

# Solar Boost 3024Di

## **Operation Manual Addendum**

#### Manual Addendum Purpose

430-0022 A

This addendum applies to Solar Boost 3024Di charge controllers (p/n SB3024Di) and describes installation and use of the digital display. It is meant to be used in conjunction with Solar Boost 3024i operators manual (p/n 430-0018) revisions A, B and C. The information in this manual addendum is included in Solar Boost 3024i operators manuals revisions D and later.

## Operation

The digital display can monitor either a single charge controller, or the combined total of up to 8 charge controllers on a single IPN network. A low power LED display is used to provide both very low power consumption (≈0.15W) and excellent readability.

Battery voltage is continuously displayed when the charge controller it not charging the battery. Once the charge controller turns on and begins charging the battery the display will alternate between battery voltage and charger output current, each shown for 3 seconds. The display can show readings of up to 99.9 volts or amps maximum. Readings greater than 99.9 will display as 99.9.

The Charge Status LED will be off when the charge controller is not charging, and will be on solid or blinking when the charge controller is charging the battery. The Charge Status LED operates in the same manner as the Charge Status LED in the charge controller except that it will turn on whenever any charge controller on the IPN network is charging the battery. If the charge controller is delivering at least 3 to 5 amps per 100 amp-hours of battery capacity, the charge status LED can provide a rough indication of battery state of charge as shown on the front panel graphics. Refer to the charge controller operators manual for a complete description of Charge Status LED operation.

CHARGE STATUS LED: BULK- Continuously ON ACCP Blink 1 sec ON / 1 sec OFF FLOAT- Blink 0.1 sec ON / 1 sec OFF	SOLAR BOOST 3024i MAXIMUM POWER POINT TRACKING PHOTOVOLTAC CHARGE CONTROLLER 12/24 VDC - 30 AMP
AMPS INDICATOR: Display shows battery volts when amps indicator is off, or output charge current when amps indicator is on.	
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> Whenever the **AMPS Indicator** in the display is ON, output current is being displayed. Which output current to display is configured during setup and can be set to show either total output current of all chargers on the IPN network (factory default setting), or the output current of a particular charger unit on the IPN network. Battery voltage is displayed whenever the AMPS Indicator is OFF.

## Setup and Installation

A four position DIP switch on the display circuit board configures the output current display. The factory default setting of total output current from all charge controllers on the IPN network is suitable for both a single charge controller, or multiple charge controllers if only one controller has a display. If more than one charge controller is present on the IPN network and it is desired to have the display show only the output current from it's charge controller, the IPN network address of the display must match the IPN address of the charge controller it is intended to monitor.

IPN NETWORK CONNECTOR: Connect to IPN Display connector in charge controller with telephone cord supplied.



AMPS DISPLAY SELECT: Selects which output current is shown on display.

	IPN ADDRESS – OUTPUT CURRENT OF SINGLE CHARGER						TOTAL OUTPUT CURRENT OF ALL		
DIP SWITCH	0	1	2	3	4	5	6	7	CHARGERS ON IPN NETWORK
#1 (A2)	OFF	OFF	OFF	OFF	ON	ON	ON	ON	Don't care
#2 (A1)	OFF	OFF	ON	ON	OFF	OFF	ON	ON	Don't care
#3 (A0)	OFF	ON	OFF	ON	OFF	ON	OFF	ON	Don't care
#4 (IPN Total)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Network connection and power for the display are provided by the Solar Boost 3024i using the short telephone cable supplied. The cable should connect between the IPN Display connector on the Solar Boost 3024i main circuit board and the IPN Network connector on the display circuit board.



> Note that standard 4-pin telephone cables swap pin numbers end-to-end. This end-to-end pin swap is required for the display to operate properly. If cables are custom terminated or cable couplers are used, be certain the pin swap is maintained as shown below.

STANDARD 4-PIN TELEPHONE CABLE PIN SWAP



1	4
2	3
3	2
4	1

#### **Troubleshooting Guide**

SYMPTOM	PROBABLE CAUSE	ITEMS TO EXAMINE OR CORRECT
Completely dead, no	No power	Charge controller not properly powered
display		Cable faulty, not plugged in or cable pins do not swap
Display turns on, but	Display not communicating with	Cable faulty
battery voltage displays "– – –" rather than a number	charge controller	One charge controller is not set to be Master, or more than one charge controller is set to be Master
		One or more charge controllers on network has open Bat – connection preventing communication
When charger turns on, output current displays "– – –" rather than a number	Output current display selection set for an address not present on the IPN network	Configure display IPN network address DIP switch to properly read output current of a charger present on the IPN network
When charger turns on, output current displays but the value seems	Output current display selection set for wrong IPN network address	Configure display IPN network address DIP switch to properly read output current of a charger present on the IPN network
Incorrect	Bat– connected to PV– outside charge controller	Some charge controllers require Bat– not be connected to PV– outside charge controller, see charge controller manual.
Voltage or current value seems to be stuck and	Display or charge controller IPN network addressed changed	Configure display IPN network address DIP switch to properly read output current of a charger present on the IPN network
does not change	Display lost communication link with charge controller	Intermittent faulty display cable

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