

Single-phase AC coupled Battery Inverter (PCS)

Quick Installation Guide

ELS-5K
ELS-3K

Important Safety Information

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS. This guide contains important instructions that you must follow during installation and maintenance of the PCS. Failing to follow any of these instructions may void the warranty. Follow all of the instructions in this manual. These instructions are key to the installation and maintenance of the APstorage PCS. These instructions are not meant to be a complete explanation of how to design and install APstorage PCSs. All installations must comply with national and local electrical codes and standards.



DANGER: Risk of electricshock. Risk of fire.

1. Only qualified professionals should install and/or replace the APstorage PCS.
2. Perform all electrical installations in accordance with local codes.
3. To reduce risk of burns, do not touch the body of the PCS.



WARNING:

1. Do NOT attempt to repair the APstorage PCS. If it shows abnormal performance, Contact APsystems Customer Support to obtain adequate support. Damaging or opening the APstorage PCS will void the warranty.
2. These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that specified in the operating instructions".



NOTE:

Before installing or using the APstorage PCS, please read all instructions and cautionary markings in the technical documents and on the APstorage PCS.

When installing the PCS cables and accessories, adhere to the following:

- ▶ If the PCS is installed outside, it should be protected under shelter from direct sunlight or bad Weather conditions (like snow, rain, lightning, etc). Fully shielded installation locations are preferred.
- ▶ Do not install PCS in a confined space with no ventilation.
- ▶ Do not drill holes in the casing at any location, otherwise we will not provide warranty.
- ▶ Please ensure each DC cable's length within 3 meters.
- ▶ Do not loosen the screw to the end when removing wires, otherwise the terminal may be damaged.
- ▶ Make sure to connect the live wire to L, connect the neutral wire to N, otherwise the precision of the CT will be affected.

Product labels



Caution, risk of electric shock.



NOTICE, danger! This device directly connected with electricity generators and public grid.



Caution, hot surface.



After the inverter is turned off, wait for at least 5 minutes before opening the inverter or touching live parts.



Refer to the operating instructions.



Products shall not be disposed as household waste.



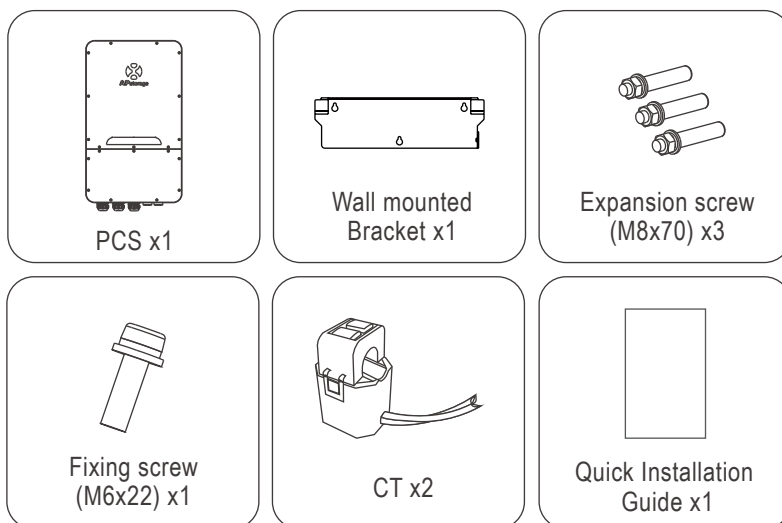
Declaration of Conformity.

