HC48100 LiFePO4 Module / Data sheet

UL1973 Certificated

Haicen
Advanced Lithium Batteries

HC48100-4U
48V 100Ah LiFePO4 Battery

Brief Introduction:

- Haicen Power, ISO9001 certified factory, mainly focus on the R&D of : 1)12V to 48V LiFePO4 Batteries used for RV, Marine, Energy storage, Golf carts applications. 2) 48V LiFePO4 batteries for Energy storage system.

Key Benefits:

- **Higher qualified cylindrical cell:**
  UL1642, IEC62619, IEC62133 listed with Cycle life more than 3000times and excellent consistency.

- **UL1973 certificated battery pack:**
  UL1973 certification means higher quality and safety, easier to win more markets and more challenging projects.

- **Easy to install without extral cost:**
  The modules can be stacked one by one to get morecapacity easily with our simple side plate design, and also can be compatible with most of inverter brands.

- **More stable and firm internal structure:**
  Cell holders can well protect and separate the cells to avoid any circuit short risk caused by vibration or impact or over current, and improve the heat dissipation.

Key Points for Quality control:

- **Cell match:**
  More strict cell matching standard, the difference of Internal resistance is 1mΩ and voltage is 5mV.

- **Automatic cells welding:**
  Cells are assembled by Automatic welding equipments to ensure the quality reliability and consistency.

- **100% Cycle test:**
  All battery packs are 100% cycle tested (Fully Discharged→Fully Charged→Fully Discharged→60% Charged) before package and all test reports are stored.

HC48100-4U

Category	Parameter	Value
Electrical Specifications	Nominal Voltage	51.2V
	Nominal Capacity	100Ah
	Parallel Connection	Max. 8units
	Serial Connection	No
	BMS	16S75A
	Circuit Protection	Over charge, Over discharge, Over current, Over temp, Short, Balance
	Communication	2×Rs485 and 1×CAN; LCD
	Cycle Life	3000times Cycles @100%DOD and 6000times @80% DOD
	Self Discharge	Less than 3% per month
	Charge Efficiency	100% @0.2C
	Discharge Efficiency	98-100% @1C
Charge Specifications	Charge Voltage	57.6±0.8V
	Standard Current	20A
	Fast Current	50A
Discharge Specifications	Standard Current	20A
	Max. Con. Current	65A
	Peak Current	150A(2s)
	Cut-off Voltage	41.6V
Mechanical Specifications	Dimensions (mm)	502×485×173.5mm(4U standard size)
	Approx Weight(KG)	50
	Terminal Type	4×M6
	Case Color/material	Black Metal case
	IP Rating	IP56
	Cell Type	Cylindrical cell
	Cell holder	Yes
Temperature Specifications	Charge Temp	0℃ to 55℃ (32°F to 131°F)
	Discharge Temp	-20℃ to 60℃ (-4°F to 140°F)
	Storage Temp	-20℃ to 45℃ (-4°F to 113°F)

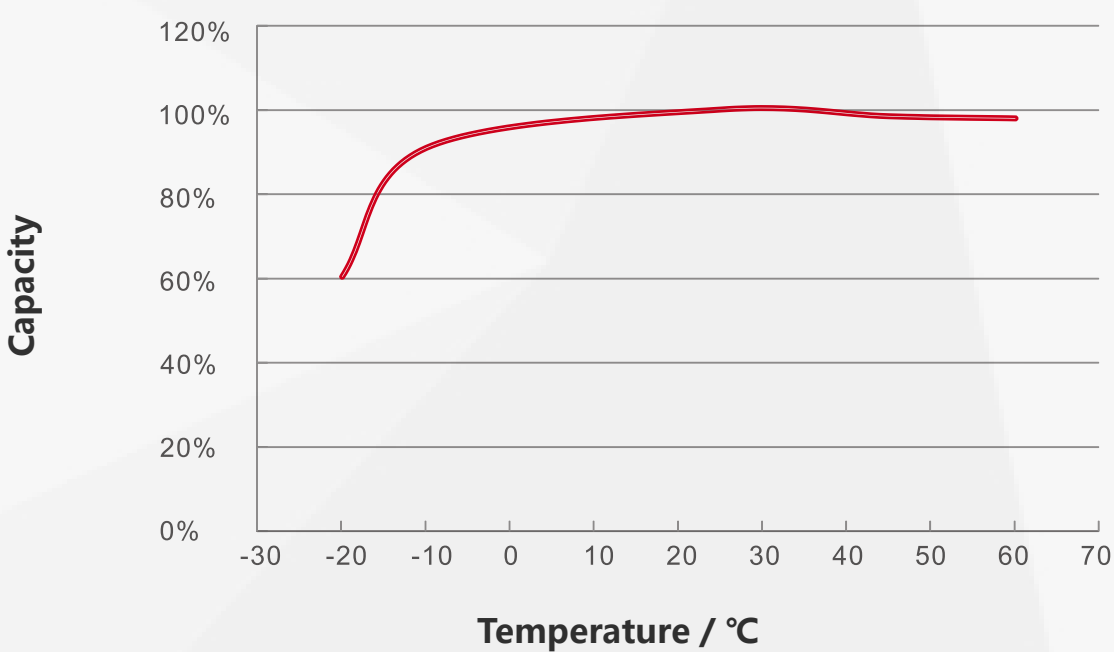## Characteristics Curve:

