



GATEWAY ECC-B

User Manual

Version 2.0

www.solaxpower.com



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About This Manual

Scope of Validity

This manual is an integral part of Gateway ECC-B. It describes the installation, electrical connection, commissioning, maintenance and troubleshooting of the product. Please read it carefully before operating.

Note:

"ECC-B" refers to the communication gateway energy control center-WiFi.

Target Group

The installation, maintenance and grid-related setting can only be performed by qualified personnel who

- Are licensed and/or satisfy state and local jurisdiction regulations.
- Have good knowledge of this manual and other related documents.

Explanation of Symbols

The symbols that may be found in this manual are defined as follows.

Symbol	Description
 DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION!	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
 NOTICE!	Provides tips for the optimal operation of the product.

Change History

Version 00 (2024-05-28)

Initial release

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1 Preface

1.1 Read this First

Gateway ECC-B is well designed and tested to meet all applicable states and international safety standards. However, like all electrical and electronic equipment, safety precautions must be observed and followed during the installation of the ECC-B to reduce the risk of personal injury and to ensure a safe installation.

Before installing the device, the installer must carefully read, fully understand and strictly follow the detailed instruction of the user manual and other related regulations. And the safety instructions in this document are only supplements to local laws and regulations.

SolaX shall not be liable for any consequences caused by the violation of the storage, transportation, installation, and operation regulations specified in this document, including, but not limited to:

- ECC-B damage due to force majeure, such as earthquake, flooding, thunderstorm, lighting, fire hazard, volcanic eruption, etc.
- ECC-B damage due to man-made cause.
- ECC-B used or operated against any items in local policy.
- Failure to follow the operation instructions and safety precautions on the product and in this document.
- Installation and use under improper environment or electrical condition.
- Unauthorized modifications to the product or software.
- ECC-B damage caused during transportation by the customer.
- Storage conditions that do not meet the requirements specified in this document.
- Installation and commissioning operated by unauthorized personnel who are not licensed and /or satisfy state and local jurisdiction regulations.

1.2 Safety

Save these important safety instructions. Failure to do so may result in damage to the ECC-B and injury.

 RF EXPOSURE WARNING!

- Install and operate the device in accordance with provided instructions.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the equipment & your body.
- End-users and installers must be provided with antenna installation instructions and equipment operating conditions for satisfying RF exposure compliance.

 CAUTION!

- Before installation, ensure all power of the device has been cut off.
- Do not dismantle or scrap by force.
- Strictly follow the installation guide to connect cables and the enclosure must be well locked before the device is electrified.
- Unauthorized opening and cable connection will void the warranty and cause lethal danger or serious injury due to electric shock.
- Refer to the corresponding installation guide for related safety requirements when it is connected to other devices.
- Anti-static measures should be taken to decrease the damage of static electricity to electronic components.
- Keep away from flammable, explosive materials.
- All the product labels and nameplate on the device shall be maintained clearly visible.

Hereby, SolaX Power Network Technology (Zhejiang) Co., Ltd. declare that Energy Control Center with model ECC-B supports WIFI function. It is in conformity with the relevant union harmonization legislation: Radio Equipment Directive: 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: www.solaxpower.com

For CE: 2.4G WIFI: 2412~2472MHz

For FCC: 2.4G WIFI: 2412~2462MHz

FCC RULES

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. 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, the user is 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 receiver.
- Connect the equipment into 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.

CE DECLARATION OF COMFORMITY

- Hereby, [SolaX Power Network Technology (Zhejiang) Co., Ltd.] declare that [Energy Control Center Basic Version with model ECC-B] supports WIFI function. It is in conformity with the relevant union harmonization legislation: Radio Equipment Directive: 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: <http://www.solaxpower.com/>
WIFI EIRP: 802.11b/g/n: 17.05dBm

2 ECC-B System

2.1 ECC-B System Description



Figure 2-1 System overview diagram

ECC-B (energy control center)

ECC-B is a crucial component in this ECC-B system, functioning as a communication gateway. It gathers the operation data of the system and uploads the data to SolaXCloud, establishing a foundation for data monitoring and remote operation.

Microinverter

Currently, we developed A1-Micro 1 in 1, X1-Micro 2 in 1 and X1-Micro 4 in 1 series. 2 in 1 and 4 in 1 are applicable to WiFi version, and 1 in 1 is applicable to PLC version. For 2 in 1 and 4 in 1, ECC-B only needs to be connected to meter. For 1 in 1, ECC-B connects to ECC-PLC and matches to the whole system for use.

PV module

PV Module is an assembly of photovoltaic cells, also known as solar cells. To achieve a required voltage and current, a group of PV modules are wired into large array that called PV array. A PV module is the essential component of any PV system that converts sunlight directly into direct current electricity.

Grid

220V / 230V/ 240V grid are supported.

SolaXCloud

SolaXCloud is an intelligent, multifunctional monitoring platform that can be accessed either remotely or through a hard wired connection. With the SolaX Cloud, the operators and installers can always view key and up-to-date data and set it remotely. You can log in to your user account at any time through a personal computer, IOS or Android device to view real-time monitoring data or historical data, and perform remote settings as needed.

2.2 Highlights

- Load consumption monitoring
- Flexible networking with Wi-Fi and Ethernet
- 5V USB port available
- Internal relay available to control external devices
- Support seamless communication with peripherals through RS485 and Ethernet
- Support remote operation and maintenance

2.3 Appearance

2.3.1 Overview

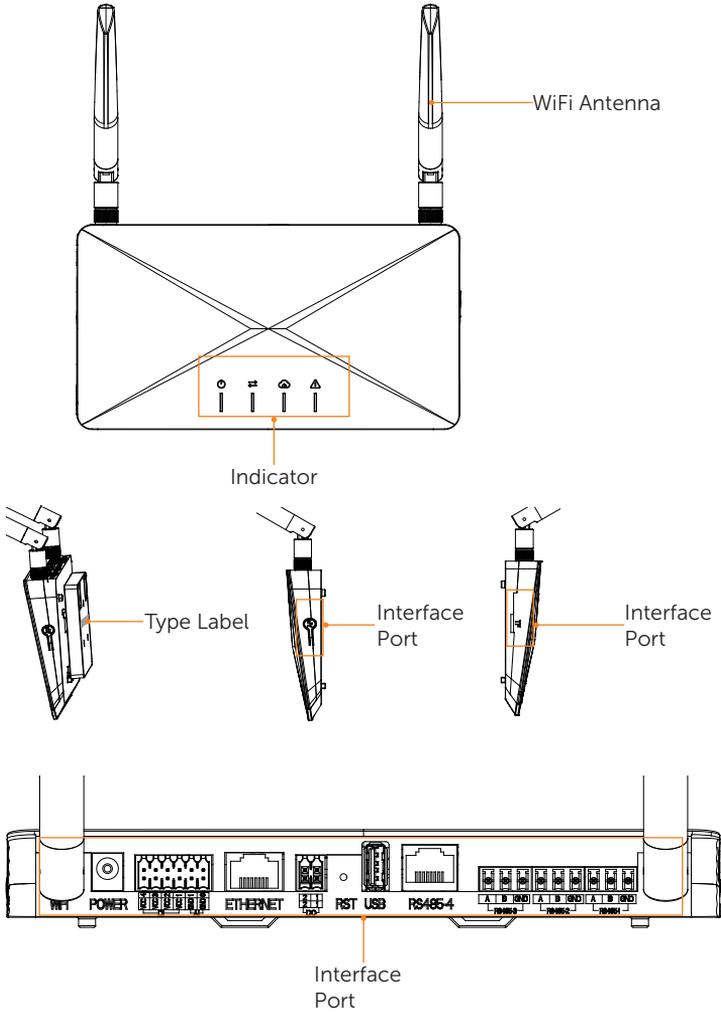


Figure 2-2 Appearance

Table 2-1 Description of appearance

Item	Description
WiFi Antenna	To receive and transmit 4G signal.
Indicator	Show the status of the device.
Type label	Type label clearly identifies the device type, serial number, specific DC/AC parameters, certification, etc.
Interface port	Interface port is used for communication connection (like WiFi), power connection, grid connection and other functions.

2.3.2 Dimensions

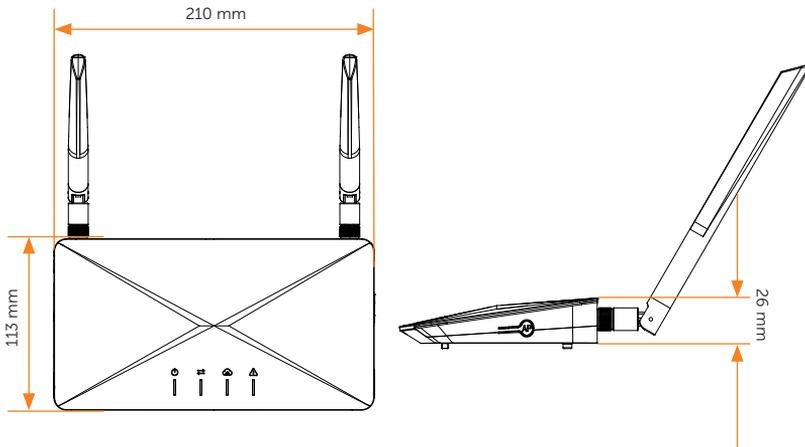


Figure 2-3 Dimensions

2.3.3 Symbols on the Label and ECC-B

Table 2-2 Description of symbols

Symbol	Description
	CE mark. The ECC-B complies with the requirements of the applicable CE guidelines.
	FCC mark of conformity.
	CSA mark for UL1973
	Read the enclosed documentations
	Do not dispose of the ECC-B together with household waste.

3 Interface Description

3.1 Interface Layout

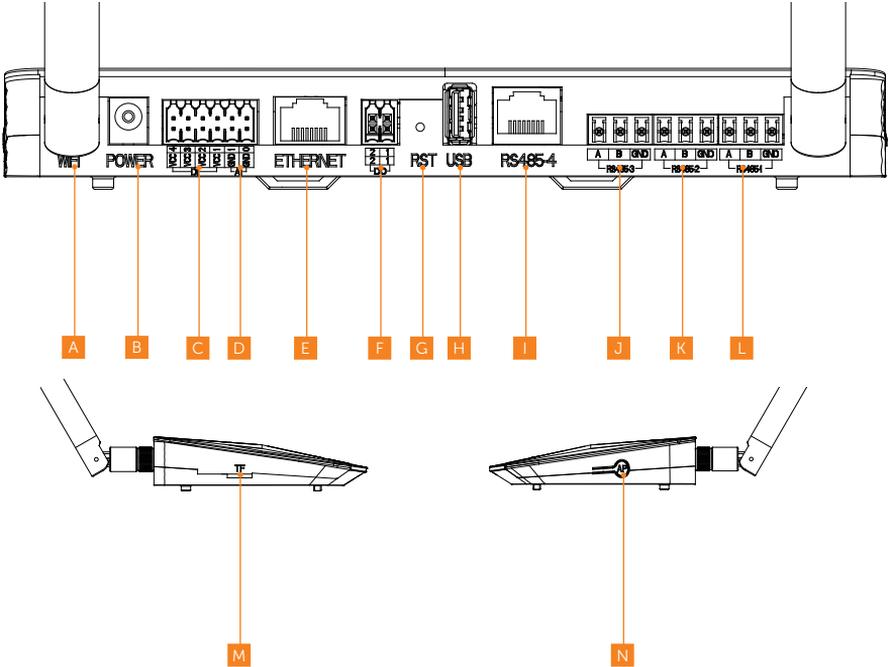


Table 3-3 Interface description

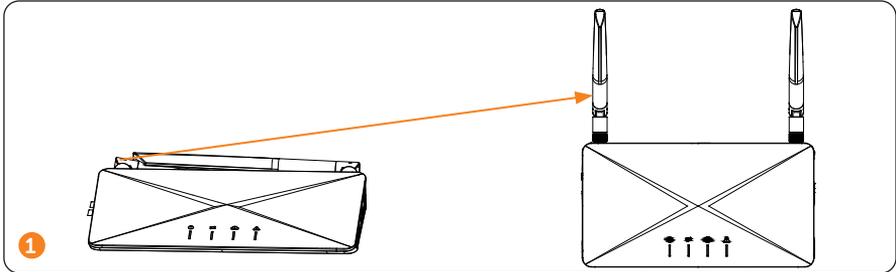
Number	Item	Description
A	Wi-Fi antenna	1 string for connecting to the router
B	Power	Output voltage: 11.4 ~ 12.6 V Power supply adapter with round tip
C	DI	4 strings for DRM including DRM0/5/6/7/8 which responds according to grid-connection needs
D	AI	2 strings
E	Ethernet	10/100M network port for connecting to the router
F	DO port	2 active DO strings for dry contact and adapter box
G	RST	Long press to restart ECC-B

Number	Item	Description
H	USB port	1-string standard USB for local upgrade
I	RS485 port-4	For use with adapter box
J	RS485 port-3	For communication with energy storage system
K	RS485 port-2	For Modbus to be connected with third-party hosts
L	RS485 port-1	For communicating with ECC-PLC and wired meter
M	TF card slot	Supported maximum capacity: 64 GB for TF card installation to realize data storage
N	AP button	For activating hotspot of ECC-B and long press 10 second to clear the networking information

3.2 Terminal Use

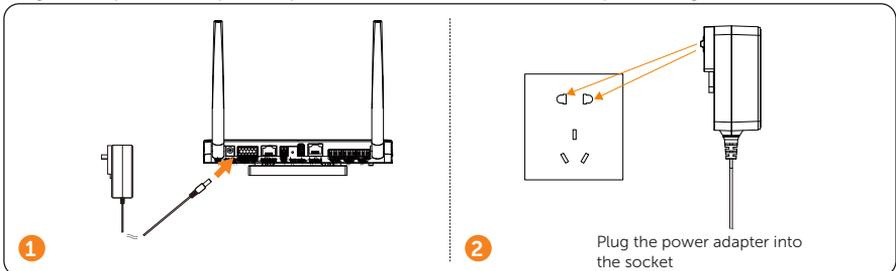
3.2.1 Wi-Fi antenna

There are 2 methods of connecting ECC-B to router. WiFi antenna is the first method of connection between ECC-B and router in a wireless way.



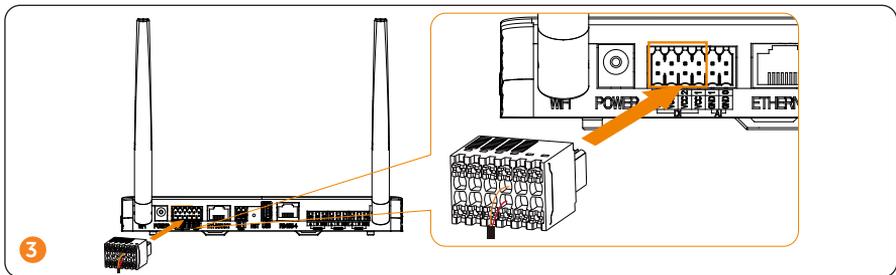
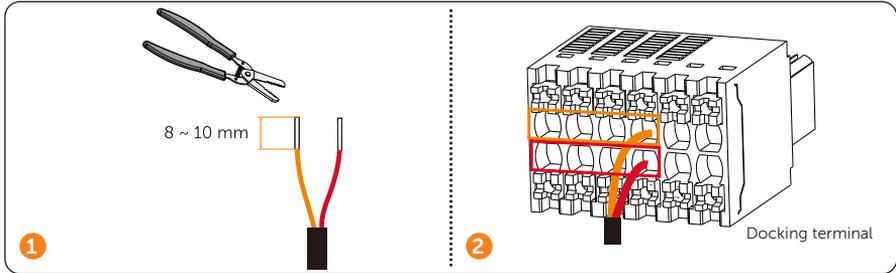
3.2.2 Power

Plug in the power adapter to power on or off ECC-B. The output voltage is 11.4 ~ 12.6 V.



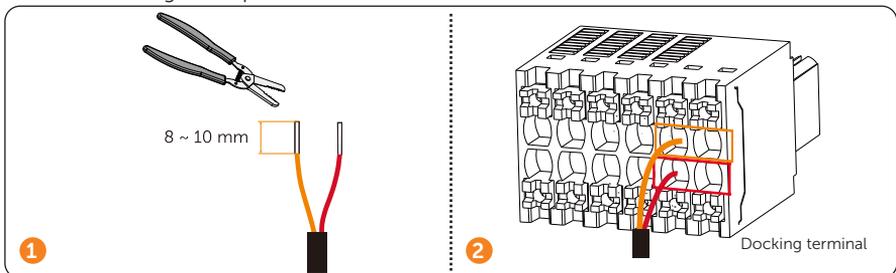
3.2.3 DI

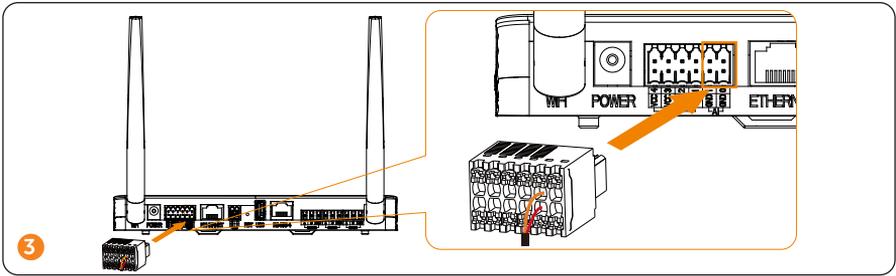
There are 4 strings of DI ports for DRM including DRM0/5/6/7/8 which responds according to grid-connection needs



3.2.4 AI

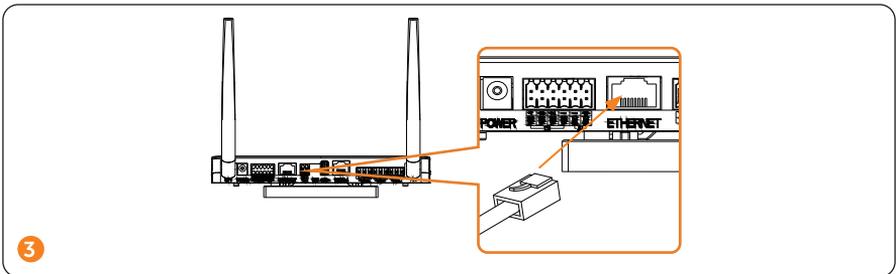
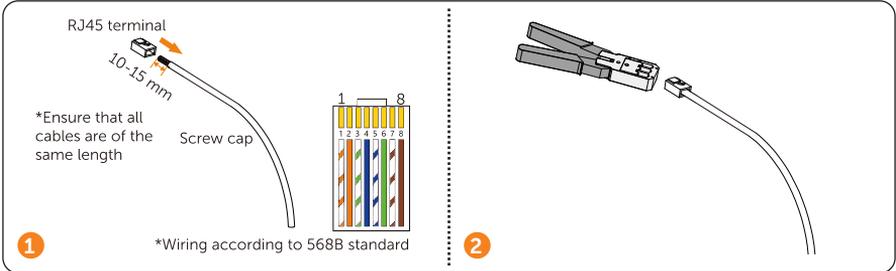
There are 2 strings of AI ports.





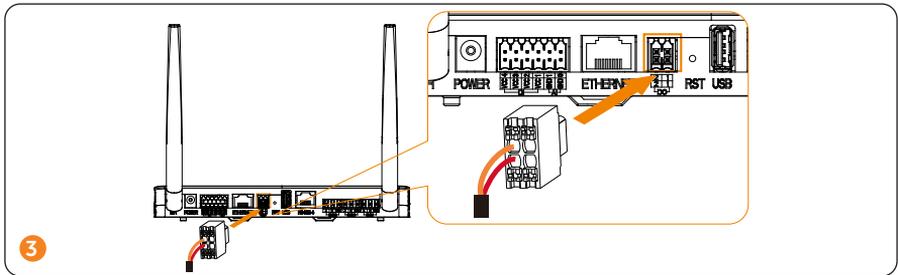
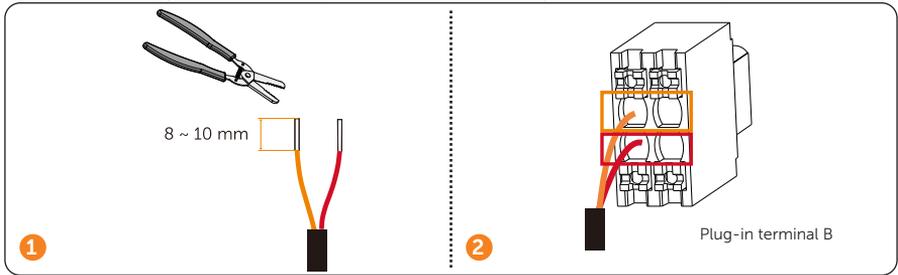
3.2.5 Ethernet

There are 2 methods of connecting ECC-B to router. Ethernet is the second method of connection between ECC-B and router in wired way. For stable communication between ECC-B and router, ethernet cable connection is recommended.



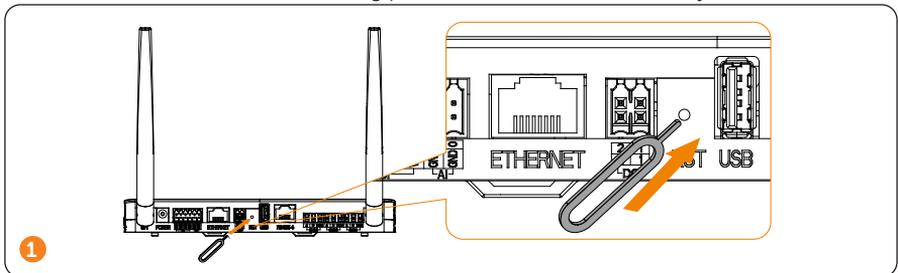
3.2.6 DO port

There are 2 strings of active DO ports (12 V) used for dry contact and adapter box



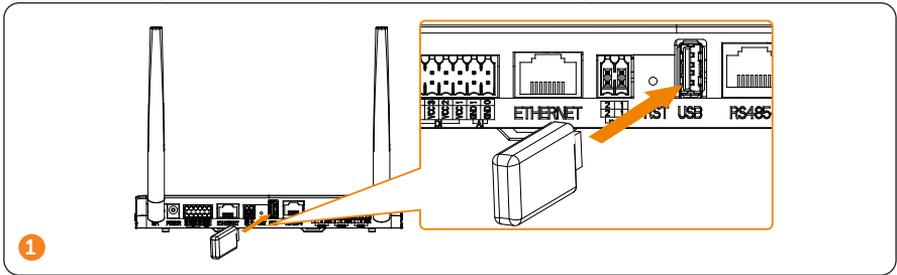
3.2.7 RST

RST stands for the restart button. Long press the button to restart the system.



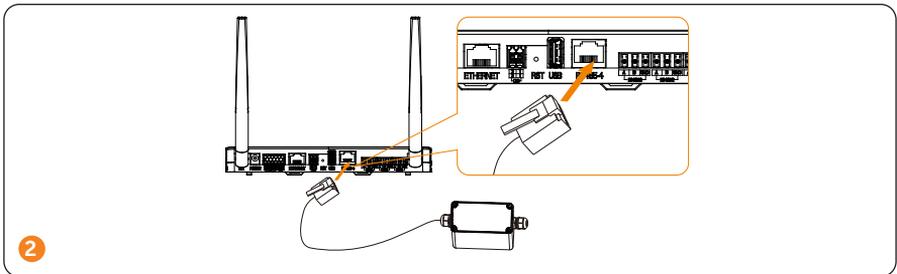
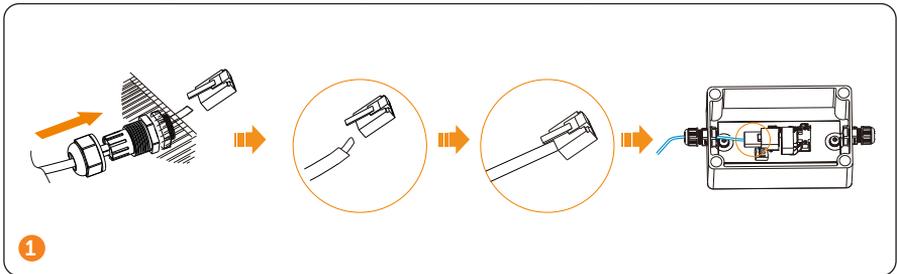
3.2.8 USB port

USB port is designed for local upgrade. There is only 1 string of standard USB.



3.2.9 RS485 port-4

There are 4 strings of RS485. RS485 port-4 is used with adapter box for communication.

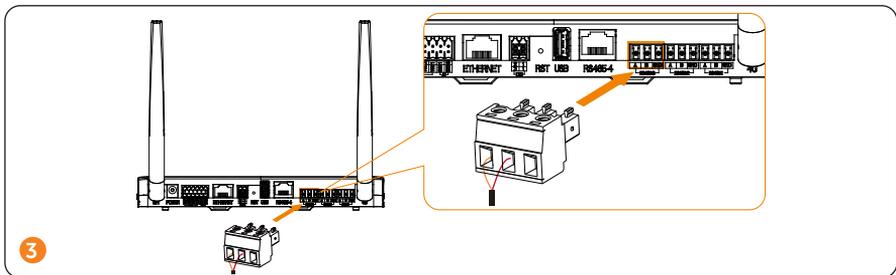
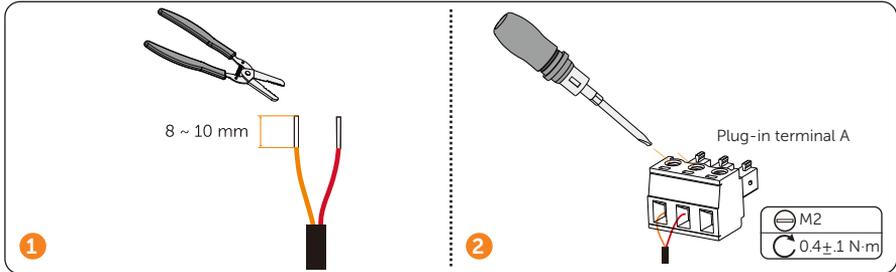


NOTICE

- For adapter box installation, please refer to the **Quick Installation Guide or User Manual of Adapter Box**.

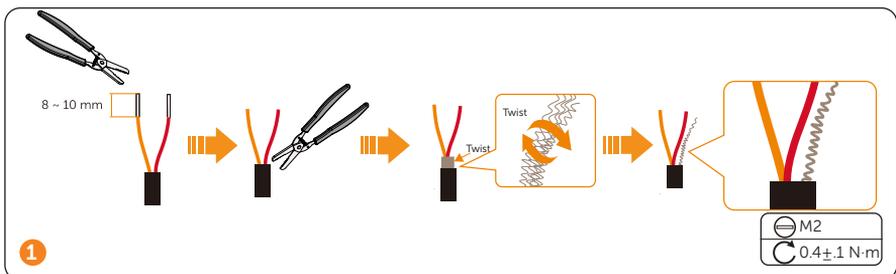
3.2.10 RS485 port-3

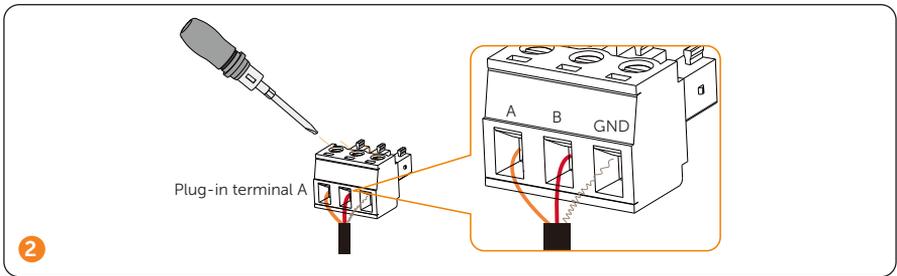
There are 4 strings of RS485. RS485 port-3 is used for AC-coupling communication with energy storage system.



NOTICE

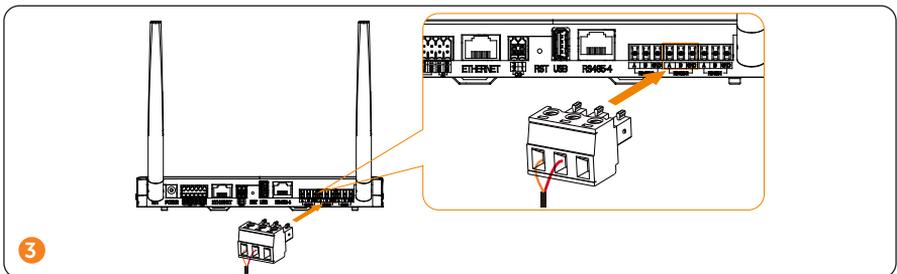
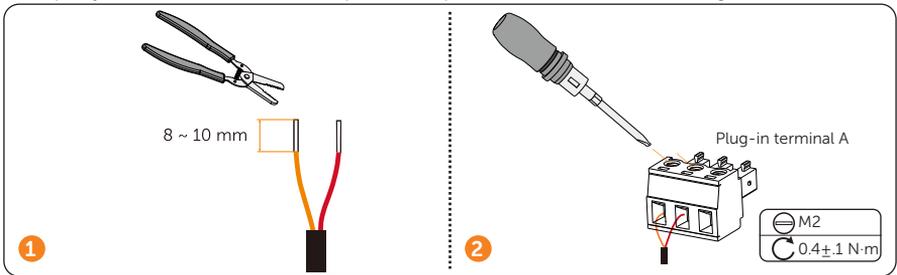
- To increase the communication performance, we recommend using shielded twisted pairs (STP). If you choose to use STP, please strip the wire and twist it, and then connect to the GND port of the plug-in terminal A (as shown below).





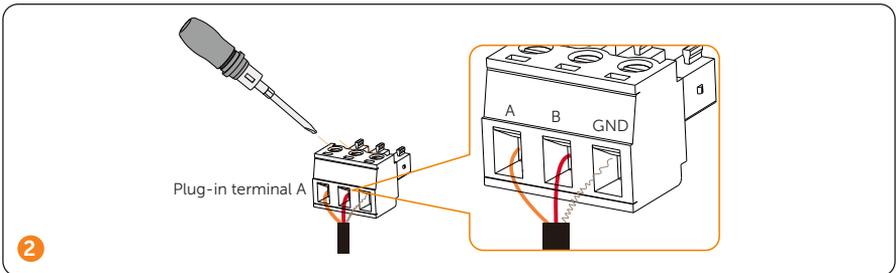
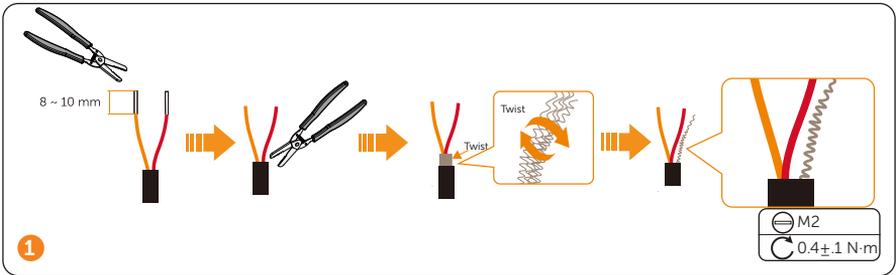
3.2.11 RS485 port-2

There are 4 strings of RS485. RS485 port-2 is used for modbus communication with the third party host (to measure wind speed, temperature and radiation strength).



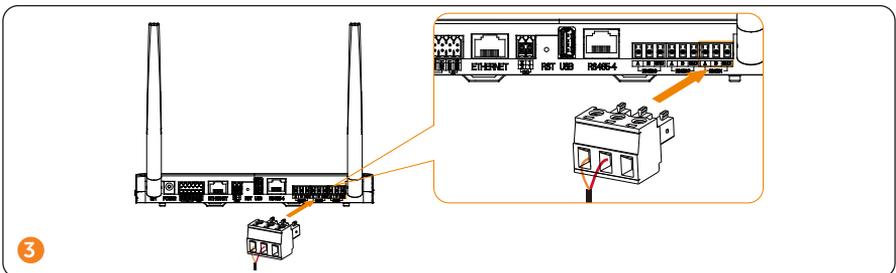
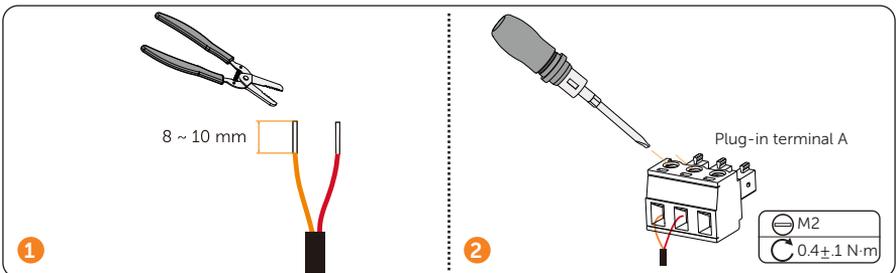
NOTICE

- To increase the communication performance, we recommend using shielded twisted pairs (STP). If you choose to use STP, please strip the wire and twist it, and then connect to the GND port of the plug-in terminal A (as shown below).



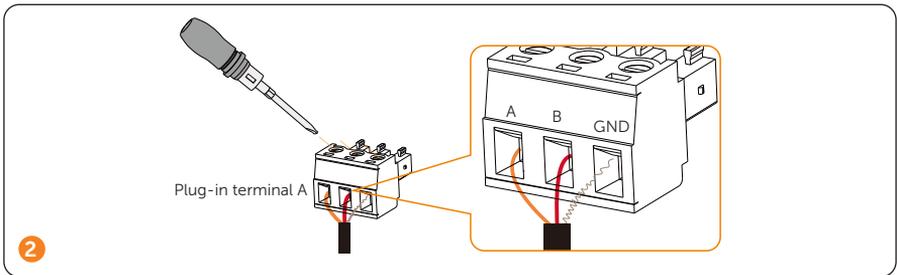
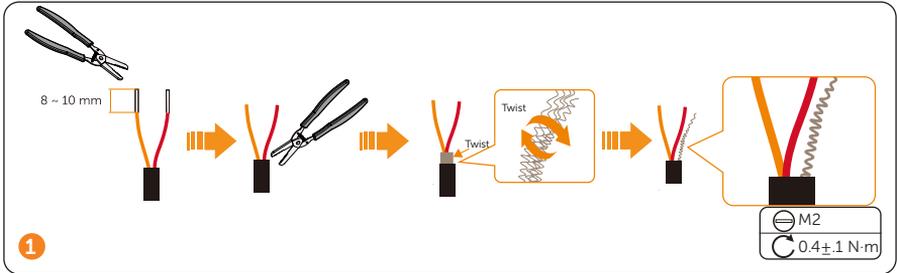
3.2.12 RS485 port-1

There are 4 strings of RS485. RS485 port-1 is used with wired meters and to communicate with ECC-PLC and wired meter.



NOTICE

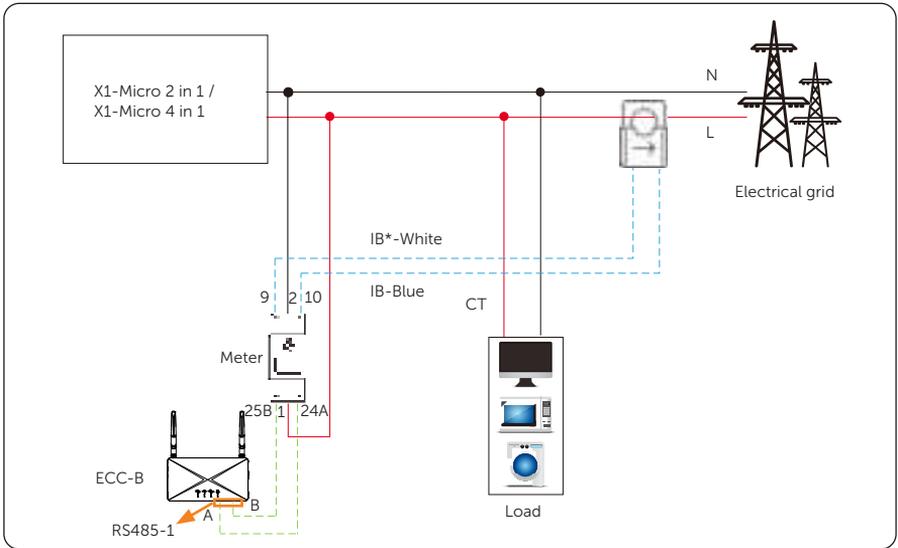
- To increase the communication performance, we recommend using shielded twisted pairs (STP). If you choose to use STP, please strip the wire and twist it, and then connect to the GND port of the plug-in terminal A (as shown below).



NOTICE

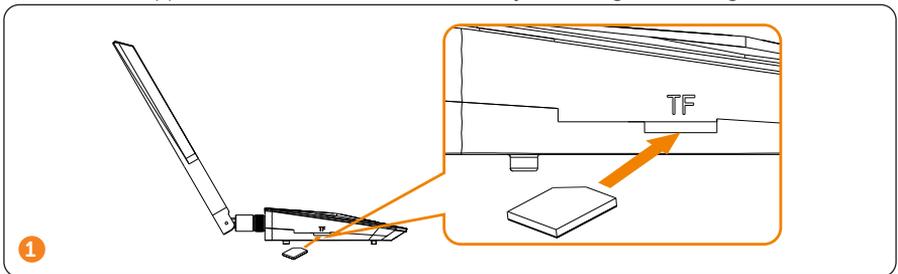
- To connect to meter, we recommend the wire diameter ranging from 0.5-1.5 mm² and the wire length depends on the actual installation conditions.
- For meter installation, please refer to the **Quick Installation Guide or User Manual of Meter**.

- ECC-B - meter - X1-Micro 2 in 1/4 in 1



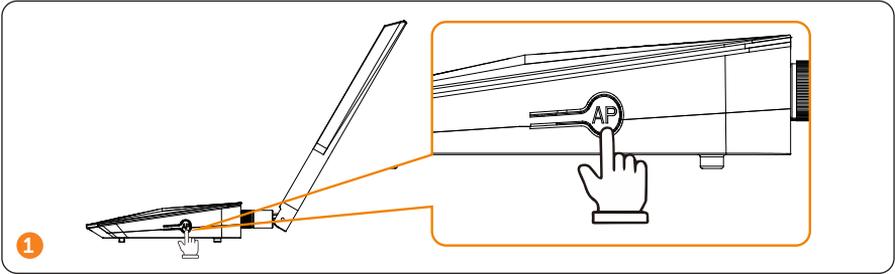
3.2.13 TF card slot

TF card slot is applied for TF card installation, thereby achieving data storage.



3.2.14 AP button

AP is a networking button. Click the button and the hotspot will be activated for 1 hour, and the hotspot will be turned off by default after 1 hour. Click the button again to turn on it; Long press 10s to clear the networking information.



4 Installation Preparation

4.1 Unpacking

- The ECC-B undergoes 100% testing and inspection before shipping from the manufacturing facility. However, transport damage may still occur. Before unpacking the ECC-B, please verify that the model and outer packing materials for damage, such as holes and cracks.
- Unpacking the ECC-B according to the following figure.

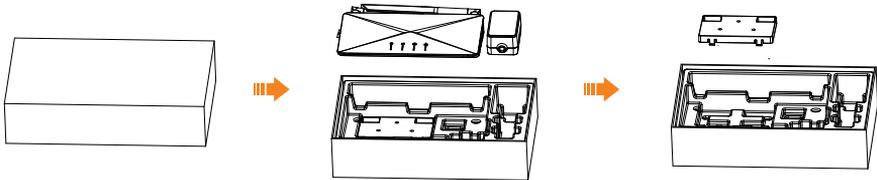


Figure 4-1 Unpacking the ECC-B

- Be careful when dealing with all package materials which may be reused for storage and relocation of the ECC-B in the future.
- Upon opening the package, check whether the appearance of the ECC-B is damaged or lack of accessories. If any damage is found or any parts are missing, contact your dealer immediately.

4.2 Packing List

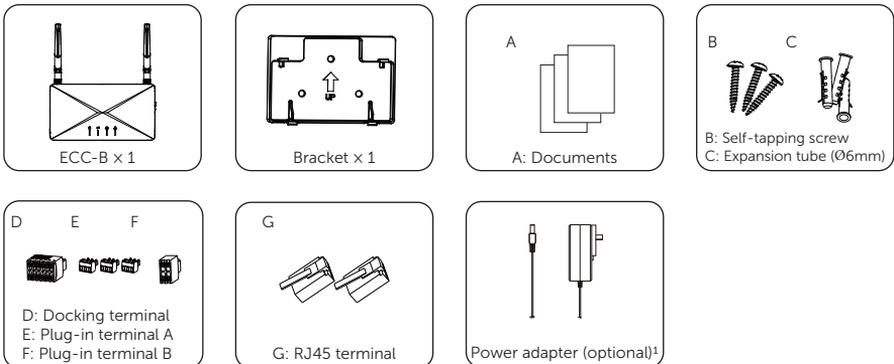


Table 4-4 Packing list

Item No.	Items	Quantity
/	ECC-B	1 pc
/	Bracket	1 pc
A	Documents	/
B	Self-tapping screw	3 pcs
C	Expansion tube	3 pcs
D	Docking terminal	1 pc
E	Plug-in terminal A	3 pcs
F	Plug-in terminal B	1 pc
G	RJ45 terminal	2 pcs
/	Power adapter (optional)	1 pc

- * Note: 1. Select the power adapter according to the socket in the installation site; The length of power adapter wire is 1.2 m. If the wire length doesn't meet the installation requirement, please use an appropriate power strip or choose an installation site near the socket.
 2. Refer to the actual delivery for the optional accessories.

4.3 Selection of Installation Location

The installation location selected for the ECC-B is quite critical in the aspect of the guarantee of machine safety, service life and performance.

- It has the IP20 ingress protection, which allows it to be installed outdoor;
- The installation position shall be convenient for wiring connection, operation and maintenance.

4.3.1 Environment Requirement

- The ambient temperature: -20°C to +60°C;
- The humidity shall be between 5%-95%;
- Do not install the ECC-B in the areas where the altitude exceeds 2000 m;
- Install the ECC-B in a well-ventilated environment for heat dissipation;
- Do not install the ECC-B in areas with flammable, explosive and corrosive materials;
- Do not install the ECC-B in areas near combustibles and antenna;