

Lithium Ion Battery System Specification

Customer: _____

Product name: LiFePO4 Battery system

Model: LFP51.2100 51.2V100Ah

| Author | Checked by | Approved by |
|--------|------------|-------------|
| | | |

| Customer confirmation | |
|-----------------------|-------------------|
| Customer company: | |
| Signature | Company signature |
| Date: | Date: |

► Overview

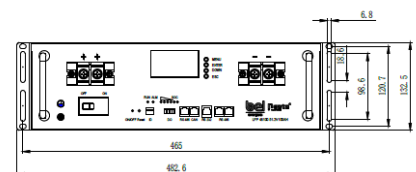
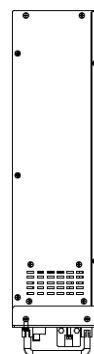
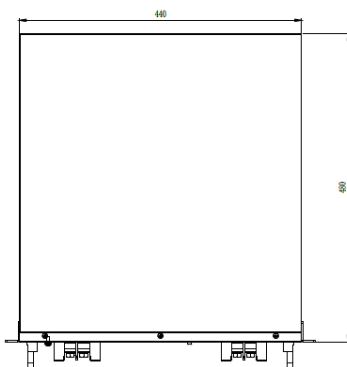
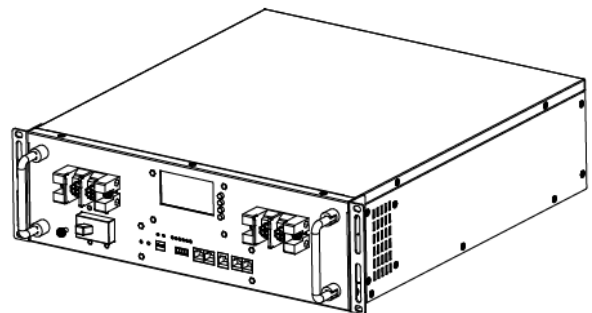
LFP51.2100 is 51.2V100Ah Lithium iron phosphate battery module which designed for 19Inch cabinet mounting and power supply system application. This battery module integrated with intelligent BMS, Breaker with big advantages on safety, cycle life, energy density, temperature range and environmental protection. This product specification describes the type, size, structure, electrochemistry performance, service life, and BMS characteristics. The specification will be updated based on different customer requirement.

► Advantages

The battery module consists of single LFP cells, wire, BMS and container.

- Packed with high performance LFP single cell, long life, safety and wide temperature range
- High energy density, small size, light weight, no pollution;
- Packing with single cell container, fire retardant wire and copper connecting bar, stable and safe.
- Built-in BMS, with battery voltage, current, temperature and health management.
- LED(optional) indicate the battery SOC and operating status.
- 19 inches metal module container rack, simple installation and expand capacity by parallel.
- Flexible customization of dimensions
- More than 20 years design life, Stable performance, maintenance-free

► Module Drawing



Battery datasheet

Document: LFP51.2100(51.2V100AH)

Doc. Version: V1.3

Issue Date: 15-03-2021

► Battery module specification

| | Item | Specification | Conditions |
|-----------------------|------------------------------------|--|-------------------|
| Nominal | Voltage | 51.2V | 25°C,0.2C |
| | Capacity | 100Ah | |
| Module weight | | 46kg | ±1kg |
| Dimensions(W*D*H), mm | | 442*480 (540) *133 (3U) | ±2mm |
| Operating parameters | Charging Voltage | 57V | |
| | Discharging Voltage | 45V | Recommended |
| | Charging current | Max constant charge: 100A | Recommended 50A |
| | Discharging current | Max constant discharge:100A Pulse discharge: 120A for 30S | |
| Temperature | Charge range | 0°C~45°C | |
| | Discharge range | -20°C~60°C | |
| | Storage range | -20°C~45°C | |
| BMS | Built-in BMS | Voltage, current, temperature management & cell balance | CAN communication |
| Service life | Design life | >10years | |
| | Cycle life (90%DOD to 80% end) | >2000 times | 0.2C, 25°C |
| | Cycle life (100%DOD to 50% end) | >6000 cycles | @0.5C, 25°C |

► BMS specification

BMS provides complete management and protection for the battery.

- Voltage warning and protection for module and each single cell.
- Current warning and protection, and the maximum operating current can be customized.
- Temperature warning and protection, 4 sensors for battery pack and 1 sensor for BMS.
- Battery module SOC and SOH calculation, display the accurate battery status.
- Communicate with the SMPS or monitor device, report the battery data.
- Pre-charge logic, make sure safety charge for the module if under low voltage condition.
- Switch-off mode, sleep mode, and operating mode, different mode for different condition.

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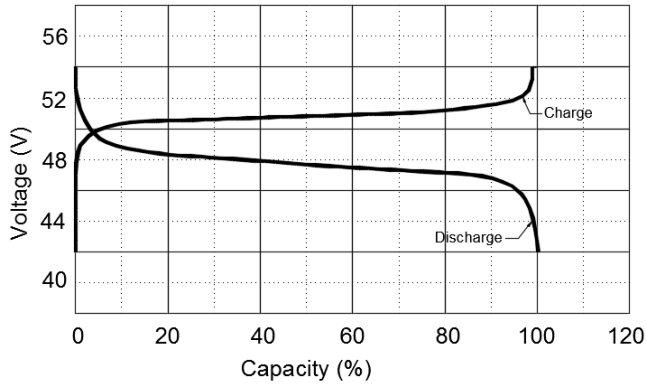
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► BMS parameters.

