MORNINGSTAR
PROFESSIONAL SERIES
World's Leading Solar Controllers & Inverters

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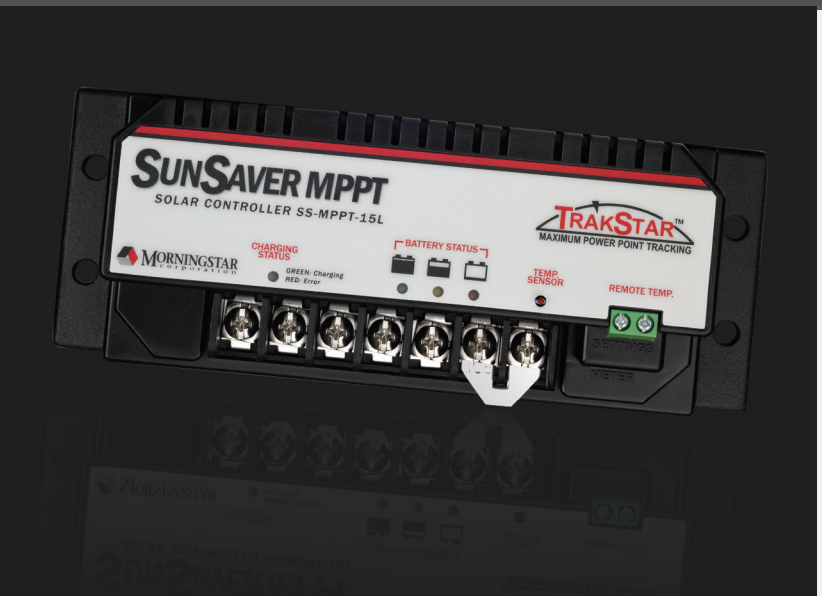

SUNSAVER MPPT™ SOLAR CONTROLLER

WITH MAXIMUM POWER POINT TRACKING

- Maximizes Energy Harvest
- Use of High Voltage Modules
- Lower System Cost
- Personal Computer Connectivity
- Approved for use in hazardous locations around the globe

Morningstar's SunSaver MPPT solar controller with TrakStar Technology™ is an advanced maximum power point tracking (MPPT) battery for off-grid photovoltaic (PV) systems with PV array max power (Pmp) up to 520 watts. The controller features a smart tracking algorithm that maximizes the energy harvest from the PV and also provides load control to prevent over discharge of the battery. Detailed battery programming options allow for advanced battery support for the latest Lithium, Nickel Cadmium, and Lead Acid battery types.

The SunSaver MPPT is well suited for both professional and consumer PV applications including automatic lighting control. Its charging process has been optimized for long battery life and improved system performance. This product is epoxy encapsulated for environmental protection, may be adjusted by the user via four settings switches or connection to a personal computer, and has an optional remote meter and battery temperature sensor.

KEY FEATURES AND BENEFITS

Designed for Harsh Environments and Hazardous Locations Around the Globe

- Temperature rating of -40°C to +60°C
- Ideal for Oil/Gas applications. Approved for use in hazardous locations: UL/CSA Class 1, Division 2, Groups A-D and ATEX/IECEx Zone 2, Gas Group IIC

Maximizes Energy Harvest

Our TrakStar MPPT Technology features:

- Peak efficiency of over 97%
- Almost no power losses
- Recognition of multiple power peaks during shading or mixed PV arrays
- Excellent performance at low solar insolation levels

Use of High Voltage Modules

Enables the use of high voltage and thin film modules for off-grid battery charging.

Higher Voltage PV Arrays

Provides a means to use a higher voltage PV array to charge either a 12V or 24V battery.

Lower System Cost

Less expensive than other MPPT controllers and is affordable in smaller PV systems up to 400Wp. Allows system costs to be reduced by down-sizing the PV array, using on-grid or thin film modules and decreasing cable sizes.

Load Control

Automatically disconnects loads when the battery has been discharged to a low state of charge.

Personal Computer Connectivity

- USB MeterBus Adapter for laptop compatibility
- PC MeterBus Adapter for RS-232
- Fully adjustable user selection via on-board preset switches or customized with PC connection
- Advanced automatic custom programmable lighting control with a PC connection
- Extensive controller and system data is provided by the status LED's and optional meter. Monitoring is also available with a personal computer
- 30 days of internal data logging of key PV system operating parameters

Smaller Size

Mechanical dimensions are less than other MPPT controllers, making it easier to install in equipment enclosures.

