

# SOLAR ELECTRIC SPECIALTIES CO.

A DIVISION OF E. A. PADULA LUMBER CO. INC.

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## THE SESI CHARGE CONTROLLER

### INTRODUCTION

S.E.S.I. stands for "Solar Energy System Indicator". The SESI is a charge controller and status indicator used to protect batteries from overcharge by solar charging modules. When wired as shown in Figure 1, the SESI will let the charging current that is available from the solar charger pass through to the battery until the voltage reaches approximately 14.3 volts. At this voltage, the SESI disconnects the solar charger from the battery. After the battery voltage has fallen back down to approximately 13.2 volts, the SESI will reconnect the solar charger to the battery. There are three colored LEDs on the face of the SESI. They have the following meaning:

**SOLAR CHARGING (yellow):** This light is on during the daytime when there is enough light available for the solar panel to charge the battery, and, the battery has not reached a full state-of-charge.

**BATTERY UP (green):** This light indicates that the solar charger has been disconnected because the SESI has sensed the full battery voltage. This indicates that your battery should be fully charged. During the daytime, this light will come on after the yellow light has gone off. This yellow light should go off and the green light should come on when the voltage sensed reaches 14.3 volts. External battery charging sources will also make the SESI disconnect the solar charger if the voltage reaches 14.3 volts.

**BATTERY LOW (red):** This light comes on when your battery voltage has fallen to a low voltage. This is just a warning light to tell you your batteries need additional charging.

### INSTALLATION / WIRING

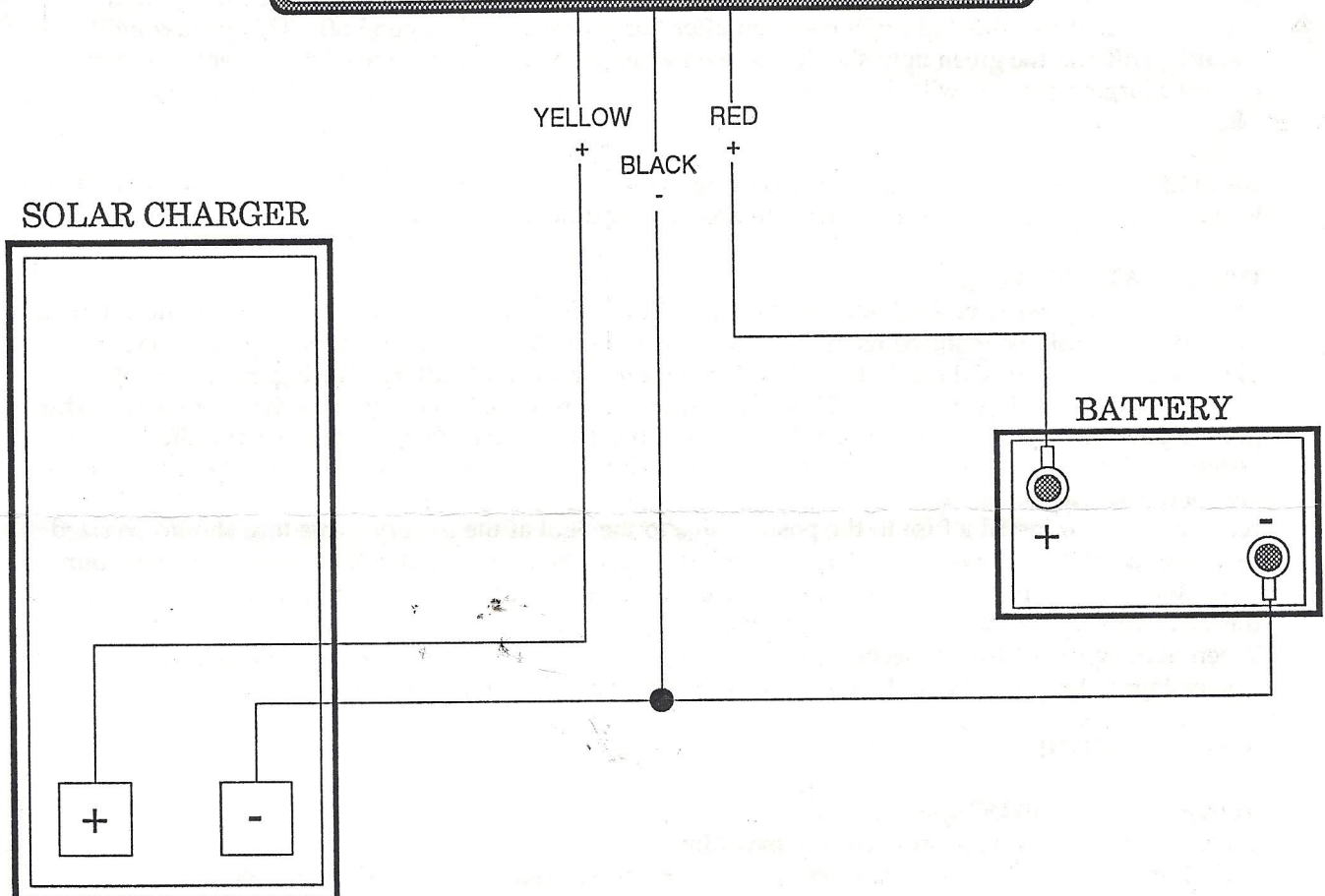
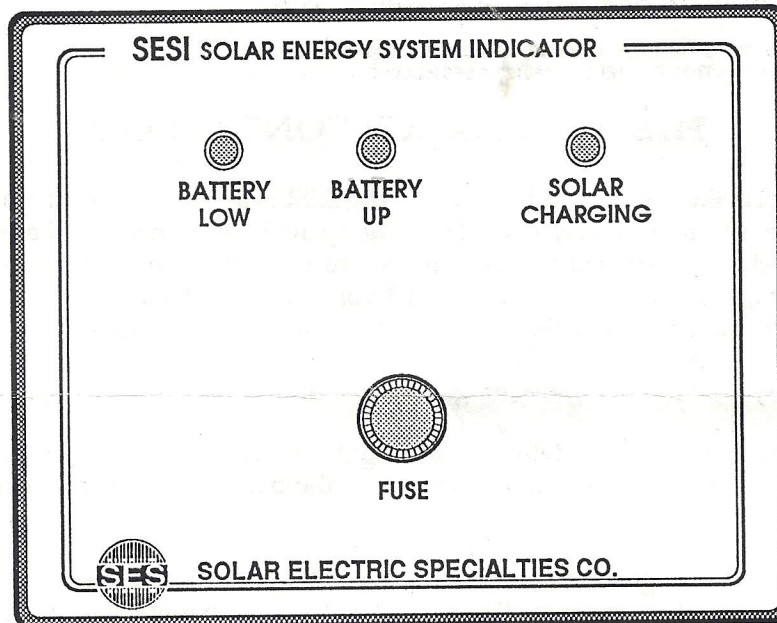
The SESI is designed to be flush mounted on a vertical or horizontal surface. Use the template supplied to cut out and drill the required holes. Four screws are provided to secure the SESI to your surface. Three wires come out of the SESI to hook it to the solar charger and battery. See Figure 1. Do not deviate from the wiring as shown. The yellow wire goes to the solar charger positive and the red wire goes to your battery positive. The black wire goes to both the solar charger negative and the battery negative. Use the wire nuts supplied to secure your wires. Make sure your wire nut or other connections are solid and will stay solid for years to come. Do not use any diodes in the wiring of the SESI. It is recommended to install a fuse in the positive line to the SESI at the battery. This fuse should be sized to protect the wire being used and large enough to handle the current that will be coming in from your solar charger. Typically, #14 or #12 wire is used between the solar charger, SESI, and battery. Using this size wire will minimize any voltage drop possible between the solar charger and the battery. When making your final connections, it is best to hook up the yellow SESI wire to the solar charger last. If it is daytime, the yellow LED will light indicating charging of the battery.

