

Most of the Menu settings are obvious, the few that are not will be covered here.

**1: Battery Calibrate:** Measure the battery DC input voltage at connector J1 pin 2.

**2: Capacitor Calibrate:** There are two options. You can enter the Capacitor bank voltage measured at the Power board +48v terminal, or enter **3: Use battery Calibration.**

Using battery calibration value allows the same Battery ADC calibration value to be used for the Cap ADC. If the two voltages are not within 200mv you should calibrate the Cap bank separately.

When measuring the Battery and Capacitor voltages, the Inverter should be powered with the Kilovac relay closed, or the the main breaker closed in manual wiring.

Why? The controller code is trying to get accurate running state voltages to monitor for a fault, or sudden voltage drop between the battery input and the power board input voltage (cap bank), both at start-up and under load.

**5: AC relay on voltage:** Two options: Enter the AC output voltage to control an AC relay, when one is used.

This allows you to control the voltage that AC output from the Inverter is switched onto the load.

Or select **3: Auto activate** AC relay: In this setting, any AC relay switching is enabled when the SPWM reaches the PID control state - this occurs at the end of Soft start ramp up.

That does not mean that AC has reached full voltage - it will be close - but if you are powering a load and not switching between mains and inverter, this will be fine, but there are two major reasons that a sudden high current pulse happens when switching between mains and inverter AC, one is synchronisation, and the other is a sudden voltage step at AC transfer.

Entering the voltage allows you to instruct the controller to wait until the Inverter AC has reached the desired voltage to match your mains voltage before switching. If your mains voltage is all over the shop then just set Auto.

**8: Battery to Cap delta:** Under load, the controller monitors the difference between the battery input and the power board.

**A: Battery restart volt:** If the battery is going flat, and voltage has dropped below low voltage cut off (menu 9) for more than 5 seconds, the inverter will stop and wait for the voltage to reach a level that might indicate the battery has a higher state of charge, that voltage is the Restart voltage.

Low shut down and restart voltages are based on the type of battery you are using. You need to test these voltage settings before relying on them, this will be the case for any battery state control equipment based solely on battery voltage, and not true (SOC) state of charge monitoring.

**I: Zero AC current offset:** This is to help with interference from Solar controllers causing the AC current to register above zero at idle, you can enter the above Zero value, and LCD AC current display shows zero until the voltage raises above the offset value.

**NOTE:** This option should not be used until the Zero offset adjustments in the new R7 Nano controller have been adjusted.

**J: Force an Over Current Trip power cycle:** This is mainly for automated power backup switching between Mains and Inverter.

**ON:** Forces user intervention after an Over Current Trip and power down.

The Inverter will respond to the OC Reset switch and restart as normal - considered user intervention.

If the inverter is powered down completely, so that the Nano has no power.

On power up, if the inverter controller records that the last error was an “Over Current Trip” it will not restart until a power cycle, which can be is a quick Off-On of the inverter power switch (Auto wiring).

The LCD Message will be “Last ERR OC Restart!”, which forces user intervention.

**K: Fine tune AC frequency:** This allows the selection of two available AC frequencies, Some mains synced clocks run slow or fast, this should help with correct time keeping.