SmartBox Kit

Installer and User Guide

Version 1.0

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For technical assistance in all other markets, please contact your local selling agent.

CONTENTS

Version	Date	Description
V1.0	2024.05	Initial version

Safety Instructions

The safety messages herein cover situations Autel is aware of. Autel cannot know, evaluate or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.

- Read and follow all instructions before installing and operating the device.
- This device should only be installed or repaired by a licensed electrician in accordance with all local codes and ordinances.
- Wear personal protective equipment such as safety gloves when installing or repairing the device.
- Do not install or use this device near flammable, explosive, harsh, or combustible materials, chemicals or vapors.
- Do not use the device other than specified in this manual.
- Do not attempt to open, disassemble or repair any of the components of the device.
- Avoid direct sunlight or extreme heat.
- Keep the device away from any water sources.
- Children should be supervised when around this device.
- Do not use the device if it is damaged.

General Introduction

The information in this manual applies to Autel SmartBox AUS610 and AES610. The SmartBox needs to be connected to the Autel SmartSensor with the cable included. The installation and operation of the device requires a mobile device or computer with Internet connection.

Intended Use

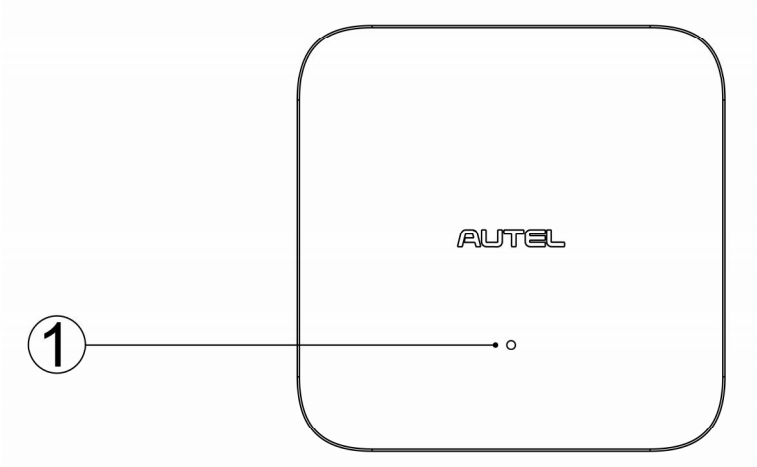
The SmartBox is intended for efficient and accurate load balancing by optimizing power consumption. It supports working with multiple Autel electric vehicle chargers to achieve energy management for large charging sites. This device supports both indoor and outdoor installation (with waterproof case installed).

NOTE: *All illustrations in this manual are for reference only. Please refer to the actual product.*

Product Overview

1. LED Indicator

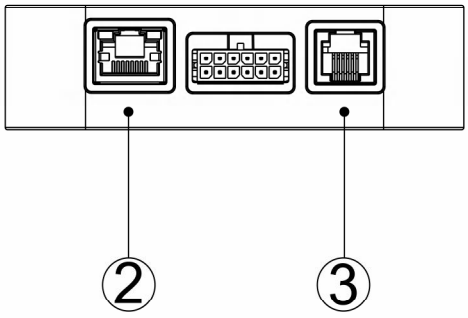
- Flashing yellow: Booting
- Breathing yellow every 2 seconds: Upgrading in progress
- Breathing green every 5 seconds: Online operation
- Breathing cyan every 5 seconds: Offline operation[1]
- Illuminating yellow: Error[2]
- Not illuminated: Power off



Front View

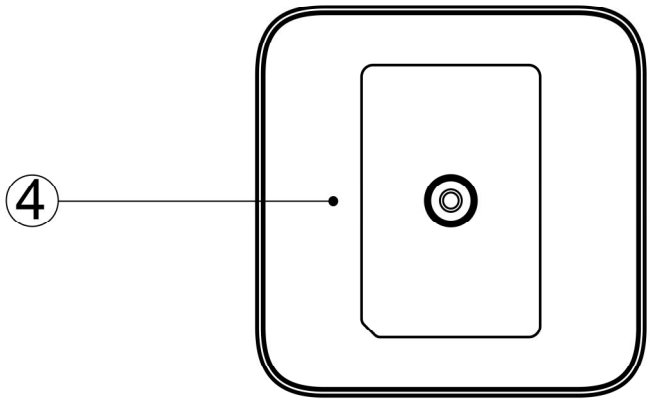
2. RJ45 Port—connects to an Ethernet network cable

3. RJ12 Port—connects to the Autel SmartSensor that provides power



Bottom View

4. Magnetic Back

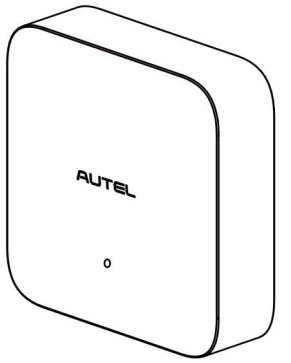


Rear View

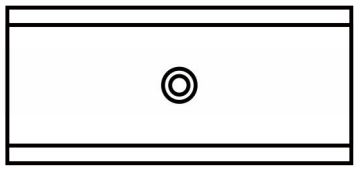
1. Check the Internet connection.
2. Contact Autel technical support.

In the Box

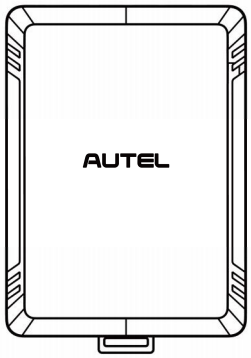
The Autel SmartBox Kit includes the following items. If any damage is found or the items are not consistent with your order, please contact your sales representative.



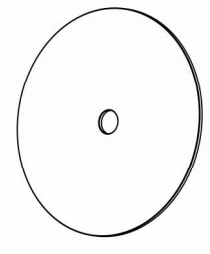
SmartBox



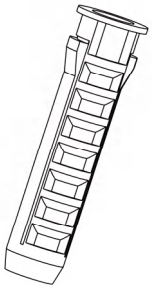
DIN Rail



SmartSensor

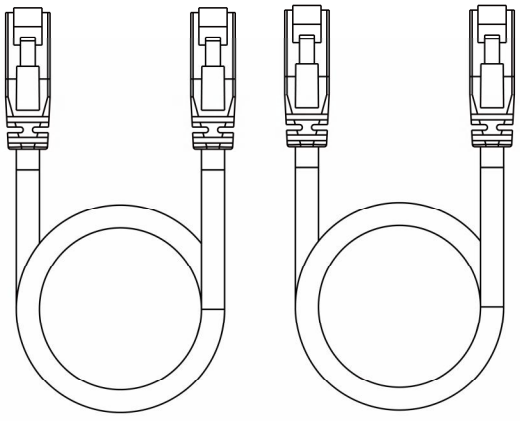


Metal Disc

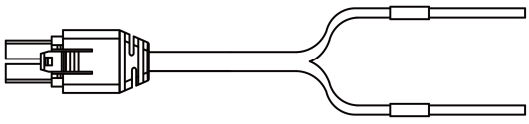


Wall Anchor x2

Screw (M5 x 40) x2



RJ12 to RJ12 Cable x2*
(2 m/6.6 feet)



SmartSensor Power Cable
(1 m/3.3 feet)

**Only the EU model is provided with two RJ12 to RJ12 cables.*

Technical Specifications

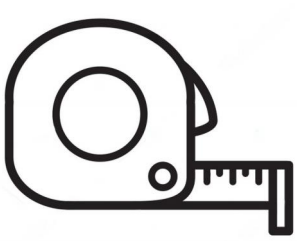
Item	Specification
SmartBox	
Power Supply	12 VDC, 0–380 mA
Dimensions (H x W x D)	100 x 100 x 27 mm (3.9” x 3.9” x 1”)
Weight	165 g (0.36 lb.)
Operating Temperature	–30 to 50 °C (–22 to 122 °F)
Storage Temperature	–40 to 70 °C (–40 to 158 °F)
Enclosure Rating	IP20
Flammability Standard	UL94-V0
Operating Humidity	< 95%, non-condensing
Operating Altitude	<= 2000 m (6561.68 feet)
Connectivity	Wi-Fi (Frequency: 2.4 GHz, transmit power: 17 dBm; frequency: 5 GHz, transmit power: 12 dBm) Wi-SUN (EU: 868 MHz; US: 915 MHz) Ethernet RS485 NFC Reader
Codes and Standards	FCC Part 15 Class B (US)
Software Update	OTA updates via web portal
Safety and Compliance	UL/CE/UKCA
Mounting	Wall mount (magnetic back)
Warranty	3 years

Item	Specification
SmartSensor	
Power Supply	100–277 VAC, 50/60 Hz
Dimensions (H x W x D)	90 x 65 x 33 mm (3.5” x 2.6” x 1.3”)
Weight	120 g (0.3 lb.)
Operating Temperature	–30 to 50 °C (–22 to 122 °F)
Storage Temperature	–40 to 70 °C (–40 to 158 °F)
Enclosure Rating	IP20
Flammability Standard	UL94-V0
Operating Humidity	< 95%, non-condensing
Operating Altitude	<= 2000 m (6561.68 feet)
Overvoltage Category	III
Connectivity	Wi-SUN (EU: 868 MHz; US: 915 MHz) RS485 P1 Smart Meter Communication
Codes and Standards	FCC Part 15 Class B (US)
Safety and Compliance	UL/CE/UKCA
Accuracy	1.00 %
Mounting	DIN 43880
Warranty	3 years
Number of Supported CT Clamps	Max. 6
Current Measurement Range	0–5000 A
Voltage Measurement	Yes

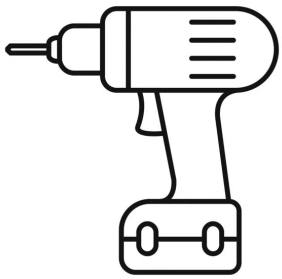
Installation

Before Getting Started

1. Ensure all items are delivered according to your order.
2. You might need the following tools to install the devices. Ensure they are readily available prior to the installation.

