

# SOLAR BOOST™ 3024i

MAXIMUM POWER POINT TRACKING PHOTOVOLTAIC CHARGE CONTROLLER



## • The Ultimate Photovoltaic Charge Controller... Increases Charge Current Up To 30% Or More!

Patented Maximum Power Point Tracking technology allows Solar Boost 3024i to increase charge current up to 30% or more compared to conventional charge controllers. Don't waste your money by throwing PV power away! Get the power you paid for with a SolarBoost 3024i charge controller.

Solar Boost 3024i provides an advanced fully automatic 3-stage charge control system to ensure the battery is properly and fully charged, resulting in enhanced battery performance with less maintenance. An automatic or manual equalize function is also provided to periodically condition flooded lead-acid batteries. To further enhance versatility, a user configurable auxiliary output and Blue Sky Energy's advanced IPN™ network interface are also included.

The user configurable auxiliary output can serve as either a 20 amp load controller, or as a 2 amp auxiliary battery charger. The load control feature can be used to limit excessive battery discharge in unattended remote systems, whereas the auxiliary battery charge feature is ideal for charging a separate battery such as the engine battery in an RV.

Blue Sky Energy's advanced Integrated PowerNet™, or IPN Network, allows up to 8 IPN capable charge controllers to communicate with each other and operate as a single machine rather than separate charge controllers. The IPN network also allows networked controllers to share an optional battery temperature sensor and remote display. The IPN network does not require a display or other special communication hardware to operate.

### Contact us today for more information

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## Get Improved Performance From Your PV Modules And Batteries

- Patented MPPT technology increases charge current up to 30% or more!

- 30 amp 12/24 volt rating supports a wide range of applications

- Auxiliary output serves as 20 amp load controller or 2 amp battery charger

- IPN network interface coordinates multiple controllers & shares optional battery temperature sensor & display

- Optional IPN-ProRemote display provides complete charge control & battery system monitoring, eliminating the need for a separate battery monitor device

- 3-Stage charge control with filtered PWM output & auto/manual equalization improves battery performance & life

- MPPT power converter can charge 12 volt batteries from 24 volt PV modules

- Durable powder coat finish & conformal coated electronics resist corrosion

- Full 24 month limited warranty, optional extended coverage available

**Blue Sky**  
ENERGY

Manufactured by Blue Sky Energy Inc.  
and offered by a large network of quality  
distributors and dealers. Call us today  
for information or a dealer near you

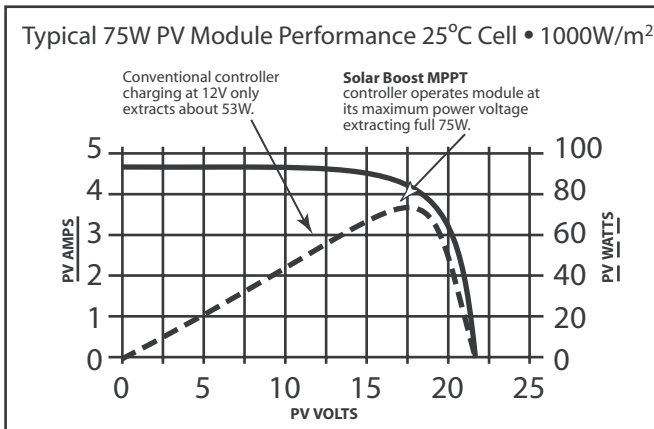
Covered under one  
or more of the following  
US Patents 6,111,391 • 6,204,645

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# 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 3024i
Output Current Rating	30 Amp maximum
Nominal Battery Voltage	12 / 24VDC
PV Input Voltage	57VDC maximum
Power Consumption	0.35W Typical standby • 1.0W Typical charge on
Charge Algorithm	3-stage Bulk/Acceptance/Float (Full charge can be based on net charge current matched to battery amp-hours <sup>Ⓢ</sup> )
Acceptance Voltage	14.4VDC (range 14.0 – 14.8VDC <sup>Ⓢ</sup> , 10.0 – 40.0VDC <sup>Ⓢ</sup> )
Float Voltage	13.4VDC (range 13.2 – 13.8VDC <sup>Ⓢ</sup> , 10.0 – 40.0VDC <sup>Ⓢ</sup> )
Equalization Voltage	15.2VDC (range 10.0 – 40.0VDC <sup>Ⓢ</sup> ) • automatic or manual operation
Auxiliary Output Function	Single output field configurable as either: 20 Amp load controller –or– 2 Amp auxiliary battery charger
• Aux. Battery charge	2 Amp typical, same charge voltage as primary battery
• Load Control	20 Amp maximum; ON @ ≥12.6VDC / OFF @ ≤11.5VDC (Range 10.0 – 40.0VDC <sup>Ⓢ</sup> , or net battery amp-hours <sup>Ⓢ</sup> )
Temperature Compensation	Optional temperature sensor adjusts charge voltage setpoints based on measured battery temperature, -5.00 mV/°C/cell correction factor (Range -0.00 – -8.00 mV/°C/cell <sup>Ⓢ</sup> ) • sensor range -60 – +80°C
Power Conversion Efficiency	97% Typical @ 28 Volt 24 Amp Output
Cabinet Dimension	6 7/8" H x 6 5/8" W x 3 3/8" D (17.4cm x 16.8cm x 8.59cm)
Analog Input Accuracy / Range	Battery & Aux. Battery voltmeters, 40.0VDC ±0.50% FS • PV voltmeter, 60.0VDC ±0.50% FS Input/Output ammeters 35.0A ±0.50% FS
Communication	Blue Sky Energy's proprietary IPN Network interface. Allows up to 8 IPN capable controllers to set up and operate as a single machine, share a common battery temperature sensor, and share an IPN-Remote or IPN-ProRemote display. Simple twisted pair cable interface with no special communication hardware required.
Environmental	-40 – +40°C, 10 – 90% RH non-condensing

<sup>Ⓢ</sup> SB3024i alone, voltages double for 24V battery  
<sup>Ⓢ</sup> With IPN-ProRemote

## • Available From



## • Part Numbers & Shipping Weight

- Solar Boost 3024i ..... SB3024i ..... 5 lbs... 2.27kg
- IPN-ProRemote with shunt.. IPNPRO-S... 1.8 lbs... 0.82kg
- IPN-ProRemote w/o shunt... IPNPRO..... 1 lbs... 0.46kg
- 500A / 50mV current shunt.. 506-0003-01... 1 lbs... 0.46kg
- IPN-Remote..... IPNREM..... 1 lbs... 0.46kg
- Battery Temp. sensor, 20' ... 930-0022-20... 1 lbs... 0.46kg