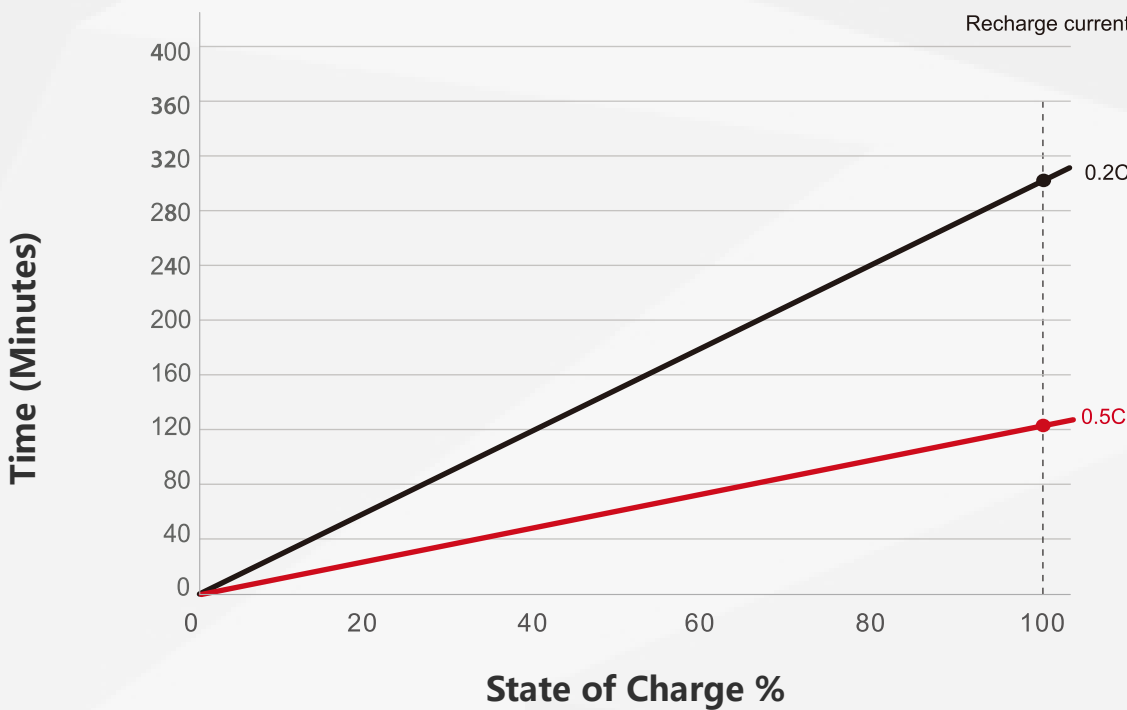### Charging Characteristics (0.5C @25℃)
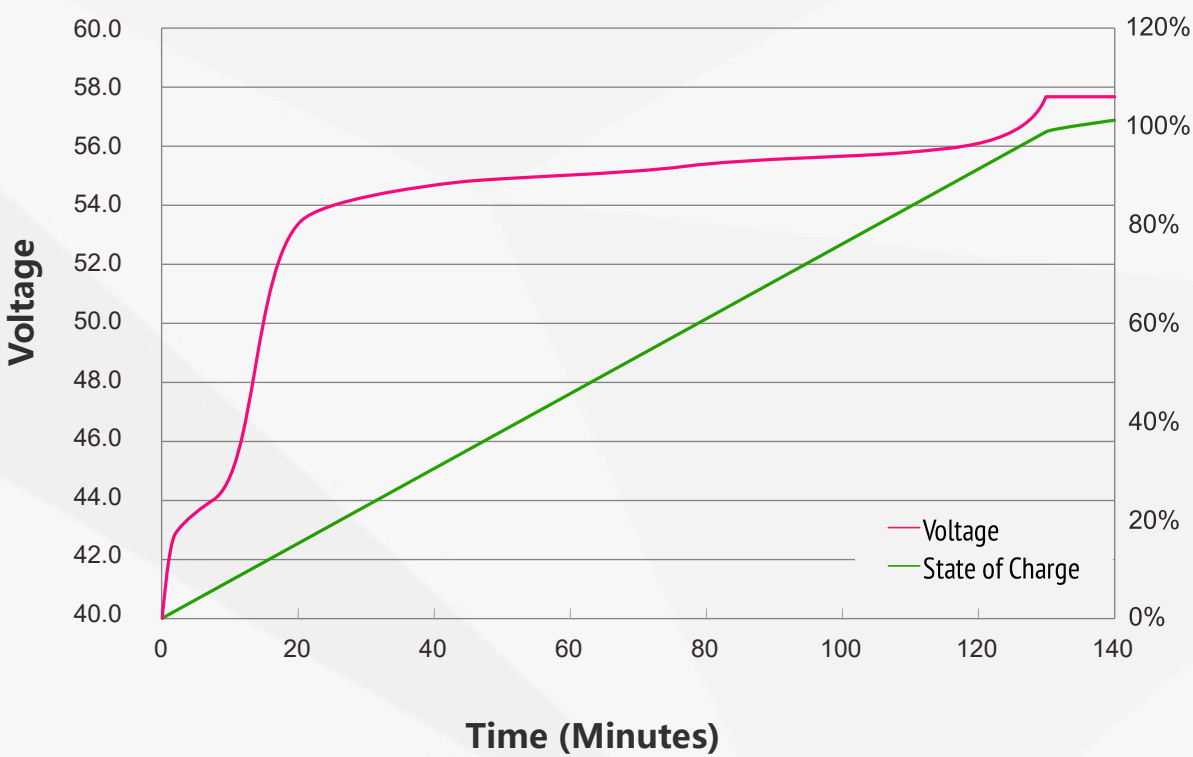
