

## TriStar Lighting Load Control Function

The TriStar has the ability to control a lighting load on a solar system in much the same way the Morningstar SunLight controller does. Since the TriStar is acting as a load controller only in this configuration, a solar controller is still required on the PV side of the system to regulate battery charging. This could be a TriStar or a ProStar or SunSaver if the PV array is less than 20A.

The sense terminals of the TriStar are normally used to get an additional voltage reading with greater accuracy from the battery in the case of long wiring runs or voltage drops being present. However, these same terminals are used in the lighting control mode to connect to the PV panels in order to allow the TS to determine when the day and night transitions occur.

### Installation

1. Install the TriStar in accordance with the load mode installation instructions shown in the TriStar Operation Manual.
2. Set the DIP switches according to the information below. Notice that in this setting, the DIP switches #4, 5 and 6 correspond to lighting time settings and not the LVD voltage. For all lighting options, the Low Voltage Disconnect is fixed to 11.4V and has a reconnect voltage of 13V. This will automatically be doubled for 24V systems and quadrupled for 48V systems.

### DIP SWITCHES

The TriStar mode, battery voltage, and timing option are selected via the DIP switches, which must be positioned as follows:

switch: 1 2 3 4 5 6 7 8  
position: 1 V V A A A 0 1

#### Legend:

1 - ON

0 - OFF

V - System voltage: 00=auto, 01=12, 10=24, 11=48 volts

A - Lighting option

### LIGHTING OPTIONS

The DIP switches select one of seven preprogrammed lighting options or one user programmable option (done via the RS-232 connection).

| DIP<br>switches | hours<br>after<br>sunset | hours<br>before<br>sunrise |
|-----------------|--------------------------|----------------------------|
| 4-5-6           |                          |                            |
| ----- -----     |                          |                            |
| 0-0-0           | 6                        | 0                          |
| 0-0-1           | 8                        | 0                          |
| 0-1-0           | 10                       | 0                          |
| 0-1-1           | 3                        | 1                          |
| 1-0-0           | 4                        | 2                          |
| 1-0-1           | 6                        | 2                          |
| 1-1-0           | --all night--            |                            |
| 1-1-1           | user                     | user                       |

3. Connect wires from the sense terminals (16-24 AWG wire) to the PV panel +/- terminals so that the TriStar can detect voltage changes on the panels to indicate night and day transitions. These will not carry current, and are used only to sense voltage.
4. Power up the controller and it will begin to operate. The first sunset should turn on the lights. As with the SunLight, if you select the On-Off-On setting, the TriStar will not turn on the light before sunrise until the second night.