

# SmartPower 4820

## High energy, 2U rack-mount lithium-ion battery system

SmartPower 4820 has been designed to provide power backup for remote or outside telecom plants like Access Terminals, Base Transceiver Stations, Base Station Controllers. They are also suitable to provide bulk power in Central Offices.

This “all included” stand-alone battery system now provides the benefits of Sacred Sun Li-ion technology in a qualified industrial design: SmartPower provides maintenance-free energy storage in a reduced volume, combining high operational reliability with outstanding life time under the most difficult environmental conditions.

### Features

- Integrated 48 V system containing 0.96 kWh of energy
- Parallell operation, for scalability
- Energy density of 94 Wh/dm<sup>3</sup>, surpassing most advanced VRLA designs
- State of charge and state of health indication
- Built-in battery control for efficient operation
- Redundant safety
- Comprehensive communication
- Compatible with standard telecom rectifiers

### Benefits

- Increased energy in given space
- Easy installation and upscaling
- High operational reliability
- Optimized supervision strategy through remote control/diagnostic
- Very long life time
- Preventive but not premature replacement at end of life



SmartPower 4820

| SmartPower 4820                                 |                               |
|---|-------------------------------|
| <b>Nominal Characteristics</b>                  |                               |
| Nominal Voltage (V)                             | 48                            |
| Typical Capacity (Ah)                           | 20                            |
| Typical Energy (Wh)                             | 960                           |
| Volumetric energy density (Wh/dm <sup>3</sup> ) | 61.7                          |
| Gravimetric energy density (Wh/kg)              | 64                            |
| <b>Mechanical Characteristics</b>               |                               |
| Width (mm)                                      | 442(19")                      |
| Height (mm)                                     | 88(2U)                        |
| Depth (mm)                                      | 400                           |
| Weight (Kg)                                     | 15                            |
| <b>Electrical Characteristics</b>               |                               |
| Voltage Window                                  | 40.5 to 54.0                  |
| Charge voltage range (V)                        | 53.25 to 54.0                 |
| Max. permanent discharge current (A)            | 20                            |
| Recharge time (h)                               | 11                            |
| Faradic charge efficiency (+20°C)               | 99%                           |
| <b>Operation Conditions</b>                     |                               |
| Cycle life (70% dod; +25°C)                     | 4300 cycles                   |
| Operating temperature                           | - 20°C/+60°C                  |
| Storage temperature                             | - 20°C/+40°C                  |
| Transportation regulation compliance            | UN 38.3                       |
| EMC standard compliance                         | EN 61 000 chapter 6-2 and 6-3 |
| Safety standard compliance at battery level     | designed to meet IEC 60 950   |
| Certification designed to meet                  | CE/UL1640                     |
| Protection class                                | IP20                          |

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ShanDong Sacred Sun Power Sources Co., Ltd

Add: No1,Shengyang Road, Qufu, P.R.C Tel: +86-537-438666-6119

## Functional characteristics

### LiFePO<sub>4</sub> Li-ion technology

SmartPower 4820 contains cells with advanced LiFePO<sub>4</sub> lithium-ion technology:

- Outstanding calendar and cycle life and reliability at high temperature
- Industrial production for high tech-applications such as space & defense, electric vehicles, robots, etc.
- Stable internal resistance over entire life
- High reliability by using high capacity cells: avoids massive cell paralleling within a 48 V module

### Control for efficient operation

- On/Off switch
- Active/Sleep (storage, prolonged outage) /Alarm modes
- Charge/Discharge management
- Cell balancing

### Mechanical & electrical interface

- 19 inches, 2U rack-mount design
- Industrial standard terminals on front panel

### Communication

The battery system informs the user and the application, via visual communication by LEDs on front panel. In the same time, the supervision can be done through RS232.

The data available are:

- State of charge, state of health
- Alarm level (minor, major); alarm reason
- Operating conditions (voltage, temperature, identification number)

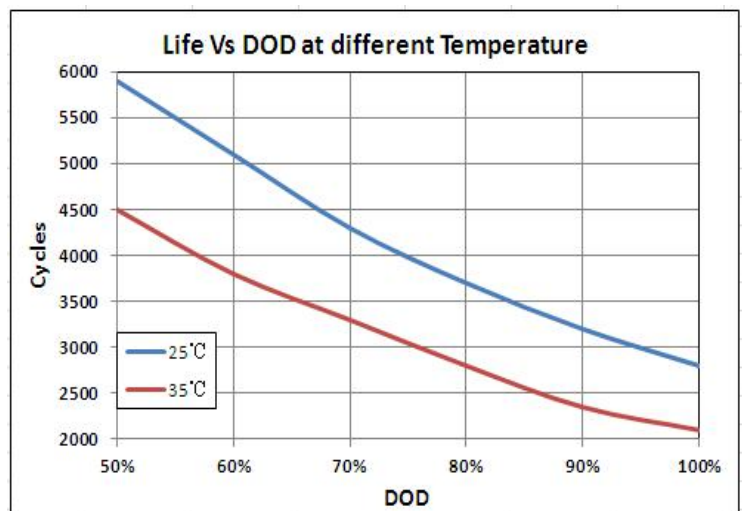
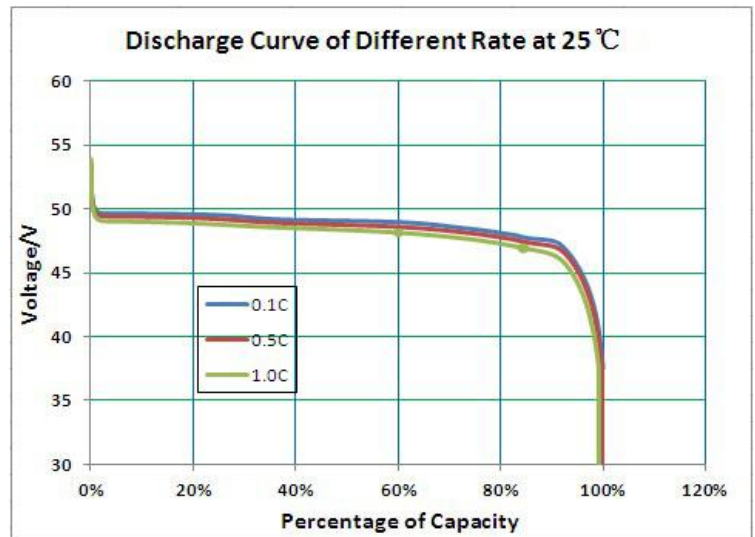
### Safety

Redundant safety design to cope with component failure or abusive conditions:

- At battery system level: electronic board, reversible protection, separate power switches in charge and discharge circuit
- At cell pack level: electronic board, individual cell voltage monitoring
- At cell level: shutdown-effect separator, mechanical vent & current breaker

### Sustainable design

The whole life cycle of SmartPower 4820 is considered closely during all phases of development, from manufacturing to industrial operations and recycling. For its advanced design, SmartPower is friendly to environment and consumes less energy compared with the VRLA Batteries which have same capacity.



### Industrial vision

SmartPower has been developed and qualified to suit the demanding requirements of performance and operational reliability telecom OEM's and operators, who are manufacturing or operating high-value, industrial equipment.

SmartPower is made of proven components (cells, electronics) which are also employed in demanding space, automotive and other civil applications. Cell manufacturing is carried out on established industrial production lines. Manufacturing plants comply with the legislation in force in each country and with international quality standards (ISO 9001 and 14001).

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