Quick Installation Guide

X1−Hybrid 3KW-5KW

SOLA X POWER

II Mounting Steps

− Mark position of four holes.
− Drill holes with φ10 drill. Depth: at least 60 mm.
− Install the expansion tubes, then tighten the expansion bolts.

− Match the inverter with the bracket.

375.0 mm
263.0 mm

❶   ❷

- Screw the set screw on the left-bottom of inverter tightly.

- If necessary, costomer can install an anti-theft lock on the left-bottom of the inverter.

− Overview of Mounting

❸ Torque: 1.5±0.2 N·m
❹

I Packing List

Inverter x1

Bracket x1

Expansion tube x 4
Expansion screw x 4

DC connectors
(positive x 2, negative x 2)
DC pin connectors
(positive x 2, negative x 2)

Battery connectors
(positive x1, negative x1)

Version I   Version E&C
AC terminal x 8 *

Ring terminal (external) x1
Ring terminal (internal) x2
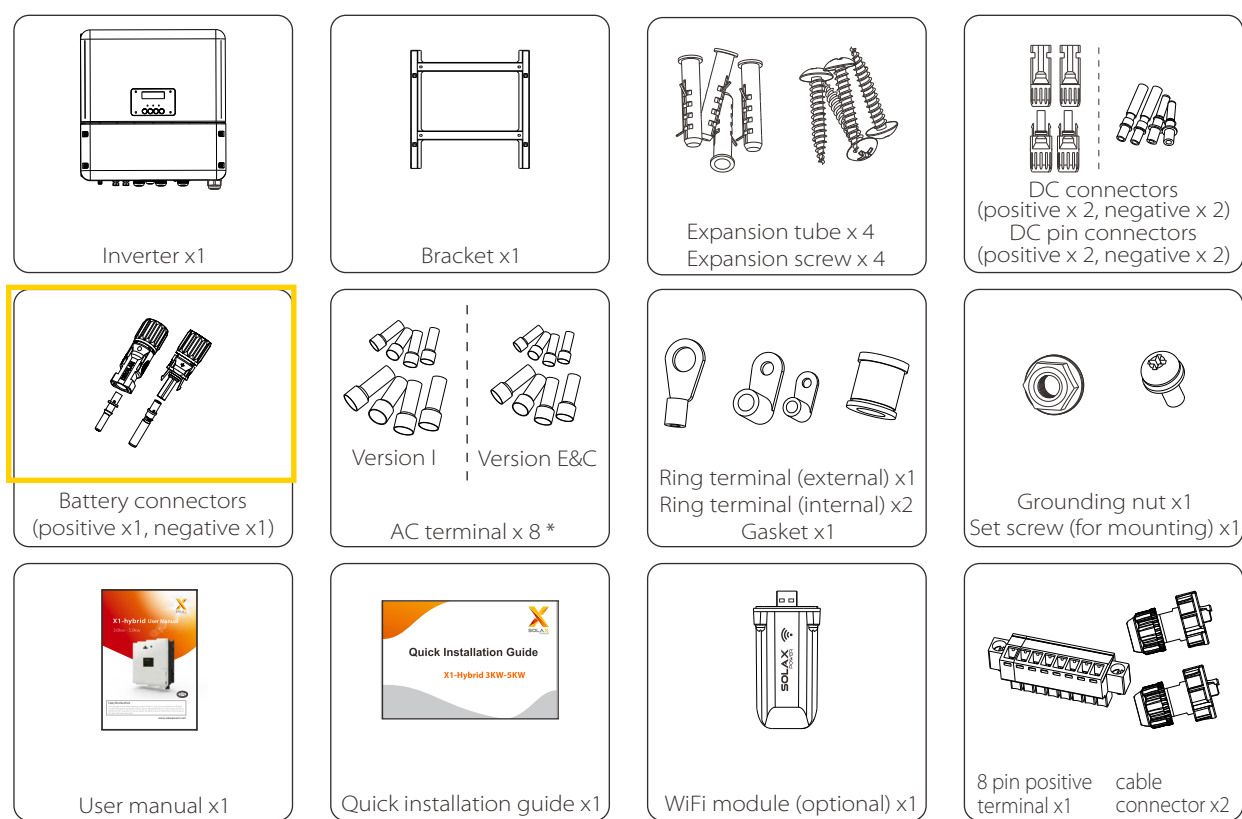Gasket x1