### SPECIFICATIONS

Voltage: 12 volt DC systems only  
Current: 6 amps solar array current maximum  
Setpoints: Solar charger disconnect at 14.3 volts +/- 0.2 volts (yellow LED off, green LED on)  
Solar charger reconnect at 13.2 volts +/- 0.2 volts (yellow LED on)  
Low Battery LED on at 11.5 volts +/- 0.2 volts

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# SOLAR ELECTRIC SYSTEMS INDICATOR WIRING DIAGRAM



**SOLAR ELECTRIC SPECIALTIES CO.**  
WILLITS, CALIFORNIA US

|                 |                        |                       |                 |                      |                    |
|-----------------|------------------------|-----------------------|-----------------|----------------------|--------------------|
| DRWN BY:<br>B W | CHKD BY:<br>ART GINIER | DRWG DATE<br>12/16/93 | SHEET<br>2 of 2 | DRWG NO:<br>SES-SESI | STOCK NO:<br>C2411 |
|-----------------|------------------------|-----------------------|-----------------|----------------------|--------------------|

RED LED  
NOT WORKING  
(BATTERY LOW)

GREEN LED  
SEEMS TO BE  
ONLY LED WORKING  
(BATTERY UP)

YELLOW LED  
NOT WORKING  
(SOLAR CHARGING)

RED  
LED

GREEN  
LED

YELLOW  
LED

CONTROLLER  
BACK

000  
BYR

FUSE

FUSE  
RED  
12 OR 10 GA  
NOT  
CONNECTED

NOT  
CONNECTED

NOTE: YELLOW WIRE  
IS TIED IN TO  
RED 12 GA WIRE  
IN HARNESS

