



USER MANUAL

PRODUCT DESCRIPTION

SEM-Meter



You can also download it by scanning the QR code



Support IOS
and Andriod

For more questions, please contact us:
serviceFE@outlook.com



PAY ATTENTION TO DANGER

- The SEM-Meter smart energy monitor needs to install a transformer in the distribution panel in your home, and there is a high voltage danger around the working environment of the device, which may cause personal injury. Please pay attention to safety! We recommend that professional and technical personnel (such as licensed electricians or other qualified professionals) install it according to the electrical specifications of the area where it is installed.
- Improper installation or use of equipment may cause dangerous or even fatal hazards. In any case, please be sure to follow the safety information and instructions in this installation guide. We will not be liable to you or any third party for any personal injury caused by your failure to follow the relevant instructions, or any direct or indirect damage related to it.

Note: The 3.5mm and 2.5mm ports are not used to carry any audio signals, they are only used to connect the CT clips included in the box to the device.



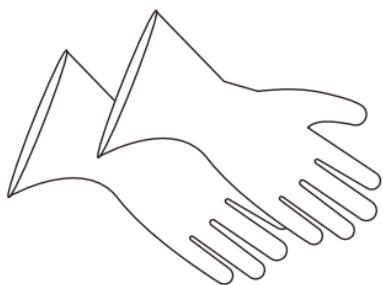
BE CAREFUL

- Wear personal protective equipment when installing SEM-Meter. Please be sure to install and use SEM-Meter in the manner specified in this guide. Do not try to open, remove or repair any components of SEM-Meter. If you think there may be something wrong with any components of SEM-Meter, do not use them. Please install SEM-Meter in a dry and dark environment, be careful to stay away from explosive gases and avoid direct sunlight; please use it in the temperature range from -40°F (-40°C) to 122°F (50°C).
- Please make sure that the power supply is disconnected before doing anything on the SEM-Meter (including installation and disassembly). Please use the original accessories or CT clips. Third-party accessories may cause inaccurate monitoring data or even damage the safety of the equipment. Please do not carry out any maintenance or cleaning of SEM after installation.
- Please do not carry out any maintenance or cleaning of SEM-Meter after installation.

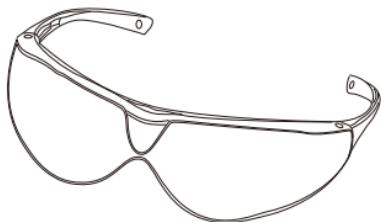
If necessary, please contact us: serviceFE@outlook.com

BEFORE THE START

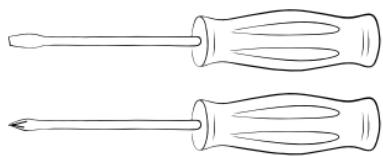
- The SEM-Meter is installed in your home's electrical panel. You'll turn off the main breaker, which will shut off all of the power in your home. However, the service mains will remain dangerously energized.
- Be aware of the following items, which may help you install safely.



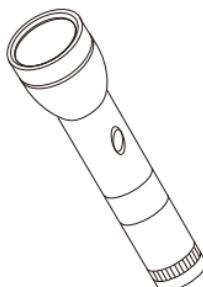
Protective gloves



Protective eyewear



Phillips and flathead
screwdrivers



Alternative light
source

WHAT'S IN THE BOX

- Your new SEM-Meter contains the following items. If any of these items are lost or damaged, please contact us immediately.



SEM-Meter



x 3



x 16



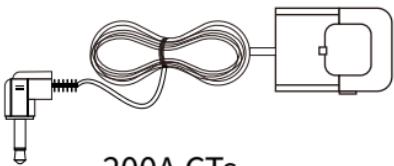
x 2 or 3



x 1



x 2 or 3



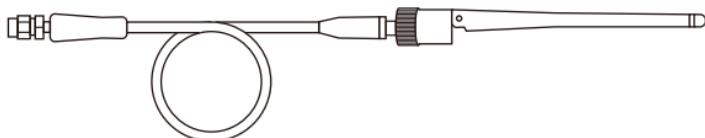
200A CTs

x 2
or 3



50A CTs

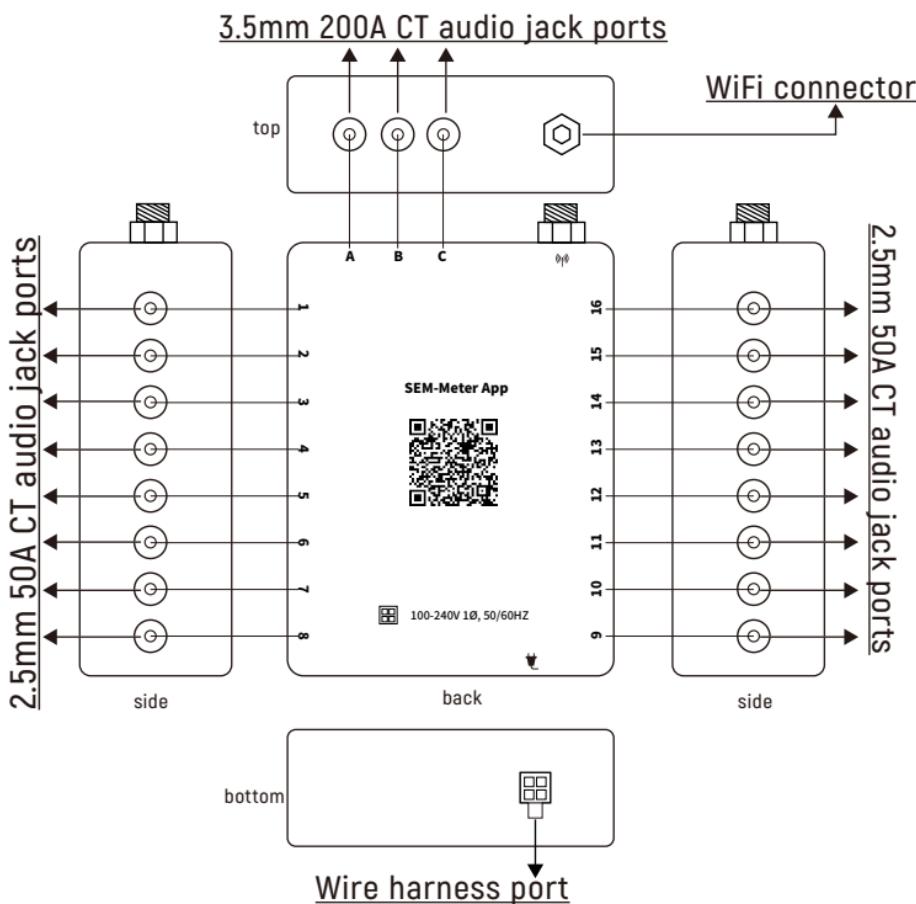
x 0 , 8
or 16



WiFi antenna assembly

SEM-METER CONNECTIONS

- The 3.5mm A, B and C audio jack ports on the top of the device are the input of the 200A main CT (your bundle may only contain two). The coaxial connector of the WiFi cable is also at the top. The 1 to 16 audio jack ports of 2.5 mm on the side of the device are inputs of 50A CT (your bundle may be equipped with 16 or 8 CTs, or not at all). The harness port is located at the bottom of the device. All ports are clearly marked on the back of SEM-Meter.



