X1-MINI G4

0.6 kW / 0.7 kW / 0.8 kW / 1.1 kW / 1.5 kW / 2.0 kW / 2.5 kW / 3.0 kW / 3.3 kW / 3.7 kW/ 4.0 kW

Installation Manual

Version 2.0

www.solaxpower.com

X1-MINI G4
eManual in the QR code or at
http://kb.solaxpower.com/

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, 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.
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	CE mark of conformity		TUV certification
	RCM mark of conformity	R-41239453	BIS mark of conformity
	Caution, hot surface		Caution, risk of electric shock
	Caution, risk of danger		Read the enclosed documentations
	Do not dispose of the inverter together with household waste.		Additional grounding point
	Do not operate this inverter until it is isolated from mains and on-site PV generation suppliers.		
5min	Danger of high voltage. Do not touch live parts for 5 minutes after disconnection from the power sources.		

Note: The table is only used for the description of symbols which may be used on the inverter. Please be subject to the actual symbols on the device.

DANGER!

Lethal danger from electrical shock due to the inverter

- Only operate the inverter when it is technically faultless. Otherwise, electric shock or fire may occur.
- Do not open the enclosure in any case without authorization from SolaX. Unauthorized opening will void the warranty and cause lethal danger or serious injury due to electric shock.

DANGER!

Lethal danger from electrical shock due to the PV

- When exposed to sunlight, high DC voltage will be generated by PV modules. Death or lethal injuries will occur due to electric shock.
- Never touch the positive or negative pole of PV connecting device. Touching both of them at the same time is prohibited as well.
- Do not ground the positive or negative pole of the PV modules.
- Only qualified personnel can perform the wiring of the PV panels.

WARNING!

Risk of personnel injury or inverter damage

- During operation, do not touch any parts other than DC switch and LCD panel.
- Never connect or disconnect the AC and DC connectors when the inverter is running.
- Turn off the AC and DC power and disconnect them from the inverter, wait for 5 minutes to fully discharge the voltage before attempting any maintenance, cleaning or working on any circuits connected.
- Make sure that the input DC voltage ≤ Maximum DC input voltage of the inverter. Overvoltage may cause permanent damage to the inverter, which is NOT covered by the warranty.

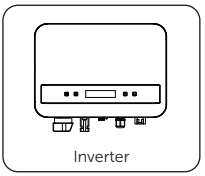
CAUTION!

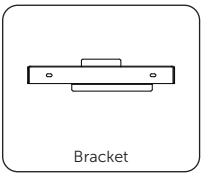
- Keep children away from the inverter.
- Pay attention to the weight of the inverter. Personal injuries may be caused if not handled properly.

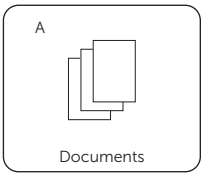
NOTICE!

- The inverter has an integrated Type-B Residual Current Monitoring Unit (RCMU).
- If an external RCD is required by local regulations, check which type of RCD is required for relevant electric codes. It is recommended to use a Type-A RCD with the value of 300 mA.
- All the product labels and nameplate on the inverter shall be maintained clearly visible.

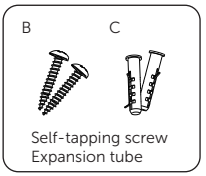
Packing List


Inverter

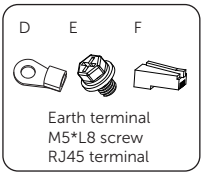

Bracket



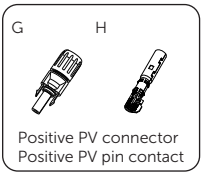
Documents



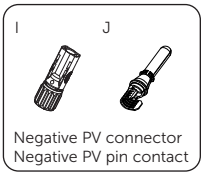
Self-tapping screw
Expansion tube



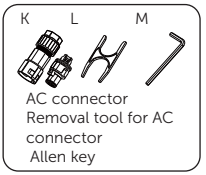
Earth terminal
M5*L8 screw
RJ45 terminal



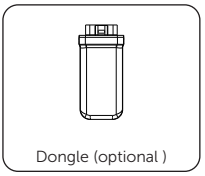
Positive PV connector
Positive PV pin contact



Negative PV connector
Negative PV pin contact



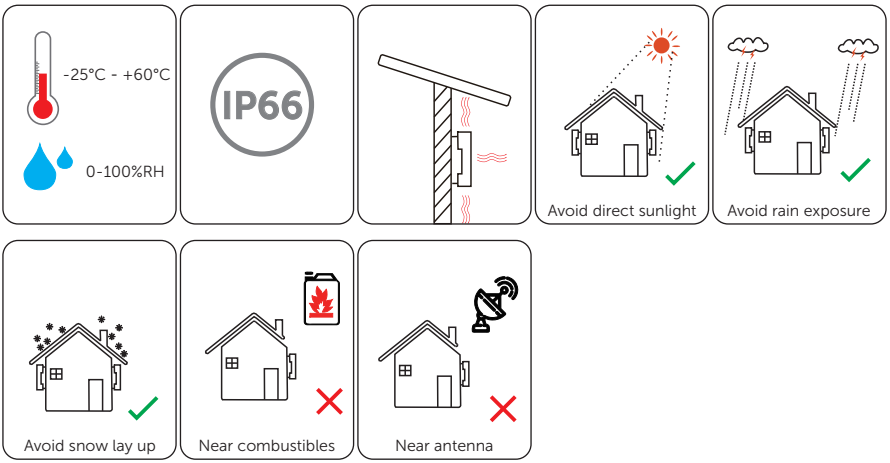
AC connector
Removal tool for AC connector
Allen key


Dongle (optional)

*Refer to the actual delivery for the optional accessories.

