**Low Loss Power Panel**

Overview

The LLPP combines the functions of a Low Loss PwrGate with a LiFePO4 battery charger. The LLPP can charge from the Power Supply input and / or Solar Panel input.

Connections

External from left to right: ***Solar Panel input, Power Supply input, Rig 1, Rig 2, Rig 3 outputs***

Internal: 14v LiFePO4 battery (Lithium Iron Phosphate)

Power Gate

The LLPP uses power MOSFETs to switch between Power Supply / Battery inputs (the MOSFETs provide a very low forward voltage drop, only 20mV, much less than diodes) based on the input with the highest voltage, normally this is the power supply input, upon loss of PS input, the load is switched to battery power. Note: there or no fuses associated with these outputs, each load should have its own fuse, 25 amps or less. Total load should be limited to 25 amps or less.

Charger

The charger is a Constant Current (CC), Constant Voltage (CV), Off 3 stage charger, that can be sourced from either the power supply input or the solar panel input. Operation is fully automatic; no user intervention is required. The charger operates in CC mode until the battery terminal voltage reaches its maximum charging voltage, then switches to CV mode until charging current drops to its minimum charging value, at that time the charger stops and waits for the battery voltage to drop to a starting charging level to begin the CC/CV/Off charging cycle.

The Solar panel charger is an MPPT, Maximum Power Point Tracking Algorithm.

When the power supply is used for charging, the charging maximum level is determined by the input voltage, to archive full charge, a 15 volt supply must be used. A 13.8 volt supply will charge to approx. 80%.

Battery Status LED

The battery status is only available when a charging source is being used, solar or power supply, to minimize battery load while in storage.

Red: Battery voltage is too high (above 14.6v) the charger will automatically shut off.

Green: Battery voltage is ok, charging will happen as needed.

Blue: Battery voltage is too low (below 12.4v) charging will begin.

Low Battery Alarm

Alarm begins beeping when battery voltage is below 12.4 volts, a push button is provided to acknowledge (silence) the alarm, the alarm will auto enable when battery is fully charged.

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