01 DOWNLOAD APP

- First, download the SEM-Meter on your smartphone through Google play or APP store

 SEM-Meter



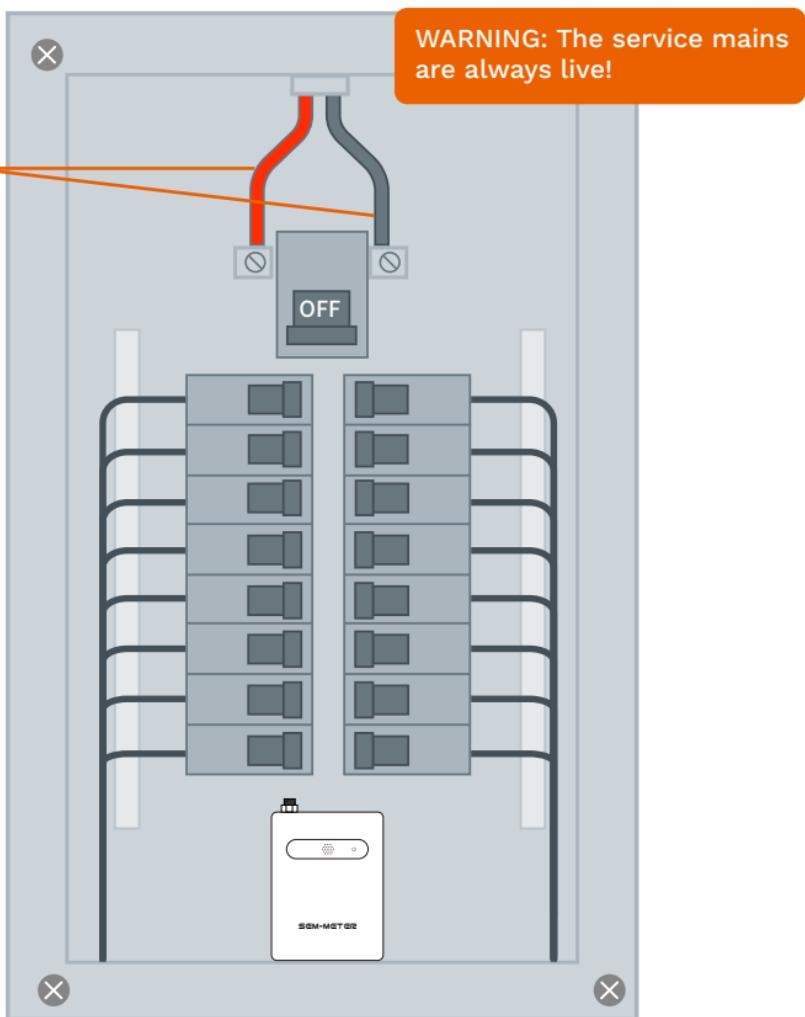
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Support IOS
and Andriod

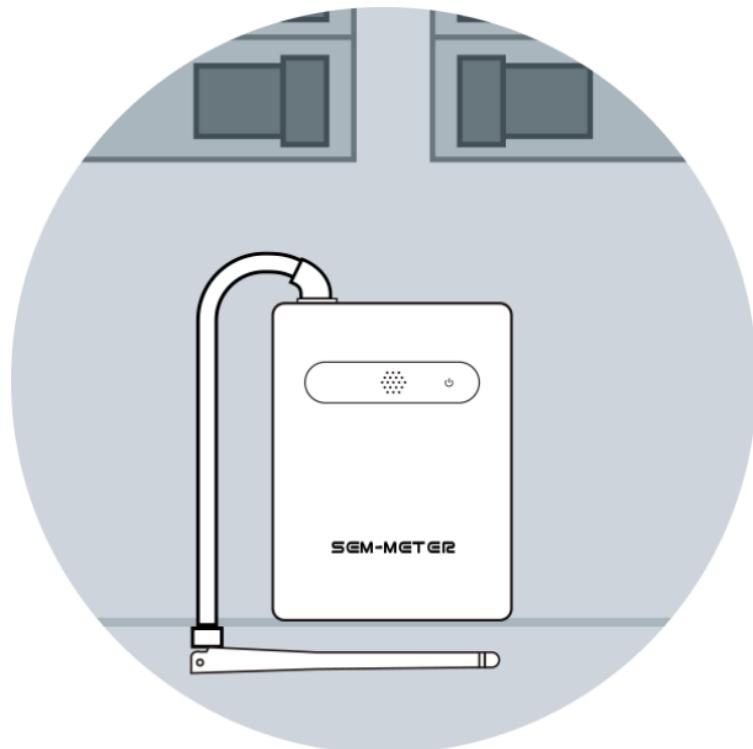
02 TURN OFF MAIN CIRCUIT BREAKER AND REMOVE COVER

Turning off the main circuit breaker in your power distribution box will also turn off all the circuits in your home. Then unscrew the screw on the power distribution box cover and remove the cover. The SEM-Meter is quite small and you can find a suitable place to place it in the distribution box.