Item No.	Items	Quantity
/	Inverter	1 pc
/	Bracket	1 pc
A	Documents	/
B	Self-tapping screw	2 pcs
C	Expansion tube	2 pcs
D	Earth terminal	1 pc
E	M5*L8 screw	1 pc
F	RJ45 terminal	1 pc
G	Positive PV connector	1 pc
H	Positive PV pin contact	1 pc
I	Negative PV connector	1 pc
J	Negative PV pin contact	1 pc
K	AC connector	1 pc
L	Removal tool for AC connector	1 pc
M	Allen key	1 pc
/	Dongle (optional)	1 pc

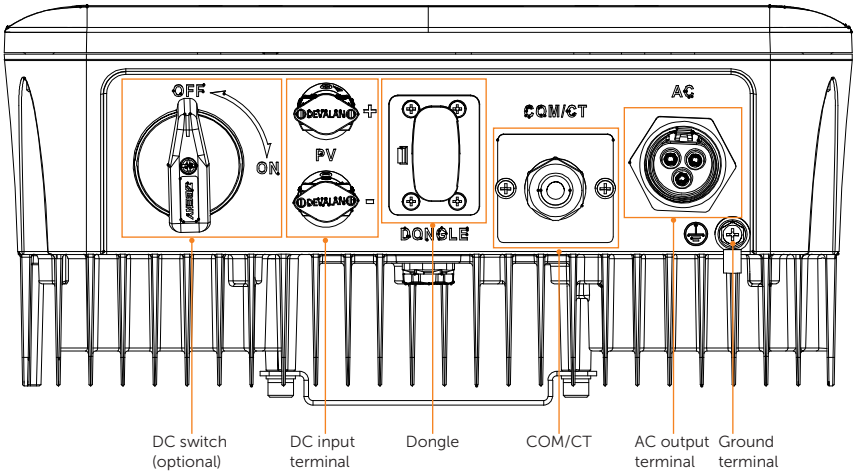
Installation Site



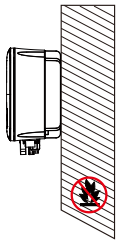
NOTICE

- For outdoor-installation, precautions against direct sunlight, rain exposure and snow accumulation are recommended.
- Exposure to direct sunlight raises the temperature inside the device. This temperaturerise poses no safety risks, but may impact the device-performance.

Terminal Description

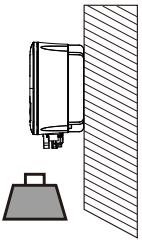


Installation Carrier

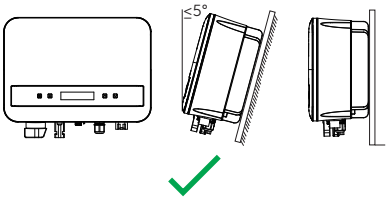


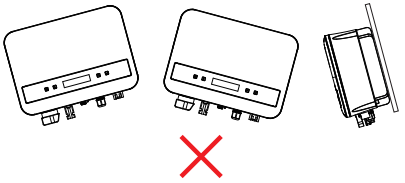
Fire resistant

Be suitable for the dimension (290 × 206 × 120 mm) and weight (refer to technical data) of the inverter

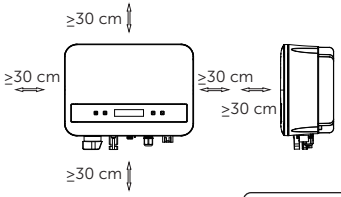


Installation Angle

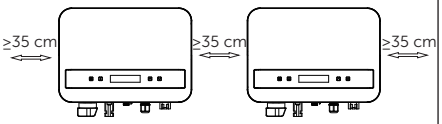




Installation Space



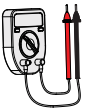
Single inverter

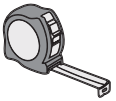


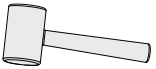
Multiple inverters

Installation Tools


Hammer drill


Multimeter

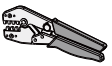

Measuring tape

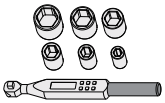

Rubber mallet

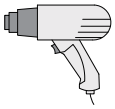

Marker

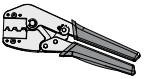

Cross screwdriver

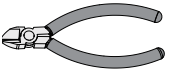

Wire stripper


Crimping tool


Torque wrench


Heat gun


Crimping tool for PV terminal

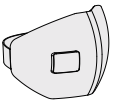

Diagonal pliers


Spirit level


Crimping tool for RJ45


Heat shrinking tubing (Ø6 mm)


