

## INSTRUCTION SHEET FOR SIGNALMASTER™ MODELS SMC14 and SML4-30

### SAFETY MESSAGE TO INSTALLERS AND USERS

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 light: 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.
- In order for the light to function properly, a good ground connection must be made. At a minimum, it must 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.
- Locate light control so the VEHICLE and CONTROL can be operated safely under all driving conditions.
- Do not attempt to activate or deactivate light control while driving in a hazardous situation.
- You should frequently inspect the light 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.

### I. GENERAL.

The Federal SignalMaster™ Model SMC14 is an economical, low profile, solid state, directional light control that is designed to operate with two Federal Signal four-lamp directional light assemblies (Model SML4-30). The unit is reversed polarity protected to avoid damage if the positive and negative power connections are connected incorrectly.

This model provides three distinctive directional signals: left arrow, right arrow, and center out. In addition, an alternating flash pattern produces a warning signal for use when a directional signal may not be appropriate. When a directional signal is selected, the lamps are

individually illuminated in a sequential sweeping motion until all eight lamps are illuminated.

### II. SPECIFICATIONS.

Input Voltage	11VDC to 16VDC.
Polarity	Negative ground only.
Operating Temperature Range	-30° C to +65° C.
Standby Current	Zero amperes.
+BAT Fuse	25 amperes.
+IGN/BAT Fuse	1 ampere.
Output Drive Capability (Total)	8, 27 watt lamps.
Flash Rate:	
Directional	35 patterns/min.
Warn	60 patterns/min.
Dimensions:	
Height	1-1/2"
Width	6-1/8"
Depth	5"
Shipping Weight	2.0 lbs

### III. INSTALLATION.

#### WARNING

These lights are intended for **secondary** warning only. They are **not** intended for use as a primary warning system.

#### A. SignalMaster Light Assembly (Model SML4-30).

Install the light assembly as described in the instructions packed with the mounting kit. Route the cable near the eventual location of the control unit.

#### B. Control Unit.

#### WARNING

When installing equipment inside air bag equipped vehicles, the installer **MUST** ensure that the equipment is installed **ONLY** in areas recommended by the vehicle manufacturer.

Failure to observe this warning will reduce the effectiveness of the air bag, damage the air bag, or potentially damage or dislodge the equipment, causing serious injury or death to you or others.

See figure 1. The supplied mounting bracket allows the control unit to be mounted in a variety of positions. To install the control unit, proceed as follows:

**CAUTION**

Install the control unit in an adequately ventilated area. Never install near heater ducts.

**NOTE**

When selecting a mounting location for the control unit, it is necessary to keep in mind that the cable is 30-feet long. Plan wiring and cable routing before installation.

1. Select a mounting location for the control unit that allows the vehicle and controls to be operated safely at all times.
2. Use the mounting bracket as a template and scribe two drill position 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.

3. Drill two holes at the previously scribed position marks.
4. Secure the mounting bracket to the mounting surface with two user-supplied, thread-forming, 1/4-20 screws.

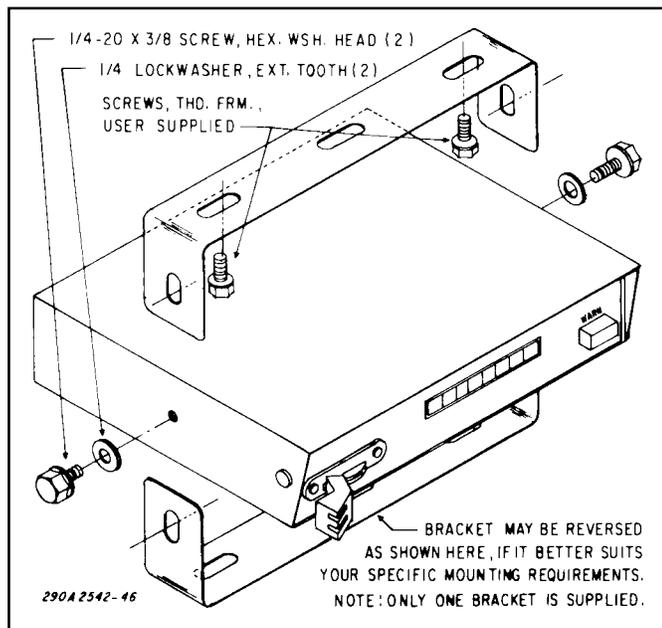


Figure 1.

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 connecting to the Positive (+) battery terminal.