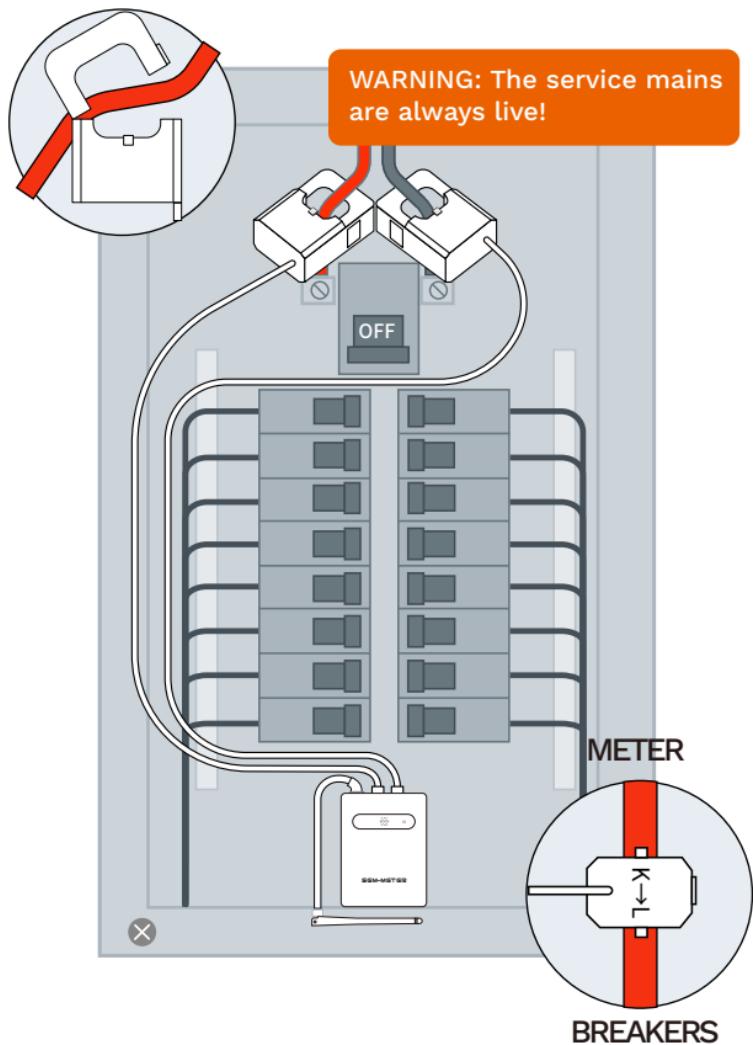
03 MOUNTING ANTENNA

Screw the antenna assembly cable into the jack marked on the top of the SEM-Meter. Next, use a screwdriver to remove a knockout from inside the electrical panel, feed the antenna through the hole. Finally, plug the hole with the knockout plug.

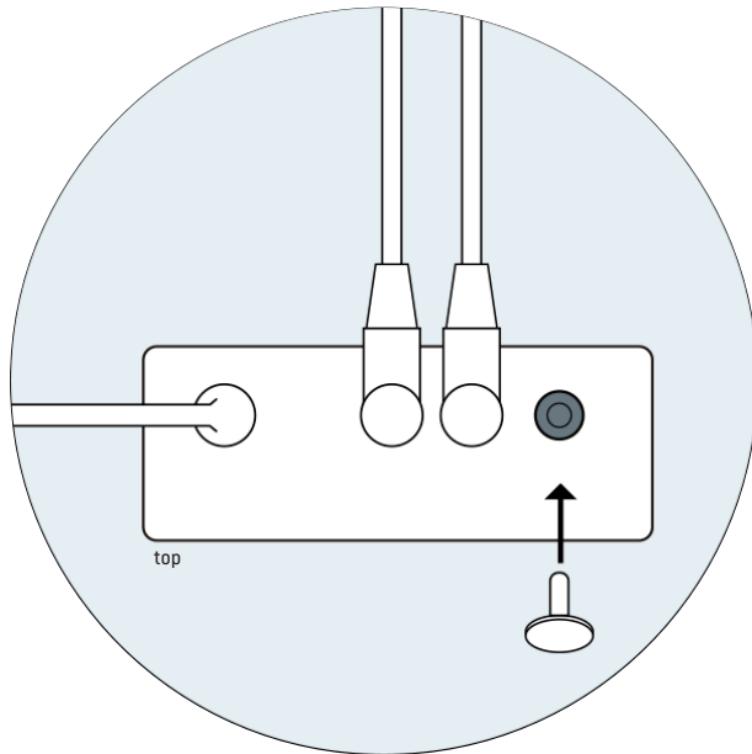


04 INSTALL THE 200A CURRENT TRANSFORMERS

Your system will have 1, 2, or 3 main service cables (a typical 2-main system is shown below). Open the clasps on the CTs and place each clamp around one of the main service cables. Then, shut the clasps to secure the CTs. Important! Attention! The K \rightarrow L or Breaker \rightarrow imprint on the bottom of the CTs should point toward the breakers. Finally, insert the 200A current transformer audio jacks into the audio jack ports on the top of the device.

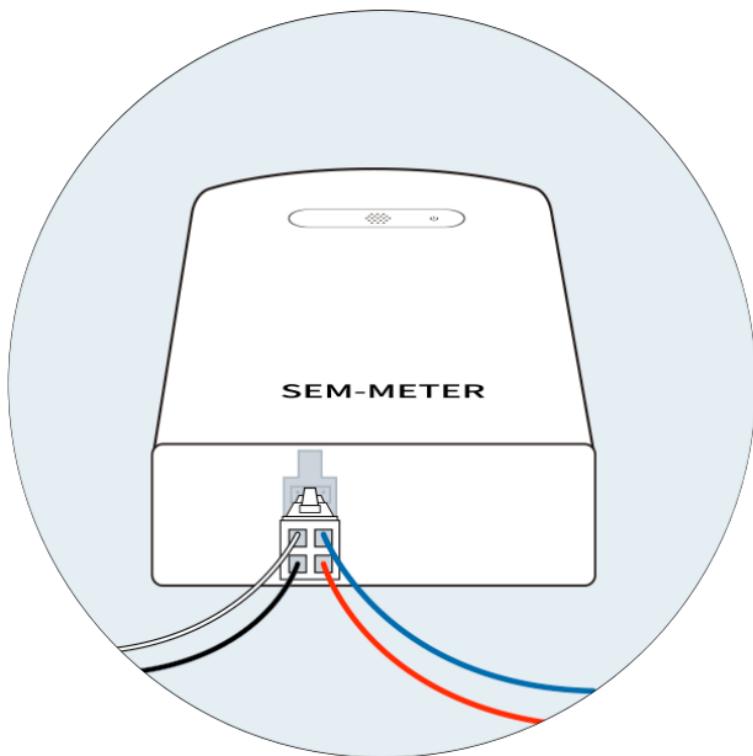


There are three 3.5mm 200A CT ports at the top of the SEM-Meter, which are labeled A, B and C and match exactly with the 3.5mm plugs we supplied. Please install the free audio jack port according to the actual need. If you do not have any empty ports, proceed to the next step.



05 INSERTION HARNESS

A power supply harness with four 16AWG wires is firmly inserted into the bottom of the SEM-Meter, allowing both single-phase power and three-phase voltage induction. The white ones are connected to the neutral line, the black ones provide power and voltage sensing, and the blue and red ones are only voltage sensing.



06 CONNECT THE HARNESS TO THE CIRCUIT BREAKER AND NEUTRAL BUS

Depending on whether you have enough spare 15A circuit breakers and the number of 200A CTS you installed in the previous step, the wiring harness will be connected differently. Select the following steps based on your actual situation.

