

**INSTALLATION INSTRUCTIONS
FOR
MODEL SPS8V/600161 STROBE POWER SUPPLY**

SAFETY MESSAGE TO INSTALLERS

People's lives depend on your safe installation of our products. It is important to read, understand and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

- To properly install this unit: 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 drilling into a vehicle structure, be sure 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.
- Do not drill any holes in the power supply housing.
- Locate light control so the VEHICLE and CONTROL can be operated safely under all driving conditions.
- You should frequently inspect the light system to ensure that it is operating properly and that it 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 to you or others.

WARNING

This power supply is designed to power various strobe heads designed by Federal Signal. Consult local codes and regulations to determine if the power supply/strobe head combination complies.

I. GENERAL.

The Federal Model SPS8V strobe power supply is designed to operate on 11 to 28-volts DC (12.8Vdc, 13.6Vdc, or 25.6Vdc nominal).

This power supply can produce up to 32 different flashing patterns. The typical flashing pattern provides 75 alternating strobe flash clusters per minute with flash energy of 12 joules and 15W of power per flash cluster to each strobe head.

II. SPECIFICATIONS.

Input Voltage	11Vdc to 28Vdc.
Input Current @25.6Vdc	5.8 amperes.
Input Current @ 12.8Vdc	11.4 amperes.
Stand-by Current	0.04 amperes
Fuse	20 amperes (automotive type).
Dimensions:	
Length	8.9 inches (226 mm)
Width	10.8 inches (275 mm)
Height	2.8. inches (72 mm)
Net Weight	3 lbs. 6 oz. (1.53 kg)
Shipping Weight	4 lbs. 9 oz. (2.07 kg)

III. INSTALLATION.

CAUTION

The power supply housing is NOT waterproof. It must be mounted in a location which is sheltered from falling rain, snow, standing water, etc. Also, it must be installed in an adequately ventilated area. Never install near heater ducts.

Do not mount the power supply unit under the vehicle's hood.

Plan all wiring and cable routing before performing any installation.

A. Mechanical.

1. Use the power supply as a template and scribe four drill positioning marks at the selected mounting location.

CAUTION

Before drilling holes in ANY part of a vehicle, be sure that both sides of the mounting surface are clear of parts that could be damaged; such as brake lines, fuel lines, electrical wiring or other vital parts.

WARNING

DO NOT drill holes in **ANY** part of the power supply chassis or cover. Damage to the unit, serious injury or death to you or others may result.

2. Drill four mounting holes at the position marks.

3. Secure the power supply to the mounting surface.

4. Install the strobe units as described in the instructions packed with the units.

B. Electrical Connections.

WARNING

Failure to observe this WARNING may result in fire, burns or blindness.

If shorted to vehicle frame, high current conductors can cause hazardous sparks resulting in electrical fires or molten metal.

DO NOT connect this system to vehicle battery until ALL other electrical connections are made and mounting of all components is complete.

Verify that no short circuits exist, before making connection to the vehicle battery.

CAUTION

Electromagnetic radiation from interconnecting cables may adversely effect operation of sensitive electronic equipment. Ensure that all cable which connects the power supply unit to the strobe heads is shielded and that the shield is electrically connected only at the cable's power supply end.

1. Disconnect vehicle battery. Ensure that power is disconnected from all vehicle lighting control systems.

2. Ensure that the power supply chassis is grounded to the vehicle chassis. If necessary, connect a wire from the power supply chassis (mounting screw) to a known good vehicle chassis ground.

IMPORTANT

See figure 1 while completing the electrical connections.

NOTE

Figure 2 shows the relationship of flash pattern to strobe head outlets on the SPS8V.

