

# MODEL 5315-01

## Solar Charger & Load Control

- Maximum Power Point Tracking
- 10 Amp Load Capacity
- Overload Protection
- RS-232 Data/Programming Port
- Power Saving Night Dimming & Sleep Modes



PHONE: (800) 275-2080

HIGH SIERRA ELECTRONICS, INC.

FAX: (530) 273-2089



### DESCRIPTION:

The 10 Amp Maximum Power Point Tracking (MPPT) Solar Charger & Load Control is an easy to use, versatile solar charger that also serves to activate a load. The unit is designed for remote outdoor applications such as warning beacons and traffic management systems. A custom advanced MPPT charging algorithm is used for optimum utilization of the power available from the solar array. The unit provides load controls functions, with steady state of flashing control of up to a 10 amp load.

MPPT technology can provide up to 30% improvement over standard Pulse Width Modulation (PWM) chargers. It is most effective when the battery is depleted and during cooler weather, when solar panels deliver their greatest power. This results in quicker discharge recovery and/or allows for a smaller panel to be used for a given application.

The 5315 implements three stage PWM charging. Charging parameters, such as float voltage, may be adjusted by means of a simple, text-based user menu accessible through a RS-232 serial port. We can preload your charging parameters for volume customers\*. To prevent battery overcharging, the unit's internal temperature sensor reduces the maximum charging and float voltages by 30 mV/ °C for every degree above 73.4° F (23° C).

The unit provides a number of manual and automatic load control features. The two flashing or steady load outputs may be automatically activated by providing a contact closure to the load control terminals when the load control switch is in the "AUTO" position. This same switch will force the load ON or OFF for manual operation. A nominal 75% PWM night dimming feature is provided without the use of a separate external light sensor. Overload and short circuit protection is provided to protect the system. You can also set the low voltage shut down threshold to protect batteries from being damaged from excessive discharge.

You can interface with the charge control microprocessor implements by using a RS-232 serial port. You can display and set battery charging parameters and dimming levels using a simple terminal program such as Hyperterm for Windows or ZTerm for Macintosh. One second streaming reports of important parameters are for diagnostics and remote monitoring. The same serial connection allows for setting up system functions. Maximum charge voltage, charge current, load current, low voltage shutdown, flashing and dimming can all be set from the simple user interface.

\*For more information contact your local High Sierra Electronics' Sales Representative or visit our website at [www.highsierraelectronics.com](http://www.highsierraelectronics.com).

02-5315-01(C)

*Environmental Monitoring Solutions*

WEB SITE: [www.highsierraelectronics.com](http://www.highsierraelectronics.com) E-MAIL: [sales@highsierraelectronics.com](mailto:sales@highsierraelectronics.com)

# Model 5315-01 Solar Charger & Load Control

## SPECIFICATIONS:

Solar Panel Sizing	..... up to 150 W
Maximum Charge Current	..... 0 to 10 A, Default = 10 A
Maximum Charge Voltage	..... 0 to 15 V, Default = 14.1 V
Float Voltage	..... 0 to 14 V, Default = 13.7 V
Load Control Input Pull-up Current	.... 50 $\mu$ A to 400 $\mu$ A (250 $\mu$ A) typical
Load Control Input Absolute Maximum Range	..... -0.3 to 7.5 V
Temperature Compensation	..... -16.7 mV/°F (-30 mV/°C) above 73.4° F (23° C)
Self Consumption	..... 15 mA (3 mA sleep mode)
Load Activation	..... ON/OFF/AUTO toggle switch
Auto Load Activation	..... Contact Closure, or Logical Low (< 1.0 Volt)
Maximum Loads	..... Resistive load or LED Beacons: 5 A per output, 10 A total, with 1 V pp ripple, typical
Night Dimming	..... Per DOT specifications, 10 to 100%, Default = 25% brightness (75% dimmed) (i.e., TXDOT TO-4051 Solar-Powered Photovoltaic Flasher Assembly & DMS-11150)
Dimming Type	..... ~100 Hz Pulse Width Modulation
Timer Operation Range	..... 0 to 255 seconds
Retriggerable	..... True/False
Debounce Window	..... 104 ms
Flashing (when enabled)	..... 0.1 to 2.5 Seconds, Default = 0.5 Seconds time on for 1.0 Second cycle time
Low Voltage Reconnect	..... 10 to 12 V, Default = 10.8 V
Rising Voltage Reconnect	..... 12 to 15 V, Default = 12.2 V
Surge Protection	..... Transient voltage suppressors
Operating Temperature	..... -40° to 122° F (-40° to 50° C)
Storage Temperature	..... -67° to 185° F (-55 to 85° C)
Humidity	..... 100% (non-condensing)
Connections	..... Screw terminals (12 AWG max)
Mounting	..... Mount vertically. Rectangular pattern 7 x 3.19 in (17.8 x 8.1 cm) (W x L), 4 - 1/2 inch #8 sheet metal screws
Dimensions	..... 6.1 x 3.4 x 1.8 in (15.4 x 8.6 x 4.4 cm)
Weight	..... 1 lb (0.45 kg)
Warranty	..... 3 years from date of shipment

## ORDERING GUIDE:

Model 5315-01	..... 10 Amp MPPT Solar Charger & Lamp Flasher
---------------	------------------------------------------------

See [www.highsierraelectronics.com](http://www.highsierraelectronics.com) for more specifications and ordering information.

02-5315-01(C)

PHONE: (800) 275-2080

HIGH SIERRA ELECTRONICS, INC.

FAX: (530) 273-2089