1 Declaration

1. The contents of this quick installation guide may change due to product updates and other reasons.
2. Unless otherwise stated, this guide does not replace the safety precautions in the data sheet or user manual; the contents are for reference only.
3. Please read this guide and the user manual carefully before installation to understand the relevant information and precautions regarding the product.
4. Please check that the model of the delivered product is correct, that all accessories are complete, and that there is no damage to the appearance. If any damage or missing accessories are found, please contact the manufacturer.
5. Only qualified professionals should install or replace the APstorage PCS, and all electrical installations must comply with local regulations. When performing installations and other operations, please wear personal protective equipment, use insulated tools, and wear anti-static equipment to prevent static damage to the PCS. The manufacturer is not responsible for any damage to the PCS caused by improper handling resulting in static electricity.
6. All operations must strictly follow the instructions in the user manual and this guide. The manufacturer is not responsible for any damage caused by improper usage.
7. All wiring must use copper cables.

2 Pack List

Inspect the equipment before installation. Please ensure that the packaging is not damaged. The package should contain the items shown in the image below:



NOTE: The customer needs to purchase a junction box for battery parallel connection. Requirements for the junction box: the rated current of each connection point must be $\geq 100A$.

3 Product Introduction

502mm
847mm
197mm

A: LED B: On/Off Button

- ① BAT+ / BAT- Terminals
- ② GRID Terminals
- ③ BACKUP Terminals
- ④ Off-Grid Input Terminals
- ⑤ ATS Terminals
- ⑥ Communication Terminals
- ⑦ CT Terminals
- ⑧ RJ45 Internet

If the two cable inlets are not sufficient, take out the stopper of the cable gland, the third cable inlet can be used.

COM/ATS Introduction

ATS Connection

ATS port (reserved), according to local installation requirements, the off grid neutral can be grounded internally or externally. Connect the ATS cable to the L and N terminals of the PCS as shown in the diagram.

COM Connection

Communication		
Pcs Out	Pcs In	Battery

NOTE: PCS In/PCS Out feature is temporarily unavailable.

The configuration of network port is as follows:

8	485_B
7	485_A
6	NC
5	CAN_L
4	CAN_H
3	NC
2	NC
1	NC

4 Wiring Diagram

Diagram for Australia, New Zealand, South Africa, etc.

