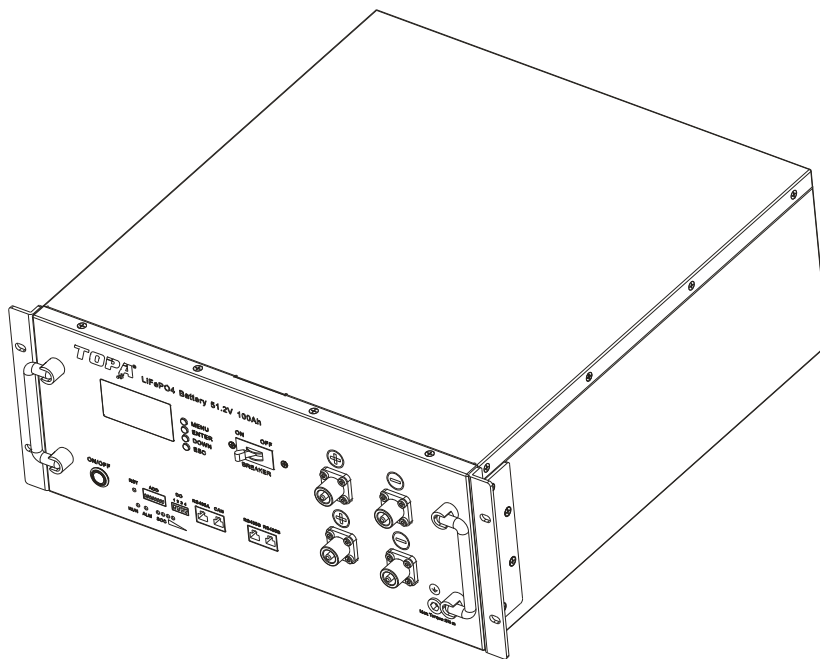


# 48V/51.2V 100Ah Lithium Battery

## Datasheet v1.0

For On / Off Hybrid Solar Storage System



- All-time monitor
- Safety for home
- Long Lifespan
- Flexible capacity
- Easy Installation

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# 1.Safety Precautions

- It is very important and necessary to read the datasheet carefully before installing or using the battery. Failure to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, death, or may damage the battery and the whole system.
- If the battery is stored for a prolonged time, it is requirement that they are charged every three to six months, and the SOC should be no less than 80%.
- The battery needs to be recharged within 12 hours, after fully discharging.
- Do not expose cable outside.
- All battery terminals must be disconnected before maintenance.
- Do not use cleaning solvents to clean the battery.
- Do not expose the battery to flammable or harsh chemicals or vapors.
- Do not paint any part of the battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly.
- Any foreign object is prohibited to be inserted into any part of the battery.
- Any warranty claims are excluded for direct or indirect damage due to items above.

## 1.1.Before Connecting

- After unpacking, please check the battery and packing list first, if the battery is damaged or spare parts are missing, please contact the dealer.
  - Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode.
  - Wiring must be correct, do not mix-connect the positive and negative cables, and ensure no short circuit with the external device.
  - It is prohibited to connect the battery with AC power directly.
  - Please DO NOT connect battery in series.
  - It is prohibited to connect the battery with different type of battery.
  - Please ensure the electrical parameters of battery system are compatible to inverter.
  - Keep the battery away from fire or water.

## **1.2.During operation**

- If the battery system needs to be moved or repaired, the power must be cut off first and the battery is completely shutdown;
- It is prohibited to connect the battery with different type of battery;
- It is prohibited to put the batteries working with faulty or incompatible inverter;
- In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;
- Please do not open, repair or disassemble the battery. We do not undertake any consequences or related responsibility due to violation of safety operation or violating of design, production and equipment safety standards.