Grounding nut x1
Set screw (for mounting) x1

User manual x1

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Quick installation guide x1

WiFi module (optional) x1

8 pin positive
terminal x1

cable
connector x2
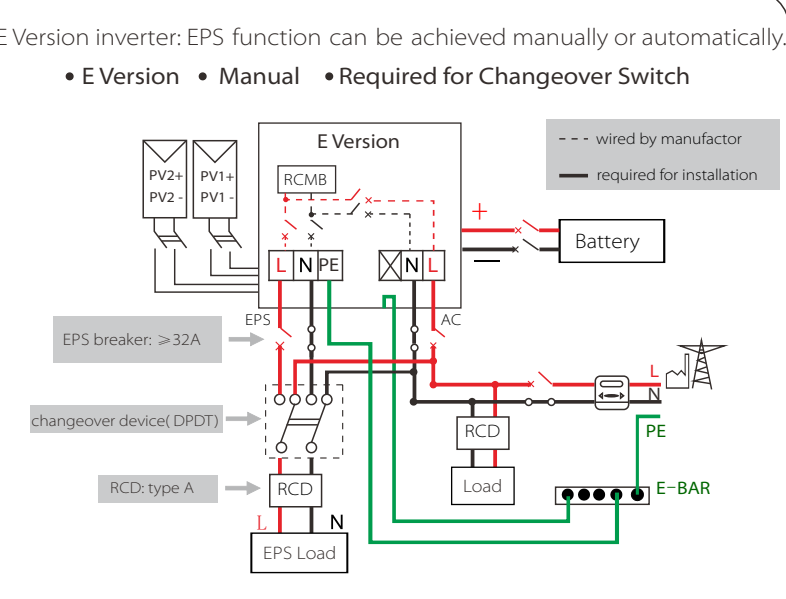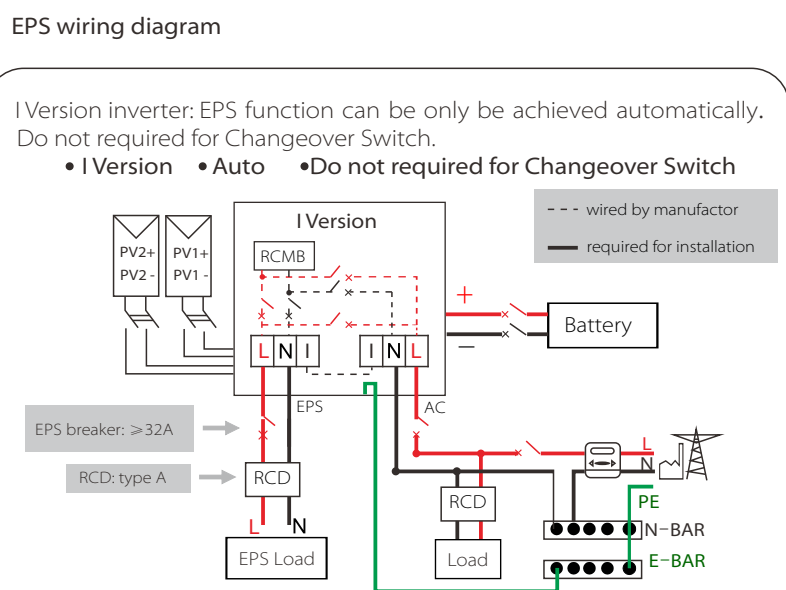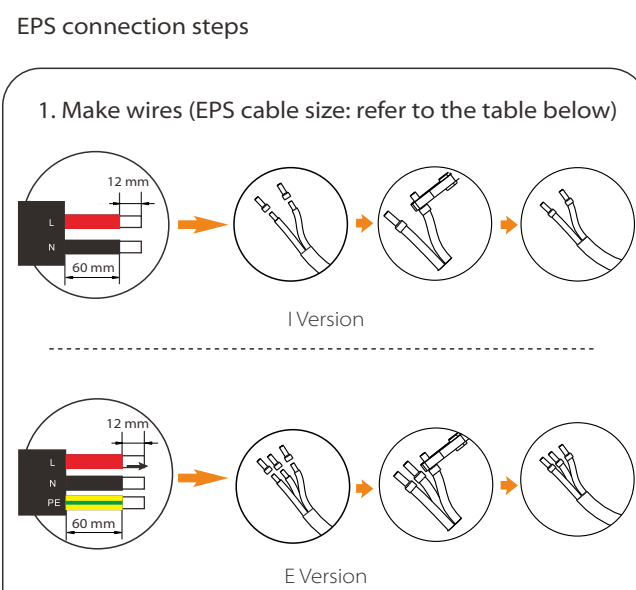
AC terminal x8 *: 4 16 mm² AC terminals and 4 6 mm² AC terminals for Version I
4 6 mm² AC terminals and 4 10 mm² AC terminals for Version E and Version C

III PV and AC Connection

PV connection steps (PV cable size: 4 mm²)

positive DC
pin contact   10 mm
(wire crimper recommended model:
H4TC0001, manufacturer: Amphenol)

cable   10 mm
negative DC
pin contact

male plug

clamp contact

nut   tight nut

female plug

− Align the halves connectors

❶   ❷   ❸

AC connection steps(AC cable size: refer to table1 & table2)

12 mm   60 mm

Note: **I port** has been wired during the manufactory

Note: **No need** to connect wire on the **X port** by enduser!

1. Remove the top-down cover.

2. Make AC wires.
Torque: 1.2±0.1 N·m

I Version   E Version
a. L-wire,N-wire connection

Torque: 1.2±0.1 N·m

3. Insert AC cable into AC port through screw cap.

4. Connect the wire to the AC terminal in the inverter.

b. PE wire connection

Model	X1-Hybrid-3.0-D X1-Hybrid-3.7-D X1-Hybrid-4.6-D X1-Hybrid-5.0-D X1-Hybrid-3.0-N X1-Hybrid-3.7-N X1-Hybrid-4.6-N X1-Hybrid-5.0-N			
Cable	4-5 mm²	4-5 mm²	5-6 mm²	5-6 mm²
Micro-breaker	20 A	20 A	32 A	32 A

table1. E Version & C Version

Model	X1-Hybrid-3.0-D X1-Hybrid-3.7-D X1-Hybrid-4.6-D X1-Hybrid-5.0-D X1-Hybrid-3.0-N X1-Hybrid-3.7-N X1-Hybrid-4.6-N X1-Hybrid-5.0-N			
Cable	8-10 mm²	8-10 mm²	10-13 mm²	10-13 mm²
Micro-breaker	50 A	50 A	63 A	63 A

table2. I Version

IV EPS Connection (for I version and E version)

EPS wiring diagram

I Version inverter: EPS function can be only be achieved automatically.
Do not required for Changeover Switch.
• I Version   • Auto   • Do not required for Changeover Switch

I Version
PV2+ PV1+
PV2- PV1-
RCMB
L N I   I N L
EPS   AC

- - - wired by manufactor
━━━ required for installation

+ − Battery

EPS breaker: >32A
RCD: type A
RCD
N
EPS Load   RCD
Load
N
PE
N−BAR
E−BAR

E Version inverter: EPS function can be achieved manually or automatically.
• E Version   • Manual   • Required for Changeover Switch

E Version
PV2+ PV1+
PV2- PV1-
RCMB
L N PE   X N L
EPS   AC

- - - wired by manufactor
━━━ required for installation

+ − Battery

EPS breaker: >32A
changeover device DPDT
RCD: type A
RCD
RCD
Load
EPS Load
N
PE
E−BAR

• E Version   • Auto   • Required for Changeover Switch

E Version
PV2+ PV1+
PV2- PV1-
RCMB
L N PE   X N L
EPS   AC

- - - wired by manufactor
━━━ required for installation

+ − Battery

EPS breaker: >32A
Contactor Device
RCD: type A
RCD
Contactor
RCD
Load
EPS Load
N
PE
E−BAR

Please contact our sales for any compatible contactor purchase requirement.

EPS connection steps

1. Make wires (EPS cable size: refer to the table below)

12 mm   60 mm

I Version

12 mm   60 mm

E Version

Model	X1-Hybrid-3.0-D X1-Hybrid-3.7-D X1-Hybrid-4.6-D X1-Hybrid-5.0-D X1-Hybrid-3.0-N X1-Hybrid-3.7-N X1-Hybrid-4.6-N X1-Hybrid-5.0-N			
EPS Cable	⩾5 mm²	⩾5 mm²	⩾5 mm²	⩾5 mm²
EPS breaker	25 A	25 A	32 A	32 A

table. Cable and Micro-breaker recommended

2. Insert EPS cable into EPS port through screw cap.
Torque: 1.2±0.1 N·m

I Version   E Version

Note: The black cable (the I port at right side) has been wired during the manufactory.

Note: Connect PE wire into PE port at right !

V Battery Connection

Battery connection diagram

current of
breaker>32A

Nonpolarized
DC breaker
Communication connection

Power connection

− + CAN/ RS485

high-voltage lithium battery

Battery breaker

Before connecting to battey, please install a nonpolarized DC breaker to make sure inverter can be securely disconnected during maintenance.
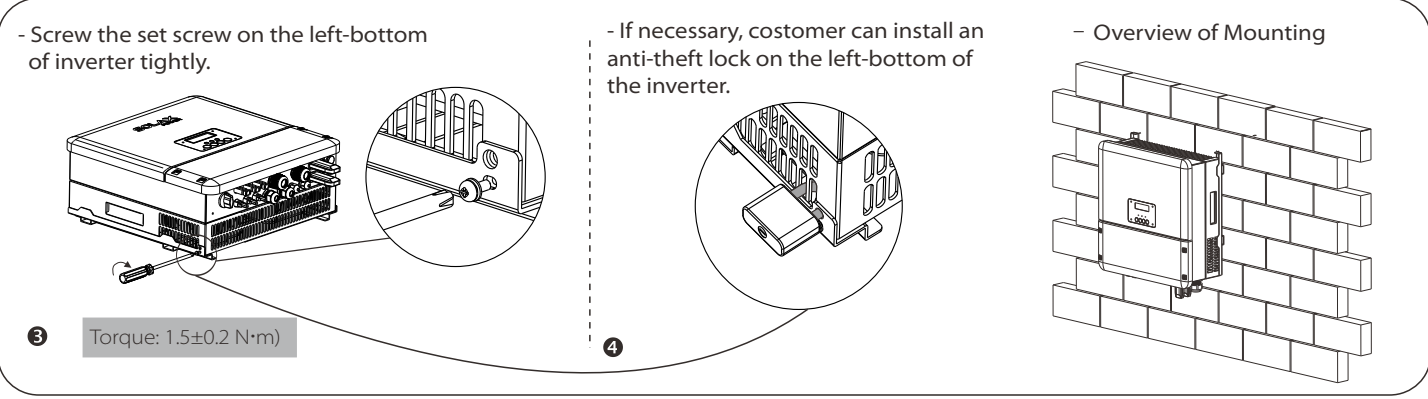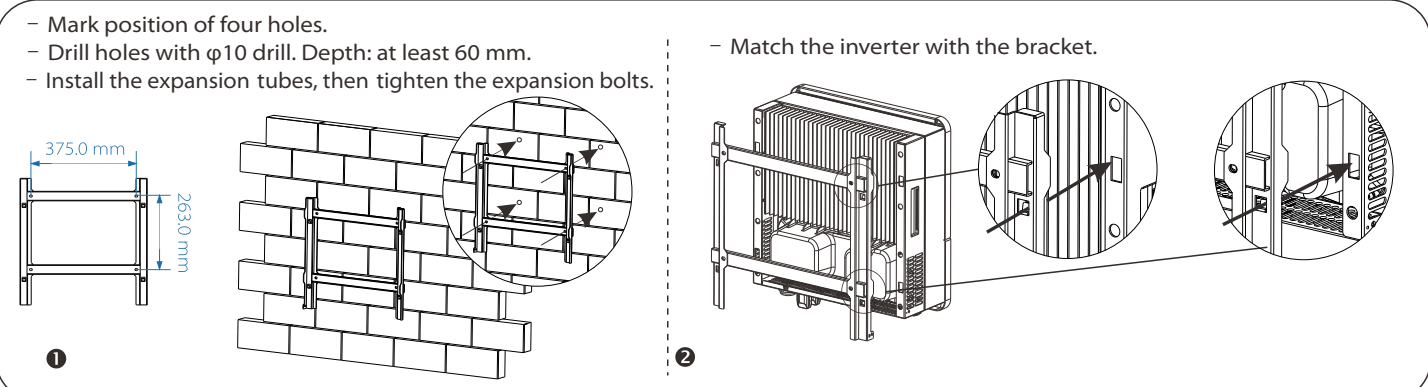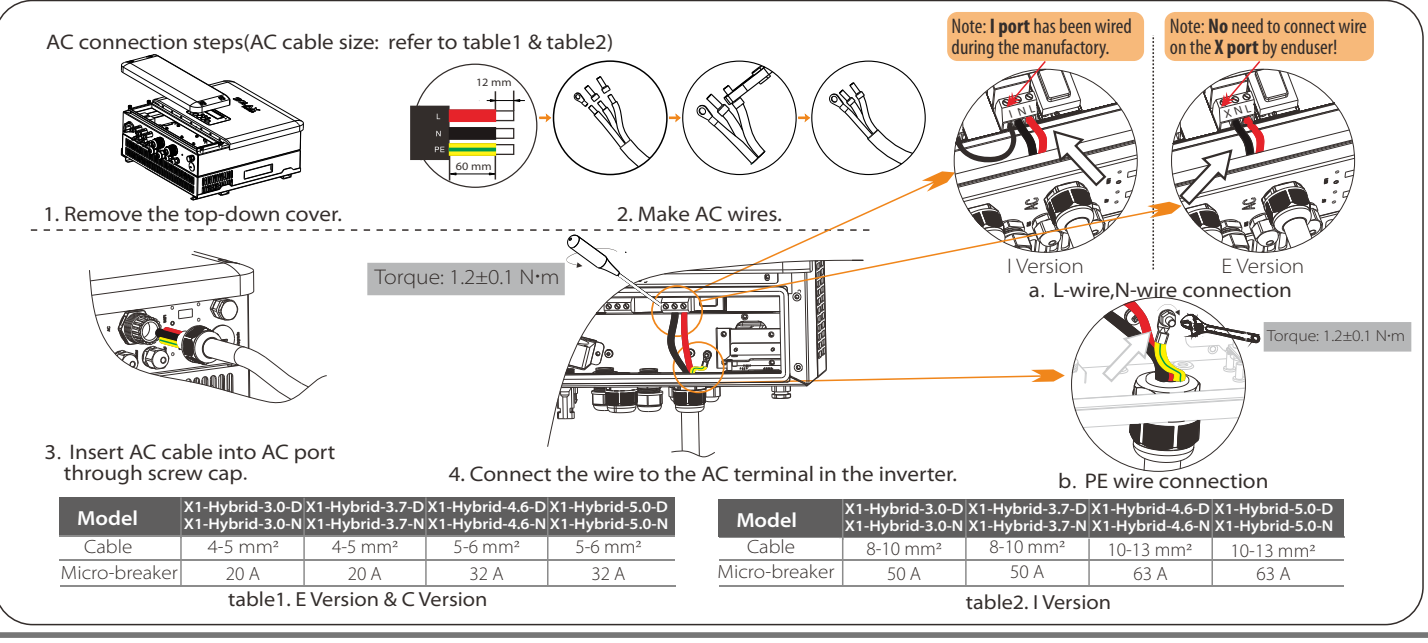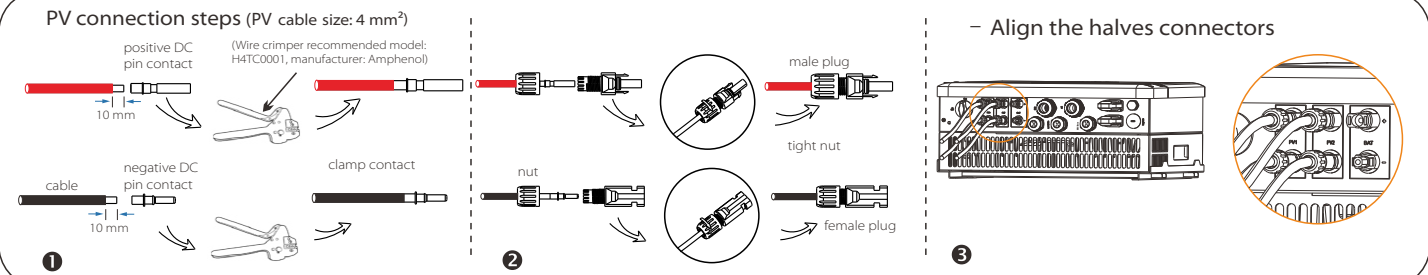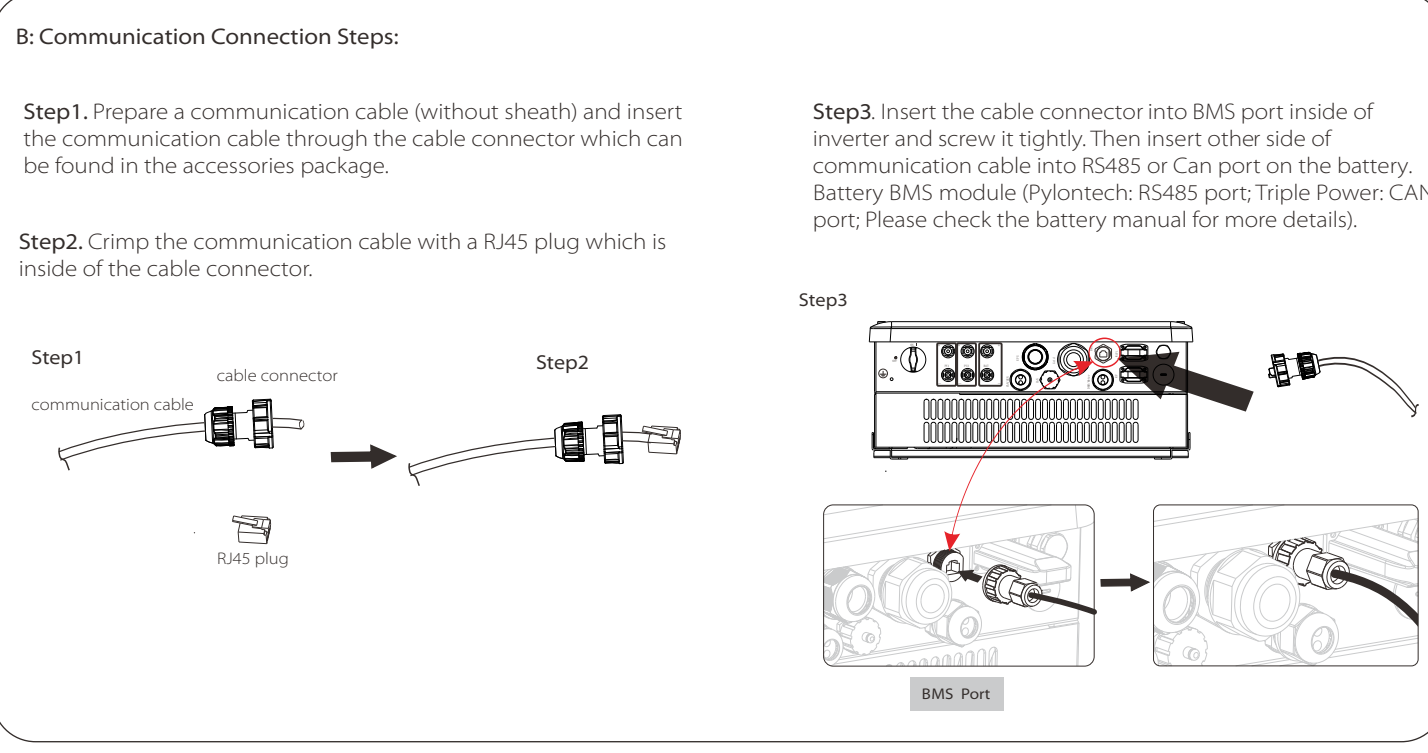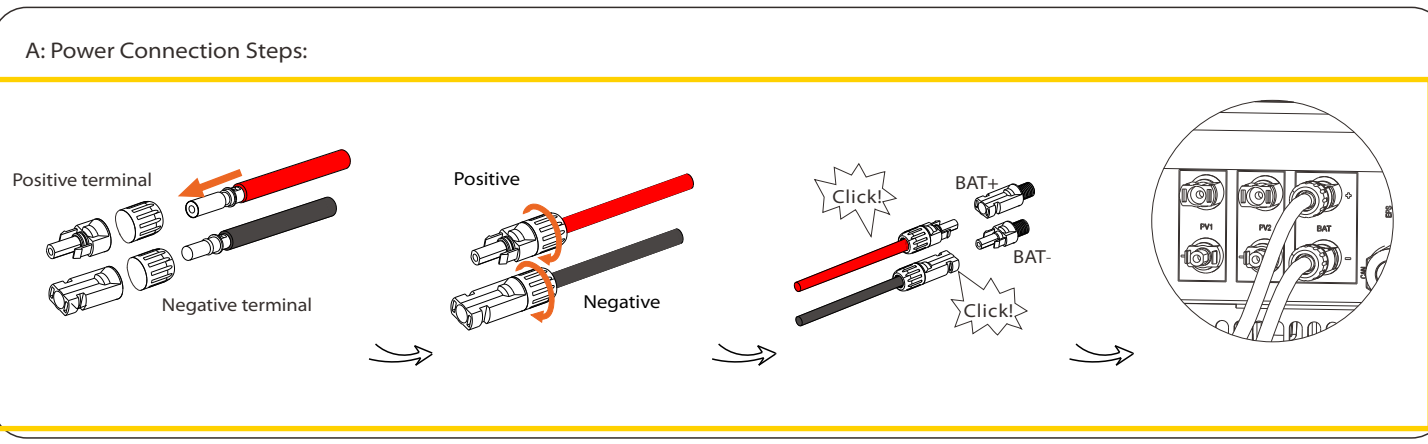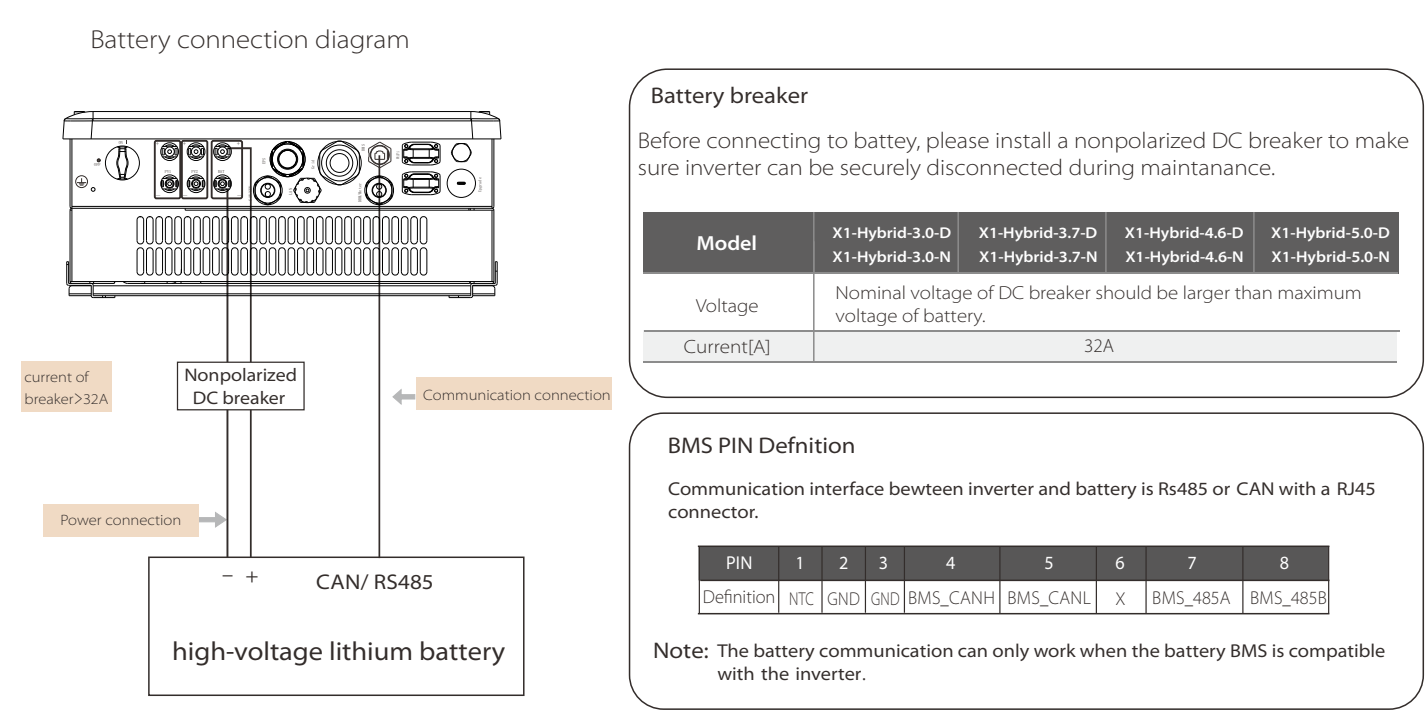
Model	X1-Hybrid-3.0-D X1-Hybrid-3.0-N	X1-Hybrid-3.7-D X1-Hybrid-3.7-N	X1-Hybrid-4.6-D X1-Hybrid-4.6-N	X1-Hybrid-5.0-D X1-Hybrid-5.0-N
Voltage	Nominal voltage of DC breaker should be larger than maximum voltage of battery.			
Current[A]	32A			

BMS PIN Defnition

Communication interface bewteen inverter and battery is Rs485 or CAN with a RJ45 connector.

PIN	1	2	3	4	5	6	7	8
Definition	NTC	GND	GND	BMS_CANH	BMS_CANL	X	BMS_485A	BMS_485B

Note: The battery communication can only work when the battery BMS is compatible with the inverter.

A: Power Connection Steps:

Positive terminal

Negative terminal

Positive

Negative

Click!   BAT+

BAT-

Click!

B: Communication Connection Steps:

Step1. Prepare a communication cable (without sheath) and insert the communication cable through the cable connector which can be found in the accessories package.

Step2. Crimp the communication cable with a RJ45 plug which is inside of the cable connector.

Step3. Insert the cable connector into BMS port inside of inverter and screw it tightly. Then insert other side of communication cable into RS485 or Can port on the battery. Battery BMS module (Pylontech: RS485 port; Triple Power: CAN port; Please check the battery manual for more details).

Step1
communication cable

cable connector

Step2

RJ45 plug

Step3

BMS Port

Earth Connection Steps(mandatory):

Cable size: 4 mm²

Ring terminal

(φ4 hexagon wrench. Torque: 1.5±0.2 N·m)

Start inverter

Applies to most countires

❶ Check the inverter is fixed well on the wall.
❷ Make sure all the DC wirings and AC wirings are completed.
❸ Make sure the meter is connected well.
❹ Make sure the battery is connected well.
❺ Make sure the external EPS contactor is connected well. (if needed)
❻ Turn on the AC switch and EPS switch.
❼ Turn on the PV/DC switch and battery switch.
❽ Long-press the "Enter" key for five seconds to exit Off Mode.(The mode is Off Mode when you use it for the first time; factory default: Off Mode)

Inverter will start up automatically when the PV panels generate enough energy or the battery is dicharging.
Check the status of indicators and LCD screen. The left indicator should be blue and the indicator screen should display the main interface.

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1. Set language	2. Set date time	3. Set the safety standard	4. Set export control
Language English Deutsch Italian	Date time 2017 ->06 <-06 10:19	Safety Country > VDE0126	Export Control Use Value: 10000W

This function allows the inverter able to control energy exported to the grid. There are user value and factory value. The factory value is default which can not be changed by user. The user value set by installer must be less than the factory value.

5.Set work mode

There are 4 work modes for choice. Self use / Back Up Mode / Feed in Priority / Force Time Use
All these work modes is available for on-grid condition only:

Work Mode
>Mode Select
   self use

Parameter	Comment
Self Use (default)	The PV generated power will be used to supply the local loads first, then to charge the battery. The redundant power will export to the public grid. When there is no PV supplied, battery will discharge for local loads first, and grid will supply power when the battery capacity is not enough. The priority of inverter output power is: supplying the load→ charging the battery→feeding to the grid
Back Up Mode	Battery will stop discharging to keep higher capacity when the grid is on. when the power generated by PV is not enough, the battery will discharge to supply the local loads too. And if still not enough, the grid will power the local loads together. This work mode applies to the area where suffering from blackout regularly.
Feed in Priority	The priority of inverter output power is: feeding to the grid→ supplying the load → charging the battery. This work mode applies to the area with high feed-in tariff.
Force Time Use	In this work mode the charging and discharging time can be set flexibly, and it also allows to choose whether charge from the grid or not. Other time it follows the priority of Self Use mode.

Preparation

Please ensure the inverter is steadily powered on.
Inverter must connect PV panels and keep the battery on through whole procedure of upgrading.
Please prepare a PC and an U-disk.

⚠ **Warning!**
Make sure the PV input power is more than 150 V (operate the upgrade on a sunny day) , otherwise it may result in **serious failing** during upgrading. If the upgrading is broken off during operation. Please make sure the size of U-disk is under 32G, and the format is fat 16 or fat 32.

Upgrading Steps:

Step1. Please contact our service support to get the update file, and extract it into your U-disk as follow:
"update\ARM\618.00086.01_Hybrid_X1G3_Manager_VX.XX_XX-XX.usb";
"update\DSP\618.00084.01_Hybrid_X1G3_Master_VX.XX_XXXXXX.hex";
(Note: Vx.xx is version number, xxxxxxxx is file complitation date. Don't modify the program file name, or it may cause that the inverter can't work!)

Step2. Press the "Enter" key for 5 seconds to enter Off Mode. Then unscrew the waterproof lid and insert U-disk into the "upgrade" port at the bottom of the inverter.
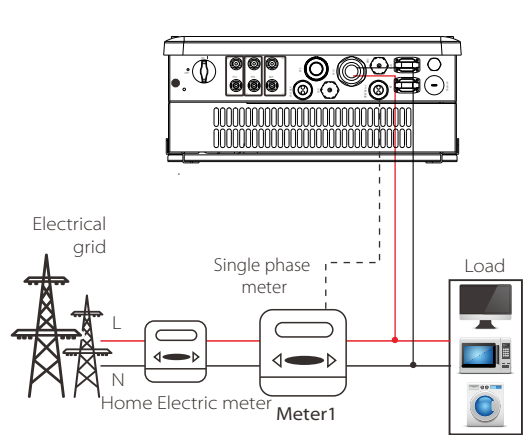
Step3. The LCD will be shown as the picture below. Then press up and down to select the one that you want to upgrade and press "OK" to confirm to upgrade.

```
:::::: Update ::::::
>ARM
 DSP
```
⟹
```
::::: Update(DSP) :::::
Updating--------25%
```
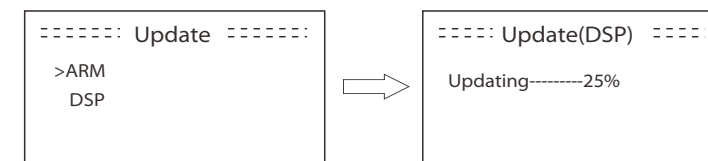
Step4. After the upgrade is finished, the LCD will display "succeed" (only for DSP upgrades), please remember to pull off the U-disk, screw the waterproof lid and press the "Esc" to return to the Main interface. Then press the "Enter" key to exit Off Mode.
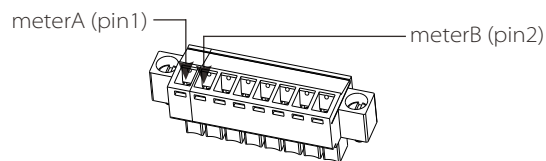

Meter connection diagram

Meter Connection Steps:

Step1. Prepare a connector and two communication wires.
Step2. Unscrew the nut of Meter connector and insert two communication wires through it.

Step1   Step2

Step3. Trip the insulation from the communication wires, then insert one side of wires into pin1 and pin 2 holes of the 8 pin positive terminal which can be found in accessories package. And then screw them tightly.

Torque: 0.2±0.1 Nm

10.0mm conductor

Step4. Insert the positive terminal into the corresponding negative terminal block inside of the inverter. And then screw it tightly. (Please refer to the meter instructions for the wiring of the meter.)
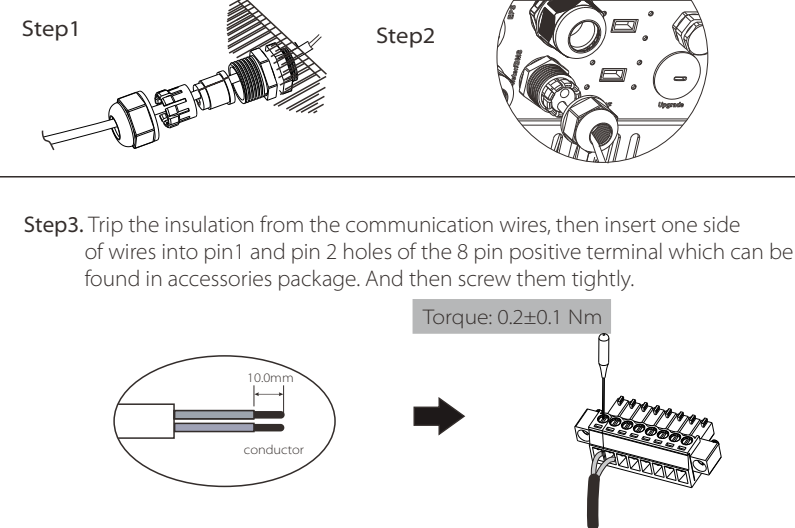
Torque: 0.4±0.1 Nm

