iMars XD3-6KTL

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 EPS inverter, the system cannot run.
- If the battery has been completely discharged, please strictly follow the User Manual of the battery to charge the battery.
- Remove the metal jewelry such as ring and bracelet before you perform installation and electrical connection 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.

❶ Unpacking inspection

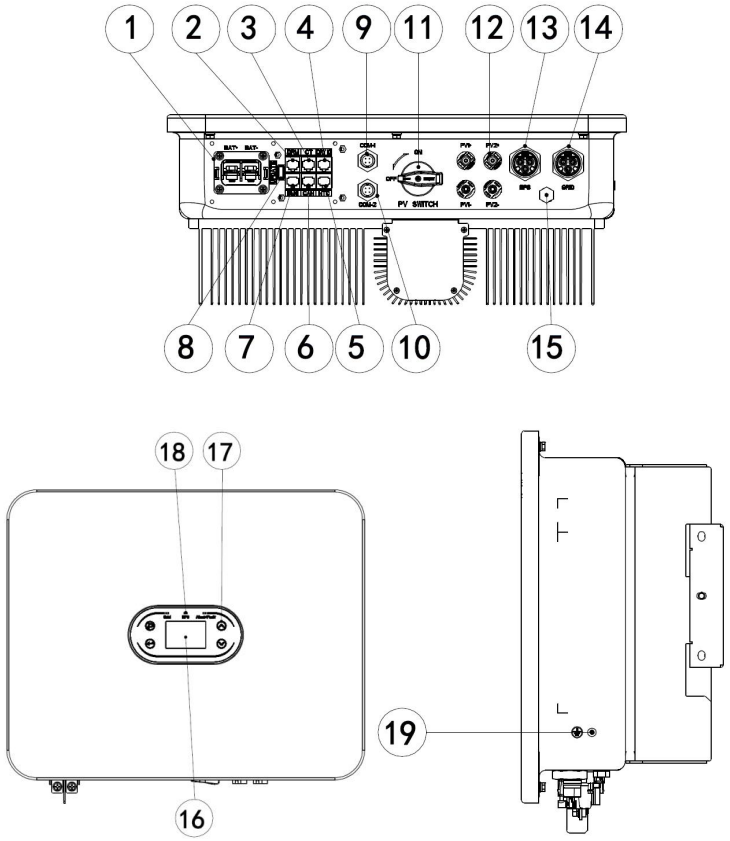
Before unpacking, carefully check whether the product information indicated on the carton is consistent with that indicated in the Purchase Order, and whether the product package is in good condition. If any problem, contact the supplier as soon as possible.

Table 1 Packing list of single-phase inverter

Ordinal	Name	Quantity
1	Inverter	1
2	Installation bracket	1
3	AC terminal	2
4	PV connector (pair)	2
5	Quick installation guide	1
6	Stainless expansion bolts M6*50	6
7	M6 combination bolts	9
8	M4 combination screws	6

9	M6 nuts	6
10	M6 flat washer	6
11	Waterproof junction box	1
12	Output CT	1
13	Parallel line	1
14	Battery OT terminal	2
15	NTC Cable(Optional)	1
16	GPRS Module(Optional)	1
17	WIFI Module(Optional)	1
18	Communication Cable (not included in AU)(Optional)	1

Overview



No.	Description	No.	Description
1	Battery terminal	2	RJ45 interface of DRMs (Australia)
3	RJ45 interface of CT	4	Dry contact & NTC
5	CAN2 (parallel communication)	6	CAN1 (parallel communication)
7	BMS lithium battery communication	8	USB port (software upgrade)
9	COM-1 (RS485 / Wi-Fi / GPRS communication)	10	COM-2 (electricity meter RS485 communication)
11	PV DC switch	12	PV input terminal
13	EPS output terminal	14	Grid terminal
15	Breather valve	16	LCD screen
17	Function keys	18	LED indicator light
19	GND (grounding point)	/	/

