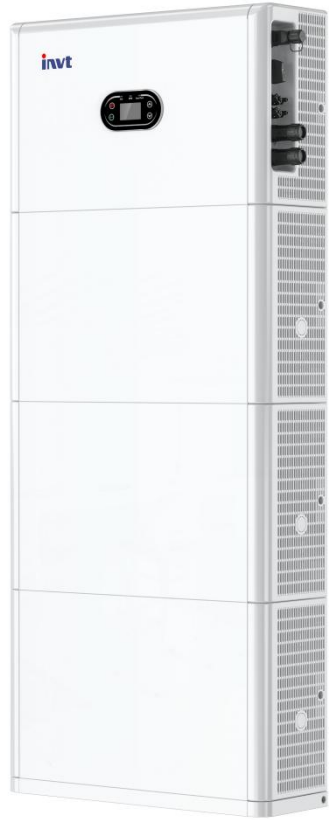
iMars XD3-6KTL-AIO

Quick Installation Guide



INVT Solar Technology (Shenzhen) Co., Ltd.

	● Only qualified electricians are allowed to install the inverter. ● Do not put and install the inverter on or close to combustible materials. ● Install the inverter away from electronic devices with strong electromagnetic interference. ● Keep the installation site away from children and other public places. ● Select an appropriate battery that matches the system, and set the battery type correctly. If you select a battery that does not match the hybrid inverter, the system cannot run. ● If the battery has been completely discharged, please strictly follow the User Manual of the battery to charge it. ● Remove any metal jewelry such as ring and bracelet before you perform installation and electrical connection, in order to avoid electric shock. ● The input voltage to the inverter must not exceed the maximum input voltage of the inverter, as this may cause damage to the inverter. ● The inverter is not compatible with the positive or negative grounding system of solar cell module. ● Make sure the PE of the inverter is reliably grounded. If the PE is not grounded or not reliably grounded, the inverter cannot operate properly. ● Ensure reliable installation and electrical connection of the inverter.

❶ Unpacking Inspection

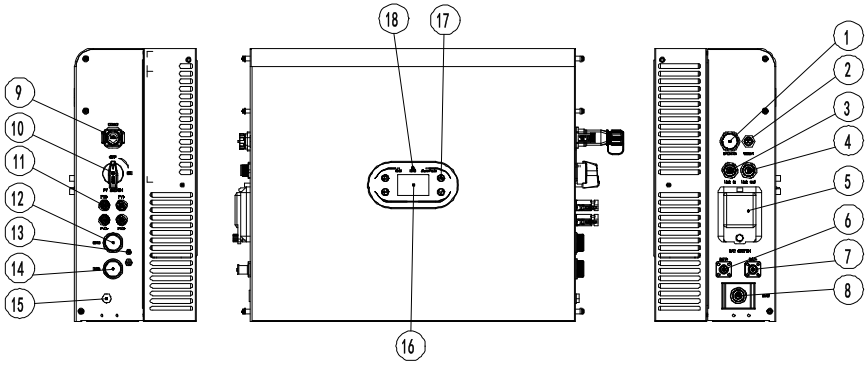
Before unpacking, carefully check whether the product information indicated on the carton is consistent with that indicated in the Purchase Order, and whether the product package is in good condition. If any problem, contact the supplier as soon as possible.

Table 1 Deliverables for Single-phase Hybrid Inverter

No.	Name	Quantity
1	Inverter	1
2	Quick Installation Guide	1
3	Base	1
4	Left Side Panel	1
5	Right Side Panel	1
6	16-pin Termina&CT	1
7	PV Connector (pair)	2
8	AC terminals	2
9	Accompanying Documents (set)	1
10	M6*25 Self-tapping screw	4

No.	Name	Quantity
11	Stainless Expansion Bolts M6*50	4
12	M6*16Combination Bolts	6
13	M6 Flat Washers & Nuts	4
14	M4 *10screws	12
15	Parallel line	1
15	2pcs square Fixed patch / 2pcs L-shaped Fixed patch	2/2
16	Communication Cable（Optional）	1
17	NTC Cable（Optional）	1
18	GPRS Module(Optional)	1
19	WIFI Module（Optional）	1

