

Safety Message to Installers of Sound/Light Equipment

⚠ WARNING

People's lives depend on your proper installation and servicing of Federal Signal products. It is important to read and follow all instructions shipped with this product. 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 ensure that the front of the speaker is clear of any obstructions.

Pathfinder® Four- and Six-Button Remote

- Install the speaker(s) as far forward on the vehicle as possible in a location which 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 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 and safety functions or circuits. Always check the 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 handheld so the vehicle, controls, and microphone can be operated safely.
- 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.

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.

Pathfinder Four- and Six-Button Remote, PF200S4, PF200S6, PF100S4, and PF100S6

This publication has instructions for installing the Pathfinder with the four- and six-button control heads. 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.

NOTE: For additional electrical installation instructions, refer to the Installation and Maintenance Instructions packed with the Pathfinder.

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 PF200S6 and PF100S6 Kit Contents

| Qty. | Description | Part No. PF200S6 | Part No. PF100S6 |
|------------------------------|---|------------------|------------------|
| 1 | Pathfinder 100 Or 100/200-Watt Amp | 862302662 | 862302662-100 |
| 1 | Series D MNCT Microphone | MNCT-SD | MNCT-SD |
| 1 | Mic Extension Kit | RMK | RMK |
| 1 | Pathfinder Bail Bracket | 862302132 | 862302132 |
| 1 | 25-foot RS485 Cable Assembly | 1751357-02 | 1751357-02 |
| 1 | 8-inch RS485 Cable Assembly | 1751357-06 | 1751357-06 |
| 1 | Pathfinder Relay Wire Assembly | 17501359 | 17501359 |
| 1 | Pathfinder I/O Wire Assembly | 17501360 | 17501360 |
| 1 | A Male To Mini-B USB 2.0 Cable | 17501813 | 17501813 |
| 1 | 1F To 2 8P8C RJ45 T Adapter Connector | 13901989 | 13901989 |
| 1 | Pathfinder Hardware Kit | 77700765 | 77700765 |
| <i>Hardware Kit Contents</i> | | | |
| 2 | 6 AWG #8 Terminal | 19001363 | 19001363 |
| 2 | 1/4-20,Stainless Steel Carriage Bolt | 7004A020-12 | 7004A020-12 |
| 2 | 1/4-20 Steel External Tooth Keps® Nut | 7058A005 | 7058A005 |
| 2 | 1/4-inch Flat Washer | 7072A028 | 7072A028 |
| 2 | M4 Sems Pan Head Screw | 70000451-06 | 70000451-06 |
| 2 | 1/4-inch Internal Tooth Lockwasher | 7075A016 | 7075A016 |
| 1 | Six-Button Pathfinder Control Head | 862302919A-PF | 862302919A-PF |
| <i>Control Head Kit</i> | | | |
| 1 | Six-Button Convergence Assembly | | |
| 4 | #4 Black Phosphate Thread Forming Screw | 7011232-05 | 7011232-05 |
| 1 | Loop Strip | 8550A100 | 8550A100 |
| 1 | Hook Strip | 8550A101 | 8550A101 |
| 1 | Insert Legends | 8572294 | 8572294 |
| 2 | Six-Button Mounting Clip | 862302918 | 862302918 |
| 1 | Swivel Mount | 8623129 | 8623129 |

Table 2 PF200S4 and PF100S4 Kit Contents

| Qty. | Description | Part No. PF200S4 | Part No. PF100S4 |
|------------------------------|--|------------------|------------------|
| 1 | Pathfinder 100 Or 100/200-Watt Amp | 862302662 | 862302662-100 |
| 1 | Series D MNCT Microphone | MNCT-SD | MNCT-SD |
| 1 | Microphone Extension Kit | RMK | RMK |
| 1 | Pathfinder Bail Bracket | 862302132 | 862302132 |
| 1 | 25-foot RS485 Cable Assembly | 1751357-02 | 1751357-02 |
| 1 | 8-inch RS485 Cable Assembly | 1751357-06 | 1751357-06 |
| 1 | Pathfinder Relay Wire Assembly | 17501359 | 17501359 |
| 1 | Pathfinder I/O Wire Assembly | 17501360 | 17501360 |
| 1 | A Male To Mini-B USB 2.0 Cable | 17501813 | 17501813 |
| 1 | 1F To 2 8P8C RJ45 T Adapter Connector | 13901989 | 13901989 |
| 1 | Pathfinder Hardware Kit | 77700765 | 77700765 |
| <i>Hardware Kit Contents</i> | | | |
| 2 | 6 AWG #8 Terminal | 19001363 | 19001363 |
| 2 | 1/4-20,Stainless Steel Carriage Bolt | 7004A020-12 | 7004A020-12 |
| 2 | Nut,Ext Keps,1/4-20 Steel External Keps® Nut | 7058A005 | 7058A005 |
| 2 | 1/4-inch Flat Washer | 7072A028 | 7072A028 |
| 2 | M4 SEMS Pan Head Screw | 70000451-06 | 70000451-06 |
| 2 | 1/4-inch Internal Tooth Lockwasher | 7075A016 | 7075A016 |
| 1 | Four-Button Pathfinder Control Head | 862302836-PF | 862302836-PF |
| <i>Control Head Kit</i> | | | |
| 1 | Four-Button Convergence Assembly | | |
| 1 | Loop Strip | 8550A100 | 8550A100 |
| 1 | Hook Strip | 8550A101 | 8550A101 |
| 1 | Insert Legends | 8572294 | 8572294 |
| 1 | Swivel Mount Kit | 8623129 | 8623129 |

