

# Residential ESS Battery Cabinet

TR10250 | TR20450 | TR30750| TR40950

## Quick Guide

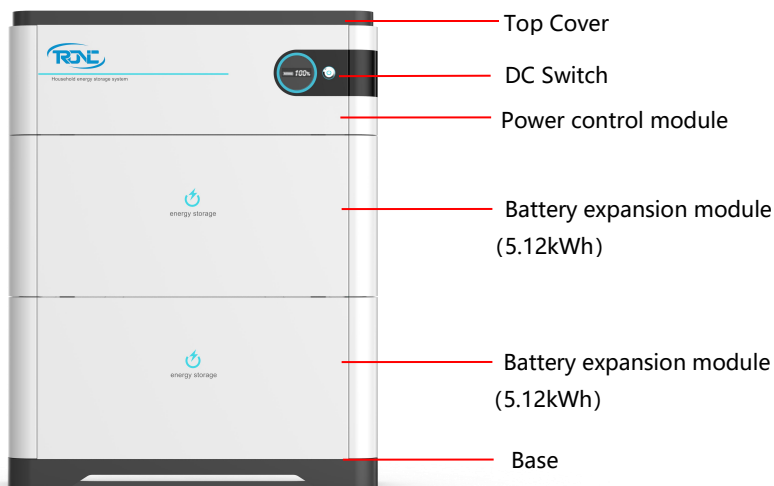


TRONIC ESS CO., LTD

# 1 Product Overview

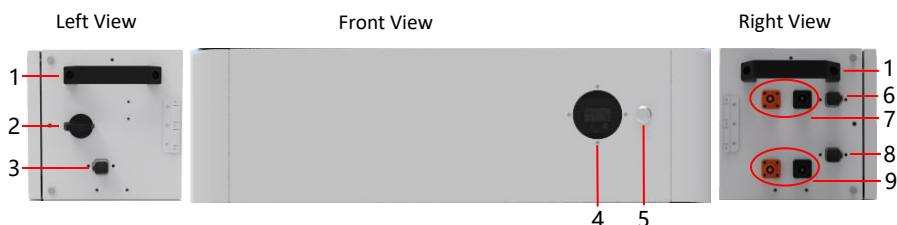
## 1.1 ESS Battery Cabinet Product Appearance

ESS Battery Cabinet is applicable to the grid-tied or off-grid systems. It can store and release electric energy based on service requirements.



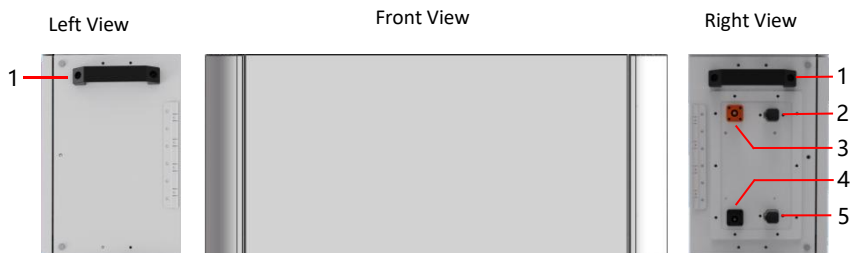
Note: The TR20450 ( 10 kWh) model is used as an example.

ESS Battery Cabinet consists of a power control module and battery expansion modules. Each power control module is 5.12 kW, and can expanded to 4 power control modules. (total 20.48kWh).



