



48V 120AH

Specifications



Parameters

Items	Parameter
Battery Type	LiFePO4
Rated Voltage	48V
Cells Brand	A123 Systems
Rated Capacity	120Ah
Energy	6144Wh
Internal Resistance	$\leq 10\text{m}\Omega$
Limited Charge Voltage	$58.4\pm 0.2\text{V}$
Floating Charge Voltage	$57.4\pm 0.2\text{V}$
Charge Method	CC/CV
Discharge Cut-off Voltage	40.0V
Charge Current	100A (Customizable)
Continuous Discharge Current	100A (Customizable)
Cold Cranking Amps	200A (Peak)
Depth of Discharge	100%DOD (adjustable)
Cycle Life	> 6000 cycles
Communication functions	Bluetooth/RS485 Optional
Temperature protection	Available
Auto heating function	Optional
Built in Battery Management System	Internal
Automatic Short Circuit Protection	Instant
Automatic Reverse Polarity Protection	Instant
Internal Cell Thermal Safety Fuse	Yes
Flame Retardant Electrolyte	Yes
Automatic Internal Cell Balancing	Yes
Automatic Fault Recovery	Yes
Explosion Proof Stainless Steel Cells	Yes
Dimension	16.92*13.77*10.23in (430*350*260mm)
Weight	136.68lb (62kg)
Charge Temperature Range	32 ~ 167°F (0 ~ 75°C)
Discharge Temperature Range	-4 ~ 167°F (-20 ~ 75°C)
Recommended Operating Temperature	32 ~ 122°F (0 ~ 50°C)
Self-Discharge Rate (Residual Capacity)	2.5%/years
Series Connection	Customized
Paralell Connection	Up to 16S
Warranty	4 Years

Built-in BMS

Item	Test Item	Criterion
Voltage	Charging Voltage	DC:58.4V CC/CV
	Balance voltage for single cell	$3.50\pm 0.025\text{V}$
Current	Balance voltage for single cell	$35\pm 5\text{mA}$
	Current consumption	$\leq 50\mu\text{A}$
	Maximal continuous charging current	100A
	Rated continuous discharging current	100A (Peak 200A)
Over charge Protection	Over charge detection voltage for single cell	$3.65\text{V}\pm 0.025\text{V}$
	Over charge detection delay time	0.7S–1.3S
	Over charge release voltage for single cell	$3.550\pm 0.05\text{V}$
Over discharge Protection	Over discharge detection voltage for single cell	$2.50\text{V}\pm 0.07\text{V}$
	Over discharge detection delay time	$1.6\pm 0.5\text{S}$
	Over discharge release voltage for single cell	$3.00\pm 0.75\text{V}$
Over current Protection	Over current detection current	$300\pm 50\text{A}$
	Over current detection delay time	$1.6\pm 0.5\text{S}$
Short Protection	Release condition	Cut load
	Detection condition	Exterior short circuit
	Detection delay time	$230\mu\text{S}-500\mu\text{S}$
Resistance	Release condition	Cut load
	Protection circuitry (MOSFET)	$\leq 60\text{m}\Omega$
Communication	RS485/Bluetooth	Optional
Temperature	Operating Temperature Range	-40~+185°F (-40~+85°C)
	Storage Temperature Range	-40~+185°F (-40~+85°C)

Safety Performance

Item	Test Methods	Standard
Overcharge performance	After the standard battery is charged, the initial state of the battery is measured. When the battery status is normal, the current is charged to 10.0V at 3C current, and then the constant voltage is charged to the current of 0.01C. Observe the appearance of the battery changes.	Do not fire, do not explode
Over discharge performance	After the battery is charged, measure the initial state of the battery and discharge it to 0 V at 0.5C when the battery status is normal. Observe the battery appearance changes.	Do not fire, do not explode
External short circuit	After the battery is charged, the initial state of the battery is measured and the positive and negative poles (the total resistance of the line is not more than 50mΩ) are directly shortened in the explosion proof hood. When the battery temperature drops below the peak temperature by about 50°F (10°C), the test ends. Observe the battery temperature and appearance changes.	Do not fire, do not explode
Hot abuse	Measure the initial state of the battery, the battery standard charge, placed in the oven, the temperature (41±35.6°F / 5 ± 2°C) / min rate rose to 266 ± 35.6°F (130 ± 2°C) and heat 30min. Observe the battery appearance changes.	Do not fire, do not explode
Fall	Test the initial capacity of the battery, the standard charge, the initial state of the battery, the test battery from the height (lowest point height) to 1m vertical position, the horizontal direction of free fall to the concrete floor, asked to fall 2 times.	Do not fire, do not explode
Heavy impact	A steel rod with a diameter of 0.622 in (15.8 mm) was placed in the middle of the fully charged battery; then the weight of 22.04 lb (10 kg) was dropped from the height of 39.37 in (1.0 m) to the upper part of the battery.	Do not fire, do not explode
Extrusion test	The batteries were placed between the two extruded surfaces of the extrusion apparatus, the cylindrical cores were parallel to the extrusion surface, gradually increasing the pressure to 13 kN, maintaining the pressure for 1 min.	Do not fire, do not explode