Overview



No.	Description	No.	Description
1	USB Port (Software Upgrade)	2	COM-1 (RS485 / Wi-Fi / GPRS communication)
3	Parallel RJ45 Input Interface	4	Parallel RJ45 Output Interface
5	Battery Switch	6	Positive Battery Interface
7	Negative Battery Interface	8	BMS Lithium Battery Communication
9	COM-2 (CT/DRM communication)	10	PV DC Switch
11	PV Input Terminal	12	Grid Terminal
13	GND (grounding point)	14	EPS Output Terminal
15	Breather Valve	16	LCD Screen
17	Function Keys	18	LED Indicator Light

❷ Before Installation

2.1 Location

Select installation site based on the following considerations:

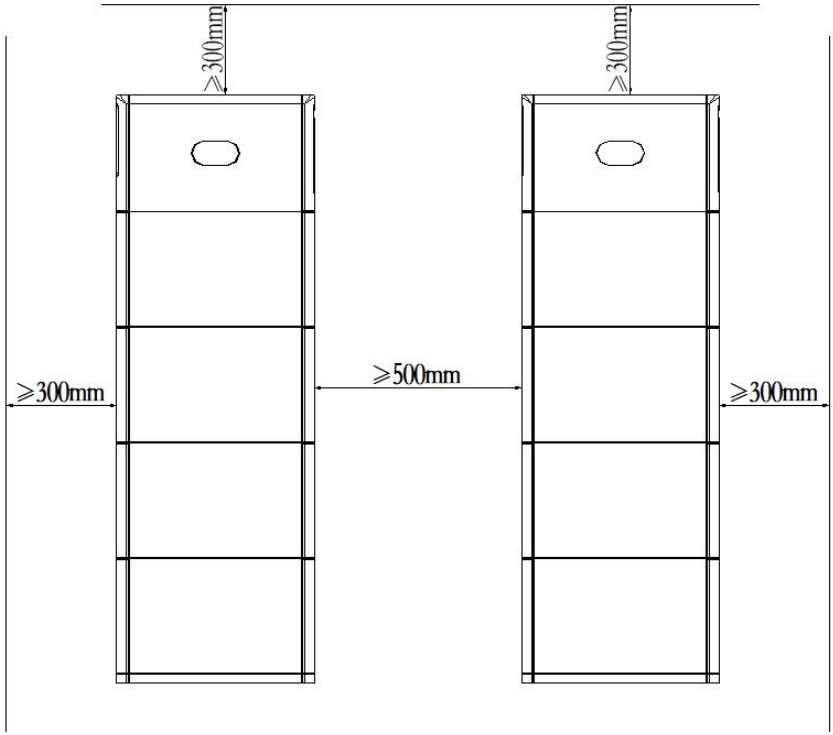


Fig. 1 Installation Spacing of Inverter

(1) The ambient temperature should be between -30℃~60℃.

(2) The installation site should be shielded from direct sunlight and snow accumulation.