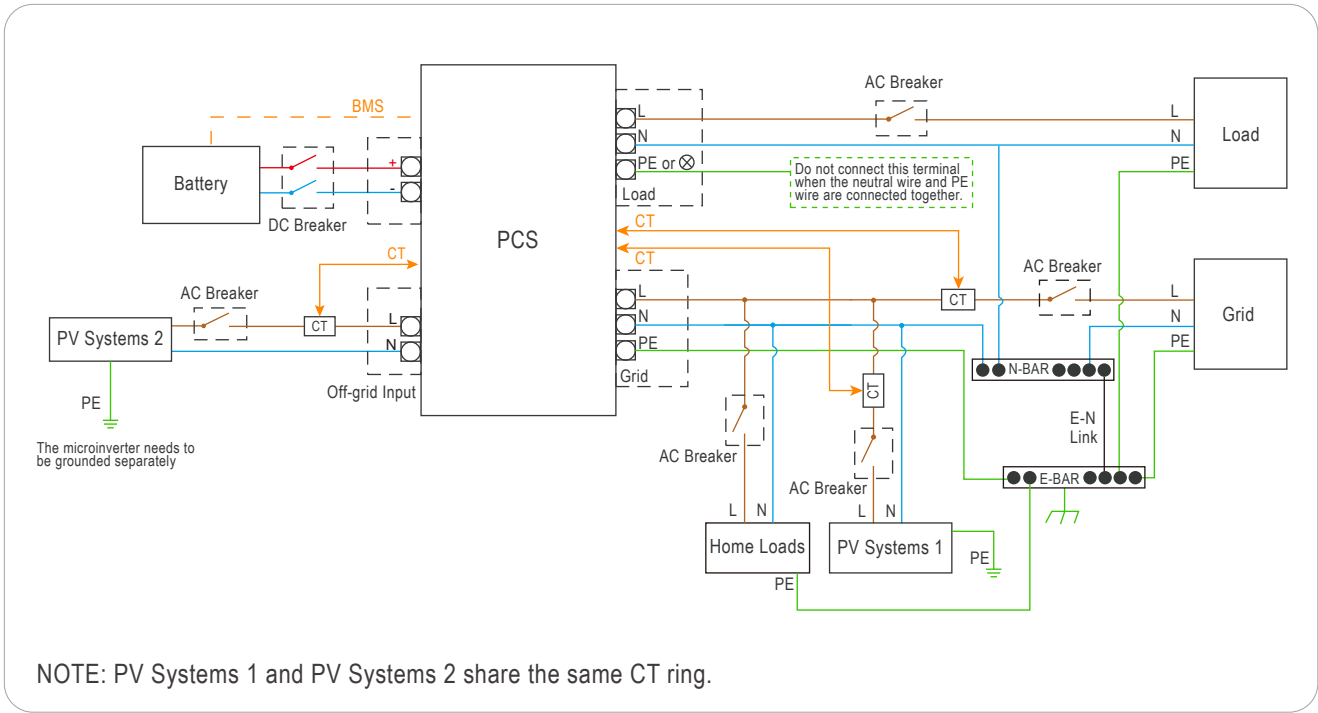
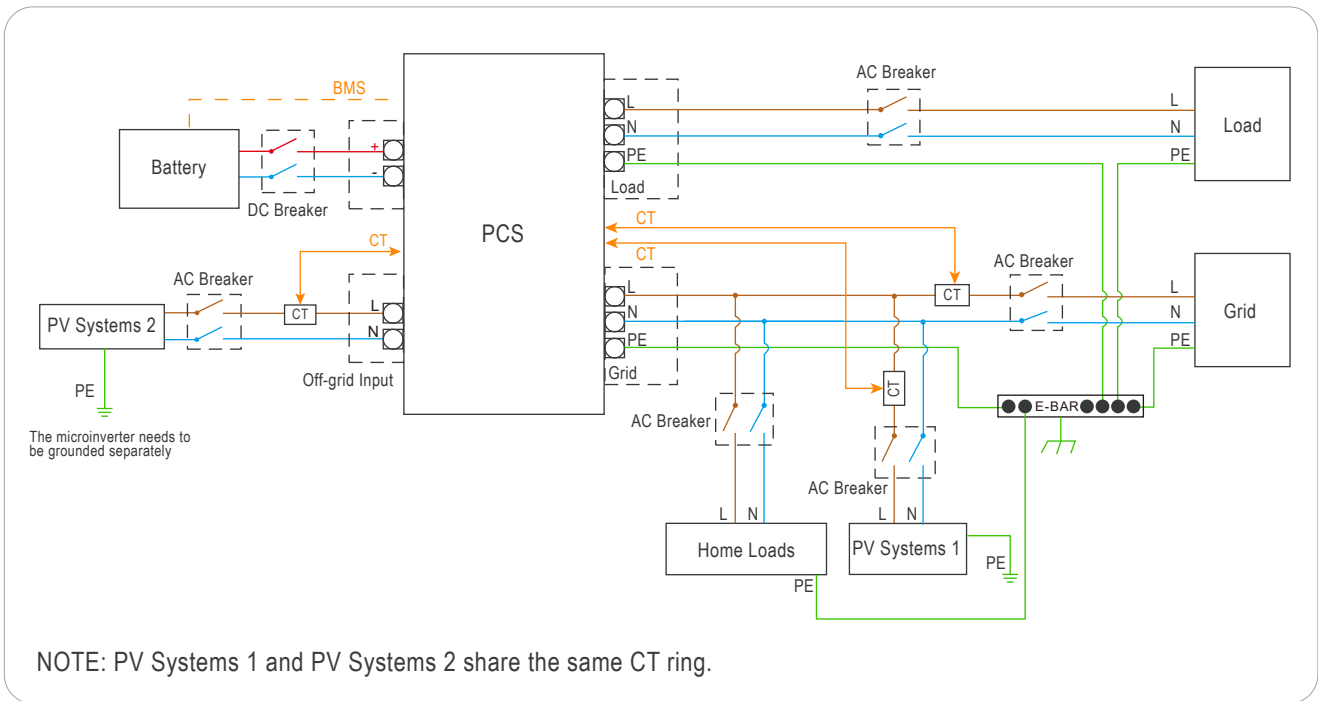