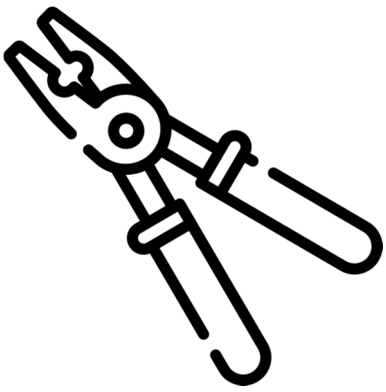


Tape Measure

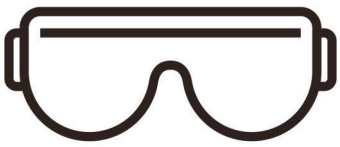


Power Drill with 8 mm (5/16”) Drill Bit

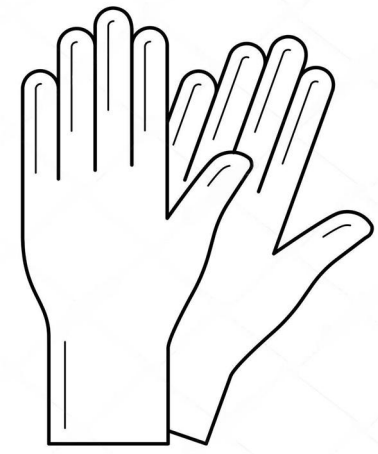
Phillips Screwdriver



Wire Stripper



Protective Eyewear



Protective Gloves

Installing the Devices

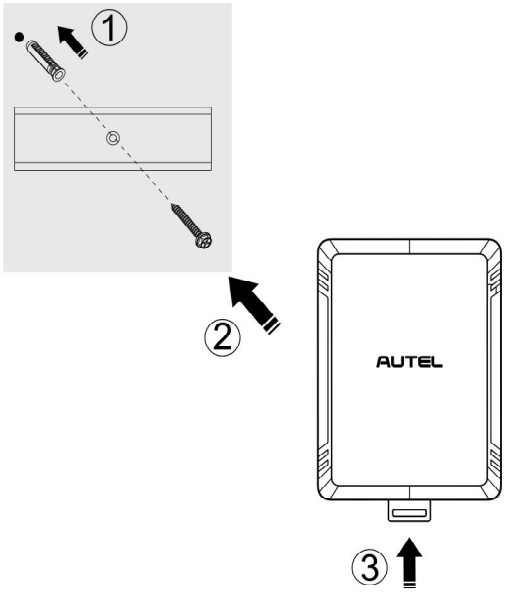
WARNING

- Risk of electric shock. Turn off the main breaker to disconnect all the circuits.
- Only a certified electrician is allowed to install the devices.

STEP 1 Installing the SmartSensor

Mount the SmartSensor on the DIN rail in the distribution box. If that is not possible, install the included DIN rail and mount the SmartSensor on it as described below:

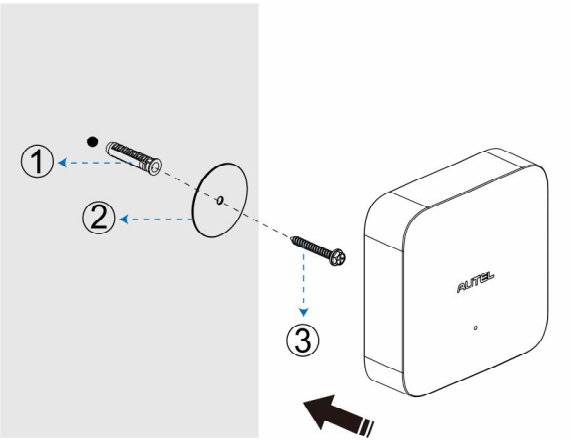
1. Find a suitable place in the electrical panel to install the DIN rail. Drill an 8 mm (5/16”) diameter hole into a depth of 50 mm (2”). Tap the wall anchor into it.
2. Use the M5 x 40 screw to secure the DIN rail. Then snap the SmartSensor into the DIN rail.
3. Push the buckle at the bottom to secure the device.



STEP 2 Installing the SmartBox

- **For metallic surface**, find a suitable location within 2 meters (6.6 ft.) from the SmartSensor to attach the SmartBox.
- **For non-metallic surface**, use the included mounting kit to install the SmartBox as described below.

1. Find a suitable location within 2 meters (6.6 ft.) from the SmartSensor on the wall.
2. Drill an 8 mm (5/16”) diameter hole into a depth of 50 mm (2”).
3. Insert the wall anchor (1) into the hole.
4. Place the metal disc (2) against the wall, aligning it with the hole. Then install and tighten the M5 x 40 screw (3) using a Phillips screwdriver to secure the disc.
5. Attach the SmartBox onto the disc.

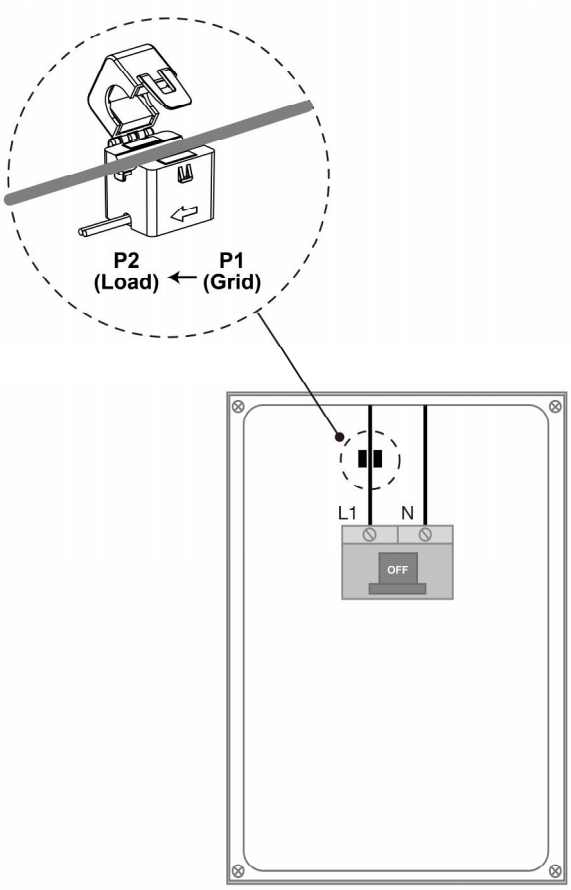


STEP 3 Connecting the Devices

Connect the SmartBox with the devices according to the following use cases:

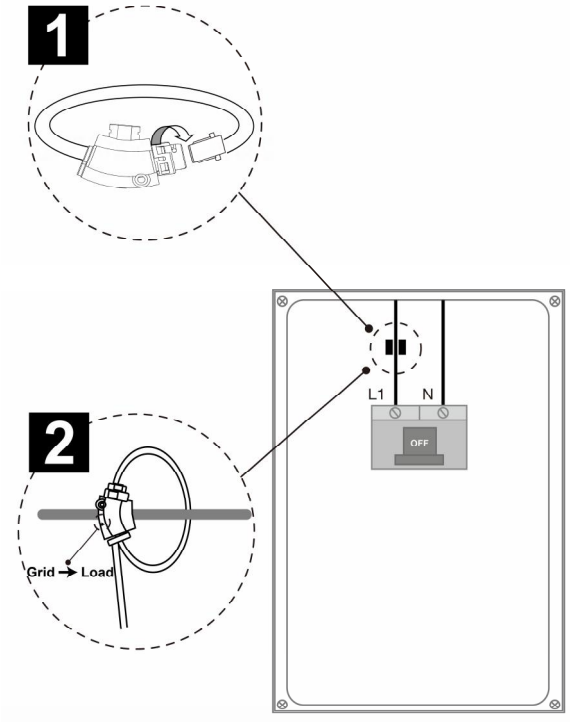
For the above use cases, use the proper current sensor* (CT clamp or Rogowski coil) if needed, and ensure they are installed properly.

To install the CT clamp:



1. Open the clasp on the CT clamp and place it around the conductor in front of the main fuse in the electrical panel. **Ensure the marked arrow on the CT clamp follows the current direction from grid to load as indicated**. Then shut the clasp to secure the CT clamp.
2. Connect the CT clamp to the SmartSensor. Refer to the use case for details.

