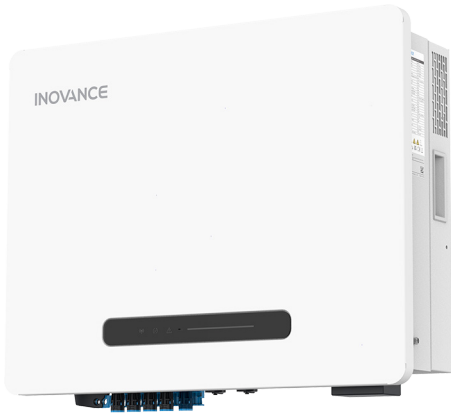




IES320 Series Hybrid Inverter

Quick Start Guide



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Preface

The IES320 series hybrid inverter integrates an energy management system to distribute the power generated by the PV system to the load, store the power to the battery, or feed the power to the power grid to enable various energy utilization and optimization.

This guide describes the product information, installation, wiring, and commissioning.

You can obtain the PDF version by the following methods:

- ◆ Do keyword search under Service and Support at <http://www.inovance.com>.
- ◆ Scan the QR code on the product with your smart phone.
- ◆ Scan the QR code on the last page of the guide to install My Inovance app, where you can search for and download user guides.

General Safety Instructions

Safety Precautions

- ◆ Read and follow the safety instructions in the installation guide (you can obtain the guide by scanning the QR code) when installing, operating, and maintaining the equipment.
- ◆ To ensure your safety and prevent damage to the equipment, follow the marks on the equipment and safety instructions in this guide when installing, operating, and maintaining the equipment.
- ◆ “CAUTION”, “WARNING”, and “DANGER” in the guide only indicate some of the precautions that need to be followed; they just supplement the safety precautions.
- ◆ Use this equipment according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- ◆ Inovance shall take no responsibility for any personal injuries or property damage caused by improper usage.

Safety Levels and Definitions

DANGER : Indicates that failure to comply with the notice will result in death or severe personal injuries.

WARNING : Indicates that failure to comply with the notice may result in severe personal injuries or even death.

CAUTION : Indicates that failure to comply with the notice may result in minor or moderate personal injuries or equipment damage.

Keep this guide properly for future use.

Safety Labels

Safety Label	Description
	Danger. Electric shock risk.
	Caution

Product Information

Model and Nameplate

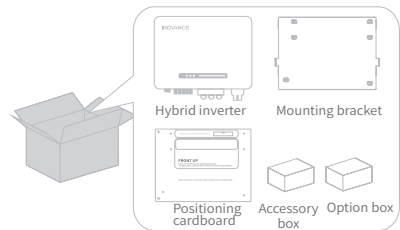
IES 3 20 - 20 - H T - EU
① ② ③ ④ ⑤ ⑥ ⑦

① Product family IES: Inovance hybrid inverter	③ Generation 00: First generation 20: Second generation	⑤ DC voltage H: High voltage L: Low voltage	⑦ Regional version EU: Europe
② Product series 3: For residential use	④ Power 12: 12 kW 15: 15 kW 20: 20 kW 25: 25 kW	⑥ Number of phases S: Single-phase T: Three-phase Null: Split phase	

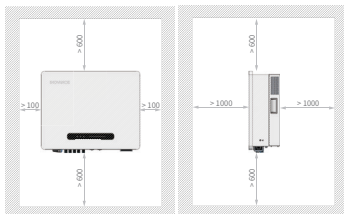
Dimensions (mm)



