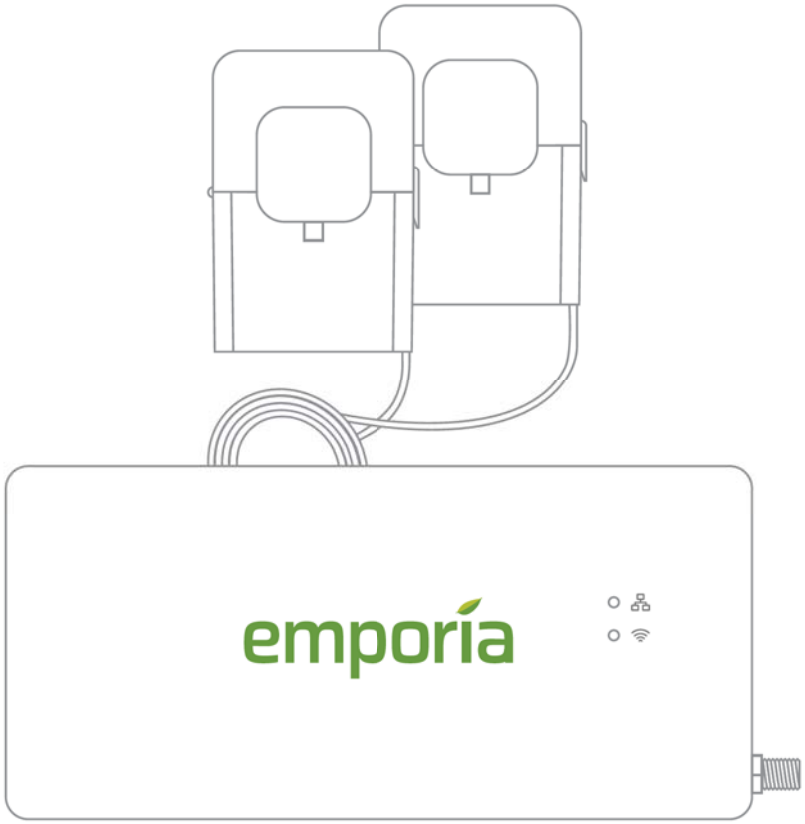
emporia



VUE

Smart Home Energy Monitor

Gen 3

Installation Guide

Safety information

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that accompany this symbol to avoid possible injury or death.

⚠WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠WARNING

The Emporia Vue requires installing transformers inside a home's electrical panel and working around dangerous voltage that could lead to injury or death. The installation should be performed by a skilled person such as a licensed electrician or other qualified professional in accordance with the regional electrical code where it is being installed.

Improper installation or use of the equipment can be dangerous or even fatal. In no event shall Emporia be liable to you or any third party for any damages, either direct or indirect, arising from or related to any personal injury as a result of your failure to follow the safety information and instructions in this Installation Guide.

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Safety information (continued)

⚠WARNING

- Remove power from the electrical panel before inspecting. Wear protective eyewear and protective gloves before attempting to inspect the Vue system. Ensure no wiring for voltage measurement, current measurement, power, or data are frayed or have exposed conductors. Ensure there are no cracks, breaks, or other defects in the enclosure of the Vue or CTs.
- If you believe any of the Emporia Vue components may have been damaged, do not attempt to use them. Contact support at support@emporiaenergy.com immediately.
- Do not use the Emporia Vue in any manner other than specified in this installation guide, otherwise, the protection provided by the equipment may be impaired.
- Do not attempt to open, disassemble, or repair any of the components of the Emporia Vue.
- Do not install the Emporia Vue in environments with explosive gas or vapors; nor in damp or wet environments; nor in direct sunlight; nor where temperatures are consistently below -40° F (-40° C) or above 122° F (50° C).
- Ensure the Emporia Vue does not have power during any handling, including installation and disassembly.
- Do not perform any maintenance, service, or cleaning of the Vue after installation. Contact customer service for support.
- The Emporia Vue should only be used with Listed Energy-Monitoring Current Transformers.
- Basic Insulation, use CTs only on insulated conductor, secured from contacting live parts.
- To reduce risk of electric shock, always open or disconnect circuits from the power-distribution system (or service) of a building before installing or servicing current transformers.
- The Emporia Vue should be wired to power using 16AWG, 600V, UL1015, 105° C (or higher) copper-only wires
- It is recommended that the Emporia Vue be wired to the breaker closest to the device.

Safety information (continued)

⚠WARNING

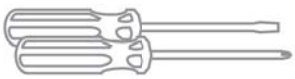
- Do not position the Emporia Vue so that it is difficult to operate disconnecting devices or breakers.
- Do not use 3rd party accessories or Current Transformers (CTs) with the Emporia Vue. The Vue and CTs are customized and integrated. Third party accessories or CTs may compromise the data accuracy and equipment safety.
- The current transformers may not be installed in equipment where they exceed 75 percent of the wiring space of any cross-sectional area within the equipment.
- Restrict installation of current transformers in an area where it would block ventilation openings.
- Restrict installation of current transformers in an area of breaker arc venting. Do not install the Emporia Vue Energy Monitor in any area where breaker arc venting exhaust gasses could be re-directed as a result of submetering equipment installation.
- The Emporia Vue is not suitable for Class 2 wiring methods and not intended for connection to Class 2 equipment.
- Secure current transformers and route conductors so that the conductors do not directly contact live terminals or buses.
- The Emporia Vue shall not be mounted within 50.8 mm (2 in) of any live parts including primary conductors, primary terminals, and primary lugs; but excluding insulated cables. It's acceptable for the Vue to be mounted to the grounded panel box and near the neutral/ground bus bars. The Vue employs Class I wiring allowing its wires to safely coexist with all other wires in the panel.
- If the Emporia Vue Energy Monitor is attached to the enclosure, it shall not contact the panel interior insulation such as the material that separates the GND and LIVE bus bars.
- Emporia Vue Energy Monitor mounting provisions shall not be attached to any energized part.
- Voltage sensing and power supply connections to the primary voltage shall have overcurrent protection through connection to a breaker/MCB.

Before you get started

The Emporia Vue is installed in a home's electrical panel. The main breaker will need to be set to the off position, which will shut off all of the power in the home. **However, the service mains will remain energized and dangerous.** The following may help with safe installation.

