MORNINGSTAR® corporation



SUNSAVER™

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

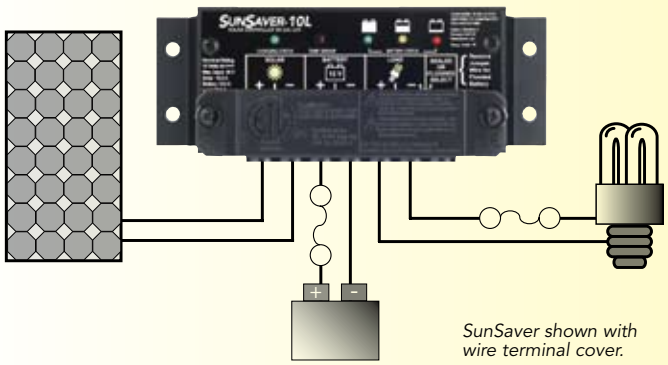
- Factory pre-sets result in no required install settings
- Electronic protections prevent damage from wiring mistakes
- Fully automatic operation and fault recovery
- LED's display extensive information about status, faults and battery condition

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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



SunSaver shown with wire terminal cover.

TECHNICAL SPECIFICATIONS

Electrical

- **Max. PV and load ratings** Per above
- **System voltage** 12 or 24 volts
- **Min. battery voltage** 1 volt
- **Regulation voltage**

	12 volt	**24 volt**
Sealed battery	14.1 V	28.2 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 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** –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

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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