

## INSTALLATION INSTRUCTIONS FOR MODEL SPS4-NFPA 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 SPS4-NFPA strobe power supply is designed to operate on 11 to 16-volts DC (12.8 or 13.6Vdc nominal). It is designed to power four remote Federal strobe heads (Models GS2, GS2F, 141SH, and 131SH). The power supply provides 76 alternating triple strobe flashes per minute with flash energy of up to 18 joules per triple flash.

This power supply can produce several flashing patterns. The primary flashing pattern is the ACTION

overlapping triple flash pattern with no dark time. The cutoff function disables two strobe heads. The synchronized pattern produces alternating triple flashes. A low-power double-flashing pattern is also available.

When used with properly installed GS2F heads flashing the ACTION pattern, this power supply can be used to build a system which complies with the NFPA lighting specification for upper level lighting. (For the lower level, ACTION, low power, or synchronized patterns may be used.)

### II. SPECIFICATIONS.

Input Voltage	11Vdc to 16Vdc (12.8 or 13.6Vdc nominal).
Input Current @ 13.6Vdc	8.1 amperes (action pattern) 7.3 amperes (synchronized pattern) 4.5 amperes (low power).
Input Current @ 12.8Vdc	8.5 amperes (action pattern) 7.7 amperes (synchronized pattern) 4.6 amperes (low power).
Fuse	15 amperes (automotive type).
Flash Energy Per Head	
Action pattern	18.1 joules @ 13.6Vdc 17.8 joules @ 12.8Vdc (per triple flash).
Synchronized pattern	16.4 joules @ 13.6Vdc 16.2 joules @ 12.8Vdc (per triple flash).
Low power	10.4 joules @ 13.6Vdc 10.0 joules @ 12.8Vdc (per double flash).
Power Per Head (action pattern)	22.9 watts @ 13.6Vdc 22.5 watts @ 12.8Vdc
Power Per Head (synchronized pattern)	20.8 watts @ 13.6Vdc 20.5 watts @ 12.8Vdc
Flash Rate	76 triple flashes per minute. 76 double flashes per minute (low power).
Dimensions:	
Length	10.06" (256 mm)
Width	2.8" (71 mm)
Height	3.46" (88 mm)
Net Weight	1.7 lbs. (0.77 kg)
Shipping Weight	2.2 lbs. (1.0 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.

When selecting a mounting location for the power supply unit, it is necessary to keep in mind that the cables are available in either a 16-foot length (SPC16) or a 30-foot length (SPC30). 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. Flashing Patterns.

Before proceeding with electrical connections, it is important to understand the flashing configurations available with the unit.

Outlets 1 & 2 and 3 & 4 form pairs of alternately flashing strobe heads. These pairs are listed on the unit label for your convenience.

1. Action Overlapping Flashing.

Action flashing produces overlapping triple flashes with maximum intensity and no dark time.

Action flashing is activated by applying +12Vdc to the user-supplied 14AWG red power wire.

2. Synchronized Flashing.

Strobe heads connected to outlets 1 and 4 triple flash alternately with strobe heads connected to outlets 2 and 3.

To activate synchronized flashing, apply +12Vdc to the 14AWG red power wire and connect the 18AWG blue control wire to **ground**.

3. Cutoff.

When activated, strobe heads connected to outlets 1 and 2 are disabled. Strobe heads connected to outlets 3 and 4 remain flashing. Front or rear cutoff is determined by the location of strobe heads connected to outlets 3 and 4.

To activate cutoff, apply +12Vdc to the 18AWG green control wire.

#### NOTE

Outlets 3 and 4 are marked red on the label indicating they remain flashing when cutoff is activated.

4. Low Power (Double Flash).

The low-power double-flash mode reduces the flash intensity and the current requirement.

To activate the low power mode, apply +12Vdc to the 18AWG yellow control wire.

#### NOTE

More than one function can be activated at a time to produce low-power double-flash cut-off or low-power double-flash synchronized flashing.

#### C. 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.

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

Refer to figure 1 while completing the electrical connections. Note the sequence of the wire colors in the lamp connector.

3. Connect the user-supplied 14AWG black wire to the power supply's -/BLK terminal. Note that the quick-connect terminal for the black wire is wider than the terminal for the red wire. Dress the wire neatly, allowing for a drain loop and maintenance. Connect it to a known good vehicle chassis ground.

4. The control wire harness (blue, green, and yellow wires) is required to activate flashing patterns other than the primary ACTION pattern. If flashing patterns other than the ACTION pattern are desired, proceed with the control harness installation.