- Installation should be performed by a skilled person such as a licensed electrician or other qualified professional
- Install in accordance with the regional electrical code where it is being installed
- Ensure that the product specifications of the Vue are compatible with the system and the panel type where it is being installed.
- Identify the location of service disconnect. It may be outside of the panel.
- Ensure the work environment is clean with additional lighting available.
- Identify empty breakers or breakers that can be tapped for voltage monitoring. The number required corresponds to the system phases.
- The following items are recommended:

Insulated gloves



Phillips and flathead screwdrivers

Protective eyewear

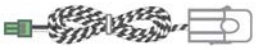
Alternative light source

What's in the box

The Emporia Vue contains the following items. **If any of these items are missing or if you believe they've been damaged, contact support immediately.**

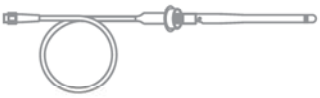
Vue energy monitor

Two or three (depending on bundle) Main 200A current transformers (CTs) with 22 AWG wire and 5mm screw terminal plugs



0, 8, or 16 (depending on bundle) Branch 50A current transformers (CTs) with 22 AWG wire and 3.8mm screw terminal plugs

Wire harness with 7.6mm screw terminal plugs and 4x16AWG wire leads



WiFi antenna assembly

Two or three (depending on bundle) wire nuts and three 14 AWG, 600V splicing wires

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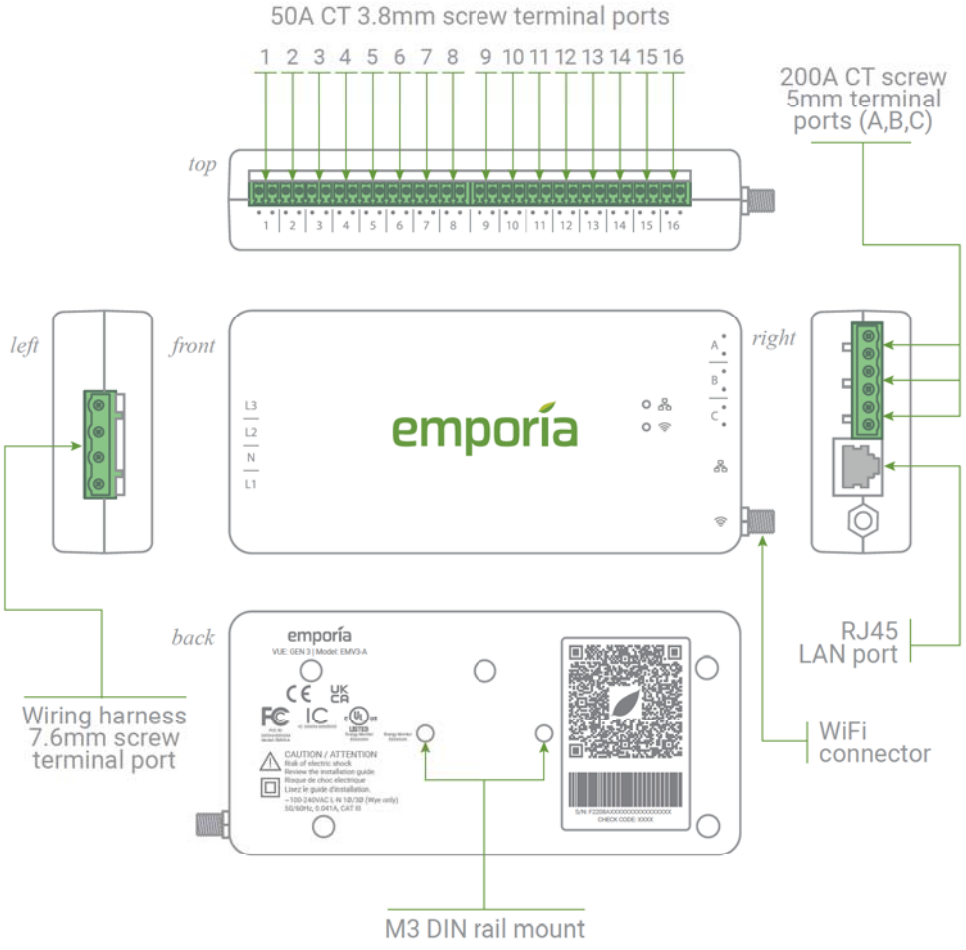
Energy monitor connections

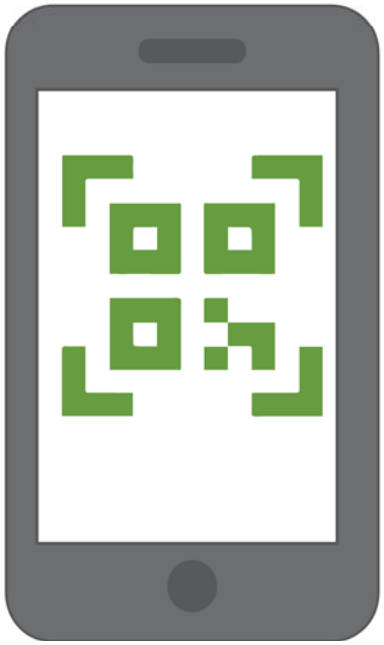
The energy monitor is the hub of the Emporia Vue. The screw terminal port for the wiring harness is located on the left-hand side of the monitor. The screw terminal ports across the top of the monitor are the inputs for the 50A Branch Current Transformers (CTs) (the bundle may have come with 8 or 16 CTs, or none at all). The A, B, and C screw terminal ports on the right side of the monitor are the inputs for the 200A Main CTs (the bundle may have shipped with two or three). The RJ45 LAN port and coaxial connector for the WiFi antenna cable are also on the right hand side of the monitor. All of the ports are clearly labeled on the energy monitor.



Step 1: Get the app

Use the camera on your phone to scan the unique QR code located either on the **back of the Vue** energy monitor or on the **Getting Started Guide** included in the box. This QR code will both download the **Emporia Energy app** onto a phone or tablet from the Apple App Store or Google Play and start the Vue setup process. Once the app is downloaded, you'll be prompted to **create an account** if you don't have one.

Also, if you plan to connect the Vue to the internet via Wi-Fi, this is a great time to use a phone to check the signal strength of the Wi-Fi network next to the electrical panel in the home. Low/no signal may require a Wi-Fi extender or an ethernet connection for the Vue to work properly.