Step a Common in N. American homes

Two empty breakers and Two 200A CTs

Step b Common in N. American homes

No empty breaker and Two 200A CTs

Step c Common in European 3-phase homes. Uncommon in N. American homes. Common in N. American Commercial systems

Three empty breakers and Three 200A CTs

Step d Common in European 3-phase homes. Uncommon in N. American homes. Common in N. American Commercial systems

No empty breaker and Three 200A CTs

Step e Common in European 1-phase homes. Uncommon in N. American homes

One empty breaker and One 200A CT

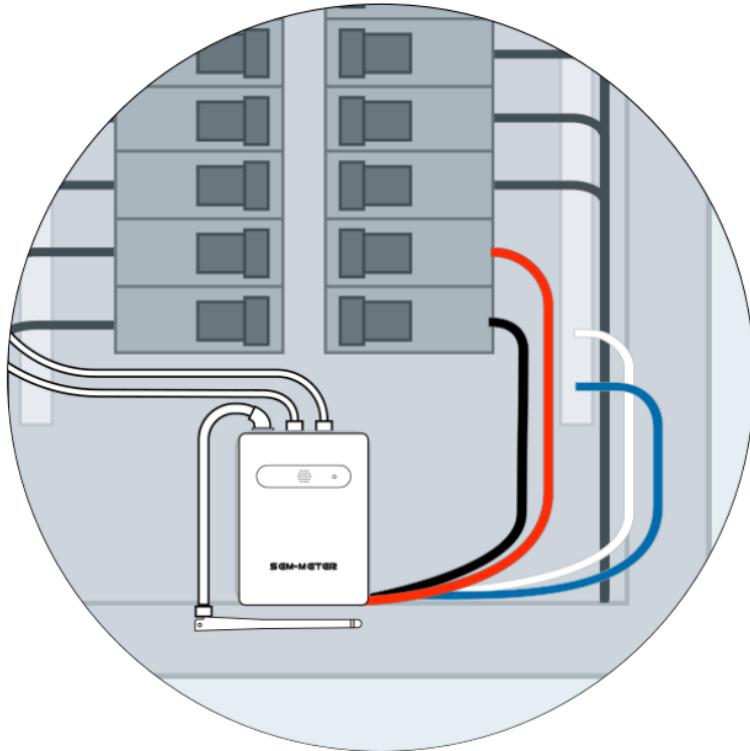
Step f Common in European 1-phase homes. Uncommon in N. American homes

No empty breaker and One 200A CT

Step a: Two empty breakers and Two 200A CTs

Common in N. American homes

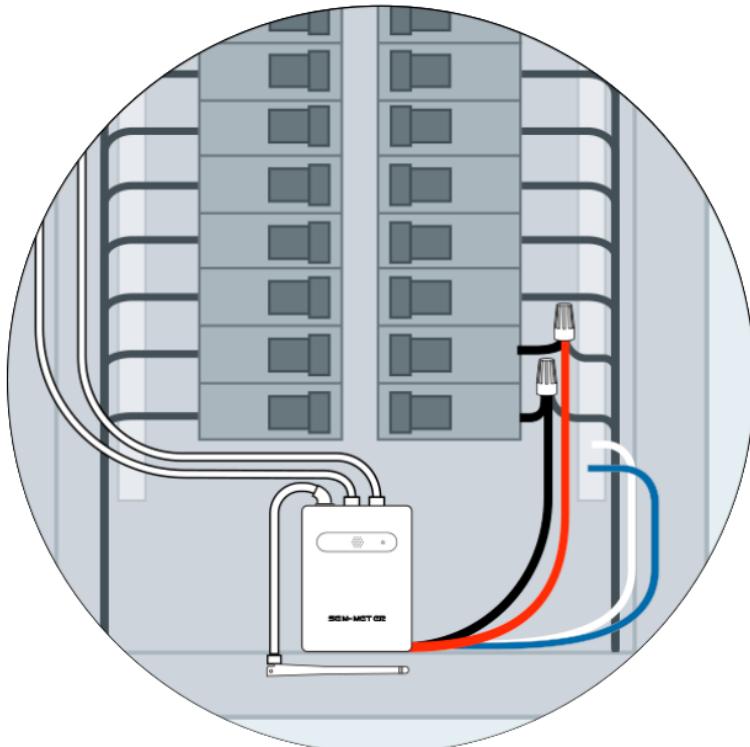
Secure the White and Blue wires from the wire harness to the neutral bus bar. Turn off two vertically adjacent (stacked) single pole 15A breakers and secure the Black and Red wires from the harness to each of the hot leads from each breaker.



Step b: No empty breaker and Two 200A CTs

Common in N. American homes

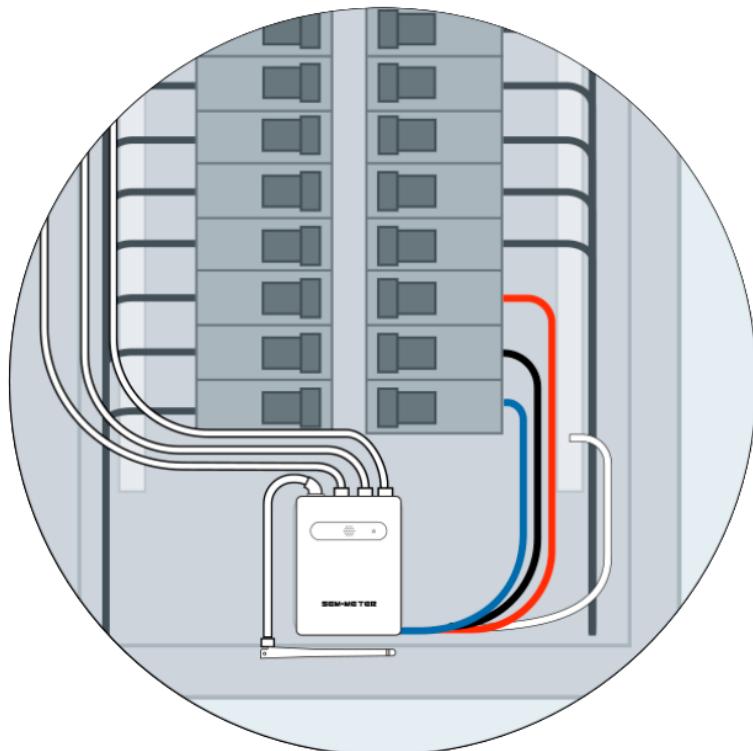
Secure the White and Blue wires from the wire harness to the neutral bus bar. Turn off two vertically adjacent (stacked) 15A single pole breakers and remove their wires. Connect one of the breaker wires to the Black harness wire and an extra wire with a wire nut. Next, connect the second breaker wire to the Red harness wire and an extra wire with a wire nut. Then secure each of the extra wires to the two breaker poles.



