Technical Datasheet (TDS)

Li-ion Battery 48V 100Ah

- Product Name: Lithium-ion Battery 48V 100Ah
- Model: LFP1C48100

- Compliance:
  - TSEC Approved (BSNL)
  - BIS Certified Cells (IS16046-2:2018),
  - IEC62619 Tested (NABL Approved Lab),
  - UN38.3 Cell

1. General Specifications

Parameter	**Specification**
Battery Type	Rechargeable Lithium Iron Phosphate ($LiFePO_4$)
Nominal Voltage	48V (15S)
Nominal Capacity	100Ah
Energy	4800Wh (4.8kWh)
Configuration	15S1P (Prismatic Cells, M6 Screw Type)
Cycle Life	≥ 6000 Cycles @ 0.5C, 70% EOL
Weight	~45kg
Dimensions	445mm × 440mm × 177mm (4U Rack Mount)

2. Electrical Specifications

Parameter	Value
Operating Voltage Range	40.5V – 54.75V
Nominal Voltage per Cell	3.2V
Max Charge Voltage (Pack)	54.5V
Min Discharge Voltage (Pack)	40.5V
Standard Charge Current	0.5C (50A)
Max Continuous Charge Current	100A
Max Continuous Discharge	100A
Peak Discharge Current	150A (10 sec)
Charging Method	CC/CV
Internal Resistance (Cell ACIR)	≤0.5 mΩ

3. BMS Features -

Parameter	Specification
Cell Monitoring	15 series cells (15S used)
Cell Balancing	Passive Type
Protection	Over/Under Voltage, Over Current, Short Circuit, Temp Protection
Communication Interfaces	CAN 2.0B, RS485, RS232, UART, Bluetooth Optional
Temperature Sensors	2 onboard + 16 external NTC
SOC/SOH Monitoring	Yes
Max Supported Capacity	1600Ah
Operating Temp (BMS)	-40°C to 85°C
Monitoring Software	Battrack-BT (App), BATBOT (PC), Battrack Cloud Optional

4. Cell Specification (Ganfeng 100Ah LFP Cell)

	Specification
Cell Model	48173125-100Ah (Prismatic)
Capacity	100Ah
Rated Voltage	3.2V
Max Charge Voltage	3.65V
Cut-off Discharge	2.5V (0°C to 60°C) / 2.0V (-20°C)
Charge Temp Range	0°C to 60°C
Discharge Temp Range	-20°C to 60°C
Cycle Life	6000 Cycles @ 0.5C, 70% EOL
Self Discharge Rate	≤3.5%/month
Cell Size (L×W×H)	174.2mm × 47.8mm × 132.3mm
Weight per Cell	~2.15 kg

5. Environmental & Mechanical Specifications

Parameter	**Specification**
Operating Temp	Charge: 0°C to 55°C, Discharge: -15°C to 60°C
Storage Temp	-20°C to 40°C
Humidity	≤95% RH, no condensation
Altitude	<2000m
Cooling Method	Air cooled with optional fans

6. Safety & Certification

Parameter	Specification
TSEC Testing	Passed Thermal Safety Evaluation Criteria
IEC 62619	Verified in NABL-Accredited Laboratory
BIS Certification	IS 16046-2:2018 / IEC 62133
UN38.3	Transport Safety Compliant
UL9540A	Thermal Safrty
IP Rating	IP65 Enclosure (Optional)
Protections	Cell, Pack, and System Level
BMS Fault Logging	Yes, Life time

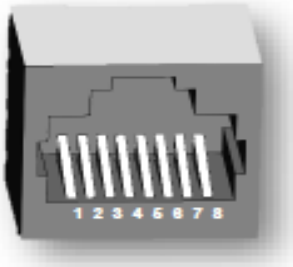
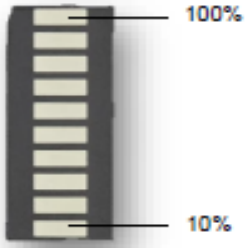
7. Application Areas

- Telecom Towers
- Solar & Hybrid Energy Storage
- UPS & Backup Systems
- Smart BESS & Grid Storage

8. Optional Features

Parameter	Specification
Smart BMS with Bluetooth	App-based battery insights
LCD/LED SOC Indicators	Visual charge % & alarms
IoT Gateway	Cloud monitoring via Battrack
Parallel Operation	Up to 16 packs (CBMS supported)