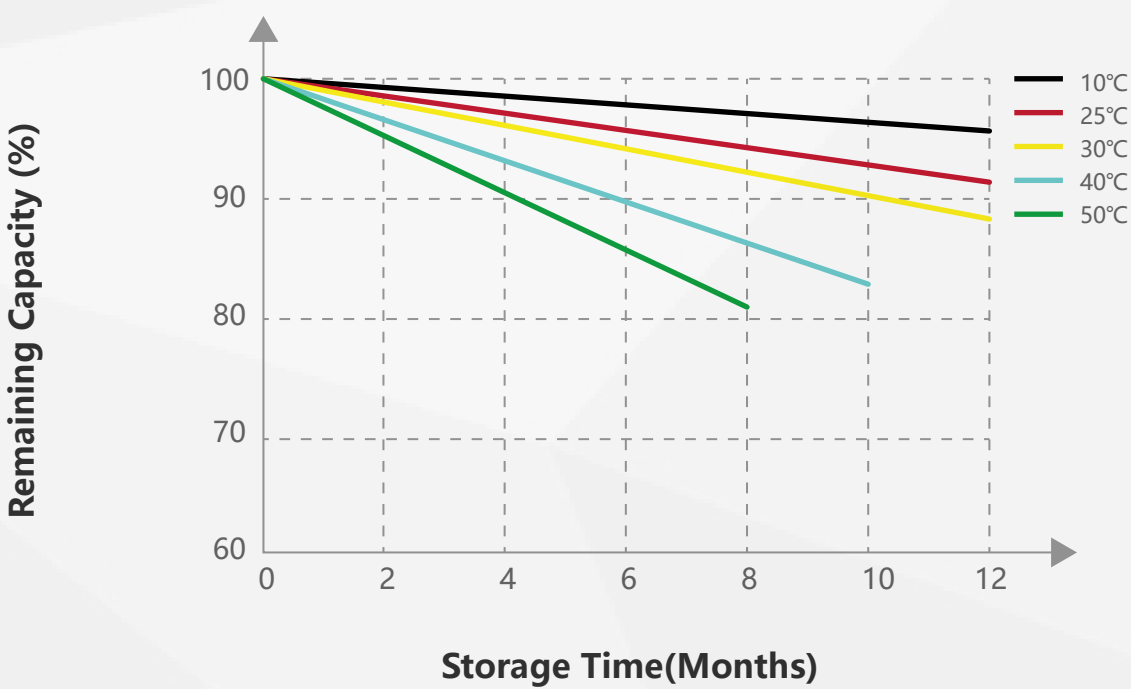### Disharging Characteristics (0.2C, 0.5C, 1C @25℃)