Safety goggles


Anti-dust mask

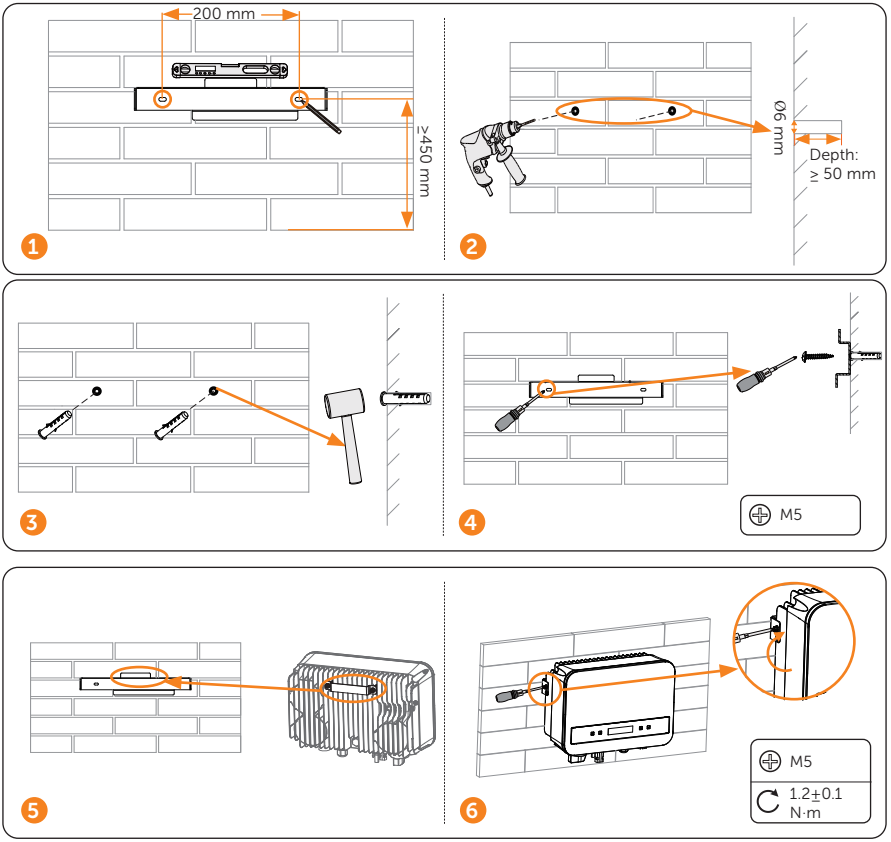

Safety gloves


Safety boots

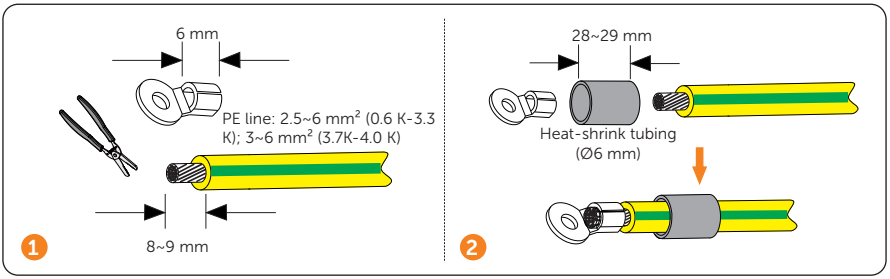
Additionally Required Materials

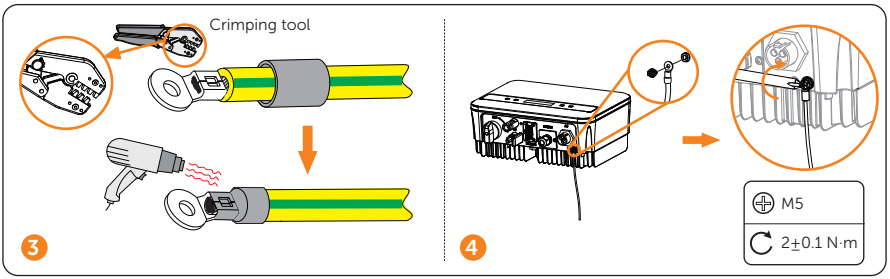
No.	Required Material	Type	Size
1	AC circuit breaker	/	/
2	PV cable	Dedicated PV wire withstand voltage 600 V	Cross sectional area: 4~6 mm²
3	AC cable	Three-core copper wire	Cross sectional area: 2.5~6 mm² (0.6 K-3.3 K); 3~6 mm² (3.7 K-4.0 K)
4	Communication cable	Network cable CAT5	External diameter: Ø2-6 mm
5	PE cable	Conventional yellow and green wire	Cross sectional area: 2.5~6 mm² (0.6 K-3.3 K); 3~6 mm² (3.7 K-4.0 K) * The cross-sectional area of PE line should be the same as that of L/N line.