Connecting the Control Head

The only connections required for the control head is the 25-foot Convergence Network cable. No connection is required to the four-pin connector at the side of the keypad.

Mounting the Control Head

Several methods to mount the controllers are available. They are supplied with two mounting methods: a Swivel Mount or a Hook and Loop Mount. A hinged bracket mount is also available for the six- and nine-button controllers, but it is not included. The mounting method used will depend on the chosen mounting location, available room, and user preference.

⚠ WARNING

MOUNTING PRECAUTION: Unreliable switch activation and loss of “tactile feedback” will result if the method of mounting the Convergence Controller allows movement. DO NOT mount the Convergence Controller on padded surfaces. Failure to heed this warning could result in driver distraction or driver error while operating the vehicle.

⚠ 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 to you or others.

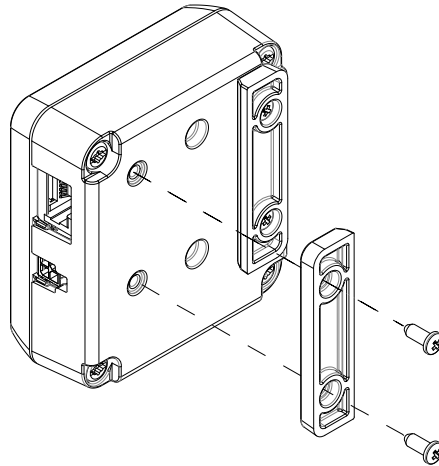
Choose a location that allows the vehicle and controls to be operated safely at all times.

Swivel Mounting

To swivel mount:

1. (Six-button only) Using Figure 1 as a guide, loosely install the mounting clips to the back of the Convergence Controller housing. When installed properly, the beveled edges of the clips will be toward the center on the housing as illustrated. Slide the swivel mount into place and tighten the clips, making sure that the swivel mount is able to be removed. Do not overtighten screws.

Figure 1 Swivel Mount



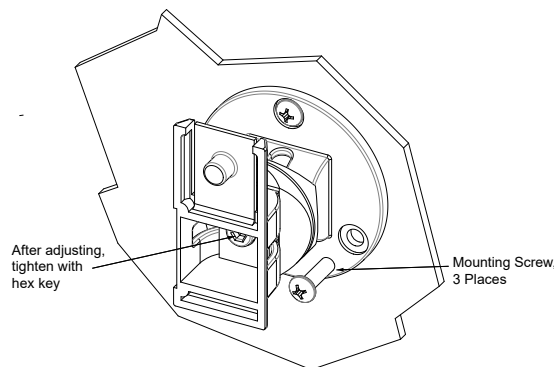
2. (Four-button only) Slide the swivel mount into place.
3. Remove the swivel mount assembly and set the Convergence Controller to the side.
4. Using the swivel mount assembly as a guide, scribe the three drill-position marks at the selected mounting location.

NOTICE

DRILLING PRECAUTIONS: Before drilling holes, check the area into which you are drilling to ensure that you do not damage vehicle components while drilling. All wire routings going through drilled holes should be protected by a grommet or convoluted/split loom tubing.

5. Drill three 1/8-inch mounting holes at the marked positions.
6. Secure the swivel mount assembly to the mounting surface with the provided screws. Do not overtighten the screws. See Figure 2.

