



SimplMeter

INSTALLATION AND COMMISSIONING MANUAL

v 1.0

ABOUT THIS MANUAL

Purpose

The purpose of this manual is to provide information, explanations, and guidance for the installation, operation, and maintenance of SimplBox.



Audience

This manual is intended for a professional electrician, technician, or otherwise qualified personnel for the purpose of installing, commissioning, and operating SimplMeter. All personnel using this manual must be trained and certified, along with being familiar with all local and national electrical and construction codes relating to the installation of this equipment. All persons involved in any way with installing, commissioning, turning on, servicing, and maintaining this equipment must:

- Read this instruction manual thoroughly and follow the instructions to the letter.
- Be suitably qualified.
- Have sound knowledge or working, and dealing, with electrical installations.

This equipment has been manufactured in accordance with state of the art and general safety engineering principles. Nevertheless, incorrect operation or misuse may still endanger:

- The life and well-being of the installer, operator, and third parties.
- The equipment and other tangible assets belonging to the installer, operator, and owner.
- Working efficiency of the equipment.

All the safety instructions, warning signs, and labels on the equipment itself:

- Must be kept in a legible condition.
- Must not be damaged.
- Must not be removed or relocated such that they alter the intent of the warning.
- Must not be covered, hidden, or painted over.

Any malfunction(s) that may impair the safe operation of SimplMeter must be remedied immediately, and before, SimplMeter is turned on.

Disclaimer of Liability

Since the use of this manual and the conditions or methods of installation, operation, use, and maintenance of SimplMeter is beyond the control of Simpl Global, Inc., Simpl Global does not assume responsibility, and expressly disclaims liability, for loss, damage, or expense, whether direct, indirect, consequential, or incidental, arising out of, or in any way connected with installation, operation, use, or maintenance. Due to the continuous improvements and product updates, the images shown in this manual may not exactly match the unit purchased.

Restrictions on Use

SimplMeter shall not be relied upon for use with life support systems, life-saving equipment, or any other medical equipment or devices. Using SimplMeter with this particular type of equipment is at your own risk.

SIMPLMETER PRODUCT DESCRIPTION

SimplMeter is a networked electricity measurement and monitoring system designed specifically for commercial and industrial applications where a large number of loads and lines must be monitored .

Multiple SimplMeters automatically mesh with each other in a spontaneously-formed network and report measurements to Simpl's servers where data is mined and viewed using Simpl's web-based user interface software.

SimplMeter is easily paired with Simpl4G to communicate with a 4G cellular network instead of or in addition to WiFi. This is especially important in cases where customer's networking facilities may not be available.

SimplMeter is also paired with SimplSwitch in cases where demand charges must be controlled and optimized.



INSTALLATION OVERVIEW

SimplMeter is constructed using an engineered plastic that is outdoor-rated, and UV-resistant with the highest flammability rating available.

SimplMeter measures:
2"x2"x1.5".

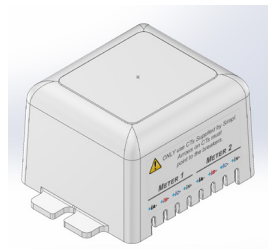
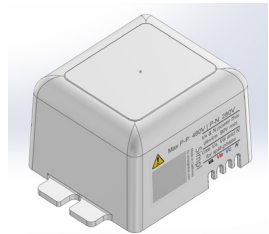
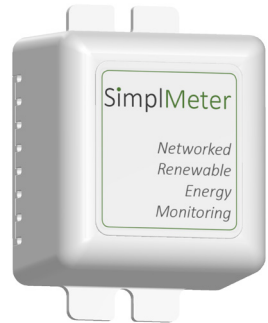
SimplMeter is completely sealed and may be installed indoors or outdoors, on any flat surface or on a DIN rail.

It had two tabs that are used for attaching the unit to the switch gear or inside a main panel.

