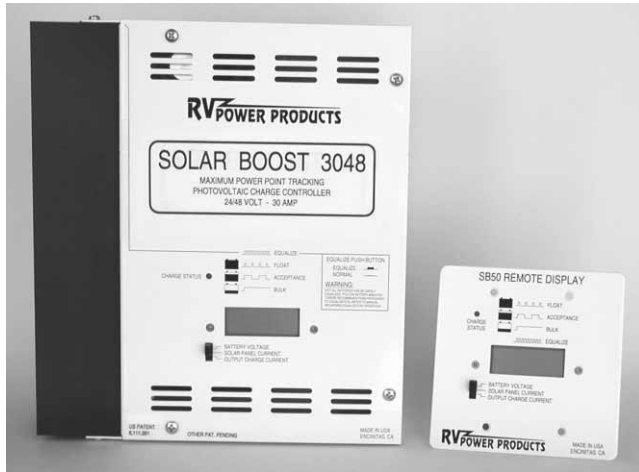


SOLAR BOOST™ 3048

30 AMP 48 VOLT MAXIMUM POWER POINT TRACKING PV CHARGE CONTROLLER



Pictured with optional digital displays

**LOOKING FOR THE BEST IN
PHOTOVOLTAIC CHARGE
CONTROL?**

**GET IMPROVED PERFORMANCE
FROM YOUR SOLAR MODULES
AND BATTERIES WITH
SOLAR BOOST 3048**

■ The *Ultimate* Photovoltaic Charge Controller... Increases Charge Current Up To 30% Or More!

Solar Boost 3048 is a 24/48 volt photovoltaic (PV) charge controller capable of delivering up to 30 amps of output current. Patented* *Maximum Power Point Tracking* (MPPT) technology allows Solar Boost 3048 to increase charge current up to 30% or more compared to conventional charge controllers. Controllers without MPPT technology simply can't deliver the charge current provided by Solar Boost 3048. Don't waste money by throwing PV power away! Get the power you paid for with Solar Boost 3048.

Solar Boost 3048 does much more than increase charge current. It offers an advanced fully automatic three stage charge control system to ensure the battery is properly and fully charged, resulting in enhanced battery performance with less battery maintenance. Reliable high efficiency power conversion is achieved using the latest generation power MOSFET transistors, with output power delivered via a series pass *Pulse Width Modulation* (PWM) control scheme. An electronic current limit feature prevents output current from exceeding 30 amps. Output current limit eliminates worry about overload or nuisance fuse blow when PV power production is unexpectedly high. An equalize function is also included to periodically condition liquid electrolyte lead-acid batteries.

An optional user friendly digital display is available to monitor PV charge performance. The display shows battery voltage, solar panel current, output charge current, charge mode and state of charge. It can be provided in the controller as pictured above, as a remote panel installed up to 300' away, or both. Optional temperature compensation of charge voltage is also available for both lead-acid and NiCd batteries to further improve charge control and battery performance.

- Patented MPPT Technology Increases Charge Current up to 30% Or More!
- 30 Amp 24/48 Volt Rating Supports Large Solar Module Arrays
- Multistage Charge Control Optimizes Parameters To Battery Size & Type
- Accommodates External Battery Shunt Providing Optimal Charge Control
- MPPT Power Conversion System Can Charge 24 Volt Battery From 48 Volt Array
- Available Temperature Compensation Further Improves Battery Performance
- Electronic Current Limit Prevents Overload Or Nuisance Fuse Blow
- Available Digital Display Monitors PV Charge Performance
- Durable Powder Coat Finish & Conformal Coated Electronics Resist Corrosion
- Full 36 Month Limited Warranty

RVPOWER PRODUCTS

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*US Patent 6,111,391 • Other Patents Pending

■ How Does Solar Boost 3048 Increase Charge Current?

A solar module is a *constant current* device. As shown on a typical voltage-current curve, current remains relatively constant over a wide range of voltage. A typical 75 watt module delivers 4.45 amps @ 17 volts. Conventional controllers connect the module directly to the battery when the battery is discharged. When this 75 watt module is connected to a battery charging at 12 volts, the module still provides about the same current. But, because module output voltage is now held lower by the battery, it can only deliver 53 watts of power. This wastes a whopping 22 watts or nearly 30% of the available power!