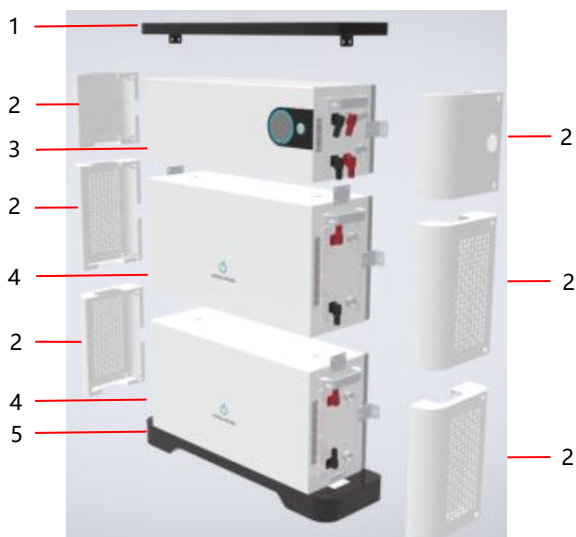
### Power control module

- |                                  |                          |                       |
|----------------------------------|--------------------------|-----------------------|
| (1) Mounting handle              | (2) Disconnecting switch | (3) Debugging port    |
| (4) Power display                | (5) Start switch         | (6) Inverter COM port |
| (7) Inverter cascading terminals | (8) Internal COM port    |                       |
| (9) Battery cascading terminals  |                          |                       |



### Power control module

- |                                    |                                    |
|------------------------------------|------------------------------------|
| (1) Mounting handle                | (2) Internal COM port 1            |
| (3) Battery cascading terminal (+) | (4) Battery cascading terminal (-) |
| (5) Internal COM port 2            |                                    |

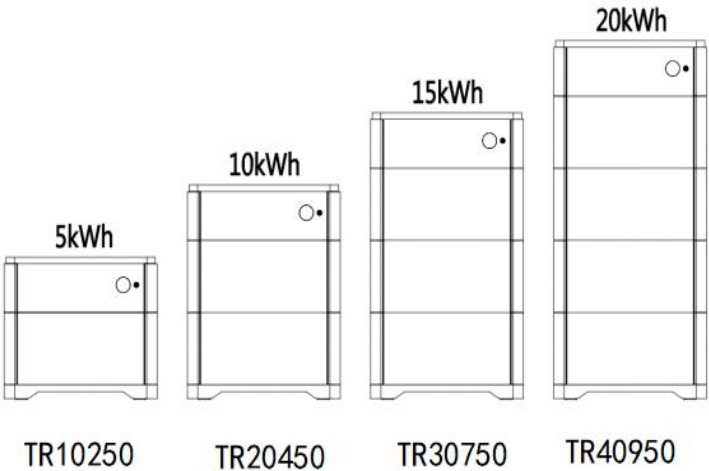


### Product diagram

- |                              |                      |                          |
|------------------------------|----------------------|--------------------------|
| (1) Top cover                | (2) Protective cover | (3) Power control module |
| (4) Battery expansion module | (5) Bottom cover     |                          |

## 1.2 ESS Battery Cabinet Model

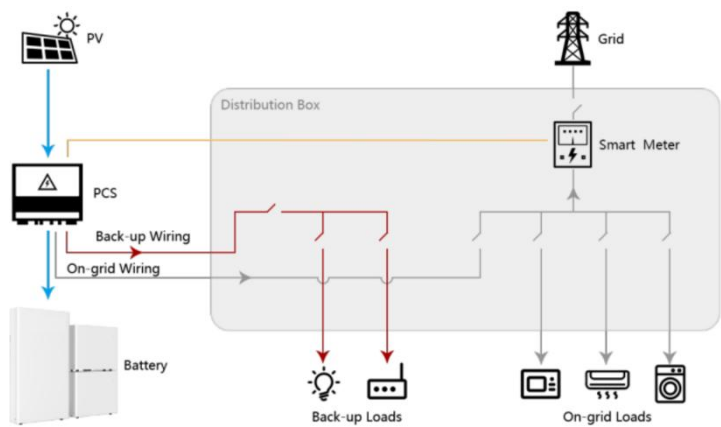
TRONIC ESS has different electricity products to meet user' s needs, such as TR10250、TR20450、TR30750、TR40950.