Mechanical Installation

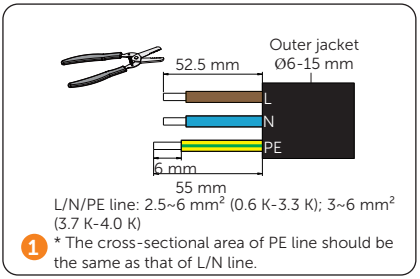


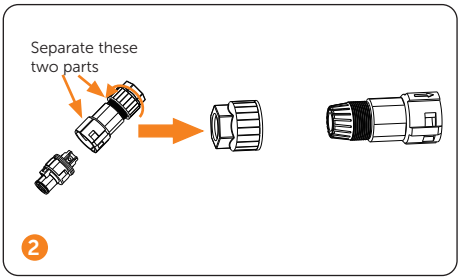
PE Connection

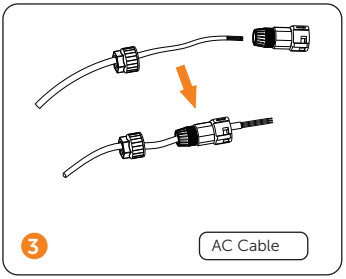


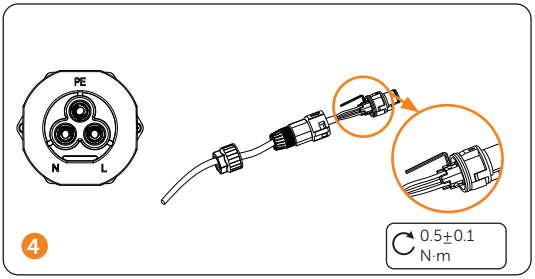


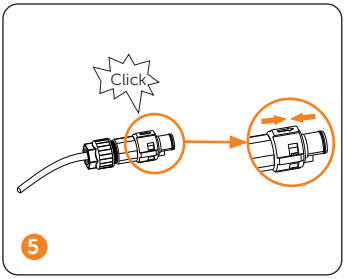
AC Side Connection

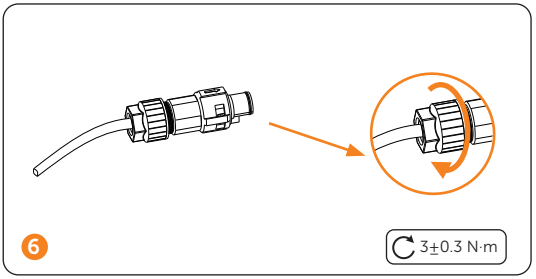


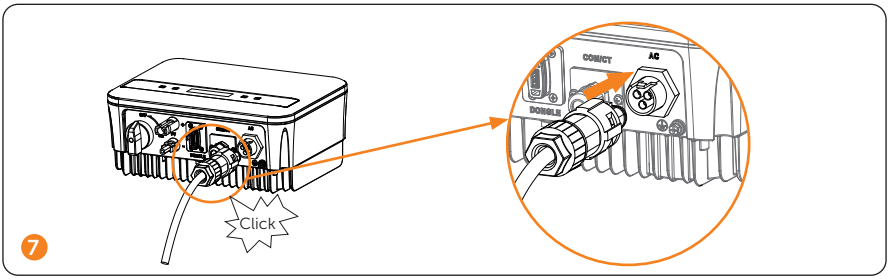




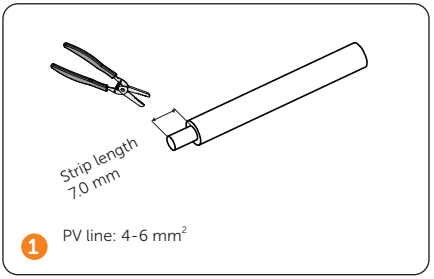


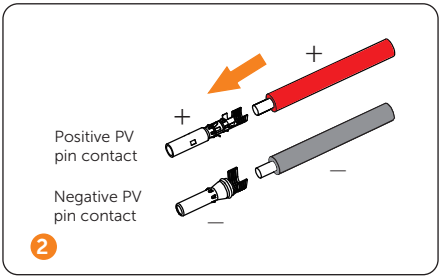


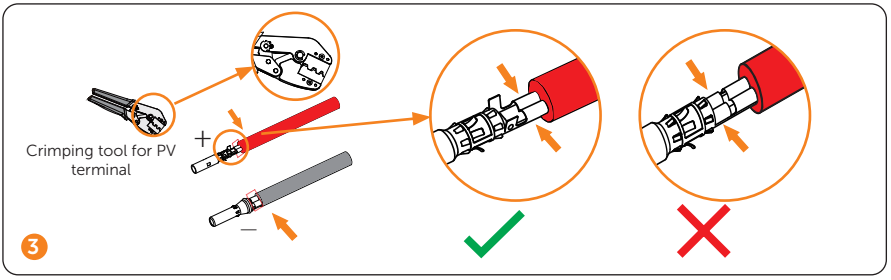


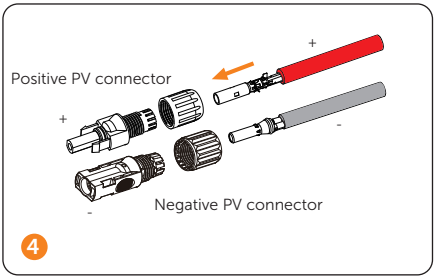


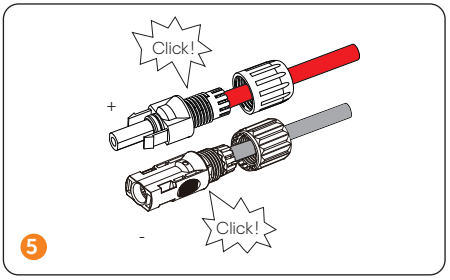
DC Side Connection

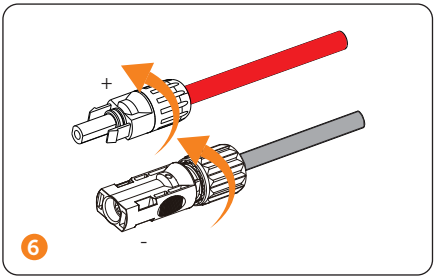


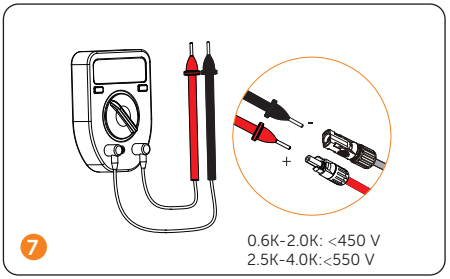


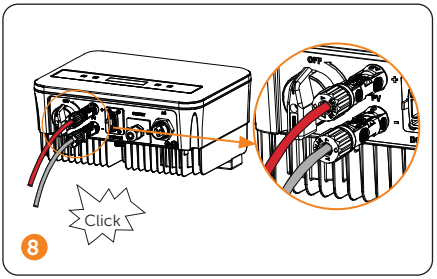




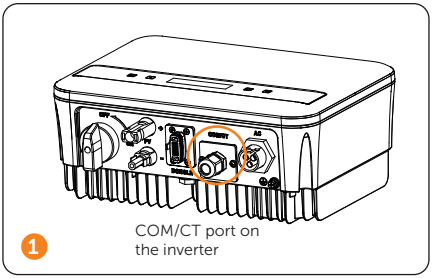


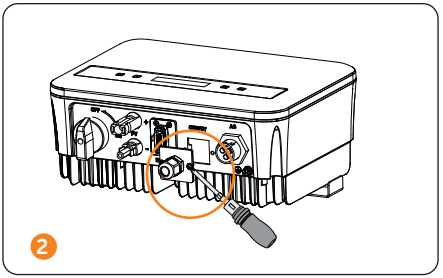


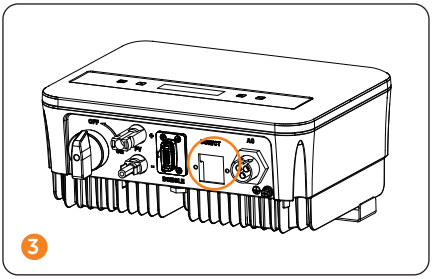


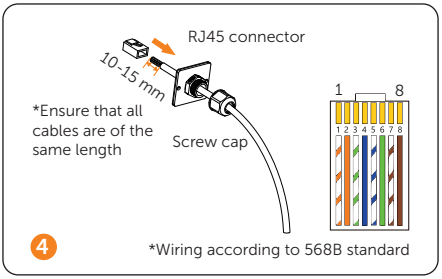


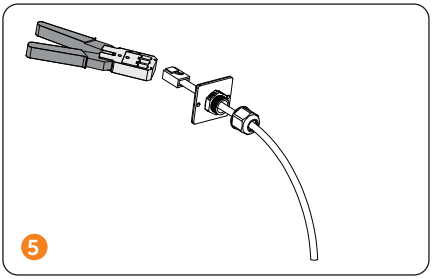
Communication Connection

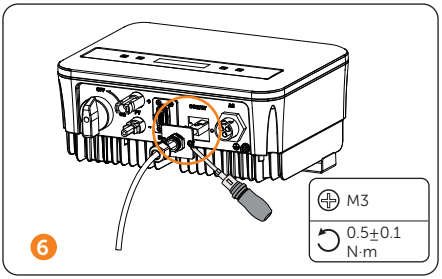


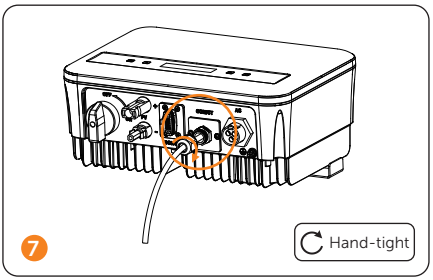


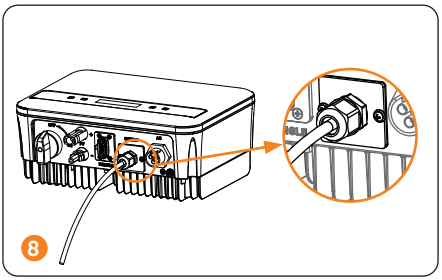










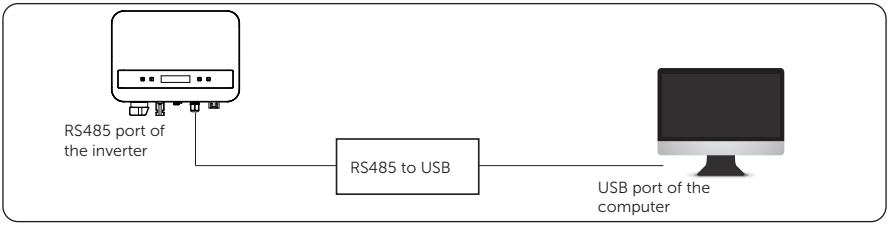


- Pin definition.