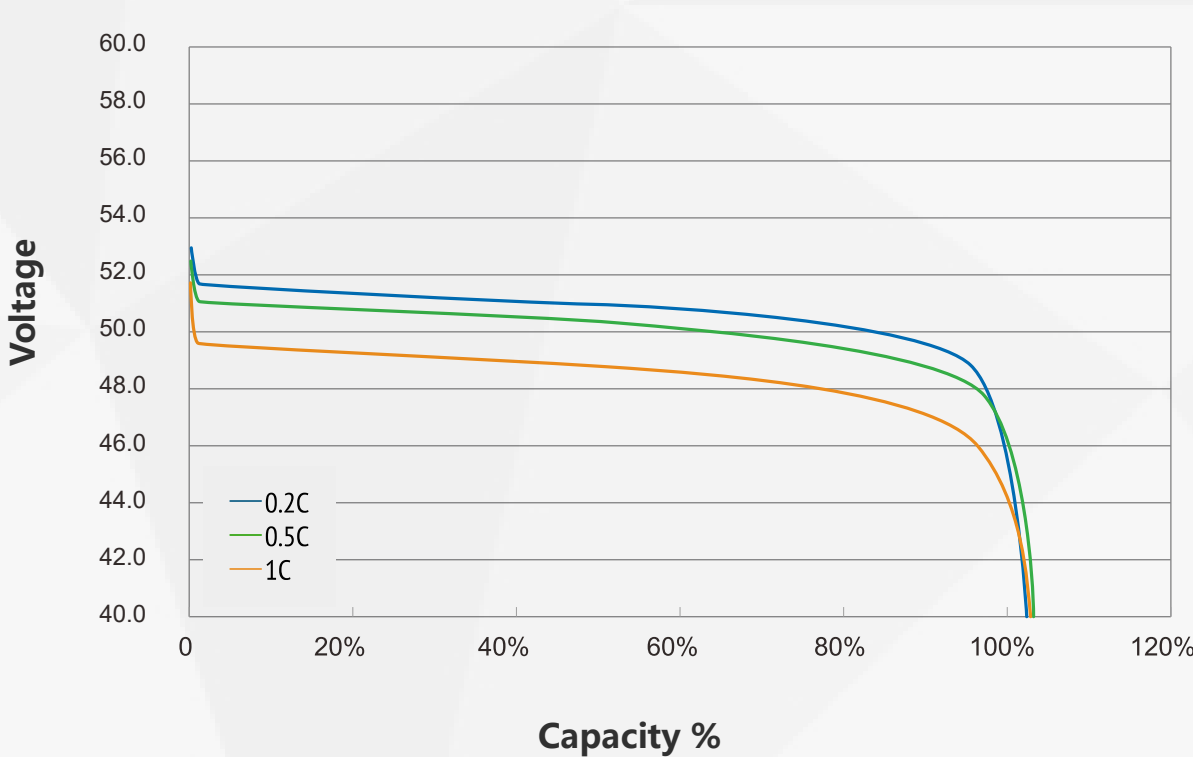
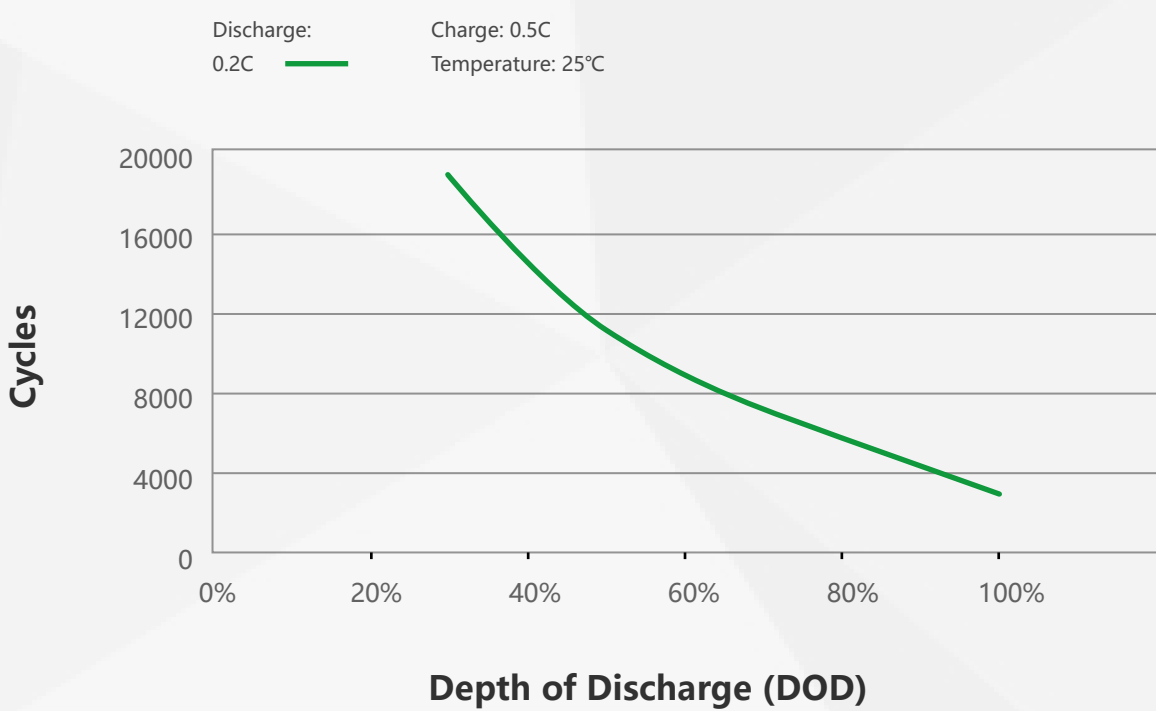### Different Temperature Capacity Curve