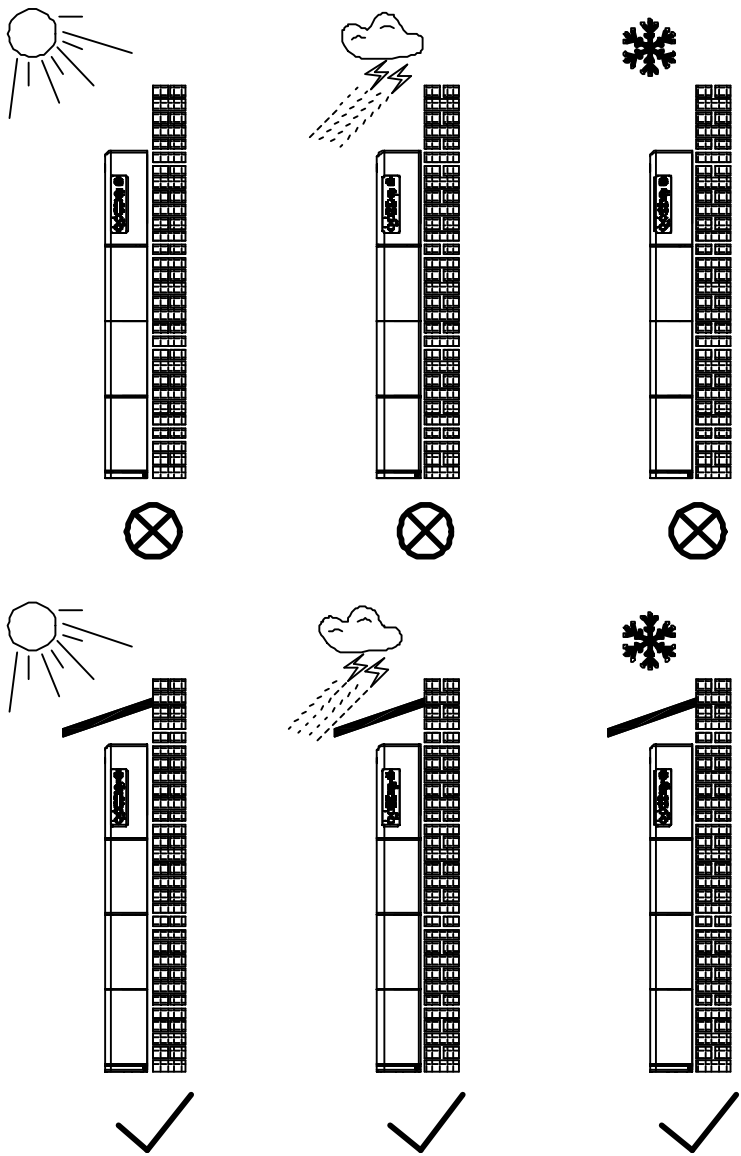


Fig. 2 Installation Site of Inverter

2.2 Cable specifications

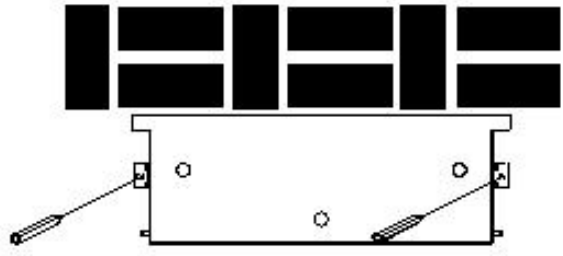
In order to ensure the compatibility of the AC/DC connectors/terminals of the inverter, please always select the following AC/DC wires for the inverter:

Table 2 Cable Specifications

Inverter Model	DC side	AC side
	Recommended minimum wire size (length ≤ 50m)	Recommended minimum wire size (length ≤ 50m)
XD3K-6KTL-AIO	AWG12	AWG8

❸ Mechanical Installation

1) Battery Base Installation: Position the battery base against the wall with a 10-20mm gap. Using a marker, indicate the position of the fixation holes on the base. Mark the position for the L-shaped side brackets based on the fixation holes. Drill holes of φ8*55 size and use stainless steel expansion bolts M6*50 to fix the base.



