6 5/8-inch self-tapping screws.

**NOTICE**

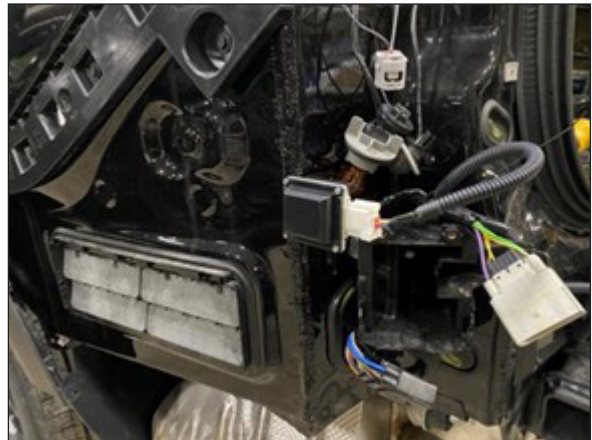
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- 8. Before mounting the rear center bracket, cut out a section of the plastic trim above the rear hitch to clear space for the sensor's harness. See Figures 7 and 8.

Figure 7 Cut out plastic trim



Figure 8 Cut out plastic trim



- 9. With the section of the plastic trim removed, align the sensor and bracket so that the sensor is facing away from the vehicle. Mark the mounting hole positions on the plastic trim to prepare for drilling.
- 10. Remove the bracket and drill a 6-32 through-hole in the marked hole positions. Clear the drilled holes of any shavings or debris and mount the rear center bracket using the 6-32 bolt and 6-32 nylon nut.

Figure 9 Mount rear sensor bracket



11. With all six sensors mounted, ensure that the sensors are leveled vertically and horizontally using an accurate level or mobile app.
12. With the sensors mounted and connected to the wiring harness, connect the wiring harness to the Pathfinder® Siren according to the Table 3.

**Table 3 Wiring**

	<b>Harness Wire Color</b>	<b>Connection</b>
Front Wire Harness	Red (ACC+)	+12 V Ignition (NOT BATTERY)
	Black (GND -)	Ground
	Green (Trigger 1)	Pathfinder Input 1
	Yellow (Trigger 2)	Pathfinder Input 2
	Brown (Turn Left)	Do Not Connect
	White (Turn right)	Do Not Connect
Rear Wire Harness	Red (ACC+)	+12 V Ignition (NOT BATTERY)
	Black (GND -)	Ground
	Green (Trigger 1)	Pathfinder Input 3
	Yellow (Trigger 2)	Pathfinder Input 4
	Brown (Turn Left)	Do Not Connect
	White (Turn right)	Do Not Connect

**NOTE:** With the wire harness connected to the Pathfinder, test the function of the PBW System and Sensors using the Pathfinder Diagnostic on the Pathfinder Programmer before moving to step 13.

13. Once each sensor is leveled and the PBW System is functioning properly, secure each sensor and reassemble the front and rear fascias according to the manufacturer’s guidelines.
14. With the body panels remounted, ensure proper functioning of PBW system by doing test runs within a 25-foot radius of the vehicle, triggering the sensors and light bar according to the programmed features.

## **Getting Technical Support**

For technical support, please contact:

Federal Signal Corporation  
Service Department  
Phone: 1-800-433-9132  
Email: 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 an 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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Safety and Security Systems

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