Typical Charge Time Curve

Different Temperature Self Discharge Curve

Different DOD Discharge Cycle Life Curve

Product advantages:

- Product advantages

- Metal case
- Active balancing module
- LCD
- Postive terminals(2×M6)
- Noark 63A circuit breaker
- Shunt release(SHT)
- Cylindrical cells in holders
- DC module
- BMS
- Negative terminals(2×M6)
- Handle

Adopt cylindrical cell, no swelling, no thermal runaway, no fire risk.

Adaptable to most inverter brands for greater applicability to end customers.

Equip with active balancing module, which can make sure the battery pack always be in balance state and further ensure long cycle time.

Keep high performance at high temperture, cycle 2800 times at 55℃, 100%DOD, no worries in summer or hot area.

The UL489 certificated circuit breaker with SHT, form a strong double-protection to battery.

Cell holder, ensure stable internal structure and improve heat disspation.

All key components are UL approved, such as cell, part of BMS, terminal, cable, circuit breaker, which bring better quality and higher safty to battery.

Easy to install and move for end customers .

HC48100-4U module could be compatible with the inverters as below:

Invert Brand		Communication Protocol	Communication type	Communication baud rate	Protocol version
派能	PYLONTECH	CAN-Bus-protocol-PYLON	CAN	500K	V1.3
固德威	固德威 GOODWE	Goodwe communication protocol	CAN	500K	V1.5
锦浪		CAN communication protocol	CAN	500K	V1.0
首航	SOFAR SOLAR 首航新能源	Sofar Inverter BMS-CAN protocol	CAN	500K	V1.0
古瑞瓦特-SPF	Growatt	Growatt BMS CAN-Bus-protocol-low-voltage	CAN	500K	V1.05
古瑞瓦特-SPH	Growatt	Growatt BMS communication protocol of growatt low voltage battery	CAN	500K	V1.01
SMA	SMA	SMA-BMZ-Protocol-en	CAN	500K	
Victron	victron energy	can-bus_bms_protocol	CAN	500K	V1.0
鹏城	LUXPOWER TEK	Luxpowertek Battery CAN Protocol	CAN	500K	v1.0
Studer	STUDER	Technical specification Studer BMS Protocol	CAN	500K	V1.03
TBB	TBB POWER	TBB Lithium battery BMS-CAN communication protocol V1.02	CAN	500K	V1.02
德业	Deye 德业	Enjie CAN protocol V1.0	CAN	500K	V1.0
美世乐	MUST 美世乐	1_PV1800F-CAN communication Protocol1.04.04	CAN	100K	Apply to PV1800 inverter
派能	PYLONTECH	RS485-protocol-pylon-low-voltage	485	9600	V3.5
日月元	Voltronic Power	Voltronic Inverter and BMS 485 communication protocol	485	9600	V1.0
硕日	srne	PACE BMS Modbus Protocol for RS485	485	9600	V1.3
古瑞瓦特-SPF	Growatt	SPF BMS RS485 protocol	485	9600	V2.01

Operating instruction:

- **Step 1: learn Interface Instruction:**

| SOC indicator | Alarm | Dial switch | CAN COM | Rs485 COM | Reset switch |
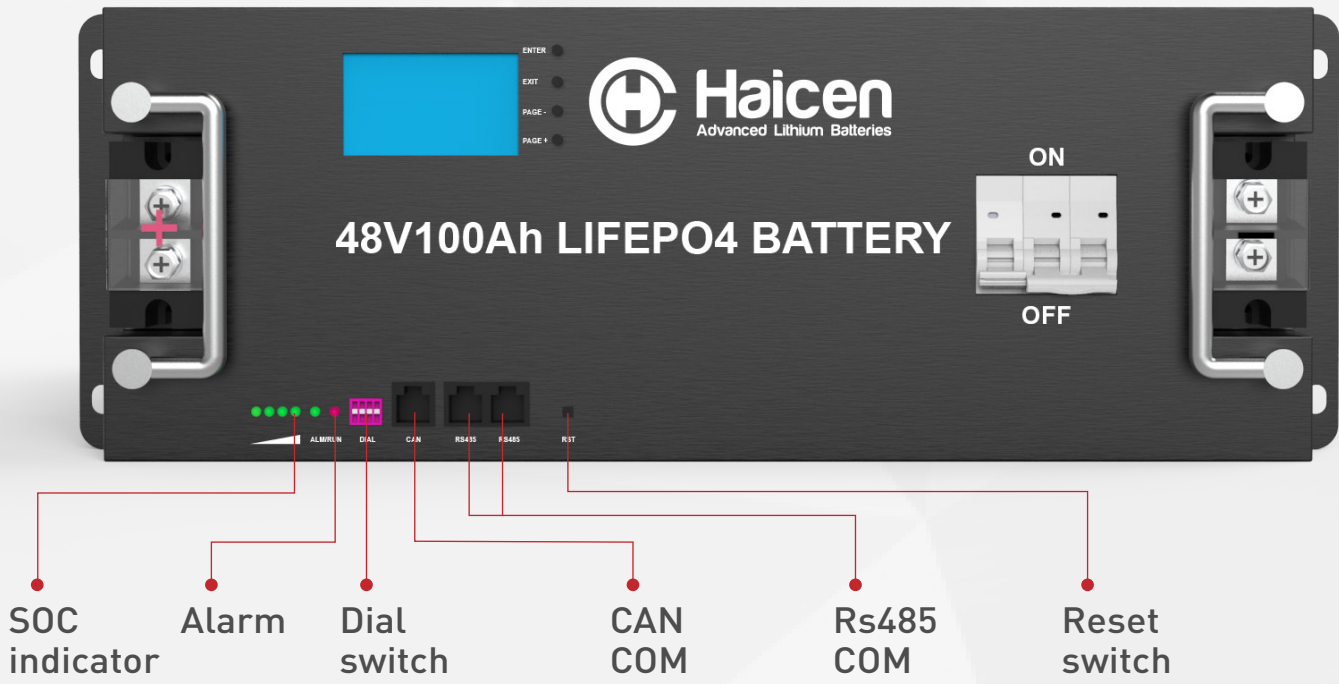
- **Step 2: Installation:**