Highly Reliable

Efficient electronics, a conservative thermal design and tropicalization result in high reliability and long life.

Extensive Electronic Protections

Fully protected against most system errors and faults.

Longer Battery Life

Efficient MPPT tracking and 4-stage charging increases battery life.

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Technical Specifications

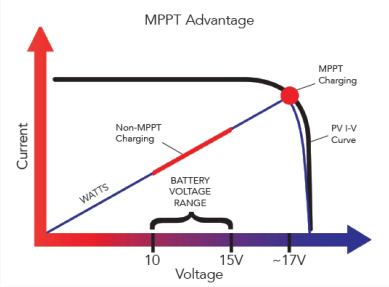
Versions	SS-MPPT-15L
Electrical	
Peak efficiency	97.5%
Nominal battery voltage	12 or 24 volts
Max. battery charging current	15 amps
Battery voltage range	7-36 volts
Nominal Max. Output Power / Max Recommended Solar PV Input*	
12 volt battery	200W / 260W
24 volt battery	400W / 520W
Max. PV open circuit voltage**	60 volts (without damage to unit)
Rated load current	15 amps
Self consumption	35 milliamps
Transient surge protection	4 x 1500 watts
Environmental	
Operating temperature	-40°C to +60°C May derate above the following temperature = 50°C ***
Storage temperature	-55°C to +100°C
Humidity	100% non-condensing
Tropicalization	Epoxy encapsulation conformal coating marine rated terminals
Mechanical	
Dimensions	16.9 x 6.4 x 7.3 cm 6.6 x 2.5 x 2.9 in
Weight	0.60 kg / 1.3 lbs
Power terminal	16 mm2 / #6 AWG
Enclosure	Die cast aluminum with plastic cover IP 20, Type 1
Battery Charging	
Battery types	Gel, Sealed, AGM, Flooded
4 Stage charging	Bulk, absorption, float, equalize (optional)
Temperature compensation	
Coefficient	–5mV/°C / cell (25°C ref)
Range	–30°C to +60°C
Set points	Absorption, float, equalize

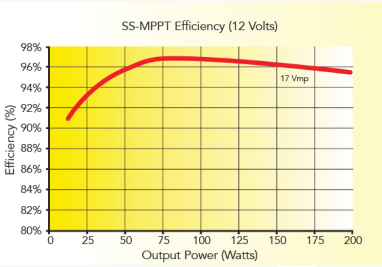
*The PV array power rating may exceed the controller's Max Nominal Output Power specification (< 130% recommended). The controller will limit battery current and prevent damage. Array oversizing should be considered on a case by case basis. See our array string sizer tool and related tech documentation. https://www.morningstarcorp.com/array-oversizing

**PV Voltage must be greater than Vbattery + 1 Volt to start charging

***Assumes 40Vmp, unvented enclosure. See operating manual for further performance characteristic data.

TRAKSTAR™
MAXIMUM POWER POINT TRACKING





Electronic Protections

- PV: Overload, Short Circuit, High Voltage
- Load: Overload, Short Circuit
- Reverse Polarity: Battery, PV and Load
- Lightning and Transient Surges
- High Temperature
- Reverse Current at Night

Options

- Remote Meter
- Remote Temperature Sensor
- USB MeterBus Adapter (UMC-1)
- PC MeterBus Adapter for RS-232
- DIN Rail Mounting Clips
- Ethernet MeterBus Converter for IP connectivity (including SNMP)

Simple Network Management Protocol SNMP COMPATIBLE

Certifications

- Hazardous Locations:
  - » UL121201/CSA C22.2 #213 Class I, Div. 2 Groups A-D TX (T4 or T5)
  - » ATEX II 3G Ex ec IIC T4...T5 Gc
  - » IECEx Ex ec IIC T4...T5 Gc
- CE Compliant
- RoHS Compliant
- UL 1741 / CSA 107.1-01 recognized component
- Manufactured in a Certified ISO 9001 Facility
- FCC Part-15 Class B compliant

WARRANTY: Five year warranty period. Contact Morningstar or your authorized distributor for complete terms.