



EMS1000 PRO BOX

EMS1000 PRO BOX-8
EMS1000 PRO BOX-16

Installation Manual

Version 2.0

www.solaxpower.com



eManual in the QR code or
at <http://kb.solaxpower.com/>

Table of Contents

Safety	1
Product Introduction.....	3
Scope of Delivery	4
Mechanical Installation	4
Electrical Connection.....	6
Pre-power Check.....	14
System Configuration.....	14
Webpage Login.....	16
Technical Data	16

Safety

General Notice

1. Contents may be periodically updated or revised. SolaX reserves the right to make improvements or changes in the product(s) and the program(s) described in this manual without the prior notice.
2. The installation and maintenance 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.
3. Before installing the device, carefully read, fully understand and strictly follow the detailed instruction of the user manual and other related 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 and the user manual.
4. Use insulated tools when installing the device. Individual protective tools must be worn during installation, electrical connection and maintenance.
5. Please visit the website www.solaxpower.com of SolaX for more information.

Descriptions of Labels



CE mark of conformity



RCM mark of conformity



Do not dispose of the device together with household waste.

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.

EU DECLARATION OF CONFORMITY

WIFI EIRP: 802.11b/g/n: 18 dBm

- This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.
- Hereby, SolaX Power Network Technology (Zhejiang) Co., Ltd. declares that EMS1000 supports 2.4G WIFI, 2G, 3G and 4G functions. 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.
- Band specification:
 - » GSM/GPRS/EGPRS900: 35 dBm
 - » GSM/GPRS/EGPRS1800: 32 dBm
 - » WCDMA Band I: 25 dBm
 - » WCDMA Band VIII: 25 dBm
 - » LTE Band 1: 25 dBm
 - » LTE Band 3: 25 dBm
 - » LTE Band 7: 25 dBm
 - » LTE Band 8: 25 dBm
 - » LTE Band 20: 25 dBm
 - » LTE Band 28: 25 dBm
 - » LTE Band 28: 25 dBm
 - » LTE Band 40: 25 dBm

Product Introduction

EMS1000 PRO BOX includes an EMS1000 PRO device, an 8-port or 16-port switch, and an AC power adapter. It is suitable for use in large-scale industrial and commercial power stations for system data collection, energy control, and intelligent operations.

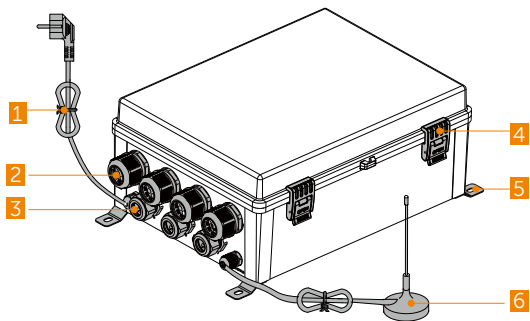


Figure 2-1 Device appearance (exterior)

No.	Item	No.	Item
1	Power adapter	4	Lock
2	6-port water-proof connector	5	Installation hole
3	3-port water-proof connector	6	Suction cup antenna

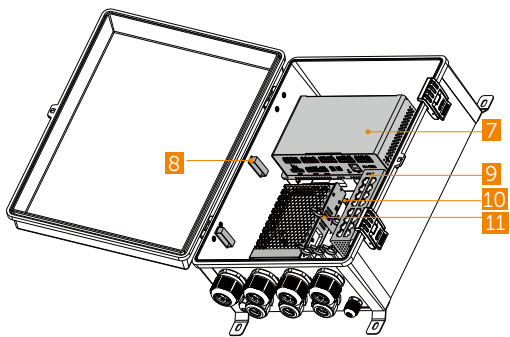
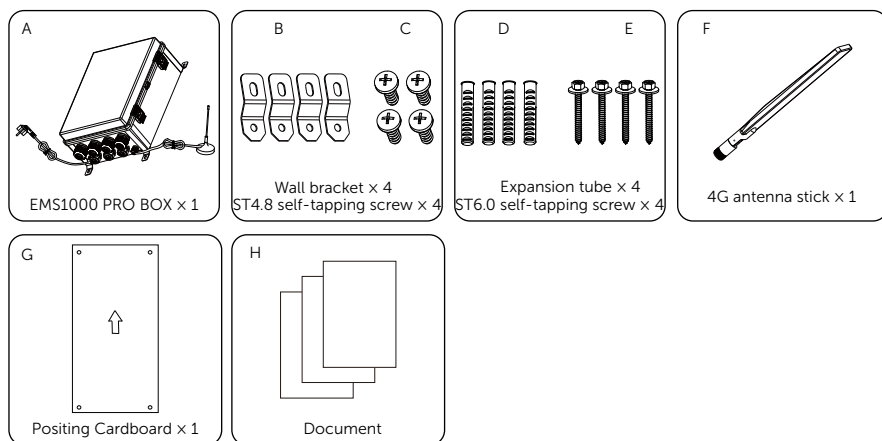


