SUNGROW
Clean power for all

User Manual

Communication Box

COM100A

COM100A-V22-UEN-Ver15-202403

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About This Manual

This manual gives instructions mainly on the transport, storage, installation, electrical connection, and regular maintenance of the product, yet not all-encompassing regarding all details. You may visit **www. sungrowpower. com** or the website of the equipment manufacturer for more information.

Declaration

To ensure safe use of the product, please read through the below information carefully:

1 This manual is intended for personnel who are responsible for product installation or other work on the product. Users must have certain electrical and mechanical expertise, and be familiar with the electrical and mechanical schematics and the characteristics of electronic components. SUNGROW shall not be held liable for any personal injury or economic loss arising from the installation carried out by non-qualified personnel or not in compliance with the safety instructions specified in this manual.

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3 The manual may be updated and revised from time to time, however, there still might be slight deviation from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can find the latest version of user manual on the company's website, or reach your sales for it.

4 To ensure the safety of the installation personnel, the product, and the system, be sure to follow the safety instructions specified in this manual when installing the product. SUNGROW shall not be held liable for any personal injury or economic loss arising from failure to follow the instructions specified in this manual.

5 If maintenance on or alteration to this product is needed, please contact SUNGROW customer service in advance. The copyright of this user manual belongs to SUNGROW, and any rights not expressly granted are reserved. The content herein is subject to change without notice and may deviate from the actual up-to-date product.

Target Group

This manual is intended for qualified technical persons who are responsible for installation, electrical connection, and other relevant work on the product.

Installation can only be done by qualified technical persons. Qualified technical persons must:

- Have certain electrical wiring, electronic, and mechanical expertise, and be familiar with electrical and mechanical schematics;
- Have received professional training in the installation and commissioning of electrical equipment, and have the necessary experience;
- Be able to respond quickly to dangers or emergencies that may occur during the process of installation and commissioning;

- Read through this manual carefully and have a good understanding of the relevant safety instructions;
- Be familiar with applicable local standards and relevant safety regulations on electrical systems.

How to Use This Manual

Read through this manual carefully before using the product, and keep it properly in an easy-to-reach place.

The manual may be updated and revised from time to time, however, there still might be slight deviation from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can find the latest version of the manual at **support.sungrowpower.com** or reach your sales for it.

Symbols in the Manual

To ensure the safety of life and property for users when using the product and to improve the efficiency of product use, the manual provides relevant safety information, which are highlighted by the following symbols.

Symbols used in this manual are listed below. Please review carefully for better use of this manual.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a moderately hazardous situation which, if not avoided, will result in death or serious injury.

⚠ CAUTION

Indicates a slightly hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.

Indicates supplementary information, emphasis on specific points, or tips related to the use of the product that might help to solve your problems or save your time.

Contents

All Rights Reserved I
About This Manual II
1 Safety Instructions 1
1.1 Safety Signs on the Product 1
1.2 General Safety Instructions 2
1.3 Packaging, Transport, and Storage Safety 4
1.4 Installation Safety 5
1.5 Electrical Safety 7
1.6 Operation Safety 8
1.7 Maintenance Safety 8
1.8 Disposal Safety 10
2 Product Description 11
2.1 Function Introduction 11
2.2 Main Features 11
2.3 Dimensions 11
3 Mechanical Installation 13
3.1 Installation Notices 13
3.2 Inspection before Installation 13
3.3 Location Requirements 14
3.4 Installation Method 14
3.4.1 Wall Mounting 15
3.4.2 Ground Mounting 16
3.4.3 Pole Mounting (optional) 17
4 Electrical Connection 18
4.1 Electrical Connection Notices 18
4.2 Waterproof Terminal Description 19
4.3 Internal Structure 19
4.4 Preparation Before Connection 21
4.5 Electrical Connection Steps 22
4.5.1 Grounding 22
4.5.1.1 Cooper Bar Grounding 22

4.5.1.2 PE Point Grounding 24
4.5.2 RS485 Communication Terminal Connection 25
4.5.3 Optical Fibre (Optional) 26
4.5.4 AC 220V Connection 26
4.5.5 PLC Port Connection 27
4.6 Communication Methods 31
5 Commissioning 32
5.1 Operation Notices 32
5.2 Inspection before Commissioning 32
5.3 Commissioning Steps 32
6 Troubleshooting and Maintenance 34
6.1 Maintenance Notices 34
6.2 Troubleshooting 34
7 Appendix A: Related Parameters 36
8 Appendix B: General Information 37
8.1 Quality Assurance 37
8.2 Contact Information 37

1 Safety Instructions

Be sure to read through this manual carefully before proceeding with the transport, storage, installation, operation, use, and maintenance of the device. All work should be done by strictly following the safety instructions mentioned in this manual to ensure the personnel safety. Improper use or misoperation may result in:

- Injury to or death of the operator or other people;
- Damage to the device or the property of the operator or other people.

- Safety instructions in this manual should only serve as a supplement and not all-encompassing regarding all the norms that need to be followed. All work should be carried out considering the actual situation on the site.
- SUNGROW shall not be held liable for damages caused by violation of safe operation requirements, general safety standards, and safety instructions in this manual.

1.1 Safety Signs on the Product

Signs on the Product

Observe all warning signs on the product at all times, which are:

Symbol	Description
	High voltage inside. Risk of electrical shock hazard when it is touched.
	PE (Protective Earthing) terminal, which should be grounded properly to ensure the safety of operators.

Labels Inside the Product

Observe all labels inside the product at all times, which are:

Symbol	Description
	Warning Electric Shock.
	Must wear insulated protection supplies.

1.2 General Safety Instructions

Compliance with Laws and Regulations

NOTICE

All work, including transport, storage, installation, operation, use, and maintenance, should be done in compliance with the local laws, regulations, standards, and specifications.

Personnel Requirements

NOTICE

Persons who perform operations on the device must meet the following requirements:

- **Have received professional training in the installation and commissioning of electrical equipment, and have the necessary experience;**
- **Be able to respond quickly to dangers or emergencies that may occur during the process of installation and commissioning;**
- **Persons, who are responsible for device installation and maintenance, must be trained thoroughly and have a firm grasp of the correct operation methods and a good knowledge of safety precautions and applicable local standards of the country/region;**
- **Persons responsible for special types of work (e.g. electrical operations, working at heights) must have relevant qualifications as required by the local regulations of the country/region.**

DANGER

- **Do not wear any conductive object, such as watches, bracelets, bangles, rings, and necklaces, during the operation process, so as to avoid electrical burns.**
- **Do not smoke in the area where the device is located, so as to prevent fires, electric shocks, and explosions, which may result in personal injuries or property damages.**

DANGER

Use specialized insulated tools during operation to avoid electric shock hazards or short circuits. The tools should have an insulation withstand voltage rating that meets the requirements of the applicable local laws, regulations, standards, and specifications.

WARNING

Wear specialized personal protective equipment during the process of operation, such as protective clothing, insulated shoes, goggles, safety helmets, and safety gloves.

WARNING

Personnel except for those who perform operations on the device should stay away from the device.

Tools Requirements

WARNING

- **Ensure all necessary tools are ready, without any damage, and pass the inspection by a specialized agency. Do not use tools that have signs of damages or fail to pass the inspection. Make sure the tools are firm and secure.**
- **Understand how to use the tools correctly before starting using them to avoid personal injury or damage to the device.**

WARNING

- **Use a wooden or insulated ladder when working at heights to avoid getting an electric shock.**
- **Check if the ladder is in good shape and if its load capacity meets the requirements. Do not overload the ladder.**

Environment Requirements

DANGER

Do not place the device near heat or fire, so as to prevent damaging the device or causing fires.

DANGER

Do not store flammables and explosives in the device area. Do not place the device in an environment with flammable, explosive gas or smoke, or perform any operation in such environments.

WARNING

Do not install the device in an area close to liquids, so as to avoid device malfunction or short circuits caused by ingress of liquids.

⚠ WARNING

When installing the device, ensure the foundation is solid and stable and has a load-bearing capacity up to the requirements of the device.