If only the ACTION pattern is desired, the control harness is not used. Proceed with step 7 below.

Connect the control wire harness (blue, green, and yellow wires) to user-supplied control switches. Connect the green and yellow wires to a 12 volt power source using a switch capable of supplying 0.1-ampere. For control of the synchronized pattern, connect the blue wire to ground using a switch capable of supplying 0.1-ampere.

If permanent activation of synchronized flashing, cutoff, or low power (double flash) is desired, the appropriate control wire(s) can be connected directly (not using switches) to the proper source or ground. If activation of synchronized flashing, cutoff, or low power (double flash) is NOT desired, the appropriate control wire(s) can remain not connected.

5. If the cutoff function is desired, see figure 1 and proceed as follows:

a. Choose the pair of heads that should remain flashing when cutoff is activated. Connect their cables to outlets 3 and 4 (marked red on the power supply label).

b. Connect the cables of the other pair of heads to outlets 1 and 2.

6. Refer to the instructions supplied with the strobe head units, or cable kit, for additional wiring instructions. Route the cables to the strobe tube units. Allow for a drain loop and maintenance.

7. Connect the user-supplied 14AWG red power wire to the power supply's RED/+ terminal. Note that the quick-connect terminal for the red wire is narrower than

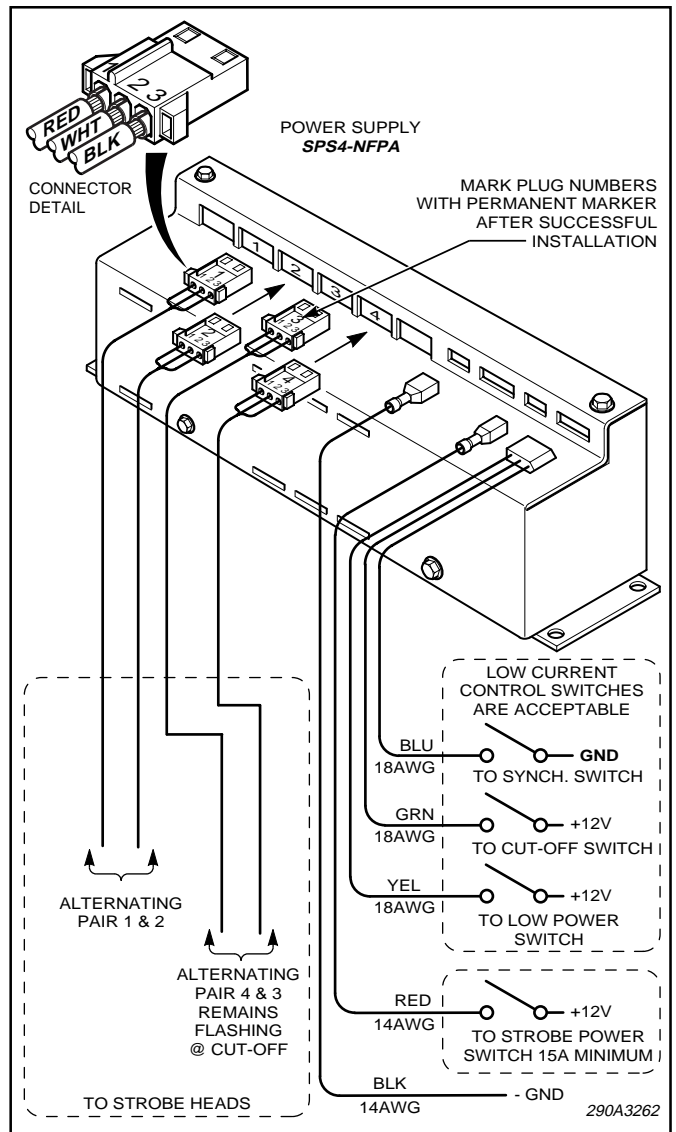


Figure 1.

the terminal for the black wire. Dress the wire neatly, allowing for a drain loop and maintenance. Connect it to a 12 volt power source (switch, relay, or vehicle lighting controller) capable of supplying a minimum of 15-amperes.

8. 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

#### V. 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, 15 Ampere	148A142A-06
Printed Circuit Board Assy.	2005020
Power Supply Unit	8575062-02
Accessory Kit	8575063-02

#### VII. KIT CONTENTS LIST.

Qty.	Description	Part No.
1	Terminal, Wide	224A216-04
1	Terminal, Narrow	224A215-04
1	Control Harness/Plug	175830