Figure 2-2 Device appearance (interior)

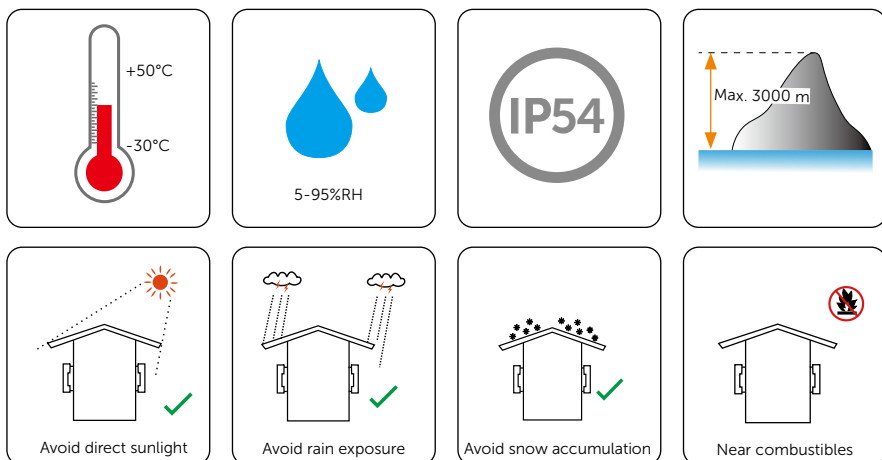
No.	Item	No.	Item
7	EMS1000 PRO	10	Shield clamp
8	Cable tie	11	Wire clamp
9	Switch (8-port or 16-port)		

Scope of Delivery



Mechanical Installation

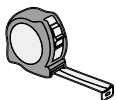
Installation Site Requirements



Installation Tool Requirements



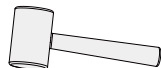
Hammer drill
(Drill bit: Ø10mm)



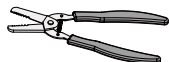
Measuring tape



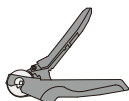
Marker



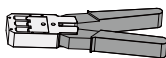
Rubber mallet



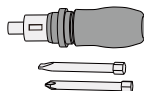
Wire stripper



Crimping tool for ferrules



Crimping tool for RJ45



Torque screwdriver
(Flat-head: M2)
(Phillips head: M4)



Safety gloves



Safety boots

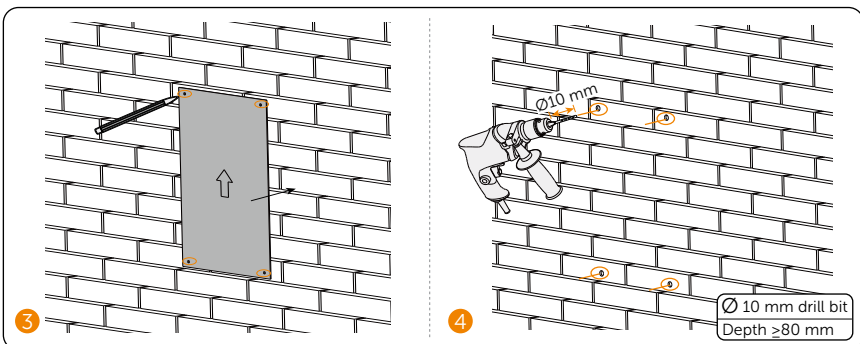
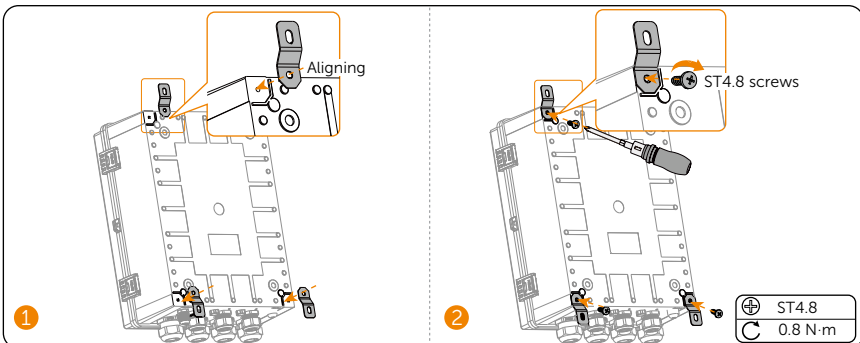