## 1.3 Technical data

Model	TR10250	TR20450	TR30750	TR40950
Battery Type	LiFeP04			
Battery Cabinet Configuration	1	2	3	4
Nominal Voltage	102. 4V	204. 8V	307. 2V	409. 6V
Nominal Capacity	50Ah			
Nominal Total Energy	5. 12kWh	10. 24kWh	15. 36kWh	20. 48kWh
Voltage Range	86. 4~115. 2V	172. 8~230. 4V	259. 2~345. 6V	345. 6~460. 8V
Standard Charging Current	25A@continue			
Max.Charging Current	50A@continue			
Standard Discharge Current	25A@continue			
Max.Discharging Current	50A@continue			
Net Weight	65Kg	110Kg	155Kg	200Kg
Dimension(W*D*H)	697*196*581mm	697*196*909mm	697*196*1237mm	697*196*1565mm
Ingress Protection	IP65			
Cooling	Natural Cooling			
Operation Condition				
Environment Temperature	Charge:0℃~55℃/Discharge:-20℃~55℃/Storage:-10℃~30℃			
Operation Humidity	5~95%, RH			
Mounting Type	Floor-mounted			
Design Life	>10 years			

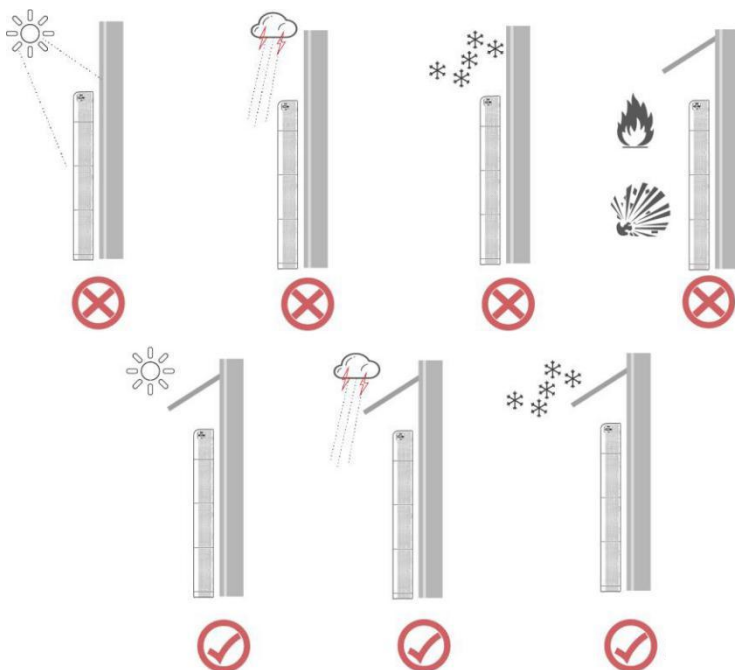
# 1.4 System Schematic



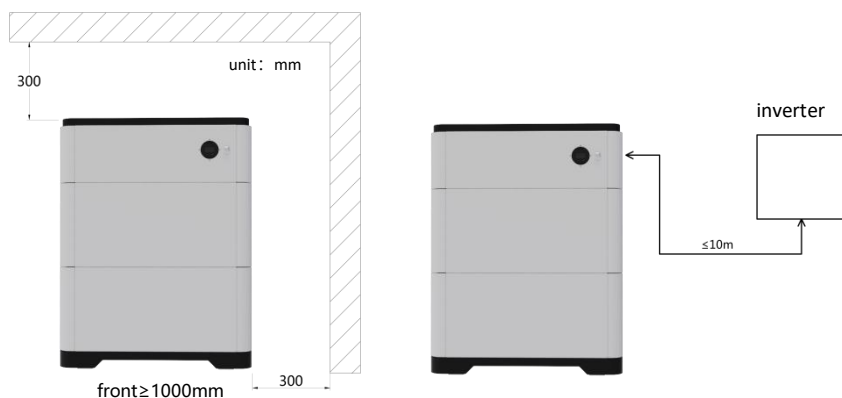
## 2 Device Installation

### 2.1 Installation Requirements

#### 2.1.1 Installation Environment



#### 2.1.2 Installation Space



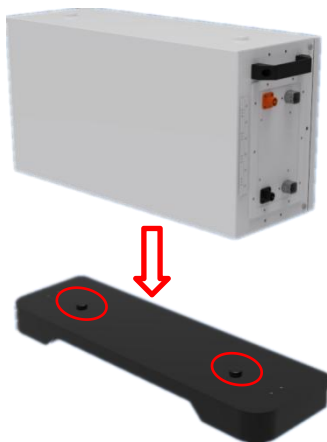
2.1.3 Mounting Hole Dimensions



## 2.2 Installation and fixation

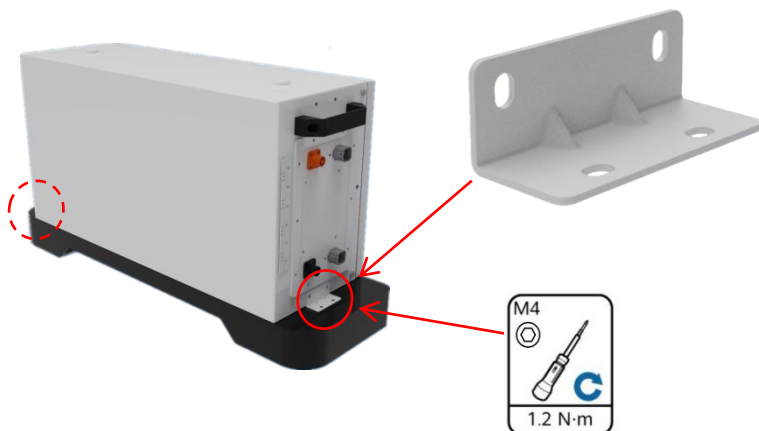