Meter PIN Definition

Connect the RS485 line from meter with a RJ45 connector and finish the configuration, then plug this RJ45 connector to the "Meter" port of the inverter.
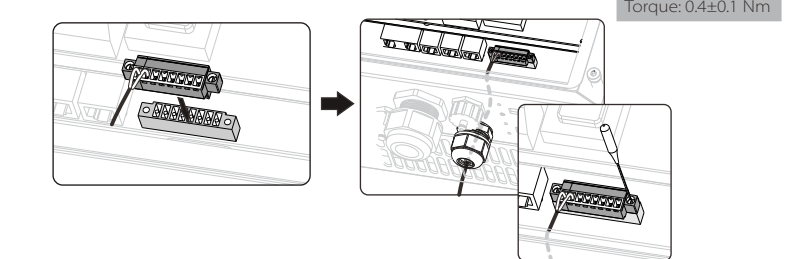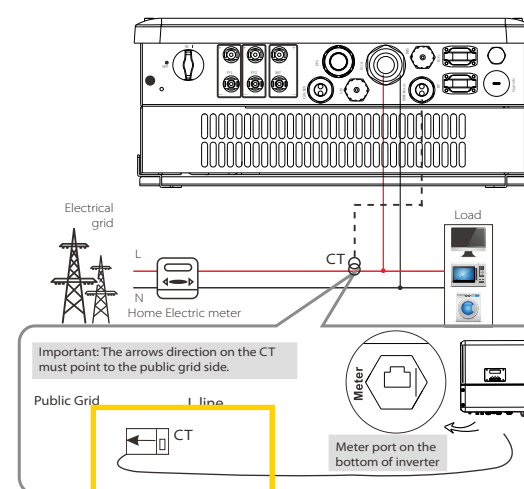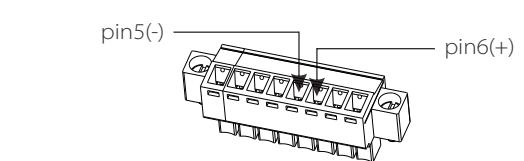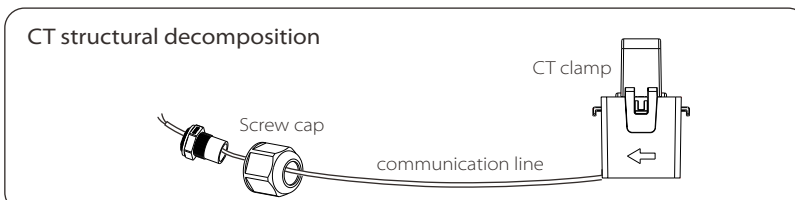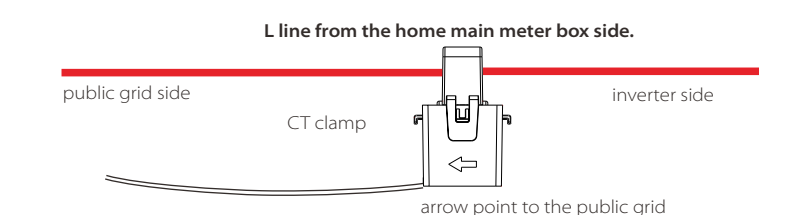Note: Please make sure meterA and meterB is connected to port RS485A and RS485B on the meter.

meterA (pin1)   meterB (pin2)

CT connection diagram

CT structural decomposition

CT clamp
Screw cap
communication line

Step1. Insert the side with two comm cables of CT into the Meter port on the inverter, and screw down the screw cap tightly (refer to meter steps).
Step2. Strip the insulation from the communication wires, then insert one side of wires into pin5 and pin 6 holes of the 8 pin positive terminal which can be found in accessories package. And then screw them tightly. (refer to meter steps)
Step3. Insert the positive terminal into the corresponding negative terminal block inside of the inverter. And then screw it tightly. (refer to meter steps)

CT PIN Definition

The CT PIN definition is pin5 and pin6 shown as below.

pin5(-)   pin6(+)

L line from the home main meter box side.

public grid side   CT clamp   inverter side

arrow point to the public grid

Solax provides two ways for users to choose: WiFi (optinal) and Ethernet (LAN)

WiFi (optinal)

Inverter provides a WiFi port which can collect data from inverter and transmit it to monitoring-website via a Pocket WiFi. (Purchase the product from supplier if needed)

Diagram

SolaX Cloud
Router
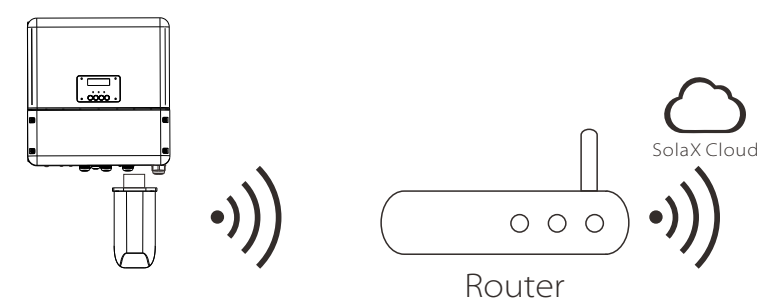
WiFi Connection Steps:

Step1. Plug Pocket Wifi into "WiFi" port at the bottom of the inverter.
Step2. Build the connection between the inverter and router.
Step3. Create an user account online. (Please check the Pocket WiFi user manual for more details.)
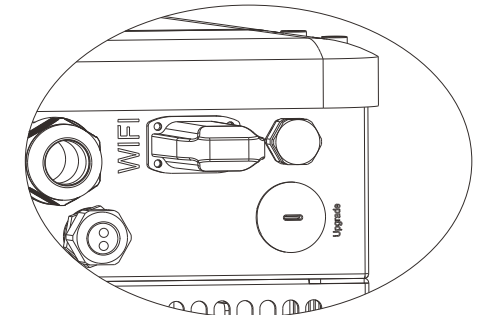
Ethernet(LAN)

LAN communication is the standard communication interface. It can transmit the data between the router and inverter via the local network.

Application Occasion

This function is appliable for the below situation:
When the WiFi signal is too weak to transmit data, user can use LAN port for the monitoring with a data cable.
Note: In case of monitoring, either of LAN or WiFi module can be chose.

data cable   Router   SolaX Cloud

LAN PIN Definition

Communication interface bewteen inverter and router is RS485 with a RJ45 connector.

1	2	3	4	5	6	7	8
TX+	TX-	RX+	X	X	RX-	X	X
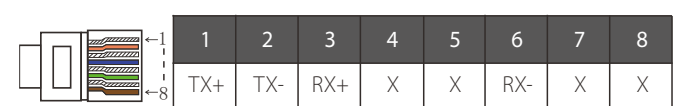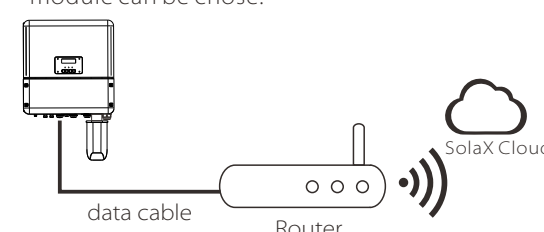
LAN Connection Steps:

Please refer to BMS connection steps for LAN connection. Please kindly noted the PIN definition and port position will be slightly different.

COM Port

320102047200