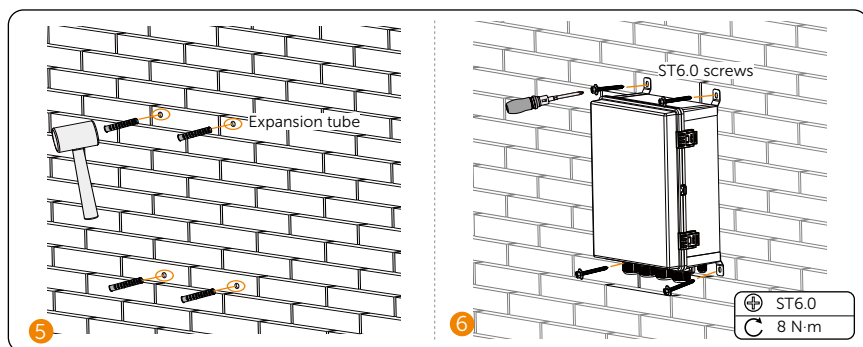
Safety goggles



Anti-dust mask

Installation Procedure





Electrical Connection

Port and Terminal Description

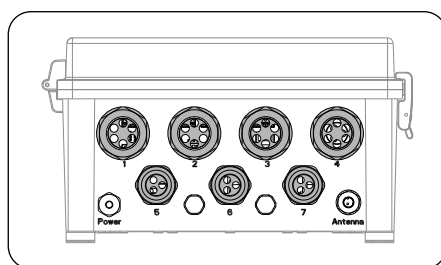


Figure 5-1 Cable threading hole distribution

Port No.	Recommended distribution
1 & 2	Threading through cables for RS485 and NET connection
3 & 4	Threading through cables for switch and AI connection
5 & 6 & 7	Threading through cables for DO and DI connection

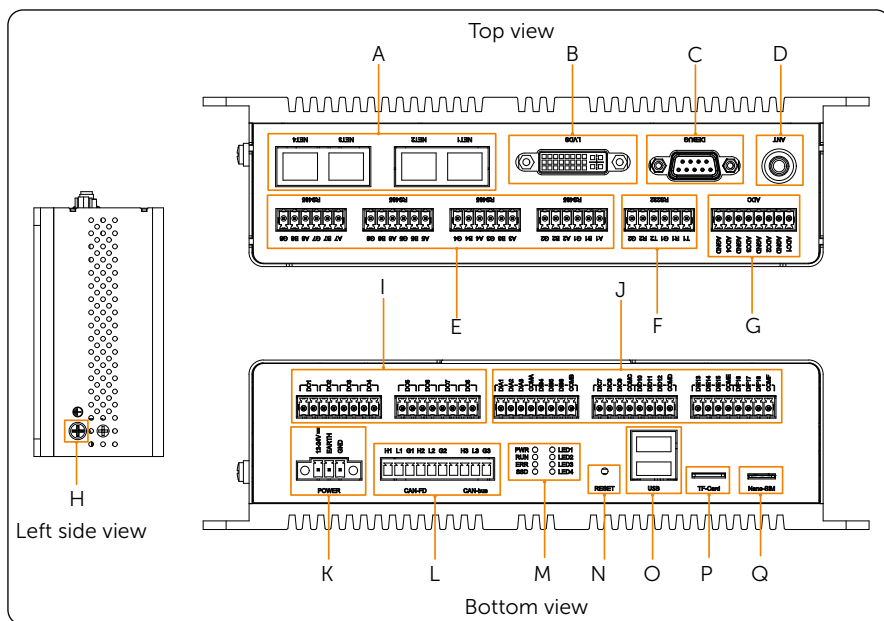
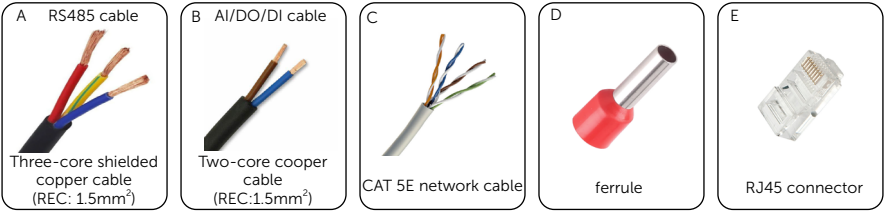


Figure 5-2 EMS1000 PRO terminal

Position	Area	Item	QTY.	Description
Top	A	Ethernet terminal (NET)	4	<ul style="list-style-type: none"> NET1: Connected to EMS1000 or sub EMS1000 PRO NET2: Connected to upper EMS1000 PRO NET3: Reserved DEBUG terminal NET4: Connected to the router for network
	B	LVDS terminal	1	Reserved
	C	Debug terminal (DEBUG)	1	Reserved
	D	Antenna socket (ANT)	1	For expanding signal transmission
	E	RS485 terminal	8	<ul style="list-style-type: none"> 1-2: Reserved 3: Only connected to the temperature and humidity sensor of SolaX Parallel Cabinet 4-7: Connected to grid-connected inverters, meter, diesel generator, and more 8: Connected to the grid-connected meter
	F	RS232 terminal	2	Reserved
	G	ADC terminal	4	<ul style="list-style-type: none"> 1-2: For DRM function 3-4: Reserved
Left side	H	Earthing terminal	1	For device earthing

Position	Area	Item	QTY.	Description
Bottom	I	DO terminal	8	<ul style="list-style-type: none"> • 1-4: Reserved • 5: Only connected to the Running status (RUN) indicator of SolaX Parallel Cabinet • 6: Only connected to the ALARM indicator of SolaX Parallel Cabinet • 7: Only connected to the GRID indicator of SolaX Parallel Cabinet • 8: Only connected to diesel generator to SolaX Parallel Cabinet
	J	DI terminal	18	<ul style="list-style-type: none"> • 1-4: Dry contact / DRM function • 5: Reserved • 6: Connected to ATS (Automatic Transfer Switch) or diesel generator • 7: Only connected to the emergency stop of SolaX Parallel Cabinet • 8: Only connected to the water sensor of SolaX Parallel Cabinet • 9: Only connected to the SPD of SolaX Parallel Cabinet • 10: Only connected to the door sensor of SolaX Parallel Cabinet • 12: Only connected to the SPD2 of SolaX Parallel Cabinet • 13-18: Reserved
	K	Power supply (POWER)	1	12 Vdc-24 Vdc
	L	CAN terminal	3	2 × CAN-FD, and 1 × CAN-bus
	M	Indicators	8	<ul style="list-style-type: none"> • Power status (PWR) • Running status (RUN) • Error (ERR) • SSD status (SSD) • LED 1-LED4: Reserved
Bottom	N	Reset button (RESET)	1	For device resetting
	O	USB socket (USB)	2	For device update
	P	TF card socket (TF Card)	1	For firmware programming
	Q	Nano-SIM card socket (Nano-SIM)	1	For 4G communication

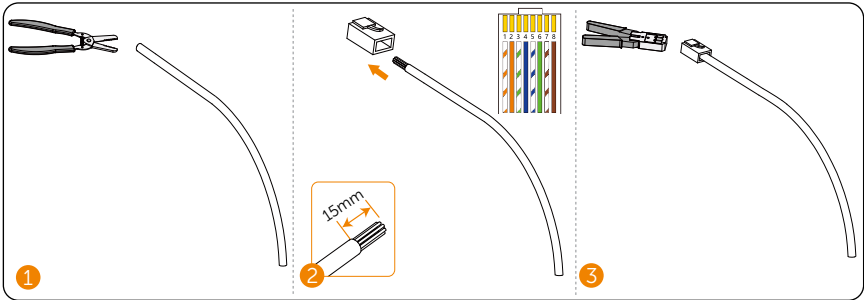
Cable Requirements



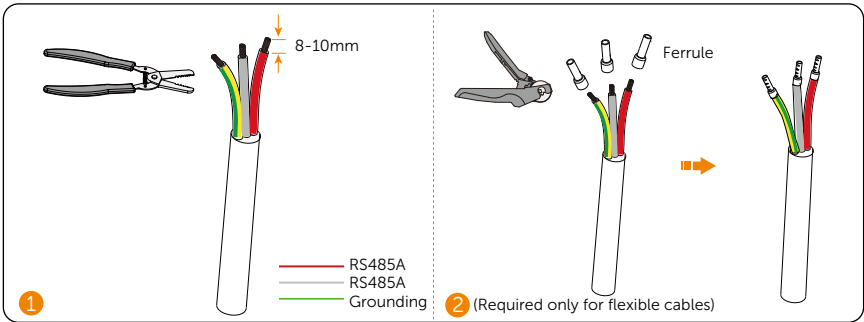
Preparing Cables

Preparing network cable

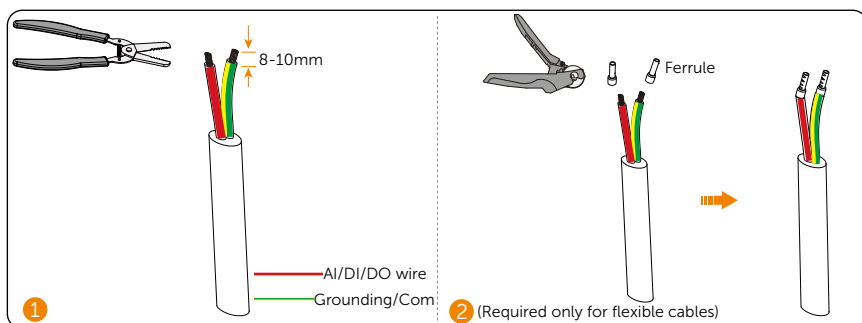
PIN No.	Color	PIN No.	Color
1	Orange-White	5	Blue-White
2	Orange	6	Green
3	Green-White	7	Brown-White
4	Blue	8	Brown



Preparing RS485 cables

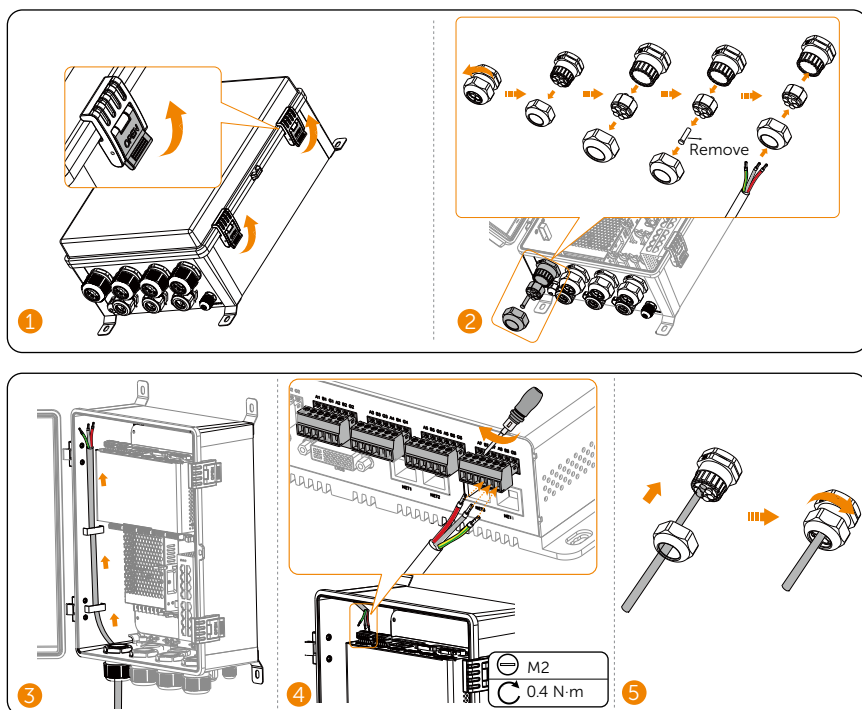


Preparing AI/DO/DI cables

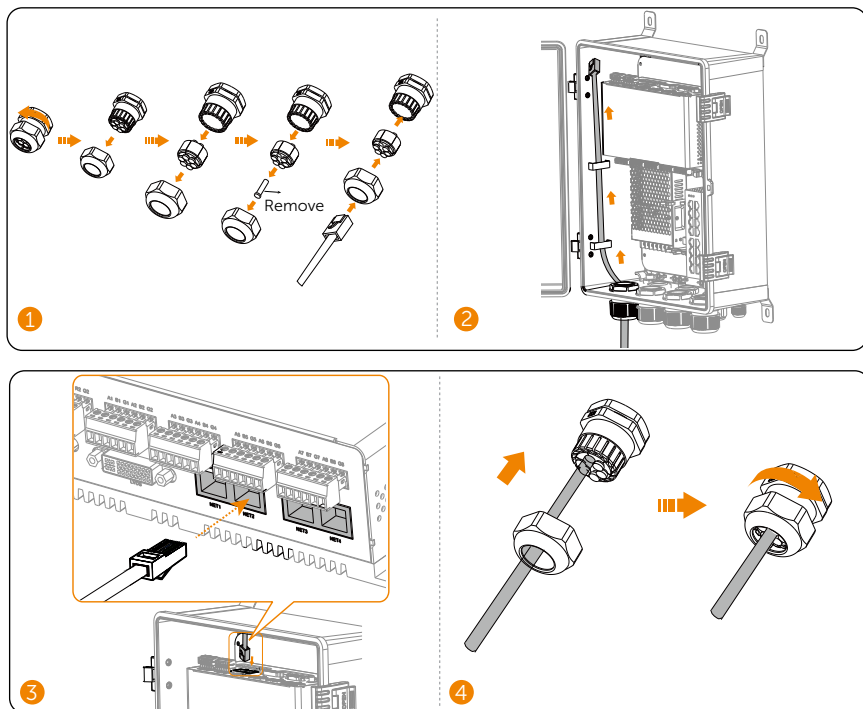


Connecting cables

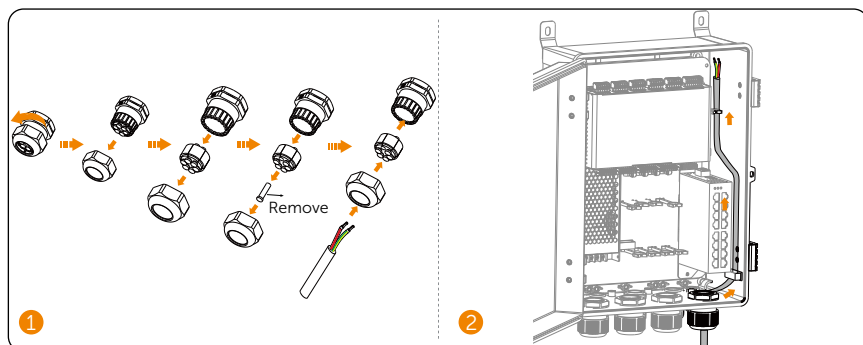
RS485 Terminal Cable Connection

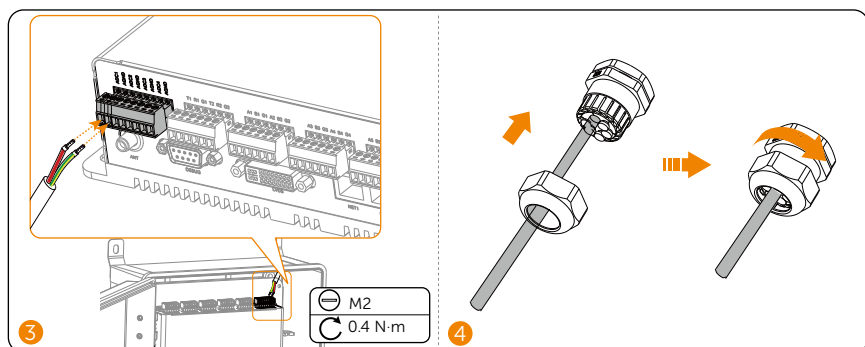


NET Cable Connection

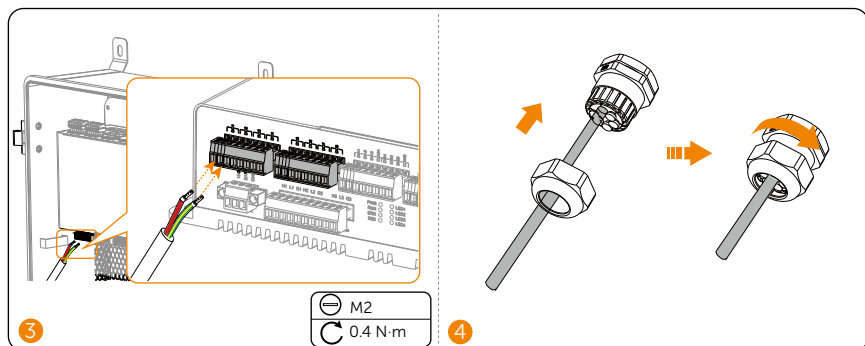
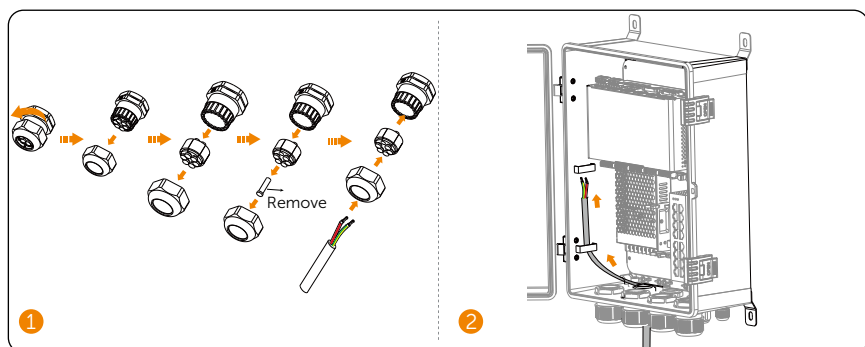