High voltages are present during the installation process. Only certified and licensed electricians may install SimplMeter.

On the two longer sides of SimplMeter, you will find the electrical connections:

- Voltage side
- Current Side



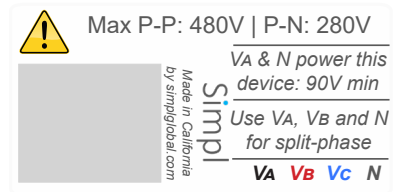
VOLTAGE SIDE CONNECTIONS. 1

The voltage side has four wires. Three phases and Neutral.

Clearly if you are dealing with a single phase or a split-phase system, you do not need the additional phase and leave the wires, unattached.

Otherwise, connect the voltage lines to the appropriate phase. The best way of doing this is to connect them directly to the load side of one of your breakers.

Otherwise, use wire nuts supplied or other methods of voltage connection as deemed appropriate by the installation electrician.



VOLTAGE SIDE CONNECTIONS.2

Tip: If deemed appropriate by your local codes and the licensed electrician in charge of the installation, it is often best to connect the voltage lines to the load side of the renewable energy breaker. This allows for easy installation of SimplMeter without disconnecting any of the building loads.

Remember that you would need at least one phase and neutral connected. Otherwise, SimplMeter would not be powered and will not function.

At least 90 Vrms on VA to power the SimplMeter.

Max voltages are 480V L-L and 280V L-N.

The serial number for the unit is attached to the side. The software interface for SimplMeter recognizes it by specifying the serial number at the time of commissioning. More on this later.

CURRENT SIDE CONNECTIONS.1



The Current Side of SimplMeter, has connections to current sensors which are referred to as Current Transformers or CTs.

Since SimplMeter is equipped with two channels, therefore there are two sets of CT connections available:

- Meter 1
- Meter 2

Up to four CTs are connected to each Meter: Three for up to three phases and a CT for the neutral line, in rare cases when that is needed.

SimplMeter is equipped to connect up to three rogowski rope CTs with a window diameter of 1" or 4" shown here.

Residential systems have the 1" rope CTs and commercial systems use the 4" model.

ONLY use CTs Supplied by Simpl.

Arrows on CTs must point to the breakers.

+IA-

+IN-

METER 1

METER 2

+IB- +IC- +IN- +IA- +IB- +IC-



Two, 1"-window CTs used for residential applications



Three, 4"-window CTs used for commercial applications

CURRENT SIDE CONNECTIONS.2

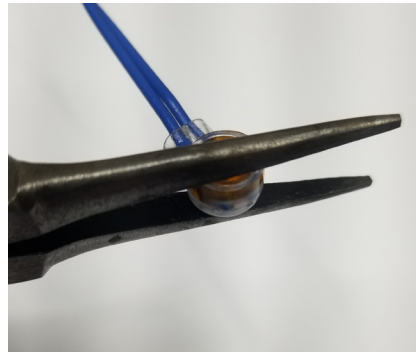
Important Consideration:

By default, SimplMeter is setup as a renewable energy meter. As such, Meter 1 measures grid power and Meter 2 measures renewable energy (solar) power.

We recommend that you install Meter 1 CTs to the point of grid entry into the building immediately after the utility meter and connect Meter 2 CTs to the point where the solar/battery combination enters the main panel.

To Connect CTs to SimplMeter:

1. Insert blue wire from CTs and the blue wire from SimplMeter (for the correct phase and the correct Meter) into the micro-connectors provided.
2. Make sure both wires are inserted all the way in.
3. Press down on the button on the micro-connector gently to make sure the two wire are connected.
4. Repeat for the white wire as well.
5. Repeat for all CTs.



CURRENT SIDE CONNECTIONS.3

There are three especially important things to remember about CT installation:

1. Use ONLY CTs that are provided by Simpl.
2. The installation direction matters. The arrows on the CTs must always point to the breaker or to the loads.