❷ Before installation

2.1 Location

Select installation place based on the following considerations:

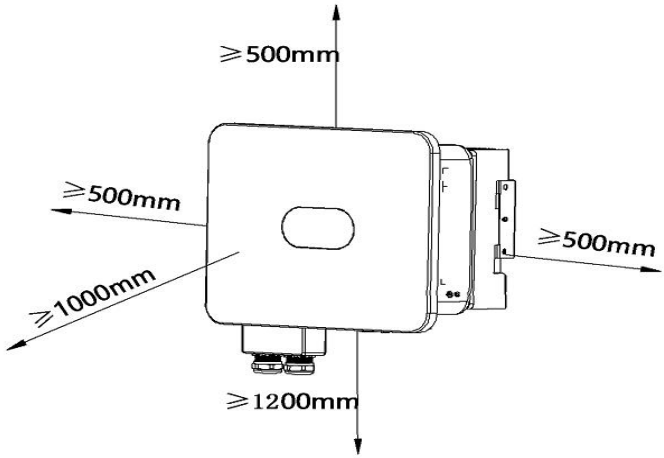


Fig. 1 Installation Spacing of Inverter (mm)

(1) The environment temperature is between -30℃~60℃.

(2) The installation surface should be vertical. Refer to Figure 2.

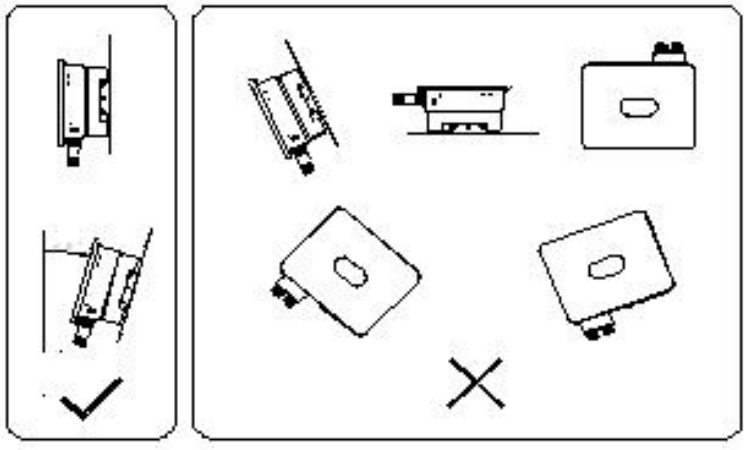


Fig. 2 Installation Location of Inverter

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)
XD3-6KTL	AWG12	AWG8

❸ Mechanical installation

The following takes wall mounting as an example

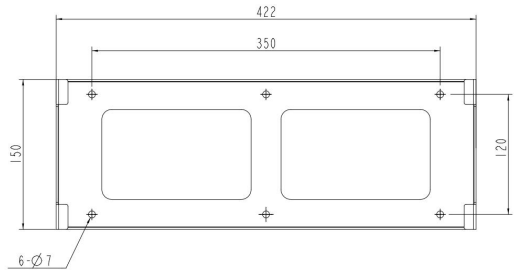


Fig. 3 Mounting Bracket of Inverter

Installation steps of inverter:

(1) Mark the appropriate spots according to the installation size, and drill the holes. It is recommended to use M6×50 stainless steel expansion bolts;

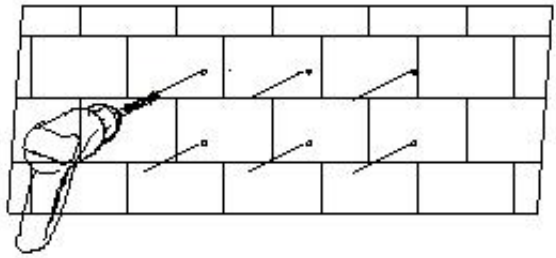


Fig. 4 Installing Expansion Bolts

(2) Install the wall-mounting bracket into the wall through the expansion bolts, and then tighten them with a torque of 13N•m.