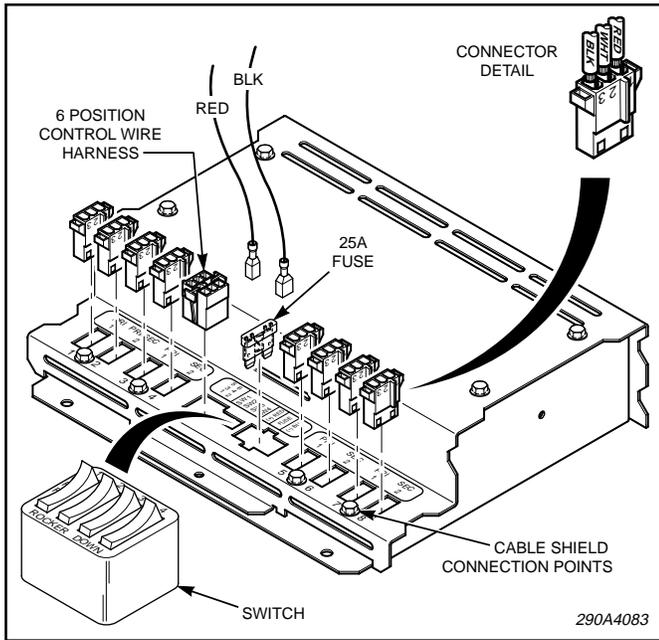


Figure 1.

3. Connect the user-supplied 12AWG (2.0 mm) black wire to the power supply's -/BLK terminal. Note that the quick-connect female terminal for the black wire connects to the PCB quick-connect male terminal. Dress the wire neatly, allowing for a drain loop and maintenance. Connect it to a known good vehicle chassis ground.

IMPORTANT

It is the installer's responsibility to determine an appropriate location in the vehicle circuitry to connect the control wires.

- 4. See figure 3 for control wire harness connections.
 - a. Connect the control wire harness to the power supply, even if no further control connections are desired.
 - b. Connect the black, white, red, and green control wires to the appropriate switches,

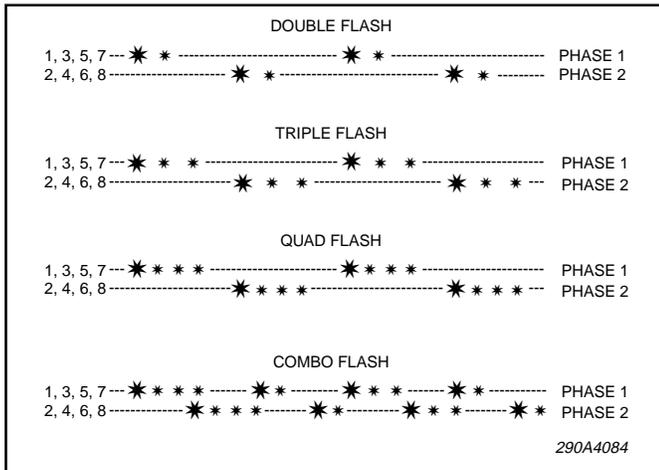


Figure 2.

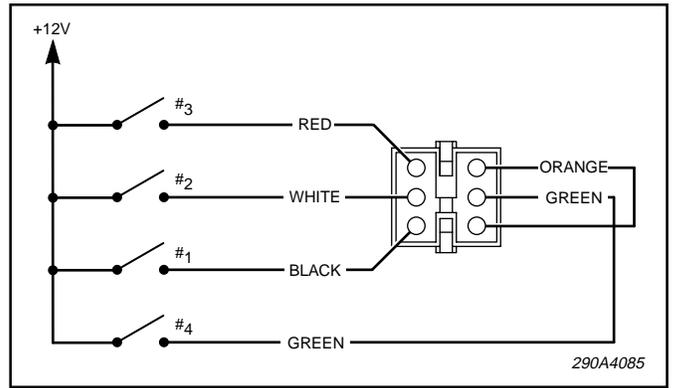


Figure 3.

relays, and/or vehicle lighting controller that are capable of applying a 12/24 volt source (0.1-ampere minimum).

NOTE

Brown wire is not used and can be cut.

If only one flashing function (all heads flashing) is desired, it is not necessary to connect the control wires. Set DIP switch #1 to the "on" position and install a power switch (24Vdc/20A min.) in the user-supplied 12AWG (2.0 mm) red wire.