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

- **Step 3: Connection:**

OUT +

CAN

OUT -

PACK 1

PACK 2

PACK 3

PACK 4

PACK 5
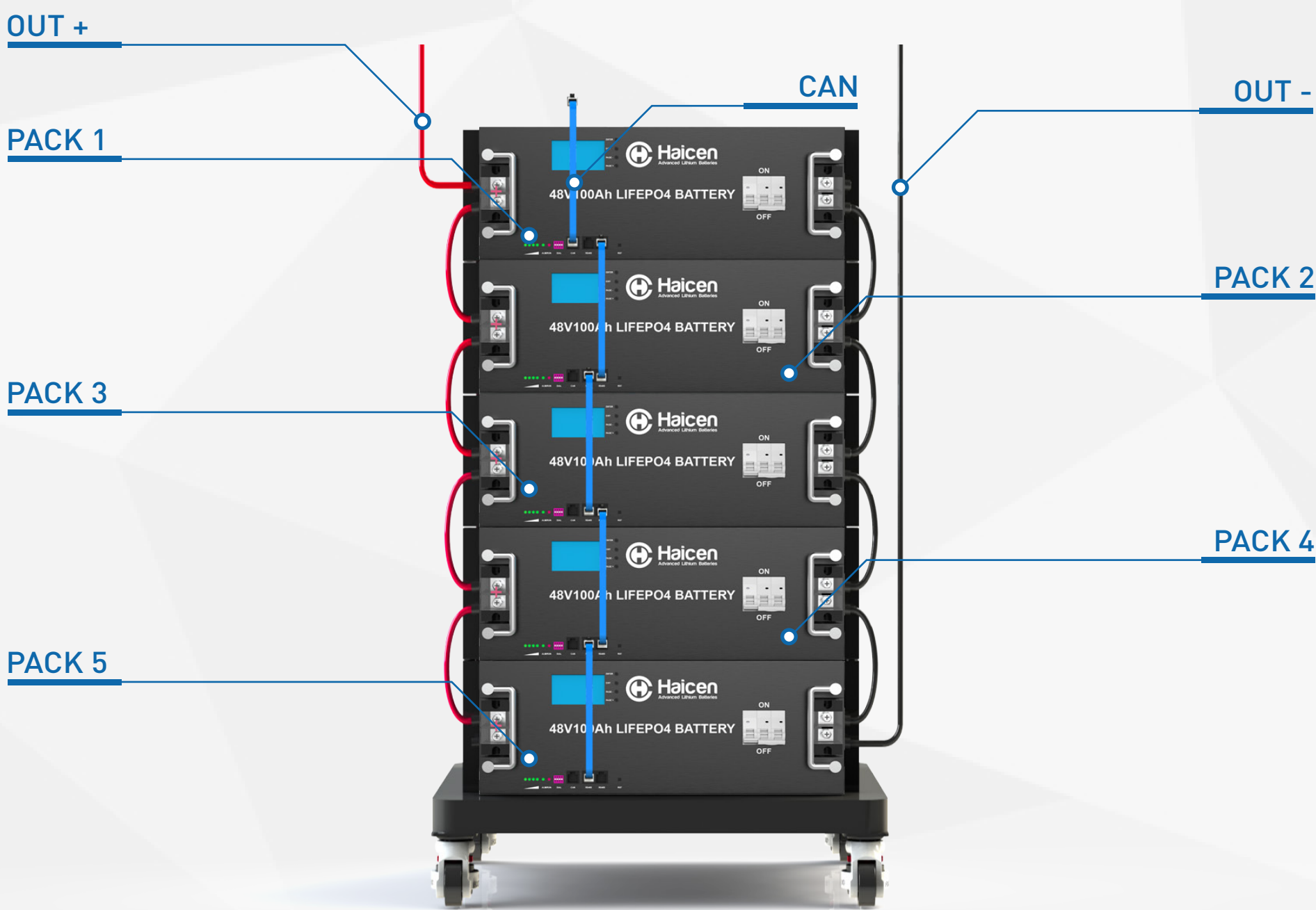
- ### Step 4: Dialing address

  Single machine address setting：0000
  Address setting for parallel operation: the definition of dial switch is shown in the table below.