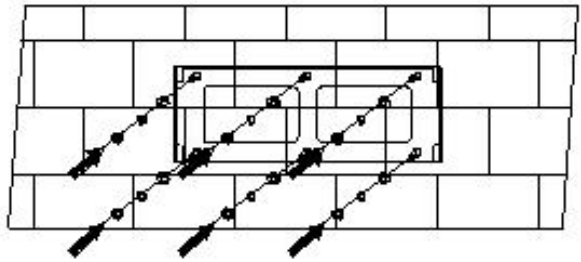


Fig. 5 Fixing and Locking the Wall-mounting Bracket

(3) Align the inverter with the wall-mounting bracket, and attach the inverter to the wall-mounting brackets firmly.

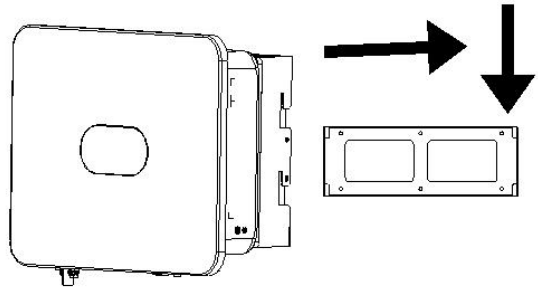


Fig. 6 Attach the inverter to the Wall-mounting Bracket

(4) Tighten M6×16 screws into the left and right holes of the radiator with a torque of 5N•m so as to fix the inverter onto the wall-mounting bracket.

