CamperLED Australia

Specifications for Power Mate 120 lithium Battery

Congratulations on your purchase of your new Lithium Power Cell

These Great Batteries are revolutionising Power requirements for the great Outdoors

Each Battery has been fitted with an LED (Light) at the Top of the Battery for quick reference for what the battery Status is

Flashing **GREEN**= Normal Battery operation charge and control

Flashing **RED**= Fault with battery and incorrect Charging application

The battery module has a positive terminal and a negative terminal. The positive terminal is connected directly to the positive electrode of the top cell bank, while the negative terminal is connected to the negative electrode of the bottom cell bank.

The Battery Protection

The battery provides software-based 1st protection for cell overvoltage, cell under-voltage, charge and discharge over-temperature, and overcharge conditions, as well as hardware-based protection for over-current in discharge and short circuit in charge and discharge conditions.

Cell Overvoltage and Cell Under voltage

The battery can detect cell overvoltage/under voltage and protect battery cells from damage from battery cell overvoltage/under voltage. If the max cell voltage reach 3.9V remains over 2s, the battery goes into overvoltage condition and TURN OFF the CHG MOSFET. The battery recovers from a cell overvoltage condition if all the cell voltages drop below the cell overvoltage recovery threshold (3.8V). In a cell overvoltage condition, the CHG FET is turned on during discharging to prevent overheating of the CHG MOSFET body diode.

If the min cell voltage reach 2.3V remains over 2s, the battery goes into under voltage condition and TURN OFF the DSG MOSFET. The battery recovers from a cell under voltage condition if all the cell voltages reach up the cell under voltage recovery threshold (2.5V). In cell under voltage condition, the DSG MOSFET is turn ON during charging to prevent overheating of the DSG MOSFET body diode.

Over Temperature Protection

The battery has over temperature protection from both charge and discharge condition's. When charging, if pack temperature reaches or surpasses 60℃ or MOSFET temperature reaches or surpasses 85℃ over 2 seconds, charging is disabled and CHG MOSFET is turned off. When pack temperature is equal to or below 55℃ and the CHG MOSFET is turned ON. In over temperature condition, the CHG FET is turned on during discharging to prevent overheating of the CHG MOSFET body diode.

When discharging, if pack temperature reaches or surpasses 65℃ or MOSFET temperature reaches or surpasses 85℃ over 2 seconds, discharging is disabled and DSG MOSFET is turned off. When pack temperature is equal to or below 60℃ and the DSG MOSFET is turned ON. In over temperature condition, the DSG MOSFET is turned on during charging to prevent overheating of the DSG MOSFET body diode.

Cell Balancing

When the lowest cell block's voltage >3.280V and any cell bank's voltage is more than the lowest cell bank 50mV, the balance circuit will be turn on.

SMBus Communication

The battery pack shall be capable of communicating with the PC via SMBus communication.(Optional)

Software Over-Current Protection

When discharge current exceeds 160A (10S), the discharge MOSFETs are TURN OFF, no current is drawn from the battery. When charge current exceeds 90A (2s), the charge MOSFETs are TURN OFF, no current input to the battery.

When the pack is removed and reinserted the over current is cleared.

Hardware Short Circuit Protection

When battery detects a short circuit in charge (discharge) fault, the charge (discharge) MOSFET is turned OFF. When the battery identifies the short circuit in charge (discharge) condition, discharge MOSFET is re-enabled. When the pack is removed and re-inserted, the short circuit condition is cleared.

When the recovery condition for a charging fault is detected, the CHG MOSFET is allowed to be turned ON

Charging

The Power Mate 120 can be charged by most standard lead acid chargers
input Current not to exceed 35 Amps at total voltage of 14.6 Volts.
3/4/5/7 Stage chargers can also be used to charge and manage these batteries
Providing maximum voltages are between 13.7 and 14.6 volts.

Charging With Solar Panels

The Power Mate 120 batteries can also be charged and maintained by solar panels providing there is a Regulator between the Battery and the Solar panel.
Panel Size would be determined by the Customers operating requirements

Storage

Power Mate 120 Batteries can be stored for long period of times without the need for regular charging and discharging they will hold their own constant voltages and current
They should be kept in a Dry cool place for maximum life of the cells
Each Power Mate 120 battery comes with a full 2 Year replacement Warranty
(From Date of invoice)

Specifications		12V-120Ah
Voltage		12.8 V
Nominal Capacity (C/5, 23°C)		120 Ah
Weight (approximate)		17kg
Dimension incl. Terminals(LxWxH)		260 x 172 x 225 mm
Terminals, Female-Threaded		M8 x 1.0
Standard Discharge @ 27°C	Cont. Current 50A	Mosfet temperature 60℃
	Cont Current 60A	Mosfet temperature 78℃
	Cont Current 80A	Discharge about 10-15 minutes
	Peak current 160A	10s temperature protected
	Peak current 200A	5s temperature protected
	Cut-off Voltage	10V
Standard Charge	Charge Voltage	14.6 V
	Recommended	20A
	Charge Time	6 hrs