## 2. Battery Specifications

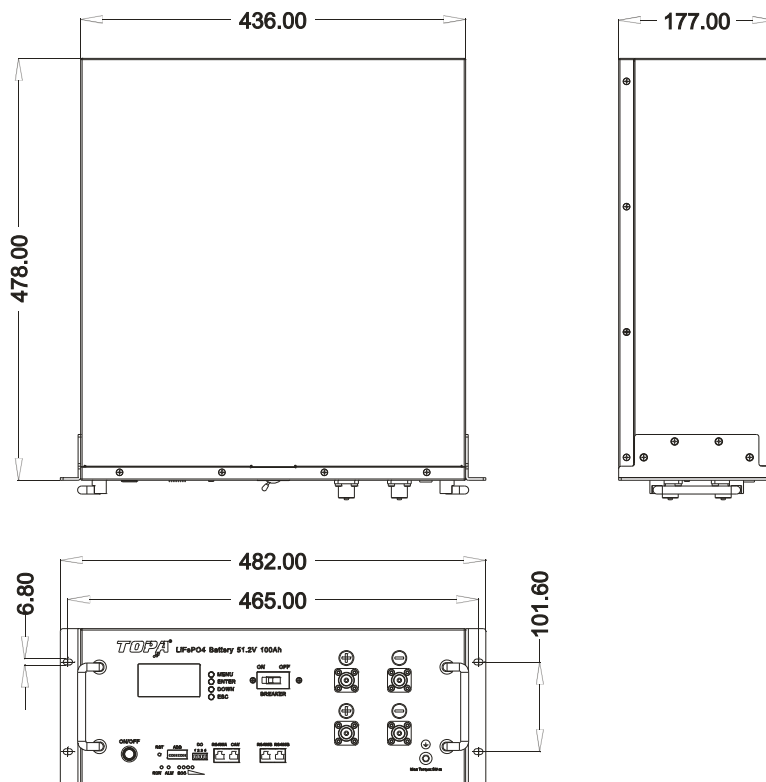
<b>Battery Specifications</b>		
<b>Model No</b>	<b>TP-481004U1</b>	<b>TP-511004U1</b>
<i><b>Nominal Parameters</b></i>		
<b>Battery Type</b>	LifePO4(LFP)	
<b>Voltage</b>	48V	51.2V
<b>Capacity</b>	100Ah	
<b>Energy</b>	4.8KWh	5.12KWh
<b>Dimensions (L x W x H)</b>	482 x478 x177mm	
<b>Weight</b>	46kg	48kg
<b>Color</b>	Black/White	
<i><b>Basic Parameters</b></i>		
<b>Life time(25°C)</b>	10 years	
<b>Life cycles(80% DOD, 25°C)</b>	4000 Cycles	
<b>Storage time / temperature</b>	5 months @ 25°C; 3 months @ 35°C; 1 month @ 45°C	
<b>Operation temperature</b>	-20°C to 60°C @60+/-25% Relative Humidity	
<b>Storage temperature</b>	0°C to 45°C @60+/-25% Relative Humidity	
<b>Lithium Battery Standard</b>	CE, ROHS, IEC62619,IEC62133, UN38.3,MSDS	
<b>Enclosure protection rating</b>	IP21	
<i><b>Electrical Parameters</b></i>		
<b>Operation voltage</b>	48 Vdc	51.2 Vdc
<b>Max. charging voltage</b>	54Vdc	56Vdc
<b>Cut-off Discharge Voltage</b>	44 Vdc	46 V dc
<b>charging and discharging current</b>	50A(Recommended) 100A(Max)	

## 3.Introduction to the battery

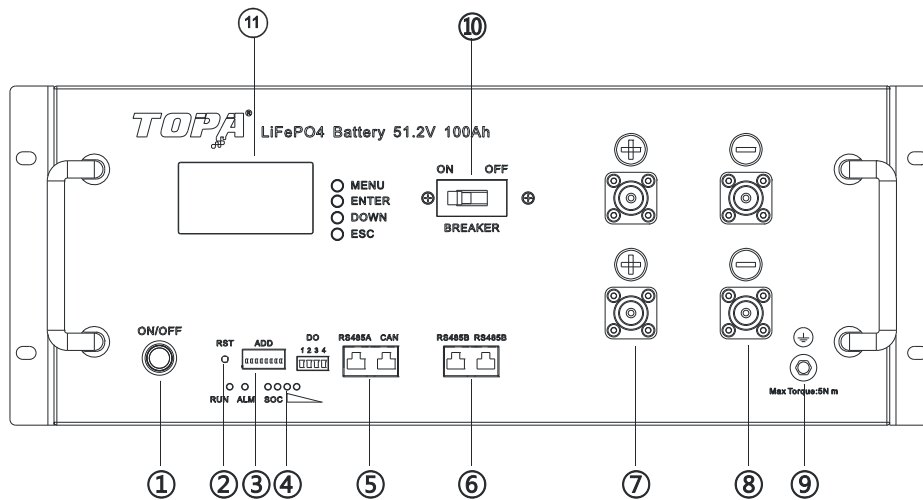
### 3.1.Key Features

- LiFePO4 composition – provides exceptional safety and longevity
- High safety and reliability
- 4,000cycles/ 10 years' service life
- Consistent performance over wide temperature range
- Cabinet -mounted, convenient installation
- Integrated state-of-the-art BMS to manage and monitor battery information including voltage, current and temperature as well as balance cell charging/discharging rates
- 10 years' warranty