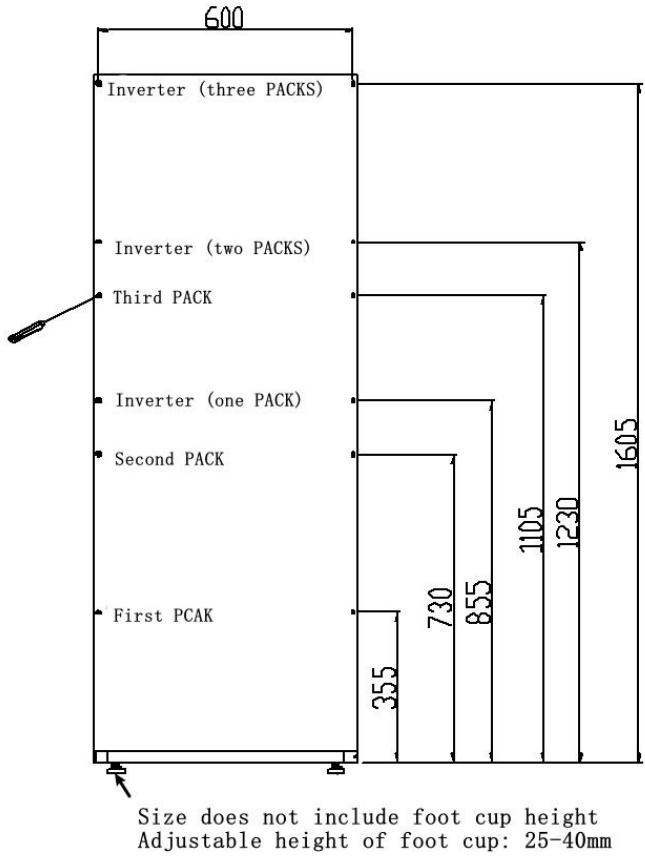


Fig. 3 Drilling Holes

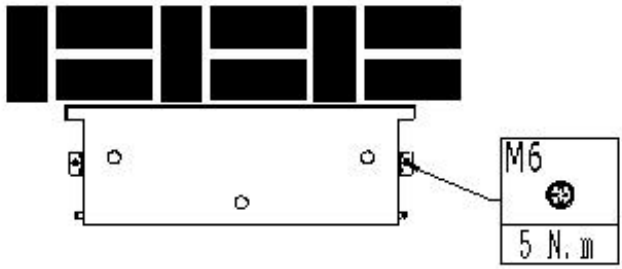


Fig. 4 Base Installation

2) Battery Placement: Align the three protruding tabs on the bottom of the battery with the three round holes in the base. Secure the battery to the base using side connectors.

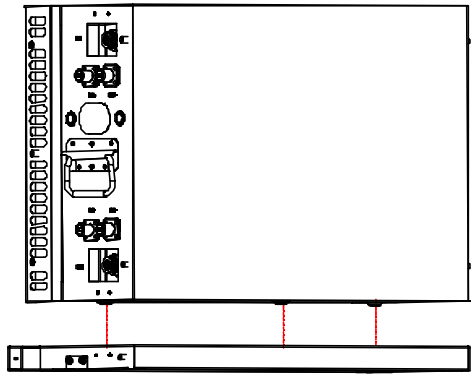


Fig. 5: Battery Placement

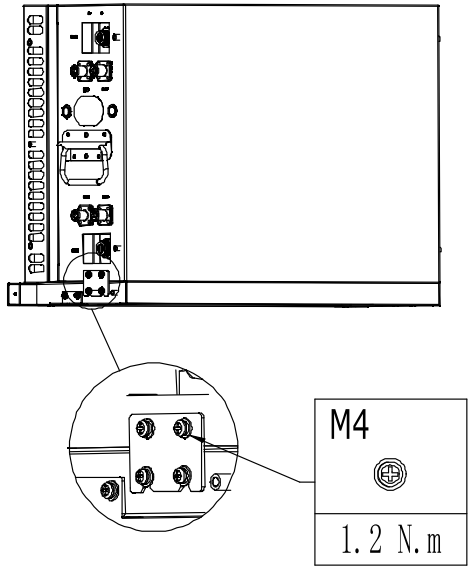


Fig. 6: Battery & Base Side Fixation

3) Inverter Placement: Place the inverter on top of the battery. Align the three protruding tabs on the inverter's bottom with the three recesses on the battery's top. Use side connectors to secure the connection between the battery and inverter. Install all L-shaped side brackets.