To install the Rogowski coil:

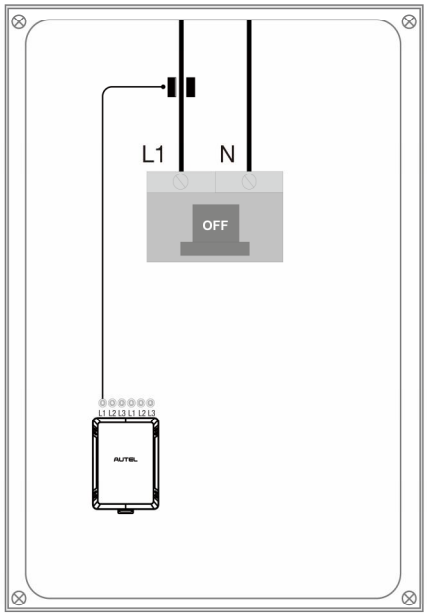


1. Unlock the coil by turning the ring lock (1) in the direction of the arrow. Place the coil around the conductor or group of conductors in front of the main fuse in the electrical panel. **Ensure the marked arrow follows the current direction from grid to load as indicated**. Then twist the ring lock in the opposite direction of the arrow to secure the coil.
2. Connect the Rogowski coil to the SmartSensor. (Same as the CT clamp.)

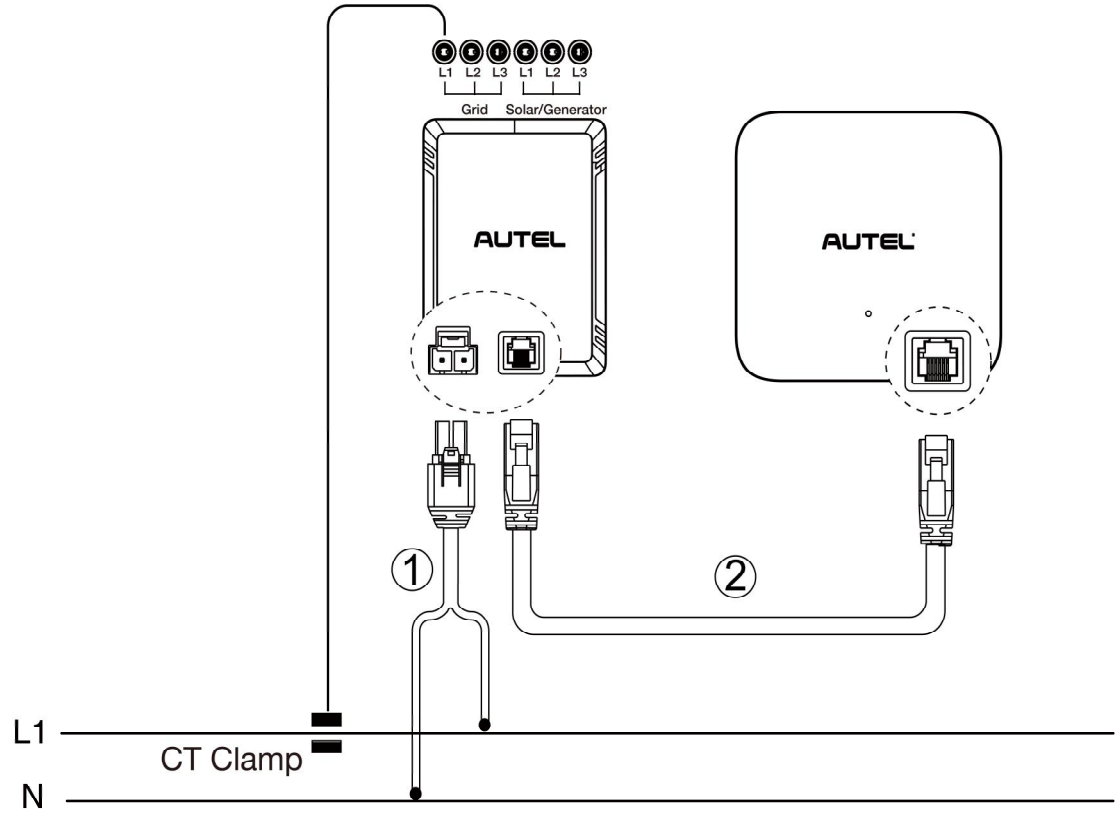
** CT clamps/Rogowski coils may appear differently depending on their rating. Choose the correct CT clamp/Rogowski coil according to the load. Autel provides 100/200 A CT clamps and 1000/2500/5000 A Rogowski coils, with a cable length of 3 m (9.8 ft.).*

Use Case 1 CT Clamp (EU 1-Phase)

1. Install the CT clamp in the electrical panel. Then insert the audio jack of the CT clamp into the **Left L1** port (Grid) at the top of the SmartSensor.

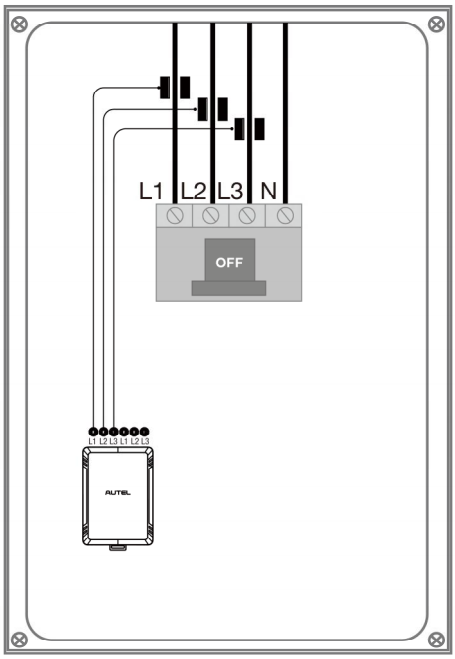


2. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply accordingly.
3. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.

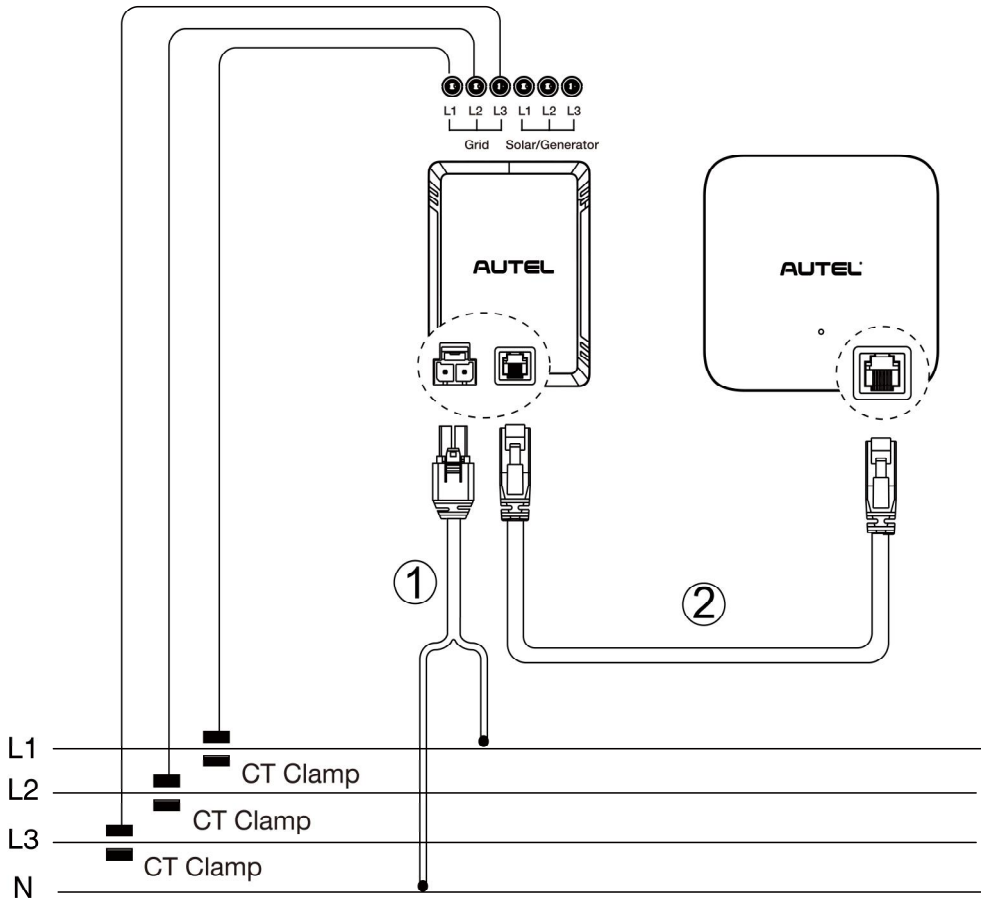


Use Case 2 CT Clamp (EU 3-Phase)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1, L2, and L3** ports at the top of the SmartSensor accordingly.

