

GOODWE



User Manual

Smart Energy Controller
SEC1000S

V1.4-2024-08-05

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1 Symbols



Caution! - Failure to observe a warning indicated in this manual may result in minor or moderate injury.



Components of the product can be recycled.



Danger of high voltage and electric shock!



This side up - The package must always be transported, handled and stored in such a way that the arrows always point upwards.



Product should not be disposed as normal household waste.



No more than six (6) identical packages be stacked on each other.



CE Mark



The package/product should be handled carefully and never be tipped over or slung.



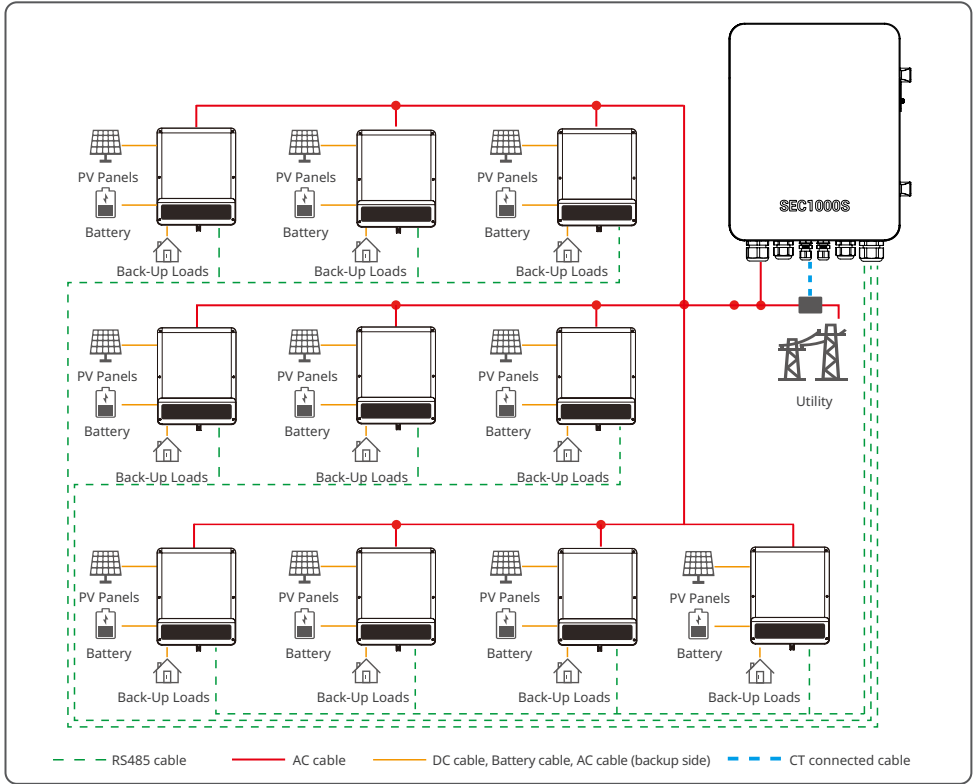
Keep Dry - The package/product must be protected from excessive humidity and must accordingly be stored under cover.

2 Safety and Warning

SEC1000S of GoodWe Technologies Co., Ltd. (hereinafter referred to as GoodWe) has been designed and tested strictly according to the international safety regulation. As electrical and electric equipment, Safety Regulation shall be followed during installation and maintenance. Improper operation may bring severe damage to the operator, the third party and other properties.

- Installation and maintenance of SEC1000S must be performed by qualified personnel in compliance with local electrical standards, regulations and the requirements of local power authorities.
- To avoid electric shock, make sure the connection between SEC1000S and AC output of inverter, SEC1000S and Grid, is disconnected before performing any installation or maintenance.
- When in operation, users should not touch any of the electrical parts of SEC1000S, like internal components or cables to avoid electric shock.
- All electrical installations must comply with local electrical standards and obtain permission from local power authorities before SEC1000S can be connected to the grid by professionals.
- Before replacing any internal components of SEC1000S, the connection between the inverter and SEC1000S, the power grid and SEC1000S must be disconnected, and the newly replaced components must meet the requirements of SEC1000S. Otherwise, GoodWe will not assume the responsibility and quality assurance for the personal harm.
- Make sure that the AC input voltage and input current match the rated voltage and current of SEC1000S, otherwise the components will be damaged or cannot work properly, and GoodWe will not assume the responsibility and quality assurance for this case.
- There are lightning protection modules inside. Make sure to connect the internal PE with the ground when installing SEC1000S.
- When in operation, do not plug or unplug cables of SEC1000S.
- SEC1000S must be installed out of reach of children.
- Appropriate antistatic measures should be taken.
- SEC1000S supports the three-phase four-wire grid structure only.
- Can only be used in spontaneous self-use mode.