Function	CT	DRM	/	RS485/ Meter	RS485/ Meter	/	DRM	CT
Pin	1	2	3	4	5	6	7	8
Pin Definition	CT+	DRM0	/	485_A	485_B	/	+3.3V	CT-

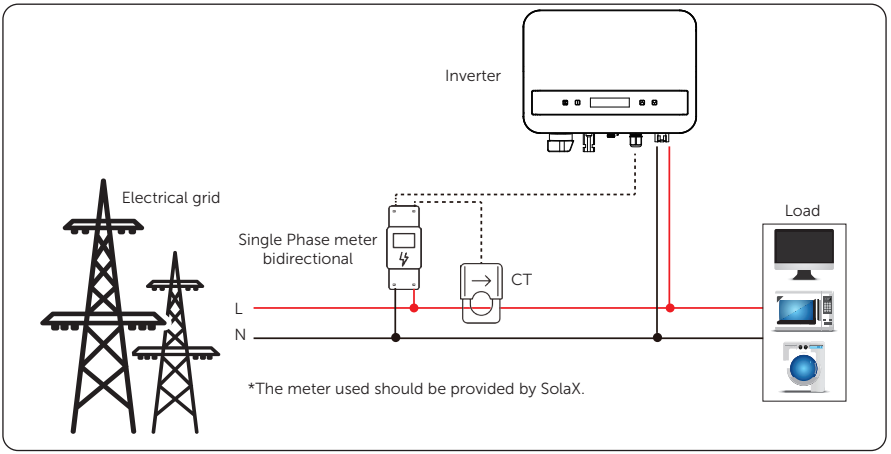
*Note: DRM0 here is for AS4777.2 AU/NZ.

For RS485.

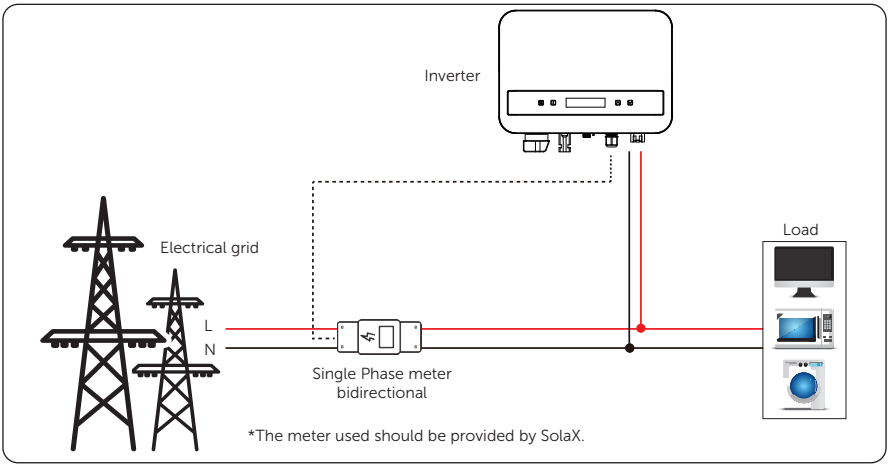


- For meter.

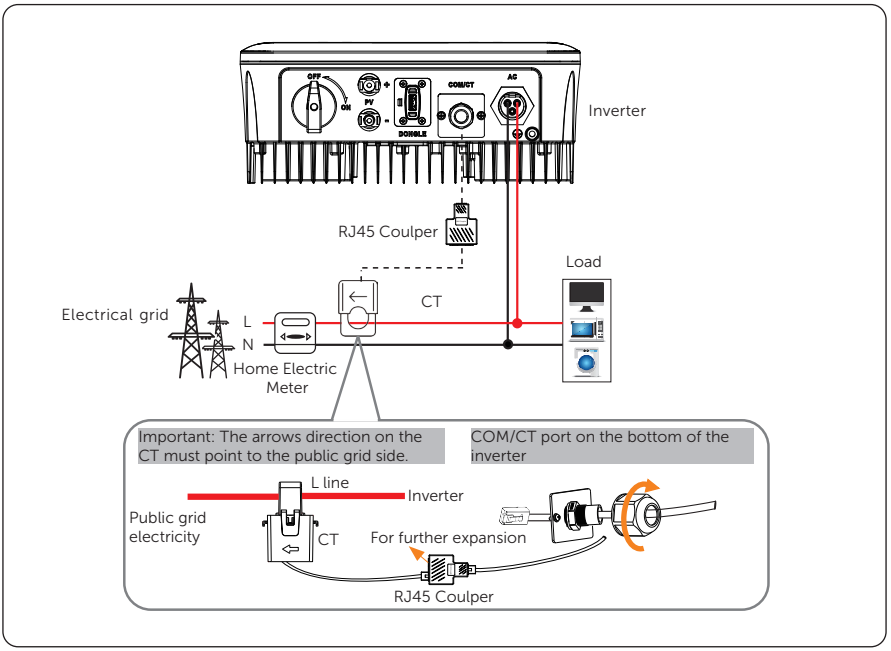
i. For meter with CT



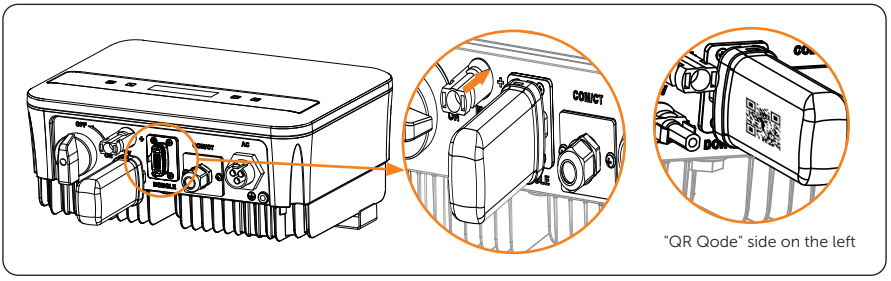
ii. For meter without CT



- For direct CT connection.



Monitoring Connection

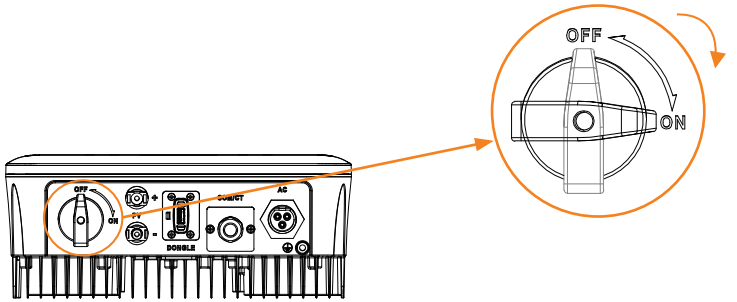


Power on the System

Step 1: Turn on DC switch.

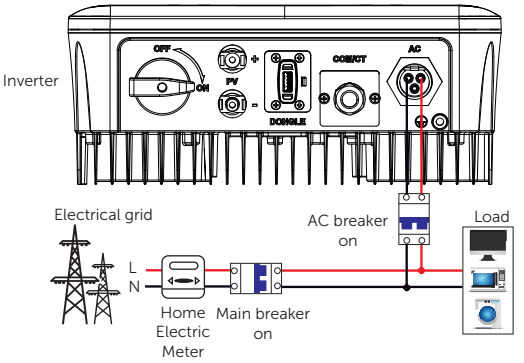
i) Turn on the DC switch from OFF state to ON state.

Turn on DC switch

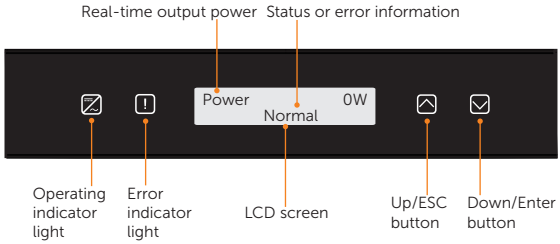


Step 2: Turn on AC breaker.

Turn on AC breaker



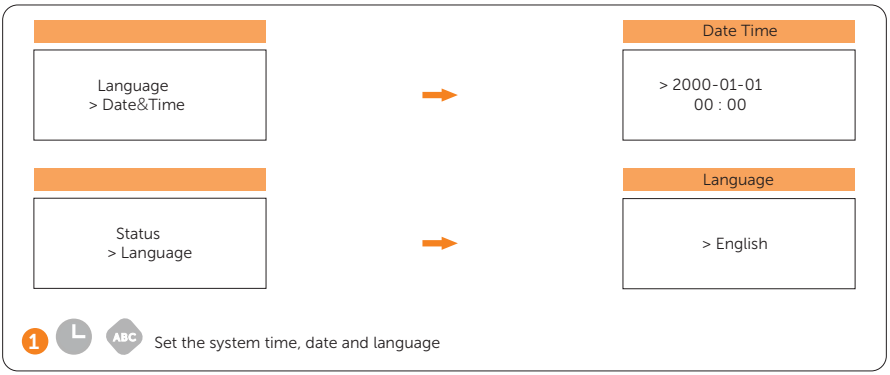
LCD Panel

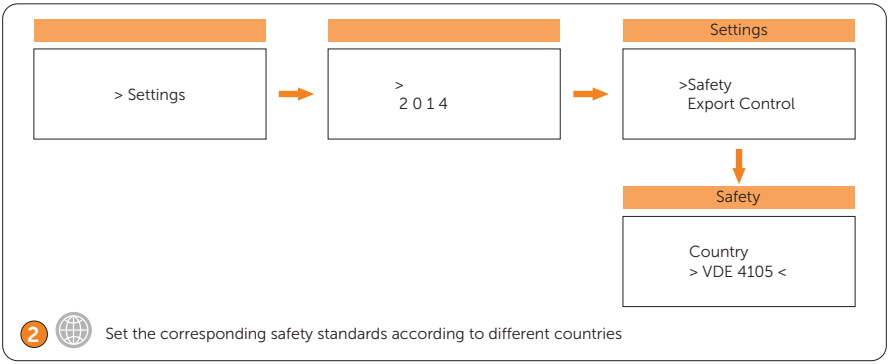


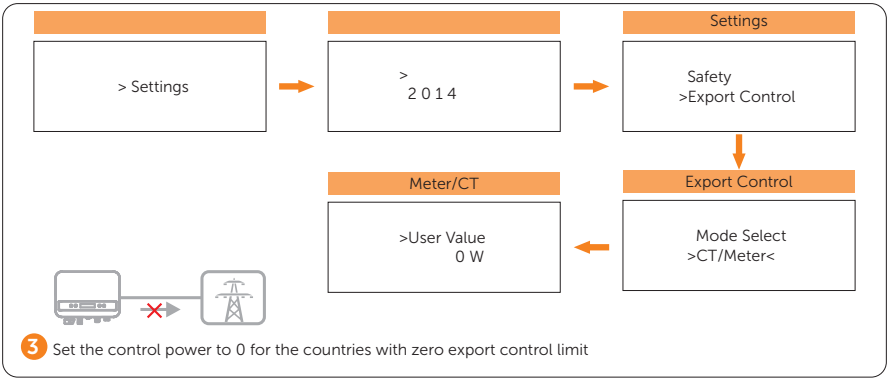
- In normal status, the "Power"/"Pgrid"/"Today"/"Total" information will be displayed respectively. You can press the keys to switch information.
- In error status, the fault message and error code will be displayed, please refer to corresponding solutions in the user manual.

Item	Description
LCD screen	Display the information of the inverter.
Operating indicator light	Light in blue: The inverter is in normal status. Flash in blue: The inverter is in waiting status.
Error indicator light	Light in red: The inverter is in fault status.
Up/ESC button	Up/ESC button: Short press to move cursor up or increase value; Long press to return from current interface or function.
Down/Enter button	Down/Enter button: Short press to move the cursor down or decrease value. Long press to confirm or change the parameters.

General Setting







*The initial password is 2014 which should be changed for the consideration of account security.

Technical Data

- DC input

Model	X1-MINI-0.6K-G4	X1-MINI-0.7K-G4	X1-MINI-0.8K-G4	X1-MINI-1.1K-G4	X1-MINI-1.5K-G4
Max. PV array input power [Wp]	1200	1400	1600	2200	3000
Max. PV voltage [d.c.V]	450	450	450	450	450
Startup voltage [d.c.V]	50	50	50	50	50
Nominal input voltage [d.c.V]	360	360	360	360	360
MPPT voltage range [d.c.V]	40-450	40-450	40-450	40-450	40-450
No. of MPP trackers/Strings per MPP tracker	1/1				
Max. PV current [d.c.A]	16				
I_{sc} PV array Short Circuit SC Current [d.c.A]	22				
Max. inverter backfeed current to the array [d.c.A]	0				