9. Ports Mapping

S.No	Port Type	Description
1	RJ45 CAN PORT	 1) CAN H 7) GND 2) CAN H 8) GND 3) CAN L 4) CAN L 5) +12V 6) +12v This port is used to connect BMS to BMS & BMS to CBMS
2	FAULT LED	When there is a fault condition this LED will glow.
3	SOC INDICATOR	The SOC indicator indicates a battery module's charge (SOC) state. The top bar indicates 100%, and the lower bar indicates 10%. Each bar represents 10% SOC. When the SOC drops below 10%, the lower bar will blink. 
4	RJ11 UART/RS232 PORT	 1) GND 2) +12V 3) B – Green Wire 4) A -- Red Wire 5) RX 6) TX
5	FAULT RESET BUTTON	Press this button to resolve hardware faults caused by loose cells, temperature connections, or lack of control over Mosfet.
6	DIP SWITCH	Use the dip switch to assign a unique ID to the battery for display on the CBMS.
7	FAN PORT	Sure, here is the revised text: "Use this port to control an external fan in higher temperature conditions, with a 12V power supply."
8	BMS ON/OFF BUTTON	Use this button to switch off/ on the BMS.
9	IGNITION	To manually wake up the BMS, use this port and short both pins for 2-3 seconds when it is in sleep mode..
10	BUZZER	The buzzer will beep in the event of overheating.

10. Address Setting

DIP Switch format-

Dip switch assigns a unique ID to the battery for display on the CBMS.

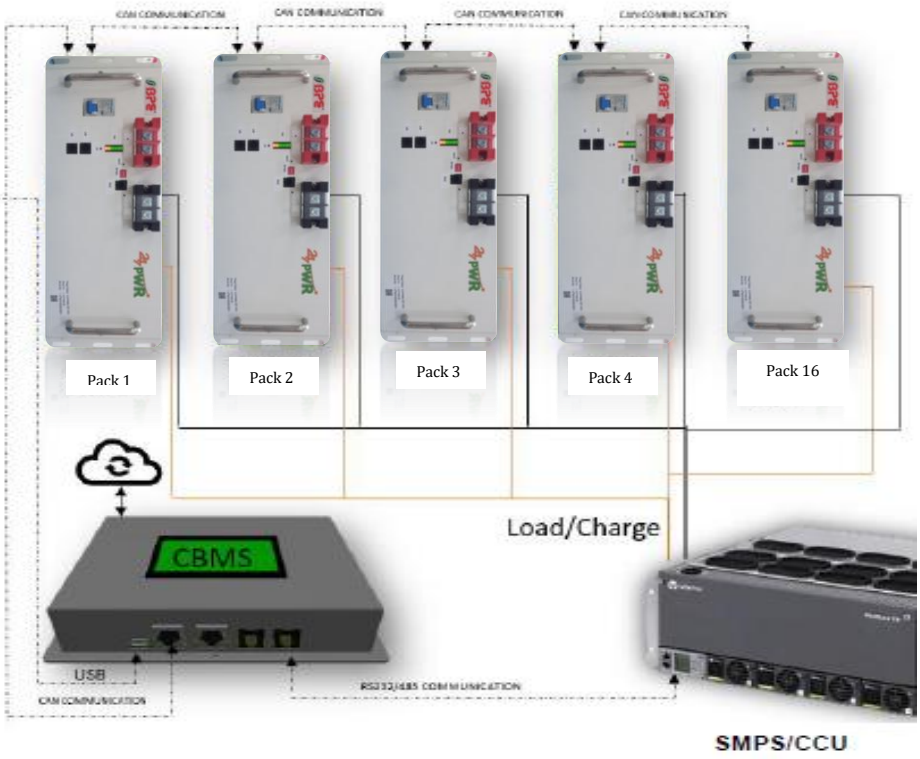
Position→ Numbers↓	1	2	3	4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

11. Battery Intiguration steup

Battery Communication and Centralized Control-

With its OBD feature, CBMS enables real-time monitoring and parameter management, allowing users to access live data for proactive decision-making and optimal performance of battery systems.

CBMS seamlessly interfaces with batteries, capturing and consolidating comprehensive data for display on its user-friendly screen. Moreover, it efficiently communicates with the Central Control Unit (CCU), relaying essential battery information to ensure optimal performance. With its built-in IoT capabilities, CBMS goes a step further by transmitting real-time data to a centralized portal, enhancing remote monitoring.



12. 48V 800Ah Rack Layout (19 Inch) (48V 100Ah *8 Packs)