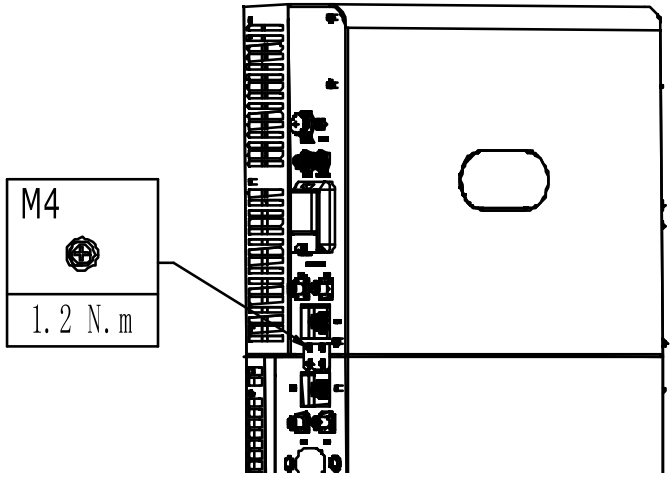


Fig. 7 Installation of Inverter

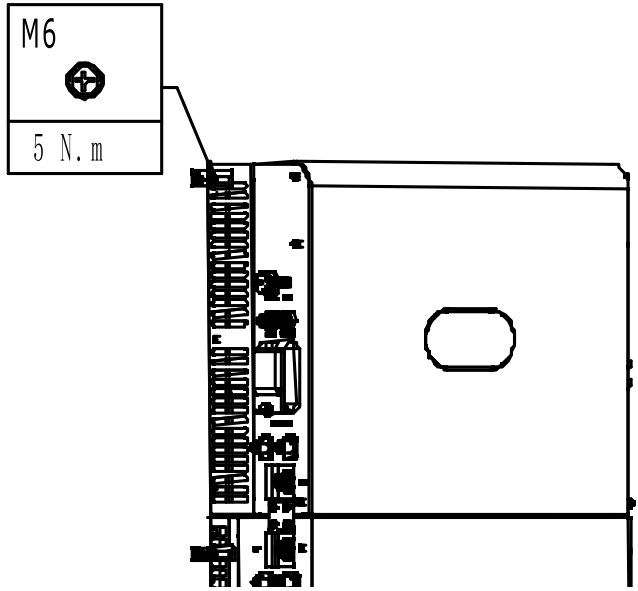


Fig. 8: Installation of L-shaped Side Brackets

4 Electrical Connection

Note: The following wiring method is appropriate for Australia, New Zealand and South Africa.

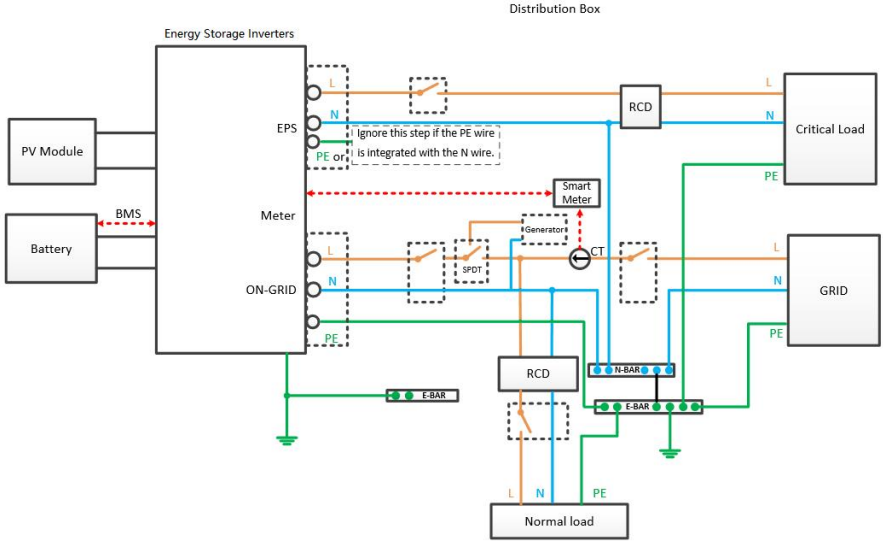


Fig. 9 Electrical Wiring Diagram of Hybrid Inverter

Note: The following wiring method is appropriate for regions other than Australia, New Zealand and South Africa.