⚠ WARNING

Do not perform any operation on the product (including but not limited to, handling, installing, powering on, and maintaining the product, performing electrical connection, and working at heights) in harsh weather conditions, such as thunder and lightning, rain, snow, and Level 6 or stronger winds.

⚠ WARNING

The device should be kept in a clean, dry, and well-ventilated place and protected from dust and condensation.

⚠ WARNING

Do no install the device in a place with strong vibration, strong noise source, or strong electromagnetic field interference.

⚠ CAUTION

To prevent irrelevant personnel from operating the product by mistake or other accidents, please set up highly visible warning signages or safety warning tapes around the product.

NOTICE

Ensure the safety signs, warning labels, and the nameplate of the device are clearly legible.

1.3 Packaging, Transport, and Storage Safety

Packaging

The product is packed in a cardboard box with orientation markings that provide loading and unloading instructions.

Transport

- All work related to transport must be carried out in compliance with the applicable local laws and regulations of the country/region.
- Measures should be taken to fasten the goods during transport, so as to avoid damages to product packaging due to strong shaking or bumping.

- Get prepared for carrying its weight before handling the device to avoid getting hurt. This device should be moved by at least 3 people together.

Storage

- The place where the product is stored should be kept dry, clean, and well-ventilated, protected from hazardous gases.
- Do not store the product in a place where corrosives are kept.
- The packaged product should be stored in an appropriate environment. See "Technical Data" for the corresponding environmental parameters.

Unpacking and Inspection

- Non-qualified personnel are forbidden from disassembling the device or moving its components.
- Check if the product you have received matches the order you placed.
- Inspect the product for external damages or damages to its structural parts.
- Check if the safety signs, warning labels, and the nameplate on the product are all legible.

In case of any problem with the above-mentioned inspection items, contact SUNGROW in time.

1.4 Installation Safety

⚠ DANGER

During installation, do not perform any operation on the device when it is powered on. Do not connect or disconnect the cables when the device is powered on, as electric arcs or sparks may occur immediately when the cable core is in contact with the conductor, which may cause fires or personal injuries.

NOTICE

Installation should be conducted in compliance with the applicable local laws, regulations, standards, and specifications.

Installation Requirements

⚠ WARNING

Poor operating environments will affect the device's system performance!

- **Install the product in a well-ventilated place.**
- **Ensure the product's heat dissipation system or air vent is not blocked.**
- **Do not install the product in an environment with flammables, explosives, or smoke.**

Pre-installation

NOTICE

- **Upon receiving the product, be sure to inspect it for damages. Contact SUNGROW or the transport company immediately in case of anything abnormal.**
- **Be sure to have a good understanding of the safety instructions in this manual before performing any operation on the product.**
- **Please load/unload, handle, install, operate, and maintain the device by referring to the descriptions in this manual to ensure the safe use of the device.**
- **Before installing the device, ensure the cabinet is stable and not tilted.**

During Installation

NOTICE

This product can only be used for purposes specified in this manual. Unauthorized alternations or use of parts and components not sold or recommended by SUNGROW may result in fires, electric shocks, and other hazards.

NOTICE

Disconnect all electrical connection and the upstream input switch before installation, and ensure the device is voltage-free.

NOTICE

If drilling is required during installation:

- **Wear goggles and safety gloves.**
- **Avoid the water pipes and electrical wires inside the wall when drilling.**
- **Cover the product to protect it from ingress of debris and dust.**

Post-installation

NOTICE

After the device is installed, clear away the empty packaging materials in the device area, such as the cardboard box, foam, plastics, and ties.

1.5 Electrical Safety

Improper wiring may result in personal injuries. Operators responsible for electrical wiring must read through the safety instructions carefully before proceeding with this work.

DANGER

Before carrying out electrical connection:

- **Make sure the product is not damaged; otherwise, it may lead to danger.**
- **Disconnect the upstream input switch and ensure the device is voltage-free; otherwise, it may lead to electric shocks.**

DANGER

Improper or incorrect electrical wiring may result in accidents such as fires or electric shocks.

DANGER

Danger to life due to high voltage inside the device!

- **When performing electrical wiring, operators must wear proper personal protective equipment and use specialized insulated tools, so as to avoid electric shock hazards or short circuits.**
- **Ensure the cables are voltage-free using a measurement instrument before touching them.**
- **Please observe the warning signs on the device, and perform operations by strictly following the corresponding safety instructions.**

WARNING

For the device that needs to be grounded, connect the PE cable as the first step when installing it, and disconnect the PE cable at the very end of the process when removing it.

WARNING

Before operating the device, inspect the electrical connection and ensure the device is reliably grounded.

WARNING

If the power cable is not long enough, replace it with a new one. Do not add joints or welding spots to the power cable.

⚠ WARNING

- **Electrical connection must be performed by qualified personnel.**
- **All work related to wiring must be conducted in compliance with the applicable local laws and regulations of the country/region.**
- **Please observe the warning signs on the device, and perform operations by strictly following the corresponding safety instructions.**
- **Damages to the product due to incorrect wiring will not be covered by the warranty.**

1.6 Operation Safety

There is high voltage inside the device when it is running, and improper operation may cause personal injuries or property damages. Please perform operations by strictly following the safety instructions specified in this manual and other relevant documentation.

⚠ DANGER

When laying cables, keep the cables at least 30 mm away from the outer edge of the heat-generating components or areas, so as to protect the insulation layer of cables from aging or getting damaged due to high temperature.

⚠ DANGER

When the device is running:

- **Do not touch any live component of the device; otherwise, it may lead to electrical shocks.**
- **Do not touch any wiring terminal on the device; otherwise, it may lead to electrical shocks.**
- **Do not touch any hot part of the device (e.g. heat sink); otherwise, it may cause burns.**

1.7 Maintenance Safety

Improper maintenance may lead to personal injuries or property damages. Therefore, it is necessary to power off the device before maintenance and perform operations by strictly following the safety instructions specified in this manual and other relevant documentation.

DANGER

- **Before maintenance, disconnect the upstream power supply and PLC power supply first; otherwise, it may cause personal injury.**
- **Wait 25 minutes after the device is powered off, then measure the voltage and current with a specialized measurement instrument. Only when no current or voltage is present, operators, who wear protective equipment, can perform operation and maintenance on the device.**
- **Even if the device is shut down, it may still be very hot and cause burns. Please perform operations on the device wearing safety gloves after it cools down.**

DANGER

Do not touch the grid or the contacts and terminals inside the product that are connected to the grid; otherwise, it may lead to electric shocks.

WARNING

Power off the device before proceeding with maintenance.

WARNING

- **Repair of the device can only be performed by SUNGROW's service team or qualified personnel.**
- **Users are forbidden from performing repair and maintenance or replacing modules by themselves. Otherwise, it may cause severe personal injuries or property damages.**

CAUTION

To prevent irrelevant personnel from operating the product by mistake or other accidents, please set up highly visible warning signages or safety warning tapes around the product.

NOTICE

- **Do not use cleaning agents to clean up the device. Otherwise, the device may be damaged, and losses caused therefrom will not be covered by the warranty.**
- **If the paint on device's enclosure peels off or the enclosure gets rusty, repair it in time. Otherwise, the device performance may be affected.**
- **No component inside the device requires maintenance. Do not open the device (except for the junction box) or replace any internal components without authorization. Otherwise, damages caused therefrom will not be covered by the warranty.**
- **To minimize the risk of electric shocks, do not perform maintenance operations that are not specified in this manual. If needed, please contact SUNGROW for maintenance and repair services. Otherwise, damages caused therefrom will not be covered by the warranty.**

1.8 Disposal Safety

Please scrap the product in accordance with relevant local regulations and standards to avoid property damages or personal injuries.