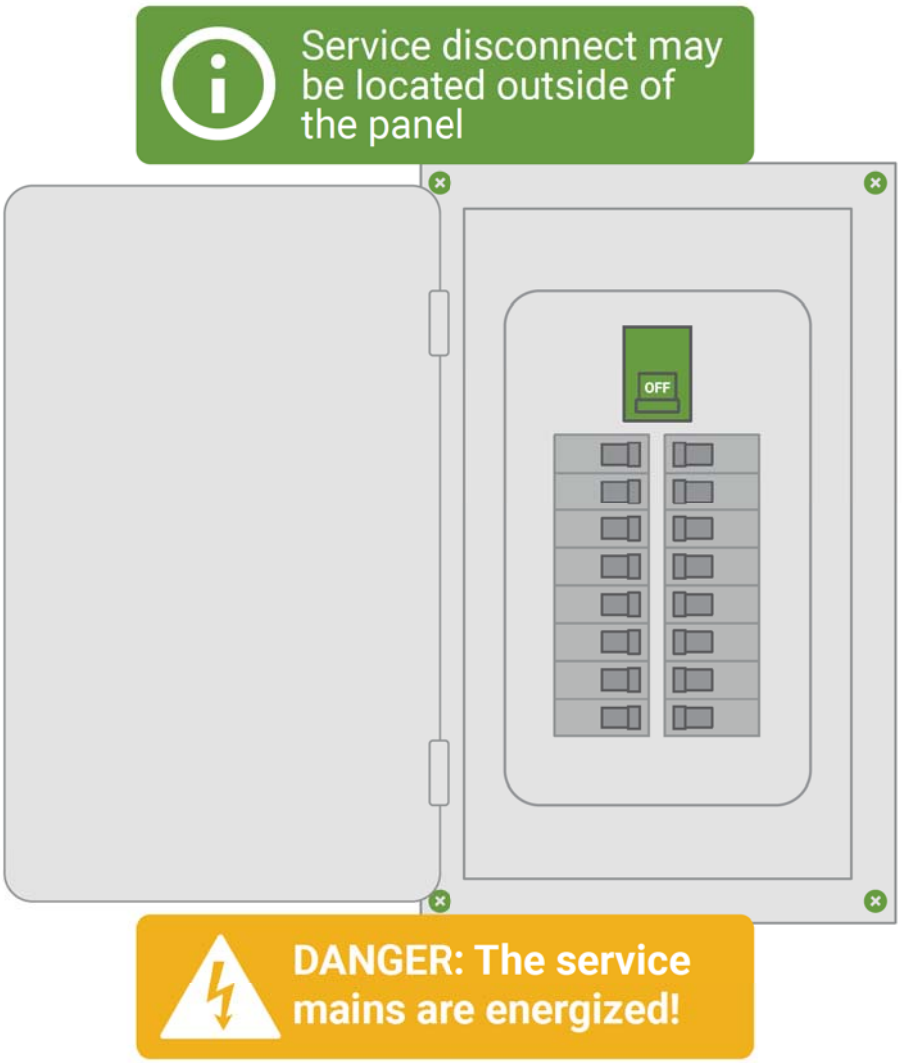


Download on the App Store

GET IT ON Google Play

Step 2: Turn off the main breaker and remove the cover

In the electric panel, turn the main breaker to the off position, although it may be located elsewhere in the house or there may not even be one. This turns off all the circuits in the home. Next, remove any screws holding the cover to the panel and remove the cover to access the circuit breakers and **the energized service mains!**



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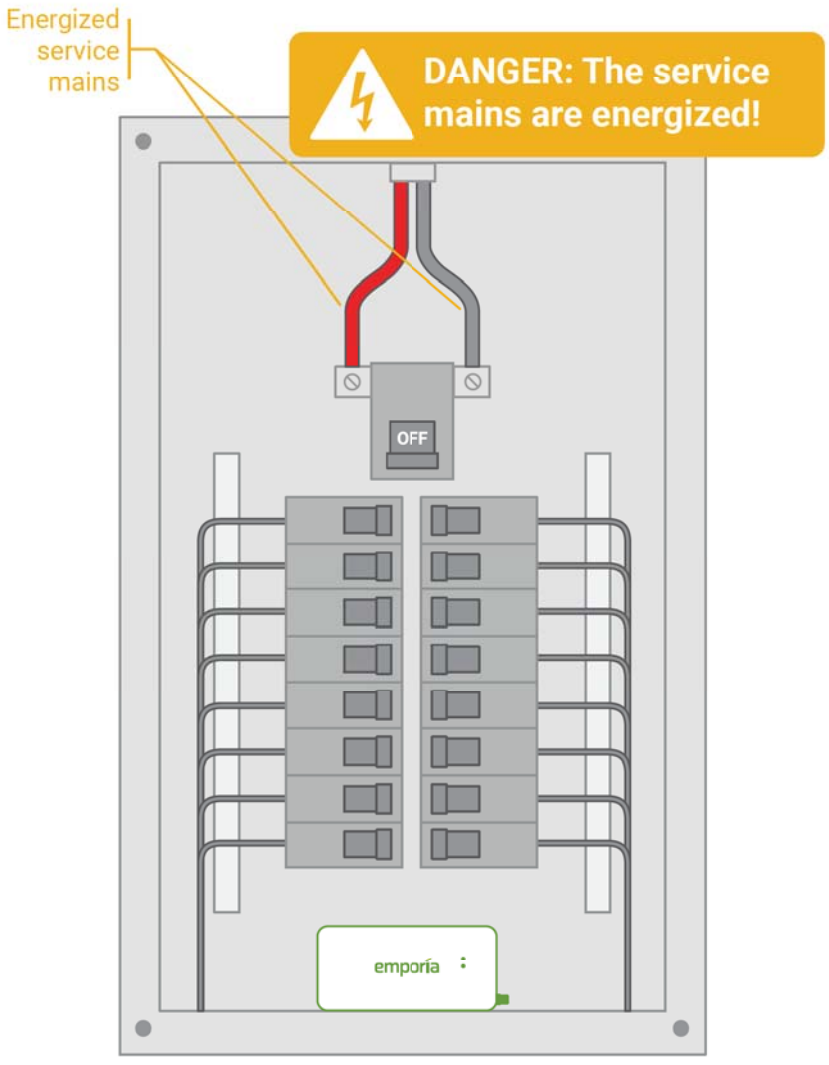
Step 3: Find a place for the monitor

Locate a place within the electrical panel for the Vue energy monitor **ensuring it is at least 50.8mm (2 in) from any live parts** including primary conductors, primary terminals, and primary lugs; but excluding insulated cables. The breaker box may be oriented differently than below, but the monitor is small and designed to fit easily in the box. Find a place that works. If the Vue is to be mounted on a DIN rail, the monitor has two threaded screw holes to attach mounting hardware using two M3 screws and lock washers (sold separately).