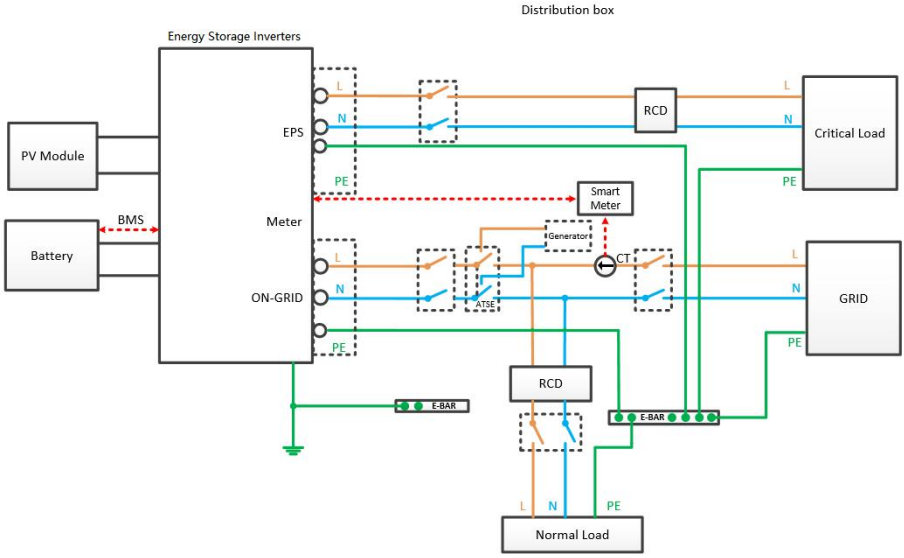


Fig. 10 Electrical Wiring Diagram of Hybrid Inverter

4.1 Battery-to-Battery and Battery-to-Inverter Power & Communication Wiring

Battery-to-Battery: Use BAT+ (or BAT-) power cables to connect two batteries' BAT+ (or BAT-) ports. Use communication cables to connect the Link Port Out port to the Link Port In port.

Battery-to-Inverter: Use BAT+ (or BAT-) power cables to connect the battery and inverter's BAT+ (or BAT-) ports. Use a network cable to connect the battery's Link Port Out to the inverter's BMS.

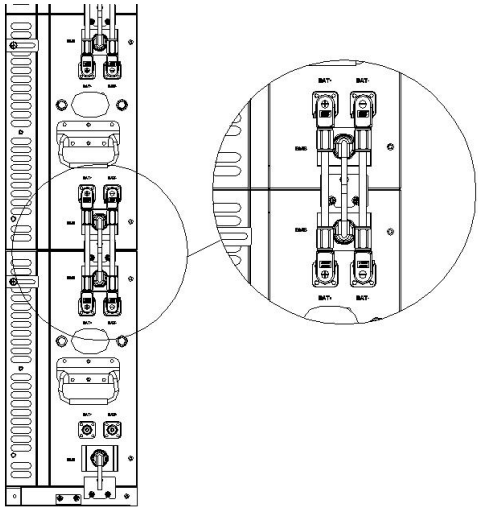


Fig. 11 Battery-to-Battery and Battery-to-Inverter Connection

4.2 Side Panel Installation

Install the side panels for the inverter, battery, and base. Secure the side panels using screws.

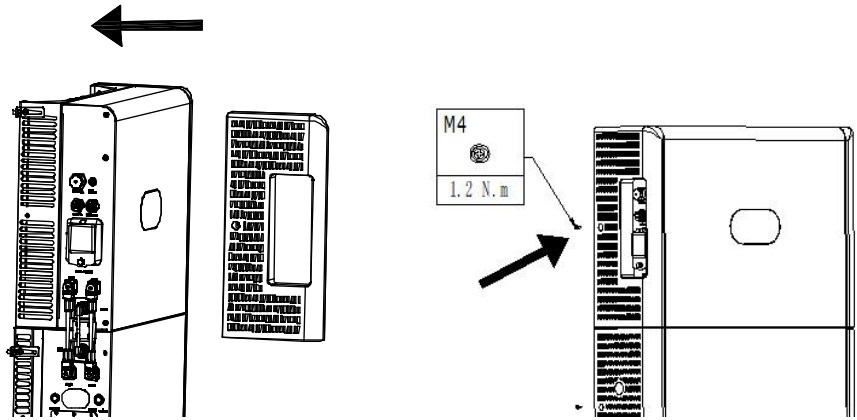
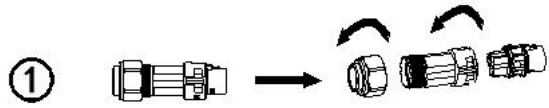