1. Place the base in a horizontal position, then put the battery unit on the base.

*(Note: pay attention to the red circle mark in the figure, the battery unit and the base should be completely consistent to prevent dislocation).*



2. Using a fixing piece to fix the battery unit with the base.

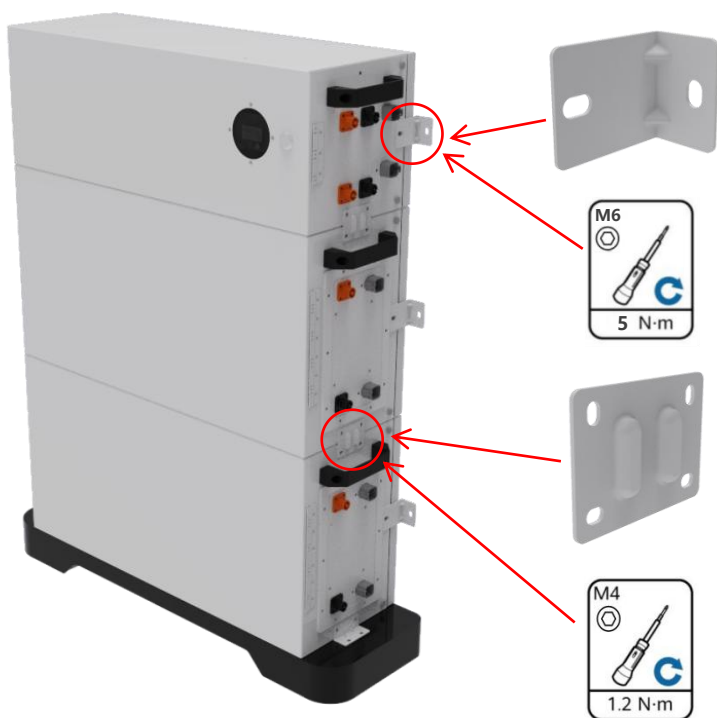
*(Note: when fixing, the torque shall not exceed 1.2N. M to prevent equipment damage.)*





3. Place the remaining battery units and power control units respectively.

*(Note: when fixing the component unit, the torque shall not exceed 1.2N. M to prevent equipment damage. When fixing the wall, the torque shall not exceed 1.2N. M; The power control unit is placed on the battery unit. The legend is jk20450 product. There are two battery units, each 5kwh, the battery unit parameters are the same, and the installation sequence is not divided).*



## 3 Internal Electrical Connections of the Battery



### Note:

- A. The internal connecting wires are packed in the box;
- B. Before connecting cables, ensure that the switches of the devices are turned off. Otherwise, high voltage electric shock and equipment damage may be caused.