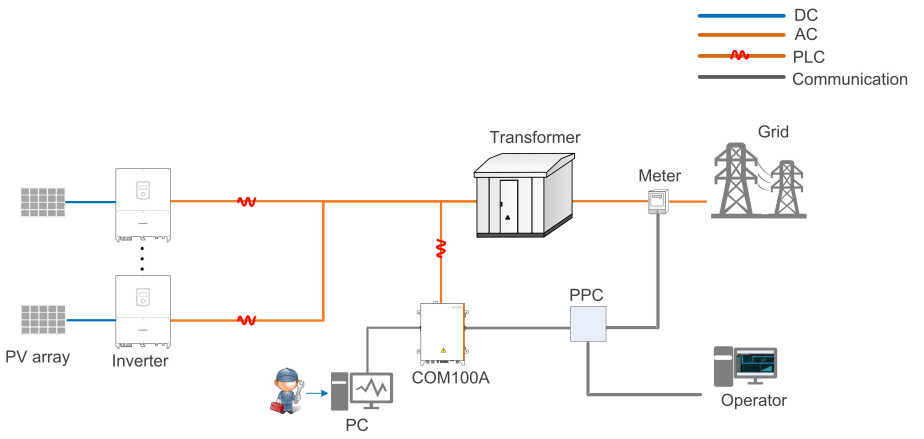
NOTICE

- **All work related to product scrapping must be done in compliance with the applicable local laws and regulations of the country/region.**
- **Ensure the safety signs, warning labels, and the nameplate on the product are all legible before scrapping it.**

2 Product Description

2.1 Function Introduction

The system block diagram is shown in the following figure.



2.2 Main Features

Smart and flexible

- Integrating fiber switch and splice box, easy and flexible networking
- Integrating data collector, support of local intelligent commissioning
- Wall mounting, pole mounting, and ground mounting available, flexible installation

Simple and efficient

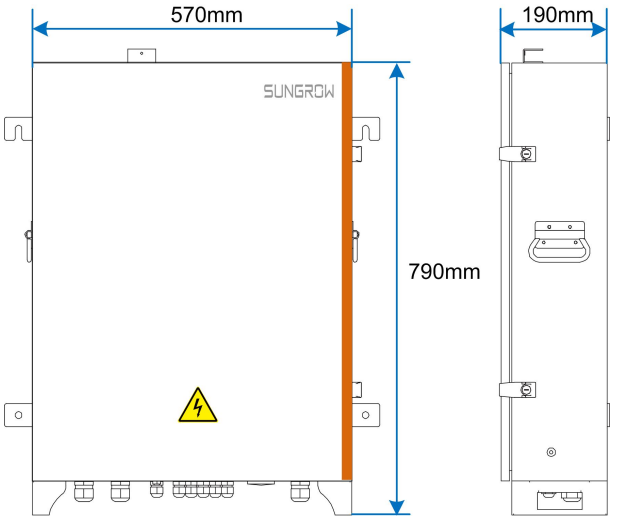
- Seamless connection to iSolarCloud, easy management of PV devices
- Built-in PLC communication, communication and management of string inverters without cable routing

Safe and reliable

- Equipped with electrical isolation and SPD protection, steady and reliable communication
- Ingress of protection IP65, long-term reliable outdoor operation

2.3 Dimensions

The external dimensions of COM100A are shown in the following figure.


570mm
190mm
SUNGROW
790mm

3 Mechanical Installation

3.1 Installation Notices

Before installing the device, read through the “General Safety Instructions” first and ensure the requirements listed therein, as well as requirements mentioned in "Installation Safety", are all met.

⚠ DANGER

During installation, do not perform any operation on the device when it is powered on. Do not connect or disconnect the cables when the device is powered on, as electric arcs or sparks may occur immediately when the cable core is in contact with the conductor, which may cause fires or personal injuries.

⚠ WARNING

- **Install the product in a well-ventilated place.**
- **Ensure the product’s heat dissipation system or air vent is not blocked.**

NOTICE

Disconnect all electrical connection and the upstream input switch before installation, and ensure the device is voltage-free.

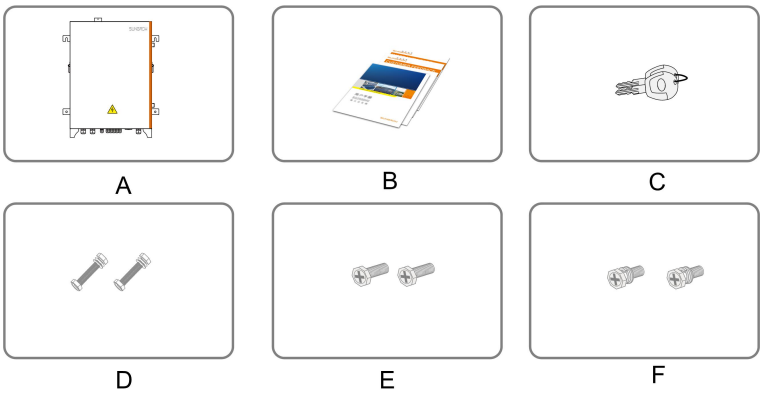
NOTICE

If drilling is required during installation:

- **Wear goggles and safety gloves.**
- **Avoid the water pipes and electrical wires inside the wall when drilling.**
- **Cover the product to protect it from ingress of debris and dust.**

3.2 Inspection before Installation

Check the scope of delivery for completeness according to the packing list. The following items should be included:



No.	Description	Sum
A	COM100A	1
B	Documents, including certificate, warranty card, delivery inspection report, user manual, etc.	1
C	Keys	2
D	M10 hexagon bolt assembly, used for wall-mounted installation and floor-mounted installation	4
E	M4x25 bolt, used for fixing antenna	1
F	M6x14 bolt assembly, used for fixing external PE point	1

NOTICE

The device is carefully tested and inspected before delivery, but damage may be caused during shipping. Therefore, inspect the device before installation. If there any damage, contact the forwarding company or SUNGROW.

3.3 Location Requirements

- With the ingress of protection IP65, COM100A can be installed both indoors and outdoors (more commonly).
- Ambient temperature: -25℃ to +60℃; and ambient humidity: ≤ 95%. Excessive moisture can damage internal components.
- Take anti-moisture and anti-corrosion measures.

3.4 Installation Method

Overview

COM100A can be installed in two common manners: wall mounting and ground mounting.

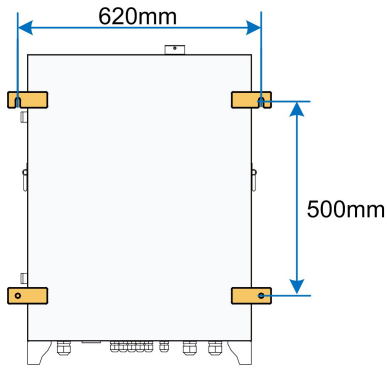
According to different user requirements, Sungrow provides the third optional installation method: pole mounting. If necessary, specify your requirement when placing an order.

⚠ WARNING

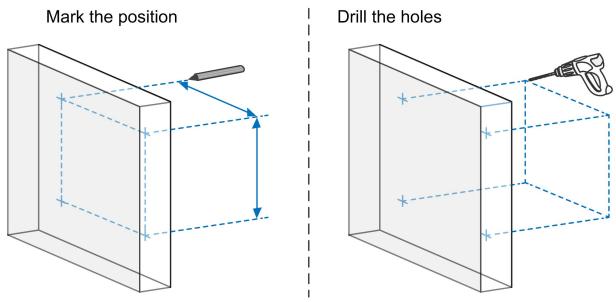
Beware of the weight of COM100A throughout the installation process!
Tilting or falling of the device due to inappropriate processing can cause personal injury!

3.4.1 Wall Mounting

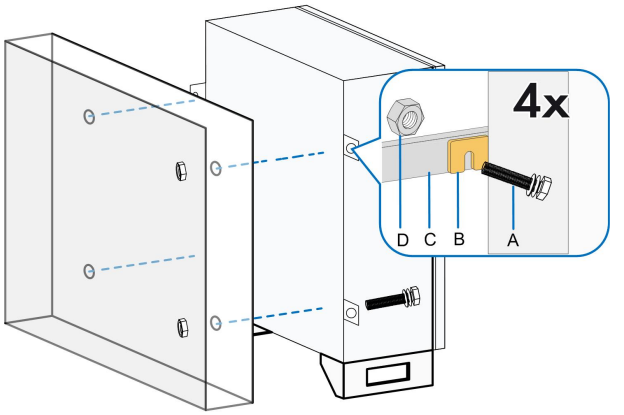
The installation dimensions of mounting ears on the back of COM100A are shown in the following figure.