Solar Boost 3048's patented MPPT technology operates in a very different fashion. Under these conditions Solar Boost 3048 calculates the maximum power voltage at which the module can deliver its maximum available power, in this case 17 volts. It then operates the module at 17 volts to extract maximum power. Solar Boost 3048 continually recalculates the maximum power voltage as operating conditions change. Solar module power, now 75 watts, feeds a high efficiency power converter which reduces the 17 volt input to battery voltage at the output. The full 75 watts delivered at 12 volts would produce 6.25 amps. A current increase of 1.8 amps or 40% is achieved by converting the 22 watts that would have been wasted into useable charge current. This example assumes 100% efficiency to illustrate the principal of operation. Actual boost will be somewhat less as some power is lost in wiring, fuses and in the Solar Boost 3048 controller.

The actual charge current increase you will receive varies with module temperature and battery voltage. Lower module temperature increases available power, while lower battery voltage increases current for a solar output power level. Under normal conditions in comfortable temperatures, current increase typically varies between 10 to 25%, with 30% or more easily achieved with a discharged battery and cooler temperatures. What you can be sure of is that Solar Boost 3048 will deliver the highest charge current possible for a given set of operating conditions. In conditions where extra solar power is not available, Solar Boost 3048 will operate as a conventional series pass PWM controller.

■ Three Stage Battery Charging

- **Bulk Charge** – Charge begins with a high current of up to 30 amps. During this stage the battery receives maximum available current to rapidly recharge the battery.
- **Acceptance Charge** – Following bulk charge the acceptance voltage is applied to the battery. During this stage, charge current decreases as the battery charges.
- **Float Charge** – Once the battery is fully charged, the float voltage is applied to the battery to properly maintain it in a fully charged state without excessive water loss.
- **Equalization** – A fourth charge mode. Equalization is a controlled overcharge which is manually enabled to periodically condition flooded lead-acid batteries.

■ Three Stage Charging Taken To The Next Level...

Controllers that determine full charge based on time or other arbitrary factors cannot realize all the benefits three stage charging has to offer. The proper indication of when a lead-acid battery is fully charged is when net battery charge current during acceptance charge decreases to 1.0 amps per 100 amp-hours of battery capacity. Solar Boost 3048 uses net battery charge current optimized to battery size in amp-hours to determine full charge. This method charges the battery quickly and completely without undercharge, overcharge or excessive water loss. An internal precision alloy shunt is used to measure battery current when battery load during charge is relatively constant. When battery load is highly variable during charge, Solar Boost 3048 can connect to an external shunt measuring net battery current. If desired, Solar Boost 3048 can also operate as a two stage charger.

■ Specifications

Output current rating	30A
System voltage.....	24/48V nominal
PV maximum open circuit voltage	127V
Voltmeter range/accuracy.....	70.0V/±0.30% F.S.
Current meter range/accuracy.....	50.0A/±0.50% F.S.
Standby current.....	30mA typical
Charge on current ... 12/24V	100/70mA typical
Acceptance voltage adjust range.....	26-32V/52-64V
Float voltage adjust range.....	0-4V/0-8V < Accp.
Equalize voltage.....	2V/4V > Accp.
Power conversion efficiency	97% typical @ 25A
Temperature comp. coefficient.....	-5.0/-2.0mV/°C/cell
Cabinet dimensions	10"Hx8¾"Wx3½"D
Remote display dimensions.....	4½"Hx4½"Wx1¾"D

■ Part Numbers & Shipping Weight

Solar Boost 3048 w/o display.....	SB3048	8¾ lbs
Solar Boost 3048 w/digital display	SB3048D.....	9 lbs
SB50 front panel digital display.....	SB3048PD	2½ lbs
Remote display, 25' cable.....	SB50RD25	2 lbs
Battery Temp. sensor, 20' cable.....	930-0022-20..	1 lbs

Available From:

As a part of our continuous improvement process specifications are subject to change without prior notice
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