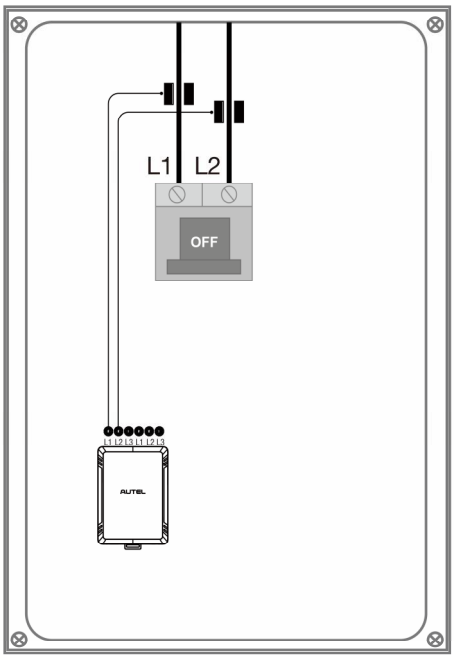


2. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's L1 and Neutral wires to the power supply accordingly.
3. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.

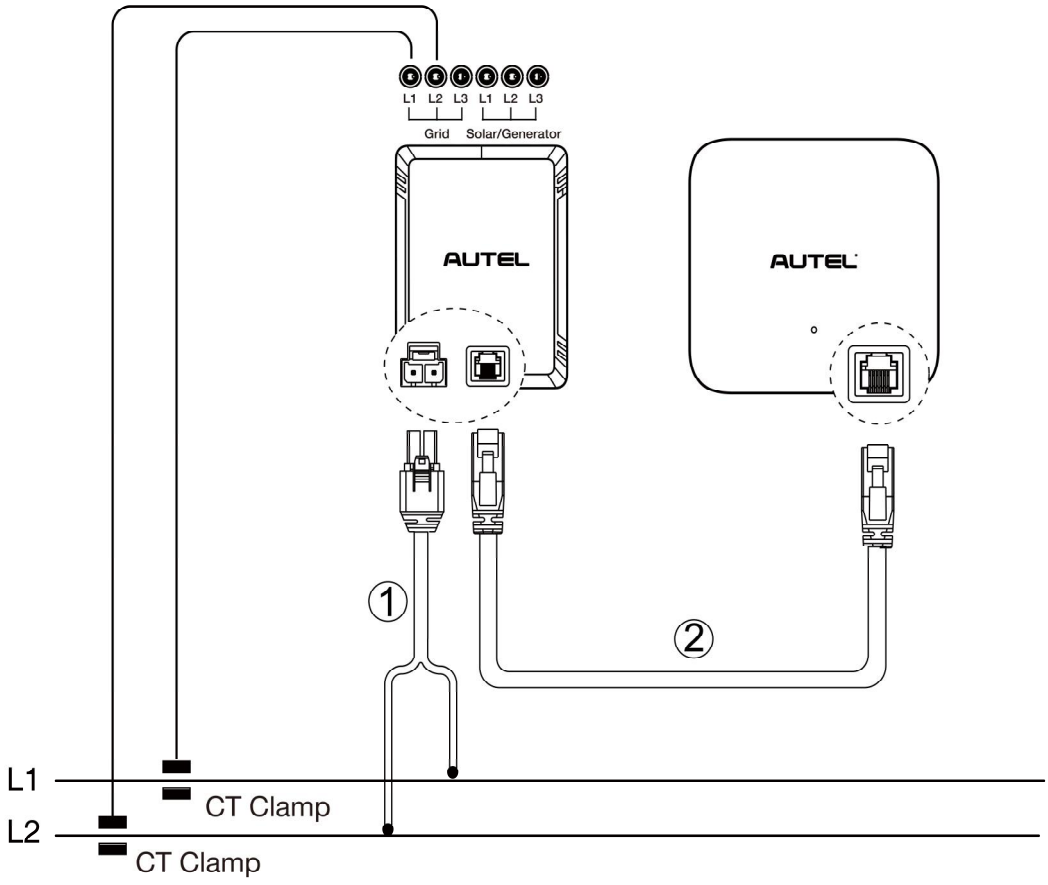


Use Case 3 CT Clamp (North America)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamp into the **Left L1 and L2** ports at the top of the SmartSensor accordingly.



2. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's L1 and L2 wires to the power supply accordingly.
3. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.

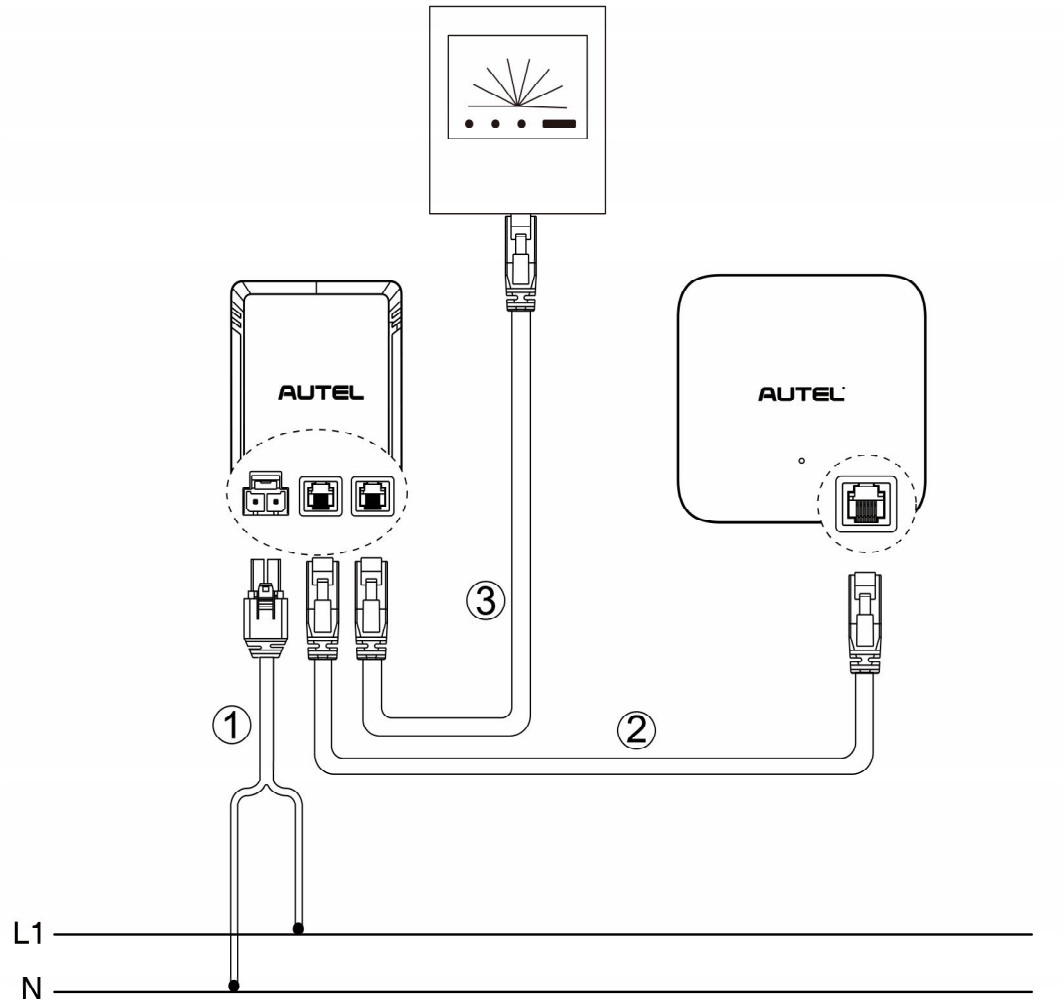


Use Case 4 P1 Smart Meter (EU Only)

1. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply accordingly.

2. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.

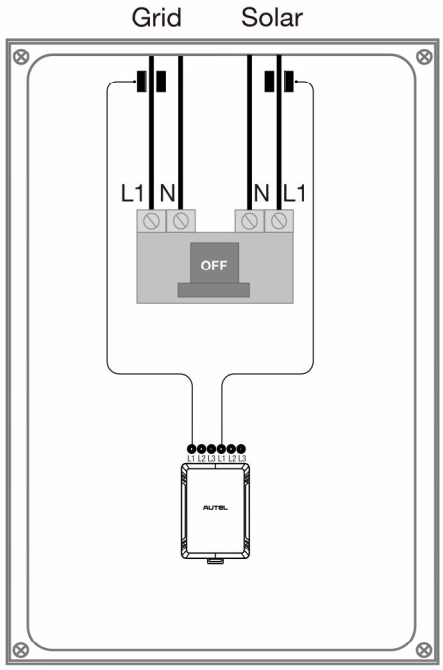
3. Use another RJ12 to RJ12 cable (3) to connect the SmartSensor and P1 smart meter. One end connects to the Ethernet port at the bottom-right of the SmartSensor, the other connects to the Ethernet port on the P1 smart meter.



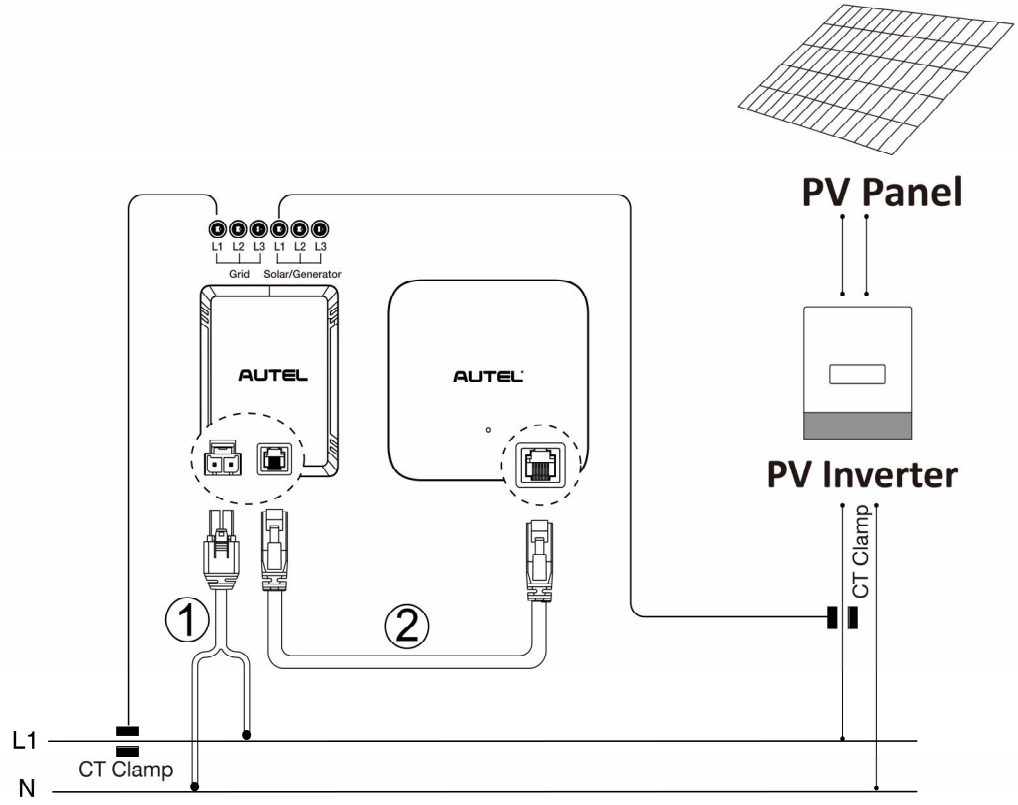
Use Case 5 Solar/Photovoltaic (PV) Connection (EU 1-Phase)

1. Install one CT clamp in the electrical panel and insert its audio jack into the **Left L1** port at the top of the SmartSensor.

2. Install another CT clamp around the photovoltaic inverter output and insert its audio jack into the **Right L1** port at the top of the SmartSensor.



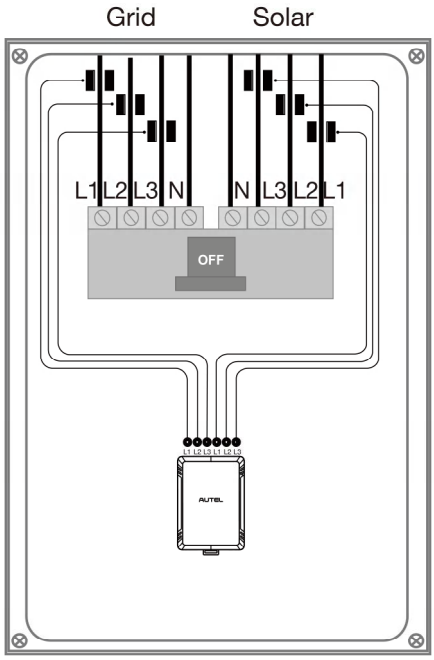
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



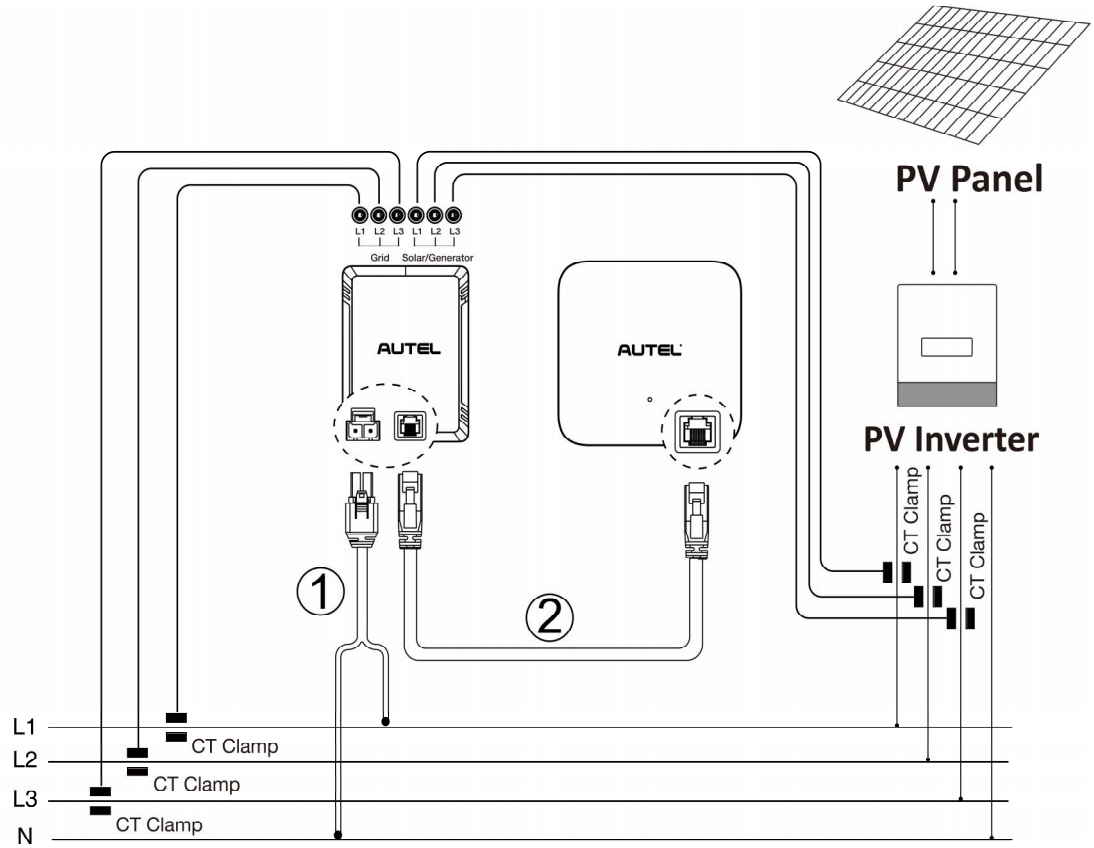
Use Case 6 Solar/Photovoltaic (PV) Connection (EU 3-Phase)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1, L2, and L3** ports at the top of the SmartSensor accordingly.

2. Install another three CT clamps around the photovoltaic inverter output and insert their audio jacks into the **Right L1, L2, and L3** ports at the top of the SmartSensor accordingly.



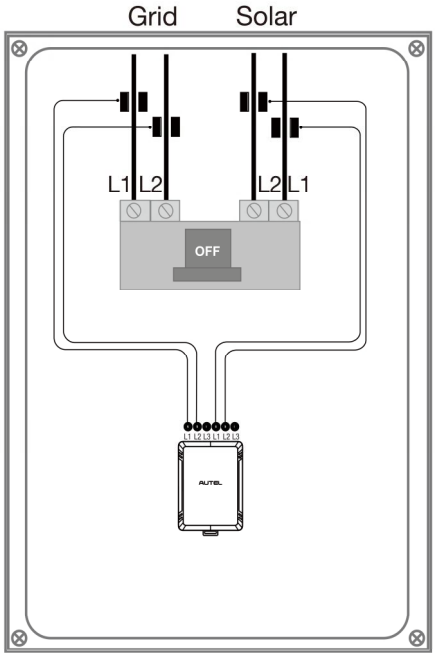
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