Step c: Three empty breakers and Three 200A CTs

Common in European 3-phase homes. Uncommon in N. American homes. Common in N. American Commercial systems

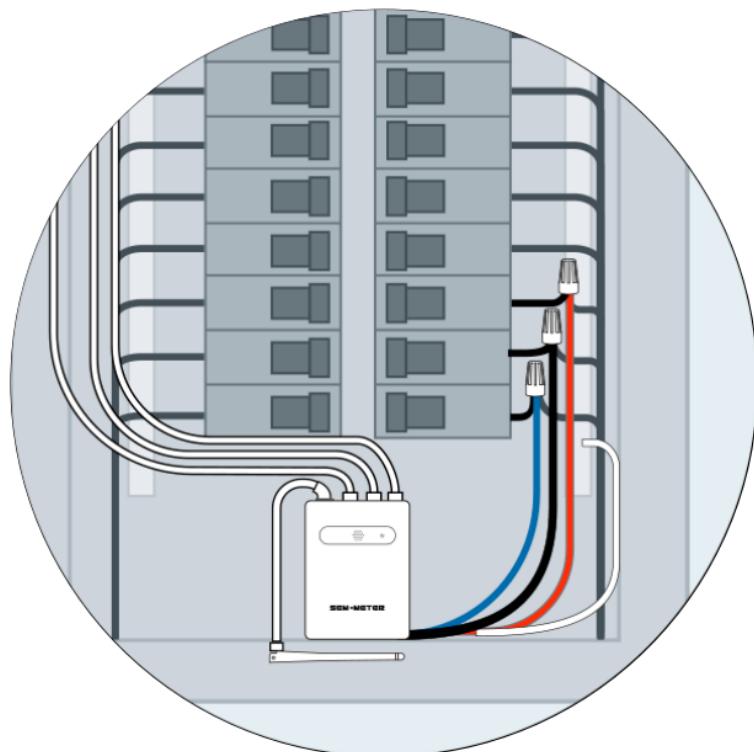
Secure the White wire from the wire harness to the neutral bus bar. Turn off three vertically adjacent (stacked) 15A single pole breakers and secure the Black, Red, and Blue wires from the harness to each of the hot leads from each breakers.



Step d: No empty breaker and Three 200A CTs

Common in European 3-phase homes. Uncommon in N. American homes. Common in N. American Commercial systems

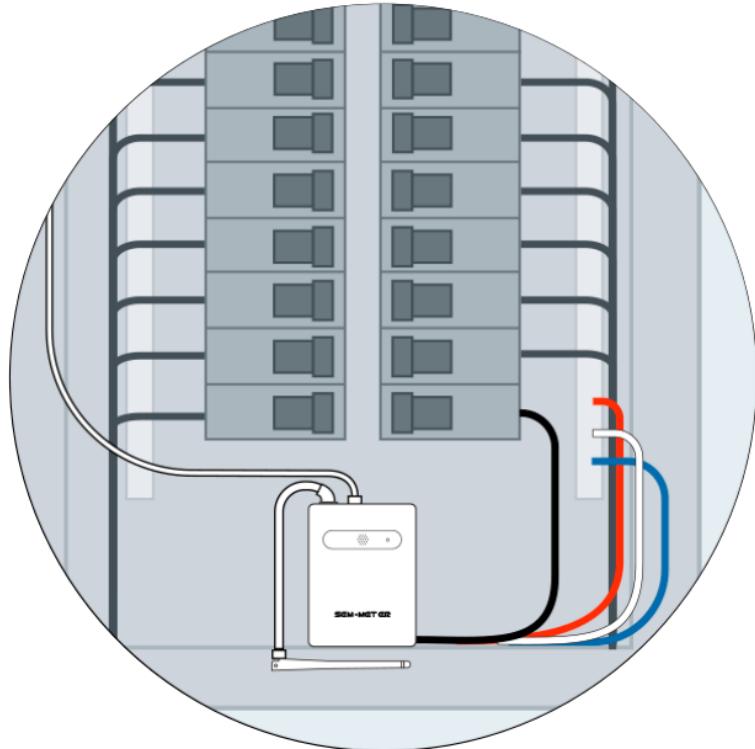
Secure the White wire from the wire harness to the neutral bus bar. Turn off three vertically adjacent (stacked) 15A single pole breakers and remove their wires. Connect one of the breaker wires to the Black harness wire and an extra wire with a wire nut. Next, connect the second breaker wire to the Red harness wire and an extra wire with a wire nut. Next, connect the third breaker wire to the Blue harness wire and an extra wire with a wire nut. Then secure each of the extra wires to the three breaker poles.



Step e: One empty breaker and One 200A CT

Common in European 1-phase homes. Uncommon in N. American homes

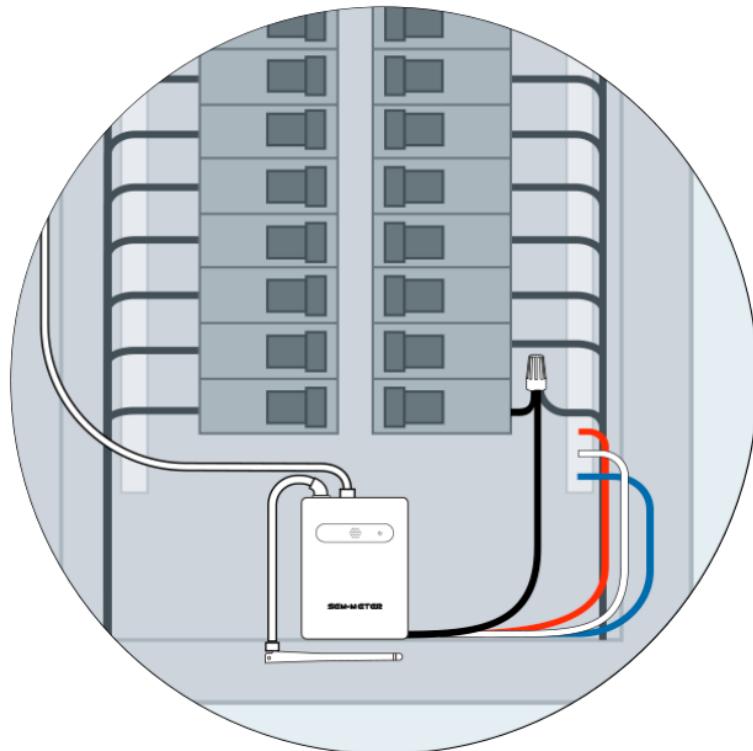
Secure the Red, White, and Blue wires from the wiring harness to the neutral bus bar (you can use a wire nut and extra wire if needed). Turn off an empty 15A breaker and secure the Black wire from the harness to the hot lead from the breaker.