The easiest way to determine if directionality was followed properly, check the power factor for each phase. It must be POSITIVE. A negative power factor means that the CT direction is incorrect.

3. The CT for each phase must be installed on the same phase where the voltage lines were connected. The color for each phase voltage on the Voltage Side label should match that of the CT connection on the Current Side Label.



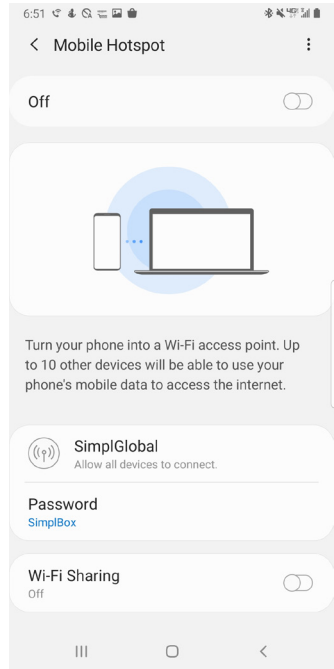
CONNECT WITH Wi-Fi: STEP 1

When SimplMeter is first powered on, it looks for a WiFi access point with the following credentials:

- SSID: SimplGlobal
- password: SimplBox

To simplify the installation, it would be best for the installer to configure her phone's hotspot capabilities accordingly by following these steps:

1. Got to your phone's setting > Connections > Mobile Hotspot and Tethering.
2. Do not turn on tethering yet, instead click on where your phone is listed.
3. Change Network Name to: SimplGlobal (notice that this is case-sensitive and note Capital S and Capital G).
4. Change password to: SimplBox (notice that this is case-sensitive and note Capital S and Capital B).
5. Turn on Tethering.



CONNECT WITH WI-FI: STEP 2

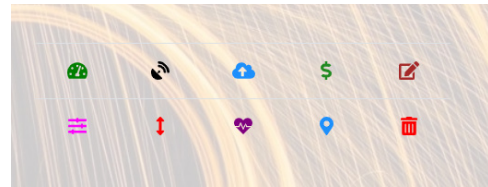
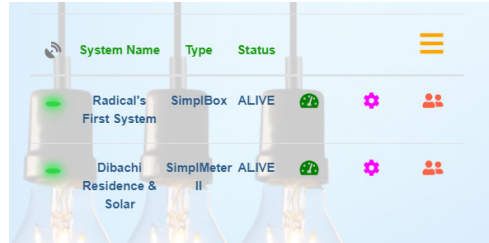
At this point if SimplMeter is powered on, it will connect to Simpl's servers and start reporting voltage, current and power data.

However, SimplMeter is connecting through your phone. This means that once you leave, SimplMeter would no longer be connected.

1. Ask the host client/customer to provide their access point information: SSID and Password.
2. Go to Simpl Global's website (<https://simplglobal.com/>) and click on the "Login" in the upper right-hand corner.
3. Log in with your credentials.
4. Find the system that is being commissioned in your list of systems. If you do not see this system in your list, this means that you have not yet registered the system, see the section on System Registration. Please note that to register a new system, you must be logged in as your company's Admin.