3 System Networking



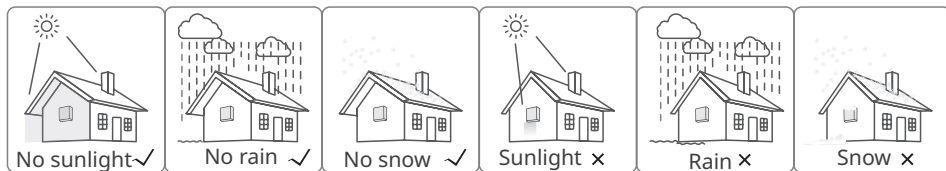
Note:

1. The system supports up to 10 inverters, please distribute them equally to each COM port.
2. No separate Smart Meter is required in inverter paralleling system along with SEC1000S deployed. This solution is only applicable to the paralleling of on-grid side not to back-up side. There are special requirements on the version of firmware of ET or ET PLUS+ applied in this solution, with DSP version 01 or newer and ARM version 09 or newer. The firmware version of SEC1000S designated for inverter paralleling application should be 01 or newer.
3. Install communication modules to all inverters in the system.

4 Mounting

4.1 Mounting Instruction

- SEC1000S must be installed where there is no significant shaking, shock vibration and no direct rain or snow.
- SEC1000S shall be installed at eye level for easy operation and maintenance.
- SEC1000S should not be installed near inflammable and explosive items. Any strong electromagnetic equipment should be kept away from installation site.
- SEC1000S shall be installed at a location free from explosive hazardous media and free from gas and dust sufficient to corrode metals and destroy insulation.
- SEC1000S parameters and warning signs must be clearly visible after installation.
- SEC1000S should be installed without sunshine, rain and snow.



4.2 Overview and Packaging

After opening the package, confirm if it is consistent with specification of SEC1000S you purchased.

4.2.1 SEC1000S Overview

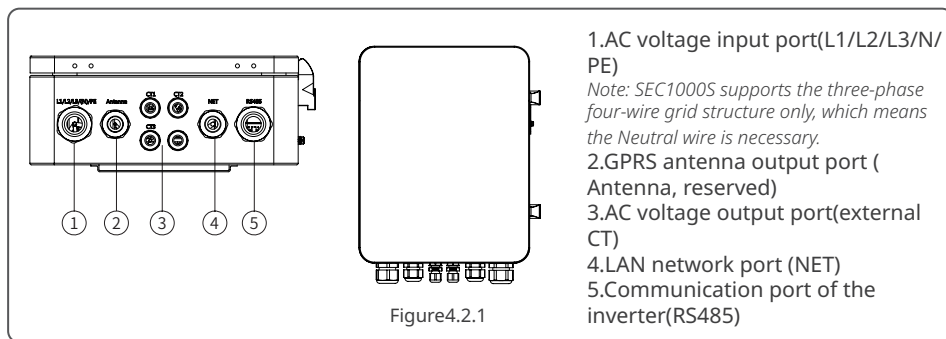
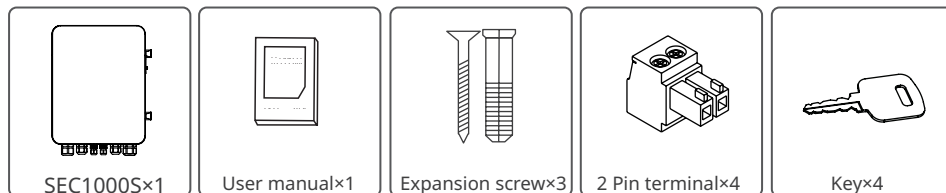
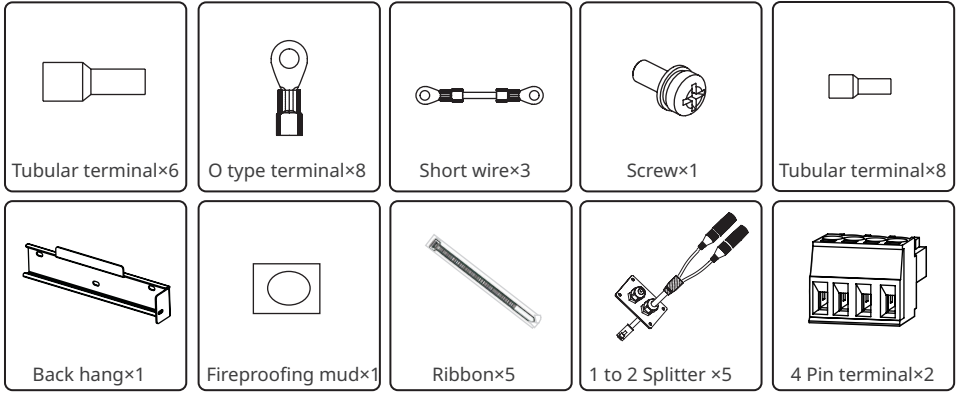


Figure4.2.1

4.2.2 Package



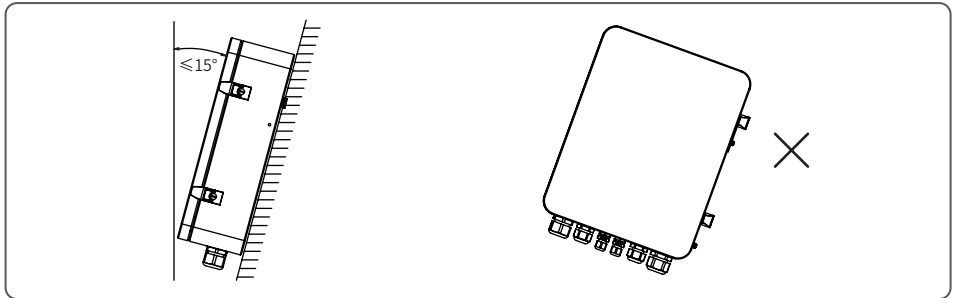


4.3 SEC1000S Installation

4.3.1 Selecting the installation location

The following must be considered when selecting the best location for an SEC1000S.

- The mount and installation method must be appropriate for the SEC1000S's weight and dimensions.
- Install on a sturdy surface.
- The installation location must be well ventilated.
- SEC1000S can be placed horizontally or installed vertically.
- The SEC1000S must be installed vertical or with a backward tilt less 15°.No sideways tilt is allowed. The connection area must point downwards.



- To allow dissipation of heat, and for convenience of dismantling, clearances around the SEC1000S must be no less than the values, refer to figure 4.3.1-2.

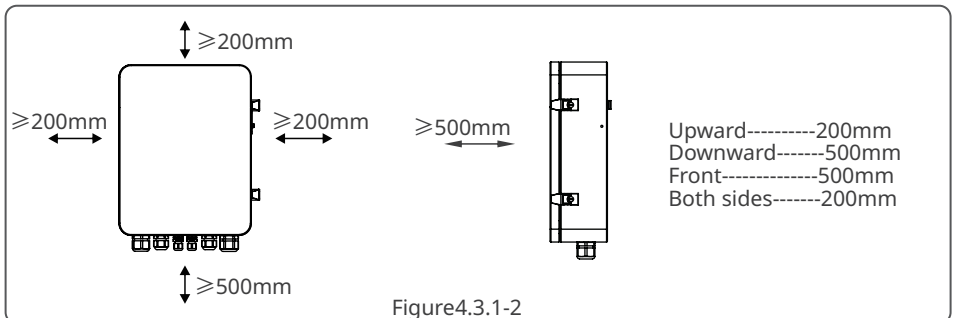


Figure 4.3.1-2

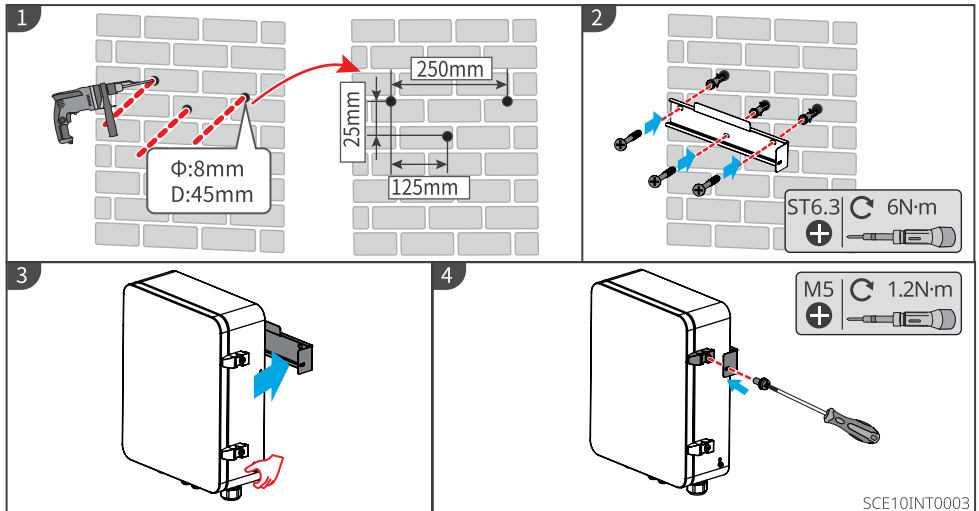
4.3.2 Mounting Procedure

Step 1 Drill holes on the wall, 8mm in diameter and 45mm deep.

Step 2 Fix the wall mounting bracket on the wall with expansion bolts in accessory bag.

Step 3 Place SEC1000S on the wall-mounted bracket.

Step 4 Fix the SEC1000S to the bracket using screws.



5 Electrical Connection

5.1 Safety Precaution



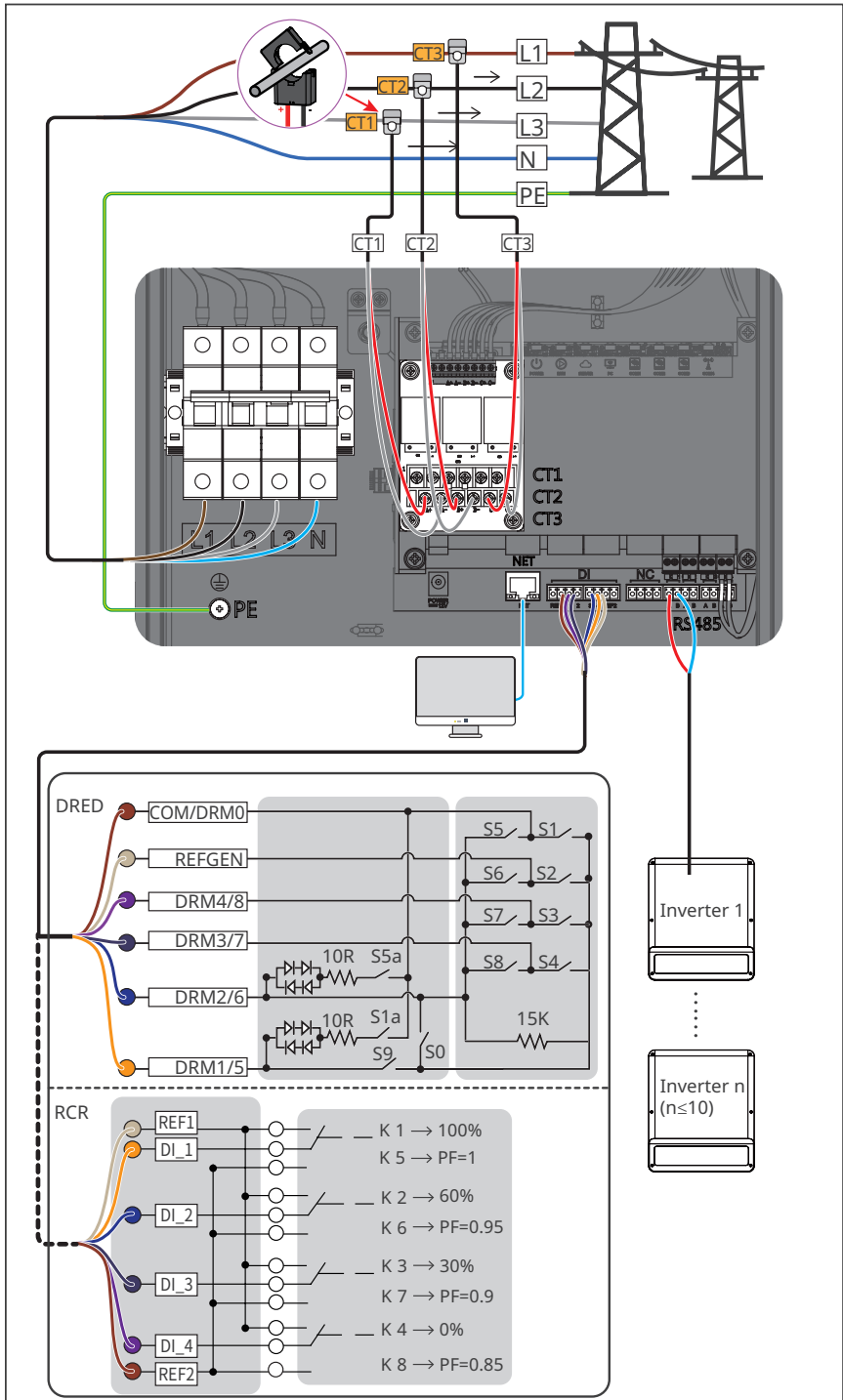
- Before electrical connections, disconnect all upstream switches to ensure the device is not energized. Do not work with power on. Otherwise, an electric shock may occur.
- Perform electrical connections in compliance with local laws and regulations. Including operations, cables, and component specifications.
- If the cable bears too much tension, the connection may be poor. Reserve a certain length of the cable before connecting it to the equipment.

NOTICE

- Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only. The cable specifications shall meet local laws and regulations.

5.2 System Wiring

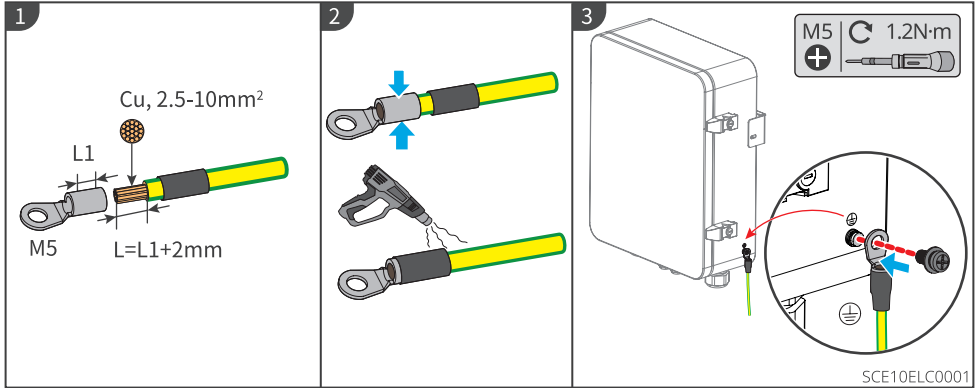
No.	Cable	Silkscreen	Specifications
1	AC cable	L1/L2/L3/N	<ul style="list-style-type: none">• Copper cable• Conductor cross-sectional area: 2.5mm²- 8.0mm²• Conductor Diameter range: 1.8mm-3.2mm
2	PE cable		<ul style="list-style-type: none">• Copper cable• Conductor cross-sectional area: 2.5mm²- 10.0mm²• Conductor Diameter range: 1.8mm-3.6mm
3	CT cable	A+/A-/B+/B-/C+/C-	<ul style="list-style-type: none">• Conductor cross-sectional area: 1.3mm²- 2.3mm²• Conductor Diameter range: 1.3mm-1.7mm
4	Network cable	NET	<ul style="list-style-type: none">• Standard Network cable
5	DI signal cable	DI-REF1/1/2/3/4/REF2	<ul style="list-style-type: none">• Conductor cross-sectional area: 0.07mm²- 1.3mm²• Conductor Diameter range: 0.3mm-1.3mm
6	RS485 signal cable	COM1/2/3	<ul style="list-style-type: none">• Conductor cross-sectional area: 0.07mm²- 1.3mm²• Conductor Diameter range: 0.3mm-1.3mm



5.3 Conneting the PE Cable

⚠ WARNING

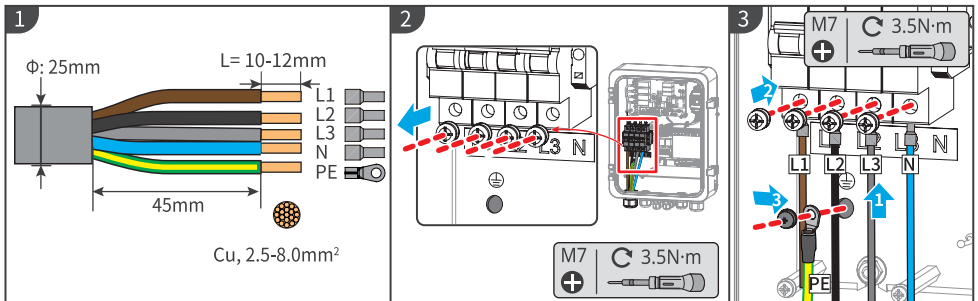
- Make sure the equipment is reliably grounded before any operations.
- To improve the corrosion resistance of the terminal, it is recommended to apply silica gel or paint on the grounding terminal after installing the PE cable.
- The PE cable and grounding OT terminal should be prepared by the customer.



5.4 Conneting the AC Cable

NOTICE

Input phase voltage range: AC60V-AC280V; Input line voltage range: AC100V-AC480V; AC Frequency: 50/60Hz.

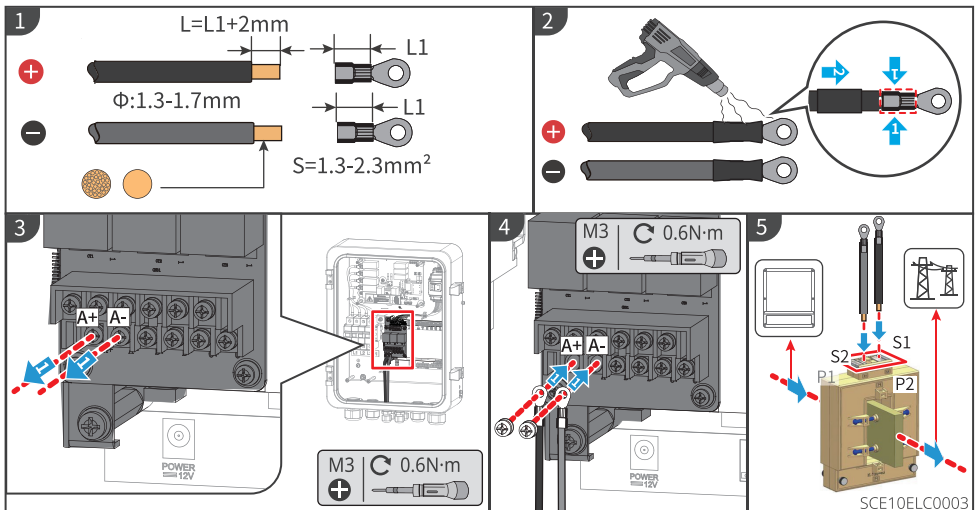


5.5 Conneting the CT Cable

NOTICE

- Install three set of external CT to the power cables. CT_A (A+/A-) connects phase L1, CT_B (B+/B-) connects phase L2, and CT_C (C+/C-) connects phase L3.
- The CT with a secondary current of 5A should be prepared by customers. Recommended specifications of GoodWe CT:

No.	Range of current tested	Content	Remark
1	$I_{max} < 250A$	CT 200A Acrel/AKH-0.66(200A/5A)	Backflow CT, closed type (Holesize 31mm*11mm, 22mm)
		CT 250A/5A Acrel/AKH-0.66-K-30x20-250/5	Backflow CT, open type (Opening size: 32mm*22mm), accuracy 0.5%
		CT 250A/5A Acrel/AKH-0.66-K-60x40-250/5	Backflow CT, open type (Opening size: 62mm*42mm), accuracy 1.0%
2	$250A \leq I_{max} < 1000A$	CT 1000A/5A Acrel/AKH-0.66-K-60x40-1000/5	Backflow CT, open type (Opening size: 62mm*42mm), accuracy 0.5%
		CT 1000A/5A Acrel/AKH-0.66-K-80x40-1000/5	Backflow CT, open type (Opening size: 82mm*42mm), accuracy 0.5%
		CT 1000A/5A Acrel/AKH-0.66-K-80x80-1000/5	Backflow CT, open type (Opening size: 82mm*82mm), accuracy 0.5%
3	$1000A \leq I_{max} < 5000A$	CT 5000A/5A Acrel/AKH-0.66-K-140x60-5000/5	Backflow CT, open type (Opening size: 142mm*62mm), accuracy 0.2%
		CT 5000A/5A Acrel/AKH-0.66-K-160x80-5000/5	Backflow CT, open type (Opening size: 162mm*82mm), accuracy 0.2%

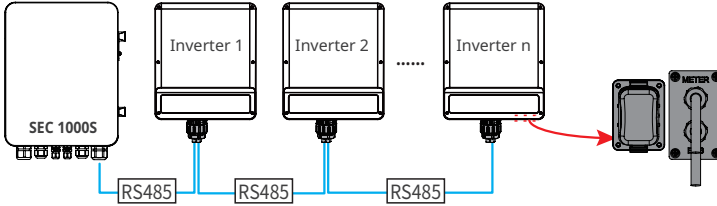


5.6 Connecting the RS485 Cable

NOTICE

- The system supports up to 10 inverters, please distribute them equally to each COM port.

Type I



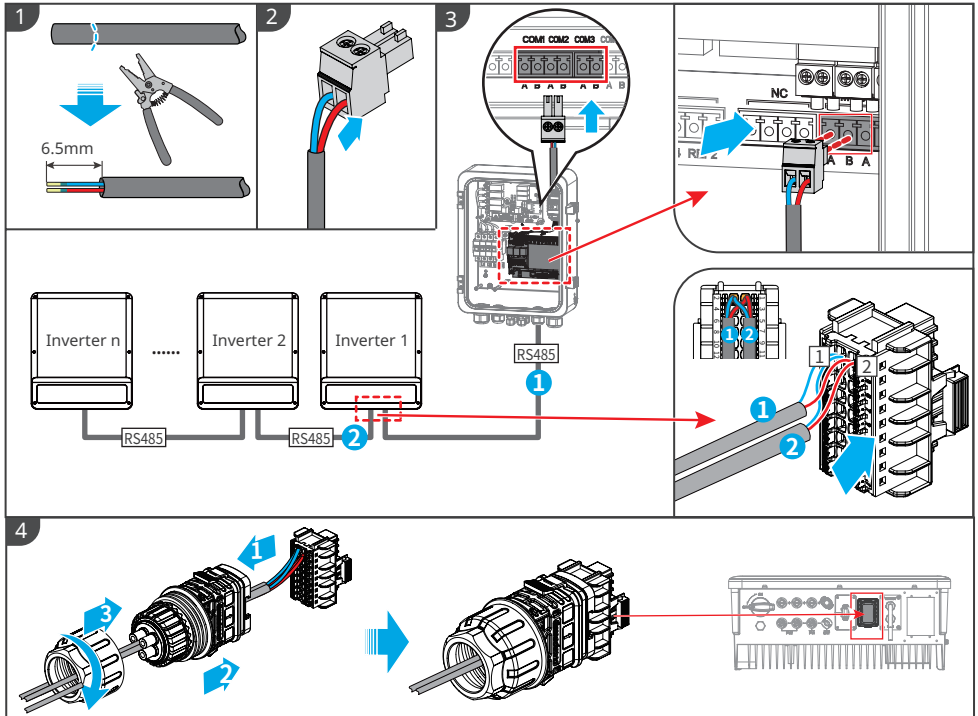
Step 1 Cut and strip the prepared RS485 cable.

Step 2 Insert RS485+ and RS485- wire into the 2-pin terminal.

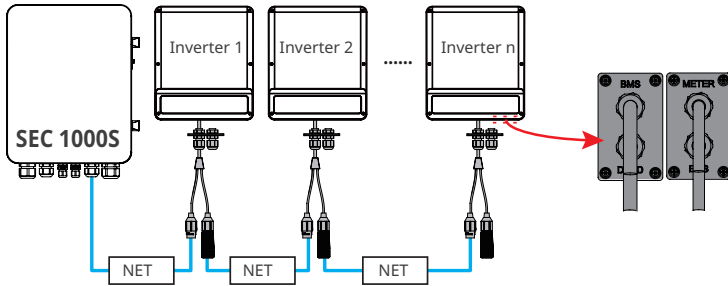
Step 3 Insert the 2-pin terminal to COM1, COM2 or COM3 of SEC1000S.

Step 4 Disassemble the 18pin communication terminal of the inverter, and connect the other end of the RS485 cable to the 18pin terminal.