Step f: No empty breaker and One 200A CT

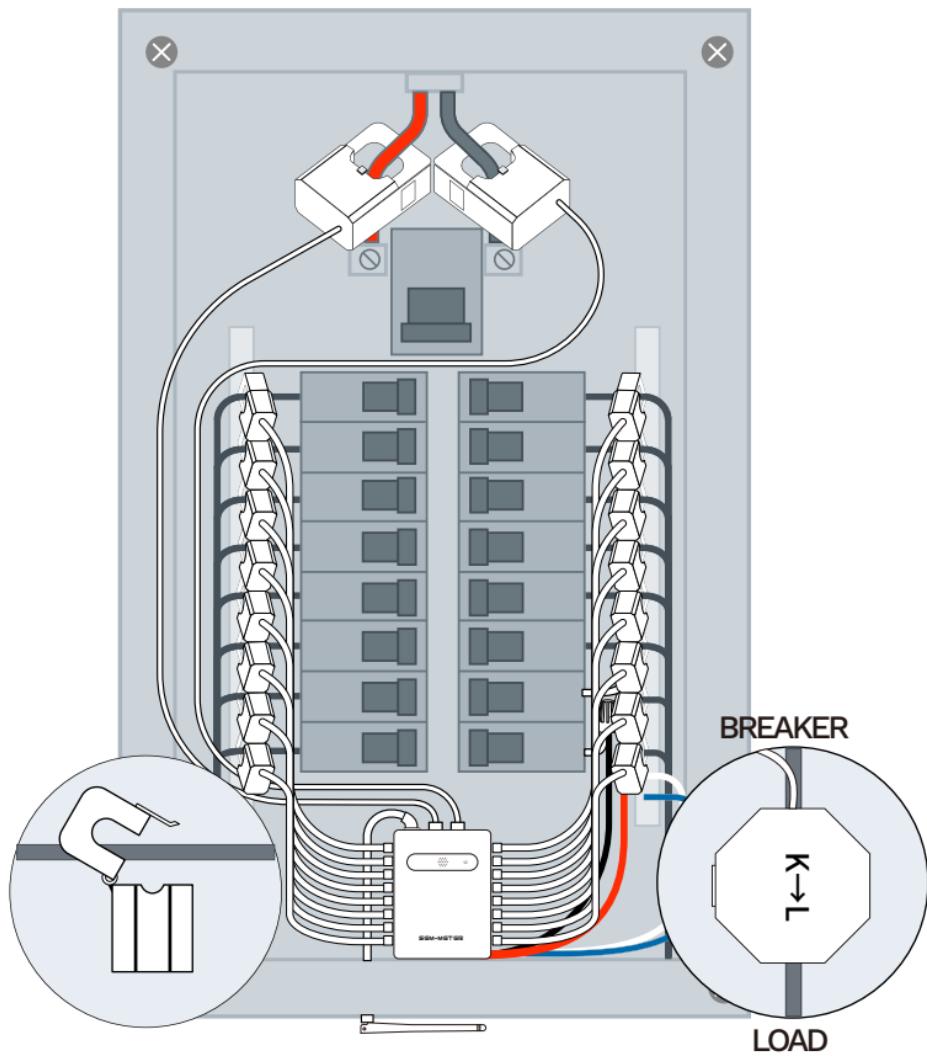
Common in European 1-phase homes. Uncommon in N. American homes

Secure the Red, White, and Blue wires from the wire harness to the neutral bus bar. Turn off a 15A breaker and disconnect its wire. Connect that wire to the Black wire from the harness and the piece of extra wire with the wire nut. Then secure the extra wire to the breaker.



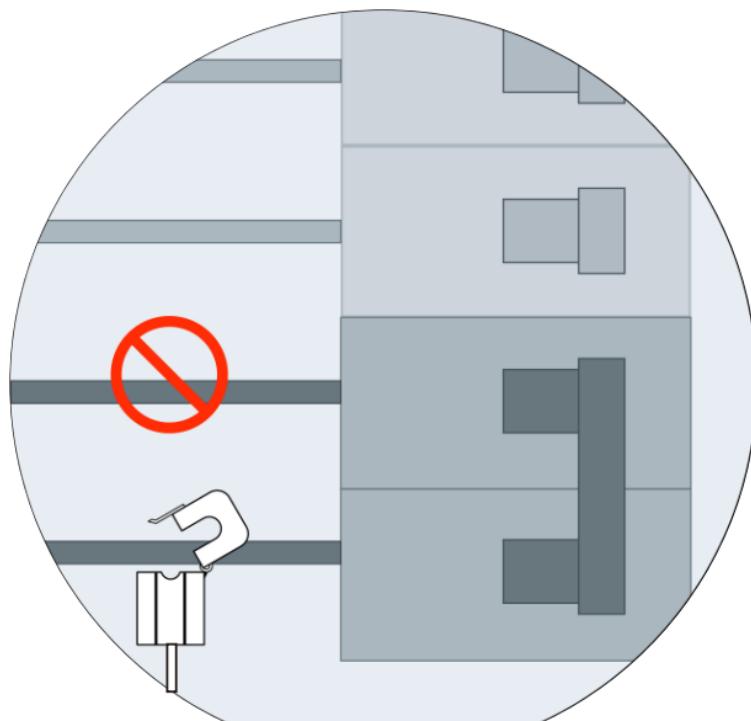
07 Install the 50A current transformer

If your SEM-Meter has a 50A CT, open the bayonet on the 50A CT, place each clip on the line you want to monitor, and close the button. Important! Attention! The Breaker→imprint on the bottom of the CTs should point toward the breakers and the K→L imprint should point away from the breakers. Then, insert the audio jacks attached to them into the 2.5mm audio jackports on the sides of the device. Note the port numbers so you can name the circuits in the app.



08 A note about multi-pole breakers

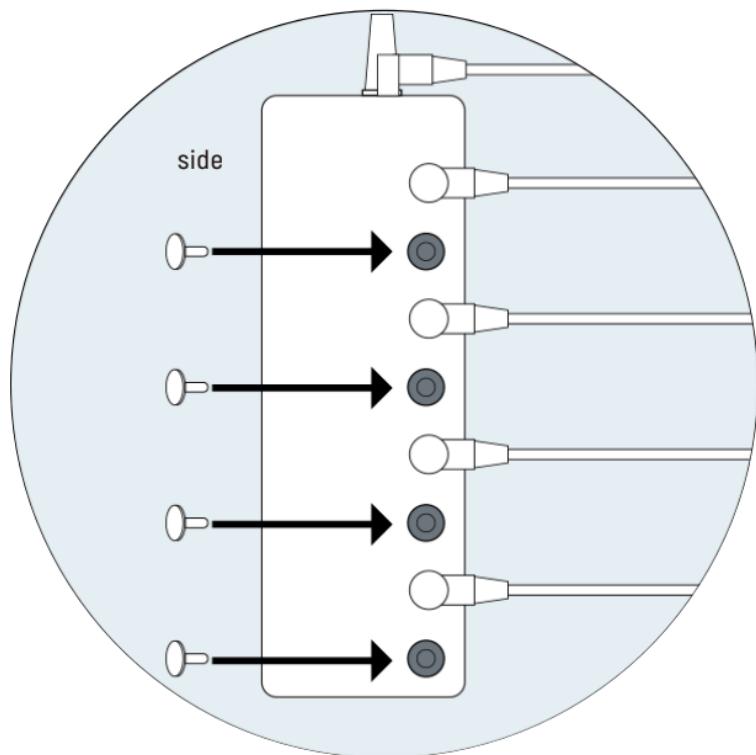
If you wish to monitor 2- or 3-pole breakers, you can either use one CT on each pole, or you can use a single CT. To use a single CT, clasp the clamp around either one of the hot leads coming off the breaker (it doesn't matter which). You'll then be able to input a circuit multiplier in the app to double or triple the reading by entering a "2" or "3". We don't recommend multipliers for unbalanced loads, such as subpanels.