CONNECT WITH Wi-Fi: STEP 3

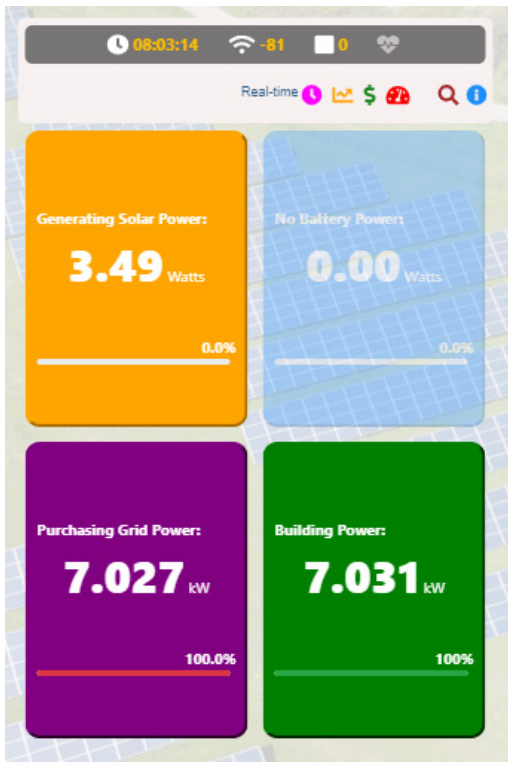
- Click on the Settings gear for the system that is being commissioned.
- Click on the blue cloud (with an up arrow in it).
- From the drop-down menu select Update WiFi SSID & PSWD
- Enter the SSID and Password for the client's site's WiFi access point.
- Click on Initiate Update.
- If you have spelled everything correctly, the system will reset itself and then automatically reboot and within 30 to 60 seconds start running on client Wi-Fi system.



SUCCESS!

Once you have completed the installation process, go back to the screen showing a list of the systems. Click on the green button for the system that was just installed and you'd be able to see the Simpl Dashboard.

To check to make sure that the system is communicating with servers, the heart symbol must beat once per second if connected via WiFi and once every 15 seconds if connected through 4G.



WHAT IF SIMPLMETER DOES NOT CONNECT?

What happens if you have spelled either the SSID or the password incorrectly?

What if the client's Wi-Fi system does not exist or ceases to be there (for example, it is unplugged by the client)?

In these situations, it is important to be able to start over and we follow the 5-Minute Rule:

If you have for any reason entered an invalid SSID or password, the SimplMeter memorizes this information and for 5 minutes tries to connect to this access point.

If not successful within 5 minutes, it reverts to SSID being SimplGlobal and the password being SimplBox.

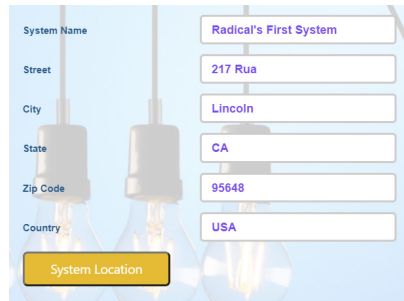
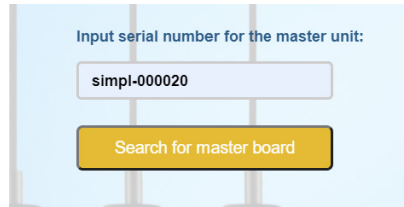
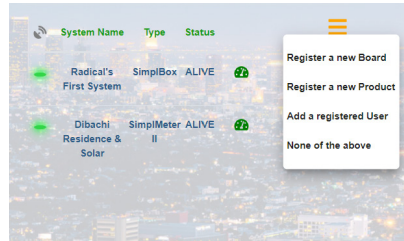
This means that once you turn tethering back on, your phone will gain access to the unit if at least 5 minutes has passed by.

Likewise, if SimplMeter is Power-on reset, if not successfully connected in 5 minutes using the previously entered customer's access point SSID and password, they will revert to SimplGlobal and SimplBox, respectively.

SYSTEM REGISTRATION

To register a new system to your company, follow these steps:

1. Login as your company's Admin.
2. You will be presented with a set of systems that are currently registered to your company.
3. Click on the menu (hamburger button) immediately above the list of systems.
4. Select Register a new Product.
5. You will be asked to enter the Serial Number which is on the Voltage Side of SimplMeter. Type is the entire serial number. Be sure to use all lower-case.
6. Simpl's servers automatically find and register the system under your company.
7. This is where you can name the system and specify its address. Once the system is named, it will show up on the list of your systems under its name.



SimplMeter

IS MADE IN
CALIFORNIA

BY

SIMPL GLOBAL, INC.

Simpl.