Step 1 Mark the hole locations on the installation wall according to the foregoing installation dimensions and drill holes on the marked locations according to bolt specifications.



Step 2 Fasten the device in the order of M10 nut(A) , hanger(B), wall surface(C) and bolt(D), where the fastening torque is 37±3N.m.

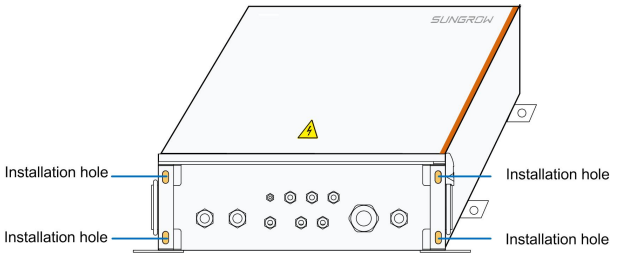


Step 3 Check to ensure COM100A is firmly in place.

- - End

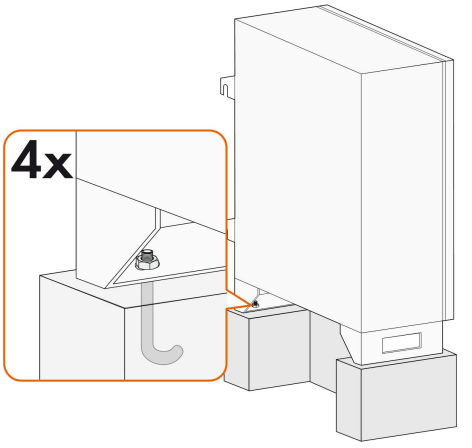
3.4.2 Ground Mounting

For the ground mounting, the device is fixed via the foundation bolts pre-embedded in the foundation.



Step 1 Construct the foundation according to the exterior dimensions of COM100A.

Step 2 Pre-embed the foundation bolts in the four foundation corners, where the bolts are of M10.



Step 3 Secure the mounting holes on bottom of COM100A to the foundation, where the fastening torque is 37±3N.m.

- - End

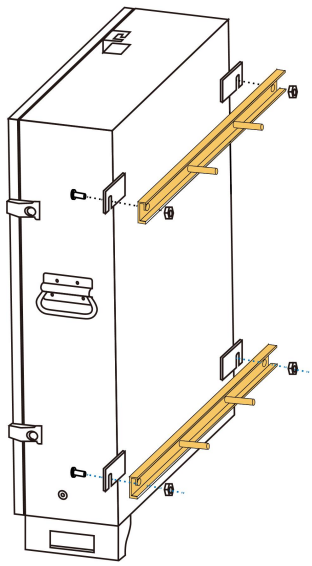
3.4.3 Pole Mounting (optional)

COM100A supports pole mounting. If necessary, specify your requirements when placing an order. Sungrow will design according to actual installation conditions.

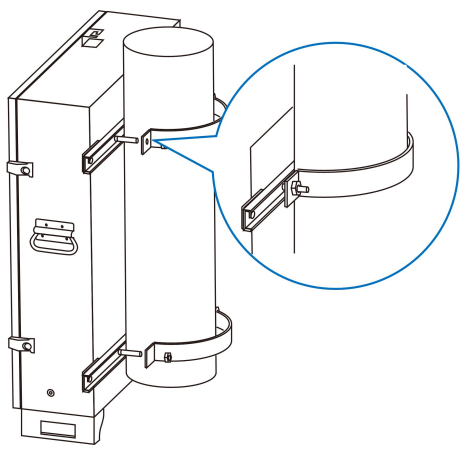
Accessories supplied with COM100A include matching screw combinations, nuts, brackets, clamps, and the like.

The installation steps are as follows:

Step 1 Fasten the mounting ears of COM100A onto the brackets by using the matching screw combinations, as shown in the figure below.



Step 2 Fix the brackets and the clamps by using the nuts.



- - End

4 Electrical Connection

4.1 Electrical Connection Notices

Before performing electrical connection, read through the “General Safety Instructions” first and ensure the requirements listed therein, as well as requirements mentioned in "Electrical Safety", are all met.

⚠ DANGER

Before carrying out electrical connection:

- **Make sure the product is not damaged; otherwise, it may lead to danger.**
- **Disconnect the upstream input switch and ensure the device is voltage-free; otherwise, it may lead to electric shocks.**

⚠ DANGER

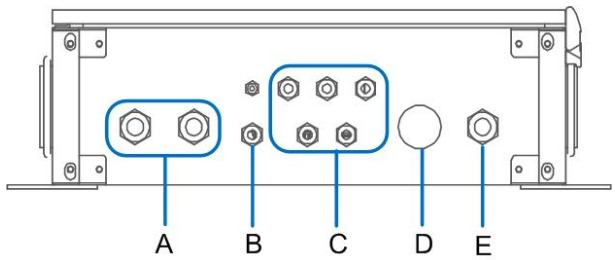
Danger to life due to high voltage inside the device!

- **When performing electrical wiring, operators must wear proper personal protective equipment and use specialized insulated tools, so as to avoid electric shock hazards or short circuits.**
- **Ensure the cables are voltage-free using a measurement instrument before touching them.**
- **Please observe the warning signs on the device, and perform operations by strictly following the corresponding safety instructions.**

⚠ WARNING

- **Electrical connection must be performed by qualified personnel.**
- **Please observe the warning signs on the device, and perform operations by strictly following the corresponding safety instructions.**

4.2 Waterproof Terminal Description

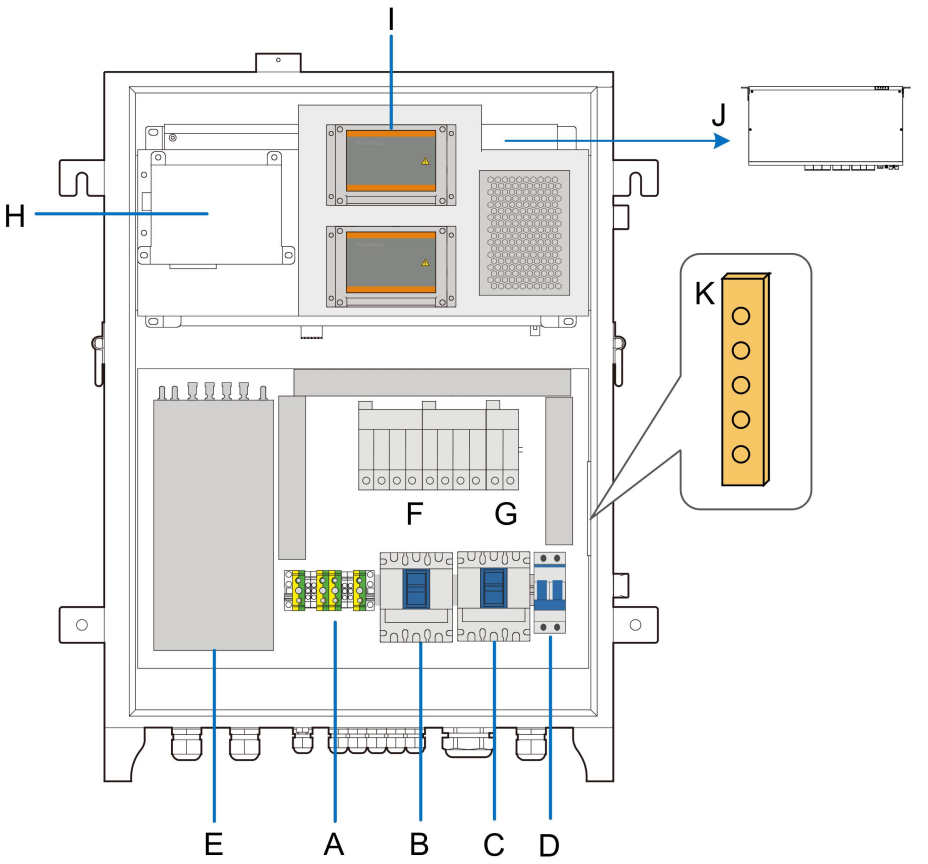


No.	Mark	Description
A	Optical fiber ports	Waterproof terminals for optical fibers
B	⏚	Grounding waterproof terminal
C	RS485	Waterproof terminals for RS485 communication cables
D*	Input AC 400V/480V/540V/800V	Waterproof terminal for PLC communication cables
E	Input AC220V	Waterproof terminal for AC 220V power cables

The voltage level indicated by D* is for reference only. Specifically, refer to the actual device purchased.