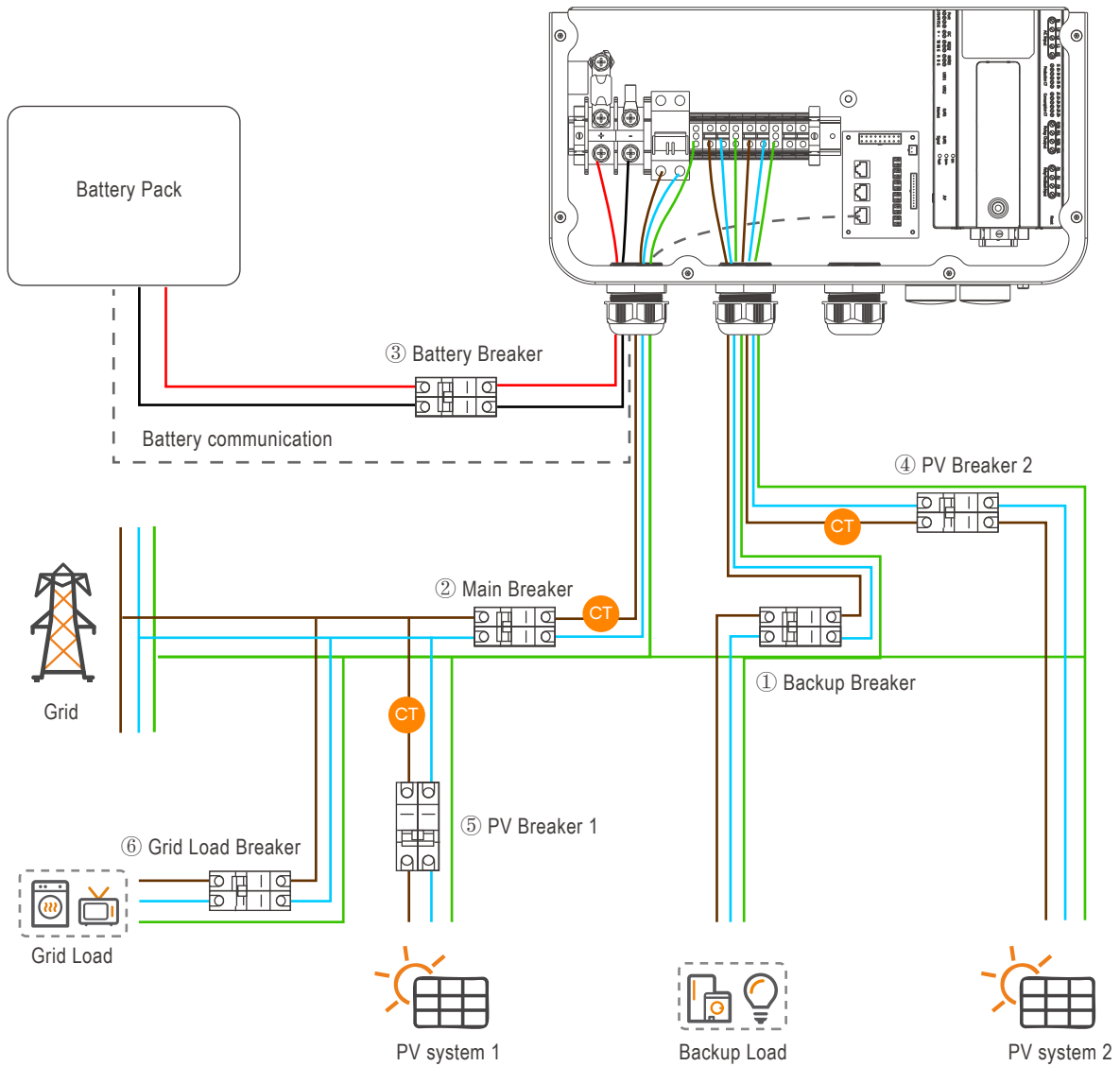