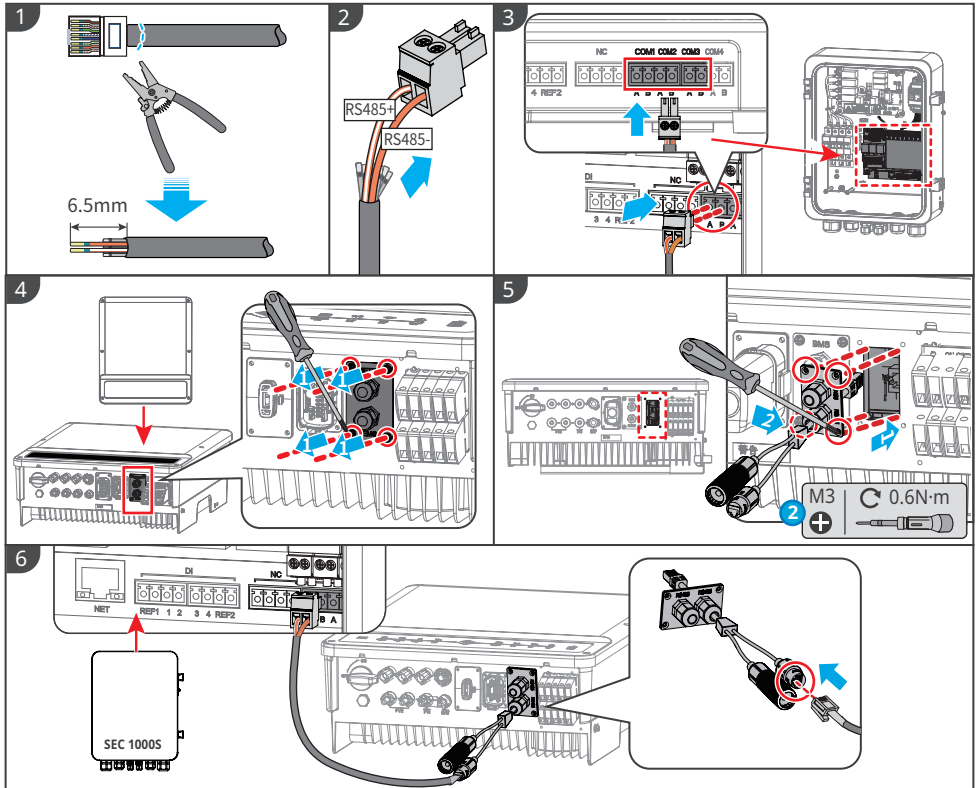
Step 5 Assemble the 18pin communication terminal and insert it to the inverter.



Type II



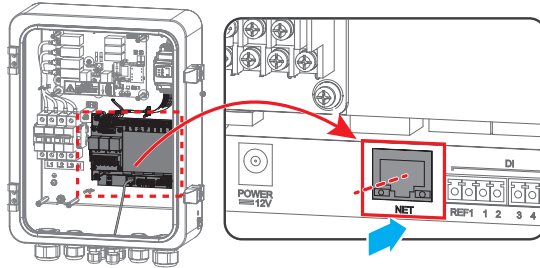
- Step 1** Cut and strip the prepared standard network cable.
- Step 2** Insert orange&white and orange wire into the 2-pin terminal.
- Step 3** Insert the 2-pin terminal to COM1, COM2 or COM3 of SEC1000S.
- Step 4** Remove the RS485 cap of the inverter.
- Step 5** Install the new cap with a Y-splitter to the inverter.
- Step 6** Connect the inverter and the SEC1000S using the network cable.



5.7 Connecting the Network Cable

NOTICE

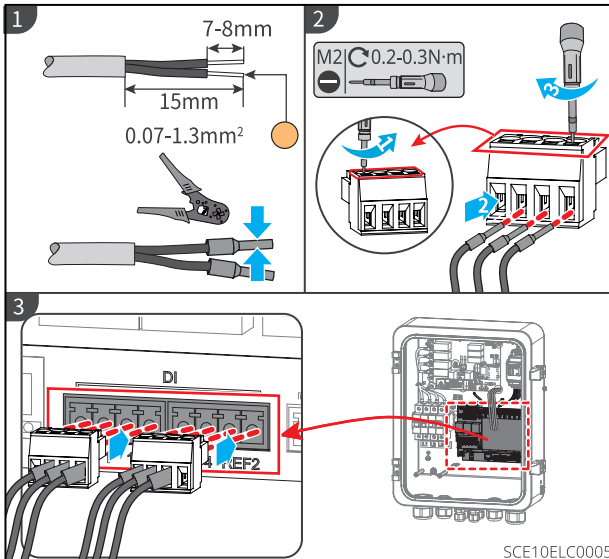
- The standard network cable should be prepared by customers.



