



# Fully Adjustable Solar Lighting Control

Maximum Power Point Tracking Photovoltaic Charge Controller with load control and IPN™ Network Interface

## SOLAR BOOST™ 3024iL & 3024DiL

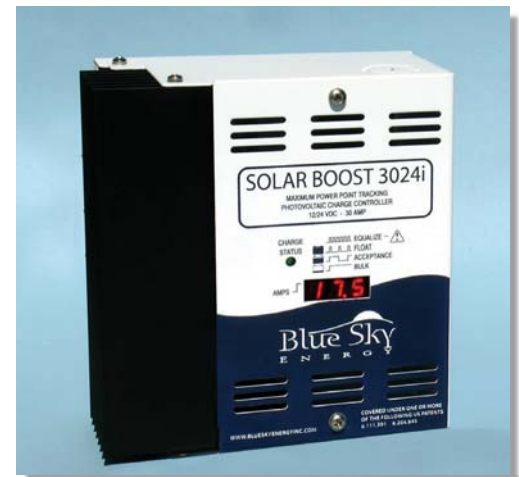
### Maximum Power Point Tracking Increases Charge Current Up To 30% Or More!

Patented Maximum Power Point Tracking technology allows Solar Boost 3024iL 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 Solar Boost 3024iL charge controller.

Solar Boost 3024iL's advanced fully automatic 3-stage charge control system will properly charge flooded lead-acid, AGM and GEL batteries resulting in improved battery performance with less maintenance. The dual 30/40 amp rating will deliver at up to 30 amps in 24 volt systems, or up to 40 amps in 12 volt systems. 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. The auxiliary output can also provide fully adjustable dusk to dawn<sup>®</sup> lighting control.

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.



### Get Improved Performance From Your PV Modules And Batteries

- 40 amp 12V or 30 amp 24V rating supports a wide range of applications
- Auxiliary output serves as 20 amp load controller or 2 amp battery charger
- Load controller provides fully adjustable dusk to dawn lighting control
- 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
- Battery temperature sensor input



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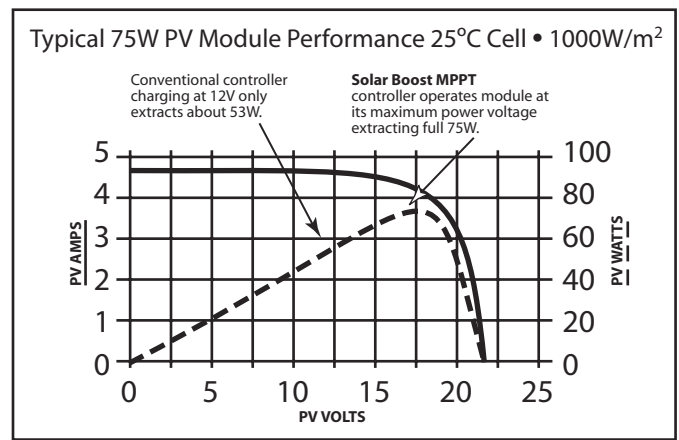
Covered under one or more of the following US Patents  
6,111,391 • 6,204,645



# 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 3024iL
Output Current Rating	30 Amp @ 24 Volts / 40 Amp @ 12 Volts
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 Plus Equalize
Acceptance Voltage	14.4VDC (range 14.0 – 14.8VDC <sup>①</sup> , 10.0 – 40.0VDC <sup>②</sup> )
Float Voltage	13.2VDC (range 13.2 – 13.8VDC <sup>①</sup> , 10.0 – 40.0VDC <sup>②</sup> )
Equalization Voltage	15.2VDC (range 10.0 – 40.0VDC <sup>②</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 <sup>①</sup> / OFF @ ≤11.5VDC <sup>①</sup> (Range 10.0 – 40.0VDC <sup>②</sup> , or net battery amp-hours <sup>②</sup> )
• Dusk-to-Dawn Cntrl <sup>②</sup>	Variable Post-Dusk and Pre-Dawn timers <sup>②</sup> , Range 0.5 - 20.0 Hours
Temperature Compensation	Optional sensor adjusts charge voltage based on measured battery temperature, -5.00 mV/°C/cell correction factor (Range -0.00 to -8.00 mV/°C/cell <sup>②</sup> ) • sensor range -60 to +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 42.0A ±0.50% FS
Communication	Blue Sky Energy's proprietary IPN Network interface
Approvals	ETL Listed to UL STD. 1741, Certified to CAN/CSA STD. E335-1/2E, CE labeled, FCC part 15 certified
Environmental	-40 to +40°C, 10 – 90% RH non-condensing

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

- ① SB3024iL alone, voltages double for 24V battery
- ② With IPN-ProRemote which may be used as a set up tool only, or permanently installed.
- ③ Current rating and current limit are 40A when charging a 12V battery from nominal 12V PV modules. If PV VOC ever exceeds 30V (>12V nominal PV modules) current rating and current limit become 30A.

## • Available From

## • Part Numbers & Shipping Weight

Solar Boost 3024iL.....	SB3024iL.....	5.4 lbs...	2.48kg
Solar Boost 3024iL With Display.....	SB3024DiL.....	5.5 lbs...	2.50kg
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