4.3 Internal Structure

The internal structure of COM 100 is shown in the following figure.



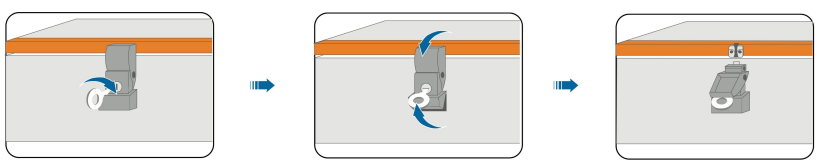
Internal components may differ as per selected product module. For details, refer to the actually received product.

No.	Description	Recommended Cable Specification	Source
A	RS485 communication terminal	2 x (0.75~1.5) mm², outdoor ultraviolet protection STP	Beyond the scope of delivery
B	PLC1 terminal	4mm² ~ 10mm² or 7~11AWG, withstanding voltage: Operating voltage < 800V To gourd operating voltage≥1,000V	Beyond the scope of delivery
C	PLC2 terminal		
D	220Vac power supply terminal	Withstanding voltage ≥ 315 Vac 1~1.5 mm² or 15~17AWG, outdoor ultraviolet protection cable	Beyond the scope of delivery

No.	Description	Recommended Cable Specification	Source
E	Splice box	—	—
F	Surge protective device 1	• Nominal voltage: 960Vac • Nominal current: 6A	—
G	Surge protective device 2	• Nominal voltage: 385Vac • Max. discharge current: 20kA	—
H	Switch (For more information, visit the website of the corresponding manufacturer)	—	—
I	PLC module	—	—
J	Logger	—	—
K	Grounding terminal	4mm² ~ 10mm² or 7~11AWG	Beyond the scope of delivery

4.4 Preparation Before Connection

Step 1 Open the cabinet. Unlock the door with the specific key, as shown in the following figure.



1 2 3

Step 2 Open the upstream input switch of COM100A, and turn the power switch inside COM100A to the "OFF" position to ensure COM100A is voltage-free.

- - End

4.5 Electrical Connection Steps

4.5.1 Grounding

Safety Instructions

WARNING

The grounding cable must be grounded reliably! Otherwise,

- **Lethal electrical shock can be caused when fault occurs!**
- **The device may be damaged by lightening!**

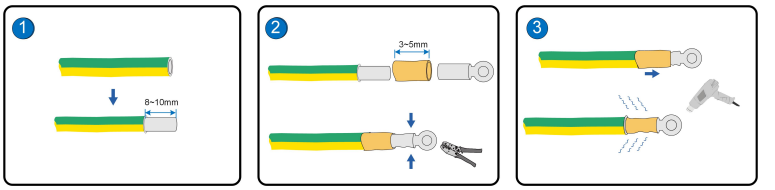
Brief Introduction

COM100A is designed with two grounding terminals: grounding copper bar inside the cabinet and external PE point.

On site, connect both grounding terminals reliably.

Preparation before Installation

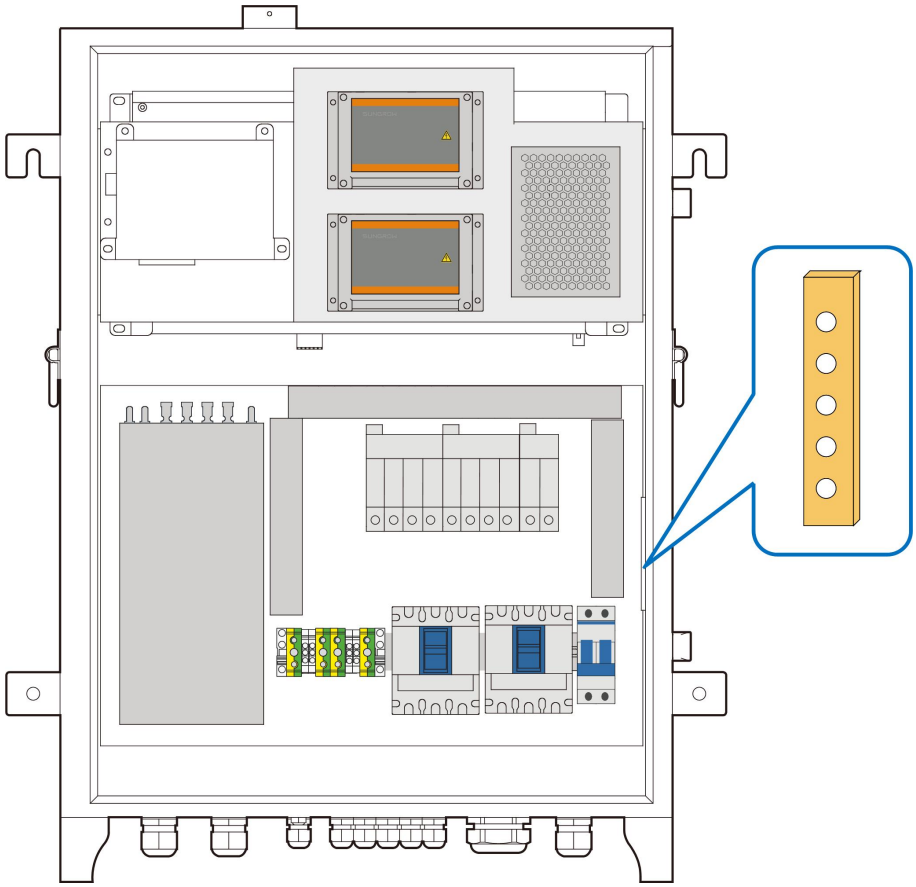
- Prepare the grounding cable.
- Strip the cable and crimp the OT terminal.



4.5.1.1 Cooper Bar Grounding

Position Description

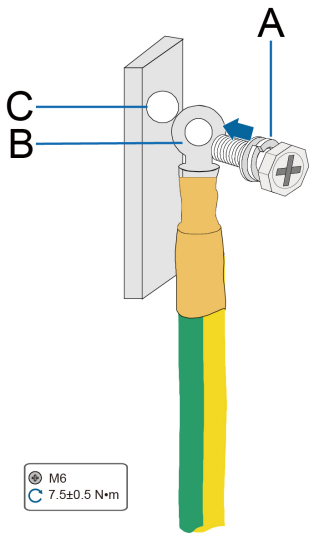
The grounding copper bar is located inside COM100A, as shown in the figure below.



Wiring Steps

Step 1 Unscrew the waterproof terminal "⏚" at the bottom of COM100A.

Step 2 Connect the yellow-green grounding cable led from outside to the grounding copper bar inside COM100A through the internal waterproof terminal "⏚".



No.	Definition	Remark
A	M6 bolt assembly	It has been installed on the copper bar before delivery.
B	OT terminal	-
C	Grounding hole	-

Step 3 Secure the cable with M6 bolt, where the fastening torque is 7.5±0.5N·m.

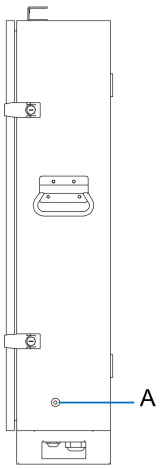
Step 4 Screw the waterproof terminal at the bottom of COM100A.

- - End

4.5.1.2 PE Point Grounding

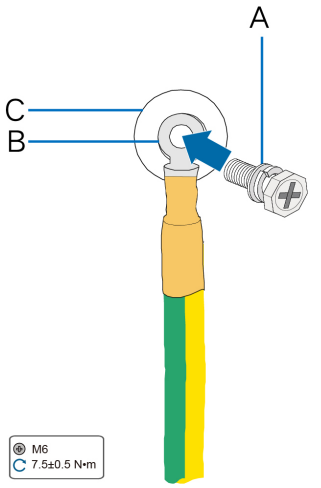
Position Description

The external PE point of COM100A is shown by A in the figure below.



Wiring Steps

Anchor the prepared OT terminal to the grounding hole with M6 x 14 bolt assembly, where the fastening torque is 7.5±0.5N·m.



No.	Definition	Remark
A	M6 x 14 bolt assembly	Included in the scope of delivery
B	OT terminal	-
C	Grounding hole	-

4.5.2 RS485 Communication Terminal Connection

Cable Requirements

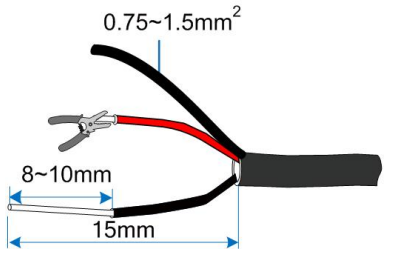
Cables connected to COM100A must be 2 x (0.75–1.5) mm² in cross-sectional area.

Wiring Steps

Step 1 Unscrew the "RS485" waterproof terminal at the bottom of COM100A.

Step 2 Connect the RS485 cable led from outside to the communication terminal inside COM100A through the "RS485" communication terminal.

Step 3 Strip the cable jacket with a wire stripper.



Step 4 Connect the cable to corresponding terminal, and secure it with a screwdriver, where the fastening torque ranges between 0.5N·m and 0.6N·m.

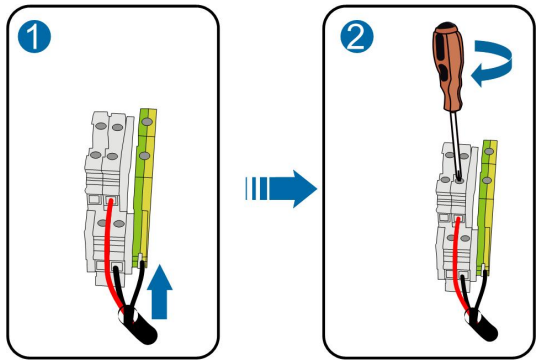


table 4-1 Terminal definition

Mark	Definition
GND	Connected to RS485 cable shield
A	Connected to RS485–A, corresponding to upper-layer terminal
B	Connected to RS485–B, corresponding to lower-layer terminal

Step 5 Gently pull the cable backwards to ensure firm connection.

Step 6 Screw the "RS485" waterproof terminal at the bottom of COM100A.

- - End

4.5.3 Optical Fibre (Optional)

Step 1 Unscrew the waterproof terminal "Optical fiber ports", and lead the optical fibre through the terminal.

Step 2 Splice the optical fibre inside the splice box.

For details, contact SUNGROW.

Step 3 Screw the waterproof terminal "Optical fiber ports".

- - End

4.5.4 AC 220V Connection

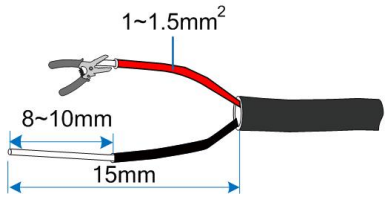
Preparation before Installation

- Before wiring AC 220V power supply, turn the micro circuit breaker to OFF position.
- Prepare the AC cable.

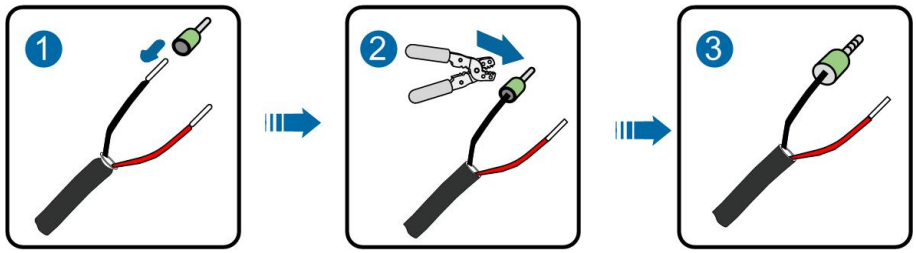
Wiring Steps

Step 1 Unscrew the waterproof terminal "Input AC220V", and lead the external power supply cable through the terminal.

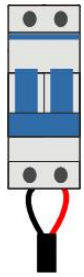
Step 2 Strip the cable with a wire stripper.



Step 3 Crimp the cord end terminal.



Step 4 Connect the cord end terminal to the corresponding terminal, and secure it with screw, where the fastening torque is 2.0N·m.



Step 5 Screw the waterproof terminal "Input AC220V".

- - End

4.5.5 PLC Port Connection

Wiring Diagram

COM100 can be connected to double-split transformer or double-winding transformer, as shown in the figures below.

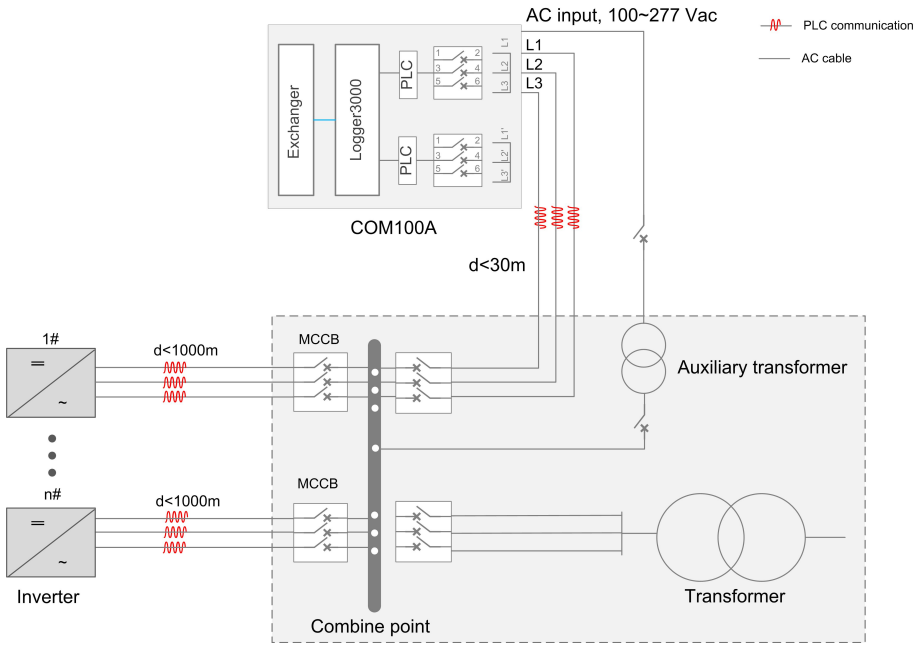


figure 4-1 Connection to double-winding transformer

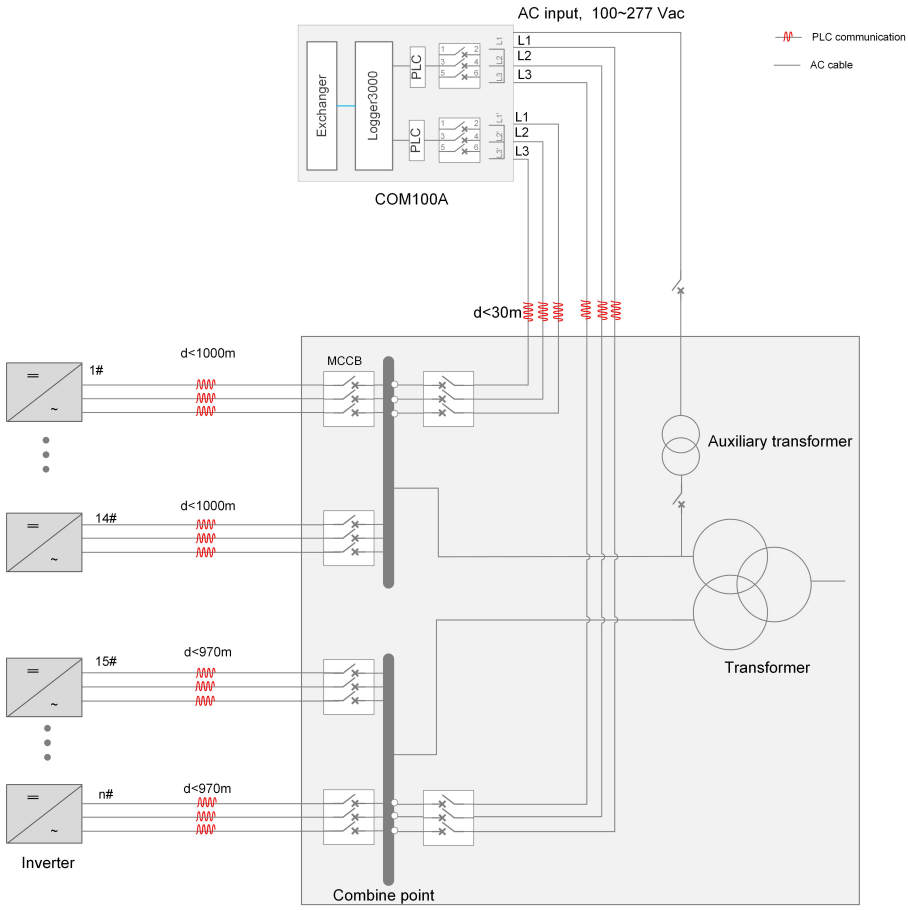


figure 4-2 Connection to double-split transformer

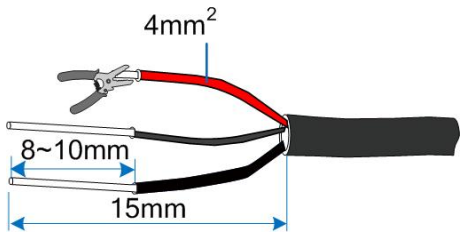
Preparation before Installation

Before wiring, ensure that upstream AC switches and circuit breakers inside COM100 are all disconnected.

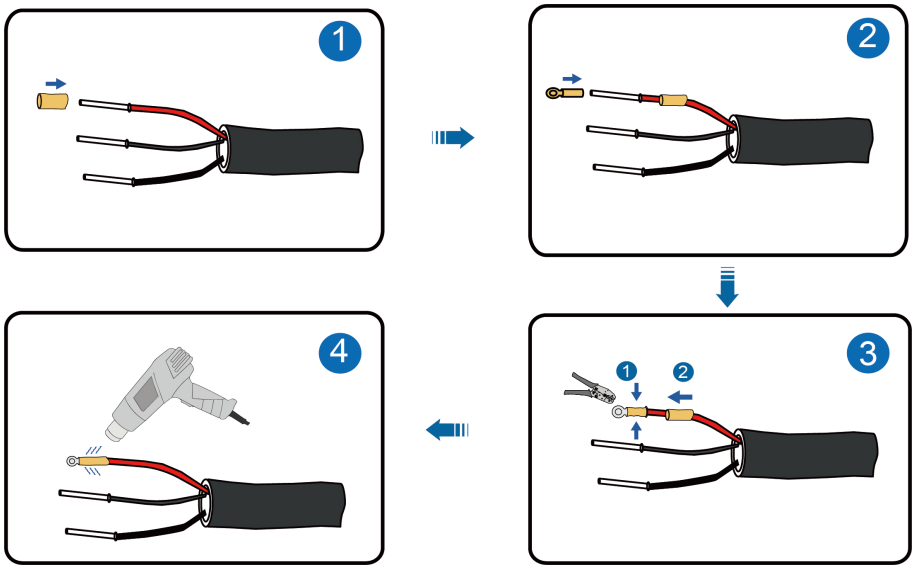
Installation Steps

Step 1 Unscrew the waterproof terminal "Input AC 400V/480V/540V/800V" at the bottom of COM100, and lead external AC cable through the terminal.

Step 2 Strip the cable jacket with a wire striper, as shown in the figure below.



Step 3 Crimp the OT terminal, whose specification is recommended to be OT2.5-6.



Step 4 Connect the cable to corresponding terminal.

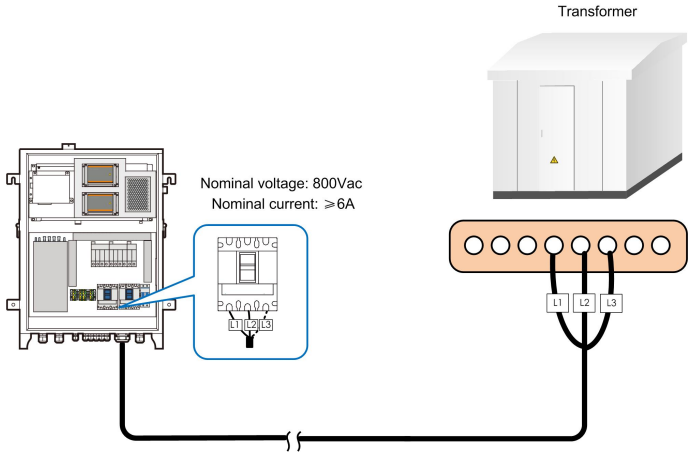


figure 4-3 Three-phase three-wire connection

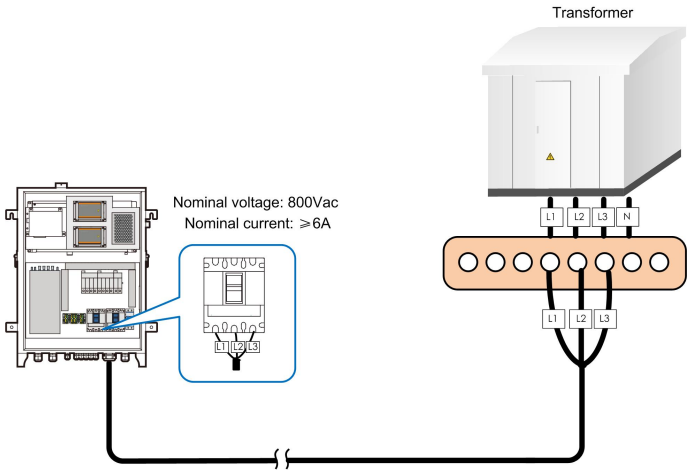


figure 4-4 Three-phase four-wire connection

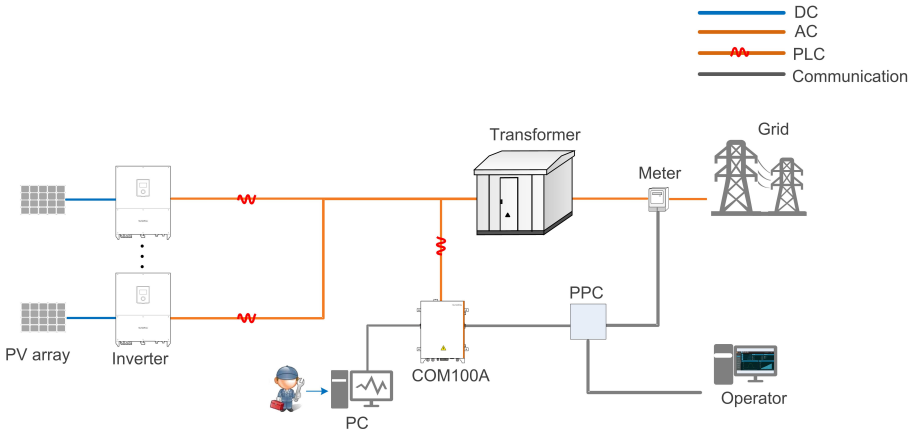
Step 5 Check the cable for correct connection, and then secure it with screw, where the fastening torque is 5.5N·m.

- - End

The parameters of the transformer side circuit breaker need to be selected in combination with the short-circuit current of the transformer.

4.6 Communication Methods

The COM100 can collect the operating data of the inverter, transformer and other equipment in the system and upload it to the remote monitoring system.



Users can check the operation information and set the parameters via the remote monitoring system.

5 Commissioning

5.1 Operation Notices

Before the device is put into operation, read through the “General Safety Instructions” first and ensure the requirements listed therein, as well as requirements mentioned in "Operation Safety", are all met.

DANGER

When the device is running:

- **Do not touch any live component of the device; otherwise, it may lead to electrical shocks.**
- **Do not touch any wiring terminal on the device; otherwise, it may lead to electrical shocks.**
- **Do not touch any hot part of the device (e.g. heat sink); otherwise, it may cause burns.**

5.2 Inspection before Commissioning

No.	Inspection item
1	All cables are intact, well-insulated, and appropriately dimensioned.
2	All cables are connected correctly and firmly.
3	The polarity of the power supply cable is correct. The grounding cable is reliably grounded.

5.3 Commissioning Steps

Commissioning Steps

Item	Description
1	Connect the input-side circuit breaker of the PLC inside COM100A.
2	Connect the control switch of 220V power supply.
3	Check whether the switch and 24V switch-mode power supply operate normally.
4	Observe running indicators of Logger3000. If the PWR indicator keeps steady on, and the RUN indicator flickers once every second, it indicates normal operation.

Configure Logger3000 through Web Interface

Item	Description
1	Connect PC to the Ethernet port of the switch inside COM100A by using a network cable. IP of the Ethernet port is 13.13.13.13 by default.
2	Set IP of the PC, which should be in the same network segment as that of the ETH2 port of the Logger3000. For example, it can be set to 13.13.13.x (x ranges between 1 and 255, except 13), and the subnet mask can be set to 255.255.255.0.
3	Enter the IP of the Logger3000, such as 13.13.13.13, in the PC address bar, to enter the corresponding Web interface.
4	Configure serial port parameters.
5	Add device.
6	Configure device IP.
7	Configure iSolarCloud address if inverter data needs to be uploaded to iSolarCloud. Accessed iSolarCloud site is "Chinese Server" by default. In mainland Chain, set the site to "Chinese Server". In Europe, set the site to "European Server". In Australia, set the site to "Australian Server". In other regions, set the site to "International Server".
8	Access the Web interface of Logger3000 and check whether running data of string inverters manufactured by SUNGROW is normal.
9	Create power plants through iSolarCloud App, and check whether data displayed on iSolarCloud is normal.

Additional Description

To create power plant through iSolarCloud App, download and install the App and then proceed as follows:

1 Log into the Web interface of Logger3000 and click "About", to obtain the QR code.

2 Scan the QR code with the App or manually input the S/N to add communication device.

For more details, refer to the user manual of Logger3000 which can be obtained by scanning the foregoing QR code.

6 Troubleshooting and Maintenance

6.1 Maintenance Notices

Before maintenance, read through the “General Safety Instructions” first and ensure the requirements listed therein, as well as requirements mentioned in "Maintenance Safety", are all met.

⚠ DANGER

Risk of personal injury or device damage due to improper maintenance!

- **Be sure to use specialized insulated tools when performing high-voltage operations.**
- **Before maintenance, disconnect the upstream power supply and PLC power supply first; otherwise, it may cause personal injury.**
- **Wait 25 minutes after the device is powered off, then measure the voltage and current with a specialized measurement instrument. Only when no current or voltage is present, operators, who wear protective equipment, can perform operation and maintenance on the device.**

⚠ WARNING

Power off the device before proceeding with maintenance.

⚠ CAUTION

To prevent irrelevant personnel from operating the product by mistake or other accidents, please set up highly visible warning signages or safety warning tapes around the product.

6.2 Troubleshooting

Fault	Possible Cause	Corrective Measures
According to the background monitoring device, some device in the PV array is abnormally disconnected.	1. RS485 cable is abnormal.	1. Measure the voltage between RS485–A and RS485–B with a multimeter, and check whether the voltage is about 5V.
	2. There are repeated device addresses in the PV array.	2. Check whether there are repeated device addresses.

Fault	Possible Cause	Corrective Measures
	3. Parameters of Logger3000 are incorrectly configured.	3. Check, through the Web interface“**System**”- > “**Port Parameter**”- > “**RS485**”, whether PLC is set to “**enable**”.
	4. Master and slave node modules of the PLC are abnormal.	4. Check whether the indicator D12 keeps steady red while the indicator D8 flickers green. If not, the modules are abnormal.
	5. Other causes	If the fault persists, please contact SUNGROW.
According to the background monitoring device, some device in the PV array is unstably connected.	1. There are repeated device addresses in the PV array.	1. Check whether there are repeated device addresses.
	2. Parameters of Logger3000 are incorrectly configured.	2. Check, through the Web interface “**System**”- > “**Port Parameter**”- > “**RS485**”, whether PLC is set to “**enable**”.
	3. Other causes	If the fault persists, please contact SUNGROW.

7 Appendix A: Related Parameters

Configuration	
Logger	Logger3000
Fibre channel switch (Optional)	2 optical ports, 6 electrical ports
Splice box (Optional)	2-input, 12-ouput
Power supply	100–277 Vac, 50/60 Hz
PLC port input voltage	400 Vac/480 Vac/540 Vac/800 Vac
PLC power supply voltage	• In-built master node of Logger3000: 15 Vdc • Master node of PLC module: 24 Vdc
Power consumption	• Average power consumption: 30W • Max. power consumption: 40W
Ambient parameter	
Operating temperature	- 25℃ – +60℃
Storage temperature	- 30℃ – +70℃
Operating humidity	0–95%, non-condensing
Operating altitude	0–3,000 m
Protection degree	IP65
Mechanical parameters	
Dimensions (W x H x D)	570×790×190 mm
Weight	32 kg
Installation method	Pole mounting, ground mounting, and wall mounting
Cable entry mode	Bottom entry

8 Appendix B: General Information

8.1 Quality Assurance

When product faults occur during the warranty period, SUNGROW will provide free service or replace the product with a new one.

Evidence

During the warranty period, the customer shall provide the product purchase invoice and date. In addition, the trademark on the product shall be undamaged and legible. Otherwise, SUNGROW has the right to refuse to honor the quality guarantee.

Conditions

- After replacement, unqualified products shall be processed by SUNGROW.
- The customer shall give SUNGROW a reasonable period to repair the faulty device.

Exclusion of Liability

In the following circumstances, SUNGROW has the right to refuse to honor the quality guarantee:

- The free warranty period for the whole machine/components has expired.
- The device is damaged during transportation by the user.
- The device is incorrectly installed, refitted, or used.
- The device operates in harsh conditions beyond those described in this manual.
- The fault or damage is caused by installation, repairs, modification, or disassembly performed by a service provider or personnel not from SUNGROW.
- The fault or damage is caused by the use of non-standard or non-SUNGROW components or software.
- The installation and use range are beyond stipulations of relevant international standards.
- The damage is caused by unexpected natural factors.

For faulty products in any of above cases, if the customer requests maintenance, paid maintenance service may be provided based on the judgment of SUNGROW.

8.2 Contact Information

In case of questions about this product, please contact us.

We need the following information to provide you the best assistance:

- Model of the device

- Serial number of the device
- Fault code/name
- Brief description of the problem

For detailed contact information, please visit: **https://en.sungrowpower.com/contactUS**

SUNGROW

Sungrow Power Supply Co., Ltd.

www.sungrowpower.com

M-H-001733