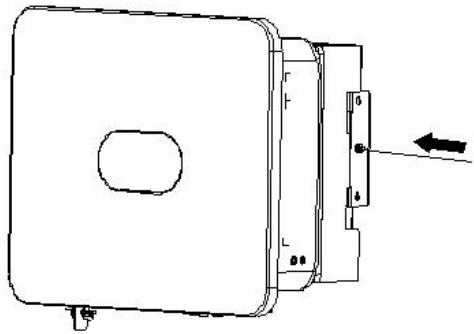


Fig. 7 Fixing and Locking the Inverter

4 Electrical Connection

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

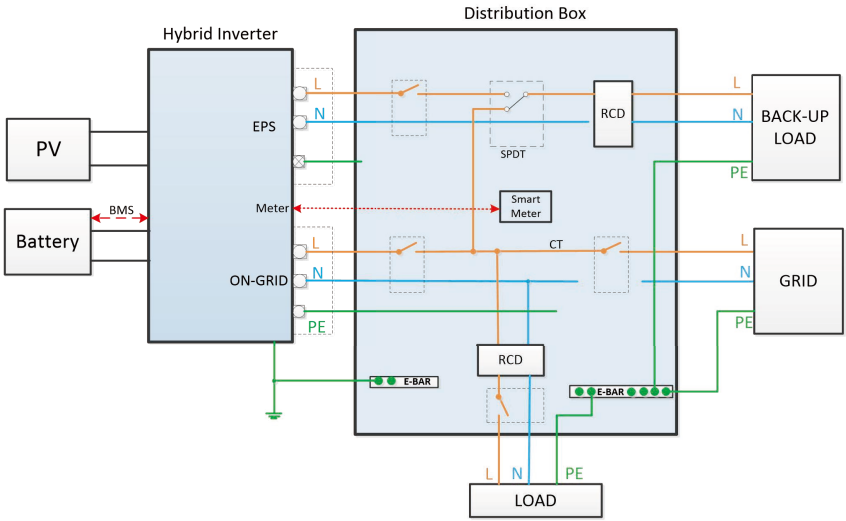


Fig. 8 Electrical Wiring Diagram of EPS Inverter

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

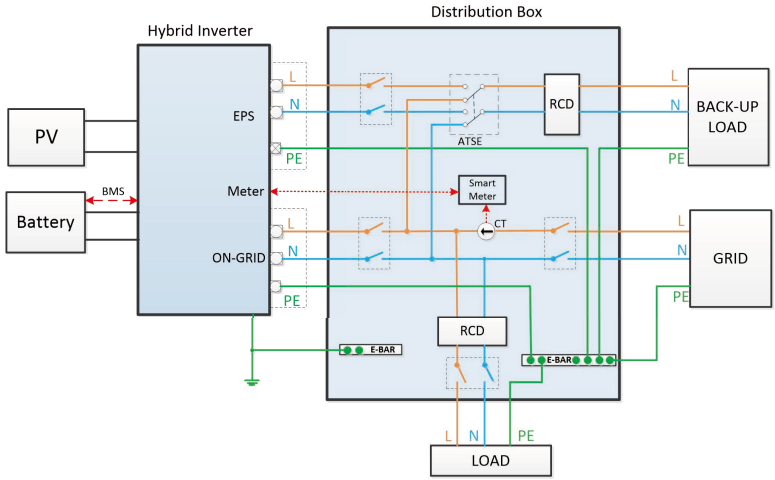


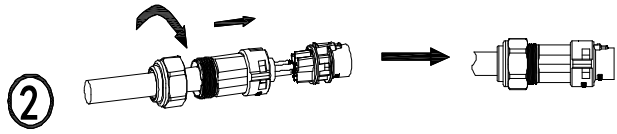
Fig. 9 Electrical Wiring Diagram of EPS Inverter

4.1 AC wiring

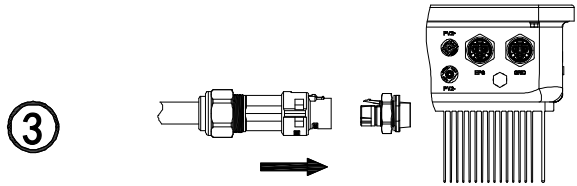
The output of single-phase EPS inverter includes grid output (black) and EPS output (blue), which are connected in the same way and identified by different colors. Below are the electrical connection steps of the inverter:

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 based on the polarity mark, and then tighten the threaded sleeve onto the AC terminal as shown below:

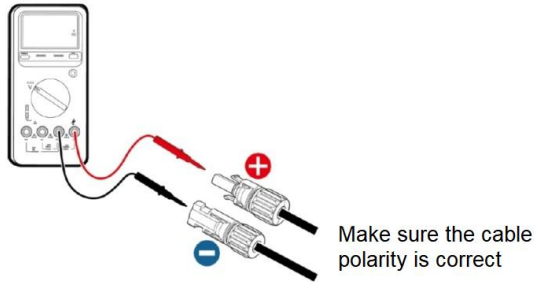


Step 3: Connect the prepared AC terminal to the EPS terminal or GRID terminal of the EPS inverter as shown below.

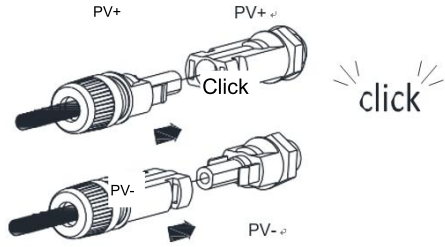


4.2 PV Wiring

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



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



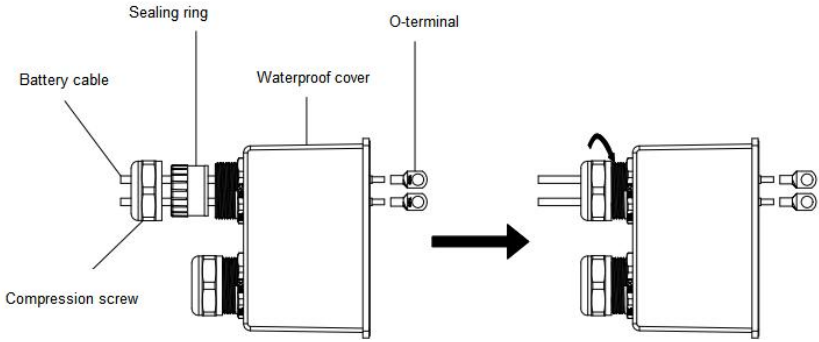
4.3 BAT Wiring

Install the battery cable in the following steps:

(1)Unscrew the rubber nut on the waterproof cover of the EPS inverter;

(2)Pass the cable through the rubber nut, sealing ring, threaded sleeve and waterproof cover in turn;

(3)Crimp the battery cable supplied in the package to the corresponding O-terminal, and then connect the positive (negative) terminal of the battery to the positive (negative) end of the battery terminal of the inverter.



