

# SUNKEEPER TM JUNCTION BOX MOUNTED SOLAR CONTROLLER



Morningstar's **SunKeeper** solar controller provides a low cost regulated output directly from the solar module to maximize battery life in small solar power applications. The SunKeeper is epoxy encapsulated and rated for outdoor use. By mounting directly to the module junction box and wiring through the junction box knockout, the connection is weather-proof. This eliminates the need for an additional housing for the controller.

The SunKeeper is available in a 6 amp or 12 amp version (both at 12 volts DC). To withstand the high temperatures at the solar module, the controller has been designed using extremely efficient power electronics and is rated to



70°C. The SunKeeper is also certified for use in Class 1, Division 2 hazardous locations, making it an ideal controller for solar powered oil/gas applications.

# **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,B,C,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.







# SUNKEEPER SOLAR CONTROLLER

# TECHNICAL SPECIFICATIONS

# **Electrical Specifications**

• Rated Solar Input: SK-6 6 amps

**SK-12** 12 amps **tage** 12 Volts

Nominal System Voltage
 Min. Battery Voltage
 Max. Solar Voltage
 30 Volts

• Self-Consumption Charging...7 mA

Night .....2 mA

• Voltage Accuracy ± 150 mV

# **Battery Charging**

Regulation Voltage
 Float Voltage
 14.1 Volts (at 25°C)
 13.7 Volts (at 25°C)

• Type of Charging Series PWM

3 stage: bulk, PWM and float

Temperature Compensation
 Reading temp at controller
 Attaching remote temp sensor -30 mV / °C
 Disable temp comp
 Defaults to 25°C

Ability to Charge a Zero Voltage Battery

#### **Electronic Protections**

Reverse Polarity
 Lightning and Transient Surges

Short Circuit
 High Temperature

Overcurrent
 Reverse Current at Night

# **Environmental Specifications**

Operating Temperatures − 40°C to +70°C

• Humidity 100%

• **Tropicalization** Encapsulated in epoxy

UV resistant plastic enclosure Conduit connection with rubber gasket seal

# **Mechanical Specifications**

• **Dimensions** 99 x 51 x 13 mm

(3.9 x 2.0 x 0.5 inches)

• Weight 0.11 kg / 0.25 lbs

• Enclosure IP65

• Fitting to Module J-box PG 13.5, M20, 1/2 inch conduit

Wire Size
 Wire Terminations
 2.0 mm2 (#14 AWG)
 #8 fork connectors

### Bi-color LED

Green Blink 3 Times
 Green On Solar
 Solar charging battery

Green Blink Fast In regulation

Green Blink Slow
 Red On
 Normal nighttime operation
 Controller damaged

Red On Controller damager
 Red Blink System problem
 LED Off No power

# **Options**

Remote Temperature Sensor (RTS)

# Certifications

• CE Compliant Successful installation

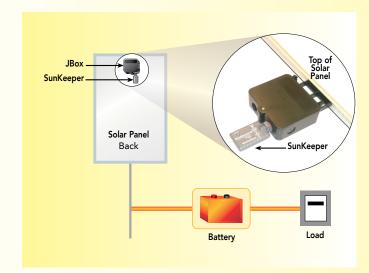
Hazardous Locations: Class 1, Division 2, Groups A-D,

UL 1604

CSA 22.2 No. 213-M1987

Complies with U.S. National Electric Code

Manufactured in a Certified ISO 9001 Facility



Typical System Configuration

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

AUTHORIZED MORNINGSTAR DISTRIBUTOR:

