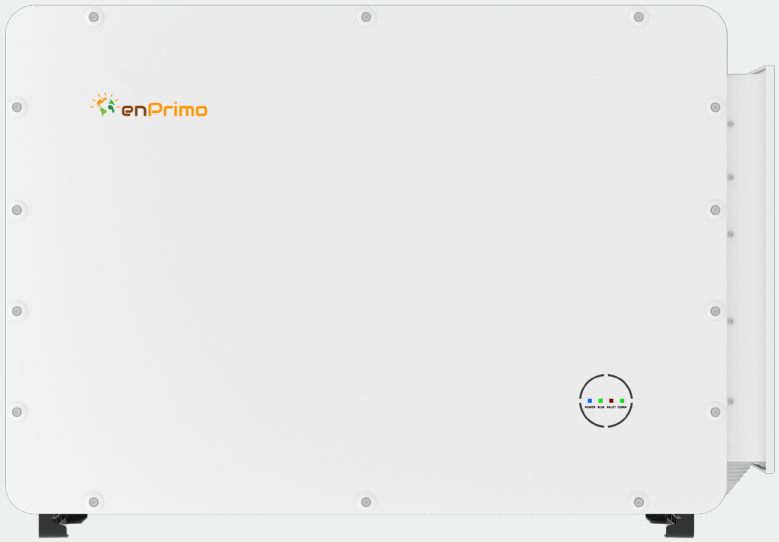


Grid-Connected PV Inverter

USER MANUAL

ENP-GU350K-G2

Legal Notice

enPossibilities has made every effort to ensure the accuracy and completeness of this manual. However, this manual may be changed and revised due to product enhancements or user feedback.

enPossibilities reserves the right to modify this manual without prior notice at any given time. The latest version of this manual can be found by visiting the enPossibilities official website *www.enPrimo.in* or scanning the QR Code on the right.

Emission Compliance

This equipment has been tested and found to comply with the limits applied by the local regulations. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

** Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.*

Warranty

Follow the installation instructions in this manual to ensure warranty compliance and reliability. The current warranty conditions can be accessed at *www.enPrimo.in*.

Contact Information

If you have technical queries or any questions concerning our products, please contact our support through the enPossibilities service portal:

www.enPrimo.in

No. 412 & 414, 4th Floor, Block-3
M3M Cosmopolitan, Golf Course Ext. Road
Sector-66, Gurugram, Haryana – 122101

Using This Manual

Symbols

•	List (first level)
-	List (second level)
Step 1, Step 2, ...	Installation steps in a defined order

Related Documents

Datasheet	*Datasheet ENP-GU350K-G2 Global EN*
Quick Installation Guide	*Quick Installation Guide ENP-GU350K-G2 Global EN*

Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AC	Alternating Current	LED	Light Emitting Diode
DC	Direct Current	PID	Potential Induced Degradation
PE	Protective Earthing	MPPT	Maximum Power Point Tracking
PV	Photovoltaic	AFCI	Arc-Fault Circuit Interrupter

**Unless otherwise stated, the devices mentioned in this manual are referred to using the abbreviations defined above.*

Revision History

Version	Date	Description
REV1.1	2025-12-16	This issue marks the initial official release.

Contents

1 About This Manual

1.1 Purpose

This manual provides information on the installation, electrical connections, commissioning, operation, troubleshooting, and maintenance of the ENP-GU350K-G2 inverters.

Before installing, debugging, and operating the inverter, ensure that you are familiar with the features, functions, and safety informations provided in this manual.

1.2 Validity

This manual is valid for:

Model	Nominal Output Power (kW)	Max. Output Power (kW)
ENP-GU350K-G2	350	352

ⓘ NOTE

Unless otherwise specified, any references to “grid-connected PV inverter”, “PV inverter” or “inverter” in this manual refers to these products.

1.3 Audience

This manual is intended for use by qualified persons only. Qualified persons must have the following skills.

- Understanding of the inverter operations and related functionalities
- Knowledge of the inverter installation, use, and maintenance
- Competence in handling risks occurring in the inverter installation, use, and maintenance
- Familiarity with local electrical codes and regulations

2 Safety Information

Before transporting, storing, installing, operating, and maintaining the equipment, read this document, and follow all the safety instructions on the equipment and in this manual.

Incorrect operation or work may cause:

- Injury or death to the operator or a third party.
- Damage to the product and other properties.

ⓘ NOTE

- The safety instructions in this manual are only supplements and cannot cover all the precautions that should be followed. Perform operations considering actual on-site conditions.
- enPossibilities shall not be held liable for any damage caused by violation of general safety operation requirements, general safety standards, or any safety instruction in this manual.

2.1 Safety Symbols

Safety symbols are used in this manual as follows:

Symbol	Description
⚠ DANGER	This symbol indicates high level risks that, if not avoided, may lead to death or serious physical injury.
⚠ WARNING	This symbol indicates medium level risks that, if not avoided, may lead to serious personal injury or device damage.
⚠ CAUTION	This symbol indicates low level risks that, if not avoided, may lead to minor or moderate personal injury or financial losses.
NOTICE	This symbol indicates potential risks that, if not avoided, may lead to equipment damage, data loss, performance deterioration, or unanticipated results. **NOTICE** is used to address practices not related to personal injury.
ⓘ NOTE	This symbol supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

2.2 Additional Symbols

The product label contains the following symbols with their meanings described below:

Icon	Explanation
	**TÜV Mark**
	**Read the Manual First** Read this manual carefully before performing any installation, operation, or maintenance. Keep this manual for future reference.
	**Treatment** Electrical equipment that has reached the end of life must be collected separately and returned to an approved recycling facility to comply with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation as national law. Return any devices you no longer need to an authorized dealer or an approved collection and recycling facility.
	**Attention to Safety** Please be aware of the potential risks before performing any operation on the equipment.
	**High Voltage** • When exposed to sunlight, the PV arrays supply DC voltage to the inverter. • Before performing installation or maintenance, power off the inverter first, then disconnect AC power, and finally disconnect DC power.

Icon	Explanation
	**Hot Surface** The temperature is higher than the acceptable range of the human body (> 60°C) . Do not touch the inverter to avoid personal injury.
	**Delayed discharge** • High voltage exists after the inverter is powered on. Only qualified and trained electrical technicians are allowed to perform operations on the inverter. • Residual voltage exists after the inverter is powered off. It takes **20 minutes** for the inverter to discharge to the safe voltage.
PE	**Protective Earthing** This symbol indicates a protective grounding terminal which needs to be firmly grounded to ensure the safety of operators.

2.3 Personal Safety

⚠ DANGER

- Ensure that power is off during installation. Do not install or remove a cable with power on.Transient contact between the core of the cable and the conductor will cause electric arcs, sparks, fire, or explosion, which may result in personal injury.
- Non-standard and improper operations on the energized equipment may cause fire, electric shocks, or explosion, resulting in property damage, personal injury, or even death.
- Before operations, remove conductive objects such as watches, bracelets, bangles, rings, and necklaces to prevent electric shocks.
- During operations, use dedicated insulated tools to prevent electric shocks or short circuits. The dielectric withstanding voltage level must comply with local laws, regulations, standards, and specifications.

⚠ WARNING

- During operations, wear personal protective equipment such as protective clothing, insulated shoes, goggles, safety helmets, and insulated gloves.
- Only qualified professionals or trained personnel are allowed to install, operate, and maintain the equipment.

⚠ CAUTION

- Do not power on the equipment before it is installed or confirmed by professionals.
- Do not touch the power supply equipment directly or with conductors such as damp objects. Before touching any conductor surface or terminal, measure the voltage at the contact point to ensure that there is no risk of electric shock.
- Do not touch a running fan with your hands, components, screws, tools, or boards. Otherwise, personal injury or equipment damage may occur.
- Do not stop protective devices. Pay attention to the warnings, cautions, and related precautionary measures in this document and on the equipment.
- Do not touch operating equipment because the enclosure is hot.
- If there is a likelihood of personal injury or equipment damage during operations, immediately stop, report the case to the supervisor, and take feasible protective measures.
- In the case of a fire, immediately leave the building or the equipment area and activate the fire alarm or call emergency services. Do not enter the affected building or equipment area under any circumstances.

2.4 Storage and Installation Environment Safety

⚠ DANGER

- Do not place the equipment near heat sources or fire sources, such as smoke, candles, heaters, or other heating devices. Overheat may damage the equipment or cause a fire.
- Do not expose the equipment to flammable or explosive gas or smoke. Do not perform any operation on the equipment in such environments.
- Do not store any flammable or explosive materials in the equipment area.

⚠ WARNING

- Do not perform any operations on the equipment (including but not limited to handling, installation, electrical connection, powering on, maintenance, and working at heights, etc.) in harsh weather conditions such as lightning, rain, snow, and level 6 or stronger wind.
- Do not install the equipment in an area with strong vibration, noise, or electromagnetic interference.
- Do not Install the equipment near liquids. Do not install it under areas prone to condensation, such as under water pipes and air exhaust vents, or areas prone to water leakage, such as air conditioner vents, ventilation vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.
- Keep the storage, installation and operating environments of the equipment within the allowed ranges. Otherwise, its performance and safety will be compromised.

⚠ WARNING

- Ensure that the equipment is stored or installed in a clean, dry, and well ventilated area with proper temperature and humidity and is protected from dust and condensation.
- Ensure that the ground in the installation environment is solid, free from spongy or soft soil, and not prone to subsidence. The site must not be located in a low-lying land prone to water or snow accumulation, and the horizontal level of the site must be above the highest water level of that area in history.
- When installing the equipment, ensure that the installation surface is flat enough and the foundation is solid enough to bear the weight of the equipment.

2.5 Mechanical Installation Safety

⚠ DANGER

- Before installation, disconnect all electrical connections to prevent electrical hazards.
- During installation, comply with the instructions of on-site supervisors and equipment operating procedures to ensure safe and compliant installation.

⚠ WARNING

- Before handling equipment, ensure that the cabinet is securely fastened with a balanced center of gravity. Otherwise, tipping or falling cabinets may cause bodily injury and equipment damage.
- Ensure that all installation tools are ready and inspected by a professional organization. Do not use tools that have signs of scratches or fail the inspection, or whose inspection validity period has expired. Ensure that the tools are secure and not overloaded.
- Do not drill holes into the equipment. Doing so may affect the sealing performance and electromagnetic containment of the equipment and damage components or cables inside. Metal shavings from drilling may short-circuit boards inside the equipment.

2.6 Electrical Connection Safety

⚠ DANGER

- Before connecting cables, ensure that the equipment is intact. Otherwise, electric shocks or fire may occur.
- Before connecting cables, turn off the switches of the equipment and its upstream and downstream switches. Otherwise, personal injury may occur.
- Prevent foreign matter from entering the equipment during operations. Otherwise, equipment short-circuits or damage, load power derating, power failure, or personal injury may occur.
- Operators must comply with electrical connection operation standards. Otherwise, electric shocks or fire may occur.

⚠ DANGER

Danger to life due to a high voltage inside equipment! Comply with the following requirements:

- Be sure to use special insulation tools during cable connections.
- Note and observe the warning symbol on the equipment, and perform operations following the safety instructions.
- Operators must be accompanied by another person to ensure personal safety.

⚠ WARNING

When connecting grounding cables, comply with the following requirements:

- For the equipment that needs to be grounded, install the ground cable first when installing the equipment and remove the ground cable last when removing the equipment.
- Ensure that the grounding impedance of the equipment complies with local electrical standards.
- Do not work on the equipment in the absence of a properly installed ground conductor.
- Do not damage the ground conductor.

⚠ WARNING

When connecting cables, comply with the following requirements:

- When selecting, installing, and routing cables, follow local safety regulations and rules.
- Ensure that all cables are properly connected and insulated, and meet specifications.
- When routing power cables, ensure that there is no coiling or twisting.
- When cable connection is completed or paused for a short period of time, seal the cable holes with sealing putty immediately to prevent small animals or moisture from entering.
- After completing the cable connection, ensure that the cables are not exposed and the insulation is not damaged.

⚠ CAUTION

- When connecting cables, observe ESD (Electrostatic Discharge) protection regulations and wear ESD clothing and ESD gloves or a wellgrounded ESD wrist strap.
- Do not route cables near the air intake or exhaust vents of the equipment.

2.7 Operation Safety

⚠ DANGER

- Do not open maintenance door while the equipment is running.
- Do not touch switches, cables, or other components while the equipment is running. Otherwise, electric shocks may occur.

⚠ WARNING

- To prevent damage or fire due to high temperature, ensure that the exhaust vents or heat dissipation systems are not obstructed or covered by other objects while the equipment is running.
- Do not touch the equipment surface. High temperature may cause scalds.

2.8 Maintenance Safety

⚠ DANGER

- Before equipment maintenance, turn off the switches of the equipment and its upstream and downstream switches. Otherwise, personal injury may occur.
- Residual voltage exists after the inverter is powered off. Use an electroscope of a proper voltage level to check whether the equipment is energized and ensure that the equipment is completely powered off.

⚠ CAUTION

- Check equipment connections periodically, ensuring that all screws are securely tightened and all cables are not damaged.
- If fault diagnosis and troubleshooting need to be performed after power-off, take the following safety measures:
  - Disconnect the power supply.
  - Check whether the equipment is live.
  - Install a ground cable. Hang warning signs and set up fences.

2.9 Other Safety

⚠ CAUTION

To prevent misuse or accidents caused by unrelated personnel during installation, daily maintenance, or inspection of the equipment, observe the following:

- Attach "**Do not switch on**" labels near the upstream and downstream switches or circuit breakers to prevent accidental connection.
- Place warning signs or strips near the operation area.

⚠ CAUTION

- All operations on the equipment must comply with national or regional standards.
- At least two personnel must be present onsite to perform installation, routine maintenance, inspection, and other operations.
- If issues not mentioned in the manual arise or if you are unsure how to proceed with certain operations, please contact *enPossibilities technical support*.

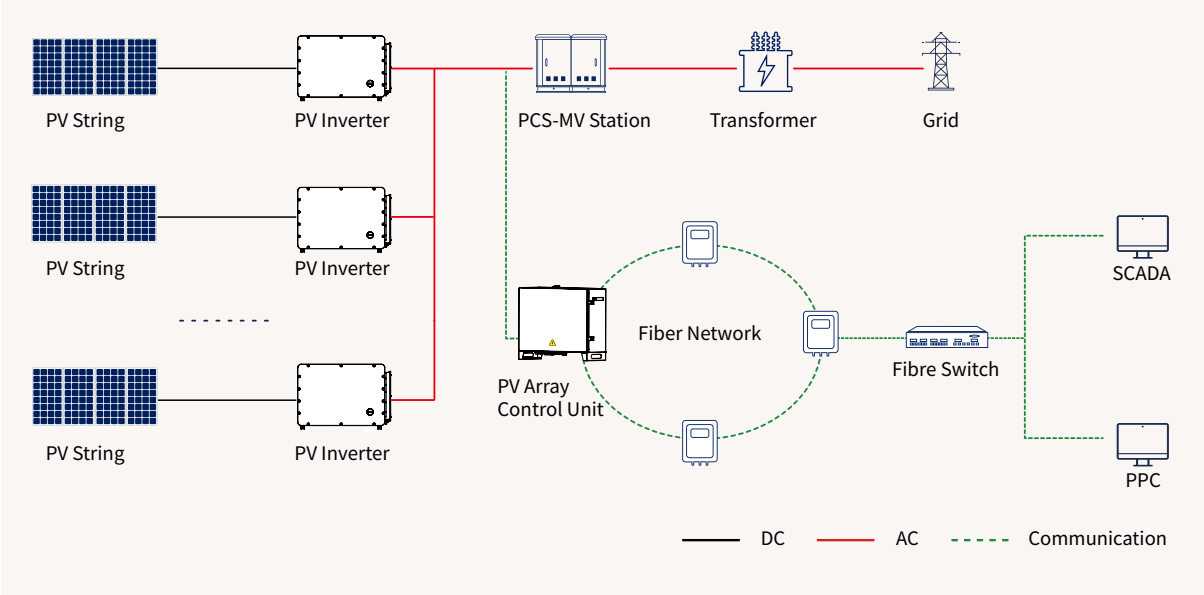
3 Overview

3.1 Networking Application

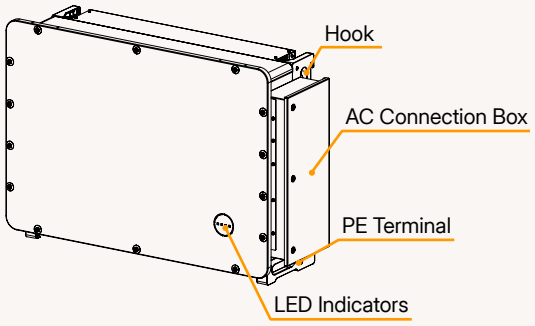
The grid-connected PV inverter is one of the core components in PV generation system. Inverters convert DC power generated by PV strings into AC power (matching grid frequency/phase/amplitude) and feeds the power into the power grid.

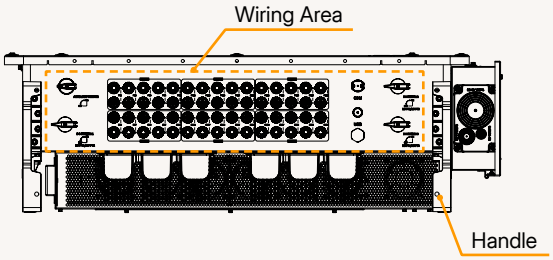
Each ENP-GU350K-G2 string inverter supports 30 PV strings and integrates six independent MPPT (Maximum Power Point Tracking) circuits to provide MPPT and power optimization capabilities.

A typical networking application is shown in the following figure.



3.2 Appearance

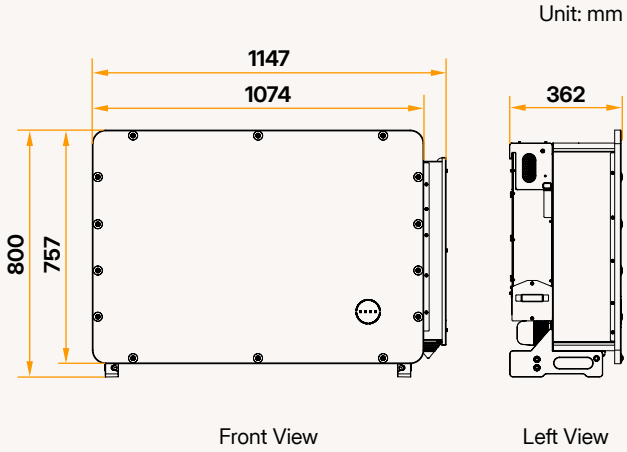


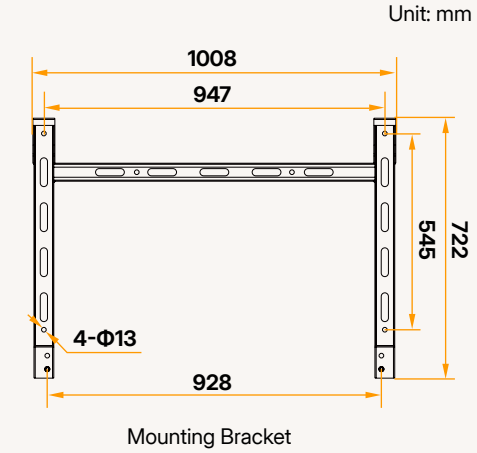


NOTE

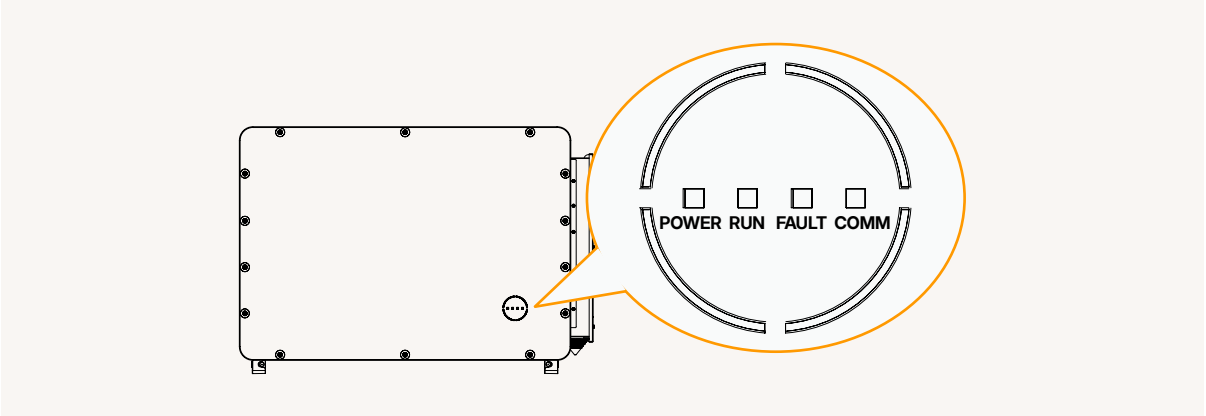
The figures in this document are for reference only.

