

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.

- 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.

Pathway Four- and Six-Button Remote, PW100S4, and PW100S6

This publication has instructions for installing the Pathway 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 Pathway.

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 the 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 PW100S6 Kit Contents

Qty.	Description	Part No. PW100S6
1	Pathway 100-Watt Amp	862303658-100
1	Series D MNCT Microphone	MNCT-SD
1	Mic Extension Kit	RMK
1	Bail Bracket, Plastic	862303559
1	25-foot RS485 Cable Assembly	1751357-02
1	8-inch RS485 Cable Assembly	1751357-06
1	Pathway Relay Wire Assembly	17501359
1	Pathway I/O Wire Assembly	17501360
1	A Male To Mini-B USB 2.0 Cable	17501813
1	1F To 2 8P8C RJ45 T Adapter Connector	13901989
1	Pathway Hardware Kit	77700765
<i>Hardware Kit Contents</i>		
2	6 AWG #8 Terminal	19001363
2	1/4-20, Stainless Steel Carriage Bolt	7004A020-12
2	1/4-20 Steel External Tooth Keps® Nut	7058A005
2	1/4-inch Flat Washer	7072A028
2	M4 Sems Pan Head Screw	70000451-06
2	1/4-inch Internal Tooth Lockwasher	7075A016
1	Six-Button Pathway Control Head	862302919-PF
<i>Control Head Kit</i>		
1	Six-Button Convergence Assembly	
4	#4 Black Phosphate Thread Forming Screw	7011232-05
1	Loop Strip	8550A100
1	Hook Strip	8550A101
1	Insert Legends	8572294
2	Six-Button Mounting Clip	862302918
1	Swivel Mount	8623129

Table 2 PW100S4 Kit Contents

Qty.	Description	Part No. PW100S4
1	Pathway 100-Watt Amp	862303658-100
1	Series D MNCT Microphone	MNCT-SD
1	Microphone Extension Kit	RMK
1	Pathway Bail Bracket	862303559
1	25-foot RS485 Cable Assembly	1751357-02
1	8-inch RS485 Cable Assembly	1751357-06
1	Pathway Relay Wire Assembly	17501359
1	Pathway I/O Wire Assembly	17501360
1	A Male To Mini-B USB 2.0 Cable	17501813
1	1F To 2 8P8C RJ45 T Adapter Connector	13901989
1	Pathway Hardware Kit	77700765
<i>Hardware Kit Contents</i>		
2	6 AWG #8 Terminal	19001363
2	1/4-20,Stainless Steel Carriage Bolt	7004A020-12
2	Nut,Ext Keps,1/4-20 Steel External Keps® Nut	7058A005
2	1/4-inch Flat Washer	7072A028
2	M4 SEMS Pan Head Screw	70000451-06
2	1/4-inch Internal Tooth Lockwasher	7075A016
1	Four-Button Pathway Control Head	862302836-PF
<i>Control Head Kit</i>		
1	Four-Button Convergence Assembly	
1	Loop Strip	8550A100
1	Hook Strip	8550A101
1	Insert Legends	8572294
1	Swivel Mount Kit	8623129

Connecting the Control Head

The only connection 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.

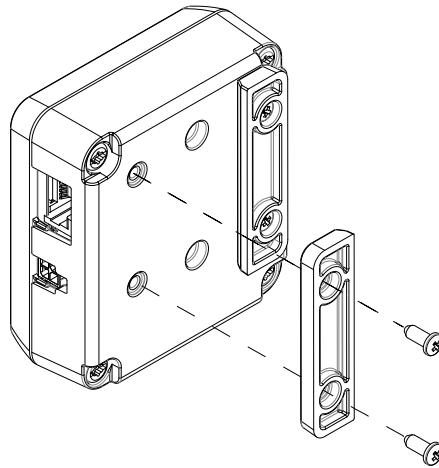
Choose a location that allows the vehicle and controls to be operated safely at all times.

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



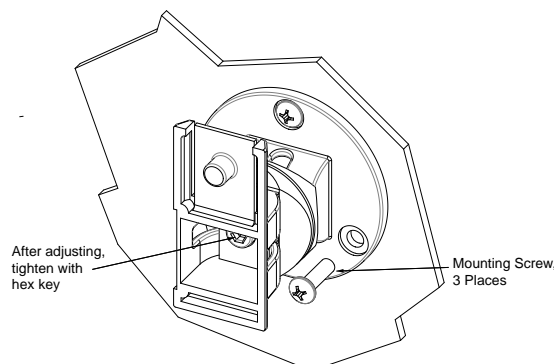
2. (Four-button only) Slide the swivel mount into place.
3. Remove the swivel mount assembly and set the Convergence Controller to the side.
4. Using the swivel mount assembly as a guide, scribe the three drill-position marks at the selected mounting location.