Model	X1-MINI-2.0K-G4	X1-MINI-2.5K-G4	X1-MINI-3.0K-G4	X1-MINI-3.3K-G4	X1-MINI-3.7K-G4	X1-MINI-4.0K-G4
Max. PV array input power [kWp]	4000	5000	6000	6600	7400	8000
Max. PV voltage [d.c.V]	450	550	550	550	550	550
Startup voltage [d.c.V]	50	50	50	50	50	50
Nominal input voltage [d.c.V]	360	360	360	360	360	360
MPPT voltage range [d.c.V]	40-450	40-550	40-550	40-550	40-550	40-550
No. of MPP trackers/Strings per MPP tracker	1/1					
Max. PV current [d.c.A]	16					
I_{sc} PV array Short Circuit SC Current [d.c.A]	22					
Max. inverter backfeed current to the array [d.c.A]	0					

- AC output

Model	X1-MINI-0.6K-G4	X1-MINI-0.7K-G4	X1-MINI-0.8K-G4	X1-MINI-1.1K-G4	X1-MINI-1.5K-G4
Rated output apparent power [VA]	600	700	800	1100	1500
Nominal AC output current [a.c.A]	2.6	3.1	3.5	4.8	6.5
Max. output apparent power [VA]	600	770	800	1210	1650
Max. output continuous current [a.c.A]	3	3.5	3.7	5.5	7.5
Nominal AC voltage [a.c.V]/ Grid range	220/230/240; 90-290				
Nominal grid frequency [Hz]	50/60; ±5				
Displacement power factor	0.8leading-0.8lagging				
ITHDi (rated power) [%]	<3				
Current (inrush) [a.c.A]	50				
Maximum output fault current [a.c.A]	58 (15 ms)				
Maximum output overcurrent protection [a.c.A]	35				

Model	X1-MINI-2.0K-G4	X1-MINI-2.5K-G4	X1-MINI-3.0K-G4	X1-MINI-3.3K-G4	X1-MINI-3.7K-G4	X1-MINI-4.0K-G4
Rated output apparent power [VA]	2000	2500	3000	3300	3700	4000
Nominal AC output current [a.c.A]	8.7	10.9	13.1	14.4	16.1	17.4
Max. output apparent power [VA]	2200	2750	3300	3300	4070	4400
Max. output continuous current [a.c.A]	10	12.5	15	15	18.5	20
Nominal AC voltage [a.c.V]/ Grid range	220/230/240; 90-290					
Nominal grid frequency [Hz]	50/60; ±5					

Model	X1-MINI-2.0K-G4	X1-MINI-2.5K-G4	X1-MINI-3.0K-G4	X1-MINI-3.3K-G4	X1-MINI-3.7K-G4	X1-MINI-4.0K-G4
Displacement power factor	0.8leading-0.8lagging					
ITHDi (rated power) [%]	<3					
Current (inrush) [a.c.A]	50					
Maximum output fault current [a.c.A]	58 (15 ms)					
Maximum output overcurrent protection [a.c.A]	35					

- System Data, Protection and Standard

Model	X1-MINI-0.6K-G4	X1-MINI-0.7K-G4	X1-MINI-0.8K-G4	X1-MINI-1.1K-G4	X1-MINI-1.5K-G4
Max. efficiency [%]	98	98	98	98	98
Euro. efficiency [%]	96	96	95	97	97
Standby consumption [W] @Night	<1				
Ingress protection	IP66				
Protective class	I				
Overvoltage category	II (DC), III (AC)				
Operating ambient temperature range [°C]	-25-60				
Max. operation altitude [m]	<4000				
Humidity [%]	0-100				
Typical noise emission [dB]	25	25	25	25	25
Storage temperature [°C]	-30-70				
Dimensions(W×H×D) [mm]	290x206x130				
Weight [kg]	5.2	5.2	5.2	5.2	5.2
Cooling concept	Nature cooling				
Communication interfaces	RS485/DRM/USB/Heat Pump, Optional: CT/Meter				
Optional monitoring dongle	Pocket WiFi/LAN/4G				
Over/under voltage protection	YES				
DC isolation protection	YES				
Monitoring ground fault protection	YES				
Grid monitoring	YES				
DC injection monitoring	YES				
Back feed current monitoring	YES				
Residual current detection	YES				
Anti-islanding protection	YES				
Over temperature protection	YES				
SPD (PV/AC)	Type II (Optional)				
AFCI	Optional				
Safety	EN/IEC62109-1/2				
EMC	EN61000-6-1/2/3/4;EN61000-3-2/3/11/12;EN55011				
Grid monotoring	IEC61727, EN50549, G98, AS 4777.2, VDE4105, CEI 0-21, VFR				
Inverter typology	Non-isolated				
Active anti-islanding method	Frequency shift				
Micro-breaker	10A				

Model	X1-MINI-2.0K-G4	X1-MINI-2.5K-G4	X1-MINI-3.0K-G4	X1-MINI-3.3K-G4	X1-MINI-3.7K-G4	X1-MINI-4.0K-G4
Max. efficiency [%]	98	98	98	98	98	98
Euro. efficiency [%]	97	97	97	97	97	97
Standby consumption [W] @Night	<1					
Ingress protection	IP66					
Protective class	I					
Overvoltage category	II (DC), III (AC)					
Operating ambient temperature range [°C]	-25-60					
Max. operation altitude [m]	<4000					
Humidity [%]	0-100					
Typical noise emission [dB]	25	25	25	25	30	30
Storage temperature [°C]	-30-70					
Dimensions(W×H×D) [mm]	290x206x130					
Weight [kg]	5.5	5.5	5.5	5.5	5.5	5.5
Cooling concept	Nature cooling					
Communication interfaces	RS485/DRM/USB/Heat Pump, Optional: CT/Meter					
Optional monitoring dongle	Pocket WiFi/LAN/4G					
Over/under voltage protection	YES					
DC isolation protection	YES					
Monitoring ground fault protection	YES					
Grid monitoring	YES					
DC injection monitoring	YES					
Back feed current monitoring	YES					
Residual current detection	YES					
Anti-islanding protection	YES					
Over temperature protection	YES					
SPD (PV/AC)	Type II (Optional)					
AFCI	Optional					
Safety	EN/IEC62109-1/2					
EMC	EN61000-6-1/2/3/4;EN61000-3-2/3/11/12					
Grid monotoring	IEC61727, EN50549, G98, AS 4777.2, VDE4105, CEI 0-21, VFR					
Inverter typology	Non-isolated					
Active anti-islanding method	Frequency shift					
Micro-breaker	16A	20A	20A	20A	25A	25A

Note:

1. For X1-MINI-3.7K-G4 and X1-MINI-4.0K-G4, internal fan is standard.

Wi-Fi Quick Guide (Optional)

Descriptions of Labels

CE	CE mark of conformity	FC	FCC mark of conformity
	RCM mark of conformity	ANATEL	ANATEL certification
R 201-210539	Telefication mark of conformity		
	Do not dispose of the device together with household waste.		