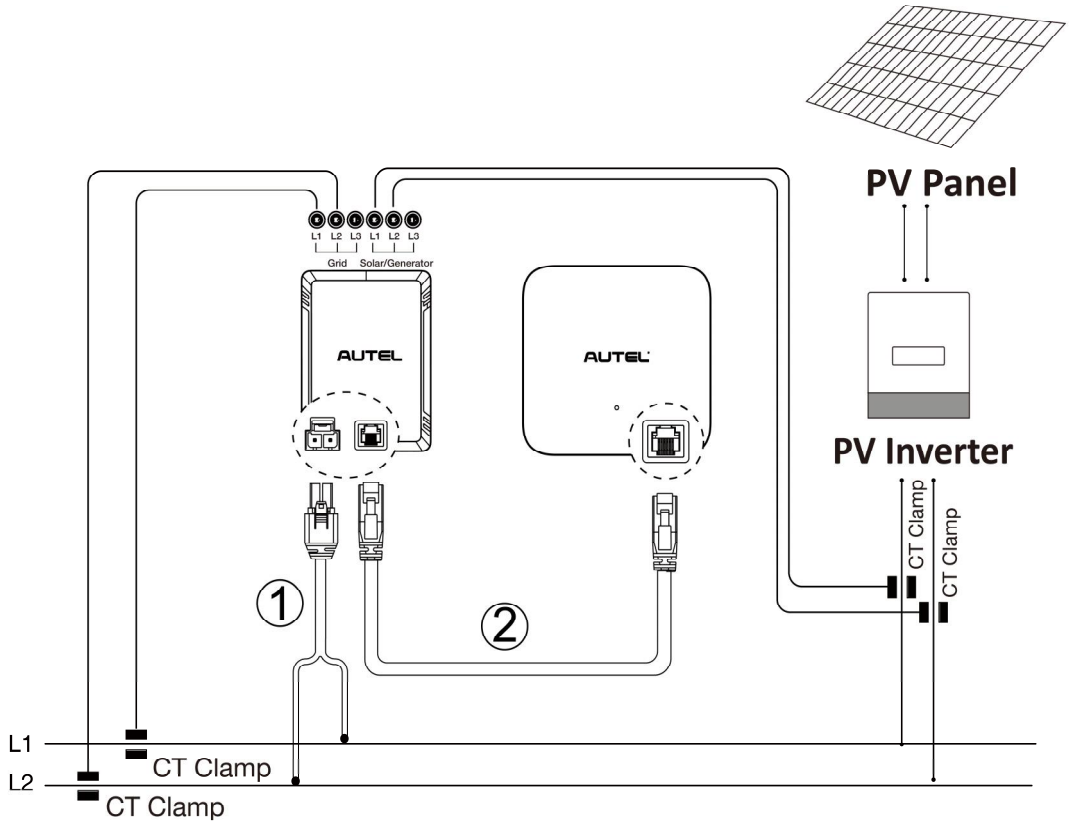
Use Case 7 Solar/Photovoltaic (PV) Connection (North America)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1 and L2** ports at the top of the SmartSensor accordingly.

2. Install another two CT clamps around the photovoltaic inverter output and insert their audio jacks into the **Right L1 and L2** ports at the top of the SmartSensor accordingly.



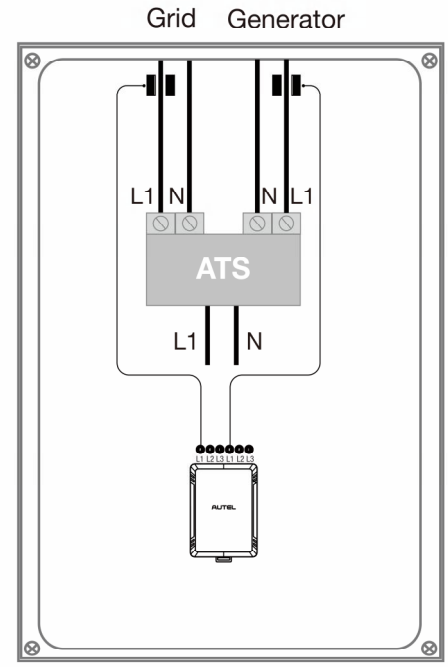
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's L1 and L2 wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



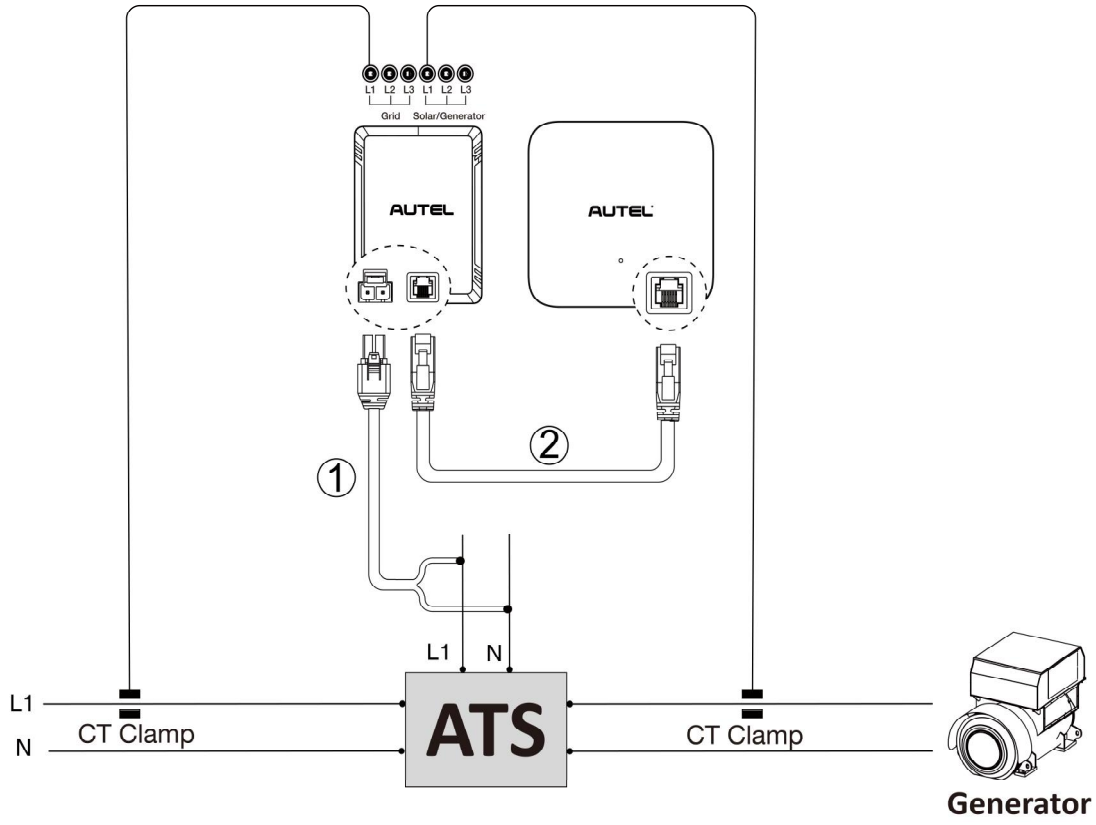
Use Case 8 Generator (EU 1-Phase)

1. Install the CT clamp in front of the automatic transfer switch (ATS) in the electrical panel. Then insert the audio jack of the CT clamp into the **Left L1** port at the top of the SmartSensor.

2. Install another CT clamp around the generator output and insert its audio jack into the **Right L1** port at the top of the SmartSensor.



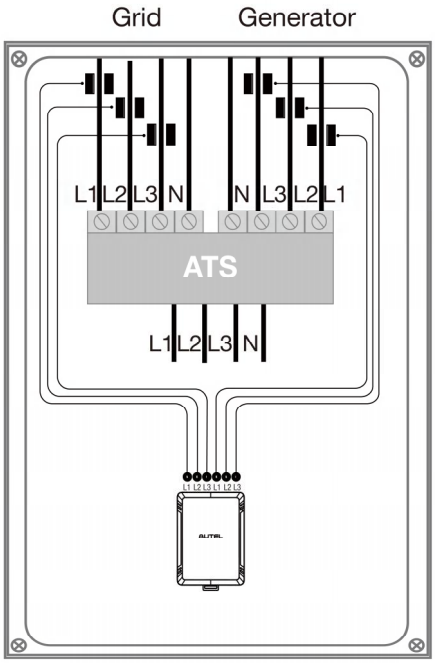
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply behind the ATS accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



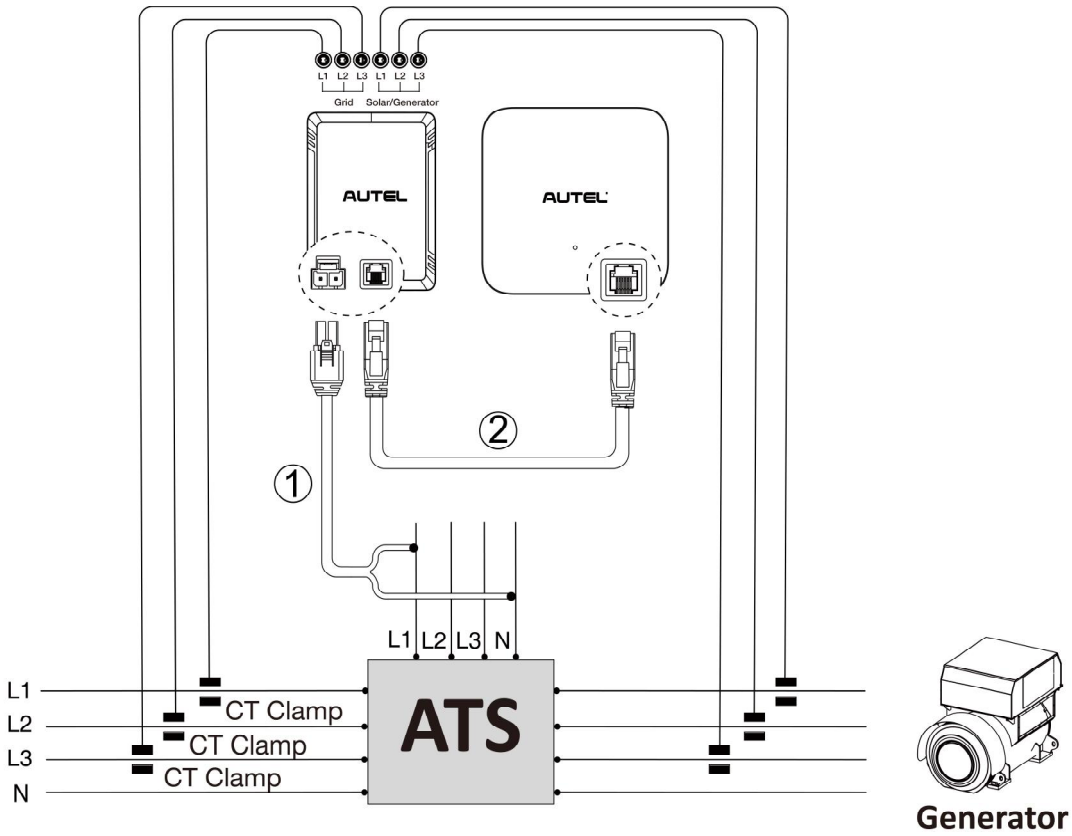
Use Case 9 Generator (EU 3-Phase)

1. Install the CT clamps in front of the ATS in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1, L2, and L3** ports at the top of the SmartSensor accordingly.

