



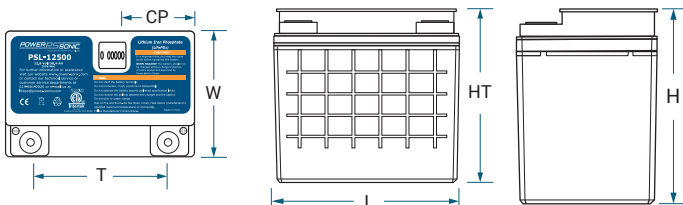
PSL-12500 12.8V 51.4 AH

Rechargeable Lithium Battery
PSL – Medical Lithium Series

BATTERY FEATURES

- Super safe lithium iron phosphate (LiFePO₄) chemistry reducing the risk of explosion or combustion due to high impact, over-charging or short circuits
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- The battery will communicate with most smart charging (power module) systems
- Enhanced electrical design for reduced heat generation
- Delivers twice the power of lead acid batteries, even at high discharge rates, while maintaining constant power
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant ABS case and cover flame retardant to UL94:V0

DIMENSIONS: inch (mm)



L: 7.70 (195)
W: 5.20 (130)
H: 7.20 (183)
HT: 7.20 (183)
T: 5.35 (136)
CP: 2.91 (73.96)

GLOBAL HEADQUARTERS (USA AND INTERNATIONAL EXCLUDING EMEA)

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INTELLIGENT BATTERY MANAGEMENT SYSTEM

The PSL-12500 comes with an intelligent battery management system which monitors current and voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity. All BMS variables are available through SMBus communication protocol.

APPROVALS

- UL 1642 cell certificate
- ETL Approved
- UN 38.3 certified
- ISO9001:2015 - Quality management systems



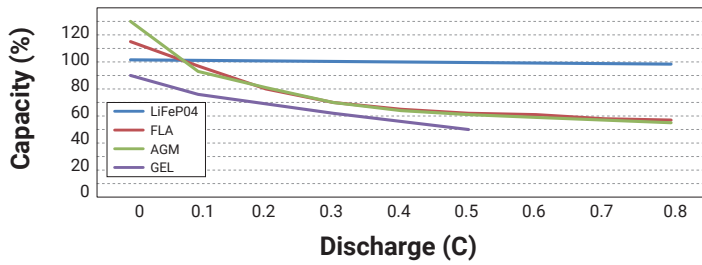
APPLICATIONS

- Medical
- Solar
- Wind
- Mobility
- Data Center
- Transport
- Sports & Recreation
- Utility

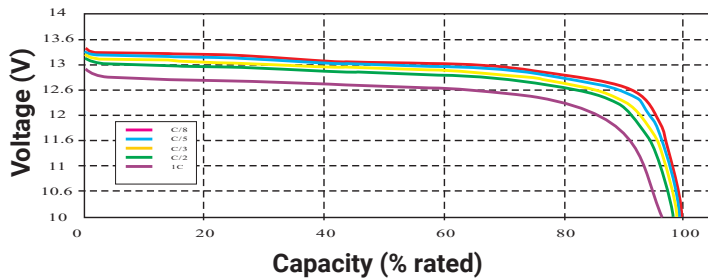
PERFORMANCE SPECIFICATIONS

Nominal Voltage	12.8 V
Rated Capacity	51.4 AH at a Constant Current of 0.2C to 10V
Stored Energy	658 Wh
Cycle Life (@DOD100%)	2500 Cycles
Approximate Weight	12.98 lbs (5.9 kg)
Internal Resistance	≤30.0 mΩ
Max Charge Current	20 A
Max Discharge Current	20 A
Charge Cut-off Voltage	14.6 V
Recommended Discharge Cut-Off Voltage	10 V
Operating Temperature Range	32°F (0°C) to 113°F (45°C)
Charge	-4°F (-20°C) to 140°F (60°C)
Discharge	59°F (15°C) to 95°F (35°C)
Recommended	
Self-Discharge Rate	≤3%/month
Long Term Storage	Charge every 6 months or as soon as OCV is 12.8V
Power Sonic Chargers	Contact us for information on a suitable charger.
Life Expectancy (years)	6 years at one cycle per day
Short Circuit Protection	Automatically recover after removal of short
Dimensional Tolerances	+/- 0.04 in. (+/- 1mm) for length and width +/- 0.08 in. (+/- 2mm) for height dimensions
Terminal Type	M6 threaded insert (female threaded)