CE DECLARATION OF COMFORMITY

- The product conforms to RF specifications and technical standards.
- The device complies with DOC declaration.
- The device meets the basic requirements and other relevant provisions of 2014/53/EU directive.
- The device is allowed to be used in all EU member states.
- Manufacturer: SolaX Power Network Technology (Zhejiang) Co., Ltd.
  Product type: Pocket WiFi
  [CE DECLARATION OF COMFORMITY]: https://www.solaxpower.com/uploads/file/pocket-wifi-ce-declaration-of-conformity-en.pdf

FCC RULES

- 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 forcompliance could void the user's authority to operate the equipment.

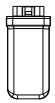
FCC RULES

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.

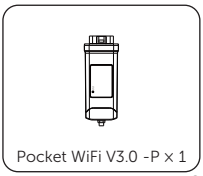
Packing List

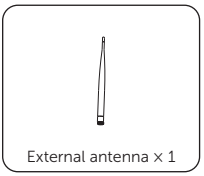
For Pocket WiFi V3.0:



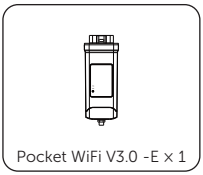
Pocket WiFi V3.0 × 1

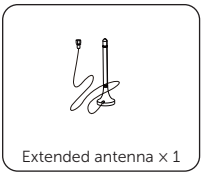
For Pocket WiFi V3.0 -P:





For Pocket WiFi V3.0 -E:





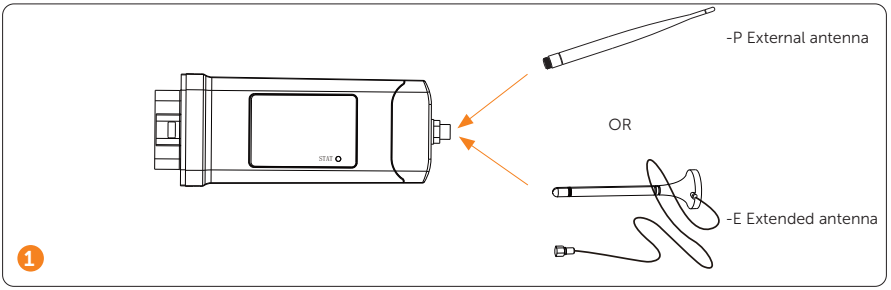
Installation

Installation steps

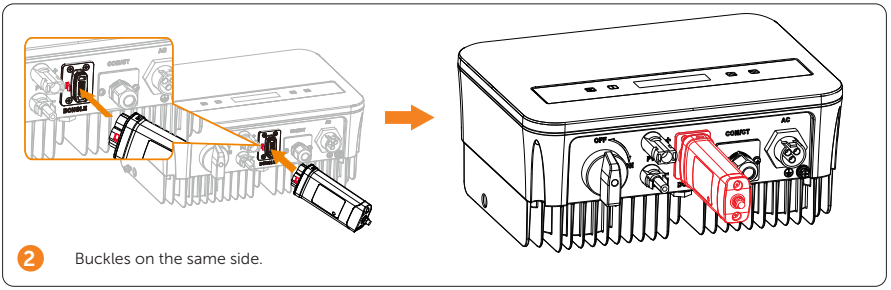
⚠WARNING!

- Ensure that all power has been turned off at least 5 minutes prior to installation.

Step 1: For the -P/-E version of Pocket WiFi, screw the antenna to the end of the shell. (Skip this step if you didn't buy the -P/-E version).

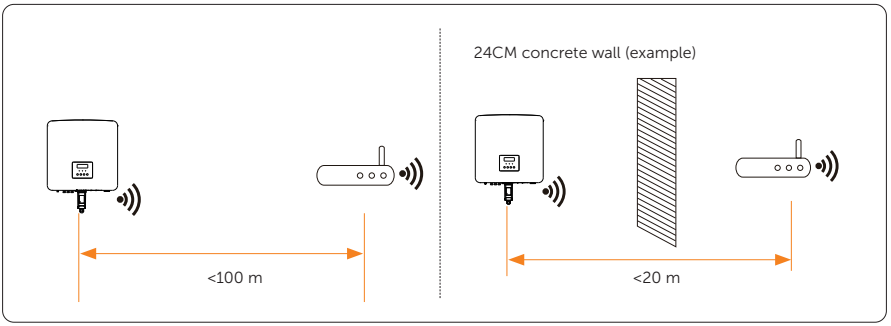


Step 2: Plug the Pocket WiFi into the Dongle port of the inverter.



Installation requirements

For Wi-Fi mode, the longest connection distance between the router and the equipment should be no more than 100 meters; if there is a wall between the router and the equipment, the longest connection distance is 20 meters.



NOTICE!

- When the Wi-Fi signal is weak, please install a Wi-Fi signal booster at the appropriate location.

Wi-Fi Configuration

Scan the following QR code or search for the keyword "SolaxCloud" in the APP Store to download the Monitoring APP.
Scan the following QR code to read the **Configuration Guide** online.

DOWNLOAD APP

CONFIGURATION GUIDE

NOTICE!

- If you need to download the **Configuration Guide**, please scroll down to the bottom of the interface and click [Download].

Indicator description

Indicator status	Description
Blinks quickly (on and off every second)	Inverter connected; Server disconnected
On for 3 s and off for 200 ms	Inverter disconnected; Server connected

Indicator status	Description
On and off every 3 s	Inverter disconnected; Server disconnected
Constant on	Normal connection

Technical Data

Product Name	Pocket WiFi
Model	Pocket WiFi V3.0 (-P/-E)
Power Supply	5 V DC
Rated Power	1.3 W
EIRP Power	17.41 dBm(Measured Max. Average)
Frequency	2.4 GHz
Antenna Gain	3 dBi
Antenna Type	IPEX
Degree of Protection	IP65
Operating Temperate	-40~85 °C
Wireless Mode	802.11 b/g/n
Dimension	95.5*45.7*28.5 mm
Dimension (-P/-E)	112*45.7*28.5 mm
Weight	50 g (-P/-E <107g)
WiFi configuration IP address	192.168.10.10

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.

SolaX Power Network Technology (Zhejiang) Co., Ltd.

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Hangzhou, Zhejiang, China
E-mail: info@solaxpower.com / Service.India@solaxpower.com

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