Patented Maximum Power Point Tracking technology allows Solar Boost 2512i-HV and 2512iX-HV to increase charge current up to 30% or more compared to conventional charge controllers. The new higher input voltage capability of the HV version product now allows the use of higher voltage lower cost 60 cell PV modules to charge a 12 volt battery. Don’t waste your money by throwing PV power away! Get the power you paid for with a Solar Boost charge controller.

The lower cost Solar Boost 2512i-HV 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. A partial IPN™ network interface is also included to allow use of the Universal Communication Module (UCM), and IPN-Remote and IPN-ProRemote displays.

Additional features provided in the Solar Boost 2512iX-HV version include automatic equalization, battery temperature sensor input, and an auxiliary output. The auxiliary output can serve as a 25 amp load controller, 25 amp lighting controller, or as a 2 amp auxiliary battery charger. 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 Power Net™, or IPN Network, allows multiple charge controllers to communicate with each other and coordinate their activities to charge the battery as a single coordinate charging machine. The IPN network also allows networked controllers to share an optional battery temperature sensor, UCM and remote display. Complete IPN network functionality is provided within the charge controller and no additional hardware or software is required.
How Do Solar Boost Charge Controllers Increase Charge Current?

Solar Boost charge controllers increase charge current by harvesting more PV power. A conventional charge controller simply connects the PV module to the battery when the battery is discharged which can artificially limit how much power a PV module can deliver.

Patented Solar Boost MPPT technology operates the PV module at its optimum voltage where it can produce the greatest amount of power rather than at battery voltage. The higher power extracted from the module is then provided to the battery as increased charge current.

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.

Typical 75W PV Module Performance @ STC

![Graph showing solar boost performance]

- **Conventional controller** charging at 12V only (50W PV module) results in about 50W.
- **Solar Boost MPPT controller** operates module at its maximum power voltage extracting 75W.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Solar Boost 2512i-HV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Current Limit</td>
<td>25 amp maximum 36 cell modules - 20 amp maximum 60 cell modules</td>
</tr>
<tr>
<td>Nominal Battery Voltage</td>
<td>12VDC</td>
</tr>
<tr>
<td>PV Input Voltage</td>
<td>50VDC absolute maximum (Recommend maximum V&lt;sub&gt;m&lt;/sub&gt; at STC ≤ 40VDC)*</td>
</tr>
<tr>
<td>PV Input Power</td>
<td>Recommended maximum, 340W with 36 cell modules / 270W with 60 cell modules</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>0.3W typical standby - 1.0W typical charge ON</td>
</tr>
<tr>
<td>Charge Algorithm</td>
<td>3-stage Bulk/Absorption/Final - Charge time in Absorption fixed at 2 hours (Range 0 – 10 hours&lt;sup&gt;2&lt;/sup&gt;)</td>
</tr>
<tr>
<td>Absorption / Float Voltage</td>
<td>14.2VDC / 13.2VDC fixed value (10.0 – 20.0VDC&lt;sup&gt;2&lt;/sup&gt;)</td>
</tr>
<tr>
<td>Power Conversion Efficiency</td>
<td>96% typical @ 14 volt 20 amp output with 36 cell modules</td>
</tr>
<tr>
<td>Physical Configuration and Dimensions</td>
<td>Open frame construction with conformal coated electronics mounted to rear of 3.5” x 3.5” (13.5cm x 13.5cm) clear anodized aluminum face plate. Black ABS corrosion proof mounting box included, 2.5” (6.4cm) deep.</td>
</tr>
<tr>
<td>Analog Input Accuracy / Range</td>
<td>Battery / PV voltmeters, 35.0VDC / 55.0VDC ±0.50% FS - Input / Output ammeters, 30.0 amps ±0.50% FS</td>
</tr>
<tr>
<td>Communication</td>
<td>IPN Network connector for IPN displays &amp; UCM only. Complete IPN interface for multi-controller coordination not provided.</td>
</tr>
<tr>
<td>Environmental</td>
<td>-40 – +40°C, 10 – 90% RH non-condensing</td>
</tr>
</tbody>
</table>

**Additional Specifications for Solar Boost 2512i-X-HV**

- **Equalization Voltage / Time** | 15.2VDC fixed value (range 10.0 – 40.0VDC<sup>2</sup>) - Automatic fixed at 2 hours each 30 days, may be disabled |
- **Auxiliary Output Functionality** | Single output field configurable as either: 25 amp load controller –or– 2 amp auxiliary battery charger |
- **Aux. Battery Charge** | 2 amp typical, same charge voltage as primary battery |
- **Load Control** | 25 amp maximum; ON @ ≥12.6VDC / OFF @ ≤11.5VDC (Range 10.0 – 40.0VDC<sup>2</sup>), or net battery amp-hours<sup>4</sup> |
- **Lighting Control** | Variable Post-Dusk and Pre-Dawn times<sup>5</sup>: Range 0.5 – 20.0 hours |
- **Temperature Compensation** | Optional battery temperature sensor, -5.00 mV/°C (Cell<sup>°</sup>C) - sensor range -60 – +80°C |
- **Auxiliary Battery Voltage** | Auxiliary battery voltmeter, 35.0VDC ±0.50% FS |
- **Communication** | Complete IPN Network interface. Allows up to 8 IPN capable controllers to set up and operate as a single charging machine. |

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

* See Technical Bulletin #100214.

Available From:

Solar Boost 2512i-HV .......................... SB2512i-HV 1.5 lbs ... 59kg
SB2512i-X-HV w/ extra features ... SB2512X-HV 1.3 lbs ... 59kg
IPN-ProRemote with shunt............. IPNPRO-S 1.8 lbs ... 82kg
IPN-ProRemote w/o shunt .......... IPNPRO-1 1.5 lbs ... 65kg
500A / 50mV current shunt ........... 506-0003-01 1 lbs ... 45kg
Battery Temp. sensor, 20’ ............. 930-0022-20 1 lbs ... 45kg
Universal Com. Module............. UCM 1 lbs ... 45kg

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