5.8 Connecting the DI Cable

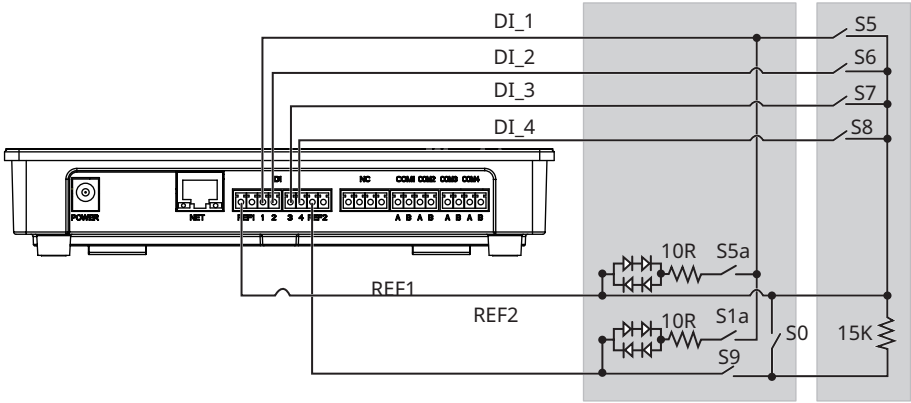
NOTICE

- The EzLoggerPro offers Demand Response Enabling Device (DERD) signal control port, meeting DRED certification requirements in Australian and other regions.
- The EzLoggerPro offers Ripple Control Receiver (RCR) signal control port, meeting requirements in German and other regions.
- Contact the after-sales service for the 4-pin terminal if needed.

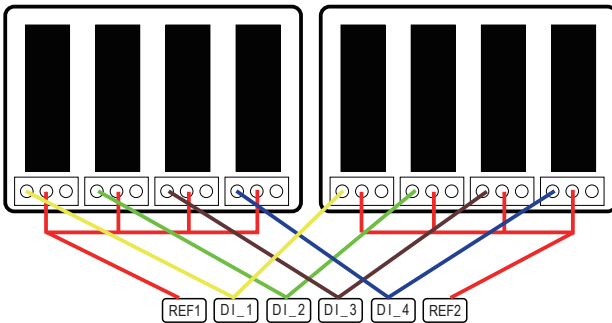


Port	Silkscreen	Port definition for DRED	Port definition for RCR
DI	REF1	RefGen	+5V
	1	DRM1/5	D_IN1
	2	DRM2/6	D_IN2
	3	DRM3/7	D_IN3
	4	DRM4/8	D_IN4
	REF2	Com/DRM0	+5V

DRED Connection



RCR Connection



	1	2	3	4
REF1	100%	60%	30%	0%
REF2	PF=1	PF=0.95	PF=0.9	PF=0.85

6 System Commissioning

NOTICE

The parameters of the SEC1000S shall be set by professionals. Incorrect settings may affect system operation and power generation.

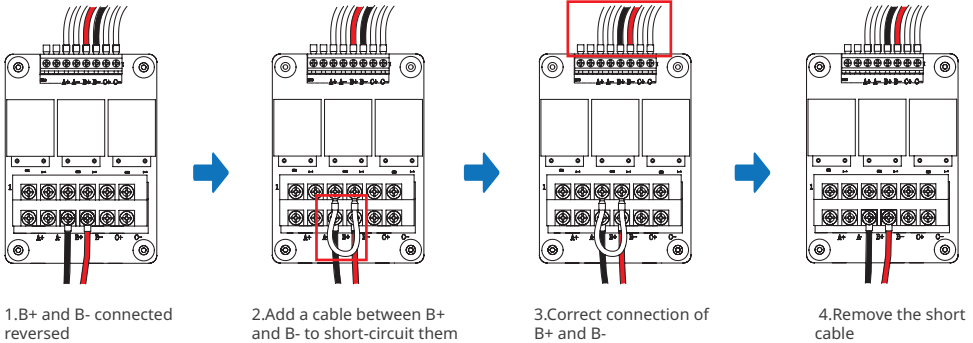
Please refer to the **EzloggerPro User Manual** for the commissioning of the SEC1000S. For more details, scan the QR code below to get the user manual.



EzloggerPro User Manual

7 Troubleshooting

If the external CT current is connected in the wrong direction, please reconnect it. Take the reversed CT current connection of B + and B- as an example to introduce the correcting method, as shown below:



Note: When replacing the meter, all 3 groups of CTs need to be short-circuited.

8 Technical Parameters

Model	SEC1000S
Communication	
Max. Inverters Supported	20
RS485 interface	3
Ethernet	1*RJ45, 10/100 Mbps
Configuration	
Datalogger	Ezlogger*1
Meter	GM3000*1
Power Supply	100-280Vac, 50/60 Hz
Power Consumption (W)	≤10
Mechanical	
Dimensions (W×H×D mm)	350*460*143
Weight (kg)	6
Installation Method	Wall mounting, bracket mounting, pole mounting
Environment	
Operating Temperature Range (°C)	-25 ~ 60°C
Storage Temperature Range(°C)	-40 ~ 70°C
Relative Humidity	0-100% (non-condensing)
Max. Operating Altitude (m)	2000
Ingress Protection Rating	IP65


9 Relevant Certification







GoodWe Website

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