



SUNSAVER™ SOLAR CONTROLLER

OVER 1.5 MILLION SOLD IN OVER 90 COUNTRIES

- Full Electronic Protections
- Four Stage Battery Charging
- Multi-Color Status LED



- Self-Diagnostics to Detect Critical Faults
- 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 & 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

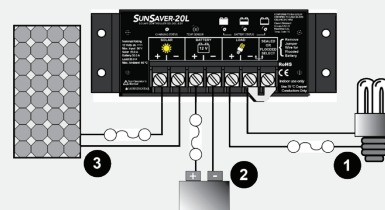
Designed for Harsh Environments & Hazardous Locations Around the Globe

- ✓ 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 & 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



SunSaver shown with included wire terminal cover.

TECHNICAL SPECIFICATIONS

VERSIONS	SS-6-12V, SS-6L-12V, SS-10-12V, SS-10L-12V, SS-10L-24V, SS-20L-12V, SS-20L-24V, SS-10L-12-24V, SS-20L-12-24V								
Electrical									
Ratings	SS-6-12V SS-6L-12V	SS-10-12V SS-10L-12V SS-10L-24V		SS-20L-12V SS-20L-24V		SS-10L-12-24V		SS-20L-12-24V	
System Voltage	12V	12V	24V	12V	24V	12V	24V	12V	24V
Min. Battery Voltage	6V*					6V	18V	6V	18V
Max. Solar Voltage	30Voc	30Voc	60Voc	30Voc	60Voc	30Voc	60Voc	30Voc	60Voc
Max. Solar Current	6.5A	10A		20A		10A		20A	
Max. Load Current	6A	10A		20A		10A		20A	
Load In-Rush Capability	45A	65A		140A		140A			
Self-Consumption	< 8 mA								
Voltage Accuracy	1%								
Transient Surge Protection	1500W per connection								
Battery Setpoints	12V SYSTEM				24V SYSTEM				
Regulation Voltage	12V				24V				
Sealed Battery	14.1V				28.2V				
Flooded Battery	14.6V				29.2V				
Load Disconnect	11.5V				23.0V				
LVD Reconnect	12.6V				25.2V				
Mechanical									
Wire Size	5 mm² / #10 AWG								
Weight (unpacked)	0.23 kg / 8 oz								
Dimensions	15.2 × 5.5 × 3.2 cm / 6.0 × 2.2 × 1.3 inches								
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								

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 IEC/EN 62109-1 Ed.1 2010
- ✓ UL1604/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
- ✓ TAA Compliant

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.

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

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