Fig. 12 Side Panel Installation

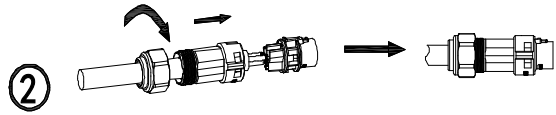
4.3 AC Wiring

The output of hybrid inverter includes grid output and EPS output , which are connected in the same way .Below are the electrical connection steps of the inverter:

Step 1: Unscrew the AC terminal, and then use an appropriate tool to remove it as shown below.



Step 2: Pass the cable through the rubber nut, sealing ring and threaded sleeve in turn; connect the cable to the corresponding terminal with the correct polarity mark, and then tighten the threaded sleeve onto the AC terminal as shown below:



Step 3: Connect the prepared AC terminal to the GRID port or EPS port of the hybrid inverter as shown below.

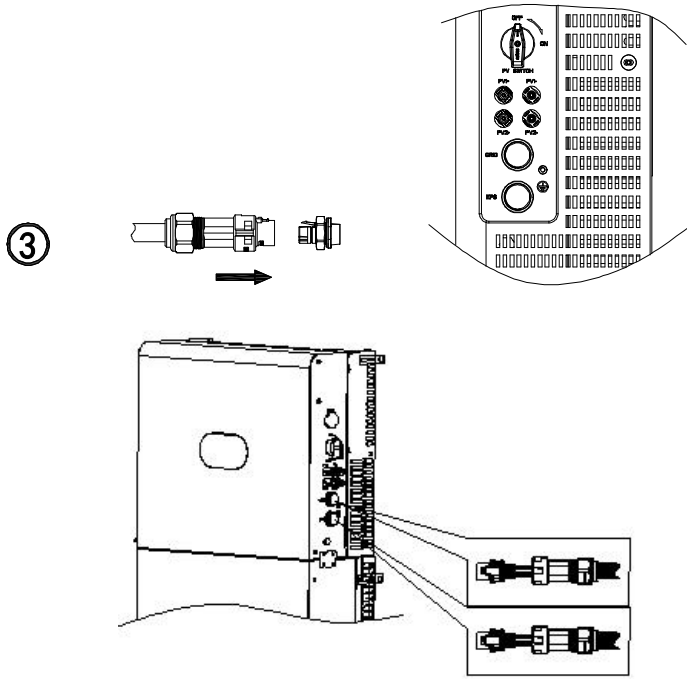
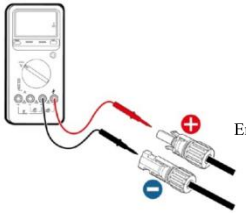


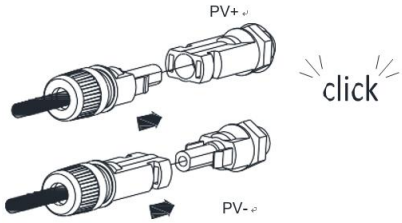
Fig. 13 GRID and EPS O-terminal Connections

4.4 PV Wiring

(1) Check if the polarity of the photovoltaic string connection is correct, and ensure that the voltage of each string is within the allowable range of the inverter;



(2) Insert the positive/negative connector into the correct input terminal at the bottom of the inverter and lock it in place.



4.5 CT Wiring

Clamp the current transformer's signal wire in the orange terminal. Connect the positive wire (black and white striped) to port 13 and the negative wire (black) to port 12. Fit the internal wiring block with the casing closely, and finally connect it to the COM-2 interface. Connect the other end of the current transformer to the live GRID line, the direction of the arrow is pointed by the inverter towards the grid.