Diagram for Other Countries.



4 Wiring Diagram



NOTE: PV Systems 1 and PV Systems 2 share the same CT ring.

- DC +
- DC -
- wire L
- wire N
- wire PE

ELS-5K

- ① Backup Breaker: 32A AC Breaker
- ② Main Breaker: 63A AC Breaker
- ③ Battery Breaker: 125A DC Breaker
- ④ PV Breaker 2: 32A AC Breaker
- ⑤ PV Breaker 1: Depends on PV system 1
- ⑥ Grid Load Breaker: Depends on Grid Load

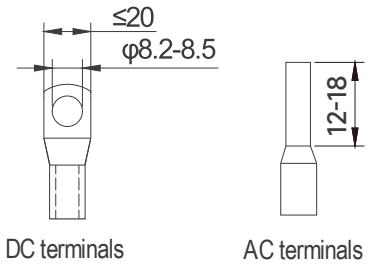
ELS-3K

- ① Backup Breaker: 25A AC Breaker
- ② Main Breaker: 50A AC Breaker
- ③ Battery Breaker: 100A DC Breaker
- ④ PV Breaker 2: 25A AC Breaker
- ⑤ PV Breaker 1: Depends on PV system 1
- ⑥ Grid Load Breaker: Depends on Grid Load

5 Installation instructions

Wiring Terminals and Cables Requirements Description

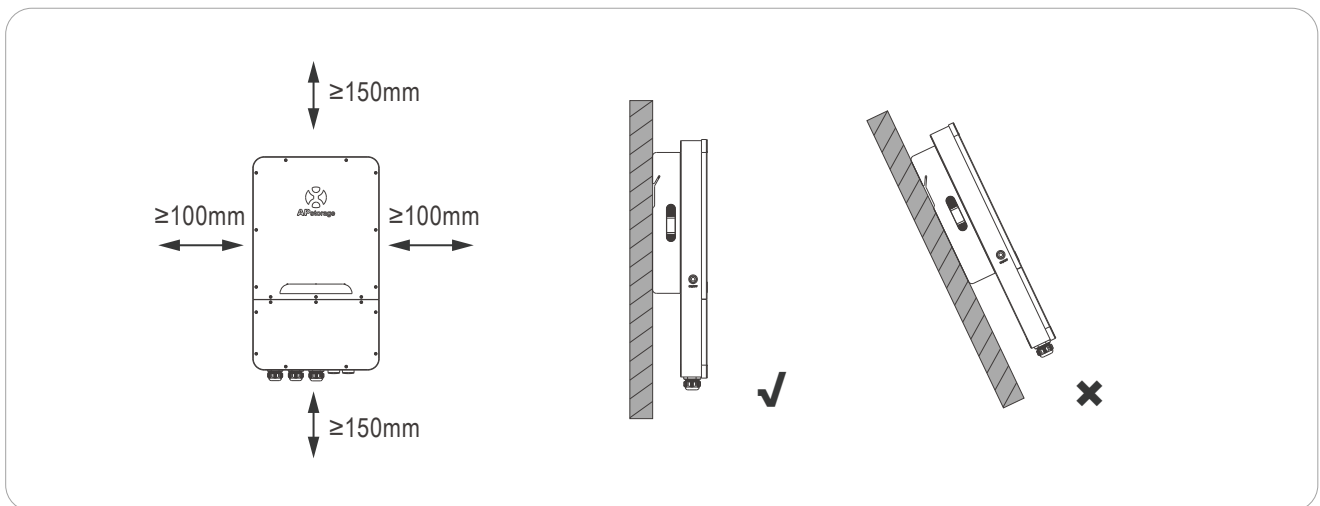
When wiring, please use the following specifications for wiring terminals and cables.