4.4 Communication Connection

4.4.1 To use a lithium battery, you need to connect the BMS system of the lithium battery in the following steps:

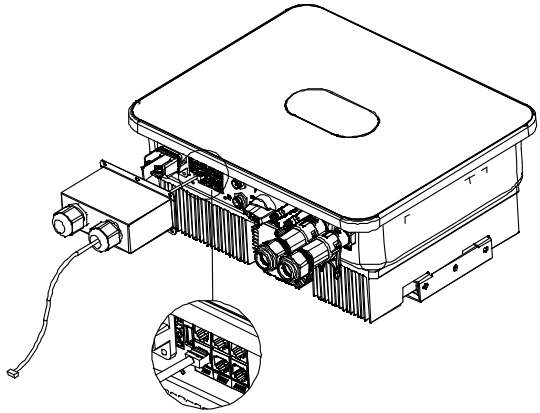
(1) Unscrew the rubber nut on the waterproof cover of the EPS inverter;

(2) Pass the LAN cable through the rubber nut, sealing ring, threaded sleeve and waterproof cover in turn;

(3) Connect the RJ45 terminal of the LAN cable to the BMS port of the EPS inverter;

(4) Lock the waterproof cover with screws;

(5) Screw the rubber nut reliably onto the waterproof cover.



Note: to use a lead-acid battery, you can jump directly to Section 4.4.2 without connecting the LAN cable.

4.4.2 With a lead-acid battery, you need to connect a temperature sensor to monitor the ambient temperature of the battery. Connect the temperature sensor in the following steps:

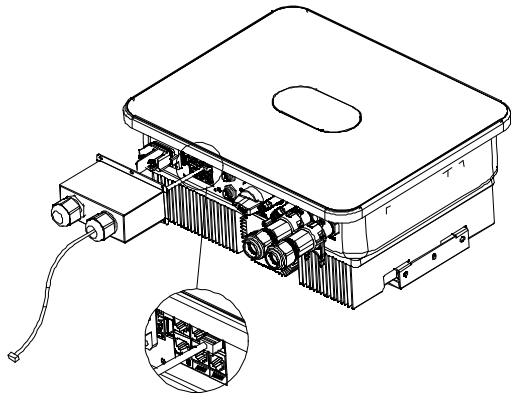
(1) Unscrew the rubber nut on the waterproof cover of the EPS inverter;

(2) Pass the NTC cable through the rubber nut, sealing ring, threaded sleeve and waterproof cover in turn;

(3) Connect the RJ45 terminal of the NTC cable to the NTC port of the EPS inverter;

(4) Lock the waterproof cover with screws;

(5) Screw the rubber nut reliably onto the waterproof cover.



Note: the probe of the temperature sensor used to monitor the ambient temperature of the lead-acid battery should be shorter than 1.5m; if you use lithium battery instead, there is no need to install a temperature sensor.

When all communication cables have been installed, push the waterproof cover into the bottom, lock the screws that fix the waterproof cover onto the frame, and finally lock the waterproof cover.

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) Confirm the handheld keypad or communication module is in correct connection.

5.2 Grid-tied inverter operation

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

(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 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 EPS Inverter

The user can read 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	CPU 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 grid AC switch;

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

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

More information
For complete instruction of relevant parameters, please refer to Operation Manual of INVT iMars Series PV Grid-tied 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： 

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!

66001-01545 V1.1