

CHARGE CONTROLLERS

Morningstar

SunSaver MPPT Charge Controller

The SunSaver MPPT charge controller is designed for 12V and 24V battery charging from PV modules with a maximum open circuit voltage of 75V. Use up to three 36-cell modules in series.

It can be used with 200 watts of PV when charging a 12-volt battery and up to 400 watts when charging a 24-volt battery. Provides an estimated 5-25% boost of amps from the PV array into the battery. Actual boost depends on PV cell temperature and battery state of charge. Enables the use of high voltage PV modules (designed for on-grid applications) for off-grid 12V or 24V battery charging. Provides a means to use a 24V PV array to charge a 12V battery, reducing power losses in systems with a long cable run between the PV array and the battery. The controller has electronic protection from short circuit, overcurrent, reverse polarity, high temp, high voltage, lightning and transient surges. An adjustable low battery voltage load disconnect protects the battery from over-discharge. LED indicators indicate charging, low battery and faults. Dimensions are 6.6" x 2.75" x 2.2". Weight is 1.65 lbs.



SunSaver Duo RV Charge Controller

The SunSaver Duo two battery controller for RVs, caravans, boats and cottages is rated for 25 amps at 12 volts DC. This product will charge two separate and isolated batteries at the same time, such as a house and an engine battery, based on user selectable priorities. The SunSaver Duo employs Morningstar's legendary SunSaver controller technology, whose long-term track record for high reliability and improved battery charging is well-recognized in the solar industry. This controller includes a backlit remote meter which may be mounted in or on a wall, and displays digital and pictorial status information about the solar power system. The SunSaver Duo is epoxy encapsulated for environmental protection, is user adjustable via DIP switch or connection to a personal computer and has an optional remote temperature sensor.



Model	Description	System voltage	Charge amps
SSD-25 SSD-25M	Sun Saver Duo	12	25

SunKeeper Charge Controller

The SunKeeper is available in 6-amp or 12-amp versions at 12 volts DC. To withstand the high temperatures at the solar module, the controller has been designed using extremely efficient power electronics and is rated to 70C. The SunKeeper is also certified for use in Class 1, Division 2 hazardous locations, making it an ideal controller for solar powered oil/gas applications. It mounts in 1/2" knockout.



Model	Description	System voltage	Charge amps
SK-6	SunkKeeper6	12	6
SK-12	SunKeeper12	12	12

ProStar Charge Controllers

Recently revised, this sophisticated line of PV charge controllers incorporates constant voltage PWM to make maximum use of valuable PV power. They have automatic equalization, temperature compensation and very high efficiency. They can be used on 12-, 24- and 48-volt systems with sealed, gel and wet-cell lead-acid batteries. Front panel LEDs indicate when the batteries are being charged and relative battery state of charge. Reverse polarity protection on input and output. In the event of a load short circuit, the load is automatically disconnected. "M" models include LCD meter of battery voltage, PV charging current, and load current. Low voltage LVD is current-compensated to prevent false disconnect when the battery is heavily loaded. Units are conformal coated to guard against corrosion. Dimensions: 6.01" x 4.14" x 2. 2".



Model	Description	System voltage	Charge amps
PS-15	ProStar 15	12 or 24	15
PS-15M	ProStar 15 w/ digital display	12 or 24	15
PS-15M-48V	ProStar 15 48 volt w/ display	48	15
PS-15M-48-PG	48 volt w/ display & positive ground	48	15
PS-30	ProStar 30	12 or 24	30
PS-30M	ProStar 30 w/ digital display	12 or 24	30
PS-30M-PG	30 w/ digital display & positive ground	12 or 24	30
RTS	Battery temperature sensor		

Morningstar SunSaver Charge Controllers

The SunSaver is a very reliable charge controller and uses the same battery charging algorithm as the ProStar and offers many of the advantages of the ProStar for smaller systems, at a reduced cost. Constant voltage pulse width modulation (PWM) charging is a proven advance compared to the common on/off PV regulators. SunSavers are field-selectable for sealed or flooded batteries. A rugged anodized aluminum case and epoxy encapsulated electronics ensure durability and longevity. A temperature compensation sensor in the charge controller varies full charge voltage with temperature. They have LED charging and load control indicators in LVD models. Dimensions: 6" x 2.2" x 1.3".

Model	Description	System voltage	Charge amps	LVD amps
SS-6-12V	SunSaver 6	12	6	No
SS-6L-12V	SunSaver 6 w/ LVD	12	6	6
SS-10-12V	SunSaver 10	12	10	No
SS-10L-12V	SunSaver 10 w/ LVD	12	10	10
SS-10L-24V	SunSaver 10 w/ LVD	24	10	10
SS-20L-12V	SunSaver 20 w/ LVD	12	20	20
SS-20L-24V	SunSaver 20 w/ LVD	24	20	20



SunLight Charge Controller with Lighting Control

The SunLight has all of the features of the SunSaver controller. It also has a rotary switch that allows it to turn on the loads after dusk for 2, 4, 5, 8, or 10 hours. It also has the option to turn loads on at dusk, off and on again before dawn. In this configuration, you can choose the following settings (in hours): 3/off/1, 4/off/2, or 6/off/2. "On" from dusk to dawn is also possible. A test button turns light on for five minutes. Dimensions: 6.6" x 2.2" x 1.3".

Model	Description	System voltage	Charge amps	LVD amps
SL-10L-12V	SunLight w/ LVD	12	10	10
SL-10L-24V	SunLight w/ LVD	24	10	10
SL-20L-12V	SunLight w/ LVD	12	20	20
SL-20L-24V	SunLight w/ LVD	24	20	20



SunGuard Charge Controller



The SunGuard uses the same charging circuit as the SunSaver. It is ideal where a 12-volt low-power controller is needed. It can control up to 75 watts of PV module(s). Since it is epoxy encapsulated, it can be used outdoors in a harsh environment. Dimensions are 2.5" x 2" x 1.6" with wire leads for connecting module and battery.

Model	Description	System voltage	Charge amps	LVD amps
SG-4	SunGuard	12	4.5	No

Morningstar TriStar Charge Controllers

The TriStar pulse width modulated (PWM) controller can operate as a solar charge controller, a load controller, or a diversion regulator in 12-, 24- or 48-volt systems. It can operate in only one of these modes at a time, but two or more controllers can be used to provide multiple functions. PWM operation may be changed to on/off operation to prevent telecom noise. Two models are available with UL current ratings of 45 and 60 amps. A choice of 7 different setpoints are easily selectable with DIP switches. An RS-232 communications enables PC connection to adjust control setpoints and data logging. An optional digital display may be mounted on the front of the controller or up to 100 feet away using 4-conductor phone cable with RJ-11 jacks. Battery temperature compensation may be added with the optional temperature sensor. Knock-outs on the bottom of the charge controller match knock-out spacing on the Xantrex DC-175/250 disconnect and the OutBack FLEXware power system components, allowing easy mounting on either. Dimensions: 10.25" H x 5" W x 2.8" D; weight is 3.5 lbs. UL Listed.



Model	Description	System voltage	Charge amps
TS-45	TriStar 45 charge controller	12, 24 or 48	45
TS-60	TriStar 60 charge controller	12, 24 or 48	60
RTS	Battery temperature sensor		
TS-M	Digital display mounts on front of charge controller		
RM	Remote display with 100 ft. cable		