| Parallel No.	Dipswitch position				Description
	#1	#2	#3	#4	
1	OFF	OFF	OFF	OFF	Single battery
2	ON	OFF	OFF	ON	2 Parallels
3	OFF	ON	OFF	ON	3 Parallels
4	ON	ON	OFF	ON	4 Parallels
5	OFF	OFF	ON	ON	5 Parallels
6	ON	OFF	ON	ON	6 Parallels
7	OFF	ON	ON	ON	7 Parallels
8	ON	ON	ON	ON	8 Parallels

Host Settings

Address	Dipswitch position				Description
	#1	#2	#3	#4	
1	ON	OFF	OFF	OFF	Pack1
2	OFF	ON	OFF	OFF	Pack2
3	ON	ON	OFF	OFF	Pack3
4	OFF	OFF	ON	OFF	Pack4
5	ON	OFF	ON	OFF	Pack5
6	OFF	ON	ON	OFF	Pack6
7	ON	ON	ON	OFF	Pack7

Slave Settings

- ### Step 5：Press the "RESET" button for over 3s separately, for wake up
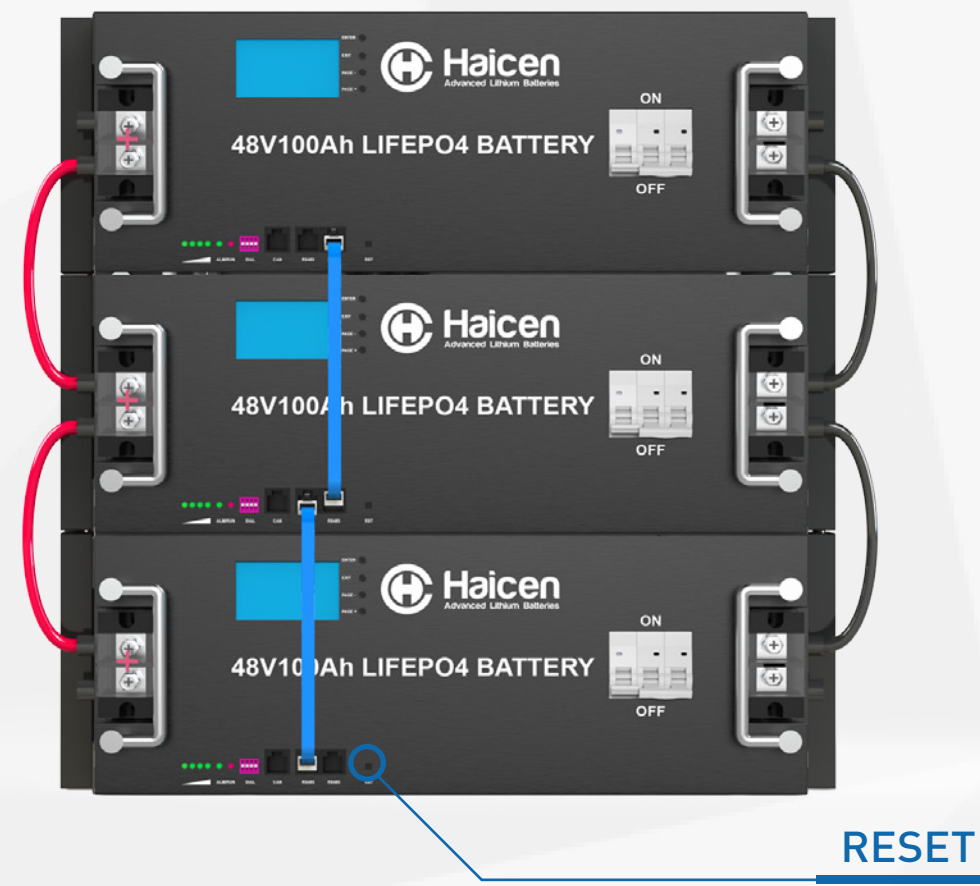
- ### Step:6 Turn on the switch separately

