

LITHIUM-ION BATTERY PRODUCT SPECIFICATION

ZRLVESS16KW

51.2V314Ah

V1.0

Battery Pack Specification

1. Overview

ZRLVESS16KW 51.2V314Ah Lithium iron phosphate battery module which designed for energy storage power supply system application. This battery module integrated with intelligent BMS inside, has 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. This specification only applies to the battery module supplied by ZETARA.

2. 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 laser welding, stable and safe
- Built-in BMS, with battery voltage, current, temperature and health management
- LED indicate the battery SOC and operating status
- LCD Screen display the battery voltage, current, temp.,SOC detail information
- Support communicate with solar inverter bu CAN or RS485
- Update software by RS485 port
- Flexible customization of dimensions
- More than 15 years design life
- Stable performance, maintenance-free

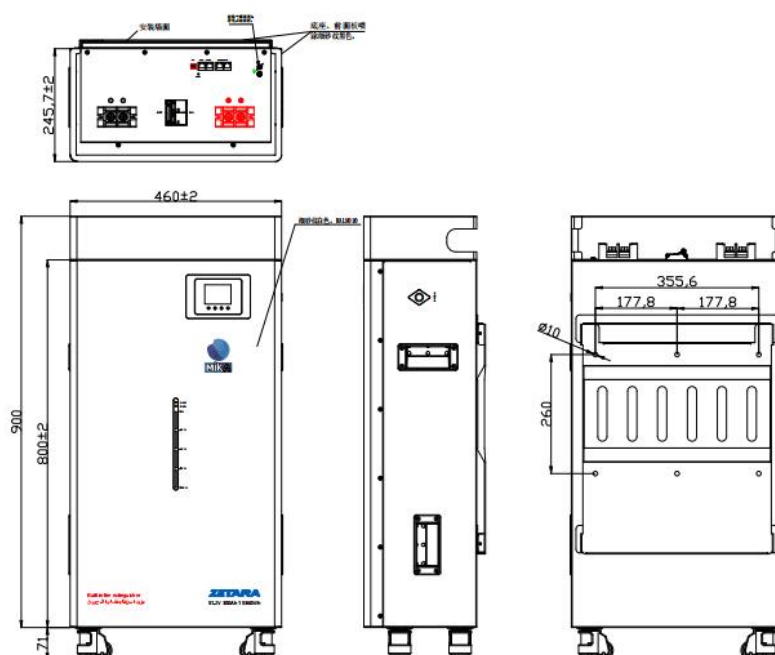
3. Product Drawing



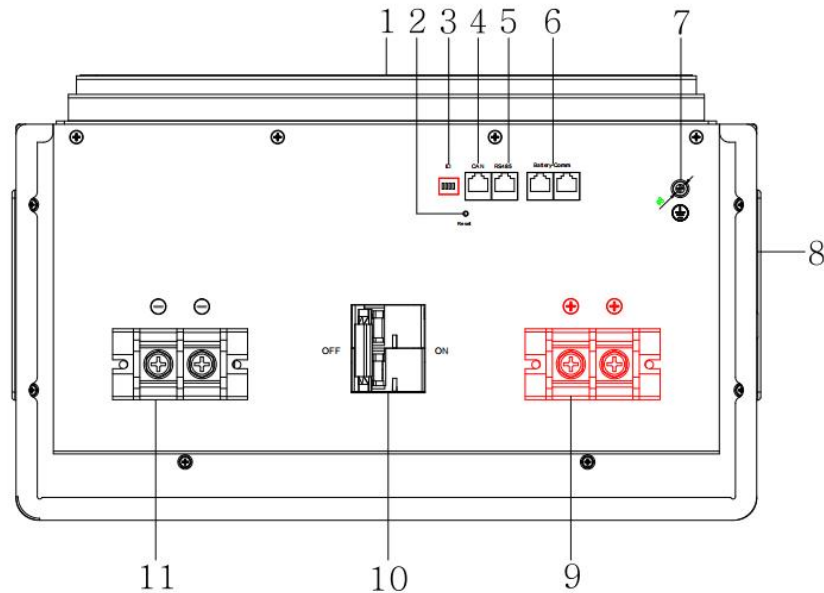
4. Battery module specification

Item		Specification	Conditions
Nominal	Voltage	51.2V	25°C, 0.2C
	Capacity	300Ah	
Module weight		126.3kg	±1kg
Dimensions(W*D*H), mm		460*900*245	±2mm
Operating parameters	Charging Voltage	56.0V~57.0V	
	Discharging Voltage	44.8V	
	Charging current	Max constant charge: 200A	Recommended 100A
	Discharging current	Max constant discharge: 200A	
Temperature	Charge range	0°C~50°C	
	Discharge range	-20°C~55°C	
	Storage range	-20°C~55°C	
BMS	Built-in BMS	Voltage, current, temperature management & cell balance	RS485, CAN communication
Service life	Design life	>15years	25°C
	Cycle life	>6000 times, 0.5C, 80%DOD	

5. View Drawing



6. Panel Description



No.	Item	Function Description	Remarks
1	pylons	Used for hanging batteries	
2	Reset	Emergency restart button	
3	ID	Assigns unique address to each module	DIP switch
4	CAN	CAN communication interface	Inverter communication Pin4--CAN_H; Pin5--CAN_L
5	RS485	RS485 communication interface	Inverter communication Pin1,8--RS485B; Pin2,7--RS485A
6	Battery-Comm	Inter battery communication when paralleled	
7	GND	Grounding screw	Provides a safe route for grounding
8	SWITCH	BMS On/Off switch	BMS control
9	Positive terminal	Positive battery connection	
10	breaker	cutout switch	
11	Negative terminal	Negative battery connection	

7. BMS specification

BMS provides complete management and protection for the battery.