3.3 Dimensions





3.4 Indicator

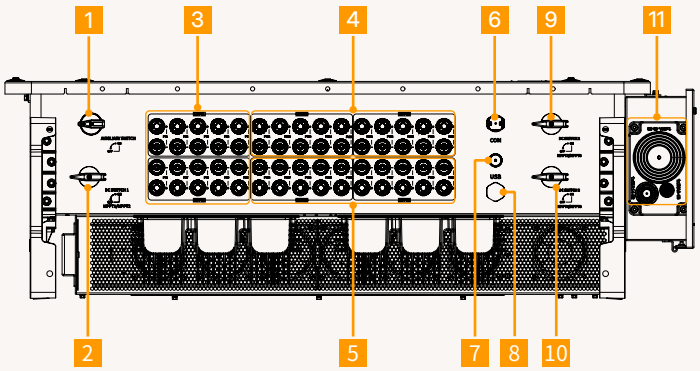


LED	Name	Status		Description
POWER POWER RUN FAULT COMM	Power Indicator	Steady Blue		Normal power supply
		Blue OFF		No power supply
RUN POWER RUN FAULT COMM	Run Indicator	Steady Green		On-grid mode
		Blinking Green Fast: On for 0.5s and Off for 0.5s		Self-test mode
		Blinking Green Slowly: On for 0.5s and Off for 2s		Derating operation mode
		Green OFF		No power supply
FAULT POWER RUN FAULT COMM	Fault Indicator	Steady Red		A fault occurs, inverter shutdown
		Blinking Red Slowly: On for 0.5s and Off for 2s		An alarm occurs, inverter running
		Red OFF		No fault or no power supply
COMM POWER RUN FAULT COMM	Communication Indicator	Steady Green		Communication normal
		Blinking Green Fast: On for 0.5s and Off for 0.5s		RS485 communication abnormal
		Blinking Green Slowly: On for 0.5s and Off for 2s		Bluetooth communication abnormal
		Blinking Green Slowly: On for 0.5s and Off for 5s		PLC communication abnormal
		Green OFF		No power supply or communication function off

⚠ CAUTION

The AC side may be energized after the LED indicator is off, do not touch the the inverter. Otherwise, electric shocks or arcs may occur.

3.5 Interface



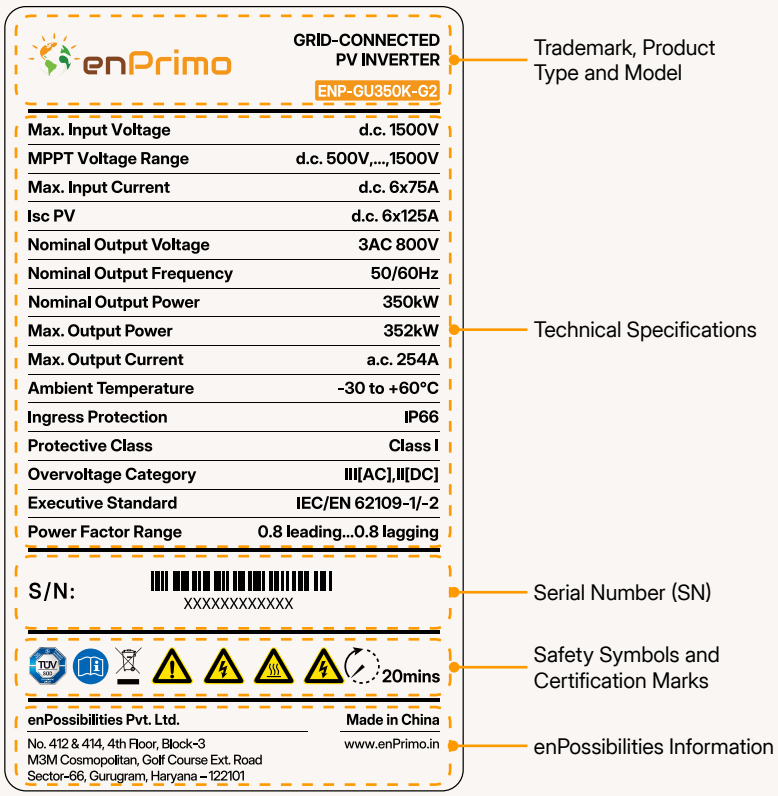
[1] AUXILIARY SWITCH
[2] DC SWITCH 1*
[3] DC Input Terminals (Controlled by DC SWITCH 1)
[4] DC Input Terminals (Controlled by DC SWITCH 2)
[5] DC Input Terminals (Controlled by DC SWITCH 3)
[6] Communications Interface (COM)
[7] USB Interface
[8] Ventilation Valve
[9] SWITCH 2*
[10] SWITCH 3*
[11] AC Cable Hole

ⓘ NOTE

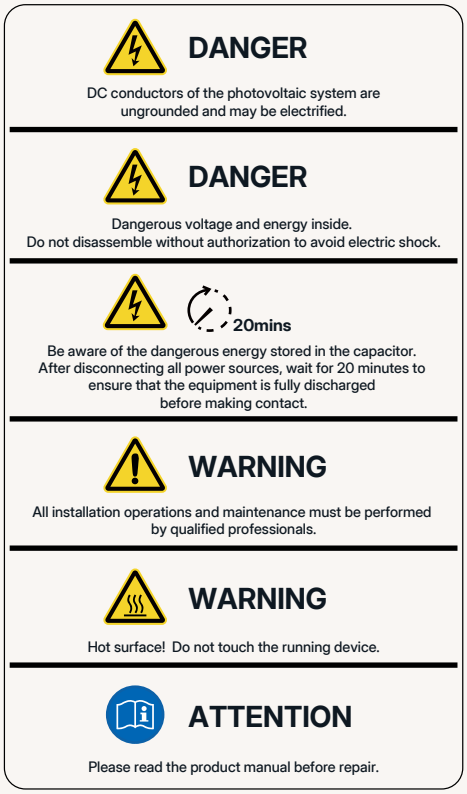
The DC switches automatically turn off when the inverter reports the **String Reverse Connection**, **String Current Backfeed** alarm or **a fault occurs** in the inverter.

3.6 Nameplate

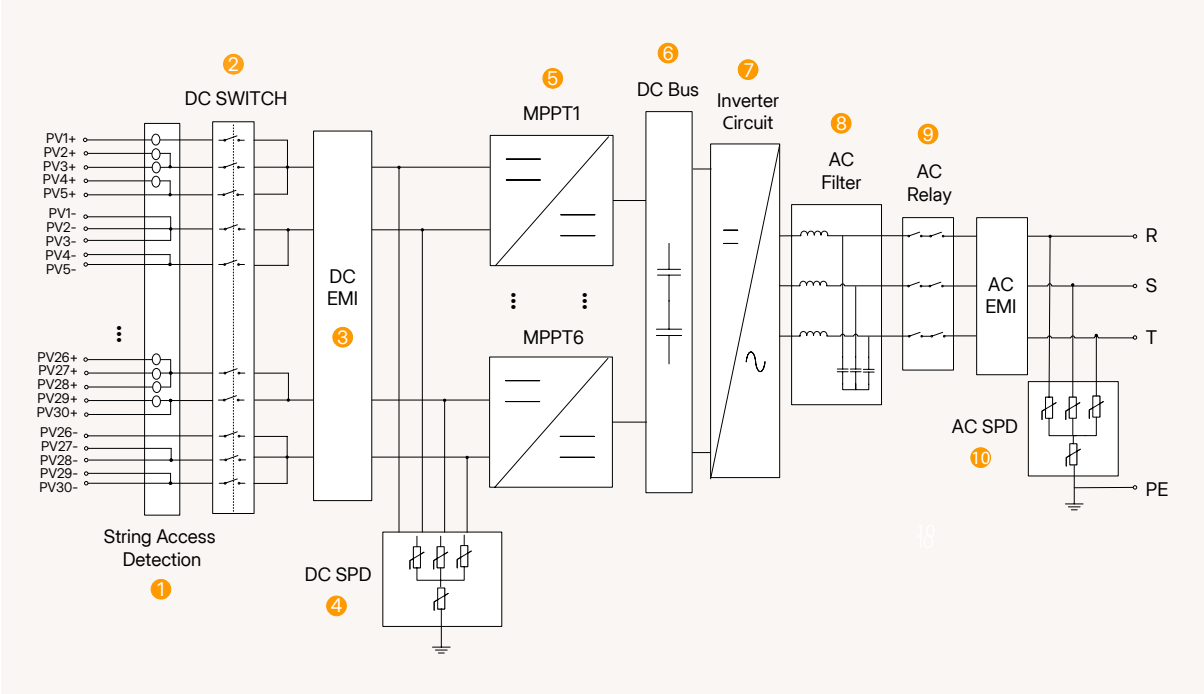
3.6.1 Parameter Label



3.6.2 Safety Label



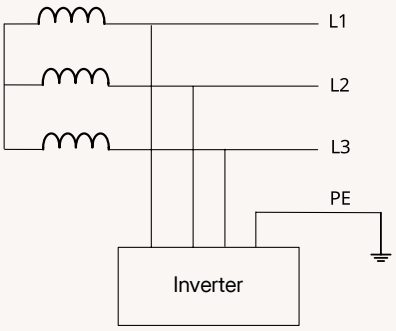
3.7 Circuit Diagram



NO.	Name	Description
1	String Access Detection	The string access detection currents prevent the reverse polarity connection of PV strings.
2	DC SWITCH	The DC switches automatically disconnect DC currents under abnormal conditions, ensuring personnel safety and stable operation.
3	DC EMI	The inverter Incorporates electromagnetic interference (EMI) filtering circuits on the DC side to suppress electromagnetic interference.
4	DC SPD	The DC surge protective device (SPD) protects internal circuits against overvoltage damage.
5	MPPT	The inverter supports multiple MPPT inputs to ensure maximum power output under different input conditions.
6	DC Bus	The DC bus provides input power under specific conditions, ensuring secure and stable operation.
7	Inverter Circuit	The inverter circuit converts DC power into grid-compliant three-phase AC power.
8	AC Filter	The AC filter removes high-frequency components from output current to meet grid and electromagnetic compatibility (EMC) standards.
9	AC Relay	The AC relay provides galvanic isolation between the inverter AC output and the grid, ensuring safe disconnection.
10	AC SPD	The AC SPD protects internal circuits against overvoltage damage.

3.8 Supported Grid Type

The supported grid type is shown in the following figure.



IT Grid

4 Unpacking and Storage

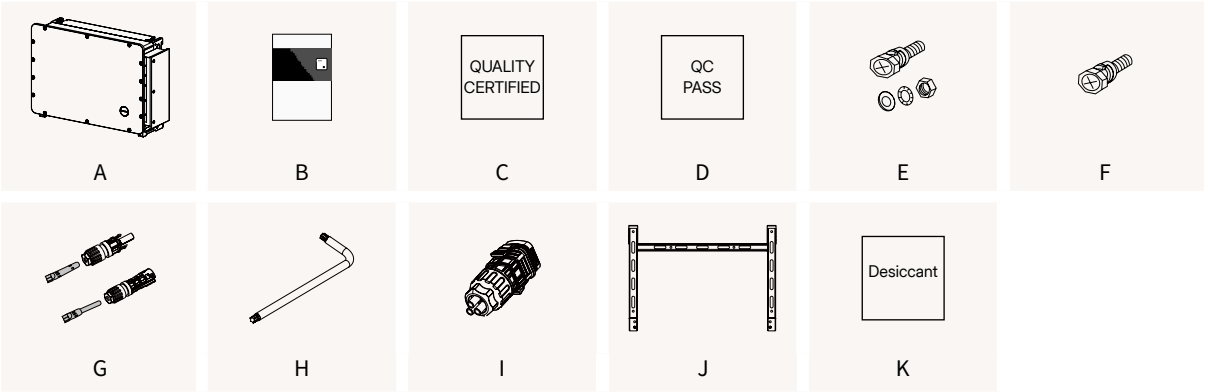
Before transporting, unpacking, or storing, please ensure to read and comply with the information in the *2 Safety Information*.

⚠ WARNING

- Do not perform any operations on the equipment (including but not limited to handling, installation, electrical connection, powering on, maintenance, and working at heights, etc.) in harsh weather conditions such as lightning, rain, snow, and level 6 or stronger wind.
- Transportation and storage service providers must have the qualifications for dangerous goods operations required by local laws, regulations, and standards.
- The packing case must be solid and strong. Handle the packages with care and take moisture-proof measures during loading, transportation, and unloading. Do not place the packages on one side or upside down. Bind the packages securely to avoid displacement. Ensure that the dangerous goods labels are visible.

4.1 Packing List

Check the quantity of deliverables against the **Packing List** in the packing case. If any component is missing or damaged, contact your dealer or enPossibilities. The packing list is as follows:



NO.	Name	Description
A	Grid-Connected PV Inverter	—
B	Documentations	Quick installation guide, factory inspection report
C	Quality Certified	Quantity: 1
D	QC PASS	Quantity: 1
E	M12 × 50 Bolt Assembly, Flat Washer, Spring Washer, and Nut	Quantity: 4
F	M10 × 18 Bolt Assembly	Quantity: 2
G	DC Input Connector	Quantity: 32
H	Torx Key	Quantity: 1
I	COM Communication Connector	Quantity: 1
J	Mounting Bracket	Quantity: 1
K	Desiccant	Quantity: 1

ⓘ NOTE

The figures are for reference only. The actual products and quantities shall be subject to delivery.

4.2 Unpacking

4.2.1 Check Before Unpacking

The equipment has been thoroughly tested and was subject to a strict inspection before delivery. However, damage may still occur during transportation. Please conduct a detailed inspection before signing for the product.

NO.	Item	Checked	
		Yes	No
1	Check that there is no damage on the equipment packaging.	☐	☐
2	Check that the delivered items are complete and match both the delivery list and the order.	☐	☐
3	Unpack the box/package and check that all internal equipment is not damaged.	☐	☐
4	Check that the parameter label, safety label, QR codes, and all SN codes are not damaged, scratched, or blurred.	☐	☐

Unpack the box/package and carefully inspect the inverter for evidence of damage. If you discover any damage during transportation and unpacking, contact the shipping company or enPossibilities, and provide photos or videos of the damage.

Do not discard the original equipment packaging. After the equipment is decommissioned and removed, it is recommended to store it in the original packaging.

4.2.2 Unpacking Procedure

⚠ CAUTION

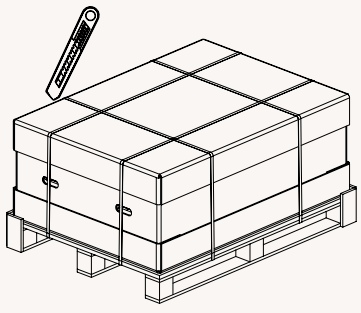
- During unpacking, avoid scratches or damage to the product caused by unpacking tools.
- Keep the equipment stable during unpacking.

Procedures

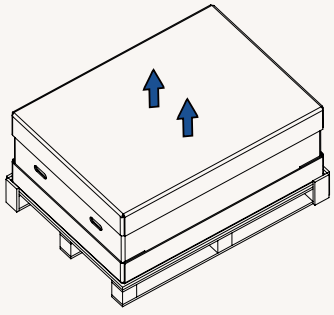
Step 1 Use a utility knife to cut the packing straps and remove the paper corner protectors.

Step 2 Remove the top cover of the packing box.

Step 1



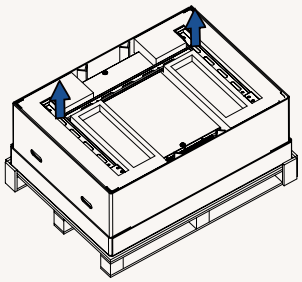
Step 2



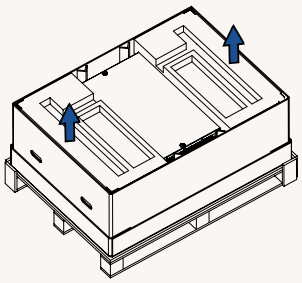
Step 3 Take out the accessories from the packing box and store them properly.

Step 4 Remove the paper corner protectors and foam padding from the packing box.

Step 3

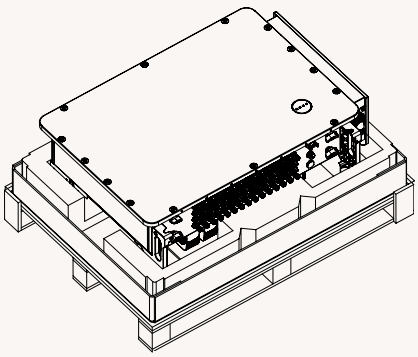


Step 4



Step 5 Take the inverter out with two people, and place it on a level surface covered with sponge pads or foam.

Step 5



4.3 Storage Requirements

If inverters will not be put into use immediately, store them according to the following requirements:

⚠ DANGER

- Do not store the inverters in areas containing flammables or explosives to avoid personal injury or property loss caused by fire, explosion, or other reasons, **which is not covered under the warranty**.
- Do not store the inverters in areas with corrosive or toxic substances to avoid inverters failure caused by corrosion or toxicity, **which is not covered under the warranty**.
- Do not store the inverters in areas with specific industrial contaminants (such as sulfur, fluorine, chlorine, bromine, iodine, or iodine element) to avoid inverters failure caused by industrial contaminants, **which is not covered under the warranty**.

⚠ CAUTION

To avoid personal injury or equipment damage, stack inverters with caution to prevent them from falling over.

NOTICE

Store the inverters according to the storage requirements. **Equipment damage caused by unqualified storage conditions is not covered under the warranty.**

NOTICE

- Do not store the inverters without original packaging. If the original packaging is lost, please contact *enPossibilities technical support* for repacking requirements.
- Place desiccants inside the cabinet before storage. Periodically inspect desiccant conditions and replace them promptly. Before power-on and long-term operation, remove the desiccants from the inverters.
- Place the inverters correctly according to the signs on the packing case during storage. Do not place the inverters upside down, lay it on one side, or tilt it.
- When stacking multiple inverters, the number of layers must not exceed four layers.
- When temporarily storing inverters outdoors, stack them on a pallet no more than 2 layers. Take rainproof measures such as using tarpaulins to protect inverters from rain and water.
- Check the packaging regularly (recommended: once every six months). Replace any packaging that is damaged during storage.
- Do not store inverters for more than one year. If inverters have been stored for one year or longer, they must be checked and tested by professionals before being put into use.

Storage Environment

Item	Requirements
Storage Temperature	-40°C to +70°C
Storage Humidity	0% to 100%RH (non-condensing)
Environment	Inverters must be stored in a clean and dry environment with appropriate temperature and humidity. The air must not contain corrosive or flammable gases.

5 Mechanical Installation

Before mechanical Installation, please ensure to read and comply with the information in the *2 Safety Information*.

⚠ DANGER

- Before installation, disconnect all electrical connections to prevent electrical hazards.
- During installation, comply with the instructions of on-site supervisors and equipment operating procedures to ensure safe and compliant installation.

⚠ CAUTION

- When handling the inverter, consider its weight and maintain balance to prevent toppling or dropping.
- Do not use the ports or wiring terminals at the bottom to support any weight of the inverter.