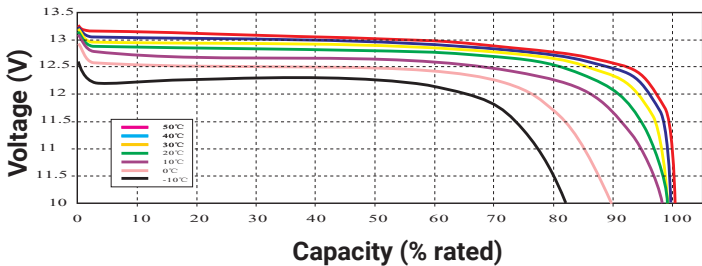
CAPACITY OF LiFePO4 vs. LEAD ACID AT VARIOUS CURRENTS OF DISCHARGE



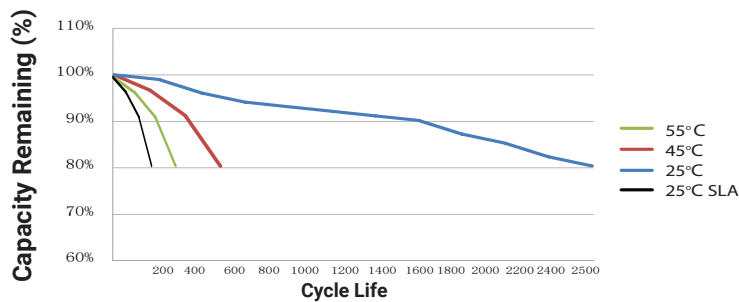
DISCHARGE VOLTAGE PROFILES AT VARIOUS RATES 25°C AMBIENT TEMPERATURE



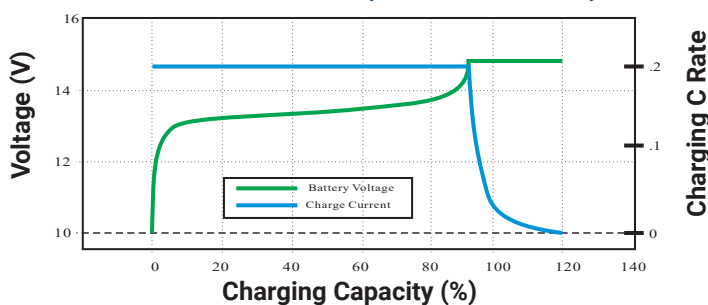
DISCHARGE VOLTAGE PROFILES AT 0.5C DISCHARGE RATE VARIOUS AMBIENT TEMPERATURES



CYCLE LIFE vs. VARIOUS TEMPERATURE 0.2C CHARGE/0.5C DISCHARGE @ 100% DOD



CHARGING CHARACTERISTICS (0.2C AMP @ 25°C)



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BENEFITS OF LITHIUM

Lithium offers several performance benefits versus its sealed lead acid (SLA) equivalent. A lithium battery's capacity is independent from the discharge rate and provides constant power throughout its discharge. The degradation of a lithium battery at a high temperature is significantly reduced in comparison to SLA.

Lithium has ten times the cycle life as SLA at room temperature. Even at an elevated temperature, lithium still has increased cycle life over SLA at room temperature.

Lastly, Lithium charging follows a similar charging profile as SLA, Constant Current Constant Voltage (CC/CV). However, lithium can be charged faster, without the need for a maintenance float charge.

BMS TECHNICAL SPECIFICATIONS

Over Charge Voltage Protection	
Over-charge protection for each cell	3.90 V
Over-charge release for each cell	3.60 V
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage
Over Discharge Voltage Protection	
Over-discharge protection for each cell	2.40 V
Over-discharge release for each cell	2.60 V
Over-discharge release method	Protection releases when all cell voltages rise above the over-discharge release voltage
Over Current Protection	
Over-current protection	24-28 A
Protection delay time	30 S
Over-current release method	Protection releases when the charge/discharge current drops to 0A
Battery Charge Temperature	
Over/Under temperature charge protection	60° C / 0° C
Over/Under Release temperature	50° C/ 5° C
Temperature release method	Protection releases when temperature reaches the release temperature
Battery Discharge Temperature	
Over/Under temperature discharge protection	65° C / -20° C
Over/Under Release temperature	55° C/ -10° C
Temperature release method	Protection releases when temperature reaches the release temperature

FURTHER INFORMATION

Please refer to our website www.power-sonic.com or email us at technical-support@power-sonic.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.