AI Cable Connection

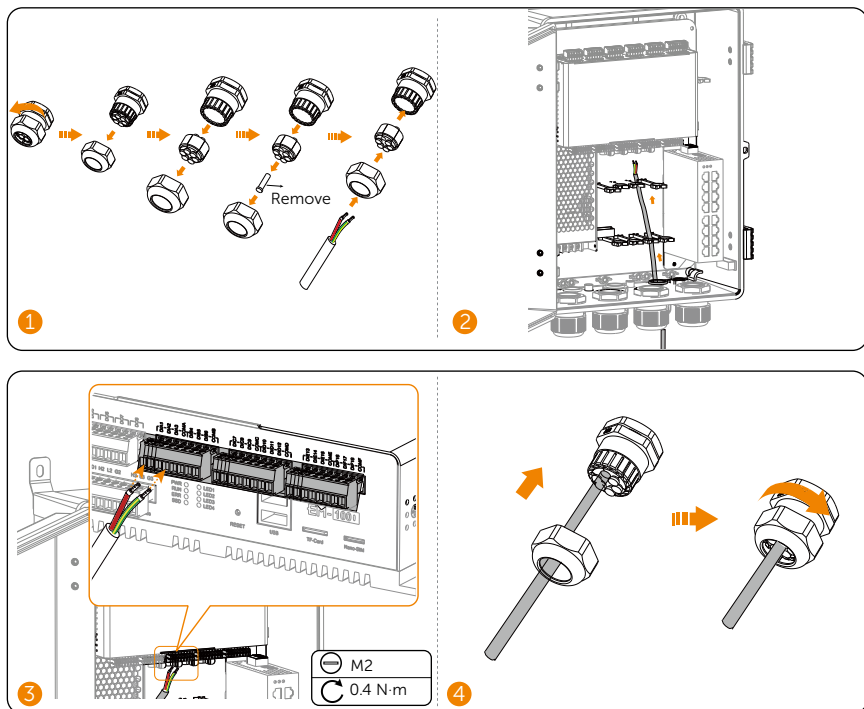




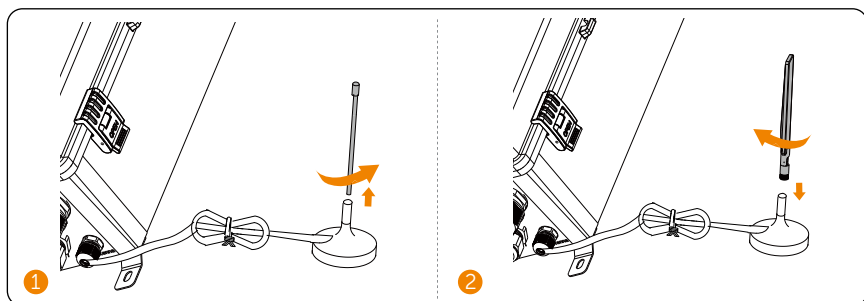
DO Cable Connection



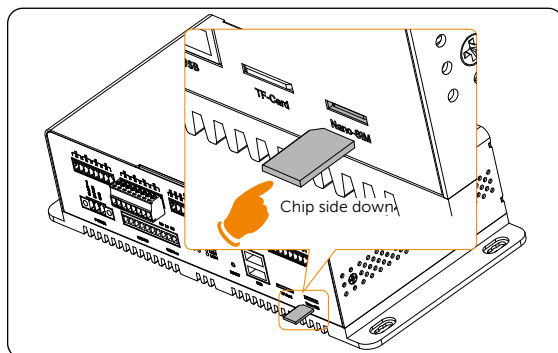
DI Cable Connection



4G Antenna Installation



SIM Card Installation

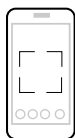


Pre-power Check

No.	Inspection Item
1	Check whether EMS1000 PRO BOX is installed firmly.
2	Check whether all terminal blocks are properly inserted.
3	For 4G networking, check whether the SIM card is correctly inserted into the Nano-SIM slot.
4	Check whether the cable connection position is consistent with the design principles.
5	Make sure all unused terminals are properly insulated and do not pose any risk of electric shock.