### 3.2.Specification



### 3.3.Equipment Interface Instruction



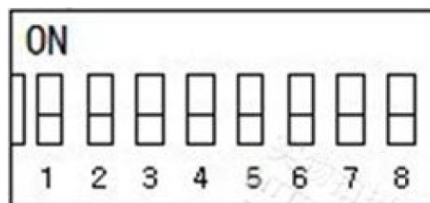
#### POWER SWITCH①

Power Switch: to turn ON/OFF the whole battery BMS standby, power output ready.

#### RESET②

RESET: Press more than 3 seconds to restart battery module.

#### ADD③



**Chart 1: SLAVE SET**

	Dial code switch position				Instruction
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	No cascade, use single
1	ON	OFF	OFF	OFF	Set to Pack1(Host)
2	OFF	ON	OFF	OFF	Set to Pack2
3	ON	ON	OFF	OFF	Set to Pack3
4	OFF	OFF	ON	OFF	Set to Pack4

5	ON	OFF	ON	OFF	Set to Pack5
6	OFF	ON	ON	OFF	Set to Pack6
7	ON	ON	ON	OFF	Set to Pack7
8	OFF	OFF	OFF	ON	Set to Pack8
9	ON	OFF	OFF	ON	Set to Pack9
10	OFF	ON	OFF	ON	Set to Pack10
11	ON	ON	OFF	ON	Set to Pack11
12	OFF	OFF	ON	ON	Set to Pack12
13	ON	OFF	ON	ON	Set to Pack13
14	OFF	ON	ON	ON	Set to Pack14
15	ON	ON	ON	ON	Set to Pack15

**Chart 2: MASTER SET**

	Dial code switch position				Instruction
	#5	#6	#7	#8	
2	ON	OFF	OFF	OFF	2 pcs connect
3	OFF	ON	OFF	OFF	3 pcs connect
4	ON	ON	OFF	OFF	4 pcs connect
5	OFF	OFF	ON	OFF	5 pcs connect
6	ON	OFF	ON	OFF	6 pcs connect
7	OFF	ON	ON	OFF	7 pcs connect
8	ON	ON	ON	OFF	8 pcs connect
9	OFF	OFF	OFF	ON	9 pcs connect
10	ON	OFF	OFF	ON	10 pcs connect
11	OFF	ON	OFF	ON	11 pcs connect
12	ON	ON	OFF	ON	12 pcs connect
13	OFF	OFF	ON	ON	13 pcs connect
14	ON	OFF	ON	ON	14 pcs connect
15	OFF	ON	ON	ON	15 pcs connect

**RUN/ALM/SOC④**

RUN light: green LED flashing to show the battery is running.

Alarm light: red LED flashing to show the battery has alarm, and lighting to show the battery is under protection.



SOC light: green LEDs to show the battery's current capacity.

### LED INDICATORS INSTRUCTIONS

State	Normal/Warning/Protection	RUN	ALM	Power indicator LED				Instruction
		●	●	●	●	●	●	
Shut down	Dormancy	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby	Normal	Flash 1	OFF	Follow module capacity				Standby
	Warning	Flash 1	Flash 3					Module at low voltage
Charge	Normal	ON	OFF	Follow module capacity (Flash 2 at full capacity)				LED flash2 at full capacity,ALM doesn't flash at overcharge warning
	Warning	ON	Flash 3					
	Overcharge protection	ON	OFF	ON	ON	ON	ON	if no grid supply, LED turn to standby.
	Temperature, overcurrent, disabled protection	OFF	ON	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash 3	OFF	Follow module capacity				
	Warning	Flash 3	Flash 3					
	Under voltage protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
	Temperature, overcurrent, short circuit, reverse connect, disabled protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
Disabled		OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and discharge

NOTE: The flashing instructions, flash1 - light 0.25s / off 3.75 seconds; flash 2 - 0.5s light / 0.5s off; flash 3 - 0.5s light / 1.5s off

### RS485/CAN⑤

RS485/CAN Communication Terminal: (RJ11 port) follow RS485/CAN protocol, for output batteries information.

### RS485⑥

RS485 Communication Terminal: (RJ11 port) follow RS485 protocol, for communication between multiple parallel batteries.

### POWER TERMINALS⑦⑧

Power cable terminals: there are two pair of terminals with same function, one connect equipment, the other one paralleling to other battery module for capacity expanding. For each single module, each terminal can achieve charging and discharging function. For power cables uses water-proofed UniLink connectors. It must keep pressing this Lock

Button during pulling out the power plug.

**GROUND CONNECT⑨**

Ground port: Shell ground port.

**BREAKER⑩**

Overcurrent protection switch: 100A Breaker.

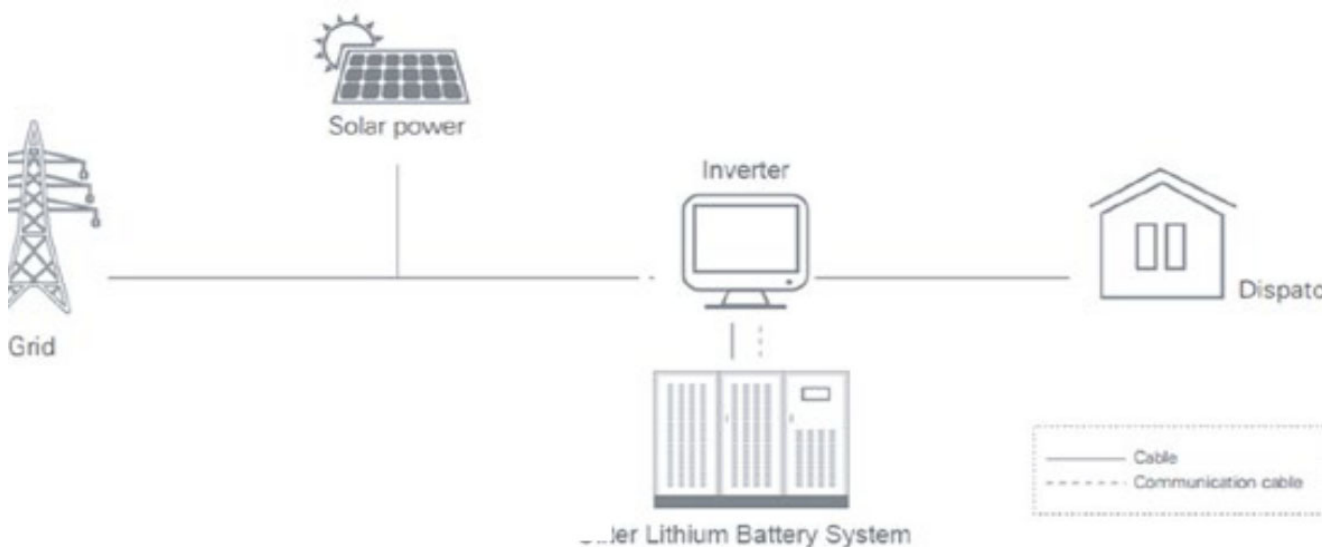
**LCD ⑪**

LCD: Displaying Battery Information.

**3.4.BMS Function**

Protection and Alarm	Management and Monitor
Charge/Discharge	Cells Balance
Charge Over Voltage	Intelligent Charge Model
Charge/Discharge OverCurrent	Charge/Discharge Current Limit
High/Low Temperature	Capacity Retention Calculate
Short Circuit	Administrator Monitor
Power Cable Reverse	Operation Record

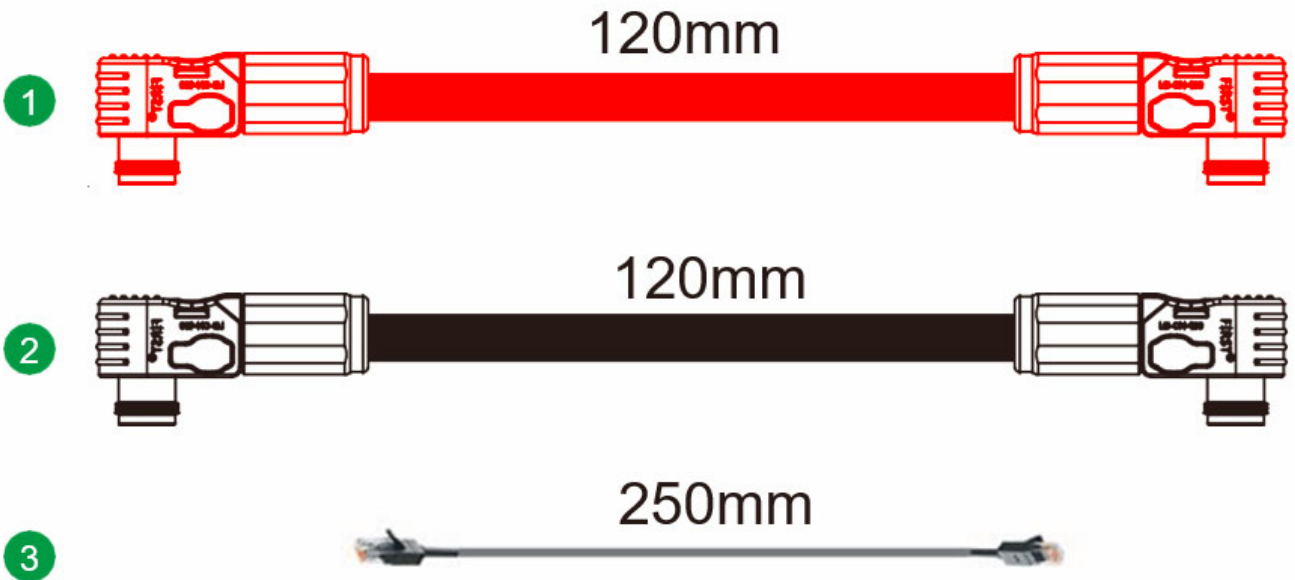
**3.5.Schematic Diagram of Solution**



### 3.6.Package Items

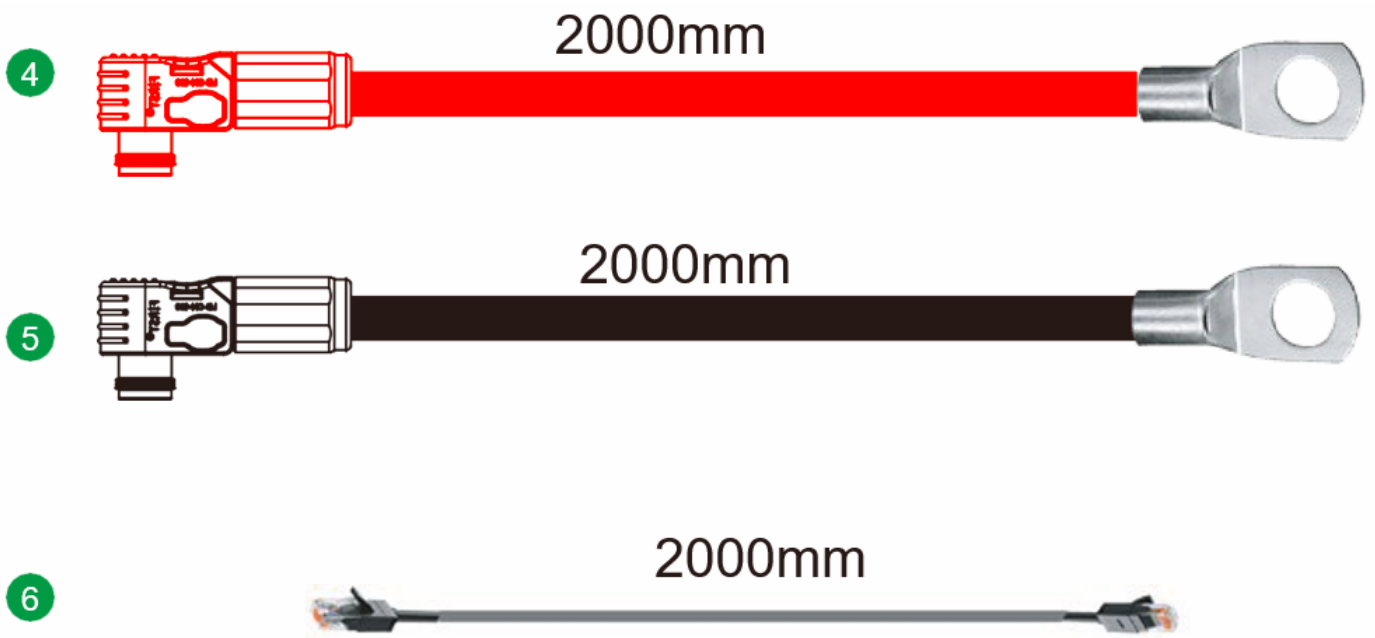
#### For battery module package:

Two power cables and one communication cable for each battery package:



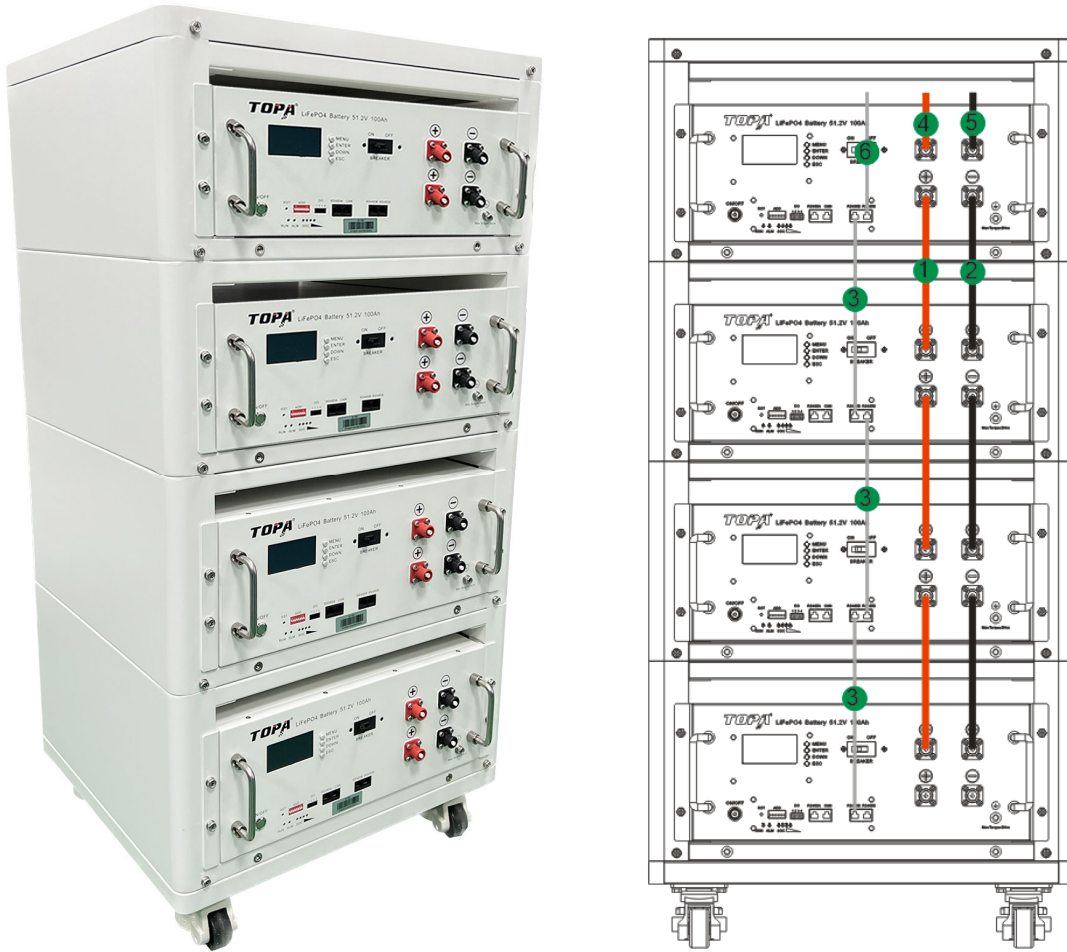
#### For battery system connects to inverter:

Two long power cables (current capacity 100A) and one communication cable for each energy storage system:



### 3.7.Installation

Put battery modules into cabinet and connect the cables:



**Note: If customer needs cabinet, please contact our sales**

- ( 1 ) Put the battery into the cabinet;
- ( 2 ) Drive the 4 pcs screws;
- ( 3 ) Connect the cables between battery modules;
- ( 4 ) Connect the cables to inverter.

#### Power On

Double check all the power cable and communication cable.

- ( 1 ) ON/OFF

Switch on all the battery modules and the green LED light below will be on;

( 2 )Set ADD

Set ADD follow ADD instruction, pack 1 will be host, others are slaves.

### **3.8.Connectors**

Charge / Discharge connectors: to connect the positive pole (+) and negative pole (-) from the battery to the inverter via DC isolator.

Canbus Active communication portal between battery and inverter.

USB To RS485: to get dynamic monitoring data of the battery from upper computer.

Address: Reserved Address portal for multiple parallel connections.

### **3.9.Wake Up button**

- Battery On: When battery is shut down, press this RST button for 6 seconds. It is activated when the LED lights flicker from RUN light to the lowest capacity indicator.
- Battery off: When battery is activated, press this button for 6 seconds. It will be shut down when the LED lights flicker from lowest capacity indicator to RUN light.

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