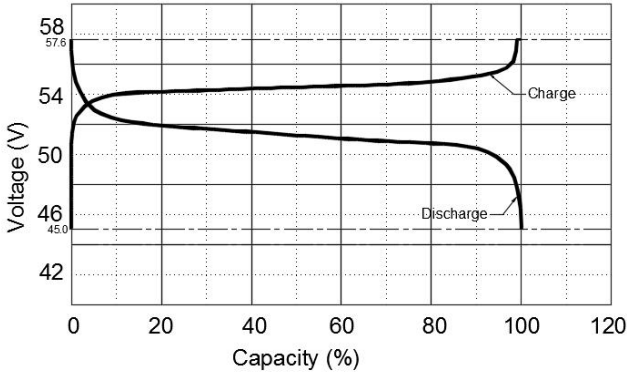
- Voltage warning and protection for module and each single cell.
- Current warning and protection, and the maximum operating current can be customized.
- Temperature warning and protection, 4 sensors for battery pack and 1 sensor for BMS.
- Battery module SOC and SOH calculation, display the accurate battery status.
- Communicate with inverter or PC monitor, report the battery data.
- Pre-charge and pre-discharge logic, make sure safety use in whole process.
- Switch-off mode, sleep mode, and operating mode, different mode for different condition.

► BMS parameters.

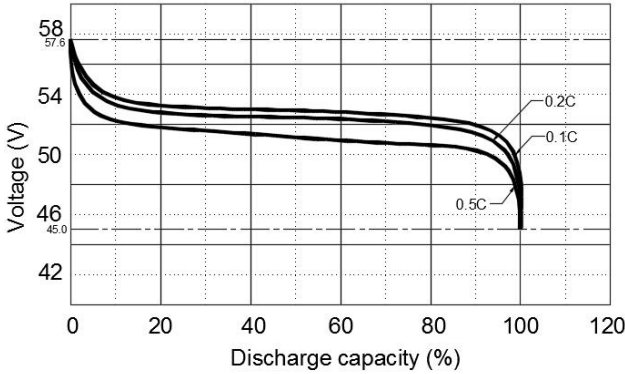
Item		Parameters		Condition
Charge	Cell voltage protection	3.8V	Delay 1s	Recovery at 3.45V
	Module voltage protection	60V	Delay 1s	Recovery at 55.2V
	Over charging current 1	>210A	Delay 20s	Recovery in 180s
	Over charging current 2	≥230A	Delay 3s	Recovery in 180s
	Temperature protection	<-5°C or >70°C	Delay 1s	Recover when >0°C or <60°C
Discharge	Cell voltage protection	2.5V	Delay 1s	Recovery at 3.1V
	Module voltage protection	44.8V	Delay 1s	Recovery at 48V
	Over discharging current 1	> 210A	Delay 30s	Recovery in 60s
	Over discharging current 2	> 250A	Delay 5s	Recovery in 60s
	Short circuit	>450A	< 0.1mS	
	Temperature protection	<-20°C or >75°C	Delay 1s	Recover when >-10°C or <60°C
BMS	PCB Temp protection	>100°C	Delay 1s	Recover when <80°C
	Cell balance	120mA	Passive balance	Cell voltage difference > 40mV
	Temperature accuracy	3%	Cycle measurement	Measuring range -40~100°C
	Voltage accuracy	0.5%	Cycle measurement	For cells and module
	Current accuracy	3%	Cycle measurement	Measuring range -200~+200
	SOC	5%		Integral calculation
	Power consumption with different condition	<300uA	Switch-off mode	Storage & transportation
		<14mA	Operating mode	Charging & discharging
	Communication ports	RS485/CAN		Can be customized

8. Battery module performance Curve

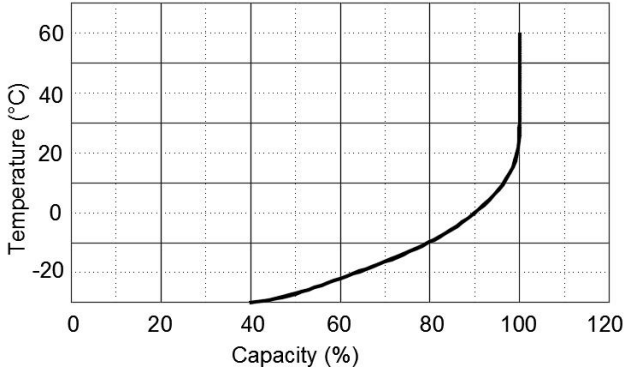
Charge & Discharge curve with 0.5C @ 25°C



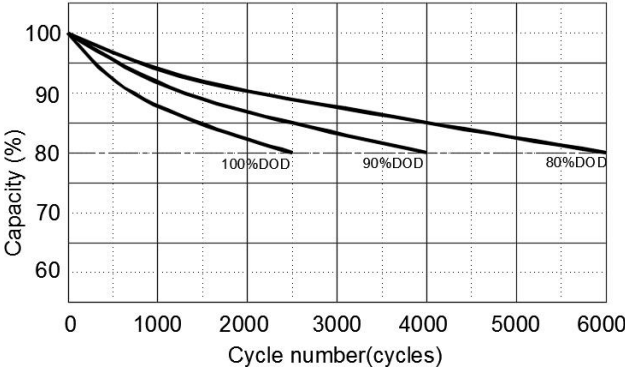
Discharge performance with different rate @ 25°C



Discharge capacity with different temperature @ 0.5C



Cycle life with DOD @ 0.5C, 25°C



Self-discharge @ different temperature

