



EcoPulse™ Solar Charge Controller

The EcoPulse is a pulse width modulation (PWM) solar charge controller within Morningstar's Essential Series™ of products which provides essential off-grid battery regulation functions. This controller is easy to use, and designed for residential and leisure consumer applications.* Metered and non-metered versions of this product are available at 10, 20, and 30 amp charge ratings for 12 and 24 volt battery systems.



metered version



non-metered version



Residential



Rural Electrification



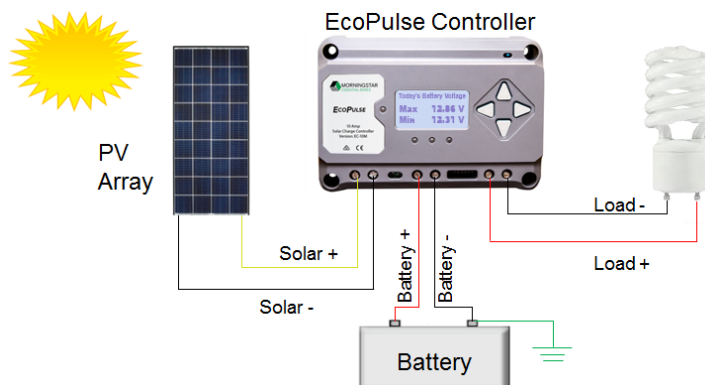
Boating



RV, Caravan

KEY FEATURES AND BENEFITS

- **High Reliability** – conformally coated circuit board and corrosion resistant terminals.
- **Robust Thermal Design** – extruded aluminum heatsink dissipates heat quickly without using cooling fans.
- **Durable Casing** – high strength polycarbonate case.
- **LED Fault Indications** – alert when short circuit, over current, high voltage, and other error conditions take place.
- **Automatic Solar Based Lighting Control** – field adjustable dusk 'til dawn setting.
- **Adjustable Charge Settings** – seven presets and a custom setting can be set via DIP Switches or by the meter display buttons.
- **Adjustable Load Control** – load control can be adjusted via meter display.
- **Optional Meter** – multi-lingual interface with scroll buttons to adjust the settings and display metrics.



*The EcoPulse has not been certified to comply with US and Canadian electrical codes.

Six Versions: **EC-10:** 10 amp-no meter **EC-20:** 20 amp-no meter **EC-30:** 30 amp-no meter
 EC-10M: 10 amp with meter **EC-20M:** 20 amp with meter **EC-30M:** 30 amp with meter

TECHNICAL SPECIFICATIONS

Electrical

- Nominal Battery Voltage: 12V or 24V auto-detect
- Battery Voltage Range: 10-35V
- Voltage Accuracy: $\leq 0.1\%$ +/- 50mV
- Maximum Battery Current: 10A, 20A or 30A
- Maximum PV open-circuit voltage: 60V
- Load Current Rating: 10A, 20A or 30A
- Self-Consumption: $<15\text{mA}$; $<20\text{mA}$ (meter)
- LED Indications: (1) status, (3) Battery state of charge
- Transient Surge Protection: 1500 Watts (solar, battery, load)

Environmental

- Operating Temperature: -40°C to $+45^{\circ}\text{C}$
- Storage Temperature: -40°C to $+80^{\circ}\text{C}$
- Humidity: 100% non-condensing
- Tropicalization: conformal coating, marine-rated terminals

Mechanical

- Dimensions (W x L x D):
15.3 x 10.5 x 5.5 cm; 6.0 x 4.1 x 2.2 in
- Weight: 0.4 kg / 1.0 lbs
- Wire Size Range:
Power Terminals: 2.5 - 16 mm² / 14 - 6 AWG
Battery/Temp. Sense: 0.25 - 1.0 mm² / 24 - 16 AWG
- Enclosure: IP20, Type 1

Electronic Protections

- Solar Input: overload, short-circuit, high voltage, reverse polarity, high temperature, nighttime reverse current
- Load Output: overload, short-circuit, high temperature, reverse polarity
- Battery: reverse polarity (no battery removal)

Battery Charging

- 4-Stage charging: Bulk, Absorption, Float, Equalize
- Temperature Compensation Coefficient: $-30\text{mV}/^{\circ}\text{C}/12\text{volt}$
- Set-points: Absorption, Float, Equalize, HVD

Load & Lighting Control

- Low Voltage Disconnect, Low Voltage Reconnect Settings: 11.4 V / 12.6 V or Custom (x2 for 24 volt systems)
- Lighting Settings: Dusk to Dawn

Accessories

- Remote Temperature Sensor (RTS)

Meter

- Resolution: 128 x 64 pixels
- Viewing Area: 5.0 cm x 2.5 cm
- Interactive: Yes

Certifications

- CE, TUV Listed: IEC 62109

- 1 - Charging Status / Error LED
- 2 - Meter Display (optional)
- 3 - Battery Status / Fault LED Indicators
- 4 - Solar Positive and Negative Terminals
- 5 - Remote Temperature Sensor Terminals (RTS)
- 6 - Battery Positive and Negative Terminals
- 7 - DIP Switches
- 8 - Load Positive and Negative Terminals
- 9 - Heatsink
- 10 - Meter Directional Buttons
- 11 - Local Temperature Sensor

