

One of the industries first MPPT solar controllers for larger applications. These units have stood the test of time as one of the older generation products from Blue Sky Energy, being used in a variety of applications around the world. In Home Power Magazine, June/July 2000 the SB50 was reviewed and the author(s) concluded "Every so often a product comes along that significantly changes the RE industry. The Solar Boost 50™ is one of those products."



Patented Maximum Power Point Tracking (MPPT) technology allows Solar Boost 50 and Solar Boost 3048 to increase charge current up to 30% or more compared to conventional charge controllers. Don't waste money by throwing PV power away! Get the power you paid for with a Solar Boost charge controller.

Solar Boost controllers also provide 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. 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. Optional temperature compensation of charge voltage is also available to further improve charge control and battery performance.

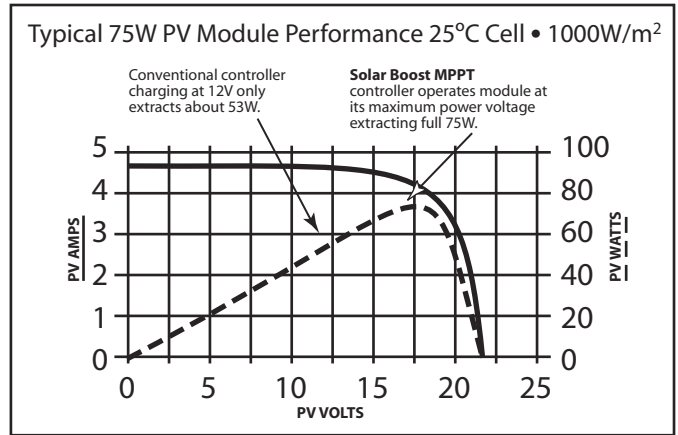
Features Include

- Patented MPPT technology increases charge current up to 30% or more!
- 50A/24V or 30A/48V ratings support large solar module arrays
- Three stage PWM charge control optimizes charge parameters to battery size & type
- MPPT power converter can charge lower voltage battery from higher voltage array
- 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
- Fully protected against excess current, temperature, transient voltage & polarity
- Full 5 year limited warranty
- ETL listed to UL STD. 1741, certified to CAN/CSA STD. E335-1/2E, CE labeled

How Do Solar Boost™ Controllers Increase Charge Current?

Solar Boost controllers increase charge current by operating the PV module in a manner that allows the module to produce all the power it is capable of. A conventional charge controller simply connects the module to the battery when the battery is discharged. When the 75W module in this example is connected directly to a battery charging at 12 volts its power production is artificially limited to about 53 watts. This wastes a whopping 22 watts or nearly 30% of the available power!

Patented MPPT technology used in Solar Boost controllers operates in a very different fashion. The Solar Boost controller continually calculates the module's maximum power voltage, in this case 17 volts. It then operates the module at its maximum power voltage to extract maximum power. The higher power extracted from the module is then provided to the battery in the form of increased charge current. In conditions where extra PV power is not available, Solar Boost controllers will operate as a conventional controller with very low voltage drop.



The actual charge current increase you will see varies primarily with module temperature and battery voltage. 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 charge controllers will deliver the highest charge current possible for a given set of operating conditions.

SPECIFICATIONS	Solar Boost 50	Solar Boost 3048
Current Rating	50 Amp Maximum	30 Amp Maximum
Nominal System Voltage	12 / 24VDC Field Selectable	24 / 48VDC Field Selectable
PV Open Circuit Voltage	57VDC Maximum (Recommend maximum Voc at STC ≤ 45.6VDC)*	140VDC Maximum (Recommend maximum Voc at STC ≤ 112VDC)*
Standby Power Consumption	30mA Typical	
Charge On Power Consumption	150 / 90mA @ 12 / 24VDC	100 / 70mA @ 24 / 48VDC
Charge Algorithm	3 stage charge. Acceptance/Float transition based on charge current matched to battery amp-hours. Can accept external shunt signal for optimal charge control with widely varying loads. Selectable for 2 stage charge.	
Acceptance Voltage Setpoint	13–16VDC / 26–32VDC	26–32VDC / 52–64VDC
Float Voltage Setpoint	0–2VDC / 0–4VDC < Acceptance	0–4VDC / 0–8VDC < Acceptance
Equalization Voltage	Acceptance + 1.0 / 2.0VDC	Acceptance + 2.0 / 4.0VDC
Voltage step-down	Can charge 12V battery from 24V Array	Can charge 24V battery from 48V Array
Temperature Compensation	Optional temperature sensor adjusts charge voltage setpoint based on measured battery temperature. Field selectable slope, -5.0mV/°C/cell (lead-acid), or -2.0mV/°C/cell (NiCd)	
Power Conversion Efficiency	97% @ 40 Amp Output	97% @ 25 Amp Output
Cabinet Dimensions	10"H x 8 ³ / ₄ "W x 3 ¹ / ₂ "D (25.5cm x 22.6cm x 8.74cm)	
Digital Display	Available in the unit, as a remote, or both. Shows PV input current, output charge current, battery voltage, charge mode and state of charge. Remote display mounts in standard duplex box, includes 25 foot (7.6m) cable. Maximum cable length to 300 feet (91.4m).	
Digital Display Range/Accuracy	Voltmeter, 70.0VDC / ±0.30% F.S.	Ammeter, 60.0A / ±0.50% F.S.
Specified Temperature Range	0 to +40°C (Extended range -40 to +60°C, will operate but may not meet spec. – see Technical Bulletin 100206)	

*See technical bulletin #100214

• Available From

• Part Numbers & Shipping Weight

Solar Boost 50 w/o display.....	SB50L.....	.83/4 lbs.....	3.98kg
Solar Boost 50 w/digital display.....	SB50DL.....	.9 lbs.....	4.09kg
SB50L front panel digital display.....	SB50PDL.....	.21/2 lbs.....	1.14kg
Solar Boost 3048 w/o display.....	SB3048L.....	.83/4 lbs.....	3.98kg
Solar Boost 3048 w/digital display.....	SB3048DL.....	.9 lbs.....	4.09kg
SB3048L front panel digital display.....	SB3048PDL.....	.21/2 lbs.....	1.14kg
Remote display, 25' cable.....	SB50RD25.....	.2 lbs.....	0.91kg
Battery Temp. sensor, 20' cable	930-0022-20.....	1 lbs.....	0.46kg