Packing List

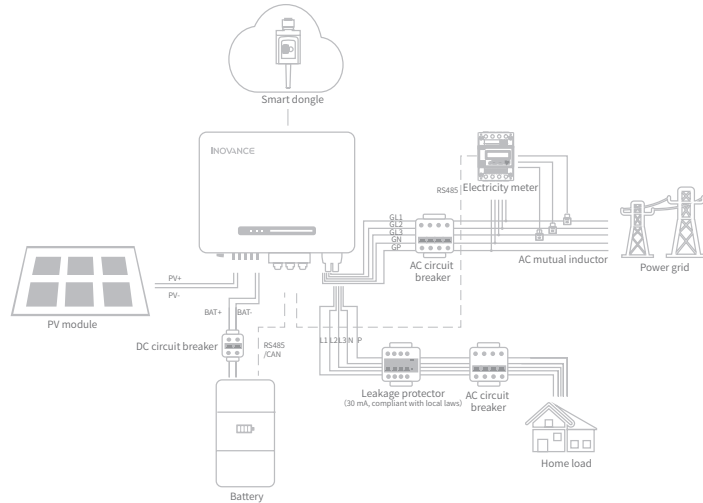


Installation Clearance (mm)



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System Connection

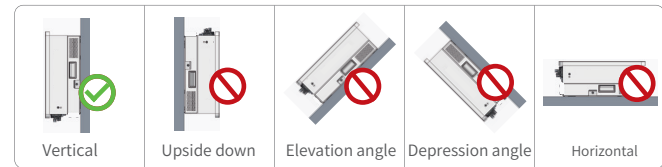
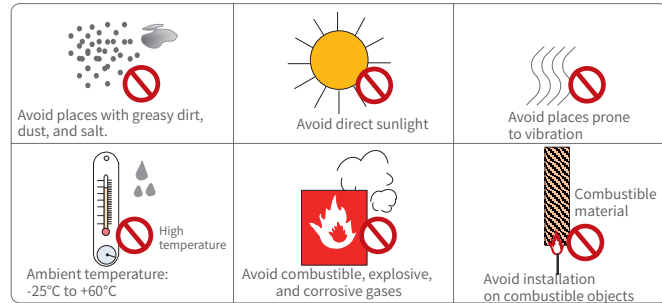


Preparation Before Installation



- ◆ Installation can be performed only by professionals, with installation requirements specified in the manual strictly observed.
- ◆ The installation engineer is responsible for ensuring the product is installed and connected in accordance with the technical regulations recognized by the country or region and with other applicable regional regulations. Special attention must be paid to the provisions on the cable size, safety device, grounding, circuit breaker, isolation, and overcurrent protection.
- ◆ When installing the PV array during the day, cover the PV array with the lightproof material. Otherwise, the PV array will generate high voltage under sunlight.

Installation Requirements



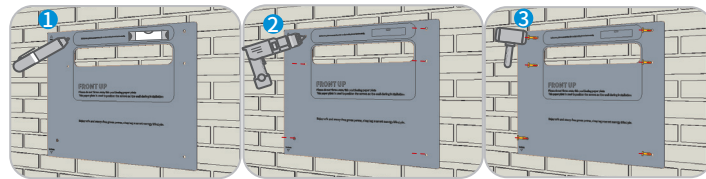
Installation Tools

Protective tools	Goggles	Anti-static wrist strap	Anti-static gloves	Earplugs	Protective shoes	Protective mask	Safety helmet
Installation tools	Utility knife	Marker pen	Level	Electric drill	Rubber hammer	Phillips screwdriver	T20 torx screwdriver
	Diagonal pliers	Stripping pliers	Crimping pliers	RJ45 crimping pliers	Heat gun	Multimeter	Socket wrench

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Mechanical Installation

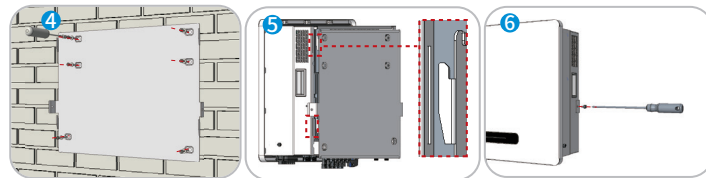
Obtain the positioning cardboard, mounting bracket, accessories in accessory bag No. 1, and the hybrid inverter.



Place the level as shown in the figure to ensure that the positioning cardboard is placed horizontally on the wall, and mark the six mounting holes with a pen.

Use an electric drill to drill holes in marked positions on the wall. The hole diameter is 10 mm and the depth is larger than 60 mm.