2. Install another three CT clamps around the generator output and insert their audio jacks into the **Right L1, L2, and L3** ports at the top of the SmartSensor accordingly.



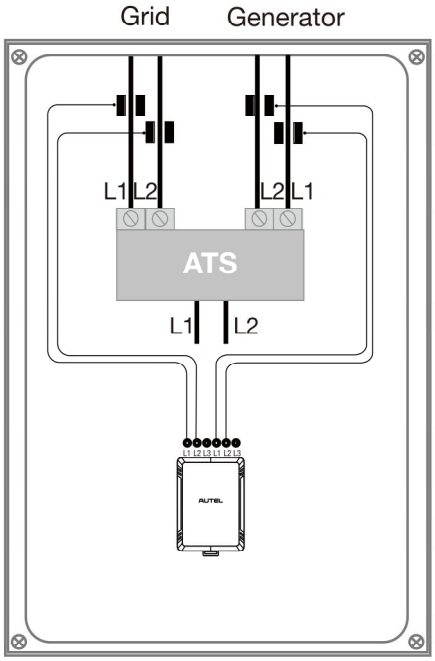
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's Live and Neutral wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



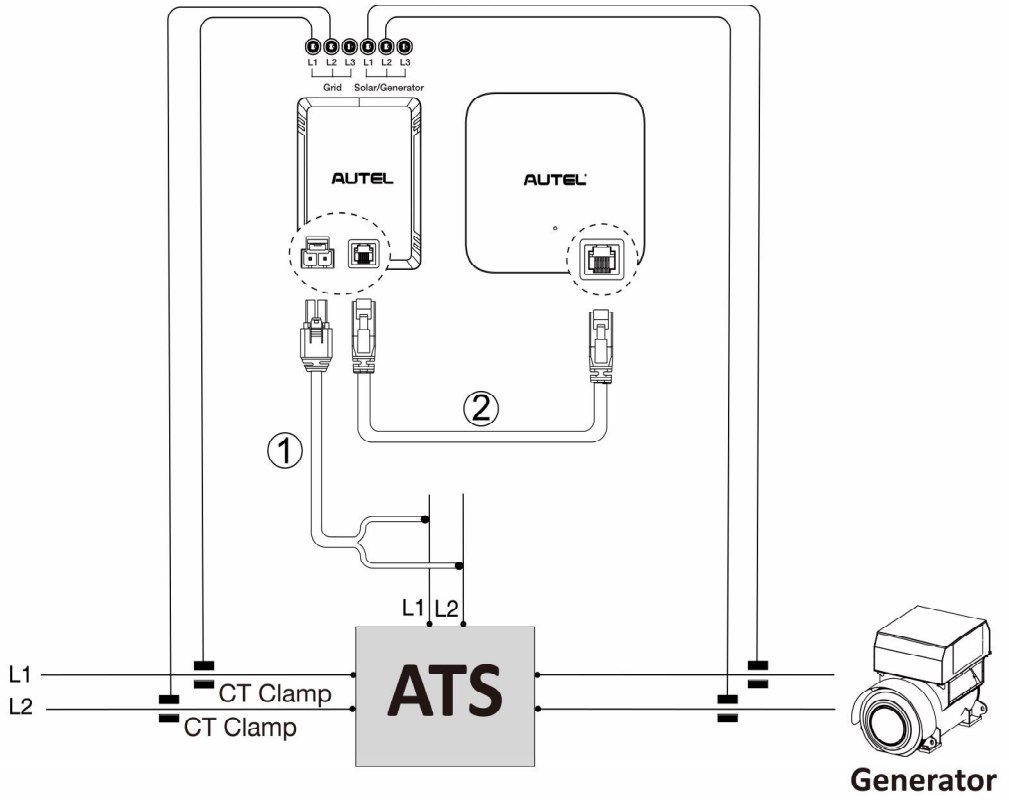
Use Case 10 Generator (North America 1-Phase)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1 and L2** ports at the top of the SmartSensor accordingly.

2. Install another two CT clamps around the photovoltaic inverter output and insert their audio jacks into the **Right L1 and L2** ports at the top of the SmartSensor accordingly.



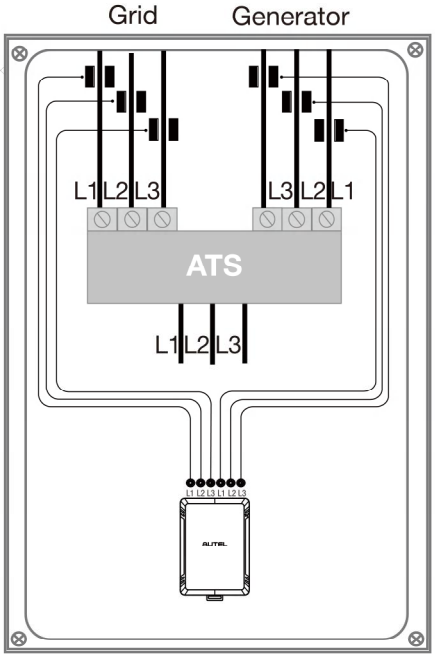
3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's L1 and L2 wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



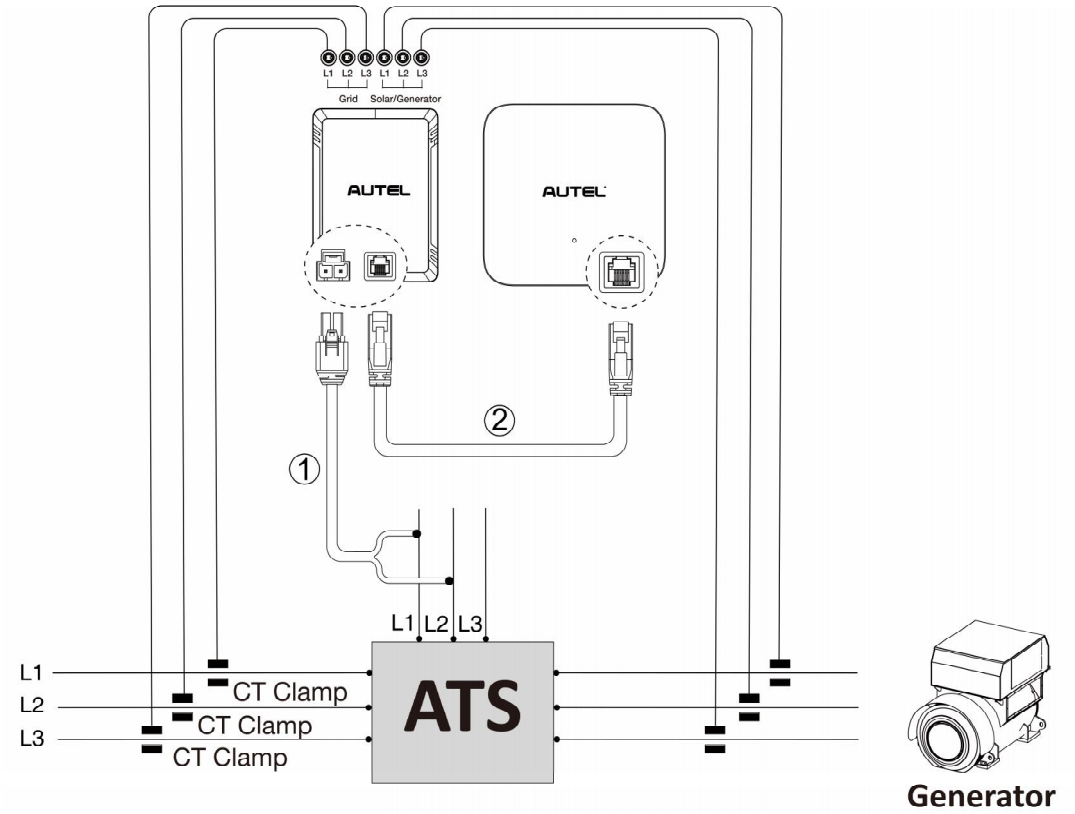
Use Case 11 Generator (North America 3-Phase)

1. Install the CT clamps in the electrical panel. Then insert the audio jacks of the CT clamps into the **Left L1, L2, and L3** ports at the top of the SmartSensor accordingly.

2. Install another three CT clamps around the photovoltaic inverter output and insert their audio jacks into the **Right L1, L2, and L3** ports at the top of the SmartSensor accordingly.