### 3.1 Connection of Battery Cable

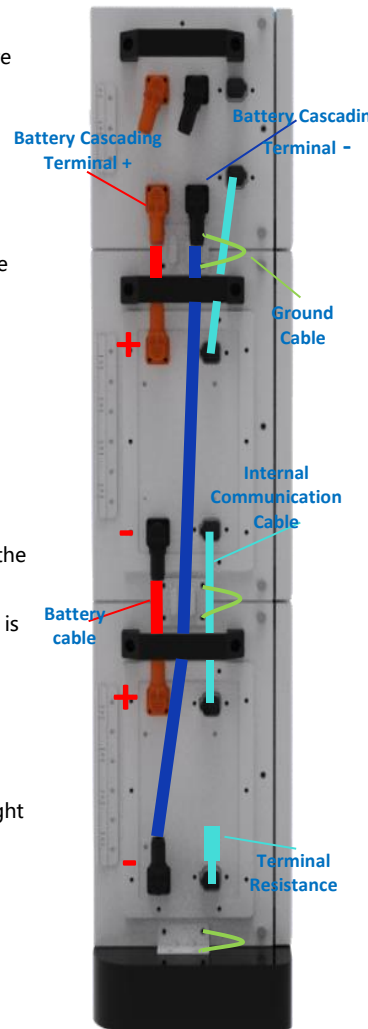
- The battery expansion modules in the ESS battery cabinet are connected in series.
- The top battery expansion module "+" is connected by the power control module "battery cascading terminal +", the top battery expansion module "-" is connected to the next battery expansion module "+", and so on.
- The lowest battery expansion module "-" is connected by the "battery cascading terminal" of the power control module- .

### 3.2 Connection of Communication Cables

- The ESS Battery Cabinet uses Daisy chain for internal communication.
- As shown in the figure, the battery expansion modules are connected one by one.
- The battery expansion module at the top is connected with the power control module internal communication interface
- the bottom battery expansion module' s internal COM port is connected to a terminal resistance.

### 3.3 Connection of Internal Ground Cable

- For the internal ground cable of the ESS Battery Cabinet, connecting each component unit one by one as shown in right picture.



# 4 External Electrical Connections of the Battery

**Note:**



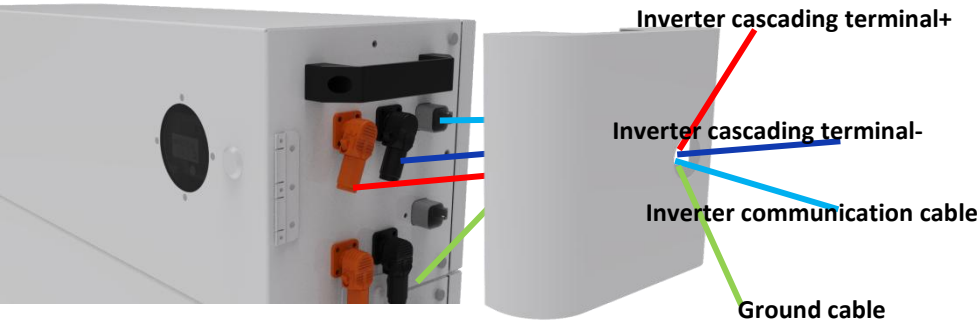
- A. The internal connecting wires are packed in the box;
- B. Before connecting cables, ensure that the switches of the devices are turned off. Otherwise, high voltage electric shock and equipment damage may be caused.