The control unit is supplied with a six-position connector and a eleven-position terminal block to perform the electrical installation. User-supplied, 14-gauge red and black wires are required for the (+) BAT and (-) GND connections on the six-position connector. User-supplied, 18-gauge red and green wires are required for the (+) BAT/IGN and CASE GROUND connections on the six-position connector. Using figure 2 as a guide, complete this portion of the installation as follows:

1. Power Connections.

**CAUTION**

To avoid damage and ensure proper operation, the red and black wires MUST be installed in the six-position connector as shown in figure 3.

- a. Strip 1/4" of insulation off of each wire. See figure 3. Use small blade screwdriver to depress spring in connector, insert proper wire and remove screwdriver to release spring.
- b. Connect the red and black 14-gauge wires to the connector as shown in figure 3.

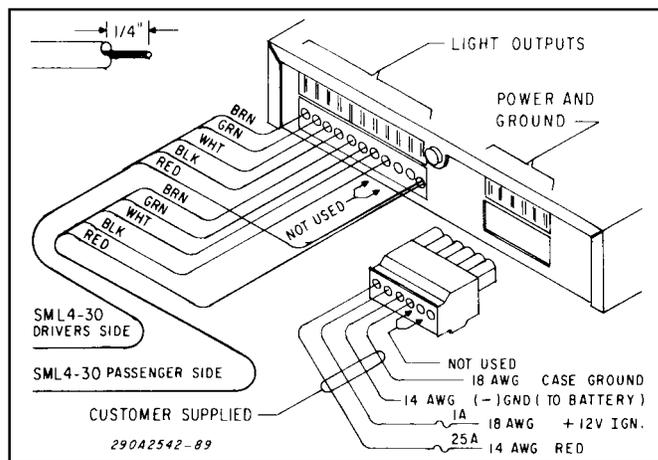


Figure 2.

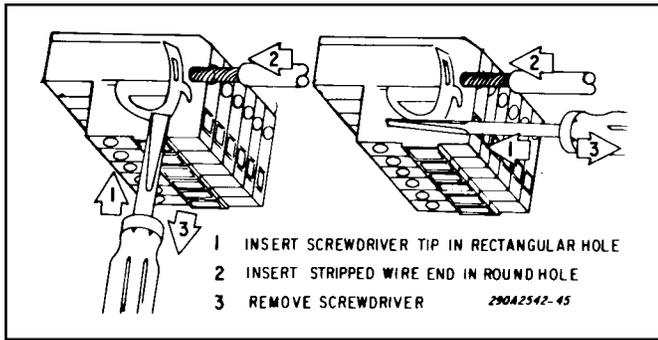


Figure 3.

c. Route the red and black 14-gauge wires through the firewall and toward the battery. Connect the black wire to a good frame ground near the battery. In most vehicles, a wire from the negative terminal of the battery is routed and attached to the body/frame at the fender. This is a convenient point to connect the 14-gauge black wire. Do not connect the red wire to the (+) positive terminal at this time.

d. Connect the 18-gauge red and green wires to the connector as shown in figure 3.

### IMPORTANT

The 18-gauge red wire's termination point determines when the directional signal can be activated. When the wire is attached to a vehicle fuse that is powered when the ignition switch is in the run or start position, the vehicle's ignition switch must be in the run or start position to operate the directional signal. When the wire is attached to the vehicle battery, the directional signal can be operated at any time. Note that the unit draws no current when in the "off" position.

e. Select the desired termination point. As applicable, route the 18-gauge red wire toward the vehicle fuse block or through the firewall toward the battery. Install a user-supplied, 1-ampere, in-line fuse in the 18-gauge red wire as close to the power source as possible and terminate as required.

f. Route the 18-gauge green wire to a known good chassis ground near the SMC14 control. To provide a good ground connection, scrape any painted surface to bare metal and terminate as required.

g. Ensure that positions 5 and 6 of the six-position connector are not used (see figure 2).

h. Plug the six-position connector into the mating connector on the control unit, and apply pressure until it locks into place.

### 2. SignalMaster Cable Connections.

a. Route the SignalMaster cable towards the control unit, while being careful not to scrape the wires on any sharp edges.

b. If necessary, cut the cable to the appropriate length.

c. Connect the both sets of SML4 wires to the terminal block as shown in figure 2. Positions 9 and 10 are not used. Ensure that the driver and passenger wire sets are connected to the terminal block EXACTLY as shown in figure 2.

### D. Inspection and Final Installation.

1. Ensure that there are no loose wire strands or other bare wires which may cause a short circuit. Also, all wires must be protected from any sharp edges which could eventually cut through the insulation.