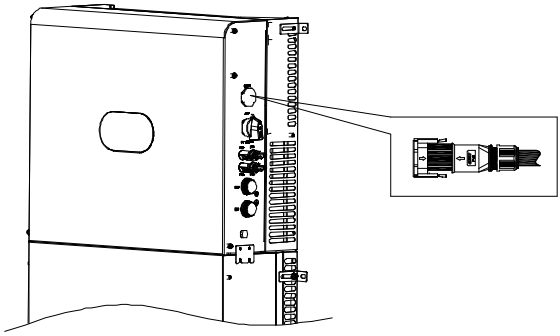


Fig. 14 CT Connection

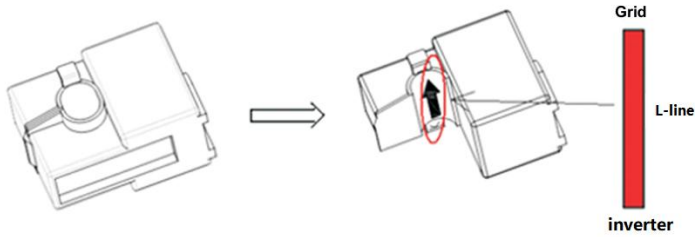


Fig. 15 Current Transformer Installation

❺ Operation

5.1 Inspection before operation

Check as follows before operation:

(1) Check whether the voltage of the PV strings is in the allowable input voltage range of the inverter or not;

(2) Check whether the voltage of the AC side is normal or not;

(3) Check whether the battery connection is correct and the battery voltage is normal;

(4) Check whether the inverter is grounded properly or not;

(5) Ensure all switches are at "Off";

(6) Ensure all electrical safety precautions are clearly identified on the installation site;

(7) Ensure the communication module is correctly connected.

5.2 Grid-tied Operation

Perform the following steps to start the inverter and achieve the grid-connected operation:

(1) Turn on the PV switch;

(2) Turn on the switch between the grid and the hybrid inverter;

(3) Turn on the switch between the battery and the hybrid inverter to wake up the battery;

(4) If you need to set up the hybrid inverter, read the User Manual of the hybrid inverter for more instructions;

(5) The shutdown procedure is in the reverse order of the above.

LED Indications of hybrid inverter

The user can get more information via the buttons. The LED indications are explained below.

Solid red	Failure
Solid green	Normal working
Flashing in green	Countdown of grid connection
Solid yellow	Grid disconnected
Flashing in yellow and green	Program burning

5.3 Accessories and Wiring

485 pins definition

1 (red)	+5VDC
2 (orange)	A (RS485+)
3 (brown)	B (RS485-)
4 (black)	GND

Comm. optional accessories

Comm. optional accessories	Inverter port	Upper machine port
Ethernet converter	RS485-M	RS485 signal
Wi-Fi converter	RS485-M	Wi-Fi signal
GPRS converter	RS485-M	Wireless GPRS signal

5.4 Maintenance

When power-off maintenance, overhaul, troubleshooting of the inverter is required, please stop the inverter strictly as follows:

(1) Disconnect the inverter's AC switch to the power grid;

(2) Disconnect the DC switch integrated on the inverter;

(3) Contact our customer service staff or local dealer.

More information
For complete instruction on relevant parameters, please refer to Operation Manual of INVT iMars Series Solar Inverters. You can visit www.invt.com or scan the QR code to download it. Service line: +86 400 700 9997

INVT Solar Technology (Shenzhen) Co., Ltd.

Certificate of Quality

Quality Inspector：

OQA03
PASS

The product is tested by our quality control and quality assurance department, is in line with the product standards and specified technical requirements and is ready to be shipped.

Warranty Card

Customer Name：	
Customer Address：	
Contact Person：	Tel/Phone：
Product Model Number：	Factory Serial Number：
Purchase Date：	Fault Date：
Open Circuit Voltage (Voc) / DC Input Power (W):	Grid Rated Voltage / Frequency :

Setup Model	Noise ?	Smoke ?
☐ Independent ☐ Parallel	☐ YES ☐ NO	☐ YES ☐ NO

Inverter Software Version: Version 1_____; Version 2_____

MCU Version:

Error Code:

Error Description:

Please return this card with information to us. Thank you!

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V1.1