



SOLAR CONTROLLER

Morningstar is pleased to introduce our third generation *SunSaver*. Since its first market introduction in 1996, over 1 million SunSaver controllers have been installed in over 73 countries for numerous solar power systems including oil/gas, telecom and instrumentation, marine and boating, and remote homes. We have retained much of our legacy design including the same ratings, footprint and simple user interface, and have added several new and advanced high value features:

- Full electronic protections
- 4 stage battery charging
- Self-diagnostics to detect critical faults
- Multi-color status LED
- 3 LED's for battery state of charge
- Dead battery recovery
- Telecom mode for sensitive loads
- Maximum charge limiting for sensitive loads
- Cover to protect wire terminals
- Additional certifications







Key Features and Benefits

Extremely High Reliability

- Failure rate of less than 1 per 1,000 shipped (<0.1%)
- 100% solid state. Power MOSFET design
- Manufactured in an ISO 9000 factory
- 100% pre-shipment functional testing

Longer Battery Life

- Advanced PWM charging
- Series design (not shunt) for cool operation
- 4-stage charging: bulk, absorption, float, equalize
- Optimized sealed or flooded battery set points
- Temperature compensated charging
- Low voltage load disconnect on several versions

Designed for Harsh Environments

- Temperature rating of -40°C to +60°C
- Epoxy encapsulation for protection against humidity and dust ingress
- Corrosion protection: marine rated terminals and anodized aluminum case
- Certified for use in hazardous locations

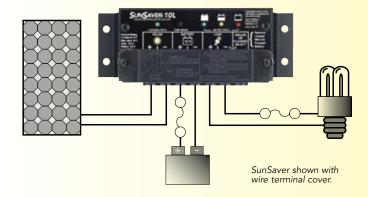
Easy to Install and Use

- Factory pre-sets result in no required install settings
- Electronic protections prevent damage from wiring mistakes
- Fully automatic operation and fault recovery
- LED's display extensive information about status, faults and battery condition

SUNSAVER™ SOLAR CONTROLLER

SunSaver Versions

	Solar Current	Load Current	System Voltage	LVD
• SS-6-12V	6A	6A	12V	No
SS-6L-12V	6A	6A	12V	Yes
• SS-10-12V	10A	10A	12V	No
• SS-10L-12V	10A	10A	12V	Yes
 SS-10L-24V 	10A	10A	24V	Yes
SS-20L-12V	20A	20A	12V	Yes
SS-20L-24V	20A	20A	24V	Yes



TECHNICAL SPECIFICATIONS

Electrical

Max. PV and load ratings
 System voltage
 Min. battery voltage
 Regulation voltage
 Sealed battery
 Flooded battery
 Load disconnect
 Per above
 12 or 24 volts
 1 volt
 24 volt
 14.1 V
 28.2 V
 14.4 V
 28.8 V

Flooded battery 14.4 V 28.8 V

• Load disconnect 11.5 V 23.0 V

• LVD reconnect 12.6 V 25.2 V

• Max. solar voltage

12V battery 30 volts 24V battery 60 volts

• Load in-rush capability

SunSaver-6 45 amps SunSaver-10 65 amps SunSaver-20 140 amps

Self-consumption < 8 mA
 Voltage accuracy 12V: +/- 25 r

Voltage accuracy 12V: +/- 25 mV (typical) 24V: +/- 48 mV (typical)

• Transient surge protection 1500W per connection

Mechanical

Wire size 5 mm² / #10 AWG
 Weight (unpacked) 0.23kg / 8 oz.
 Dimensions 15.2 x 5.5 x 3.4 cm 6.0 x 2.2 x 1.3 inch

Environmental

Ambient temperature
 Storage temperature
 Humidity
 40°C to +60°C
 -55°C to +80°C
 100% non-condensing

• Tropicalization Epoxy encapsulation

Marine rated termina

Marine rated terminals
Anodized aluminum case

Electronic Protections

Solar: Overload, short-circuit, high voltage

• Load: Overload, short-circuit, high voltage

• Battery: High voltage

 All: Reverse polarity, high temperature, lightning and transient surges

Reverse current at night

Battery Charging

Charging method
 4 stage series PWM

Charging stages
 Bulk, absorption, float, equalize

Temperature compensation

Coefficient 12V: -30mV/°C 24V: -60mV/°C Range -30°C to +60°C Set points Absorption, float, equalize

LED Indications

• Status LED (1) Charging or not charging
Solar error conditions

• Battery LED's (3)

Battery level
Charging stage

Certifications

ETL Listed to UL 1741 and CSA C22.2 No. 107.1-01

• Hazardous Locations Class 1, Division 2, Groups A,B,C,D CSA C22.2#213

EMC Directives Immunity, emissions, safety

• FCC Class B Part 15

• CE

RoHS

• ISO 9000

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

AUTHORIZED MORNINGSTAR DISTRIBUTOR:



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