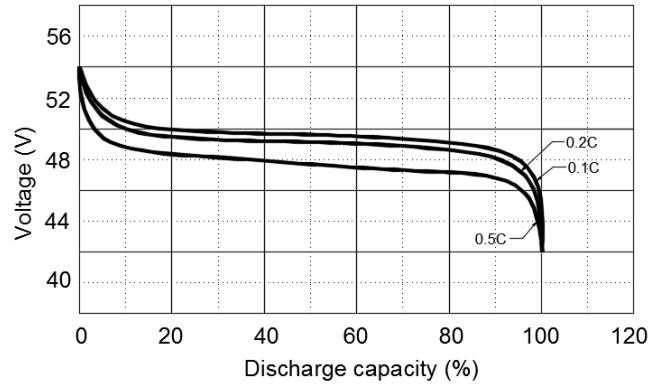
| Item | | Parameters | | Condition |
|---------------------|--|---------------------|---------------------------------------|--|
| Charge | Cell voltage protection | 3.7V | Delay 1~2S | Recover when discharge current >1A or Cell voltage<3.38V or module voltage<54V |
| | Module voltage protection | 58.4V | Delay 1~2S | |
| | Over charging current 1 | 100A ~110A | Delay 20~30S | Turn to pre-charge mode and try to recover in every 3min |
| | Over charging current 2 | ≥110A | Delay 2~3S | |
| | Temperature protection | < -10°C or >70°C | Delay 1~2S | Recover when >0°C or <60°C |
| Discharge | Cell voltage protection | 2.7V | | Recover when charge current >1A or Cell voltage>2.95V or module voltage>47.2V |
| | Module voltage protection | 43.2V | Delay 1~2S | |
| | Over discharging current 1 | 100A~120A | Delay 3S | Recover when charging current>1A, or recover in every 60S |
| | Over discharging current 2 | ≥120A | Delay 1S | |
| | Short circuit | >150A | Delay 0.1mS | |
| | Temperature protection | < -20°C or >75°C | Delay 1~2S | Recover when > -10°C or <65°C |
| BMS | PCB Temp protection | >115°C | Delay 1~2S | Recover when <80°C |
| | Cell balance | 150mA | Passive balance | Cell voltage difference > 40mV |
| | Temperature accuracy | ±2°C | Cycle measurement | Measuring range -40~100°C |
| | Voltage accuracy | ±20mV | Cycle measurement | For cells and module |
| | Current accuracy | FSC±5% | Cycle measurement | Measuring range -200~+200 |
| | SOC | 5% | | Integral calculation |
| | Power consumption with different condition | <300uA | Switch-off mode | Storage & transportation |
| | | <500uA | Sleep mode | Protection & stand-by |
| | | <15mA | Operating mode | Operating |
| | | <28mA | Pre-charge mode | Low voltage to start Pre-charge |
| Communication ports | RS-232/RS485/CAN | | Can be customized to match the device | |

► Performance curve

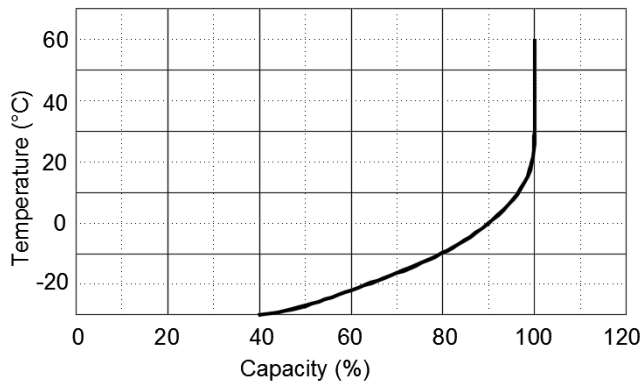
Charge & Discharge curve with 0.5C @ 25°C



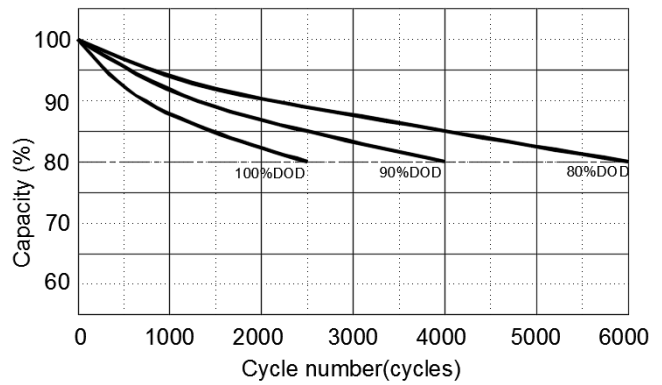
Discharge performance with different rate @ 25°C



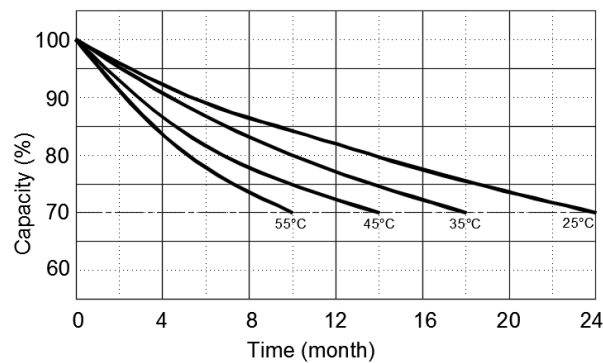
Discharge capacity with different temperature @ 0.5C



Cycle life with DOD @ 0.5C, 25°C



Self-discharge @ different temperature



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►Packing List

| No. | Item | Specification | Number | Remarks |
|-----|----------------------|--|--------|---------|
| 1 | LiFePO4 battery rack | LFP51.2100 51.2V100Ah battery rack | 1pcs | |
| 2 | Terminal | Bolt and nut screw in battery terminal | 4pcs | |
| 3 | Power cable | 1m red 1m black | 2 pcs | |
| 4 | Communication cable | 2M Internet cable | 1 set | |