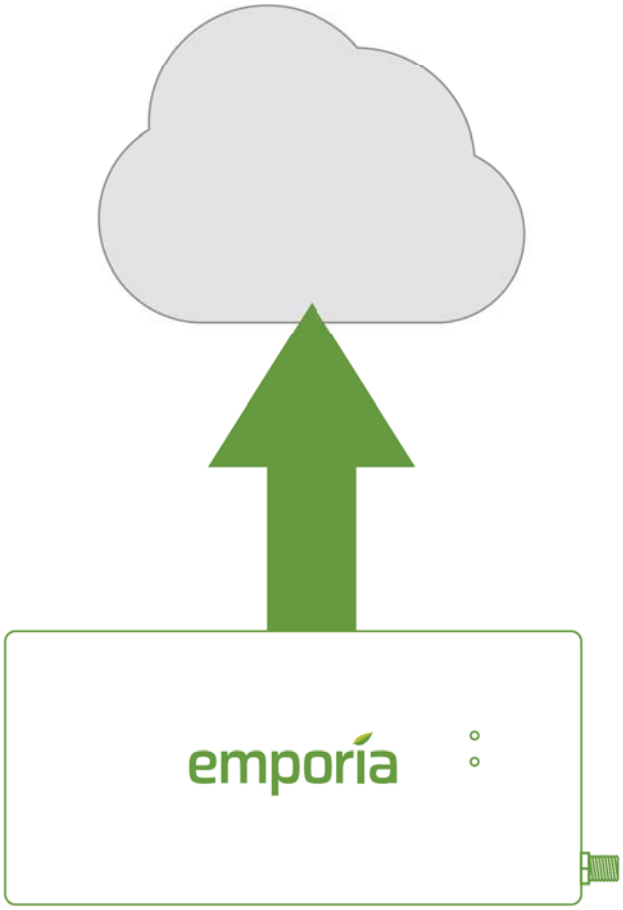


Step 4: Prepare for Internet connection

The Vue is capable of connecting to the internet either via a wired LAN connection, a Wi-Fi connection, **or both**. If both are implemented, the Vue will prioritize wired LAN. If a wired LAN is unavailable, the Vue will attempt to connect over Wi-Fi. Choose the preferred method(s) and go to the corresponding step below.

Step 4(a): Prepare for wired LAN connection

Step 4(b): Prepare for Wi-Fi connection



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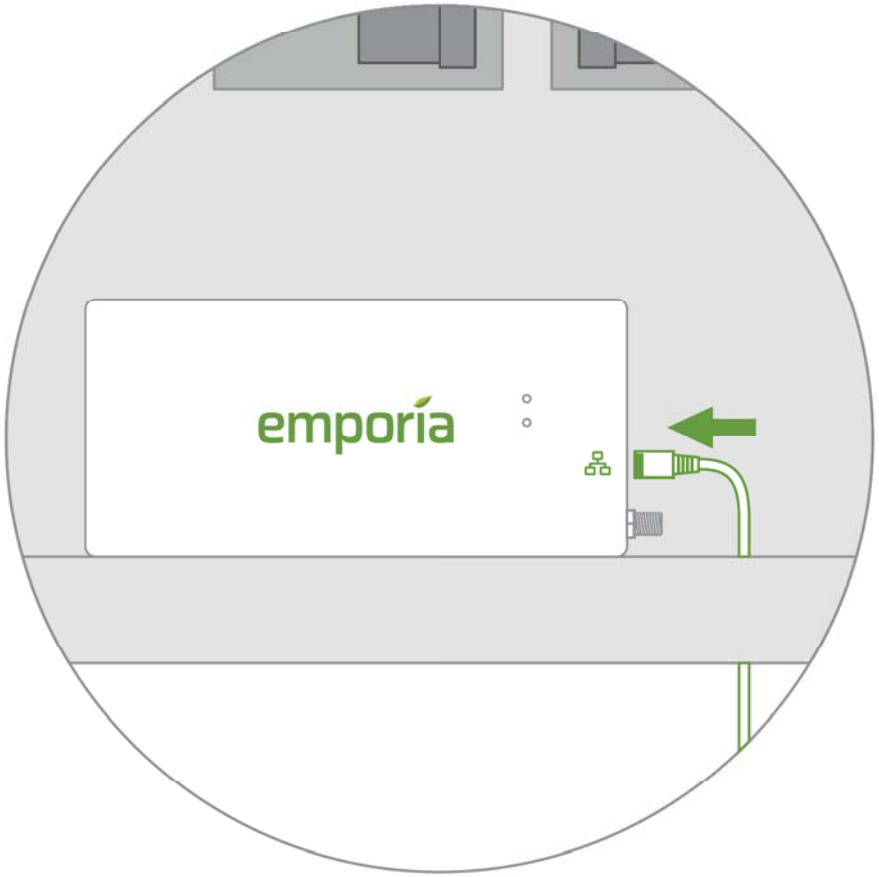
Step 4(a): Prepare for wired LAN connection

This step is to prepare for a wired internet connection. To connect to the internet wirelessly via Wi-Fi, see **Step 4(b)**. Run a Cat5e or higher ethernet cable with an RJ45 connector from a router, switch, or modem to the electrical panel. Then, use a screwdriver to remove a knockout from the electrical panel. Next, feed the cable through the hole to the Vue and plug it in the socket on the right-hand side of the energy monitor marked 品.



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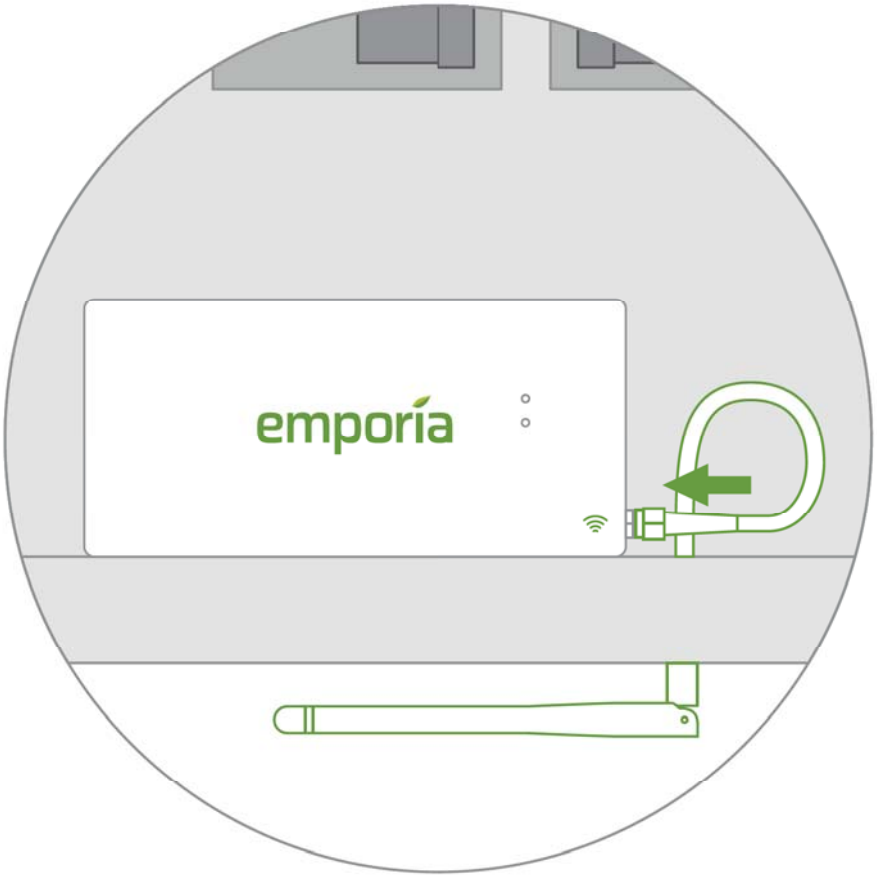
Step 4(b): Prepare for Wi-Fi connection

This step is to prepare for a wireless internet connection. To connect to the internet via wired LAN, see **Step 4(a)**. Use a screwdriver to remove a knockout from the electrical panel. Now, feed the antenna through the hole. Then, Screw the antenna assembly cable to the right-hand side of the energy monitor in the coaxial connector marked . Finally, plug the hole with the knockout plug. It's acceptable to install the antenna inside of a wall.