Insert the six expansion plugs into the holes and ensure that the end of the expansion plugs flush with the wall using a rubber hammer.



Put a Φ14 mm washer through the M6x55 self-tapping screw and use the #10 socket wrench to lock the mounting bracket to the wall with the torque of 5 N·m.

Align the top of the four open slots on the back with the top of the hooks on the mounting bracket to ensure that the hooks are not suspended.

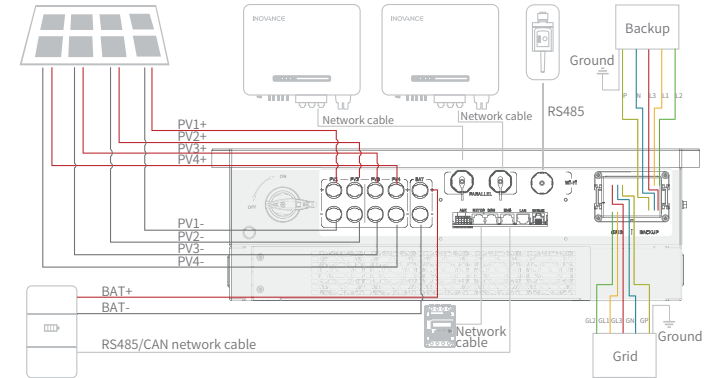
Use the T20 torx screwdriver to fasten the wall mounting plate to both sides of the hybrid inverter by using the M5x12 screw with the torque of 2.8 N·m.

Electrical Installation



- ◆ Before electrical installation, ensure that all air switches are off.
- ◆ Do not ground the PV or BAT. Do not connect any local load between the hybrid inverter and the AC circuit breaker.
- ◆ The AC generator cannot be directly connected to the GRID/BACKUP terminal, and the hybrid converter cannot be connected to an incompatible battery.
- ◆ One PV string or one battery pack can be connected to only one hybrid inverter.
- ◆ One electricity meter can be connected to only one hybrid inverter. Different CTs need to be connected to different cables.
- ◆ The PV module used with the hybrid inverter must have rated values specified in IEC61730 Class A. The total open-circuit voltage of the PV string/array must be lower than 1000 VDC. High voltage may result in product damage.

Electrical Wiring Diagram

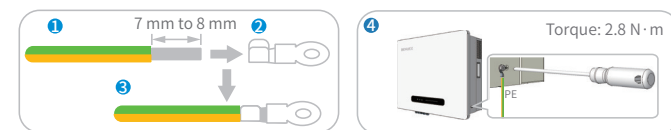


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List of Cables

No.	Wiring Position	Cross Sectional Area	Description
1	Enclosure protective ground	10 mm ² /6AWG to 8AWG	Outdoor single-conductor copper cable; unshielded; 105°C; voltage withstanding level: 1000 V; yellow and green
2	AC side	6 mm ² to 16 mm ² /4AWG to 8AWG	Outdoor five-conductor copper cable; unshielded; 105°C; voltage withstanding level: 1000 V; tube-type terminals recommended
3	DC side	6 mm ² to 10 mm ² /6AWG to 8AWG	Outdoor single-conductor copper cable; unshielded; 105°C; voltage withstand level: 1000 V
4	PV side	2.5 mm ² to 5 mm ² /9AWG to 12AWG	Outdoor single-conductor copper cable; unshielded; 105°C; voltage withstand level: 1000 V
5	Communication port	26AWG	Cat 5e, outdoor usage; eight-conductor network cable; shielded rate: 85%; internal twisted pair cables recommended