NOTICE

- Suboptimal installation conditions may cause degradation of the inveter system. For environment requirements, refer to *5.2 Installation Requirements*. **Equipment damage caused by unqualified installation conditions is not covered under the warranty.**
- During installation, ensure all devices in the system do not impede disconnection functions of DC switches or AC circuit breakers.

NOTICE

If inverters are not put into use immediately, comply with the following requirements:

- Seal unused PV terminals with dust plugs to prevent the inverter from being corroded by moisture.
- Inverters installed in dusty environments require protective covers on air intake or exhaust vents to avoid dust accumulation. Remove these covers before operation.
- If an inverter has not been running for six months or longer after being mounted, it may have failed and must be checked and tested by professionals before being put into operation.

5.1 Installation Tools

Installation tools include but are not limited to the following recommended tools. Other auxiliary tools may be used if necessary.

5.2 Installation Requirements

5.2.1 Installation Environment Requirements

⚠ DANGER

- Do not install the inverters in areas containing flammables or explosives to avoid personal injury or property loss caused by fire, explosion, or other reasons, **which is not covered under the warranty**.
- Do not install the inverters in areas with corrosive or toxic substances to avoid inverters failure caused by corrosion or toxicity, **which is not covered under the warranty**.
- Do not install the inverters in areas with specific industrial contaminants (such as sulfur, fluorine, chlorine, bromine, iodine, or iodine element) to avoid inverters failure caused by industrial contaminants, **which is not covered under the warranty**.

⚠ WARNING

- Do not install the inverters in areas with strong vibration, noise, or electromagnetic interference. The inverters shall be installed in an environment with a magnetic field strength less than 30 A/m.
- Do not install in areas accessible to children to avoid personal injury.
- Do not install the inverters in working or living areas to avoid personal injury or property loss caused by accidental contact by non-professionals during equipment operation.
- Do not install the inverters where its enclosure and heat sink are easily accessible, because the voltage is high and these parts are hot during operation. This is to avoid personal injury caused by accidental contact by non-professionals during equipment operation.

⚠ CAUTION

If the inverters are installed in public places, install a protective net outside the inverters and set up a safety warning sign to isolate the inverters to avoid personal injury or property loss caused by accidental contact by non-professionals during inverter operation.

NOTICE

- Do not install the inverters in living areas to avoid complaints. If the preceding areas are unavoidable, the distance between the installation position and living areas must be greater than or equal to 25 m, and noise reduction measures must be implemented.
- If the inverters are installed in a place with abundant vegetation, in addition to routine weeding, harden the ground underneath the inverters using cement or gravel (the area shall be greater than or equal to 3 m x 2.5 m).
- The inverters will become corroded if installed in areas exposed to salt. Before installing the inverters outdoors in such areas, consult with *enPossibilities*. A salt-affected area refers to the region within 500 m of the coast or prone to sea breeze.
- Do not install inverters near overhead transmission line to prevent equipment damage from induced lightning. Maintain a minimum 15-meter separation between PV module/inverter grounding grids and tower grounding grids. Do not install PV modules beneath overhead cables.
- The installation distance of the inverters must be greater than 30 m away from third-party wireless communication facilities.

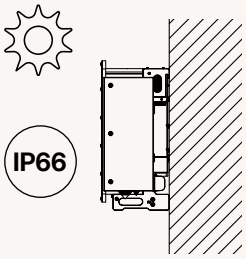
NOTICE

The inverter provides self-protection in high-temperature environments. Its energy yield may decrease as the ambient temperature increases. Ensure that the following installation requirements are met:

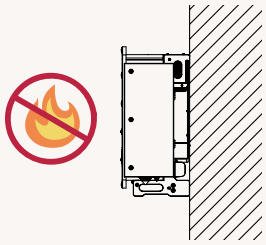
- Install the inverter in a well-ventilated environment to ensure good heat dissipation.
- Do not install inverters in dusty environments (such as areas with high concentrations of dust, fumes, or lint). Particulate accumulation on vents or heat sinks impedes thermal dissipation, potentially causing equipment failure. If the preceding areas are unavoidable, clean fans and heat sinks at least quarterly to maintain adequate cooling.
- If the inverter is installed in an enclosed environment, the heat dissipation equipment or ventilation equipment shall be installed. The indoor ambient temperature must not be higher than the outdoor ambient temperature.
- You are advised to install the device in a sheltered place or install an awning over it to avoid direct sunlight or severe weather (such as snow, rain, lightning).
- Reserve sufficient clearance around the inverter for installation and heat dissipation.

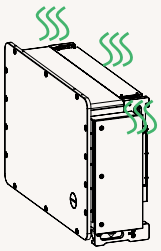
Installation Environment

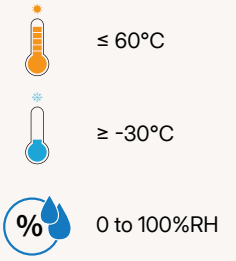
Item	Requirements
Ambient Temperature	-30°C to +60°C
Relative Humidity	0 to 100%RH (non-condensing)
Altitude	≤ 4000 m
Place	IP Rating: IP66, outdoor or indoor
Environment	Inverters must be installed in a clean and dry environment with appropriate temperature and humidity. The air must not contain corrosive or flammable gases.



IP66 Protection


No Flammables, No Explosives


Dry, Clean, and Well-Ventilated



Temperature and Humidty

5.2.2 Mounting Structure Requirements

⚠ WARNING

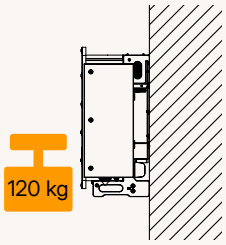
- The mounting structure for the inverters must be firep-roof. Do not install the inverters on flammable building materials to avoid personal injury or property loss caused by fire or other reasons.
- Ensure that the installation surface is solid enough to bear the weight of the inverter to avoid personal injury or property loss caused by the collapse of the mounting structure or other reasons.

NOTICE

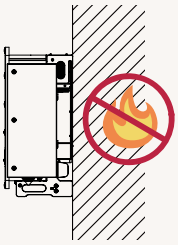
Do not install the inverters on mounting structure prone to resonance, which may cause excessive noise.

Mounting Structure

Item	Requirements
Equipment Weight	< 120 kg
Recommended Load-Bearing Capacity of Mounting Structure	≥ 500 kg
Recommended Mounting Structure Materials	Fire-roof and explosion-proof materials



Weight

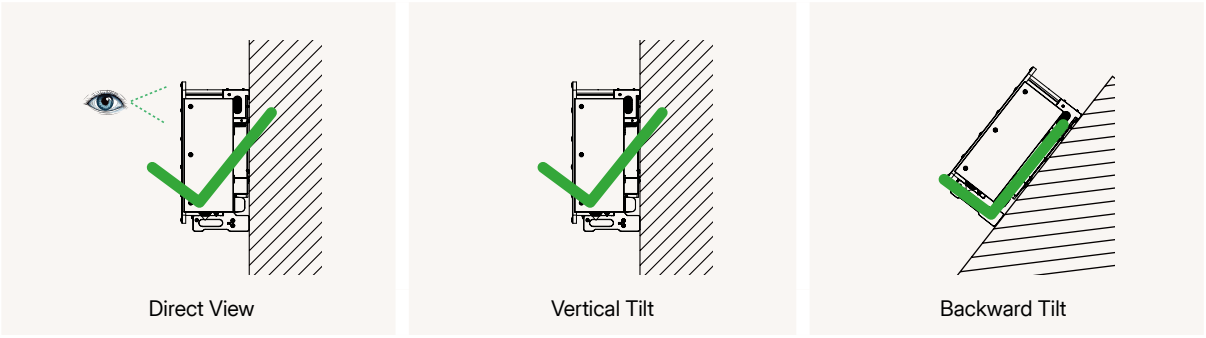

Fire-poof, Explosion-proof

5.2.3 Installation Angle Requirements

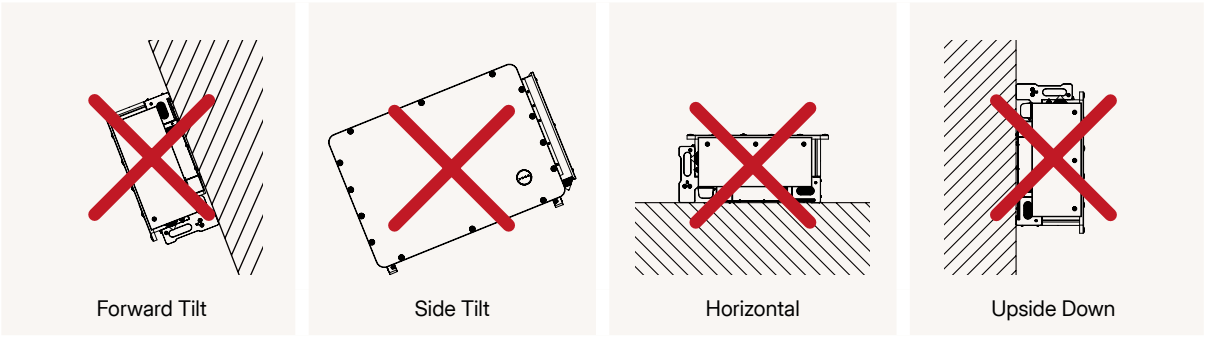
The inverters can be support-mounted, wall-mounted or pole-mounted. The installation angle requirements are as follows:

- Install the inverters vertically or at a maximum back tilt of 75 degrees to facilitate heat dissipation.
- Do not install the inverters at forward tilted, excessive back tilted, side tilted, horizontal, or upside down positions.

Recommended Angle



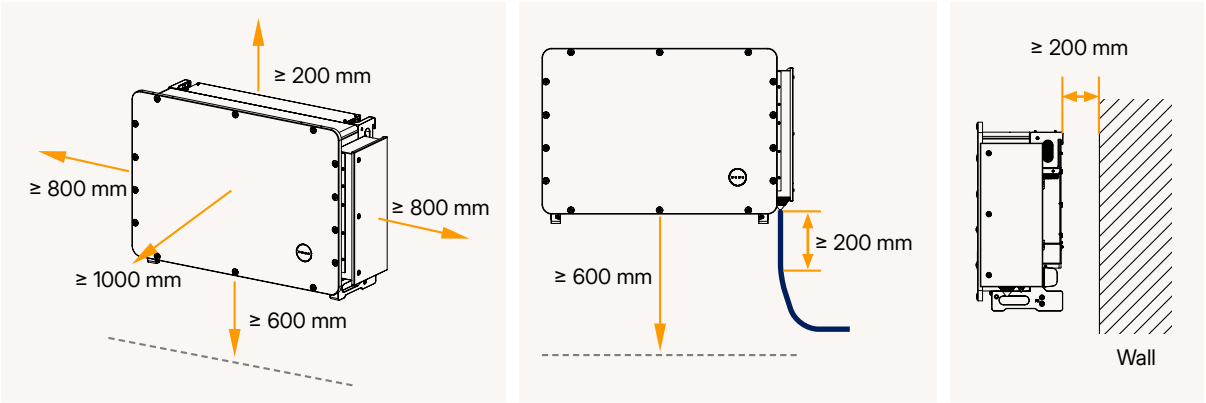
Not Recommended Angle



5.2.4 Installation Clearance Requirements

Reserve sufficient clearance around the inverter for installation and heat dissipation.

Single Inverter

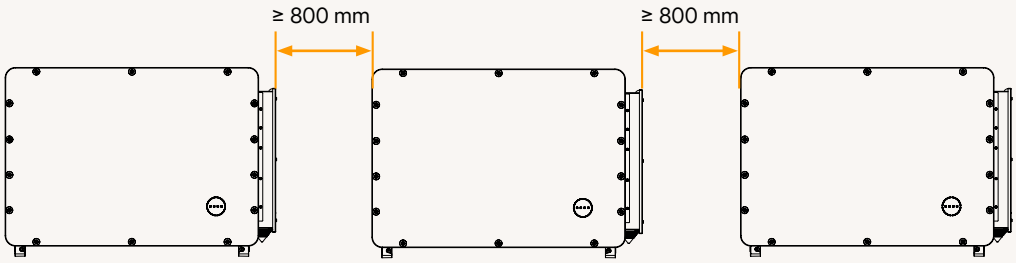


NOTE

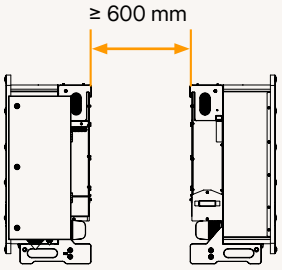
- The clearance from the bottom must meet the requirements on the bending radius of the AC output power cables.
- For wall-mounted installation, ensure the distance between the inverter backplane and the wall is ≥ 200mm.
- To prevent ground vegetation or water accumulation from compromising inverter operation, elevate the base installation height while maintaining compliant top clearance per safety standards.
- If the actual installation clearance is less than specified in the diagrams, lift the inverter off the mounting bracket or wall prior to fan maintenance.

Multiple Inverters

Horizontal Installation (Recommended)



Back-to-Back Installation



NOTE

If the installation environment fails to meet these requirements, contact our technical support team *www.enPrimo.com/support/zn*.

5.3 Handling Method

CAUTION

- During handling, wear personal protective equipment such as protective clothing, insulated shoes, goggles, safety helmets, and insulated gloves.
- When you need to temporally place the inverter on the ground, use foam, cardboard, or other protection material to prevent damage to its enclosure.

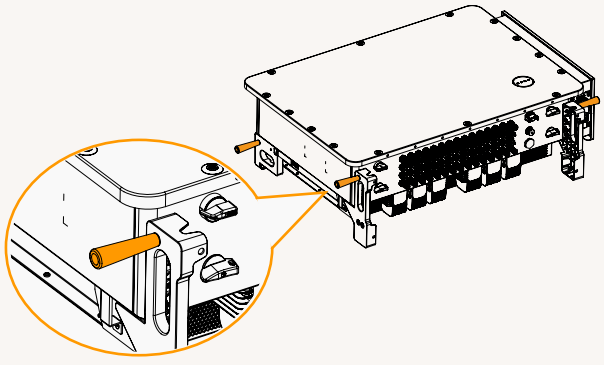
5.3.1 Manual Handling

Procedures

Step 1 Secure four lifting handles to the inverter's top hooks and base frame.

Step 2 Grasp handles firmly and lift smoothly, handle the inverter slowly to the installation site.

Step 1



5.3.2 Handling with A Crane

⚠ WARNING

- Only trained and qualified personnel are allowed to perform hoisting operations.
- Install temporary warning signs or fences to isolate the hoisting area.
- Ensure that the foundation where hoisting is performed meets the loadbearing requirements.
- Do not stand or walk under the crane or the hoisted objects during hoisting
- Do not drag ropes and hoisting tools or bump the hoisted objects against hard objects during hoisting.

⚠ CAUTION

- Before hoisting, perform a test lift to ensure that the lifting ropes can bear the weight of the inverter.
- Ensure that the center of the hook vertically aligns with the center of the inverter to prevent tilting or dropping during lifting.
- Lift and place the cabinet gently to prevent shocks or vibrations.

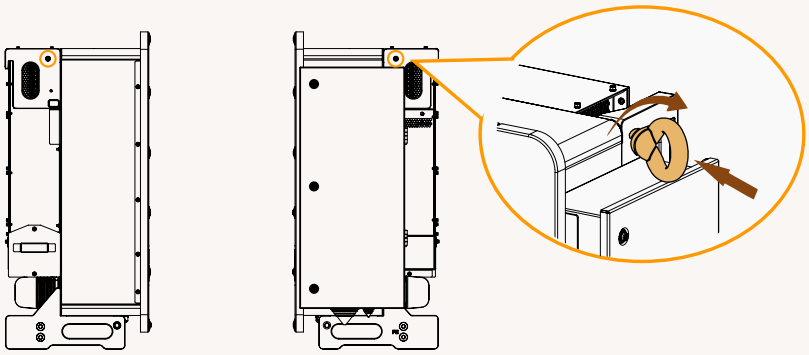
Prerequisites

Item	Requirement	Source
Crane	Load capacity ≥ 500 kg	User-provided
Lifting Ring	2 × M12 Lifting rings, load capacity ≥ 260 kg each	User-provided
Rope	1 rope (length ≥ 2.5 m), load capacity ≥ 500 kg	User-provided

Procedures

Step 1 Position the inverter vertically. Thread two M12 lifting rings into points on the lifting hooks.

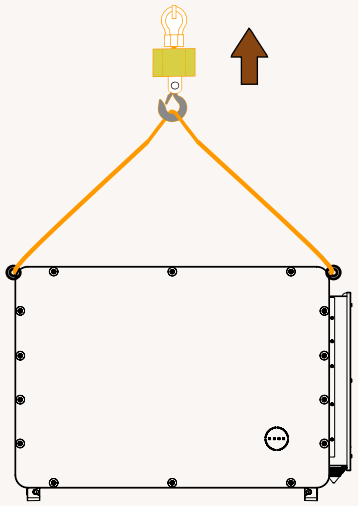
Step 1



Step 2 Route the rope through both lifting rings and ensure secure fastening.

Step 3 Hoist the inverter 100 mm clear of the ground, pause to verify rigging integrity, then move the inverter to the destination and lower with controlled descent.

Step 3



Step 4 Remove the rope and rings.

5.4 Installation Method

⚠ CAUTION

When drilling holes, comply with the following requirements:

- Obtain consent from the customer and contractor before drilling holes.
- Wear protective equipment such as safety goggles and protective gloves when drilling holes.
- To avoid short circuits or other risks, do not drill holes into buried pipes or cables.
- When drilling holes, protect the equipment from shavings. After drilling, clean up any shavings.

5.4.1 Support-Mounted

Prerequisites

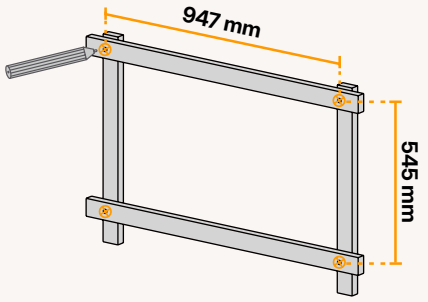
Item	Description	Quantity	Specification	Source
M12 × 50 Bolt Assembly, Flat Washer, Spring Washer, and Nut	For mounting bracket to support structure	4	M12 × 50	Accessories
Bolt Assembly	For securing inverter to mounting bracket	2	M10 × 18	Accessories
Hammer Drill	For drilling holes	1	Φ14 mm	User-provided

Procedures

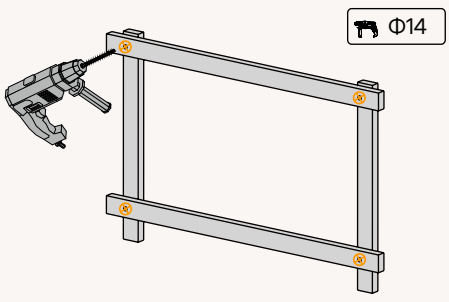
Step 1 Determine the hole positions and mark them using a marker.

Step 2 Drill four holes.