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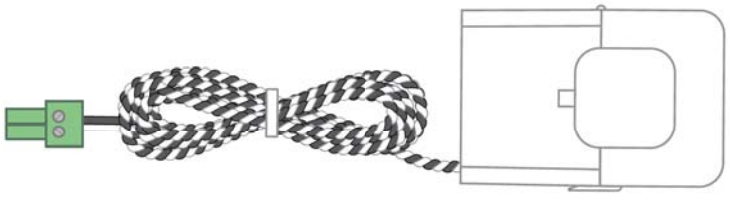
Step 5: Installing the Main current transformers

The Main CTs will attach to the incoming live mains. **They should not be used on neutral lines**. They will be installed differently depending upon whether or not the home has solar and how that solar system is connected to the electrical system. The Vue will be installed differently depending on whether the solar is a breaker-fed or a line-side tap installation. The Main CTs that connect to the mains will provide net metering out of the box — displaying electricity used minus electricity produced. These installations are covered in the subsequent pages. To monitor electricity used and electricity produced separately, Branch CTs will be used as described in **Step 8**.

- **Step 5(a): No solar Main CT**
- **Step 5(b): Breaker-fed solar Main CT**
- **Step 5(c): Line-side tap solar Main CT**



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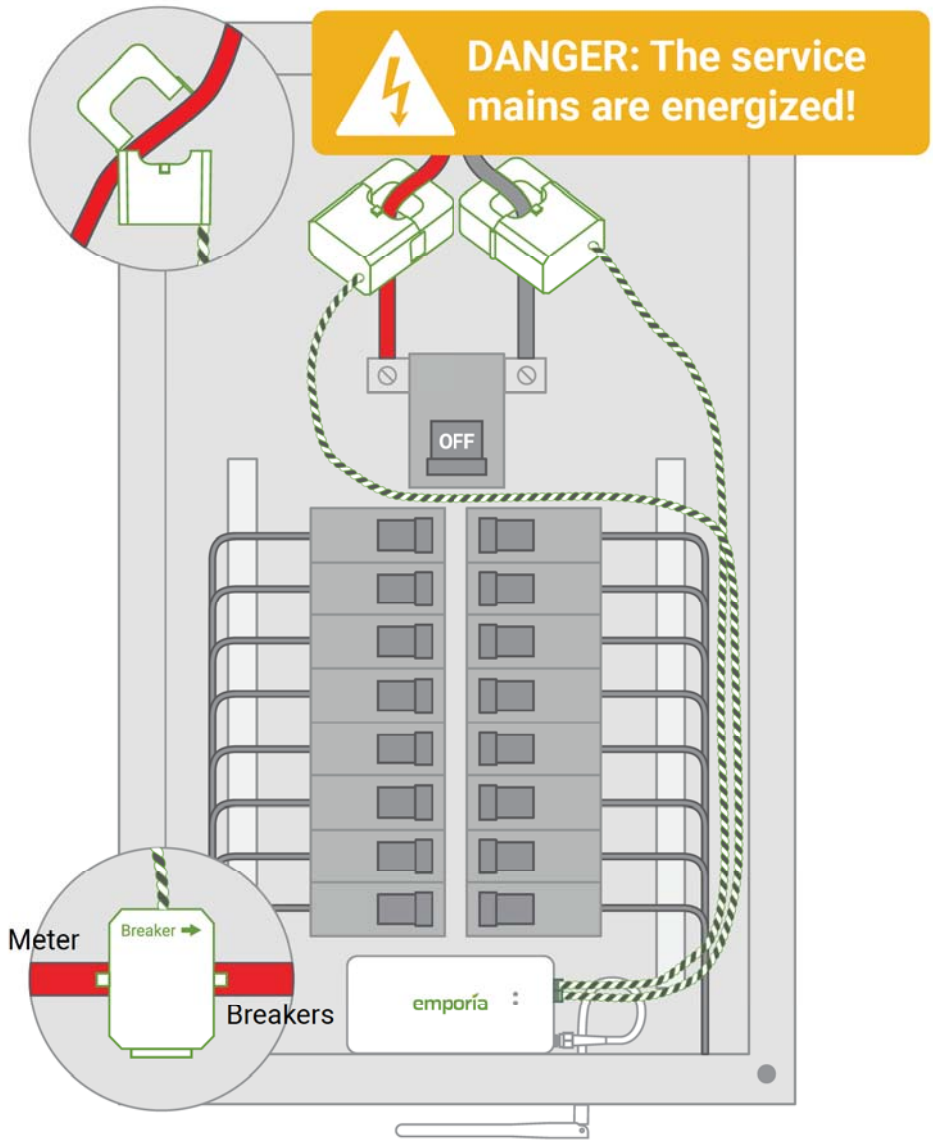
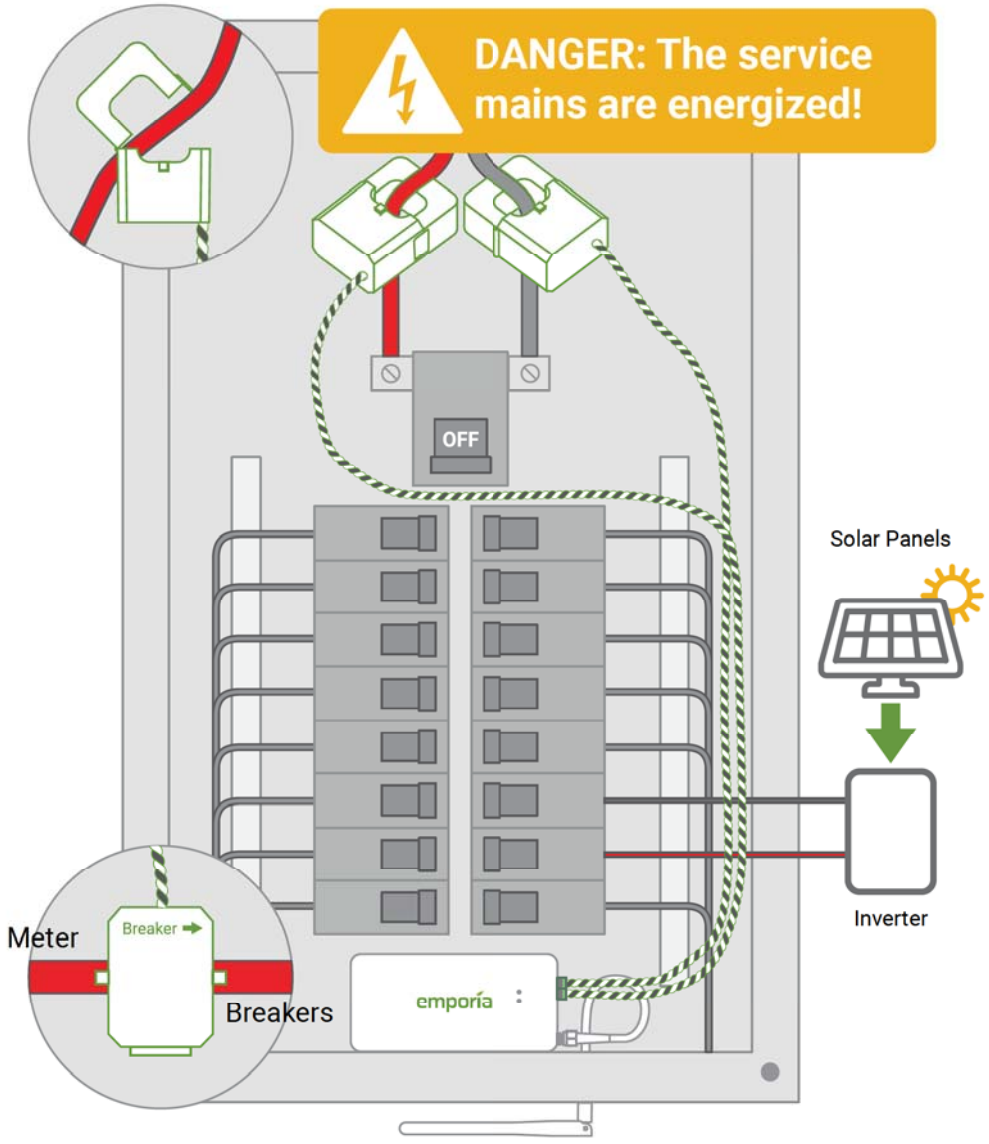
Step 5(a): No solar
Main CT installation