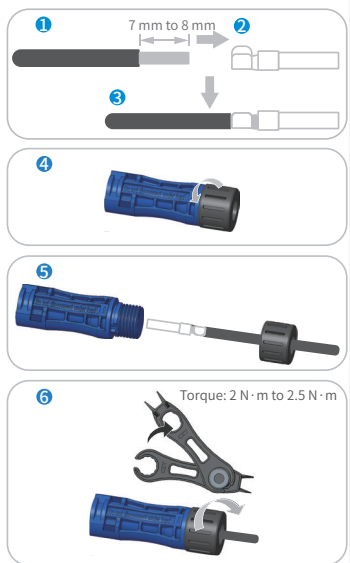
Connecting the Grounding Cable



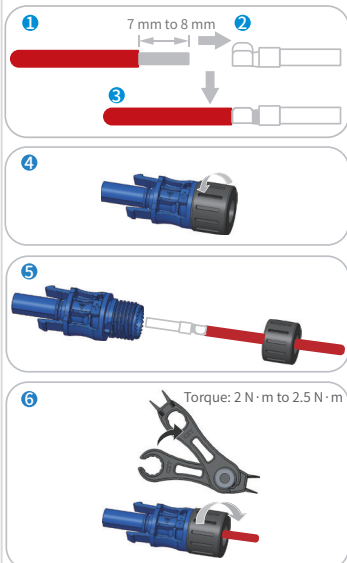
Connecting the PV/Battery Cable

Obtain accessories of accessory bag No. 2 and No.3.

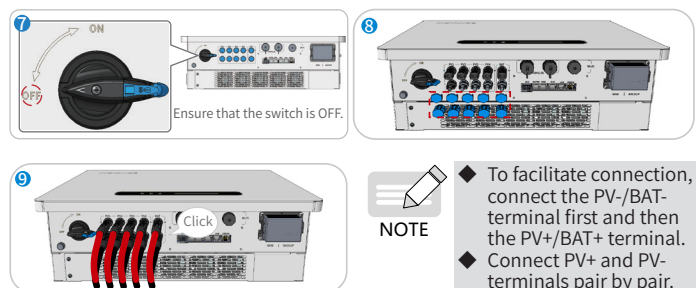
Prepare the PV-/BAT- cable.



Prepare the PV+/BAT+ cable.



Connect cables.

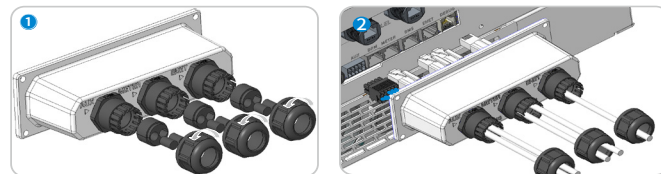


NOTE

- To facilitate connection, connect the PV-/BAT-terminal first and then the PV+/BAT+ terminal.
- Connect PV+ and PV-terminals pair by pair. For example, connect cables to PV1+ terminal and PV1- terminal.

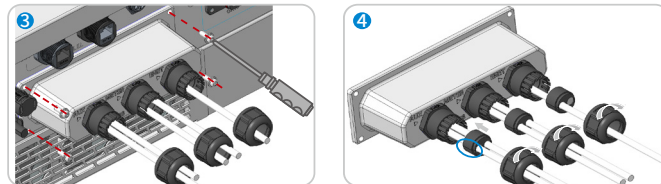
Connecting the Communication Cable

Obtain accessories of accessory bag No. 4.



Rotate the three waterproof plugs on the communication cable protective cover counterclockwise and remove the three waterproof plugs, internal plugs, and rubber plugs.

Route the cable through the waterproof plug and protective cover according to the mark on the communication cable protective cover and connect the connector to the communication port of the hybrid inverter.



Use a T20 torx screwdriver to secure the four M4x12 torx screws of the communication cable protective cover with the torque of 2.3 N·m.

Install the cable to the internal plug from the side and plug the internal plug into the base of the waterproof plug along the cable. If no cable is connected, use a rubber plug to block the hole. Tighten the waterproof plug clockwise with the torque of 4.5 N·m to 6.5 N·m.

Connecting the Parallel Cable

Obtain accessories of accessory bag No. 5.



Connecting the Smart Dongle

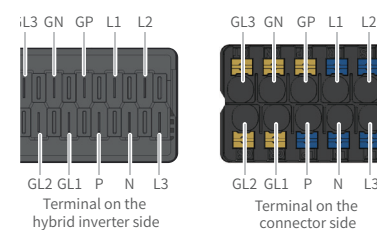
Obtain the smart dongle.



