TECHNICAL SPECIFICATION

ZTT48100B

Version	Date	Prepared	Reviewed	Approved
A0	07/12/24	Sean sun		

Address: No. 88 Qixin Road, NETDA, Nantong, Jiangsu, P.R. China, 226009

Tel:+86 513 8010 0986 | E-mail: sales@zttgroup.com | Website: www.zttgroup.com

1. General

This listed specification covers the general requirements, test information and performance of LiFePO4 battery as manufactured by Zhongtian Energy StorageTechnology Co., Ltd. (ZTT-Group).Matters not mentioned in this technical specification shall be negotiated by purchaser & supplier.This document confirms the two Parties agreement, as technical agreement of contra ct unless otherwise in official written annexes.

The picture is for reference only

2. Packing

2.1 Product diagram

- Protection function(from increased charging and low discharge voltage, from high charge and discharge current, overheating, short circuit, Reverse connection,etc.)
- BMS system can accurately detect battery SOC and SOH
- Communication(RS232,RS485 MODBUS)
- Cell Equalization Function
- Alarm function
- Remote monitoring function

2.2 Parameter

Item	Value
Type / model	ZTT48100B(15S) / ZTT 48V100Ah Lithium Battery
Cell Structure	Prismatic Laser welding
Cell Nominal Voltage	3.2V

Item	Value
Cell Nominal Capacity	100Ah
Height 19" rack	3U (19" rack)
Nominal energy	4.8kWh
Nominal voltage	48 V
Charge Voltage	Floating charge 51 V~51.75V Boost charge 54V
Maximum charging voltage	≤58V (Short term charging)
discharge protective cut-off voltage	Pack：40.5V Cells：2.7V
Operating Voltage Range	40.5V～54V
Nominal capacity	100 Ah (discharge at 0.2C, 100% DOD, 25℃)
Charging current limiting	10A
Maximum charge current	50 A (0.5C)
Rated discharge current	20 A
Maximum discharge current	100 A (1C)
Cycle life	≥2000cycles (at 25℃/0.2C/100% DOD)
	≥3000cycles (at 25℃/0.2C/80% DOD)
	≥1000cycles (at 45℃/0.2C/80% DOD)
Working temperature	0～55°C (charge and discharge)
Optimal storage temperature	-10～+45°C
Relative humidity	5% ~ 95%
Self-discharge coefficient (%/month) at 25 ºC	3%
Charge/discharge Efficiency (round trip efficiency/Energy charge efficiency)	⩾92% at charge/discharge current 0,2C
ON/OFF switch	ON/OFF switch
Interface	RS232、RS485
The dimensions of the battery module case (WxDxH)	482x460x133 mm± 2 mm (3U height) , 460 depth does not include handles, terminals
Design Life	10Years/20-25℃
Class IP	IP20
Internal resistance	≤20 mΩ fully charge 25 ÷ 45 ºC
Installation type	Mounts on a 19-inch rack (with mounting kit)
Accu terminal	M8 screws, with protective cover
Positive and negative cable	1 set (size:⩾20mm2 black 150cm and blue 150cm

Item	Value
LAN cable	Length: 150cm/pcs

Battery：

The cell is printed with code information or QR code so that the cell's information can be looked up. The sticker (if any) must not cover the information that has been printed directly on the cell

The cells must be structurally identical, similar in size, weight, and the same manufacturer(ZTT)

Uniformity between cells :

Deviation between the maximum capacity value, the smallest capacity value and the average capacity value of all cells when fully loaded (Between ±1% of the average value)

Maximum interimpedance deviation, smallest interimpedance with average interimpedance of all battery cells on full charge(Between ±15% of the average value)

The open-circuit voltage difference between the highest cell and the lowest cell when the battery is fully charged (≤0.05V)

The voltage difference between the highest and lowest cells when discharging a 100% DOD battery in 0.2Crt discharge mode (≤0.3V)

Pairing capabilities

Number of battery that can be connected in parallel (≥10 battery)

Connect to 1 battery and get instant data of all other battery that they connected in parallel

Can be grouped with old Lithium accu (with different State of Health status)

Discharge Current	Capacity(Ah)
0.2C	≥ 100Ah
0.5C	≥ 97Ah
0.8C	≥ 95Ah

(Make sure that all batteries are fully charged or air-charged before installation.)

Discharge Capacity(25℃)

Internal wire

Temperature measurement sensors (cell temperature sensors, ambient temperature sensors in battery, temperature sensors at heat-emitting chipsets), cell voltage sensors

It must be firmly and neatly fixed with a zipper or fixing tab, with a code on each string

The battery is charged and discharged at an ambient temperature of 50 degrees, 0.5C for five consecutive cycles, and the temperature rise chart of the battery (≤20°C);

2.3 Battery Management System

- **Built-in BMS management system in accu**
- **Button to reset accu**
- **Automatically balances the voltage of the cells during charging**
- **charging current limit**

  10A±1A charging current limit is on
- **Measurement error and voltage monitoring of each cell and the whole battery(≤1%)**
- **Measurement error and current monitoring of the whole battery(≤2% at 0.5C charge/discharge current)**
- **Measurement and monitoring error of cell temperature, BMS and ambient temperature(≤ 3 degrees Celsius (minimum 4 temperature measurement points in the cell area and 1 temperature measurement point on the BMS)**
- **SOC (error ≤5%)**
- **SOH (error ≤5%)**
- **Counting the number of battery discharges(**For Discharge capacity(accumulated value) = 80%, count 1 time)
- **Protection Function**

  Overvoltage when charging, undervoltage when discharging

  Over-charging current

  High and low temperature: temperature on the cell and BMS

  Short circuit, reverse polarity when the accu is on
- **Display function, alarm**

  SOC display, accu alarm by LED

  Dry Contact accu alarm function (NC-Normal Close model)

  Low cell/battery voltage

  Over charging current

  High cell temperature

  Short circuit, reverse polarity

  Battery off
- **Accu monitoring software features (connect to a computer via a dedicated cable)**

  Displays battery voltage, cell by cell, temperature, SOC, SOH, current, number of discharge cycles

  Displays battery status, warnings, protections, faults

  Displays the manufacturer's setting parameters when connected to the BMS software
- **Data storage capabilities（＞200）**
- **Ability to render stored data**

- **Control monitoring communication port（RS232/RS485）**
- **Communication Protocol （Modbus RTU/RS485）**
- **Automatically balances the voltage of the cells during charging**

The logic is that the BMS will continuously monitor the voltage of each monitoring battery in the battery pack.

When it is detected that the voltage of a certain battery exceeds the set balancing threshold, the system will trigger the passive balancing logic. Once the balancing logic is triggered, the BMS will control the MOSFET to turn on and connect the battery that needs to be balanced to the parallel resistor. The resis tor begins to discharge, dissipating the battery's excess energy as heat.

For example, when it is recognized that the cell voltage reaches 3400mv and the voltage difference is 40mV, the equalization function is turned on.