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 the 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	Lightbar – Pattern 27, Flashing Takedowns ILS – Front and Rear Pattern 27, Flashing Takedowns CNSM- Front and Rear Pattern 27, Flashing Takedowns Relays 1-4 ON
BTN 2	Step 1 – SSP Wail (Active with BTN1) Step 2 – SSP Yelp (Active with BTN1) Step 3 – SSP Priority (Active with BTN1) Step 4 – SSP HiLo (Active with BTN1)
BTN 3	Step 1 – Left Alley (LB/ILS) Step 2 – Take Down (LB/ILS/CNSM) Step 3 – Right Alley (LB/ILS)
BTN 4	SignalMaster Step; LRCO (LB/ILS/CNSM)

Table 4 Four-Button Input Default Programming Polarity

Input	Default Function	Polarity
Ignition	System Enable, Immediate system shutdown (no delay) ignition OFF	BAT
Park	Siren Mute Flashing Takedown Cutoff (LB/ILS/CNSM)	GND
Input 1	Remote BTN 1 Activation	GND
Input 2	Scene Front (LB/ILS/CNSM)	GND
Horn Ring	When BTN1 is Active and PARK is ON, SSP Air Horn When BTN1 is Active and PARK is OFF, Step 1- SSP Wail When BTN1 is Active and PARK is OFF, Step 2- Cycles to SSP Yelp When BTN1 is Active and PARK is OFF, Step 3- Cycles to SSP Priority When BTN1 is Active and PARK is OFF, Step 4- Cycles to SSP HiLo When BTN1 is Active and PARK is OFF, Cycles continue until Horn Ring is double-tapped	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 Function Programming

Button	Default Function
SS1	Light Bar – Pattern 10, Front Cutoff ILS – Rear Pattern 10 CNSM – Rear Pattern 10 Relay 1 and 2 ON
SS2	Light Bar – Pattern 17 ILS – Front and Rear Pattern 17 CNSM – Front and Rear Pattern 17 Relay 1-4 ON
SS3	Light Bar – Pattern 27, Flashing Takedowns ILS – Front and Rear Pattern 27, Flashing Takedowns CNSM – Front and Rear Pattern 27, Flashing Takedowns Relay 1-6 ON
BTN 1	Step 1 – SSP Wait (Active with SS3) Step 2 – SSP Yelp (Active with SS3) Step 3 – SSP Priority (Active with SS3) Step 4 – SSP HiLo (Active with SS3)
BTN 2	SSP Air Horn
BTN 3	Step 1 – Left Alley (LB/ILS) Step 2 – Take Down (LB/ILS/CNSM) Step 3 – Right Alley (LB/ILS)
BTN 4	Scene Front (LB/ILS/CNSM)
BTN 5	SignalMaster Step; LRCO (LB/ILS/CNSM)
BTN 6	Relay 7 ON (8-Second Timer)

Table 7 Six-Button Input Default Function Polarity

Input	Default Function	Polarity
Ignition	System Enable, Immediate system shutdown (no delay) ignition OFF	BAT
Park	Siren Mute Flashing Takedown Cutoff (LB/ILS/CNSM)	GND
Input 1	Remote SS1 Activation	GND
Input 2	Remote SS2 Activation	GND
Input 3	Remote SS3 Activation	GND
Input 4	Remote BTN 4	GND
Horn Ring	When SS2 is Active, SSP Air Horn When SS3 is Active and PARK is ON, SSP Air Horn When SS3 is Active and PARK is OFF, Step 1- SSP Wait When SS3 is Active and PARK is OFF, Step 2- Cycles to SSP Yelp When SS3 is Active and PARK is OFF, Step 3- Cycles to SSP Priority When SS3 is Active and PARK is OFF, Step 4- Cycles to SSP HiLo When SS3 is Active and PARK is OFF, Cycles continue until Horn Ring is double-tapped	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: emp-service-info@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. 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

© Copyright 2021 Federal Signal Corporation