3. Plug the SmartSensor power cable (1) into the bottom-left port of the device. Then connect the power cable's L1 and L2 wires to the power supply accordingly.
4. Use the provided RJ12 to RJ12 cable (2) to connect the SmartBox and SmartSensor as indicated.



Configuration

1. Once the SmartBox is properly installed and powered on, the user can connect the device via Wi-Fi hotspot on a mobile device or computer. Enter the network name (SSID) and password (security key).

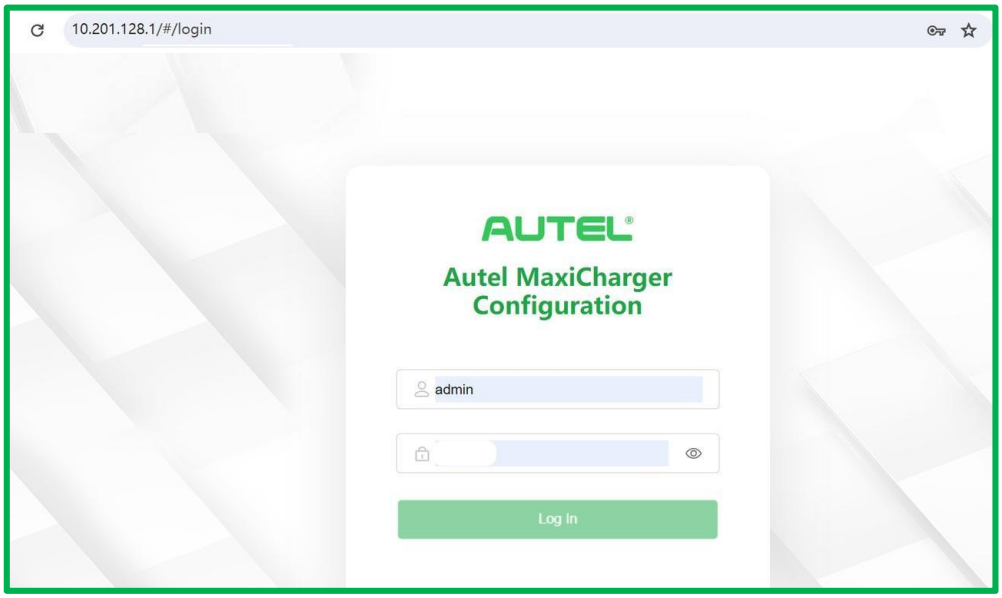
— **SSID:** Autel suffixed with the device's serial number (can be found on the name plate)

— **Security key:** the device's PIN code (can be found on the *Quick Reference Guide*)

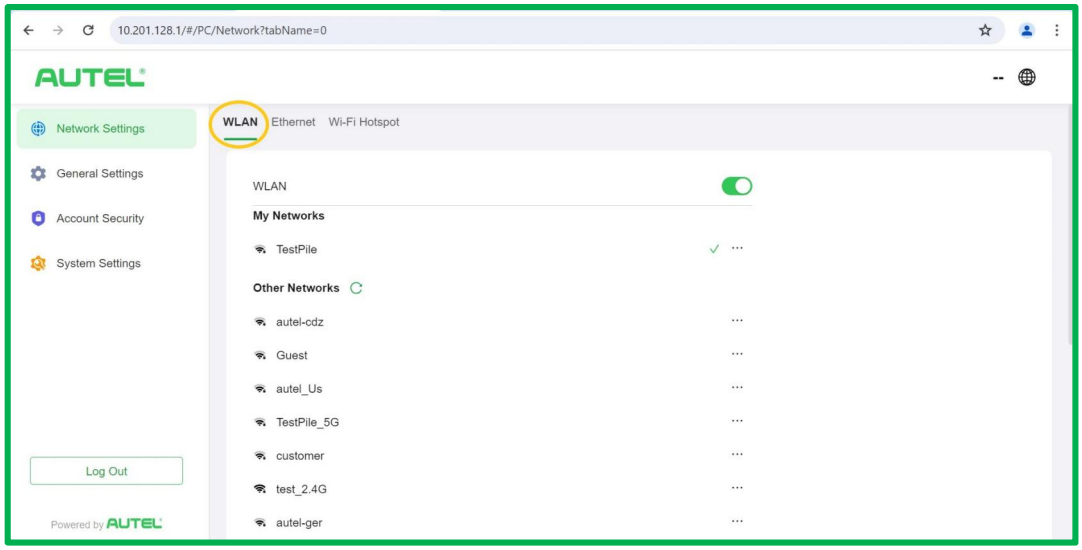
2. After the Wi-Fi hotspot is connected, input the URL http://10.201.128.1/#/login on a mobile device or computer and log in the Autel MaxiCharger Configuration Platform (AMCP) using the following information:

— **User name:** admin

— **Password:** the last six characters/digits of the device's serial number



3. Select **Network Settings > WLAN** and connect to your local network. The SmartBox now is connected to the Internet.



For detailed instructions on configuring the SmartBox in the energy management system, contact your sales representative or Autel technical support to access the manual.

Compliance

FCC ID: 2BHGJ-AUS610

FCC regulatory conformance：

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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

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

IMPORTANT: You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

ISED Canada regulatory compliance:

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Exposure to radio frequency energy

The radiated output power of this device meets the limits of FCC/IC radio frequency exposure limits. This device should be operated with a minimum separation distance of 20 cm (8 inches) between the equipment and a person's body.

CAN ICES-003 (B)/NMB-003(B)

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage.

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

La bande 5150–5250 MHz est réservée uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

L'exposition à l'énergie radiofréquence

La puissance de sortie rayonné de cet appareil est conforme aux limites de la FCC/IC limites d'exposition aux fréquences radio. Cet appareil doit être utilisé avec une distance minimale de séparation de 20 cm entre l'appareil et le corps d'une personne.

CAN ICES-003 (B)/NMB-003(B)

All products bearing this symbol are waste electrical and electronic equipment (WEEE as in directive 2012/19/EU) which should not be mixed with unsorted household waste. Instead, you should protect human health and the environment by handing over your waste equipment to a designated collection point for the recycling of waste electrical and electronic equipment, appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. Please contact the installer or local authorities for more information about the location as well as terms and conditions of such collection points.

CE compliance

Hereby, [AUTEL Digital Power Co., Ltd.] declares that the radio equipment type [SmartBox AES610] is in compliance with Directive 2014/53/EU and Radio Equipment Regulations 2017. The full text of the declaration of conformity is available at the following internet address: https://autelenergy.eu/pages/downloads

Wi-Fi 2.4G maximum transmitter power: 100mW at 2.4GHz–2.4835GHz

Wi-Fi 5G maximum transmitter power: 200mW at 5.15GHz–5.25GHz, 100mW at 5.25GHz–5.35GHz & 5.47GHz–5.725GHz&5.725GHz-5.825GHz

This device is restricted to indoor use when operating in the 5150 to 5350 MHz frequency range.

UKCA compliance

Hereby, [AUTEL Digital Power Co., Ltd.] declares that the radio equipment type [SmartBox AES610] is in compliance with Radio Equipment Regulations 2017. The full text of the UK declaration of conformity is available at the following internet address:
https://autelenergy.eu/pages/downloads

This device is restricted to indoor use when operating in the 5150 to 5350 MHz frequency range.

Operation Frequency: 2.4 GHz–2.4835 GHz (for Wi-Fi 2.4 GHz)

Maximum RF Power Output: < 100 mW (for Wi-Fi 2.4 GHz)

Operation Frequency: 5.15 GHz–5.35 GHz and 5.47 GHz–5.725 GHz (for Wi-Fi 5 GHz)

Maximum RF Power Output: < 200 mW (for Wi-Fi 5.15 GHz–5.25 GHz)，< 100 mW (for Wi-Fi 5.25GHz–5.35 GHz & 5.47 GHz–5.725 GHz & 5.725GHz-5.825GHz)

NOTE: Under normal use of condition, this equipment should be kept a separation distance of at least 20 cm between the antenna and the body of the user.

Troubleshooting

This table describes common problems you might encounter when installing/using the SmartBox. If the problem persists or is not listed below, please contact Autel technical support.

Problem	Possible Causes/Solutions
The SmartBox is offline on the Autel Network Operations Center.	The Wi-Fi connection has failed. Check that the Wi-Fi network is working.
The SmartBox cannot be connected to the Autel Network Operations Center.	The Wi-Fi is not properly configured. Configure the Wi-Fi via the hotspot of the SmartBox.
The current monitored by the CT clamp is not consistent with the charging current.	The CT clamp is not properly installed. ● Ensure the audio jack of the CT clamp is fully inserted into the port at the top of the SmartSensor. ● Ensure the clasp on the CT clamp is shut. ● Ensure the CT clamp installed around the L1's conductor is not connected to L2 or L3 port on the SmartSensor, or vice versa.
The LED indicator on the SmartBox illuminates yellow.	An error has occurred. Log on the Autel Network Operations Center to check the error code and relevant information.
The Wi-Fi hotspot of the SmartBox cannot be discovered and connected to the AMCP.	Once the SmartBox is powered on, the hotspot will turn off if not connected in 30 minutes. Restart the SmartBox or enable the hotspot on the Autel Network Operations Center.

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