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! The Breaker → imprint on the bottom of the CTs should point toward the breakers**. Finally, insert the screw terminal plugs into the ports on the right side of the monitor. **To avoid clutter**, unscrew the 22 AWG wires from the screw terminals, cut them to size, and reattach them ensuring the black and white wires match the icons on the front of the Vue.



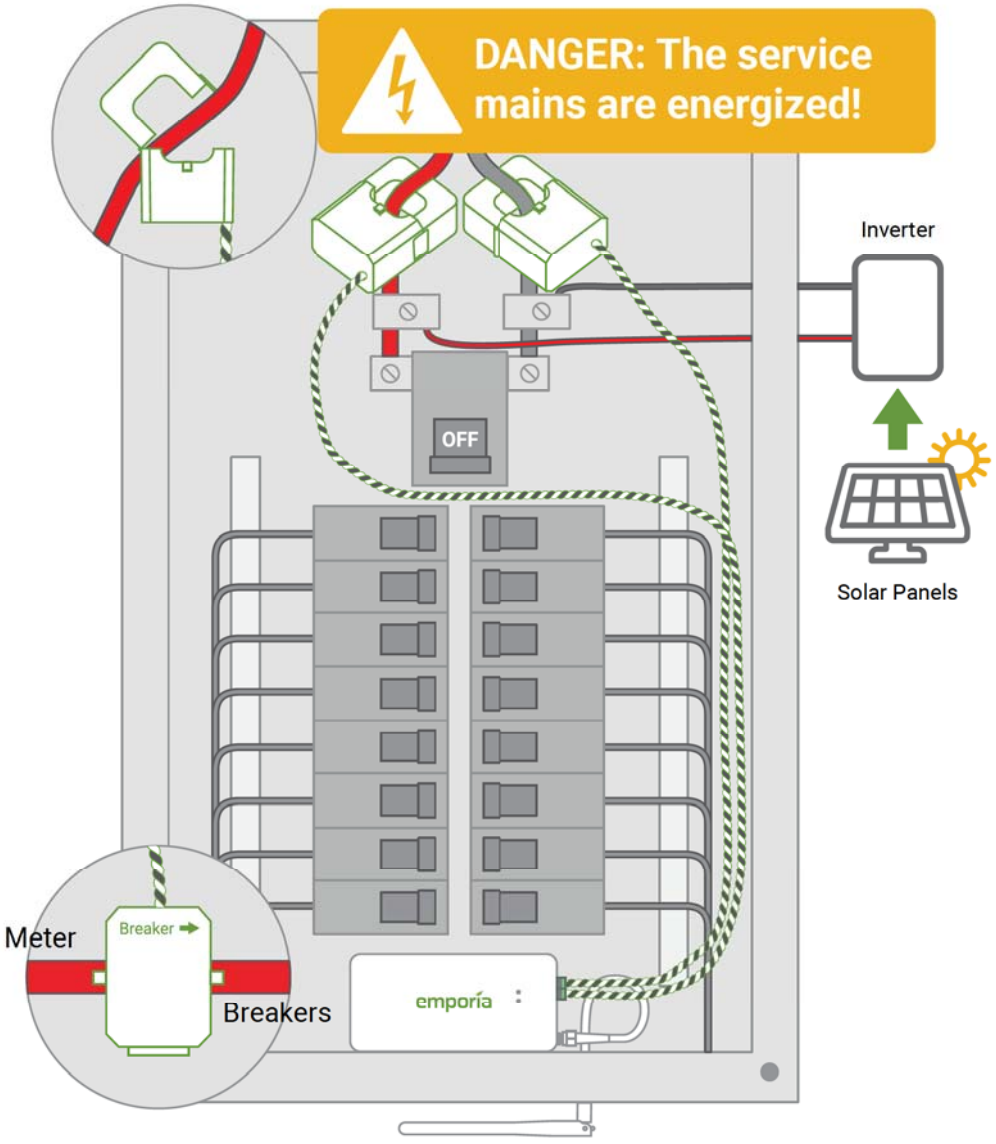
Step 5(b): Breaker-fed solar Main CT installation

Open the clasps on the CTs and place each clamp around one of the main service cables **between the meter and the main breaker**. Then, shut the clasps to secure the CTs. **IMPORTANT! The Breaker → imprint on the bottom of the CTs should point toward the breakers.** Finally, insert the screw terminal plugs into the ports on the right side of the monitor. **To avoid clutter**, unscrew the 22 AWG wires from the screw terminals, cut them to size, and reattach them ensuring the black and white wires match the icons on the front of the Vue.