Step 1

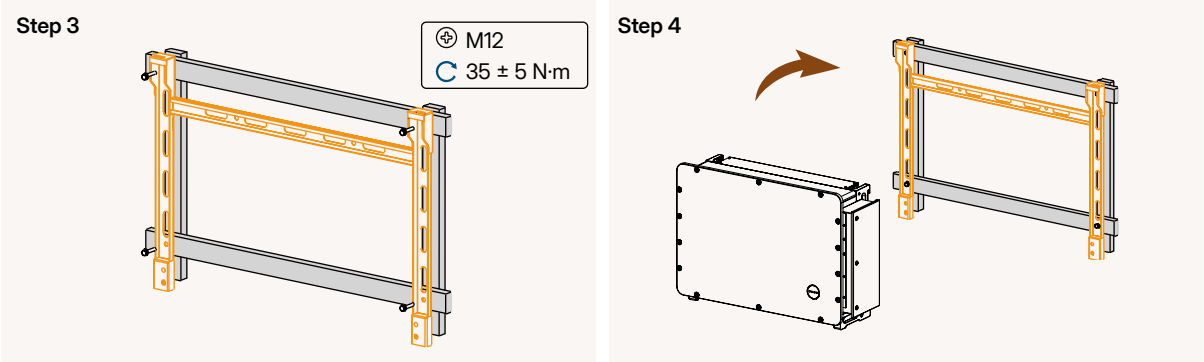


Step 2



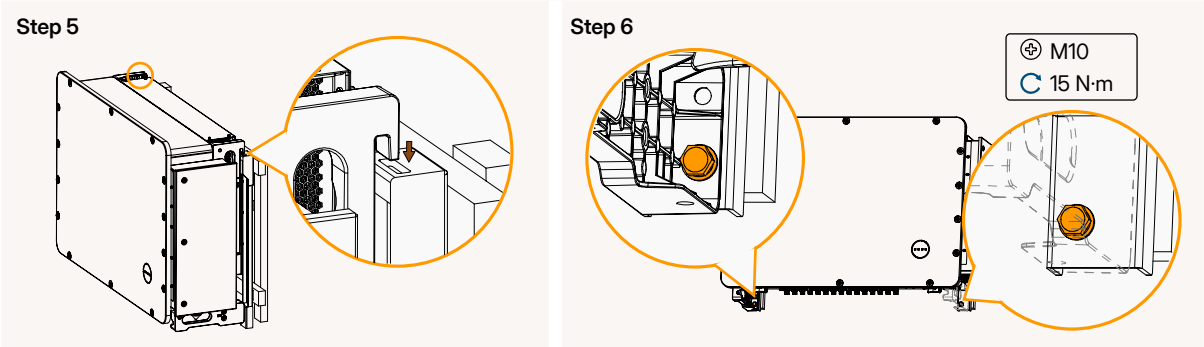
Step 3 Use M12 × 50 bolt assemblies, flat washers, spring washers, and nuts to secure the mounting bracket.

Step 4 Align the inverter with the mounting bracket.



Step 5 Insert the left and right hooks into the card slots of the mounting bracket.*

Step 6 Use M10 × 18 bolt assemblies to secure the inverter.



NOTE

Normally, only the top two hooks support vertical loads, the bottom two carry none.

5.4.2 Wall-Mounted (Optional)

NOTE

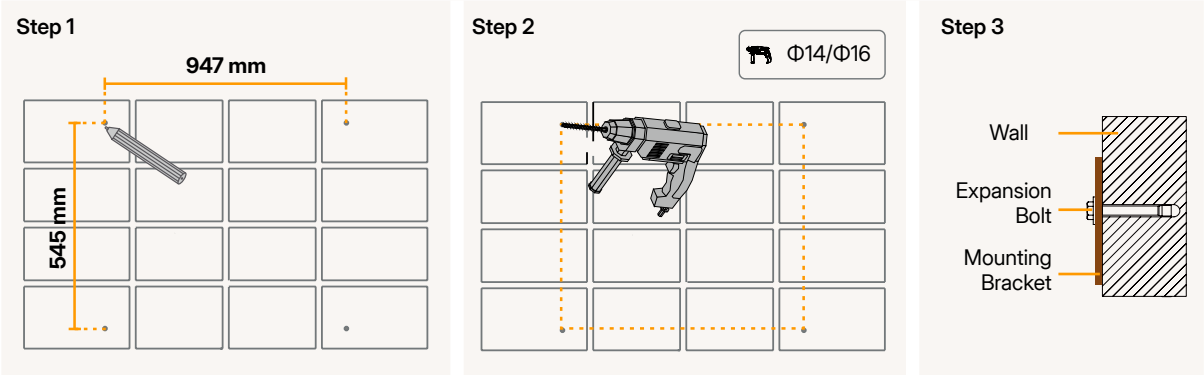
Use M12 × 120 mm expansion bolts.

Procedures

Step 1 Determine the hole positions and mark them using a marker.

Step 2 Drill four holes.

Step 3 Secure mounting bracket to the wall using expansion bolts.



Step 4 Install the inverter onto the mounting bracket, following *Steps 4-6 of Section 5.4.1*. The clearance between the inverter backplane and the wall shall be ≥ 200 mm.

5.4.3 Pole-Mounted (Optional)

Prerequisites

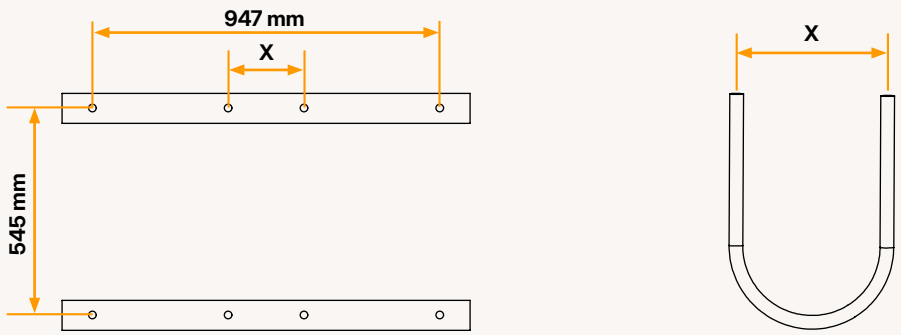
Item	Description	Quantity	Specification	Source
M12 × 50 Bolt Assembly, Flat Washer, Spring Washer, and Nut	For mounting bracket to support structure	4	M12 × 50	Accessories
U Steel	-	2	-	User-provided
Pole	For securing U stheel	2	Match pole dimensions	User-provided
Bolt Assembly	For securing inverter to mounting bracket	2	Match pole specification	User-provided

Procedures

Step 1 Embed the pole vertically at the predetermined location.

Step 2 Determine the hole positions and mark them using a marker.

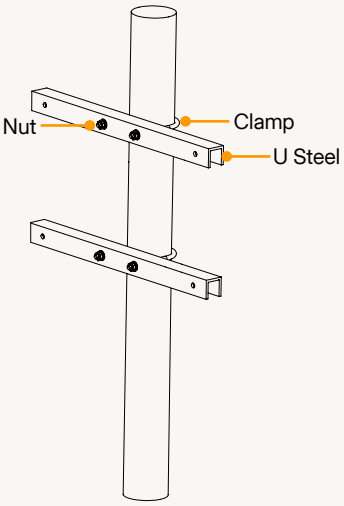
Step 2



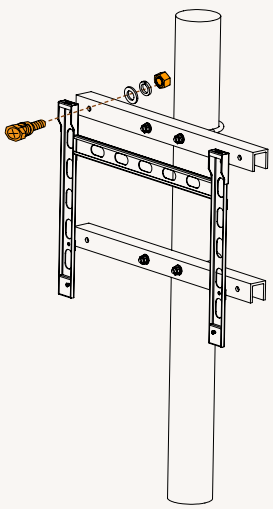
Step 3 Secure U steel to pole using clamps with nuts, flat washer, and spring washer.

Step 4 Use M12 × 50 bolt assemblies, flat washers, spring washers, and nuts to secure the mounting bracket.

Step 3



Step 4



Step 5 Install the inverter onto the mounting bracket, following *Steps 4-6 of Section 5.4.1*.

6 Electrical Connections

Before electrical connection, please ensure to read and comply with the information in the *2 Safety Information*.

⚠ DANGER

- Before connecting cables, ensure that the inverter is undamaged and all cables are de-energized.
- When connecting cables, operation personnel must wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
- Do not close AC circuit breakers until electrical connections are fully completed.

⚠ WARNING

- The equipment damage caused by incorrect cable connections is beyond the warranty scope.
- Live parts must be properly handled and isolated with insulating materials to prevent personal injury.
- Select measurement devices with proper measurement ranges. Overvoltage may damage equipment and cause personal injury!

NOTICE

- Obtain approval from the national or local electric utility company before connecting the inverters to the grid.
- The cable colors shown in the electrical connection diagrams provided in this section are for reference only. Select cables in accordance with local cable specifications (green-and-yellow cables are only used for protective earthing).

6.1 Cable Specifications

NO.	Cable	Type	Outer Diameter (mm)	Conductor Cross-Sectional Area (mm^2)
1	PE Cable	Outdoor Copper Cable	/	$S_P \geq S/2$ *
2	DC Input Power Cable	1500 V Standard PV Cable	4.7 to 6.4	4 to 6
3	AC Output Power Cable	Four-Core Outdoor Copper/ Aluminum Cable	35 to 80	Copper Cable: S: 120 to 300 $S_P \geq S/2$ Aluminum Cable: S: 150 to 400 $S_P \geq S/2$
		Three-Core Outdoor Copper/ Aluminum Cable Single-Core Outdoor PE Cable	Three-Core Cable: 40 to 75 PE Cable: 15 to 32	
		Single-Core Outdoor Copper/Aluminum Cable (Four)	18 to 40	
4	RS485 Communication Cable	Shielded Twisted Pair Cable (COM)	4 to 11	0.75 to 1.5

ⓘ NOTE

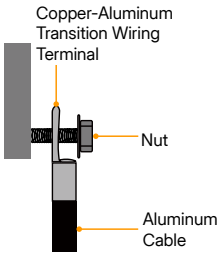
S indicates the conductor cross-sectional area of the AC cable, and S_p indicates the conductor cross-sectional area of the PE cable.

NOTICE

- The cables used should comply with the requirements of local laws and regulations.
- The S_p value is valid only if the conductors of the PE cable and AC output power cable use the same material. If the materials are different, ensure that the conductor cross-sectional area of the PE cable produces a conductance equivalent to that specified in this table.

NOTICE

- If an aluminum cable is used, use copper-aluminum transition wiring terminals.
- Do not connect aluminum wiring terminals to the AC terminal block. Otherwise the electrochemical corrosion will occur and affect the reliability of cable connections.

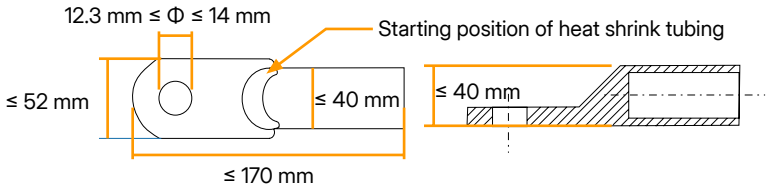
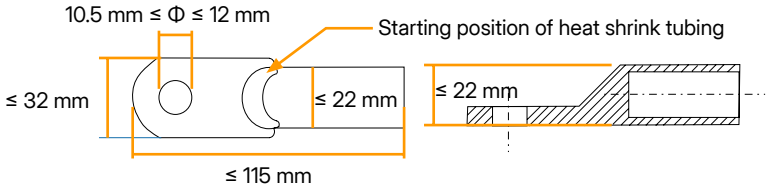


6.2 OT/DT Terminal Connection

NOTICE

- Pay attention not to scratch the core wire when stripping a cable.
- The cavity formed after the conductor crimp strip of the OT or DT terminal is crimped must wrap the core wires completely. The core wires must contact the OT or DT terminal closely.
- Wrap the wire crimping area with a heat shrink tubing or PVC insulation tape. The heat shrink tubing is used as an example in this section.
- When using a heat gun, protect devices from being scorched.

6.2.1 OT/DT Terminal Requirements

Name	Specification	Dimensions
OT/DT Terminals of AC Phase Wire	M12	
OT/DT Terminals of PE Wire	M10	

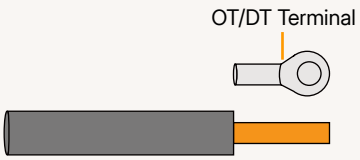
6.2.2 OT/DT Terminal Crimping

Procedures

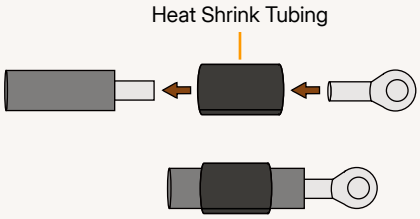
Step 1 Use a wire stripper to remove anappropriate length of insulation.

Step 2 Slide a heat shrink tubing onto the cable, then crimp an OT/DT terminal to the core wire.

Step 1



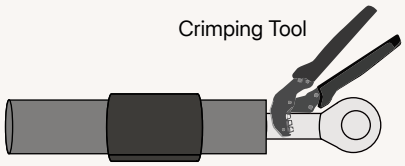
Step 2



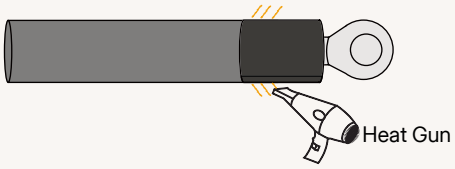
Step 3 Use a crimping tool to crimp the OT terminal.

Step 4: Cover the crimped area with a heat shrink tubing and apply heat with a heat gun to shrink the tubing.

Step 3

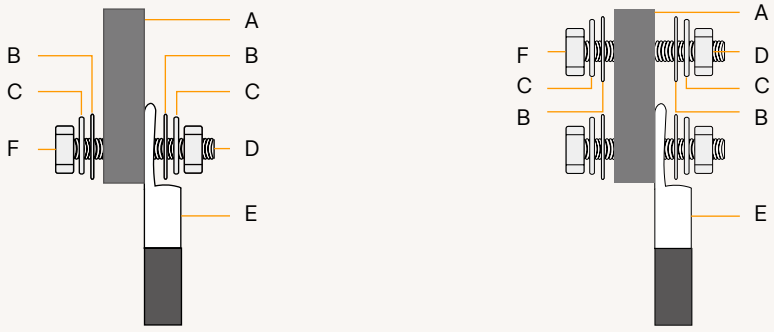


Step 4



6.2.3 Copper Wire Connection

When copper cables are selected, you should connect according to the following sequence of wiring parts.



NO.	Name	NO.	Name
A	Copper Bus Bar	D	Bolt
B	Flat Washer	E	OT/DT Terminal
C	Spring Washer	F	Nut

NOTE

Bolt tightening should be firm and secure, with no more than two exposed thread turns at the end of the bolt.

6.3 PE Connection

⚠ DANGER

Ensure that the PE cable is securely connected to prevent electric shocks.

⚠ WARNING

- Install the ground cable first when installing the equipment and remove the ground cable last when removing the equipment.
- ENP-GU350K-G2 series inverters are transformerless. Do not ground the positive and negative poles of the PV strings to prevent abnormal operation.

NOTICE

- Two PE terminals are on the enclosure. At least one must be used for grounding connection.
- To enhance the corrosion resistance of a PE terminal, apply silicone grease or paint on it after connecting the PE cable to the PE point on the enclosure.
- PE terminal must meet the following requirements:
  - For PE cables ≥ 10 mm² (copper) or 16 mm² (aluminum): Both PE terminal and AC-side terminals should be grounded.
  - For PE cables < 10 mm² (copper) or 16 mm² (aluminum): Both PE terminal and AC-side terminals must be grounded.

Prerequisites

In a PV power system, all non-current-carrying metal components and equipment enclosures (such as mounting bracket, inverter enclosure) must be grounded:

- **Single Inverter:** Connect the external PE terminal to a nearby ground point.
- **Multiple Inverters:** Connect the PE terminals of all inverters and mounting bracket grounding points to ensure equipotential connections.

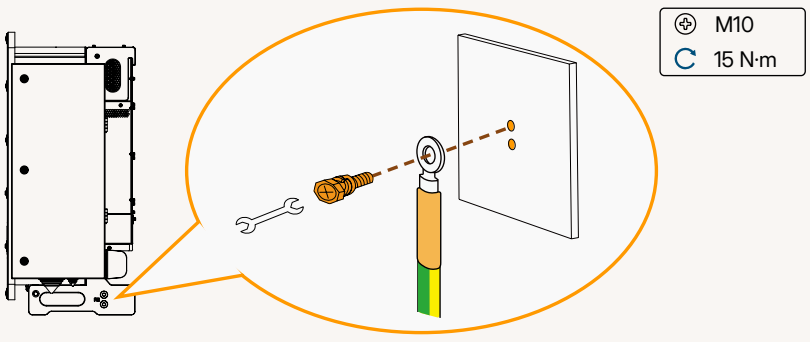
Procedures

Step 1 Prepare cables and crimp them using OT/DT terminals. Refer to *6.2 OT/DT Terminal Connection*.

Step 2 Remove the screw from the PE terminal.

Step 3 Secure the PE cable using the screw.

Step 3



Step 4 Apply silicone grease or paint on PE terminal to enhance the corrosion resistance.

6.4 AC Connection

⚠ DANGER

- Before connecting cables, turn off the AC circuit breaker and prevent accidental reconnection.
- Before opening the AC connection box, ensure that no electrical connections are made for the inverter on the AC and DC side.

⚠ WARNING

- Do not connect loads between the inverter and AC circuit breaker.
- Install overcurrent protection devices (such as AC circuit breakers, fuses) between the inverter AC side and grid to ensure safe disconnection.
- Multiple inverters shall not connect to the same AC switch.
- AC cables must be bent with appropriate length inside the AC connection box to prevent tension from ground subsidence or external forces, which may cause arcing.

NOTICE

- Obtain approval from the national or local electric utility company before connecting the inverters to the grid.
- Before connecting the inverters to the grid, ensure grid voltage/frequency compliance with inverter specifications. Otherwise, contact the local electric utility company for solution. For parameters, refer to *11 Technical Specifications*.
- AC cables must be vertically routed into the AC connection box to avoid damage caused by horizontal stress on the terminals.
- Identify AC terminal markings before connection, connecting phase cable to the PE terminal may cause inverter malfunction.
- Ensure that the AC output power cables are connected securely. Otherwise, the inverter may fail to operate, or become overheated during operation due to an unreliable connection, which will damage the terminal block.
- If you remove too many parts of the rubber ring of a cable, making the cable hole diameter greater than the cable outer diameter, use firestop putty to seal the gap around the rubber ring of the cable.
- The distance between each inverter and the AC combiner box or the lowvoltage panel of the transformer station must be at least 10 m, or the total distances from two adjacent inverters to the AC combiner box or the lowvoltage panel of the transformer station must be at least 20 m. The inverter provides output resonance self-protection. Its energy yield may decrease if protection against resonance is triggered as the length of the inverter output cables decreases.

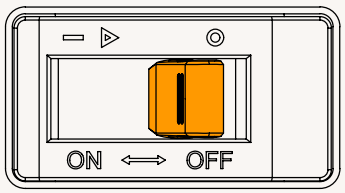
This document uses a 4-core (L1, L2, L3, and PE) outdoor cable as an example to illustrate wiring. The method for 3-core (L1, L2, and L3) outdoor cable is identical.

Procedures

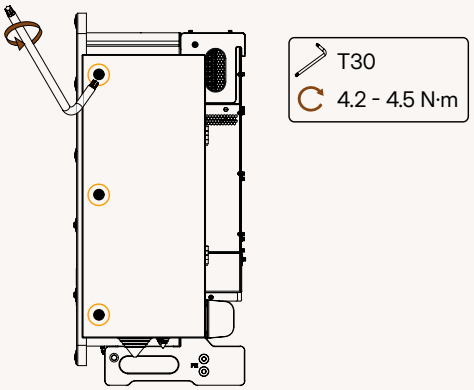
Step 1 Turn off the AC circuit breaker and attach a "**Do Not Switch On**" label near the circuit breaker to prevent accidental connection.

Step 2 Use a torx key (provided in the packing) to remove the three screws on the AC connection box.

Step 1



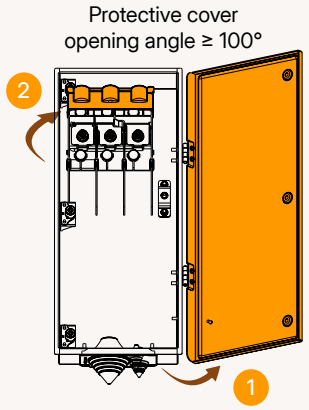
Step 2



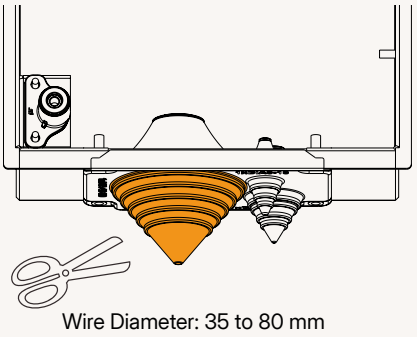
Step 3 Open the AC connection box door and protective cover.

Step 4 Trim the rubber ring at the enclosure base according to wire outer diameter.

