

Powerstar Application Note:

Setting up a Powerstar for use with Blue Nova batteries



1. Background

When setting up an Inverter it is critical that the battery settings be correct for the type of battery being used. This is especially true when using Lithium batteries as incorrect settings can cause the batteries' management system to disconnect the battery to prevent damage. Once in the tripped state it can be difficult to get the system up and running again.

2. Settings

Blue Nova has recommended that the following values be used with their 52V batteries (used with 48V inverters).

Bulk Voltage – 56.4V
Float Voltage – 56V
Battery Low cutoff – 49V
Battery reconnect voltage – 53V

The following settings must be used in order to configure the Powerstar to use these recommended values.

Setpoint 70 – Batt Float Cell Volts – 2.33VPC
Setpoint 71 – Batt Bulk Cell Volts – 2.35VPC
Setpoint 77 – Equalise enabled – NO
Setpoint 91 – DC Recon Volts – 2.21VPC
Setpoint 93 – Batt Low Shutdown C1 – 2.04VPC
Setpoint 94 – Batt Low Shutdown C5 – 2.04VPC
Setpoint 95 – Batt Low Shutdown C100 – 2.04VPC

Please note that on Powerstar inverters with firmware Version 4.61 and higher, Setpoint 43 is called 'Battery Type' and can be set to Pb or Li. This must be set to Pb for Blue Nova batteries. Only batteries with 0-5V SOC and CCL outputs are supported by the Li setting.

Even when the Powerstar has been configured correctly, it is possible for the BMS to disconnect the battery under certain conditions. One example is that the AC Source has been disconnected for some reason and the Inverter runs until a low battery condition occurs and turns off, but this goes unnoticed for a long period of time. Even though the Inverter has turned off and stopped powering the load it could still consume as much as 10W from the battery. Given enough time this could eventually lead to the battery being disconnected. Given that this is a possibility, it is important to know what to do in the event that the battery has been disconnected.

The first thing to do when attempting to restart the system after the battery has been disconnected is to turn off any loads that are connected to the inverter output as the battery is already depleted and will not be able to supply these loads. Make sure that the AC breakers on the Inverter are off and that the AC source (Grid or Generator) is available.

Once this has been done, press and hold the reset button on the battery. The battery will automatically pre-charge the inverter and be reconnected. Do not release the reset button at this stage as the battery will simply be disconnected again. Wait a few seconds for the Inverter to finish booting up, then turn the inverter on via the keypad (if it is off) or make sure it is running in 'Auto Inverter Only' mode. Now turn the AC Breakers on the front of the Inverter on and wait until the Powerstar connects to the AC Source and begins charging (this should take approx. 1 minute). Once the Powerstar has recharged the battery above 49V, the reset button on the battery can be released.