System Configuration

1 Scan the QR code to download SolaXCloud APP and log in.



SolaXCloud

2 Create a plant.

The 'Create plant' process consists of three steps:

- From the home screen, tap the **Plant** button (bottom navigation bar).
- In the **Create plant** screen, fill in the following fields:
 - Plant name***: Please enter
 - Address***: Please choose
 - Detailed address**: Please enter
 - PV Capacity(kWp)**: Please enter
 - Battery capacity(kWh)**: Please enter
 - DST**: OFF
 Tap the **Next** button.
- On the confirmation screen, tap the **Finish** button.

3 Bind EMS100 PRO to the plant.

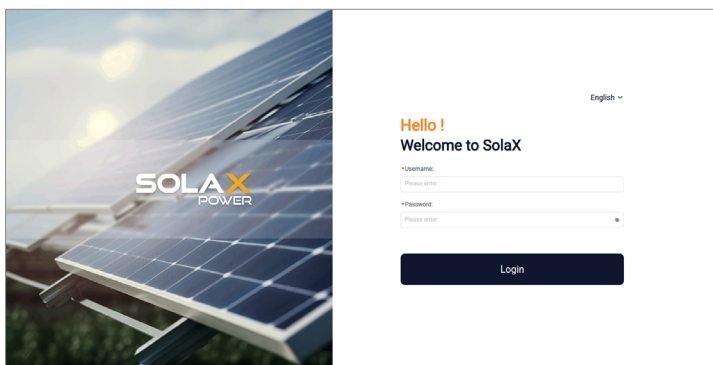
The 'Bind EMS100 PRO to the plant' process consists of eight steps:

- From the home screen, tap the **Add device** button.
- In the **Manually Add** screen, select the **EMS** device.
- In the **Configuration** screen, scan the QR code on the device.
- In the **Enter the registration number** screen, enter the registration number (e.g., TESTING123) and tap **Confirm**.
- In the **Confirm the device** screen, tap **Next**.
- In the **Configuration** screen, tap the **Manual configuration** tab.
- In the **Connect to the device's Wi-Fi** screen, tap **Connect**.
- In the **Configuration** screen, tap the **Finish** button.

Webpage Login

Connect the computer to NET 3 of EMS1000 through a network cable, or connect the computer to EMS1000 hotspot named WiFi_SN, and then go to the defined IP address based on the connection type to access EMS login webpage.

- IP address: 192.168.14.10 (wired connection); 192.168.10.10 (hotspot connection)
- User account: Username: user; Password: 123456



Technical Data

Model	EMS1000 PRO BOX-8	EMS1000 PRO BOX-16
Power Supply	100 a.c V-240 a.c V	100 a.c V-240 a.c V
Max. Power Consumption	34.6 W	39.0 W
Ethernet	10/100/1000 Mbps, self-adaptive	
Dimensions (L x W x H)	450.41 x 283.3 x 177.0 mm	
Weight	5.3 kg	
Operating Temperature	-30 °C~+50 °C	
Operating Humidity	5%-95%, non-condensing	
Operating Altitude	≤3000 m	
Ingress Protection	IP54	

Contact Information



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Warranty Registration Form



For Customer (Compulsory)

Name _____ Country _____
Phone Number _____ Email _____
Address _____
State _____ Zip Code _____
Product Serial Number _____
Date of Commissioning _____
Installation Company Name _____
Installer Name _____ Electrician License No. _____

For Installer

Module (If Any)

Module Brand _____
Module Size(W) _____
Number of String _____ Number of Panel Per String _____

Battery (If Any)

Battery Type _____
Brand _____
Number of Battery Attached _____
Date of Delivery _____ Signature _____

Please visit our warranty website: <https://www.solaxcloud.com/#/warranty> or use your mobile phone to scan the QR code to complete the online warranty registration.



For more detailed warranty terms, please visit SolaX official website: www.solaxpower.com to check it.





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