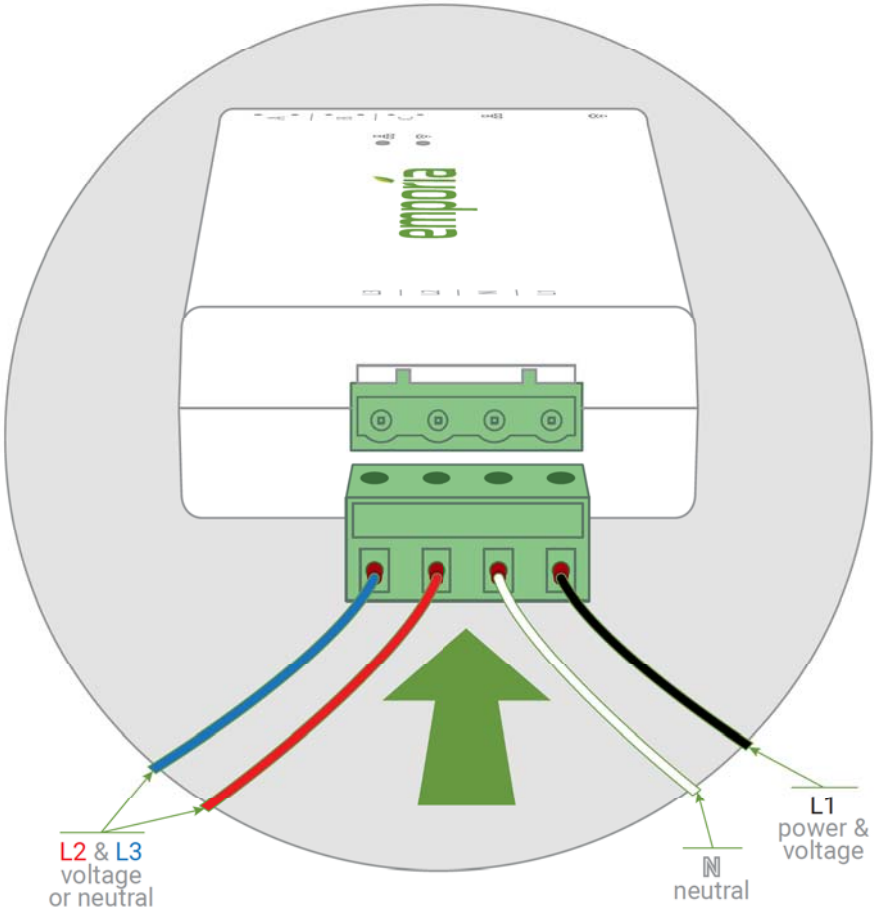
Step 5(c): Line-side tap solar Main CT installation

Open the clasps on the CTs and place each clamp around one of the main service cables **between the utility meter and incoming line-side inverter taps**. Then, shut the clasps to secure the CTs. **IMPORTANT! The Breaker → imprint on the bottom of the CTs should point toward the breakers**. Finally, insert the screw terminal plugs into the ports on the right side of the monitor. **To avoid clutter**, unscrew the 22 AWG wires from the screw terminals, cut them to size, and reattach them ensuring the black and white wires match the icons on the front of the Vue.



Step 6: Plug in the voltage sensing wire harness

Insert the 7.6mm screw terminal plug of the power supply wiring harness with four 16 AWG wire leads into the port of the left side of the energy monitor until it clicks into place securely. These wires can also be cut to length to reduce panel clutter. The wire harness allows for single-phase power and three-phase voltage sensing: **Black (L1)** provides power and voltage sensing, White (N) connects to Neutral, and **Red (L2)** and **Blue (L3)** provide voltage sensing only (if applicable).



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Step 7: Connect the wire harness to a breaker and neutral bus

The voltage sensing wire harness will be connected differently depending on whether or not there are an adequate number of empty 15A breakers as well as the number of Main CTs installed in **Step 5**. Go to the step below based on the system. If you're unsure, contact Emporia Support and we'll help you through it.

Step 7(a) Common in N. American homes

- Two empty breakers
- Two Main CTs

Step 7(b) Common in N. American homes

- No empty breaker
- Two Main CTs

Step 7(c) Common in European 3-phase homes
Common in N. American Commercial systems
Uncommon in N. American homes

- Three empty breakers
- Three Main CTs

Step 7(d) Common in European 3-phase homes
Common in N. American Commercial systems
Uncommon in N. American homes

- No empty breaker
- Three Main CTs

Step 7(e) Common in European 1-phase homes
Uncommon in N. American homes

- One empty breaker
- One Main CT

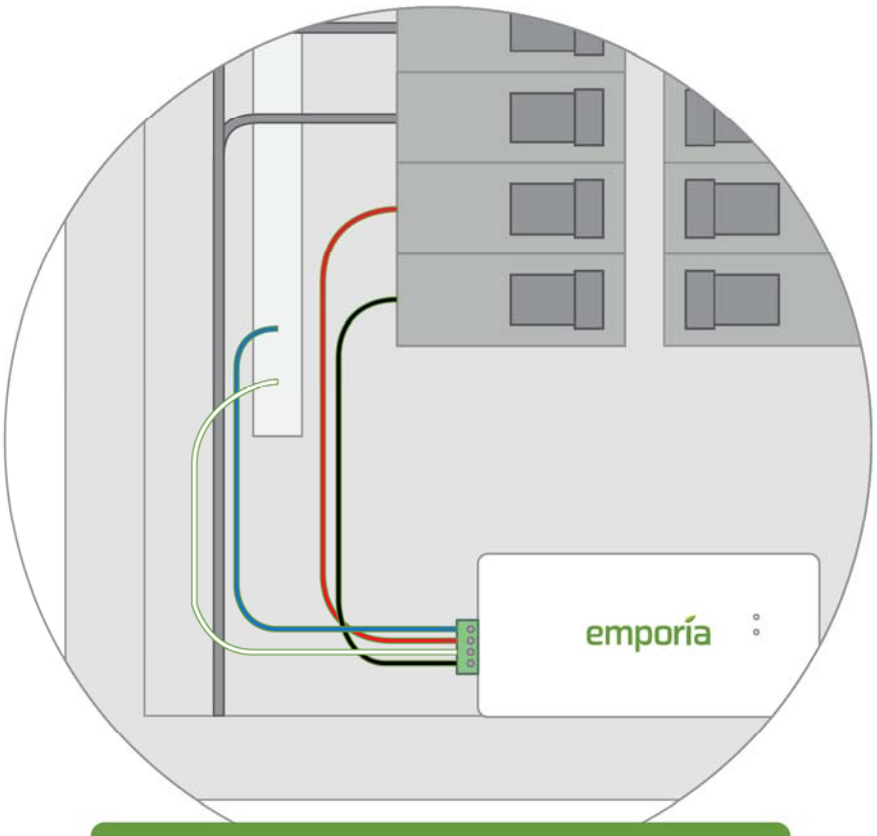
Step 7(f) Common in European 1-phase homes
Uncommon in N. American homes