## 4.1 cable specification

No.	Cable	Type	ConductorCross-Sectional Area Range
1	Ground cable	Single-core outdoor copper-core cable	4-6 mm <sup>2</sup>
2	DC input power cable (inverter to battery and battery to	Common outdoorPV cable in the industry	10 mm <sup>2</sup>
3	Signal cable (inverter to battery and battery to battery)	Outdoor shielded twisted pair cable (8 cores)	0.20–0.35 mm <sup>2</sup>

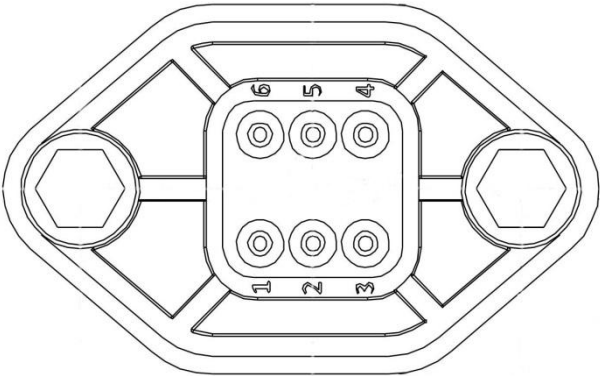
## 4.2 External Cable Connection

As shown in the following figure, external cables are routed through cable holes on the side panel and connected to ports on the PDU side.



4.3 COM Port Pin Definitions

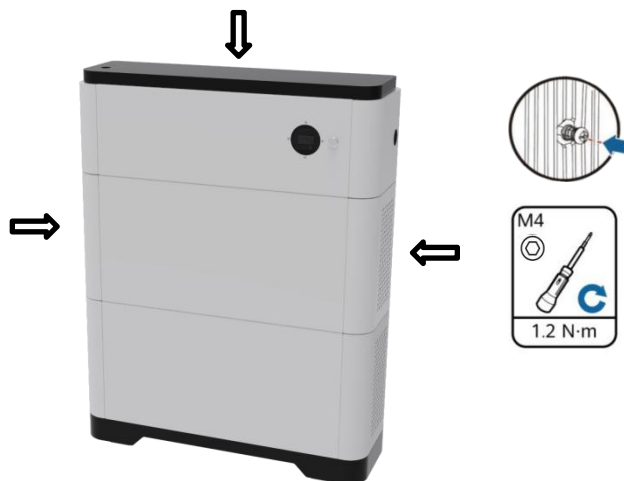
PIN	Definition	note
1	External CANH	Communicate with inverter CAN
2	External CANL	
3	RS485-A	Communicate with inverter 485
4	RS485-B	
5	NC	
6	NC	



## 5 Verifying the Installation

### 5.1 Installing Cover

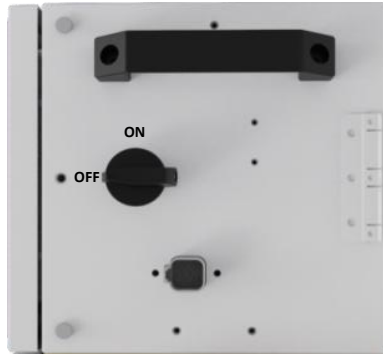
After electrical connections are complete, check that cables are correctly and securely connected, install the external protective cover, and secure it using screws.



No.	AcceptanceCriterion
1	The battery is installed correctly and securely.
2	The cables are routed properly as required by the customer.
3	Cable ties are secured evenly and no burr exists.
4	The ground cable is connected correctly and securely.
5	The battery switch and all switches connected to the battery are OFF.
6	The DC input power cables and signal cables are connected correctly and securely.
7	Idle terminals and ports are locked by watertight caps.
8	The installation space is proper, and the installation environment is clean and tidy.

## 6 Power-On Commissioning

1. Confirm the connection between ESS battery cabinet and inverter before power on for the first time starting. Turn the isolation switch of ESS battery cabinet and inverter switch to "on" (*refer to inverter manual for specific inverter operation*).



2. Press the start button. The equipment will be self-checked and started. If there is no fault, the equipment can be used normally.