Connect to only one lead,
then use a multiplier in the app

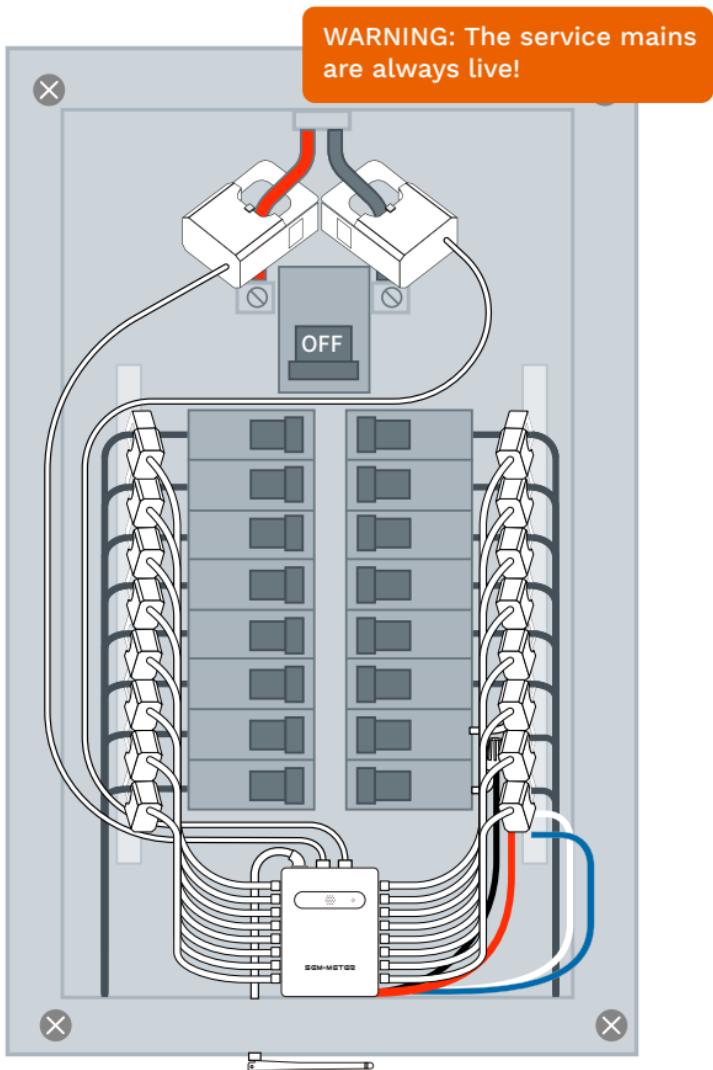
09 Insulate empty 2.5mm 50A CT audio jack ports

Identify the empty 2.5mm 50A CT audio jack ports on the sides of your SEM-Meter. These will be labeled 1 through 16. Depending on your installation, you may have anywhere from 16 empty ports to none at all. If you don't have any empty ports, proceed to next step. If you do, securely insert the provided 2.5mm insulation plugs into all of the SEM-Meter's empty 2.5mm ports.



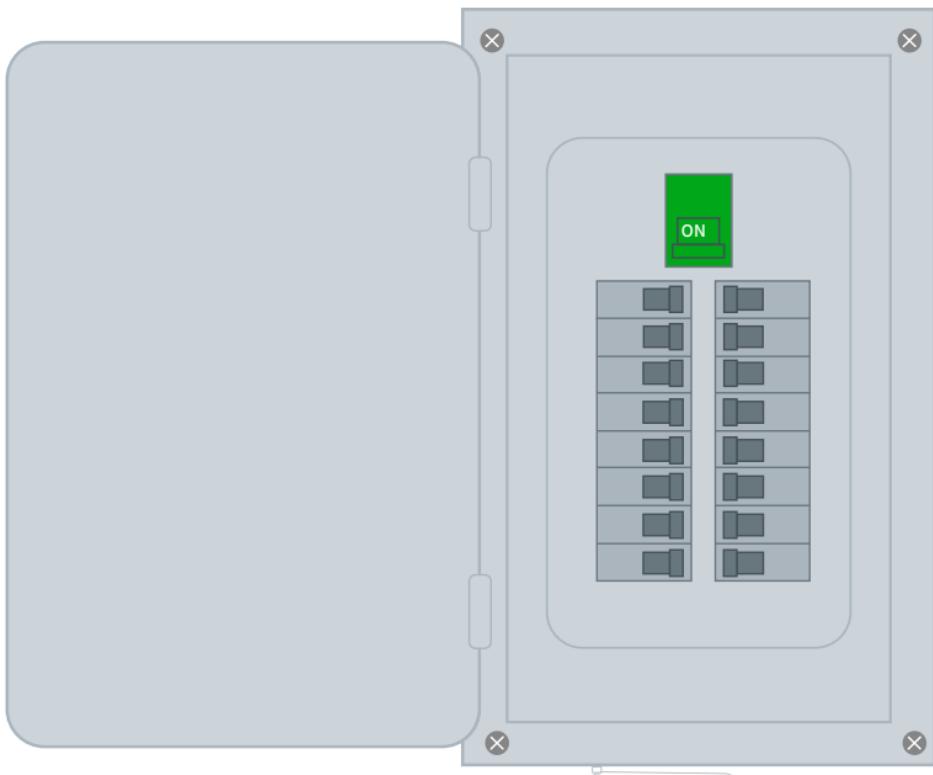
10 Take a photo of your system

Before replacing your panel cover, take photos of your installation in case you need to contact support.



11 Replace the cover and turn on all breakers

Attach the lid to the box using all the screws you removed in the previous step. Next, flip any breakers that you turned off during installation to restore power to the circuits in your home. You should hear a power up tone from the SEM-Meter to confirm it has power. Then, close the panel. Once the panel cover is replaced, the antenna connector and audio jack portson the SEM-Meter will not be accessible.



12 Device distribution network

Finally, continue to configure the network for the device.

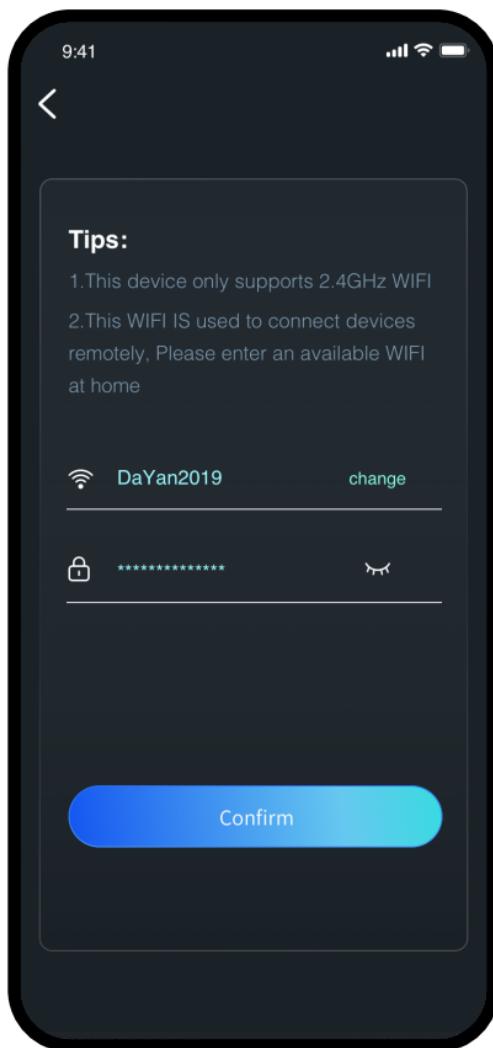
When configuring the network, the software needs to use some of your mobile phone permissions. The permissions are only used for device network configuration and will not collect your personal privacy.

Network distribution means using your mobile phone to help the device connect to your commonly used network. It sends Wi-Fi information to the device through Bluetooth, so please choose a network with high signal strength, or place your device in a place with high signal strength coverage. Of course, before connecting to the network, you need to turn on Bluetooth on your phone and connect to your usual network.

After entering the Wi-Fi input page, please read the information prompts on the page carefully and use 2.4GHz Wi-Fi with sufficient signal strength.

In order to prevent you from manually entering the Wi-Fi name incorrectly, after your mobile phone is connected to Wi-Fi, the software will directly read your Wi-Fi name. Here, you need to allow access to the mobile phone location permission (the Android system requires you to turn on the "precise location permission").

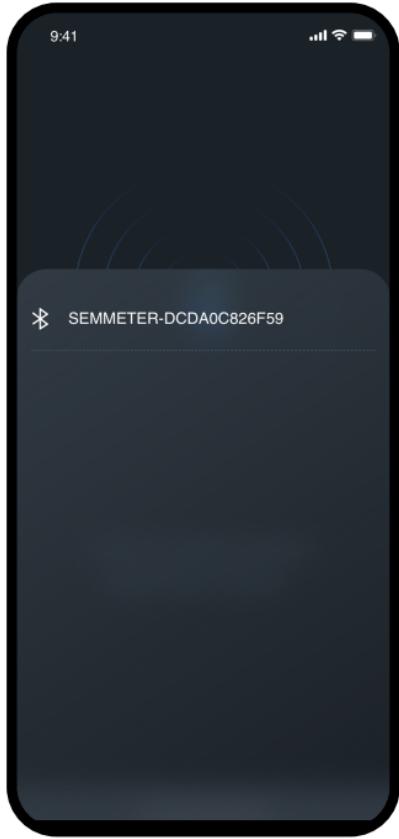
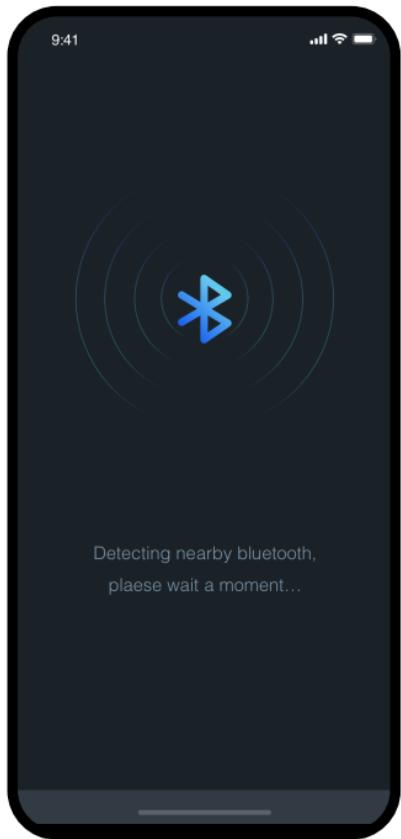
Please enter the Wi-Fi password correctly. The password will be sent to your device via Bluetooth transmission through your mobile phone, allowing the device to connect to your network. If your Wi-Fi has not set a password, please click "Confirm" directly at the bottom of the page.



After clicking "Confirm", the phone will start to search for Bluetooth of nearby devices. Please pay attention to keeping the distance between you and the device to avoid being too far away (within 5 meters) to scan the Bluetooth.

At this time, you need to use the Bluetooth-related permissions of your mobile phone to allow the software to use Bluetooth. For mobile phones using the Android system, as required by the Android system, not only Bluetooth permissions are required, but also related location permissions ("Nearby Device Permission" and "Precise Location Permission") are required to scan Bluetooth near your phone.

After scanning Bluetooth, please click it to connect the device's Bluetooth and add common Wi-Fi to the device. Note that you still need to maintain a distance from the device at this time to prevent Bluetooth from being disconnected due to excessive distance.



If the network configuration fails, you can check the cause of the failure according to the prompts on the failure page and restart the network configuration. Of course, if you have any questions, **you can consult us (serviceFE@outlook.com).**

After configuring the network, you still need to name the device and select your commonly used time zone. We will default to the time zone where your mobile phone is located. This information can be modified in the device settings. Once the above operations are completed, the device is truly added.



13 Troubleshooting Tips

The SEM-Meter app is not finding my SEM-Meter after I've installed it.

Ensure the SEM-Meter has power.

- 1) Check for a green power light.
- 2) Listen for a startup tone.
- 3) Check the wire harness is secure and wired properly.
- 4) Check that the main breaker is turned on.
- 5) Check that the breaker powering the SEM-Meter is turned on.

Ensure your phone can connect to the SEM-Meter.

- 1) Check your phone's Bluetooth is on.
- 2) If you're using an Android, turn on Location Services for your phone to properly scan for Bluetooth devices.

Ensure the SEM-Meter's Wi-Fi antenna has been installed properly.

- 1) Check the antenna is properly screwed into the energy monitor.
- 2) Ensure the antenna is outside of the electric panel. It's ok if it is inside a wall, just ensure it's not inside the metal box.

Try power cycling the breaker to which the SEM-Meter is connected.

Try restarting the SEM-Meter App.

Try rebooting your phone.

The SEM-Meter app isn't getting real-time data from the SEM-Meter device.

Ensure all current transformers are securely fastened around their respective cables in your electric panel.

Check the current transformers audio jacks are securely plugged into the audio jack ports of the device.

FCC Warning:

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.