- No empty breaker
- One Main CT

Step 7(a): Two empty breakers and two Main CTs

Common in N. American homes

Secure the White (N) and **Blue (L3)** wires from the wire harness to the neutral bus bar. Turn off two vertically adjacent (stacked) single pole breakers and secure the **Black (L1)** and **Red (L2)** wires from the harness to each of the hot leads from each breaker.



Any empty breaker size can be used in this scenario (not limited to 15A)

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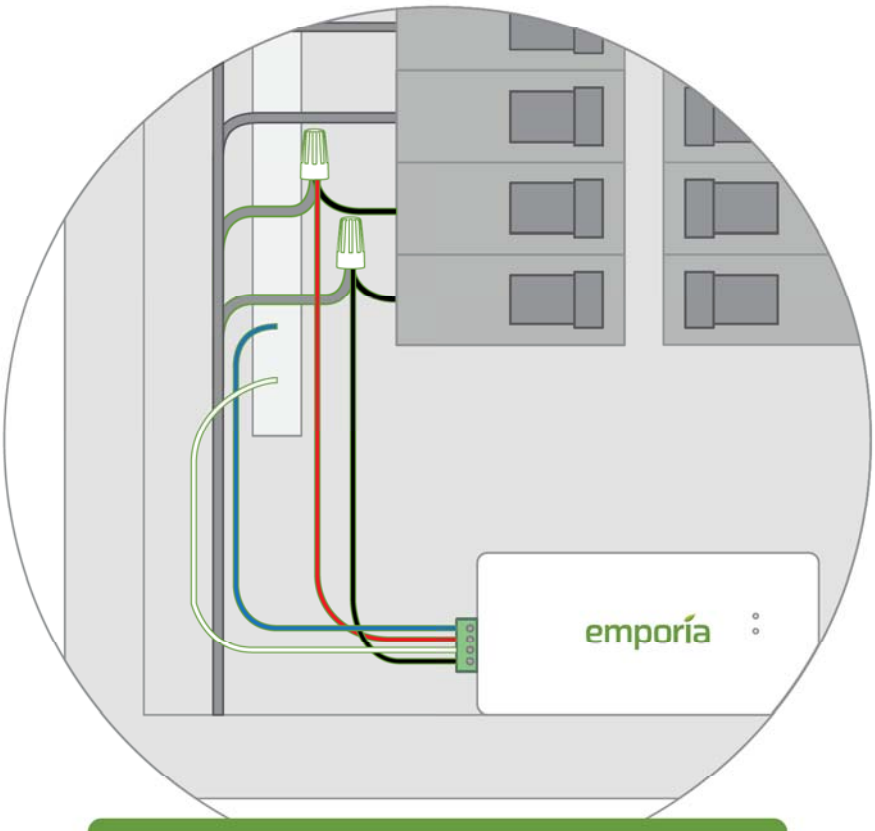
Step 7(b): No empty breaker and two Main CTs

Common in N. American homes

Secure the White (N) and **Blue (L3)** 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 (L1)** harness wire and a splicing wire with a wire nut. Next, connect the second breaker wire to the **Red (L2)** harness wire and a splicing wire with a wire nut. Then secure each of the extra wires to the two breaker poles.

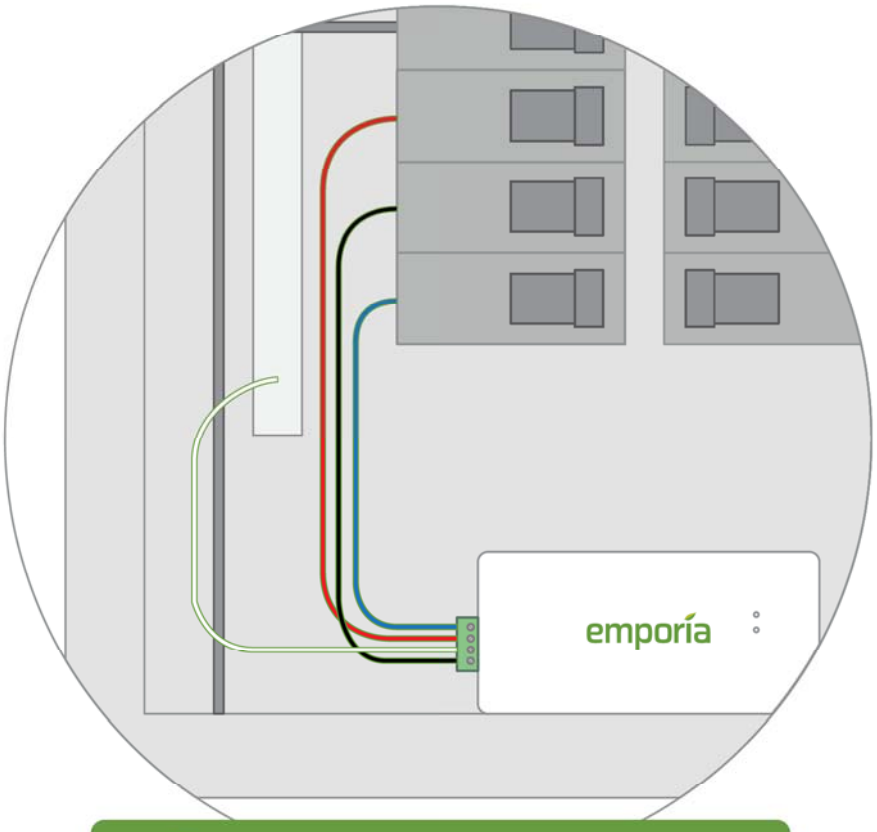


A larger amp breaker may be used if the gauge of the splicing wire matches the existing gauge wire from the breaker meeting the national and regional codes

Step 7(c): Three empty breakers and three Main CTs

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

Secure the White (N) wire from the wire harness to the neutral bus bar. Turn off three vertically adjacent (stacked) single pole breakers and secure the **Black (L1)**, **Red (L2)**, and **Blue (L3)** wires from the harness to each of the hot leads from each breaker.



Any empty breaker size can be used in this scenario (not limited to 15A)

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