Step 3



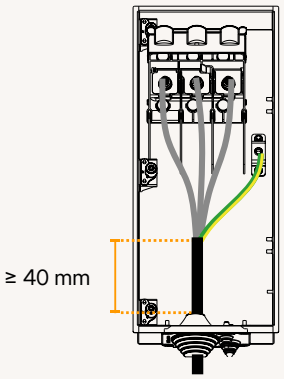
Step 4



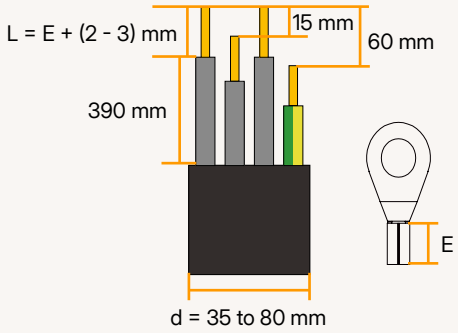
Step 5 Lead the wires through the rubber ring. (4-core example)

Step 6 Use a wire stripper to remove an appropriate length of insulation.

Step 5



Step 6



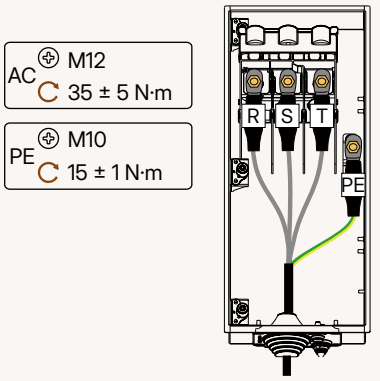
Step 7 Crimp OT/DT terminal. Refer to *6.2 OT/DT Terminal Connection*.

Step 8 Connect the AC wires to the terminal block and tighten the locking nuts.*

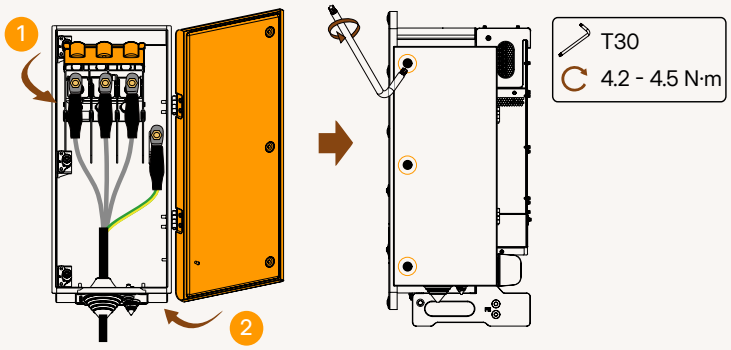
Step 9 Clear foreign matter from the AC connection box, and close the door.

Step 10 Check that the wire holes at the bottom are sealed.

Step 8

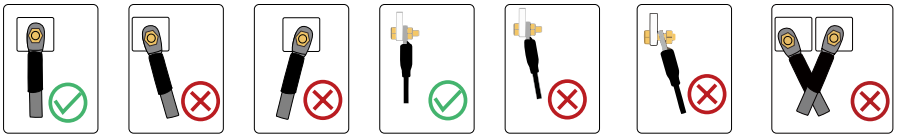


Step 9



NOTICE

* When connecting cables to terminals, prevent tilting and crossing, and ensure connections are tight.



6.5 DC Connection

⚠ DANGER

- When exposed to sunlight, the PV arrays supply DC voltage to the inverter. Before connecting cables, ensure that each DC SWITCH on the inverter is set to OFF. Otherwise, the high voltage of the inverter may result in electric shocks.
- Before touching DC cables, ensure cables are de-energized using measuring devices.
- Do not close AC circuit breakers until electrical connections are fully completed.

⚠ WARNING

- Before connecting PV arrays, ensure that the PV arrays output is well insulated to ground.
- During the installation of PV strings and the inverter, the positive or negative terminals of PV strings may be short-circuited to ground if the power cables are not properly installed or routed. In this case, an AC or DC short circuit may occur and damage the inverter.
- PV terminals must be securely connected to prevent electric shocks or arcs.

⚠ CAUTION

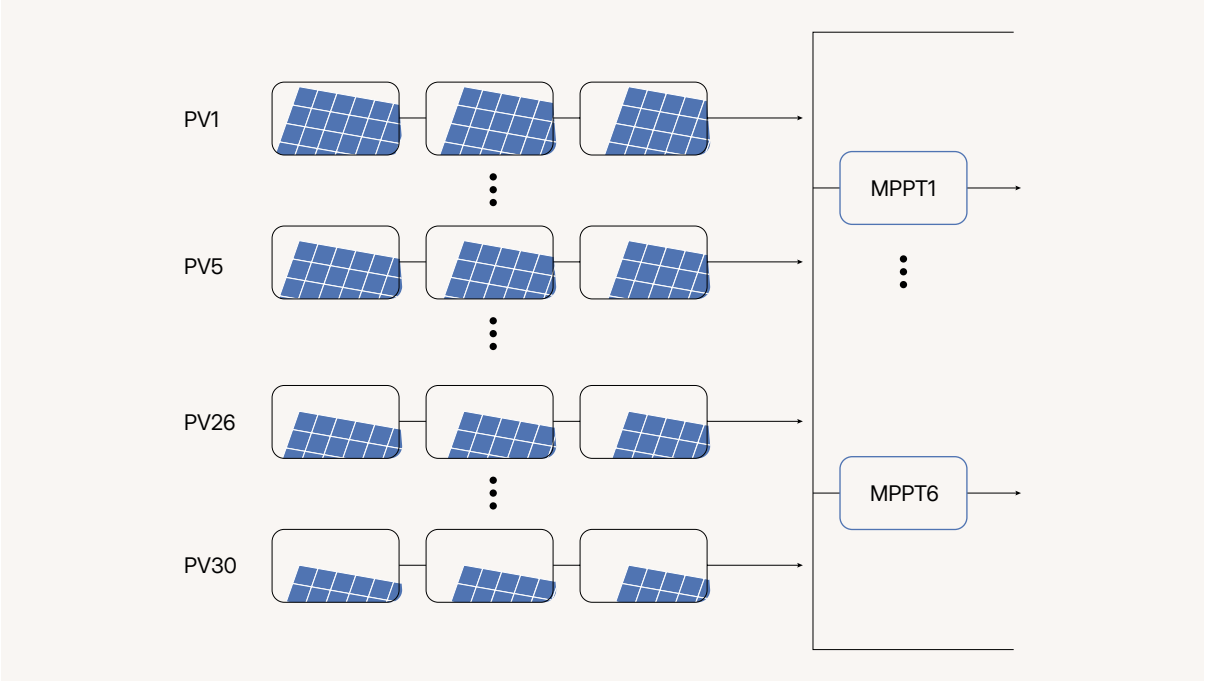
Take waterproof and insulation measures for unused DC input power cables to avoid personal injury or property loss caused by accidental contact with high voltage or other reasons.

NOTICE

- The PV strings connecting to the same MPPT circuit shall use the same model and quantity of PV modules.
- The inverter does not support full parallel connection for PV strings (full parallel connection: PV strings connect to one another in parallel outside the inverter and then connect to it separately).
- The positive and negative DC PV string cables within 1.5 m of the inverter shall be routed in separate pipes to prevent cable damage and short circuits caused by improper operations during construction.

PV Input

The inverter features multiple PV inputs. To fully utilize the input power from the PV panels, the PV strings for each Maximum Power Point Tracking (MPPT) circuit should be identical in structure, including the model, number of panels, tilt angle, and azimuth angle.



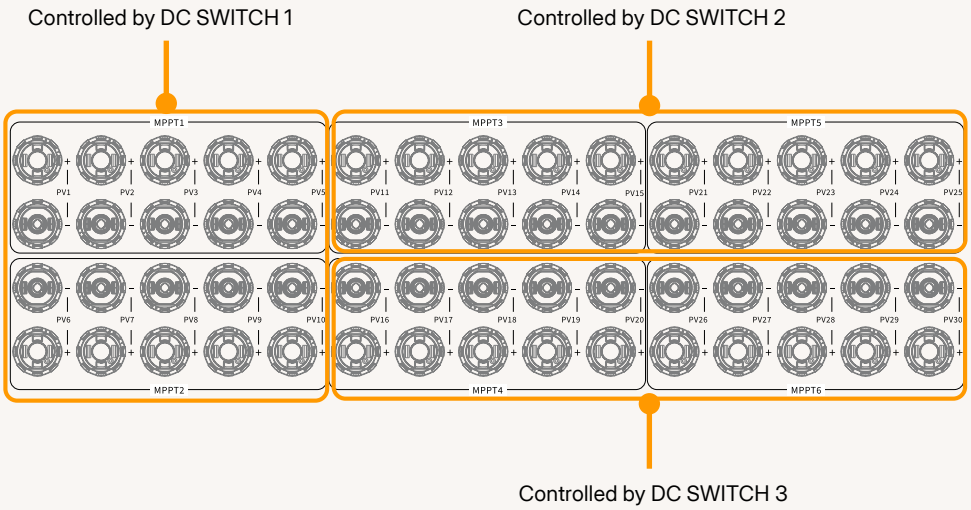
Before connecting the PV input to the inverter, ensure that each PV string meets the following requirements:

- Maximum open-circuit voltage: ≤ 1500 Vdc
- Maximum allowable operating current: 25 A
- Withstand current under non-operating conditions: 27 A

After confirming that the PV strings meet the above requirements, follow the requirements below to select the DC terminals:

- The inverter does not support Y-type PV connectors.
- The PV1 input terminal is mandatory and must be securely connected.
- The connected DC input terminals should be evenly distributed across each MPPT circuit to ensure balanced loading and improve operational efficiency.
- If 210-type modules are used, do not connect to PV3, PV8, PV13, PV18, PV23, or PV28 terminals, as this may cause abnormal operation or damage to the device.

The terminal area at the bottom of the inverter is divided as follows:

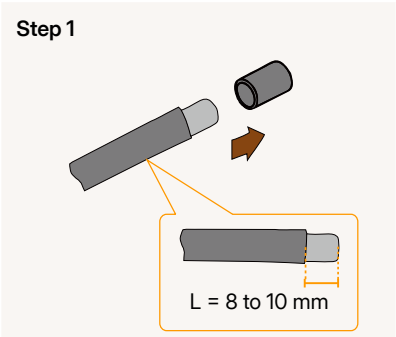


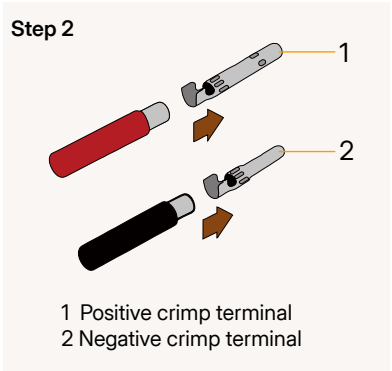
Procedures

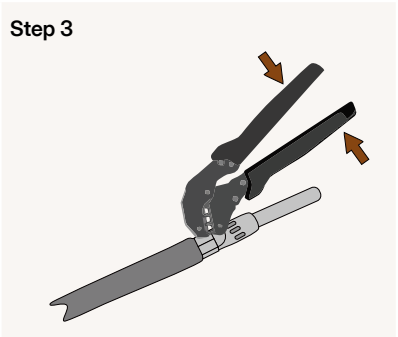
Step 1 Strip the insulation from each DC cable by 8 mm to 10 mm.

Step 2 Insert the cable ends into the crimp terminals.

Step 3 Crimp the crimping terminals.



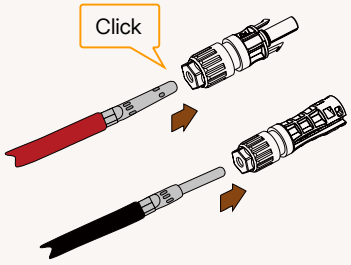




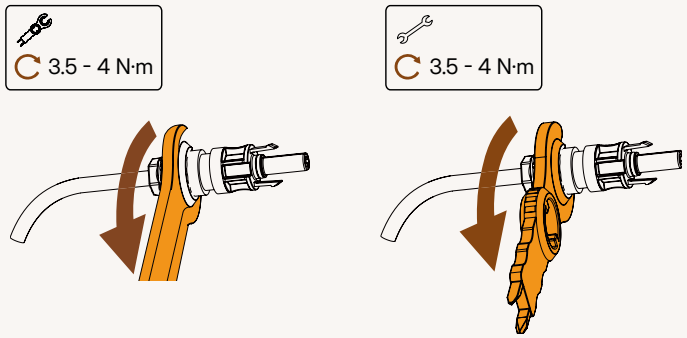
Step 4 Lead the cable through the locking nut, and insert the crimp terminal into the insulator. Gently pull the cables to check whether the cables are securely installed.

Step 5 Tighten connector with open-end wrench, and locking nut using spanner.

Step 4



Step 5



Step 6 Set the **AUXILIARY SWITCH**, **DC SWITCH 1**, **SWITCH 2** and **SWITCH 3** to **OFF.**

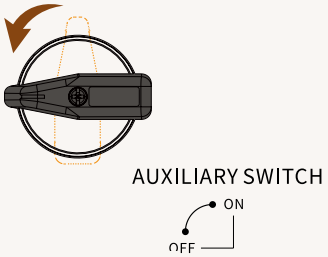
Step 7 Use a multimeter to check the polarity of the PV string connections. Confirm open-circuit voltage ≤ 1500 Vdc under all conditions.

Step 8 Insert DC connectors into DC input terminals.

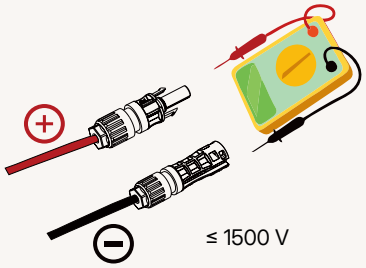
Step 9 Repeat ***Steps 1 – Steps 8*** to connect other PV strings.

Step 10 Seal unused DC input terminals with dust plugs.

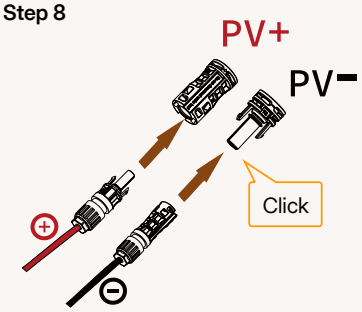
Step 6



Step 7



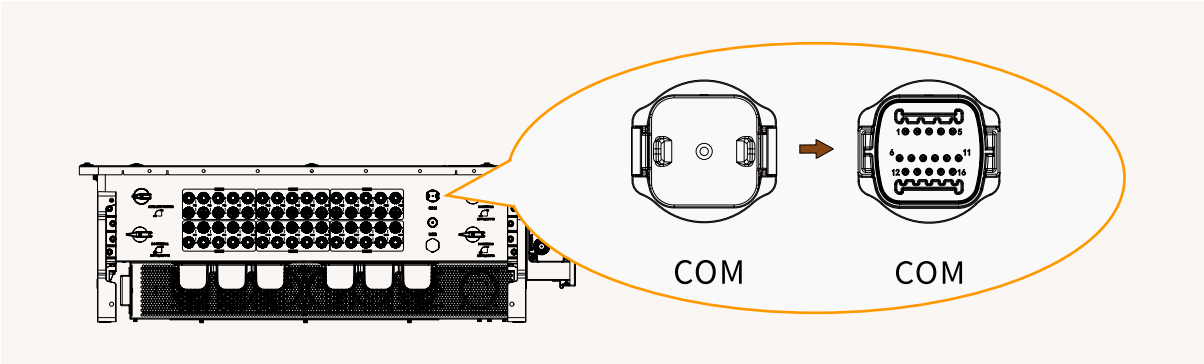
Step 8

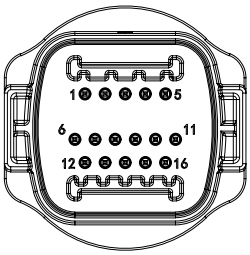


6.6 RS485 Communication Connection

Terminal Description

The communication terminal is labeled **COM** :



Port	Signal	Pin	Definition
	RS485-1*	COM-1	RS485A, RS485 Differential Signal+
		COM-3	RS485A, RS485 Differential Signal+
		COM-2	RS485B, RS485 Differential Signal-
		COM-4	RS485B, RS485 Differential Signal-
	PE	COM-5	PE, Shielding Ground
		COM-6	PE, Shielding Ground
	RS485-2	COM-7	RS485A, RS485 Differential Signal+
		COM-8	RS485B, RS485 Differential Signal-
	-	COM-9 to COM-16	Reserved

NOTE

*Used for cascading inverters or connecting to devices such as the Datalogger.

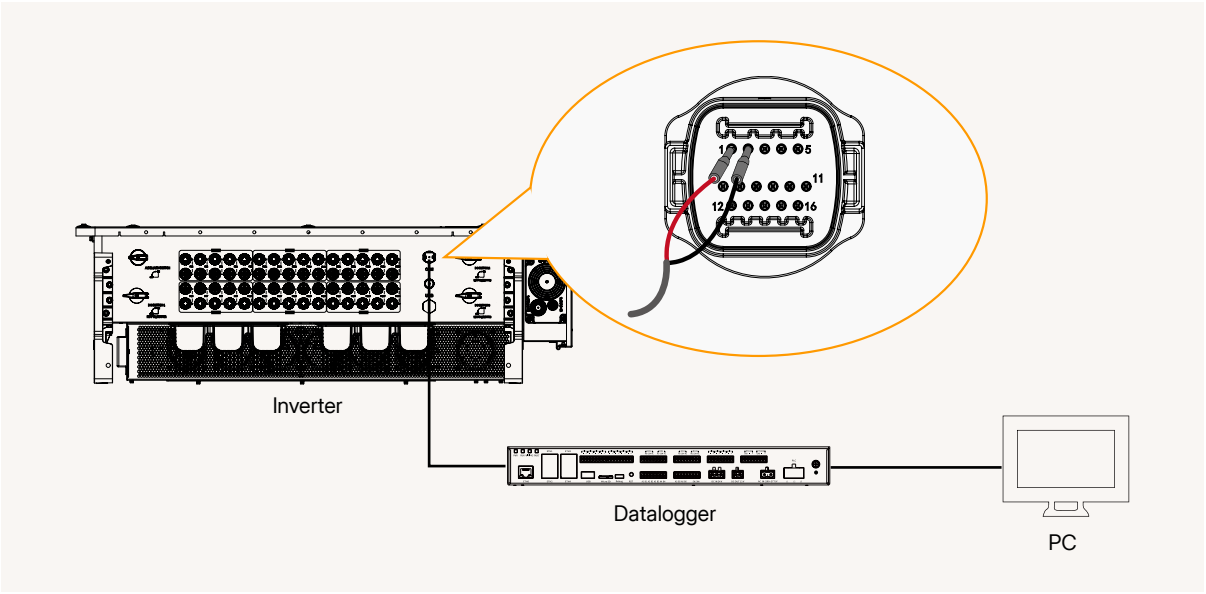
NOTICE

- When disconnecting communication terminals, be sure to fully press the locking mechanism to its lowest position to ensure the terminal is completely unlocked. Then, gently pull it out smoothly to avoid damaging the terminal due to forced removal.
- When routing communications cables, separate communications cables from power cables to prevent communication from being affected.

