MORNINGSTAR
PROFESSIONAL SERIES
World's Leading Solar Controllers & Inverters

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SUNKEEPER™ JUNCTION BOX-MOUNTED SOLAR CONTROLLER

- High Reliability
- Outdoor Rated
- Longer Battery Life
- Easy to Install
- Approved for use in hazardous locations

Compact "point of use" design that mounts directly to the solar module junction box or module frame, eliminating the need for an additional controller housing. SunKeeper is the ideal solution for economically providing regulated output directly from the solar module, to maximize battery life in small solar power applications. It's especially well-suited for oil & gas applications, approved for use in hazardous locations: Class 1 Division 2, Groups A-D.

SunKeeper is epoxy encapsulated and sealed in an IP65 rated UV-resistant case and approved for outdoor use with no additional enclosure required. By mounting directly to the module junction box and wiring through the junction box knockout, the connection remains weather-proof. To withstand the high temperatures at the solar module, the controller incorporates extremely efficient power electronics for thermal management and is rated to 70°C/158°F ambient operating temperature.

- Rugged design—approved for outdoor use without an additional enclosure. IP65 rated with UV-resistant case; epoxy encapsulated electronics and watertight connection to junction box
- High temperature rated—to 70C for operation in high temperatures at the solar module; no need to de-rate
- Ideal for Oil/Gas applications. Approved for use in hazardous locations: Class 1, Division 2, Groups A-D
- Available in both 6 Amp and 12 Amp versions (both at 12 volts DC)

"This is a great little unit…an outstanding charge controller"

KEY FEATURES AND BENEFITS

- **High Reliability**
  Rated to 70°C to operate in high temperatures at the solar module. More reliable than controllers mounted inside the junction box. Uses very low on-resistance power MOSFET's. No need to re-rate
- **Outdoor Rated**
  ETL approved for outdoor use without an additional enclosure. Rugged IP65, UV resistant case. Epoxy encapsulated printed circuit board and watertight connection to the module junction box
- **Extensive Electronic Protections**
  Fully protected against reverse polarity, short circuit, overcurrent, lightning and transient surges, high temperature and reverse current at night.
- **Longer Battery Life**
  Series PWM with 3 stage charging: bulk, PWM regulation and float. Includes temperature compensation at the controller or alternatively at the battery when using optional remote temperature sensor. Able to charge a zero voltage battery.
- **Rated for Hazardous Locations**
  Specifically designed for solar power systems in the oil/gas industry. Approved for use in Class 1, Division 2, Groups A-D
- **More Information**
  Bi-color LED is easy to read from the ground when the solar module is pole-mounted. Indicates solar charging, regulation, normal nighttime operation and any controller or system faults
- **Easy to Install**
  Fits standard half inch conduit knockout (PG 13.5, M20) in module junction box. Quickly fastens with included locknut. Wires have fork connectors for easy connection to solar module terminals

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Technical Specifications

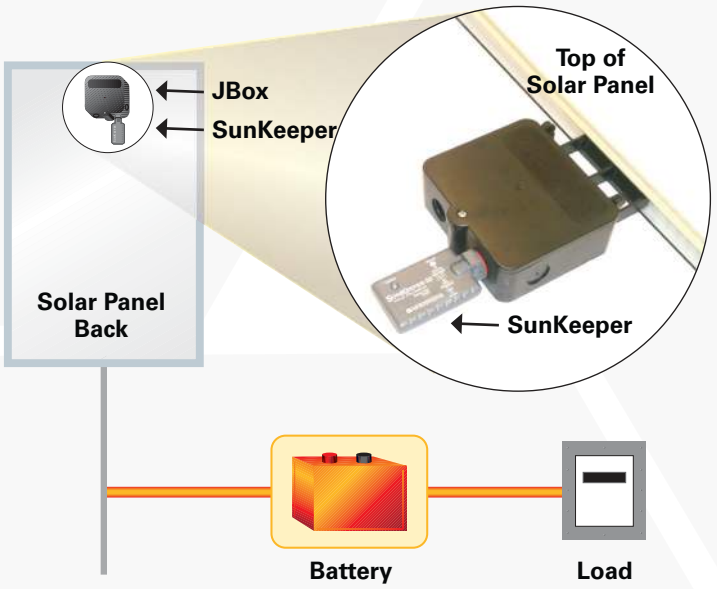
Versions	SK-6	SK-12
Electrical		
Rated Solar Input	6 amps	12 amps
Nominal System Voltage	12 Volts	
Minimum Battery Voltage	0 Volts	
Maximum Solar Voltage	30 Volts	
Self-Consumption		
Charging	7 mA	
Night	2 mA	
Voltage Accuracy	± 150 mV	

Versions	SK-6	SK-12
Battery Charging		
Regulation Voltage	14.1 Volts (at 25°C)	
Float Voltage	13.7 Volts (at 25°C)	
Type of Charging	Series PWM 3 stage: bulk, PWM and float	
Temperature Compensation	3 choices	
Reading temp at controller	–30 mV / °C	
Attaching remote temp sensor	–30 mV / °C	
Disable temp comp	Defaults to 25°C	
Ability to Charge a Zero Voltage Battery		

Environmental and Mechanical Specifications

Environmental	
Operating Temperatures	– 40°C to +70°C
Humidity	100%
Tropicalization	Encapsulated in epoxy UV resistant plastic enclosure. Conduit connection with rubber gasket seal
Mechanical	
Dimensions	99 x 51 x 13 mm (3.9 x 2.0 x 0.5 inches)
Weight	.11 kg / 0.25 lbs
Enclosure	IP65
Fitting to Module J-box	PG 13.5, M20, 1/2 inch conduit
Wire Size	2.0 mm2 (#14 AWG)
Wire Terminations	#8 fork connectors

Typical System Configuration



Electronic Protections

- Reverse Polarity
- Short Circuit
- Overcurrent
- Lightning and Transient Surges
- High Temperature
- Reverse Current at Night

Certifications

- CE Compliant Successful installation
- Hazardous Locations: Class 1, Division 2, Groups A-D, UL121201, CSA C22.2 No. 213
- Complies with U.S. National Electric Code
- Manufactured in a Certified ISO 9001 Facility

Bi-color LED

- Green Blink 3 Times Successful installation
- Green On Solar Solar charging battery
- Green Blink Fast In regulation
- Green Blink Slow Normal nighttime operation
- Red On Controller damaged
- Red Blink System problem
- LED Off No power

Options

RemoteTemperature Sensor (RTS)
(Installation of the RTS to the SunKeeper requires some soldering)

Warranty

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