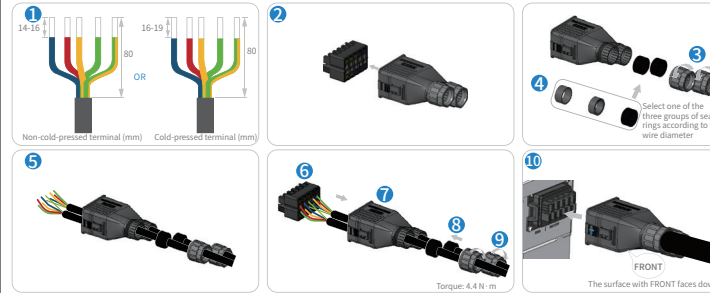
Connecting the AC Cable

Obtain accessories of accessory bag No. 6.

◆ AC terminal block descriptions: L1, L2, L3, N, and P are the backup AC power terminals. GL1, GL2, GL3, GN, and GP are the grid AC power terminals.



Wiring procedure



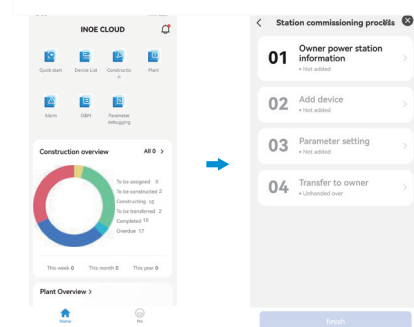
Commissioning

Indicator Descriptions

Mark	Name	Color	Meaning	Description
	Communication indicator		Abnormal communication with the cloud platform	Steady yellow: Communication between the smart dongle and the EMS board is abnormal, or the LAN port or the smart dongle does not connect to the network.
			Self-check	Flashing blue slowly: The hybrid inverter is conducting self-check.
	Running indicator		Standby	Steady blue: The hybrid inverter stops.
			Running	Steady green: The hybrid inverter is in the on-grid or off-grid state.
	Fault indicator		Fault	Flashing red quickly: The hybrid inverter is faulty.
			Alarm	Steady yellow: Power grid abnormal Flashing yellow slowly: The hybrid inverter encounters an alarm.
	Battery power indicator		Battery power percentage	It displays the current battery level. The indicator is fully on when the battery is 100%.

Commissioning Procedure

1. Search INOE Pro in the application store on your phone to download and install the app. Obtain the account and password from the administrator.
2. Turn on the battery switch, the mains power switch, and the hybrid inverter switch in sequence.
3. Check whether the running indicator of the hybrid inverter is solid green.
4. Switch off the BACKUP air switch.
5. Open the app, and tap **Quick start** to enter the **Station commissioning process** interface.
6. Perform commissioning according to the on-screen instructions: **01 Owner power station information**, **02 Add device**, **03 Parameter setting**, **04 Transfer to owner**. Tap **finish**.



Warranty Agreement

The warranty period of the product is five years (The period is subject to the date information indicated by the barcode on the product, or the terms and conditions of the purchase contract if otherwise specified). During the warranty period, if the product fails or is damaged under the condition of normal use by following the instructions, Inovance will be responsible for free maintenance.

With the warranty period, maintenance will be charged for the damages caused by the following reasons.

- a) Damage caused by improper use and unauthorized disassembly, repair, or retrofit;
- b) Damage caused by fire, flood, abnormal voltage, other disasters, and secondary disasters;
- c) Hardware damage caused by equipment fall-off or that caused during transportation;
- d) Damage caused by failure to operate the product according to the user guide provided by Inovance;
- e) Faults and damages caused by external factors, such as peripheral devices;

For any question during service, contact Inovance agent or Inovance.

Customers purchasing the product are assumed to agree on terms and conditions of this warranty agreement. This agreement shall be interpreted by Inovance.

Suzhou Inovance Technology Co., Ltd.

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