RS485 Communication System

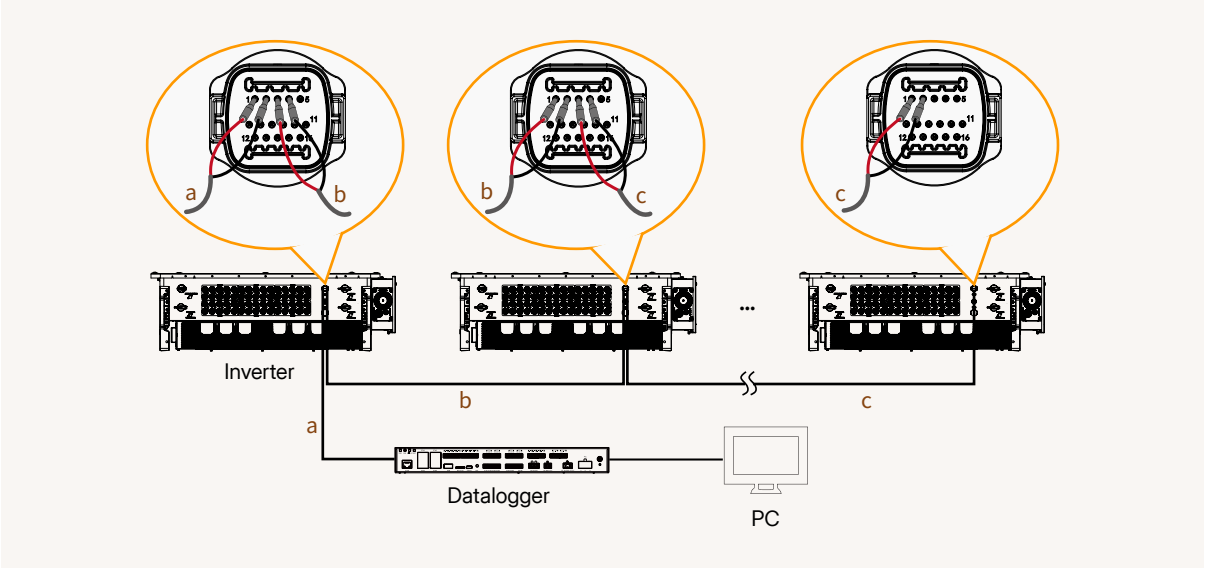
Single Inverter Communication System

For single inverter applications, communication can be established using a single RS485 communication cable.



Multiple Inverter Communication System

For multiple inverters applications, communication can be achieved by connecting the inverters in a daisy-chain configuration using RS485 communication cables.



NOTE

- The outer diameter and requirements for the RS485 cable must be compatible with the datalogger.
- For multi-inverter systems, the maximum supported number of daisy-chained units and the total allowable connected devices must comply with equipment requirements.

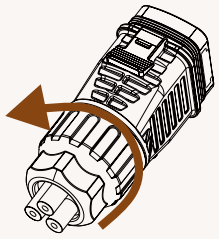
Procedures

Step 1 Loosen the locking nut of the communication connector and remove the sealing ring.

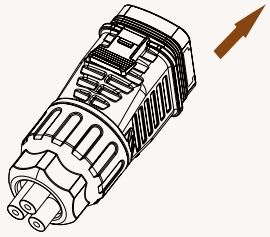
Step 2 Press the latches on both sides of the connector, and squeeze and lift upward the terminal block.

Step 3 Remove the rubber plugs. Thread the wire sequentially through locking nut, sealing ring and connector.

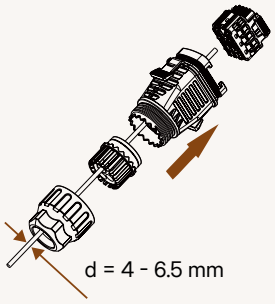
Step 1



Step 2



Step 3

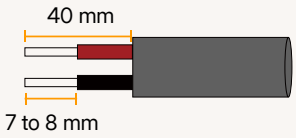


Step 4 Use a wire stripper to remove 7 - 8 mm of insulation and 40 mm of outer jacket.

Step 5 Install the tube terminals.

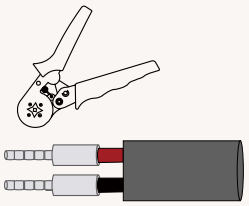
Step 6 Crimp the tube terminals.

Step 4



Step 5

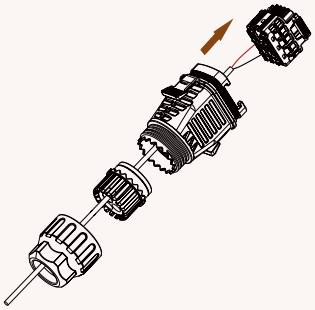
Step 6



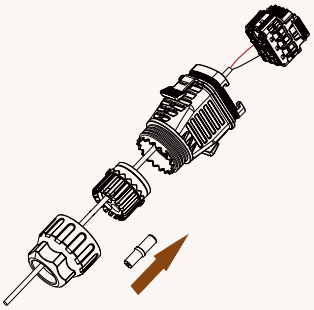
Step 7 Insert wires into pins. Gently pull the wires to check whether the wires are securely installed.

Step 8 Seal unused wire holes with rubber plugs.

Step 7



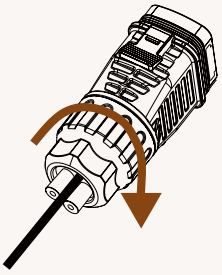
Step 8



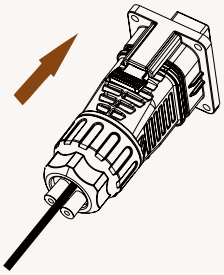
Step 9 Tighten the locking nut.

Step 10 Insert the communication connector into the communication terminal.

Step 9



Step 10



6.7 PLC Communication Connection

With a built-in PLC communication module, the inverter can communicate with the datalogger.

NOTE

- The datalogger is an optional component, please contact enPossibilities sales engineer for purchase.
- The inverter communicates with the datalogger through the AC output cable, eliminating the need for users to install and maintain dedicated communication cables. This streamlines system wiring and simplifies later maintenance procedures.
- The RS485 port of the datalogger supports transparent transmission of the Modnbus-RTU protocol, ensuring full compatibility with existing monitoring devices and software originally designed for RS485 communication.

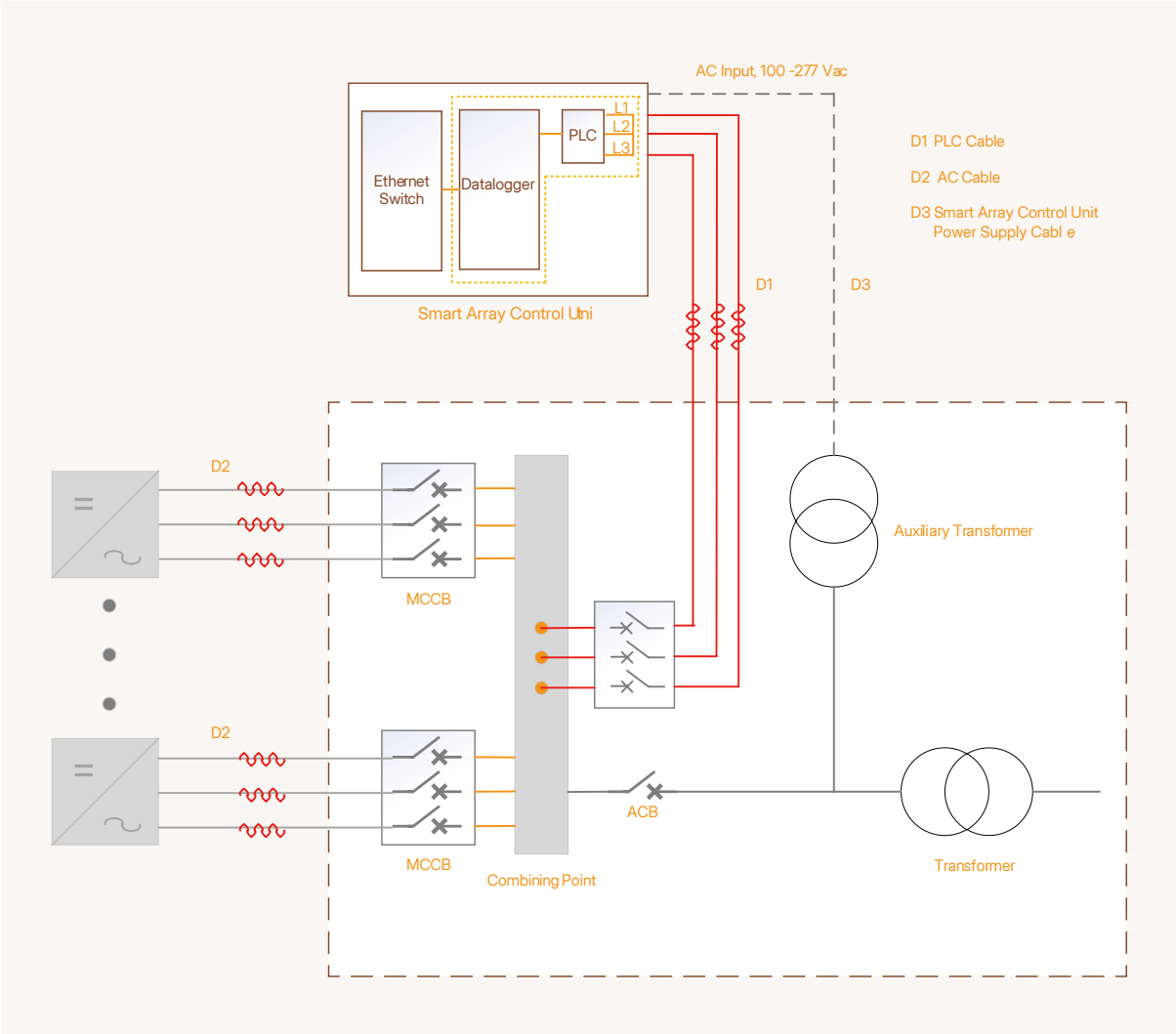
6.7.1 Applications

The device can be connected to dual-winding transformers and dual-split winding transformers. The corresponding wiring diagrams are shown below.

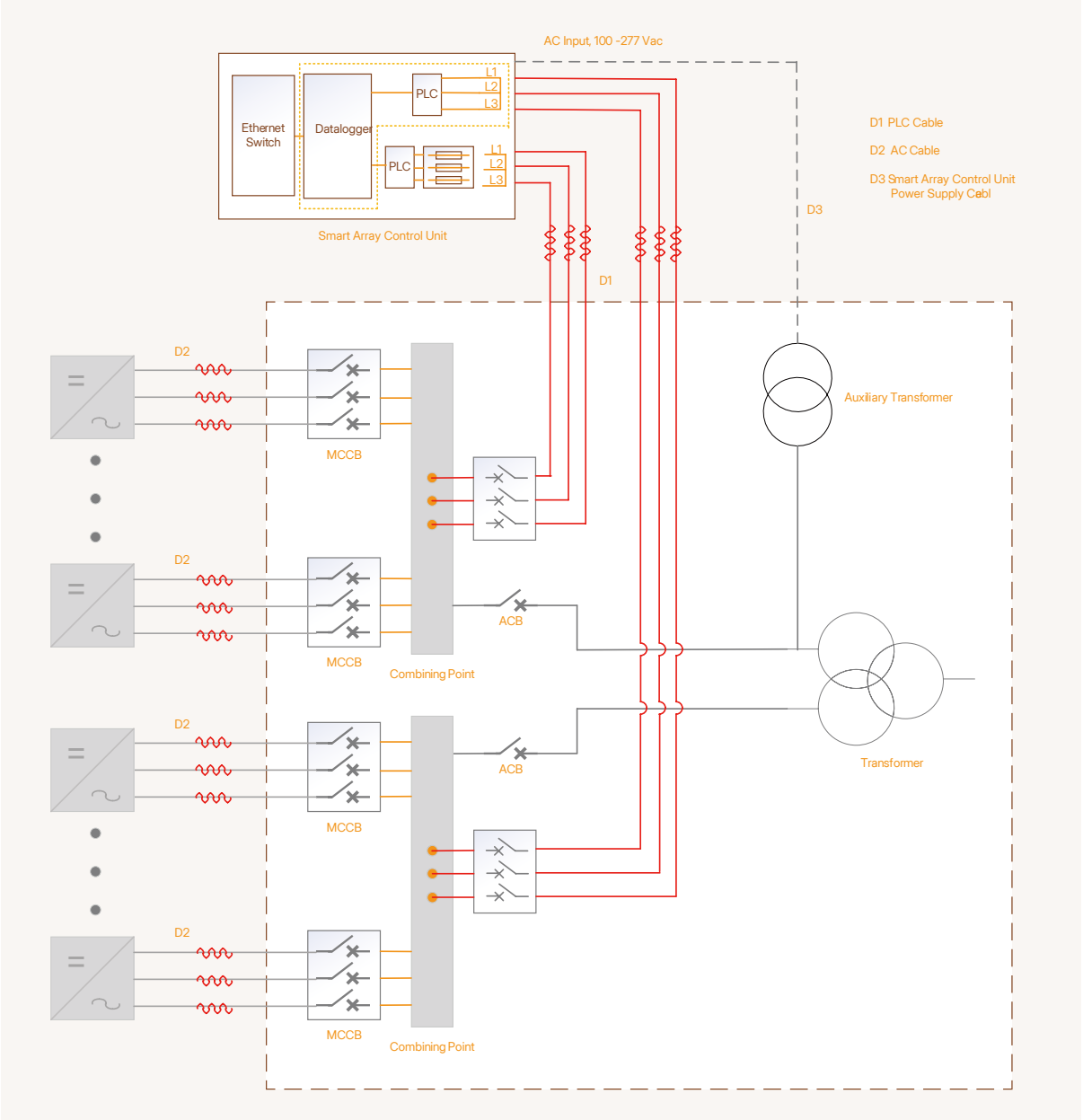
NOTE

The PLC is an HPLC node integrated into the datalogger. To clearly illustrate the wiring principles, the relevant wiring connections are depicted outside the datalogger.

Connection to Dual-Winding Transformers



Connection to Dual-Split Transformers



Item	Description	Cable Specifications
D1	Length of PLC cable between smart array control unit and transformer station	• Outdoor UV-resistant multi-core copper AC cable, conductor cross-section: 2.5 mm² to 10 mm². • Cable isolation voltage requirement: > 1000 V. • Recommended length ≤ 10 m. Shorter lengths provide better communication performance.
D2	Length of AC cable between transformer station and inverter	• For multi-core AC cables: length ≤ 1000 m. • For single-core AC cables: length ≤ 790 m. Bundle three-phase cables with cable ties every 1 m.
PLC	Port input voltage	800 Vac
	Port supply voltage	24 Vdc
	Max. number of connected inverters	20

6.7.2 AC Cable Wiring Requirements

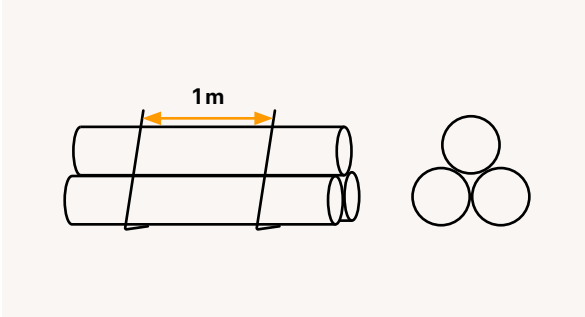
The cables connecting the transformer station and the inverter can be multi-core AC cables, single-core AC cables, or parallel-connected cables. The specific type should be selected based on actual project requirements.

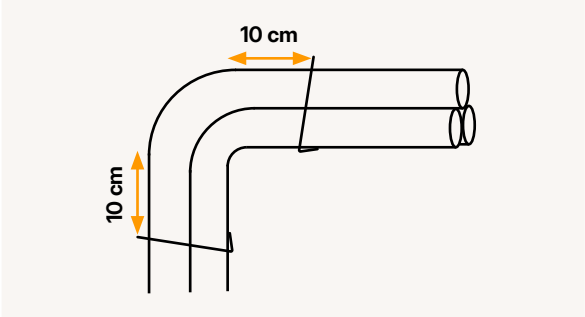
NOTICE

To ensure stable and reliable communication quality, it is recommended that the multi-wire cable be used.

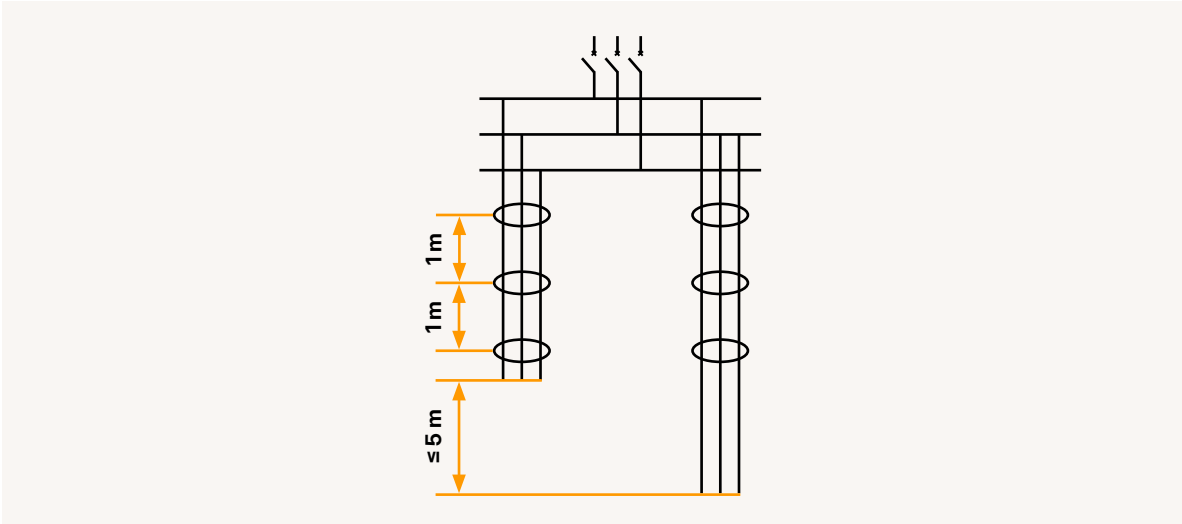
Wiring Requirements

- The AC cables between the transformer station and the inverter may be routed in cable trenches, cable slots, or pipes to adapt to different on-site requirements.
- Cables should be routed parallel in the cable slots, ensure that there is no coiling or twisting to avoid compromising cable performance and communication quality.
- If single-core cables are used, they must be bundled and secured at intervals of 1 m. The three-phase cables should be bundled in a triangular formation. For cables with high rigidity that are difficult to bend, additional bundling is recommended at 10 cm before and after bending points to prevent mechanical stress and deformation.



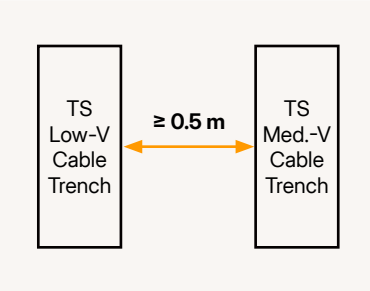


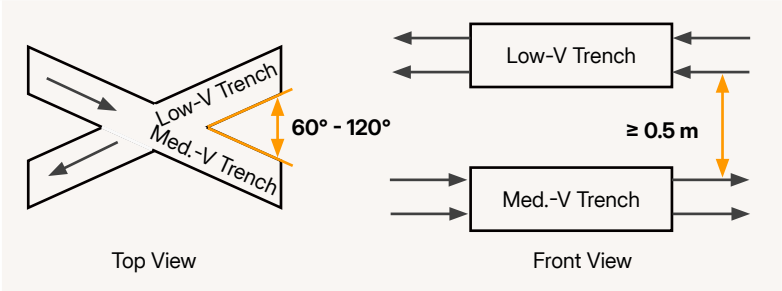
- When cables are routed in parallel, the length difference between the two sets must not exceed 5 m to ensure stable HPLC communication.



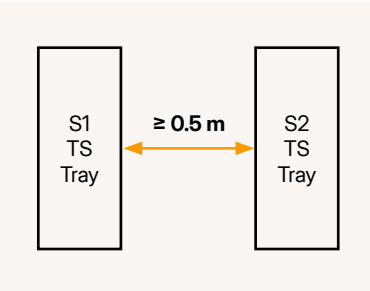
Construction Requirements

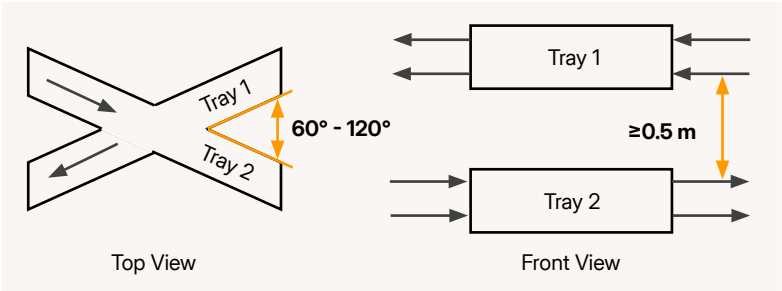
- Only AC cables from the same transformer station are permitted to be routed within the same cable slot.
- The clearance between low-voltage and medium-voltage AC cables must meet the following requirements:
  - When routed in parallel, the horizontal clearance shall be maintained at 0.5 m or greater.
  - When routed in a crossed configuration, the crossing angle shall be controlled within the range of 60° to 120°, and the vertical clearance shall be maintained at 0.5 m or greater.





