

# **BRAVO 30 / 40 / 50 / 60**

## **MPPT SOLAR CHARGE CONTROLLER**

### **30A / 40A / 50A / 60A**



#### **High-Efficiency MPPT Technology**

Advanced MPPT algorithm with multi-peak tracking for superior energy harvesting under varying sunlight or partial shading.

MPPT tracking efficiency  $\geq 99.5\%$ ; overall power conversion efficiency up to 98%.

#### **Wide System & Battery Compatibility**

Auto-detecting 12V/24V system support.

Compatible with LCO, LFP, LTO, Crystal, Gel, AGM, Flooded, and Calcium batteries.

Customizable charging profile for user-defined battery settings.

#### **Smart Charging & Real-Time Monitoring**

Intelligent multi-stage charging optimized for both lead-acid and lithium chemistries.

Override function activates deeply discharged or BMS-protected Lithium packs.

LCD display provides real-time solar input, battery voltage/current, capacity, and SOC.

Bluetooth connectivity via RICH SOLAR App.

#### **Comprehensive Protection & Durable Design**

Built-in protections: over-charge, under-charge, reverse polarity, short circuit, and over-temperature.

IP43-rated enclosure with conformal-coated PCB and common-negative design.

Designed for indoor vertical mounting; operating temperature  $-13^{\circ}\text{F}$  to  $122^{\circ}\text{F}$ .

Optional accessories: remote display and external temperature sensor.

# SPECIFICATIONS

## ELECTRICAL PARAMETERS

|                             |                          |                          |                          |                            |
|-----------------------------|--------------------------|--------------------------|--------------------------|----------------------------|
| Model                       | RS-MPPT30PB              | RS-MPPT40PB              | RS-MPPT50PB              | RS-MPPT60PB                |
| Product Name                | BRAVO 30                 | BRAVO 40                 | BRAVO 50                 | BRAVO 60                   |
| Nominal System Voltage      | 12V/24V (Auto-Detection) |                          |                          |                            |
| Max PV Open-Circuit Voltage | 100VDC                   |                          |                          |                            |
| Max PV Input Current        | 30A                      | 40A                      | 50A                      | 60A                        |
| Rated Charge Current        | 30A                      | 40A                      | 50A                      | 60A                        |
| MPPT Tracking Efficiency    | ≥99.5%                   |                          |                          |                            |
| Conversion Efficiency       | Up to 98%                |                          |                          |                            |
| Nominal PV Power            | 500W @12V<br>1,000W @24V | 600W @12V<br>1,200W @24V | 800W @12V<br>1,600W @24V | 1,000W @12V<br>2,000W @24V |
| MPPT Voltage Range          | 15–72VDC                 |                          |                          |                            |

## CHARGING CHARACTERISTICS

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| Soft Start Voltage                  | 5–10VDC                                                             |
| Bulk Charge Current                 | 30A Max                                                             |
| Absorption Voltage @77°F            | LFP: 14.2V; AGM: 14.4V; Flooded: 14.7V                              |
| Float Voltage @77°F                 | 13.6V                                                               |
| Equalization (Flooded/Calcium only) | 15.5V                                                               |
| Charging Algorithms                 | 5-Stage (Lead-Acid), 4-Stage (Lithium)                              |
| Battery Types                       | LCO, LFP, LTO, Crystal, Gel, AGM, Flooded, Calcium, Custom          |
| Temperature Compensation            | -24mV/°C                                                            |
| Built-in Protections                | Over-Charge, Under-Charge, Reverse Polarity, Short Circuit, Thermal |

## COMMUNICATION & INTERFACE

|           |                                           |
|-----------|-------------------------------------------|
| Bluetooth | Yes                                       |
| Terminals | Rated 50A connector                       |
| Optional  | Remote meter, external temperature sensor |

## ENVIRONMENTAL, MECHANICAL & CERTIFICATIONS

|                       |                                |                    |                    |                    |
|-----------------------|--------------------------------|--------------------|--------------------|--------------------|
| Operating Temperature | -31°F to 122°F                 |                    |                    |                    |
| IP Rating             | IP43 (PCBA), IP22 (Connectors) |                    |                    |                    |
| Dimensions            | 7.0 × 5.5 × 2.9 in             | 7.7 × 5.5 × 2.9 in | 7.7 × 5.5 × 2.9 in | 7.9 × 7.7 × 3.3 in |
| Net Weight            | 1.8 lbs                        | 2.6 lbs            | 3.1 lbs            | 4.2 lbs            |
| Certification         | ETL, CE, FCC, RoHS             |                    | CE, FCC, RoHS      |                    |