2. Connect the remaining end of 14-gauge red wire from the six position connector to the (+) positive terminal of the battery with an in-line, user-supplied fuseholder and 25A fuse. Locate the fuse as near the battery as possible to protect the entire length of wire.

3. Read and understand paragraph IV OPERATION, and test for proper operation of all functions.

4. Secure the mounting bracket to the control unit with the 1/4-20 hex head, thread forming screws and 1/4" external tooth lock washers (see figure 1).

## 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:

- 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 light is securely attached and all lamps are operating properly. The LED display on the control only simulates the operation of the lamps.
- 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

See figure 4. All controls utilized during normal operation of the SignalMaster directional light are located on the front panel of the control unit. The LED display

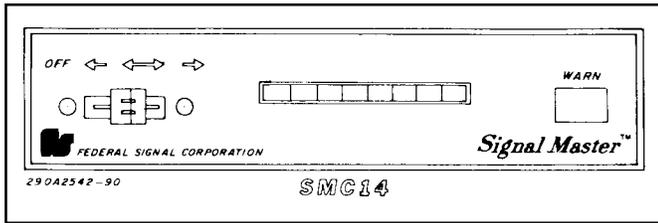


Figure 4.

simulates the light pattern being executed by the directional light.

A. *Slide Switch.*

1. LEFT (Position 1).

In this position, the driver side unit produces a left arrow flashing pattern, instructing traffic to move left.

2. CENTER OUT (Position 2).

In this position, a center out flashing pattern is produced on both the driver and passenger side units, instructing traffic to move around either side of the vehicle.

3. RIGHT (Position 3).

In this position, the passenger side unit produces a right arrow flashing pattern, instructing traffic to move right.

B. *WARN switch.*

When this switch is pressed, an alternating pattern is produced. The driver side unit activates alternately with the passenger side unit. This pattern will override any of the slide switch functions.

V. **MAINTENANCE.**

A. *General.*

**WARNING**

Crazing (cracking) of lenses will cause reduced effectiveness of the light. Do not use cleaning agents (which will cause crazing) such as strong detergents, solvents, or petroleum products. If crazing of lenses does occur, reliability of light for emergency signalling purposes may be reduced until lenses are replaced.

Ordinary cleaning of the plastic lenses can be accomplished by using mild soap and a soft rag. Should fine scratches or a haze appear on a lens, they can ordinarily be removed with a non-abrasive, high quality, one-step, automotive paste cleaner/wax and a soft cloth.

B. *Lamp Replacement.*

**CAUTION**

Use of higher wattage lamps can result in damage to the colored lenses.

1. See figure 5. Remove and retain the two screws which secure the lens. Carefully pull the lens straight away from the light assembly.

**CAUTION**

Service life of lamp will be shortened if glass is touched. If glass has been handled, clean with a grease solvent.

2. Remove the defective lamp by carefully pulling it out of the socket. Install a new lamp by aligning the pins on the lamp base with the holes in the socket, and carefully pushing the lamp into the socket.

3. Replace the lens using the previously removed screws.

VI. **SERVICE.**

A. *General.*

Servicing, other than cosmetic features, should be performed by a qualified Federal Signal service center. If the control unit is not working properly, disconnect all electrical connections starting with the six-position power connector. Remove the control unit from the mounting bracket. Send the unit to the nearest authorized service center or 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

After servicing is complete, perform a test of all functions to ensure the control unit is operating properly.

B. *Replacement Parts List.*

Description	Part Number
Printed Circuit Board Assembly	2001135
Knob, Pushbutton	8573065
Knob, Slide Switch	8536C1041
Bezel, Slide Switch	8573060
Connector, Female, 6-Position	140325-04
Bracket, Mounting	8573070
Screw, Hex Head, Mounting	7011164B-08
Lockwasher, 1/4"	7075078
Chassis	8573068
Cover	8573066
Microprocessor	SM144100
Lamp, G.E. GH-22, 27-watt	8573007
Lens, Amber	8573001-02

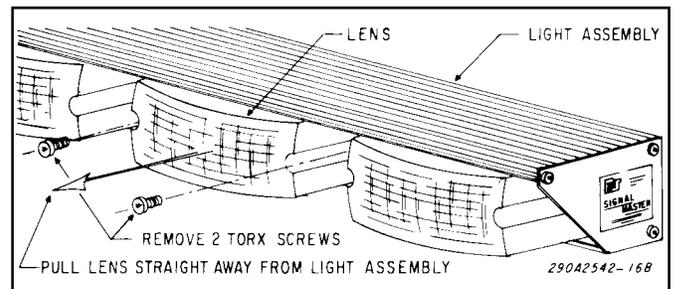


Figure 5.