- When different transformer stations are used, the clearance between low-voltage cable trays must meet the following requirements:
  - When routed in parallel, the horizontal clearance shall be maintained at 0.5 m or greater.
  - When routed in a crossed configuration, the crossing angle shall be controlled within the range of 60° to 120°, and the vertical clearance shall be maintained at 0.5 m or greater.





6.7.3 Procedures

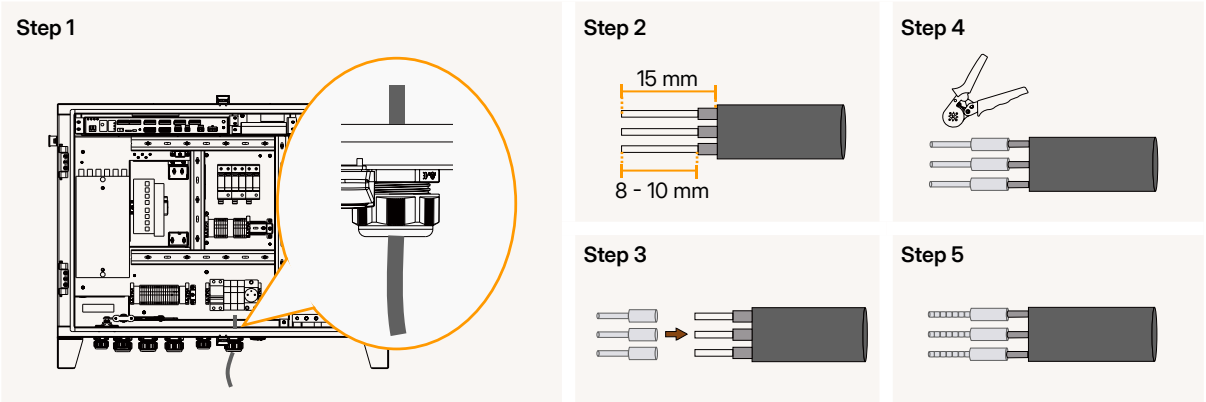
Step 1 Loosen the **HPLC 800V** waterproof connector at the bottom of the smart array control unit, and lead the external AC cable through the port.

Step 2 Use a wire stripper to remove an appropriate length of insulation.

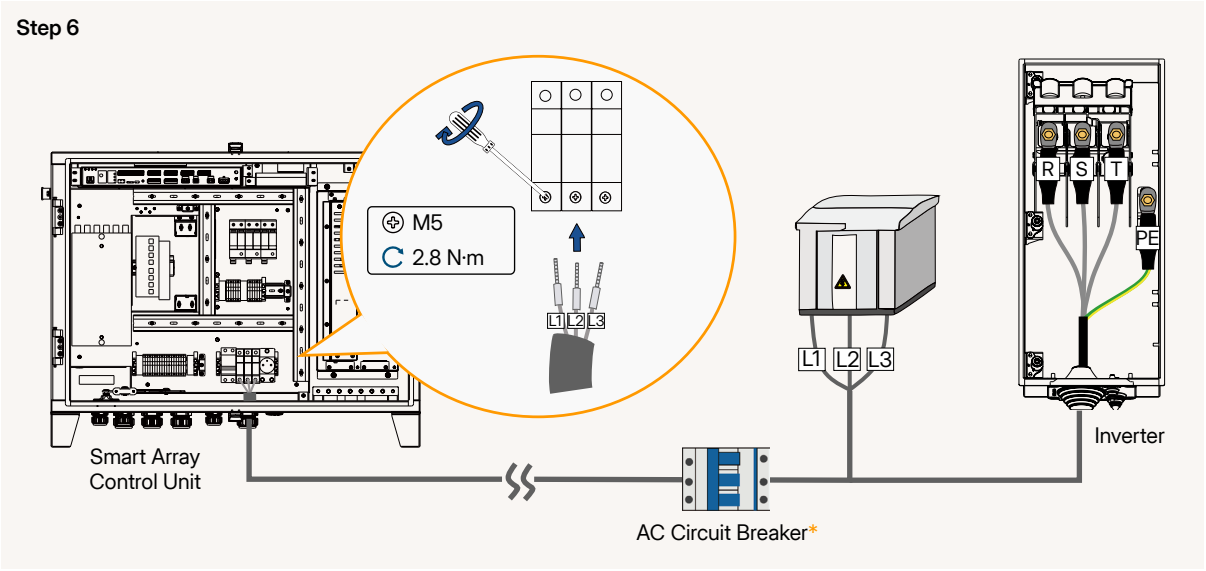
Step 3 Install tube terminals.

Step 4 Crimp the tube terminals.

Step 5 Crimp complete.



Step 6 Connect wire to PLC AC terminal block and tighten screw.



NOTE

The AC circuit breaker has a nominal voltage of 800 Vac and a maximum nominal current of 63 A.

NOTICE

The AC cables between the smart array control unit and the transformer station must meet the following requirements:

- AC cables should be routed parallel in the cable slots, ensure that there is no coiling or twisting to avoid compromising cable performance and communication quality.
- It is recommended to select the central coupling point on the busbar for AC cable connections.
  - For example, if the busbar has 8 branch terminals, the 4th or 5th branch terminal is recommended.
  - For example, if the busbar has 9 branch terminals, the 5th branch terminal is recommended.

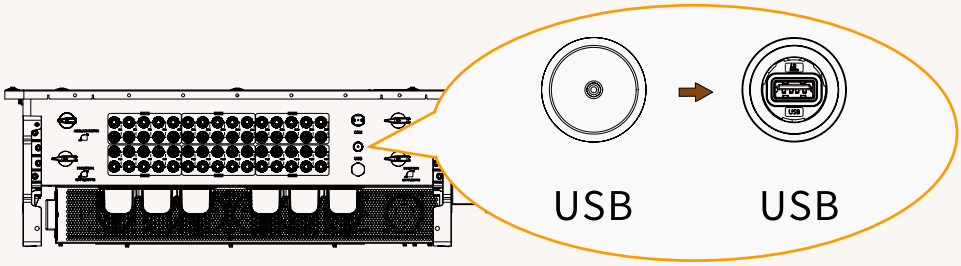
NOTICE

- The parameters of the transformer station circuit breaker shall be selected with reference to those of the circuit breaker inside the smart array control unit.
- Ensure that the L1, L2, and L3 cables and terminals are connected in correct phase sequence.

6.8 Bluetooth Connection

Terminal Description

The USB terminal is labeled **USB** :

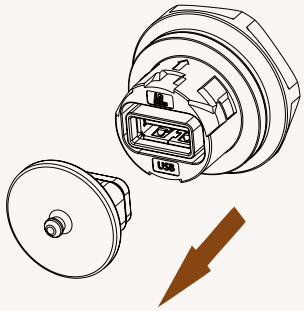


Procedures

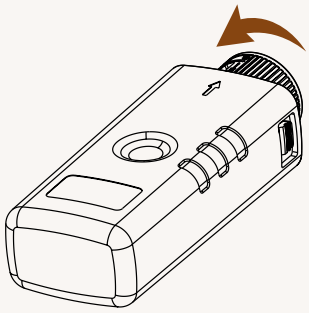
Step 1 Remove the dust plug.

Step 2 Unlock the latch counterclockwise.

Step 1



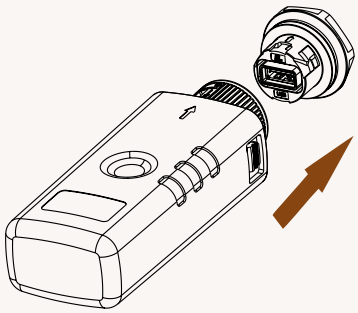
Step 2



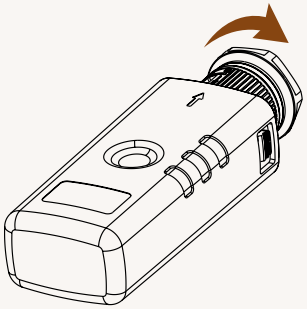
Step 3 Align and insert the Bluetooth module.

Step 4 Lock the latch counterclockwise.

Step 3



Step 4



7 Initial operation

Before initial operation, please ensure to read and comply with the information in the *2 Safety Information*.

⚠ DANGER

- Wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
- Do not touch any live components to prevent electric shocks.
- Do not contact any terminals to prevent electric shocks.

⚠ CAUTION

- If any abnormal conditions are observed during operation, immediately power off the inverter and rectify the faults.
- Before power-on and long-term operation, remove the desiccants from the cabinet and dispose of them according to the applicable local waste disposal act. If the inverter is powered off immediately after being powered on, keep the desiccants in the cabinet.

7.1 Check Before Power-On

NO.	Item	Checked	
		Yes	No
1	Installation environment complies with *5.2 Installation Requirements*.	☐	☐
2	The inverter and all external devices are installed correctly and securely.	☐	☐
3	All DC SWITCH and AC circuit breakers are turned to OFF.	☐	☐
4	The DC cables are correctly and securely connected to DC input terminals.	☐	☐
5	The unused DC input terminals are locked by dust plugs.	☐	☐
6	The AC cables are correctly and securely connected to AC output terminals.	☐	☐
7	The communication cables are correctly connected to COM ports.	☐	☐
8	The PE cable is securely connected to PE terminal.	☐	☐
9	The unused ports are sealed.	☐	☐
10	The safety label and safety icons are not damaged, scratched, or blurred.	☐	☐
11	No tools, drilling debris, or foreign objects are left inside the cabinet.	☐	☐
12	The installation space is proper, and the installation environment is clean and tidy.	☐	☐
13	The external devices comply with this manual and local standards.	☐	☐

7.2 Power-On Operations

⚠ WARNING

- Follow the power-on procedures strictly. Equipment damage caused by improper operation will not be covered under any warranty.
- Before turn on the AC circuit breaker, use a multimeter to measure the grid voltage and ensure that the voltage is within the allowed operating voltage range of the inverter.
- If the DC power supply is connected but the AC power supply is disconnected, the inverter will report the "**Grid Loss**" (**Fault** steady red). This alarm clears automatically after turn on the AC circuit breaker.
- The **AUXILIARY SWITCH** must only be closed during first-time system power-on and remain open during normal operation.

Prerequisites

Ensure PV 1 is connected to a PV string before power-on.

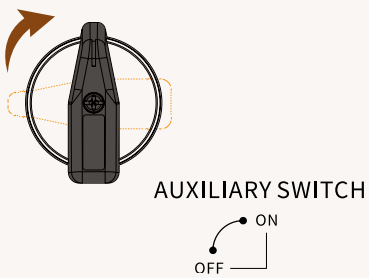
Procedures

Step 1 Set the **AUXILIARY SWITCH** to **ON**.

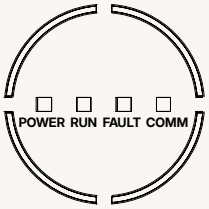
Step 2 **Power** indicator turns steady blue.

Step 3 Set the **DC SWITCH 1**, **SWITCH 2** and **SWITCH 3** to **ON**.

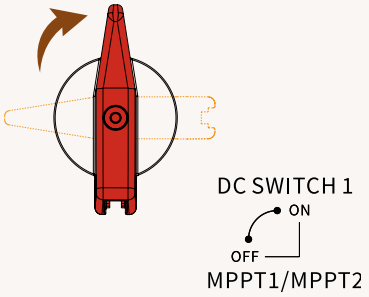
Step 1



Step 2



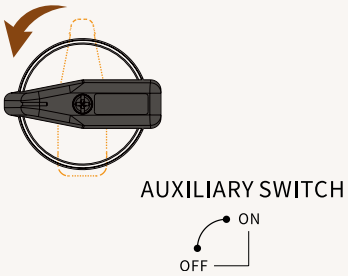
Step 3



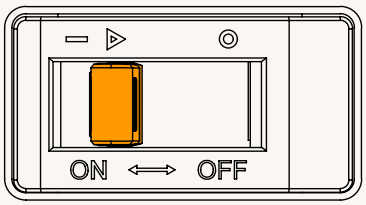
Step 4 Set the **AUXILIARY SWITCH** to **OFF**.

Step 5 Turn on the AC circuit breaker between the inverter and grid.

Step 4



Step 5



Step 6 Install the enP-U Installer (V3.0 or later). Set the parameters via the app. Incorrect parameter settings may result in noncompliance with local grid connection requirements and affect the normal operations of the equipment.

7.3 Power-Off Operations

⚠ WARNING

Before performing maintenance or inspection, power off the inverter and disconnect all power inputs. Wait at least 20 minutes, wear personal protective equipment, and use a multimeter to verify that the inverter is de-energized before any operations.

Prerequisites

Users perform maintenance or inspection.

Procedures

Step 1 Set the inverter to **Standby** mode via the app to prevent arcs.

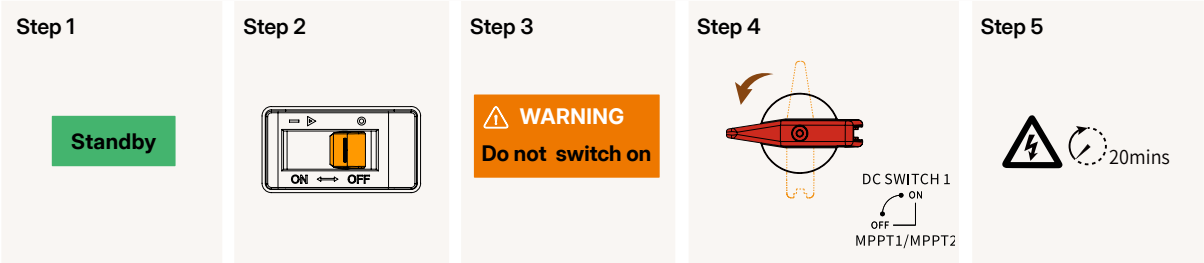
Step 2 Turn off the AC circuit breaker and use a multimeter to verify that the inverter is de-energized.

Step 3 Attach "**Do not switch on**" labels near circuit breakers to prevent accidental connection.

Step 4 Set the **DC SWITCH 1**, **SWITCH 2** and **SWITCH 3** to **OFF**.

Step 5 Wait **20 minutes** for internal capacitors to discharge.

Step 6 Use a clamp meter to ensure zero voltage/current in the DC cables.



8 System Commissioning

For details about how to deploy and commission the inverter on the app, see "*User Manual_ enP-U Cloud (App)_ Global_EN*".

9 Maintenance and Troubleshooting

Before performing maintenance or inspection operations, please ensure to read and comply with the information in the *2 Safety Information*.

⚠ DANGER

- Wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
- Do not touch any live components to prevent electric shocks.
- Do not contact any terminals to prevent electric shocks.

⚠ WARNING

Before performing maintenance or inspection operations, power off the inverter, follow the instructions on the delayed discharge label, and wait for a period of time as specified to ensure that the inverter is not energized.

⚠ CAUTION

- Attach "**Do not switch on**" labels near the upstream and downstream switches or circuit breakers to prevent accidental connection.
- Place warning signs or strips near the operation area.

9.1 Maintenance

⚠ WARNING

- Before performing maintenance, power off the inverter and disconnect all power inputs. Wait at least **20 minutes**, use a multimeter to verify that the inverter is de-energized before any operations.
- Before performing maintenance:
  - Set the interver to **Standby** mode via the App.
  - Disconnect the grid-side AC circuit breaker
  - Set the DC SWITCH 1, SWITCH 2 and SWITCH 3 to **OFF**.
- If a fault that may cause personal injury or equipment damage is detected before maintenance, disconnect the AC circuit breaker immediately and wait until nighttime to disconnect the DC switches (the PV arrays will supply DC voltage to the inverter under sunlight). Otherwise, personal injury or equipment damage may occur.
- Do not open the panel for maintenance if the inverter is emitting abnormal smell or smoke, or has obvious exceptions. If none of these abnormalities are observed, repair or restart it based on the alarm handling suggestions.
- Do not stand in front of the inverter during the restart.

9.1.1 Routine Maintenance

To ensure that the inverter can operate properly for a long term, you are advised to perform routine maintenance on it as described in this section.

NO.	Check Item	Check Method	Maintenance Method	Maintenance Interval
1	Air intake/exhaust vents and heat sinks	Check whether there is dust or foreign objects at the air intake/ exhaust vents and heat sinks.	Power off the inverter and remove dust and foreign objects. If necessary, remove the baffle plate from the air intake vent for cleaning.	Once every 6 to 12 months
2	Fans	Check whether the fans generate abnormal noise during operation.	Remove foreign objects from the fan. If the abnormal noise persists, replace the fan.	Once every 12 months
		Check whether the fan blades are damaged.	Replace the fan.	
3	Cable inlet holes	Check whether all cable inlet holes are fully sealed.	Re-seal the cable inlet holes.	Once every 12 months

NO.	Check Item	Check Method	Maintenance Method	Maintenance Interval
4	Electrical connection	Check whether cables are securely connected.	Power off the inverter and secure loose or disconnected cables.	Once every 6 to 12 months
		Check whether cables are damaged, especially whether the cable sheath that contacts a metal surface is damaged.	Power off the inverter and replace the damaged cables.	
5	Vegetation around the inverter	Check whether there are weeds around the inverter.	Perform inspection and growth/withering as required.	Based on local growth/withering season
			Clean the site promptly after weeding.	

9.1.2 Fan Maintenance

During inverter operation, the built-in fan provides cooling and heat dissipation. If the fan fails to function properly, the inverter cannot be effectively cooled, leading to reduced equipment efficiency or derating operation. Therefore, it is essential to keep the fan clean and replace any damaged fans promptly.

NOTE

Fans must be cleaned or replaced by enPossibilities. If users perform unauthorized replacement, it must be conducted under the guidance of enPossibilities's technical support engineers. Otherwise, enPossibilities will not be held liable for any personal injuries or property damage incurred!

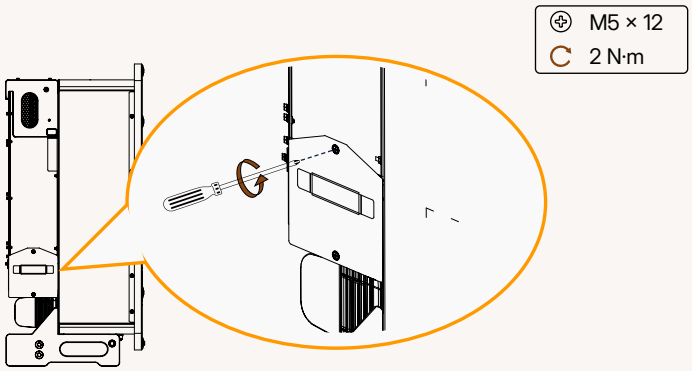
- Fan Manufacturer: DELTA ELECTRONICS INC.
- Fan Model: THD0924HEG3F-REV02

Procedures

Step 1 Set the **DC SWITCH 1**, **SWITCH 2** and **SWITCH 3** to **OFF**.

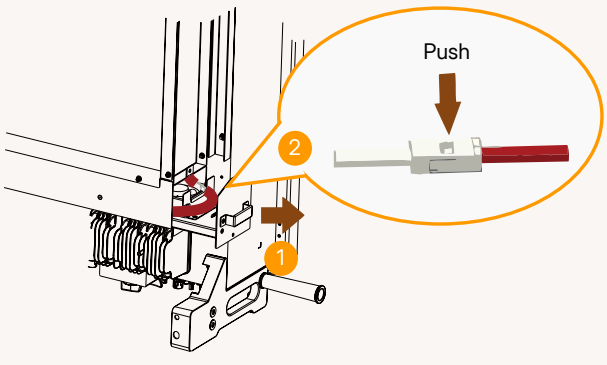
Step 2 Remove the screws from the fan tray and store them properly.