3. If the device is not used for a short time, press the start button and the device will go to sleep mode. If the equipment is not used for a long time (two weeks), in addition to the above steps, turn the equipment disconnecter to "off".

See the table below for status indication

System state	Abnormal event	RUN	ALM	SOC	Note
Off	/	Lights out	Lights out	Lights out	
Standby	Normal	Light on	Lights out	Light on / display percentage according to electric quantity	
	Alarm	Light on	Twinkle		
	Discharge protection	Lights out	Light on	Lights out	
Floating charge	Normal	Light on	Lights out	Light on / display percentage according to electric quantity	
	Alarm	Light on	Twinkle		
	Charging protection	Twinkle	Light on		
Charge	Normal	Twinkle	Lights out	Light on / display percentage according to electric quantity	
	Alarm	Twinkle	Twinkle		
Discharge	Normal	Light on	Lights out	Light on / display percentage according to electric quantity	
	Alarm	Light on	Twinkle		

## 7 Tool & safety gears required

### 1. Tools

The following tools are required to install the battery pack:



Precision screwdriver



Drill



Pencil or Marker

### 2. Safety gears for personal protection

It is recommended to wear the following safety gears when handling the battery pack.



Insulated gloves



Safety goggles



Safety shoes



## 8 Inverter

*Matched inverter brand and model*

No.	Brand	Type	Note
1	GOODWE	GW3600-EH	
2		GW5000-EH	
3		GW6000-EH	
4		GW5K-ET	
5		GW8K-ET	
6		GW10K-ET	
7	SUNWAYS	STH-3KTL-HSS	
8		STH-3.6KTL-HSS	
9		STH-3KTL-HS	
10		STH-3.6KTL-HS	
11		STH-4.2KTL-HS	
12		STH-4.6KTL-HS	
13		STH-5KTL-HS	
14		STH-6KTL-HS	
15		STH-7KTL-HS	
16		STH-8KTL-HS	
17	KOYOE	KY-1Hybrid-5K0-H	

## 9 Packing list

1.The outer packing box size of power control module is 820 \* 400 \* 495mm.

*The details of accessories contained in the packing box are shown in the table below:*

No.	Material name	Quantity	Note
1	Power control unit	1	
2	Protective cover	1	left
3	Protective cover	1	right
4	cover	1	
5	base	1	
6	Power line	1	PDU "+" ~PACK "+"
7	Power line	1	PDU "-" ~PACK "-"
8	Power line	1/2/3	※ PACK "+" ~PACK "-"
9	Power line	1	Connect inverter "+"
10	Power line	1	Connect inverter "-"
11	Communication line	1	Internal communication
12	Communication line	1	Inverter communication
13	RJ45 wiring converter	1	
14	Screw M8*40L	4	
15	Screw M4*12L	14	
16	Screw M6*12L	4	
17	Screw M5*10L	6	
18	Base connecting piece	2	
19	Wall connecting piece	2	
20	Ground wire	1	
21	Tie	5	
22	user 's manua	1	
23	Shipment report	1	
24	certificate	1	
25	Quality assurance card	1	

※ the number of power lines configured for Mint-JKE5, Mint-JKE10, Mint-JKE15, and Mint-JKE20 is 0, 1, 2 and 3 respectively.

2. The outer packing box size of battery expansion module is 760 \* 425 \* 420mm.

*The details of accessories contained in the packing box are shown in the table below:*

No.	Material name	Quantity	Note
1	Battery pack	1	
2	Protective cover	1	left
3	Protective cover	1	right
4	Wire	1	COM port to COM port
5	Connecting piece between boxes	2	
6	Wall connecting piece	2	
7	Screw M8*40L	4	
8	Screw M4*12L	10	
9	Screw M6*12L	4	
10	Screw M5*10L	6	
11	Ground wire	1	
12	Tie	5	
13	user 's manual	1	user 's manual
14	Shipment report	1	Shipment report
15	certificate	1	certificate
16	Quality assurance card	1	Quality assurance card

## **TRONIC ESS CO., LTD**

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