	Model	Cable(mm ²)	Torque value
DC Cable	ELS-5K	25	40lb.in
Grid Cable	ELS-5K	10	10.53lb.in
Backup/Off-grid Cable	ELS-5K	10	10.53lb.in
ATS Cable	ELS-5K	10	10.53lb.in

	Model	Cable(mm ²)	Torque value
DC Cable	ELS-3K	16	40lb.in
Grid Cable	ELS-3K	6	10.53lb.in
Backup/Off-grid Cable	ELS-3K	6	10.53lb.in
ATS Cable	ELS-3K	6	10.53lb.in

5.1 PCS installed on the wall



5 Installation instructions

STEP 1

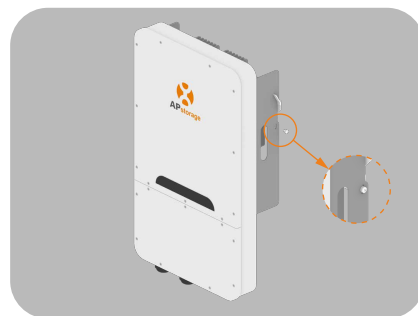
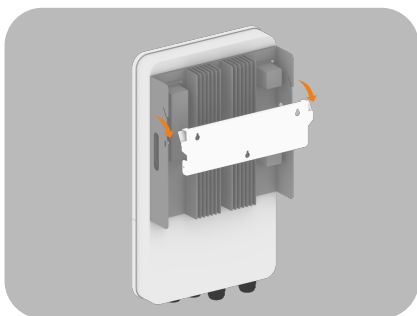
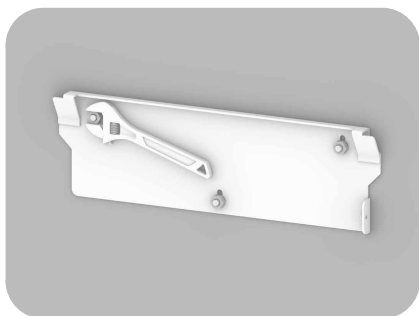
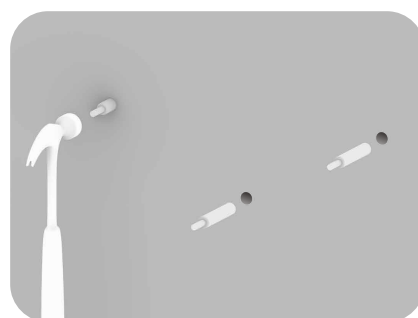
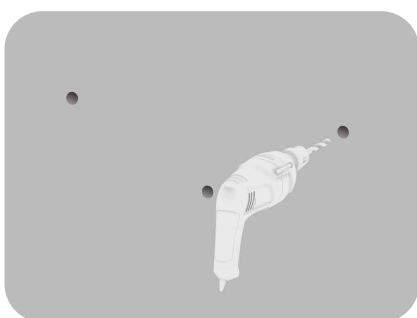
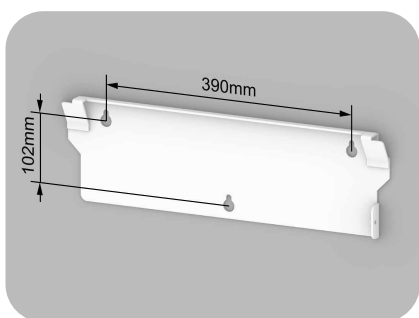
Mark the holes position on the wall and drill holes according to wall type and expansion screws type. The Configured expansion screw is drilled with a diameter of 12mm(0.5") and a depth of 50-55mm(1.9-2.2").

STEP 2

Put the expansion screws into the holes on the wall. Use a wrench to tighten the hex nuts, so that the expansion screws sleeve are fully expanded. Then remove the hex nuts. Hang the wall mounting bracket into the expansion screws, and use the hex nuts to fix it firmly. Make sure that the wall mounting bracket is horizontal after installation.

STEP 3

Lift the PCS to hang it into the wall mounting bracket, and fix the PCS on wall mounting bracket with the M6×22mm screw.



WARNING:

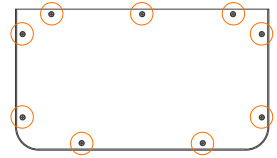
Do not drill holes in the casing at any location, otherwise we will not provide warranty.

5 Installation instructions

5.2 Electrical Wiring

STEP 1 Remove the bottom cover

When wiring, you need to remove the lower cover first, just unscrew the 9 locking screws.

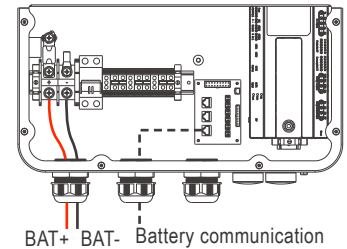


STEP 2 Battery Wiring

For battery wiring BAT+, please use red or orange cables, and for BAT -, please use black cables.

Please use a Phillips screwdriver with a suitable torque of 40lb.in.

Please insert the appropriate network cable into the battery communication port and Battery RJ45 interface on the PCS according to the battery configuration, and thread the network cable out of the second cable connector below.



NOTE: Ensure that the polarity of the battery and PCS are correctly connected, otherwise PCS may be damaged.

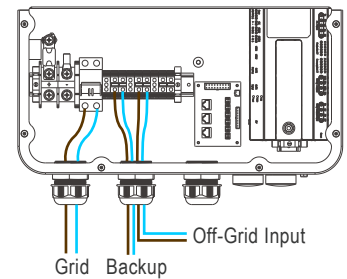
STEP 3 AC Wiring

Please use L-Brown and N-blue for AC wiring.

Please use a Phillips screwdriver with a suitable torque of 10.53lb.in.

Please thread the cables of GRID through the first cable connector below and thread the cables of Backup/Off-grid Input through the second cable connector below.

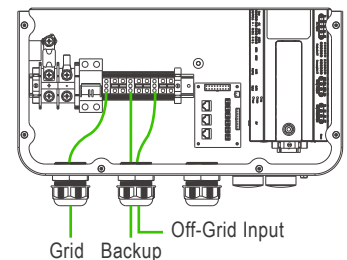
NOTE: Please ensure that the N and L wires are connected accurately.



STEP 4 Grounding Wiring

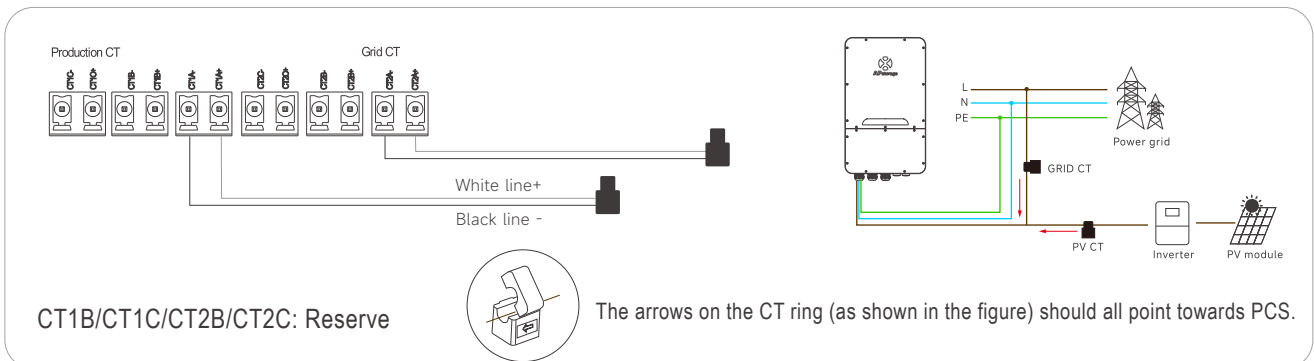
Please use PE- Yellow Green for grounding wiring.