IMPORTANT

Ensure that the cable's shield is connected to ground **only** at the cable's power supply end.

5. Connect strobe head outlets to strobe head cables while noting proper configuration per vehicle application. Ensure that all strobe head cable's shields are grounded at the SPS8V cover. Allow for a drain loop and maintenance.

6. Connect the user-supplied 12AWG (2.0 mm) red wire to the power supply's RED/+ terminal. Note that the quick-connect male terminal for the red wire connects to a PCB quick-connect female terminal. Dress the wire neatly, allowing for a drain loop and maintenance. Connect it to the vehicle's 12/24 volt power source. If control wire connections were not made, install a power switch (24Vdc/20A min.) in this lead.

7. Check all connections and wiring. Ensure that there are no short circuits and that all wires are protected from any sharp edges. Reconnect the vehicle battery. Test for proper operation of the strobe system. Check all the flashing functions. If necessary, adjust the positions of the strobe head plugs connected to the power supply. When satisfied with the flashing patterns, use a permanent marker and mark the strobe plugs with the appropriate outlet numbers.

IV. OPERATION.

SAFETY MESSAGE TO OPERATORS

Peoples' lives depend on your safe use of our products. Listed below are some important safety instructions and precautions you should follow:

- Do not attempt to activate or deactivate light 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 driving cautiously.
- Also, situations may occur which obstruct your warning signal when natural or man-made objects are between your vehicle and others, such as: raising your hood or trunk lid. If these situations occur, be especially careful.
- At the start of your shift, you should ensure that the lights are securely attached and all units are operating properly.
- 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.

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

RETAIN AND REFER TO THIS MESSAGE

The flash patterns shown in tables 1 and 2 are activated by the control wires or a power switch.

V. POWER DOUBLING.

Federal Model 131SH and Target Tech 601131, omni-directional (360°) amber heads, can survive twice as much power as regular heads. They are supplied with special adapter cables designed to double the power supplied from the SPS8V. Recommended configurations, with up to four power-doubled heads, are shown in table 3.

CAUTION

Some strobe heads may not survive the additional heat resulting from doubling the power. Federal Model 131SH and Target Tech 601131 are designed to withstand the additional heat. DO NOT use power-doubling for other model strobe heads.

NOTE

Note that configurations marked with an "*" (see table 3) require cutting the orange jumper wire on the control wire plug. Also, note that one power-doubling adapter serves up to two power-doubled heads.

VI. SERVICE.

WARNING

High voltages are present in a strobe light system. Wait at least five (5) minutes, after shutting off power, before servicing the unit. Failure to do so may result in property damage, serious injury, or death to you and others.

Servicing should be performed by a qualified Federal Signal service center. If the power supply is not working properly, disconnect power and ground to the unit. Next, disconnect the electrical connections to the strobe tubes. Remove the power supply from the vehicle. Send the unit to the nearest authorized service center or to the Federal Signal service department.

Communication and shipments should be addressed to:

Service Department
Federal Signal Corporation
2645 Federal Signal Drive
University Park, IL 60466

1-800-433-9132
(In Illinois) 708-534-3400

WARNING

The fuse MUST be replaced with an exact replacement only.

After servicing is complete, perform a test to ensure the power supply is operating properly.

VI. REPLACEMENT PARTS.

Description	Part No.
Fuse, 20 Ampere	148A142-06
Printed Circuit Board Assy.	2005048B-01
Power Supply Unit	8575159B-01
Accessory Kit	8575176A

VII. KIT CONTENTS LIST.

Qty.	Description	Part No.
1	Terminal, Female	224A216-05
1	Terminal, Male	224253
1	Control Harness/Plug	1461254

Table 1. Flash Patterns using control wires.