Switch

RESET
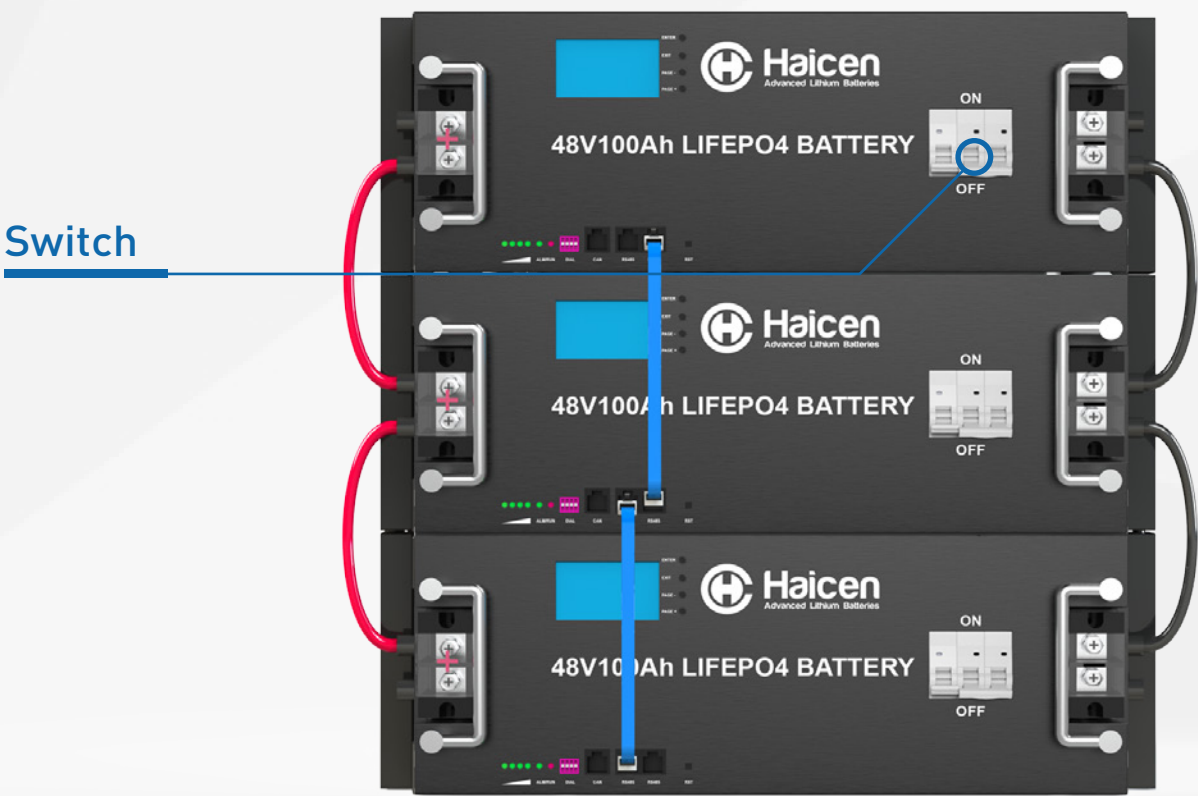
- ### With a load/inverter, the energy storage system start to work!

Noted:

Sleep mode:

a：The system will immediately go to Standby mode without load or charger, and RUN LED will flash (1s ON, 1s OFF). After 48h later, the system will automatically go to sleep mode. And then all LEDs in panel will turn off.
b: With the standby state, the system can be forced into sleep mode through pressing the reset key for 3s.

Wake up:

The following operations can wake up the system from sleep mode：
a. Automatically wake up when connecting a charger；
b. Press on the "reset" key for 3s；

Package:

20' Container=10Pallets=240Cartons=240Units;
40' Container=20Pallets=480Cartons=480Units;

Internal Package
Forming pearl foam
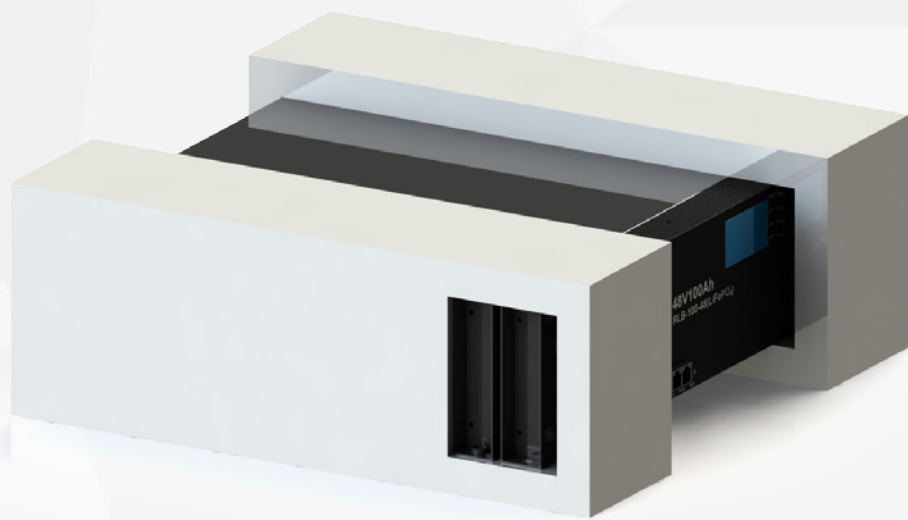
Weight: 51Kg/carton
Size(L×W×H): 570×512×240mm

1Carton=1Unit

Weight: 1239Kg/pallet
Size(L×W×H)=1.2×1×1.6m ≈ 1.9CBM

1Pallet=24Cartons