Please use a Phillips screwdriver with a suitable torque of 10.53lb.in.



STEP 5 CT Wiring

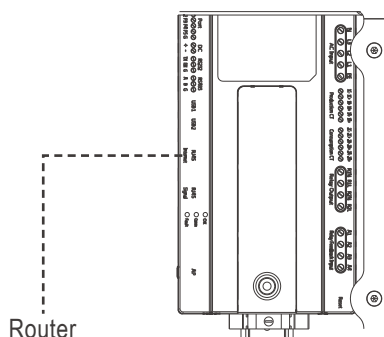
The CT ring wiring is shown in the following figure, where CT2A+/CT2A- corresponds to grid L and CT1A+/CT1A- corresponds to L of GRID-PV.



5 Installation instructions

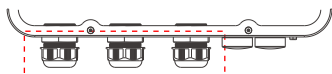
STEP 6 Network port wiring

Connect the RJ45 Internet port on the built-in ECU of the PCS to the router. PCS can also be connected to the router through Wi Fi, please refer to Chapter 5.3.3.1 of the user manual for details.

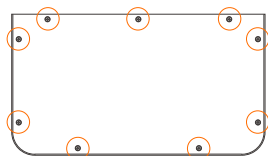


STEP 7 Lower cover installation

After completing all cable connections, please tighten the nuts of all cable connectors.



After completing all the above steps, please tighten the 9 screws again.



After PCS installation is completed, enter the PCS initialization.

6 PCS Initialization

6.1 Start the PCS

6.1.1 Pre-check

Check all Below Steps Before Starting PCS :

- ① Make sure the PCS is properly mounted to the wall.
- ② Make sure all the DC wirings and AC wirings are completed.
- ③ Make sure the CT is connected properly.
- ④ Make sure the battery is connected properly.
- ⑤ Make sure all grounded busbar are connected property.
- ⑥ Make sure the PV system is connected properly.
- ⑦ Make sure the loads and critical loads are connected property, and the critical loads rating is within nominal rating range.

6.1.2 First Power-On

When the device is correctly installed and the battery is well connected,

- ① Open the battery DC circuit breaker;
- ② Press the ON/OFF button of the PCS;
- ③ Turn on the battery to power the system;
- ④ After PCS is turned on, the SYSTEM/BACK UP/WI-FI/COM indicator light remains on, and the BATTERY indicator light flashes every 5 seconds.

NOTE: If you have purchased a PCS without on/off button on the side, please skip step② directly.

6.2 Initialize the PCS

QR code for downloading the app :

6.2.1 Scan the QR code to download and install the EMA Manager app.

You can also click on the link below to download the APP <https://www.apssystemsema.com/ema/index.action>

6.2.2 Log in to the app and tap Local access. Select APstorage to start the initialization process.



Wi-Fi Frequency Range: 2412MHz - 2472MHz

Wi-Fi Maximum Power (EIRP): 16.97dBm

Zigbee Frequency Range: 2405MHz - 2480MHz

Zigbee Maximum Power (EIRP): 8.94dBm

Importer: Altenergy Power System Europe B.V

Address: Karspeldreef 8, 1101 CJ, Amsterdam, The Netherlands

Email: support.emea@Apsystems.com

Manufacturer: Altenergy Power System Inc.

Address: Building 2, No.522, Yatai Road, Nanhu District, Jiaxing City, Zhejiang 314050, China

Hereby, ALTENERGY POWER SYSTEM INC. declares that the radio equipment type ELS-5K, ELS-3K is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://emea.apssystems.com/resources/library/>

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PAP 22

Raccolta Carta