

SUNSAVER™ SOLAR CONTROLLER

OVER 1.5 MILLION SOLD IN OVER 90 COUNTRIES

- Full Electronic Protections
- Four Stage Battery Charging
- Self-Diagnostics to Detect Critical Faults
- Multi-Color Status LED
- Approved for use in hazardous locations around the globe

Since the introduction in 1996, more than 1.5 million SunSaver Controllers have set the standard for reliability and performance in demanding oilfield and mining installations in nearly 90 countries around the globe. Today, SunSaver is the world's leading small solar controller for industrial and consumer markets, proven in mission-critical applications where failure is simply not an option.

This third generation SunSaver brings over two decades of advances in software and electronics to the same rugged, hardened design that made the original famous. Own both a legend and the latest in a single product.

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 9001 factory
- 100% pre-shipment functional testing

Longer Battery Life

- Series design (not shunt) for cool operation
- Longer battery life through PWM 4-stage charging and temperature compensation
- Sealed or flooded battery select
- Low voltage load disconnect on several versions

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; ATEX/IECEX Zone 2, Gas Group IIC
- Tropicalization—hardened for field use with anodized aluminum enclosure, epoxy encapsulation and marine-rated terminals



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
- Additional features include full electronic protections, 3-state battery LED indicators, terminal cover, dead battery recovery, high voltage load protection for sensitive loads
- Wire terminal cover included with every SunSaver

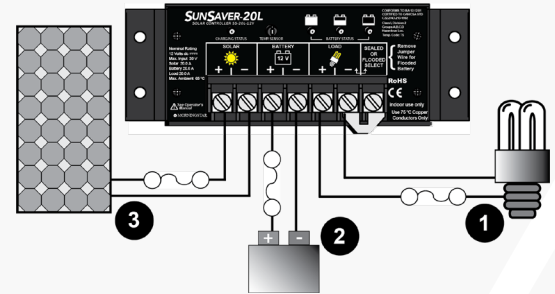
Technical Specifications

| | | |
|----------------------------|--|---------|
| Versions | SS-10L-24V, SS-10L-12V, SS-6-12V, SS-6L-12V, SS-20L-12V, SS-10-12V, SS-20L-24V | |
| Electrical | | |
| Max. PV and load ratings | Shown to the right | |
| System voltage | 12V or 24V | |
| Min. battery voltage | 6V* | |
| Regulation voltage | 12 volt | 24 volt |
| Sealed battery | 14.1 V | 28.2 V |
| Flooded battery | 14.6 V | 29.2 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 mV (typical) 24V: +/- 48 mV (typical) | |
| Transient surge protection | 1500W per connection | |
| Mechanical | | |
| Wire size | 5 mm ² / #10 AWG | |
| Weight (unpacked) | 0.23kg / 8 oz. | |
| Dimensions | 15.2 x 5.5 x 3.2 cm 6.0 x 2.2 x 1.3 inch | |
| Environmental | | |
| Ambient temperature | -40°C to +60°C | |
| Storage temperature | -55°C to +80°C | |
| Humidity | 100% non-condensing | |
| Tropicalization | Epoxy encapsulation Marine rated terminals Anodized aluminum case | |

WARRANTY: Five year warranty period.

Contact Morningstar or your authorized distributor for complete terms.

*In periods following excessive battery drain, provided the controller is not power cycled, the controller can self-recover from a battery voltage of 1V and provide intermittent charging operation up to 6V at which normal operation will resume.



SunSaver shown with included wire terminal cover.

Specification Summary

| Ratings | SS-6/6L | SS-10/10L | SS-20L |
|----------------------|---------|------------|------------|
| System voltage | 12V | 12V or 24V | 12V or 24V |
| Min. battery voltage | 6V* | 6V* | 6V* |
| Max. solar voltage | 30V | 30V or 60V | 30V or 60V |
| Max. solar current | 6.5A | 10A | 20A |
| Max. load current | 6A | 10A | 20A |

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

- Hazardous Locations:
 - » UL121201/CSA C22.2 #213
Class I, Div. 2 Groups A-D T5
 - » ATEX II 3G Ex ec IIC T4...T5 Gc
 - » IECEx Ex ec IIC T4...T5 Gc
- CE, RoHS and REACH Compliant
- UL 1604/ANSI/ISA 12.12.01-2000 (USA) and CSA C22.2 No. 213-M1987 (Reaffirmed 2004) (CANADA) Listed
- ETL Listed: UL 1741 (terminal cover required for compliance)
- FCC Title 47 (CFR), Part 15 Subpart B for Class B Device
- Manufactured in a Certified ISO 9001 Facility



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