Figure 2 Secure to Mounting Surface



7. Adjust the swivel mount assembly to allow for maximum access to the Convergence Controller.

8. Once in desired location, tighten using a 3 mm hex key. A 7/64-inch hex key will also work.
9. Slide the Convergence Controller onto the swivel mount assembly.

Hook and Loop Mounting

The hook and loop mounting method is intended for storing the Convergence Controller when it is not in use. The hook and loop material may not provide sufficient rigidity for proper Convergence Controller operation.

To hook and loop mount:

1. Locate a suitable mounting location for the Convergence Controller.

NOTE: The hook-and-loop pads’ mounting surfaces must be clean and dry for proper adhesion. If necessary, use isopropyl alcohol and water to clean the mounting surfaces.

2. Remove the paper backing from the hook pad and affix it to the back of the Convergence Controller.
3. Remove the paper backing from the loop pad and affix it to the mounting surface.
4. Place the Convergence Controller in position by mating the hook and loop surfaces.

Keypad Default Functions

See Tables 3 through 8 for default button functions.

Table 3 Four-Button Default Programming

| Button | Default Function |
|--------|--|
| BTN 1 | Light Bar–Pattern 10 Front Cutoff Relay 1,2 ON |
| BTN 2 | Light Bar–Pattern 17 Relays 1-4 ON Horn Ring Transfer |
| BTN 3 | Light Bar–Pattern 26 Flash White Enable Horn Ring Transfer Siren Enabled (SSP Wail) Relays 1-6 ON |
| BTN 4 | Alley/Takedown Step Step 1 - Left Alley and Relay 7 Step 2 - Right Alley and Relay 8 Step 3 - TakeDowns and Relay 9 |

Table 4 Four-Button Input Default Programming Polarity

| Input | Default Function | Polarity |
|-----------|--|----------|
| Ignition | System Enable, Immediate system shutdown (no delay) ignition off BAT | BAT |
| Park | Siren Mute White Light Cutoff (Light Bar) | GND |
| Input 1 | Remote Button 5, Step 3 Activation | GND |
| Input 2 | Relay 10 ON | GND |
| Input 3 | Relay 11 ON | GND |
| Input 4 | Relay 12 ON | GND |
| Horn Ring | When Button 3 is active, scrolls through Wail/Yelp/Priority, double tap off When Button 2 or park, SSP Air Horn | GND |

Table 5 Four-Button Global/Miscellaneous Default Programming

| Global | Default Function |
|---------------|-------------------|
| Audible | All buttons |
| Dim Level | 10 |
| Battery Level | No action defined |

Table 6 Six-Button Default Programming

| Button | Default Function |
|----------------|---|
| BTN 1 | SSP Wail (Active with Slide Switch 3) |
| BTN 2 | SSP Yelp (Active with Slide Switch 3) |
| BTN 3 | SSP Priority (Active with Slide Switch 3) |
| BTN 4 | Alley/Takedown Step Step 1 - Left Alley and Relay 7 Step 2 - Right Alley and Relay 8 Step 3 - TakeDowns and Relay 9 |
| BTN 5 | Scene Step Step 1 - Scene Left and Relay 7,9 Step 2 - Scene Right and Relay 7,8 Step 3 - Scene Front and Relay 7,8,9 |
| BTN 6 | SignalMaster™ Step LRCO (Light Bar) |
| Slide Switch 1 | Light Bar–Pattern 10 Front Cutoff Relay 1,2 ON |
| Slide Switch 2 | Light Bar–Pattern 17 Relays 1-4 ON Horn Ring Transfer |
| Slide Switch 3 | Light Bar–Pattern 26 Flash White Enable Horn Ring Transfer Siren Enabled (SSP Wail) Relays 1-6 ON |

Table 7 Six-Button Input Default Function Polarity

| Input | Default Function | Polarity |
|-----------|--|----------|
| Ignition | System Enable, Immediate system shutdown (no delay) ignition off BAT | BAT |
| Park | Siren Mute White Light Cutoff (Light Bar) | GND |
| Input 1 | Remote Button 5, Step 3 Activation | GND |
| Input 2 | Relay 10 ON | GND |
| Input 3 | Relay 11 ON | GND |
| Input 4 | Relay 12 ON | GND |
| Horn Ring | When Slide Switch 3 is active, scrolls through Wail/Yelp/Priority, double tap off When Slide Switch 2 or park, SSP Air Horn | GND |

Table 8 Six-Button Global/Miscellaneous Default Programming

| Global | Default Function |
|---------------|-------------------|
| Audible | All buttons |
| Dim Level | 10 |
| Battery Level | No action defined |

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 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. 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
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