DIP Switch				Flashing Pattern	Strobe Heads Activated with control wires- in ascending priority			
#1	#2	#3	#4		#1 BLK	#2 WHT	#3 RED	#4 GREEN
off	off	off	off	Double Flash	1 + 2	ALL	1,4 + 2,3	1,4,5+2,3,6
off	ON	off	off	Double Flash	1,5 + 2,6	ALL	1,4 + 2,3	1,8 + 2,7
off	off	ON	off	Triple Flash	1 + 2	ALL	1,4 + 2,3	1,4,5+2,3,6
off	ON	ON	off	Triple Flash	1,5 + 2,6	ALL	1,4 + 2,3	1,8 + 2,7
off	off	off	ON	Quad Flash	1 + 2	ALL	1,4 + 2,3	1,4,5+2,3,6
off	ON	off	ON	Quad Flash	1,5 + 2,6	ALL	1,4 + 2,3	1,8 + 2,7
off	off	ON	ON	Combo Flash	1 + 2	ALL	1,4 + 2,3	1,4,5+2,3,6
off	ON	ON	ON	Signal Master Special priority:	1 >>> 8 1 <<< 4 & 5 >>> 8	1 <<< 8	1 >> 8 >> 1	1,8 + 2,7

NOTE: Control wires are used in these configurations. The 12/24 volt source is connected to the power supply's RED/+ terminal. Flashing is activated by applying the 12/24 volt source to the appropriate control wire.

Table 2. Flash Patterns not using control wires.

DIP Switch				Flashing Pattern	Strobe Heads Activated
#1	#2	#3	#4		
ON	off	off	off	Double Flash	ALL
ON	ON	off	off	Double Flash	ALL
ON	off	ON	off	Triple Flash	ALL
ON	ON	ON	off	Triple Flash	ALL
ON	off	off	ON	Quad Flash	ALL
ON	ON	off	ON	Quad Flash	ALL
ON	off	ON	ON	Combo Flash	ALL
ON	ON	ON	ON	Signal Master	8 >>> 1

NOTE: Control wires are not used in these configurations. Flashing is activated by applying the 12/24 volt source to the power supply's RED/+ terminal.

Table 3. Power Doubling.

Power in Heads	Head J1	Head J2	Head J3	Head J4	Head J5	Head J6	Head J7	Head J8
* 1 Double 6 Normal	Normal double flash	ADAPTER Double Power Any flash		Normal double flash	Normal	Normal	Normal	Normal
* 1 Double 5 Normal	Normal double flash	ADAPTER Double Power Any flash		X	Normal	Normal	Normal	Normal
2 Double 4 Normal	Double Power Any flash	ADAPTER Double Power Any flash		X	Normal	Normal	Normal	Normal
**2 Double 3 Normal double flash	Double Power dbl. flash	ADAPTER Double Power Double flash		X	X	Normal dbl. flash only	Normal dbl. flash only	Normal dbl. flash only
*2 Double 2 Normal select 2 of 4	Normal double flash	X	X	Normal double flash	X	ADAPTER Double Power Any Flash		Double Power Any flash
* 3 Double *** 2 Normal	Normal double flash	ADAPTER Double Power Any flash		Normal double flash	X	ADAPTER Double Power Any flash		Double Power Any flash
* 3 Double *** 1 Normal	Normal double flash	ADAPTER Double power Any Flash		X	X	ADAPTER Double Power Any flash		Double Power Any flash
*** 4 Double 0 Normal	Double Power Any flash	ADAPTER Double Power Any flash		X	X	ADAPTER Double Power Any flash		Double Power Any flash
Control wire #2 (WHITE) or DIP switch #1	ON	ON	ON	ON	ON	ON	ON	ON
Control wire #3 (RED)	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Control wire #4 (GREEN)	ON	ON	ON	ON	ON	ON	OFF	OFF

* For these configurations ONLY, cut the orange jumper wire between plug pins on the control wire harness plug. Otherwise, the harness must be plugged in without modification. DO NOT USE control wire #1 (BLACK), or DIP switch #2.

** Use double flash ONLY (dip switches #3 and #4 must be off).

*** Do NOT use Control wire #4 (GREEN) for these configurations.

NOTE

Flash pattern DIP switch settings are as follows: DIP off = double flash, DIP #3 = triple flash, DIP #4 = quad flash, DIP #3+4 = combo flash.