Step 2



Step 3 Pull out the fan tray approximately 150 mm.

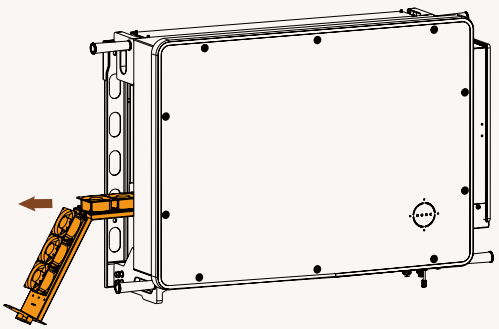
Step 3



Step 4 Unlocking the latch.

Step 5 Fully extract the fan tray.

Step 5



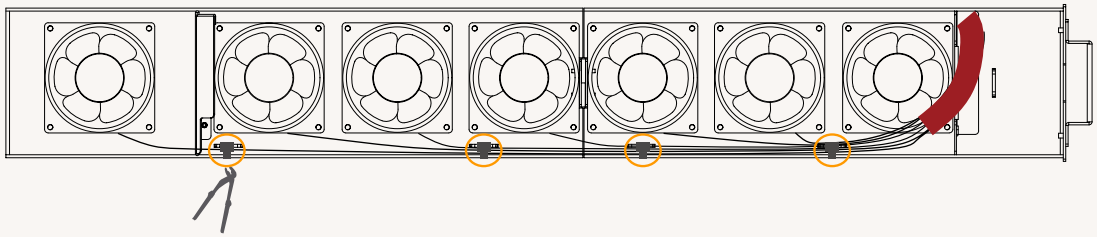
Step 6 **For cleaning only:**

- Clean the fan using a soft-bristled brush or vacuum cleaner.
- Reinstall the fan tray. by reversing the order of **Steps 5 to 2**.

For fan replacement, proceed:

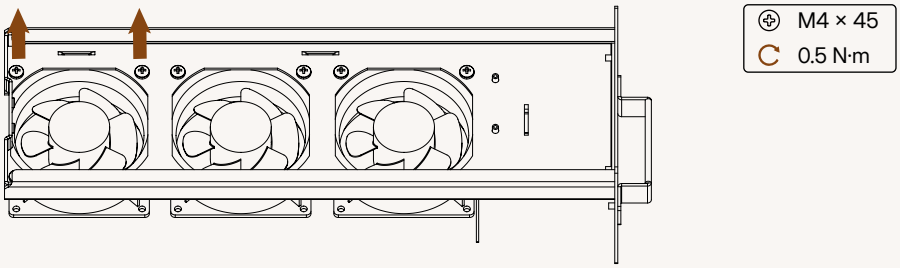
Step 7 Remove the cable ties shared by the cables.

Step 7



Step 8 Remove the screws and replace a functional fan.

Step 8



Step 9 Reinstall the fan tray by reversing the order of **Steps 7 to 2**.

9.2 Troubleshooting

When an inverter fault occurs, the **Homepage** of the App will display the alarm. User can click the function area on the Homepage to view the alarm information and troubleshoot according to the table below.

NOTICE

If the fault persists after following the troubleshooting steps, contact *enPossibilities technical support*.

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
1	1	Grid Overvoltage	Fault	The grid voltage is above the upper threshold or the high voltage duration has lasted for more than the value specified by HVRT.	1. If the alarm occurs occasionally, the power grid may be abnormal temporarily.The device automatically recovers after detecting that the power grid becomes normal. 2. If the alarm occurs frequently, check whether the power grid voltage is within the allowed range. If not, contact the local power operator. If yes, modify the power grid overvoltage protection threshold after obtaining the consent of the local power operator. 3. Check whether the peak voltage of the power grid is too high. If the fault occurs frequently and persists for a long time, contact the local power operator.
2	1	TRIP Fault		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
	2	Hardware Overcurrent			
	3	BST TRIP Fault			
	4	BST Hardware Overcurrent			
	5	BST Flying Capacitor Hardware Overvoltage			
	6	BST Half-Bus Hardware Overvoltage			
3	1	Phase-A Software Overcurrent		The grid experiences a dramatic voltage drop or is short-circuited. As a result, the transient AC current of the device exceeds the upper threshold and triggers protection.	1. The device detects its external working conditions in real time. After the fault is rectified, the device automatically recovers. 2. If the alarm occurs frequently and affects the operation of the power plant, check whether AC short circuit exists. If the fault persists, contact technical support.
	2	Phase-B Software Overcurrent			
	3	Phase-C Software Overcurrent			

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
4	1	Half-Bus Hardware Overvoltage	Fault	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
5	1	Module Phase-A CBC Fault			
6	1	FPGA Hardware Sealing Fault			
	2	BST Hardware PWM Sealing Fault			
7	1	Inverter IGBT Open Circuit			
10	1	AC Instantaneous Overvoltage		The grid voltage is above the upper threshold or the high voltage duration has lasted for more than the value specified by HVRT.	1. If the alarm occurs occasionally, the power grid may be abnormal temporarily.The device automatically recovers after detecting that the power grid becomes normal. 2. If the alarm occurs frequently, check whether the power grid voltage is within the allowed range. If not, contact the local power operator. If yes, modify the power grid overvoltage protection threshold after obtaining the consent of the local power operator. 3. Check whether the peak voltage of the power grid is too high. If the fault occurs frequently and persists for a long time, contact the local power operator.
11	1	Inverter IGBT Overtemperature		1. The device is installed in a place with poor ventilation. 2. The ambient temperature is high. 3. The device is faulty.	1. Check the ventilation and ambient temperature of the device installation position. 2. If the ventilation is poor or the ambient temperature exceeds the upper threshold, improve the ventilation and heat dissipation. 3. If the fault persists, contact technical support.
	2	Control Panel Overtemperature			
	3	EMI Overtemperature			
	6	Control Panel Undertemperature			
	7	BST IGBT Overtemperature			
12	1	PV Input Undervoltage		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
15	1	Switch1 Bounce			
	2	Switch2 Bounce			
	3	Switch3 Bounce			
18	1	Bus Voltage Boost Abnormal			
19	1	Relay Pull-in Timeout			
20	1	Grid Phase-Locked Fault			
21	1	Control Power Undervoltage			

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
22	1	FPGA Heartbeat Fault	Fault	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
	2	Control Version Inconsistency			
23	1	Low Insulation Resistance		1. A short circuit has occurred between the PV array and the ground. 2. The ambient air of the PV array is damp and the insulation between the PV array and the ground is poor.	1. Set Insulation resistance protection to the minimum value and restart the inverter. 2. Check that the PE cable of the device is correctly connected. 3. Check the output-to-ground impedance of the PV array. If a short circuit or inadequate insulation is detected, rectify it.
24	1 - 6	BST1 - BST6 Flying Capacitor Hardware Overvoltage		Boost capacitor abnormal.	Turn off the AC and DC switches, wait for 15 minutes, turn on the AC and DC switches, and restart the device. If the fault persists, contact technical support.
25	1 - 6	BST1 - BST6 Flying Capacitor Hardware Undervoltage			
26	1 - 6	BST1 - BST6 Inductor Software Overcurrent			
27	1 - 6	High BST1 - BST6 Input Voltage		The PV array is not properly configured. Excessive PV modules are connected in series in the PV string, and therefore the PV string open-circuit voltage exceeds the maximum operating voltage of the device.	1. If the DC switch is on, check the series connection configurations of the PV string. • If the maximum open-circuit voltage of the PV string is higher than the maximum input voltage, contact technical support. • If the maximum open-circuit voltage of the PV string is lower than the maximum input voltage, ensure that the maximum open-circuit voltage of the PV string is lower than or equal to the maximum operating voltage of the device. After the PV array is correctly configured, the device alarm is automatically cleared. 2. If the DC switch is off, contact technical support. 3. Check whether the altitude is correctly configured.

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
28	1 - 30	PV1 - PV30 Reverse Connection	Fault	A PV string is connected in reverse polarity.	1. check whether the positive and negative terminals of the PV string are reversely connected. If yes, wait until the PV string current decreases to below 0.5A, set DC SWITCH to OFF, adjust the polarity of the PV string. 2. If the device fault persists after the PV string polarity is adjusted, reset the device on the local app or WebUI of the upper-layer controller. Alternatively, turn off the AC and DC switches, wait for 5 minutes, and then turn on the AC and DC switches. 3. The following is the mapping between PV strings and alarm cause ID: [ID1–n correspond to PV strings 1–n respectively.]
29	1 - 12	BST1 - BST12 Current Offset Alarm	Alarm	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
30	1	PV1 Reverse Connection			
	2	PV3 Reverse Connection			
	3	PV5 Reverse Connection			
	4	PV6 Reverse Connection			
	5	PV8 Reverse Connection			
	6	PV10 Reverse Connection			
	7	PV11 Reverse Connection			
	8	PV13 Reverse Connection			
	9	PV15 Reverse Connection			
	10	PV16 Reverse Connection			
	11	PV18 Reverse Connection			
	12	PV20 Reverse Connection			
	13	PV21 Reverse Connection			
	14	PV23 Reverse Connection			
	15	PV25 Reverse Connection			
	16	PV26 Reverse Connection			

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
30	17	PV28 Reverse Connection	Alarm	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
	18	PV30 Reverse Connection			
31	1	Master SPI Communication Fault	Fault		
	2	Slave SPI Communication Fault			
	3	Master SPI Communication Fault2			
32	1 - 30	PV1 - PV30 Current Backfeed	Alarm	1. Only a few PV modules are connected in series in the PV string. Therefore, the terminal voltage is lower than that of other PV strings. 2. Reverse polarity occurs in the string.	1. Check whether the number of PV modules connected in series to this PV string is less than the number of PV modules connected in series to the other PV strings connected in parallel with this PV string. If yes, wait until the PV string current decreases to below 0.5A, set DC SWITCH to OFF, and adjust the number of PV modules in the PV string. 2. Check whether the PV string is shaded. 3. Check whether the open-circuit voltage of the PV string is normal. 4. Check whether PV modules in the PV string are connected in reverse polarity. 5. The following is the mapping between PV strings and alarm cause ID: [ID1–n correspond to PV strings 1–n respectively.]
33	1 - 30	High PV1 - PV30 Current Backfeed	Fault		1. Check whether the number of PV modules connected in series to this PV string is less than the number of PV modules connected in series to the other PV strings connected in parallel with this PV string. If yes, wait until the PV string current decreases to below 0.5A, set DC SWITCH to OFF, and adjust the number of PV modules in the PV string. 2. Check whether the PV string is shaded. 3. Check whether the open-circuit voltage of the PV string is normal. 4. Check whether PV modules in the PV string are connected in reverse polarity. 5. The following is the mapping between PV strings and alarm cause ID: [ID1–n correspond to PV strings 1–n respectively.]
34	1	BST Open-Loop Pulse Abnormal		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
35	1 - 30	High PV1 - PV30 Current			

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
36	1 - 12	BST1 - BST12 IGBT Lower-Bridge Normal Open	Alarm	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
41	1	WiFi Communication Alarm		An abnormal condition has occurred in communication of the WiFi device.	
42	1	RS485 Communication Alarm		An abnormal condition has occurred in communication of the RS485 device.	1. Check whether the communications cable is connected properly. 2. Check whether the communication parameters are correctly configured.
	2	PLC Communication Alarm		An abnormal condition has occurred in communication of the PLC.	
45	1	EEPROM Communication Fault	Fault	An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
51	1	Internal Fan Alarm	Alarm	The internal fan is short-circuited, the power supply is insufficient, or the air channel is blocked.	Turn off the AC switch and DC switch, wait for 5 minutes, and then turn on the AC switch and DC switch. If the fault persists after the device runs for 5 minutes, contact technical support to replace the device.
	2	External Fan Alarm		The external fan is short-circuited, the power supply is insufficient, or the air channel is blocked.	1. Turn off the AC switch and DC switch, check that the fan blades are normal, and clear the foreign objects around the fan if there are any. 2. Reinstall the fan and turn on the AC switch and DC switch. If the fault persists after the device runs for 15 minutes, replace the fan.
60	1	AC SPD Alarm		The AC surge protective device (SPD) is damaged.	Contact *enPossibilities technical support* to replace the SPD.
	2	DC SPD Alarm		The DC SPD is damaged.	
61	1	Internal Temperature Sampling Alarm		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
	2	Module Temperature Sampling Alarm			
70	1	Grid Undervoltage	Fault	The grid voltage is below the lower threshold or the low voltage duration has lasted for more than the value specified by LVRT.	1. If the alarm occurs occasionally, the power grid may be abnormal temporarily. The device automatically recovers after detecting that the power grid becomes normal. 2. If the alarm occurs frequently, check whether the power grid voltage is within the allowed range. If not, contact the local power operator. If yes, modify the power grid undervoltage protection threshold after obtaining the consent of the local power operator. 3. If the fault persists for a long time, check the connection between the AC switch and power cables.

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
71	1	Grid Overfrequency	Fault	Power grid exception: The power grid frequency is higher than the frequency required in the local standard.	1. If the alarm occurs occasionally, the power grid may be abnormal temporarily. The device automatically recovers after detecting that the power grid becomes normal. 2. If the alarm occurs frequently, check whether the power grid frequency is within the allowed range. If not, contact the local power operator. If yes, modify the power grid overfrequency protection threshold after obtaining the consent of the local power operator.
	2	Grid Underfrequency		Power grid exception: The power grid frequency is lower than the frequency required in the local standard.	
72	1	AC Voltage Imbalance Fault		The three phases of the power grid differ greatly in voltage.	1. If the alarm occurs occasionally, the power grid may be abnormal temporarily. The device automatically recovers after detecting that the power grid becomes normal. 2. If the alarm occurs frequently, check whether the power grid voltage is within the normal range. If not, contact the local power operator. 3. If the fault persists for a long time, check the connection of the AC cable. 4. If the AC cable is correctly connected and the alarm persists and affects the operation of the plant, contact the local power operator.
73	1	Islanding Fault		When the power grid experiences an AC power outage, the device detects islanding proactively.	Check that the voltage at the grid connection point of the device is normal.
74	1	Full Bus Software Overvoltage		The DC bus voltage of the device exceeds the upper threshold.	Turn off the AC switch and DC switch, wait for 5 minutes, and then turn on the AC switch and DC switch. If the fault persists, contact technical support.
	4	BST Full Bus Software Overvoltage			
75	1	Full Bus Undervoltage		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
76	1	Bus Midpoint Voltage Imbalance Fault			
77	1	AC Current Imbalance Fault			
78	1	DCI Limit Exceeded Fault		The DC component in the AC current exceeds the upper threshold.	1. The device detects its external working conditions in real time. After the fault is rectified, the device automatically recovers. 2. If the alarm occurs frequently, contact technical support.

Alarm ID	Alarm Subcode	Alarm Name	Fault / Alarm	Possible Cause	Suggestion
79	1	Residual Current Limit Exceeded	Fault	The input-to-ground insulation resistance decreases during device operation.	1. If the alarm occurs occasionally, the external circuit may be abnormal temporarily. The device will automatically recover after the fault is rectified. 2. If the alarm occurs frequently or persists, check whether the DC-to-ground resistance is too low.
	2	Sudden Residual Current Surge Limit Exceeded			
80	1	Grid Voltage RS Sampling Offset		Abnormal sampling circuit.	Check whether the grid voltage sampling circuit is normal.
	2	Grid Voltage ST Sampling Offset			
	3	Grid Voltage TR Sampling Offset			
81	1	Inverter Phase-A Voltage Sampling Offset			
	2	Inverter Phase-B Voltage Sampling Offset			
	3	Inverter Phase-C Voltage Sampling Offset			
82	1	Inverter Phase-A Current Offset			
	2	Inverter Phase-B Current Offset			
	3	Inverter Phase-C Current Offset			
86	1	Control Command Tracking Alarm		An abnormal condition has occurred in the internal circuit of the device.	Contact *enPossibilities technical support*.
87	1	Phase Sequence Recognition Fault		Failed to identify positive/ negative grid sequence.	
88	1	Residual Current Detector Fault		Residual current sampling value deviates from self-test mode setting.	
89	1	Insufficient Power During Self-Test Startup	Alarm	PV input power below minimum operating threshold, preventing normal startup.	1. Check whether the PV strings are shaded. 2. Wait for solar irradiance to reach the required.

10 Removal and Disposal

⚠ DANGER

- Before removing and disposing the inverter, disconnect both AC and DC connections.
- Never disconnect DC connectors directly when PV strings are exposed to sunlight. If disconnection is required, the PV strings should be shielded first.

10.1 Removing The Inverter

NOTICE

- If the inverter is to be reused, refer to *4.3 Storage Requirements*.
- If the inverter mounting bracket is to be disposed, remove the mounting bracket and dispose of both the bracket and the inverter properly.

Procedures

Step 1 Power off the inverter. Refer to *7.3 Power-Off Operations*.

Step 2 Disconnect all cables from the inverter, including AC cables, DC cables, communication cables, and PE cables.

Step 3 Install dust plugs on the DC terminals.

Step 4 Refer to *5 Mechanical Installation* and remove the inverter from the mounting bracket by reversing the installation steps.

(Optional) Step 5 Remove the mounting bracket.

10.2 Disposing of The Inverter

⚠ CAUTION

Certain components of the inverter may cause environmental contamination. They must be disposed of in accordance with local regulations to avoid damage or personal injury.

Procedures

Step 1 Place the inverter in original packing box. If the original packing materials are not available, place the inverter inside a suitable cardboard box and seal it properly.

Step 2 Seal the packing box with tape.

Step 3 Dispose of the inverter according to the local disposal rules for electrical equipment waste.

11 Technical Specifications

Model	ENP-GU350K-G2
DC Side	
Max. PV Input Voltage	1500 V
MPPT Voltage Range	500 - 1500 V
Start-up Voltage	550 V
Nominal PV Input Voltage	1160 V
Max. Inverter Backfeed Current to Array	0
Max. PV Input Current Per MPPT	75 A
Max. PV Short Circuit Current Per MPPT	125 A
Number of MPPT	6
Number of PV Input	30
AC Output	
Nominal Output Power	350 kW
Max. Output Power	352 kW
Max. Output Apparent Power	352 kVA
Nominal Voltage	800V, 3L / PE
Nominal Grid Frequency	50/60Hz
Max. Output Current	254 A
Nominal Output Current	253 A
Max. Output Overcurrent Protection	254.1 A
Inrush Current	36A@1ms
Power Factor	~1 (0.8 leading to 0.8 lagging)
THDi	< 1% (at rated power)
Efficiency	
Max. Efficiency	99.05%
European Efficiency	98.8%
Protection	
PV String Current Monitoring	Integrated
PV Insulation Detection	Integrated
Residual Current Monitoring Unit	Integrated
DC Reserve Connection Protection	Integrated
Anti-island Protection	Integrated
AC Short Circuit Protection	Integrated
AC Overvoltage Protection	Integrated
DC Switch	Integrated
DC Surge Protection	Type II
AC Surge Protection	Type II
Reactive Power Compensation at Night	Integrated
Protective Class	Class I
Pollution Class	External: Class III, Internal: Class II
Overvoltage Category	III[AC], II[DC]
AFCI	Optional
Anti-PID & PID Recovery	Optional
AC Breaker	Recommend: 800 Vac / 400 A
General Data	
Dimensions (W×H×D)	1147 × 800 × 362 mm
Weight	< 120 kg
Ambient Temperature	-30 to +60°C
Operating Humidity	0 - 100%RH (non-condensing)
Altitude	≤ 4000 m
Ingress Protection	IP66
Cooling Method	Smart Air Cooling
Isolation Method	Non-isolated
AC Connection	OT/DT Terminal (Max. 400 mm^2)
Display & Communication & Standard	
Display	LED, Bluetooth+ enP-U cloud
Communication Interface	RS485, PLC
Executive Standards	IEC/EN 62109-1/-2

* Subject to change without notice.

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