

## Savant® Standalone Energy Monitor Deployment Guide

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This guide describes the process for installing, configuring, and adding a Savant Energy Monitor to a RacePoint Blueprint™ configuration. Savant Energy Monitors are connected to a home's existing electrical panel using clip-on current transformers, and to the Savant Host via the local network. They allow the user to monitor all aspects of energy usage including heating, appliances, lighting, and more. Savant Energy Monitoring can provide data on the home's overall energy use and production that is viewable any time - locally or remotely.

 **IMPORTANT!** This guide focuses on deploying a Savant Energy Monitor for use in the Savant Pro App.

Products supported by this guide include:

- SmartEnergy Monitor [SEM-1024]
- Savant Standalone Energy Monitor [SEM-2015]

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## Important Safety Information - Read First



Before installing, configuring, or operating any equipment, Savant recommends that each dealer, integrator, installer, etc. access and read all relevant technical documentation. Savant technical documentation can be located by visiting Savant.com. Vendor documentation is supplied with the equipment.

**Read and understand all safety instructions, cautions, and warnings in this document and the labels on the equipment.**


### Safety Classifications In this Document

<b>NOTE:</b>	Provides special information for installing, configuring, and operating the equipment.
 <b>IMPORTANT!</b>	Provides special information that is critical to installing, configuring, and operating the equipment.
 <b>CAUTION!</b>	Provides special information for avoiding situations that may cause damage to equipment.
 <b>WARNING!</b>	Provides special information for avoiding situations that may cause physical danger to the installer, end user, etc.

### Electric Shock Prevention

 <b>ELECTRIC SHOCK!</b>	The source power poses an electric shock hazard that has the potential to cause serious injury to installers and end users.
 <b>ELECTRICAL DISCONNECT:</b>	The source power outlet and power supply input power sockets should be easily accessible to disconnect power in the event of an electrical hazard or malfunction.

### Weight Injury Prevention

 <b>WEIGHT INJURY!</b>	Installing some of the Savant equipment requires two installers to ensure safe handling during installation. Failure to use two installers may result in injury.
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## Safety Statements

All safety instructions below must be read, understood, and carefully followed under all applicable circumstances when working with any Savant equipment.

1. Follow all input power ratings marked on product near power input!
2. If fuse replacement is required, replacement fuse should match fuse rating marked on the product.
3. Do not use equipment near water.
4. Clean only with dry cloth.
5. Do not block any ventilation openings or install near any heat sources such as heat registers, stoves, radiators, amplifiers, etc.
6. Refer all servicing to qualified service personnel. Servicing is required when any part of the apparatus has been damaged in any way, or fails to operate normally for any reason.
7. Use only attachments/accessories specified by the manufacturer, following all relevant safety precautions for any such attachments/accessories.
8. For applicable equipment, use the included power cord with the grounding prong intact to insure proper grounding of the device.
9. If the provided plug does not fit the desired outlet, contact a licensed electrician to replace the obsolete outlet.
10. Protect any power cord from being walked on, pinched, strained, or otherwise potentially damaged, especially at the outlet or device connections.
11. Disconnect any outlet powered apparatus from its power source during lightning storms or when unused for long periods of time.
12. To completely disconnect equipment from AC mains power, disconnect the power supply cord plug from the AC receptacle on the device.
13. For any hardwired or fixed in-wall apparatus, carefully follow all wiring diagrams and instructions. All electrical wiring and servicing should be performed by a properly licensed electrician.

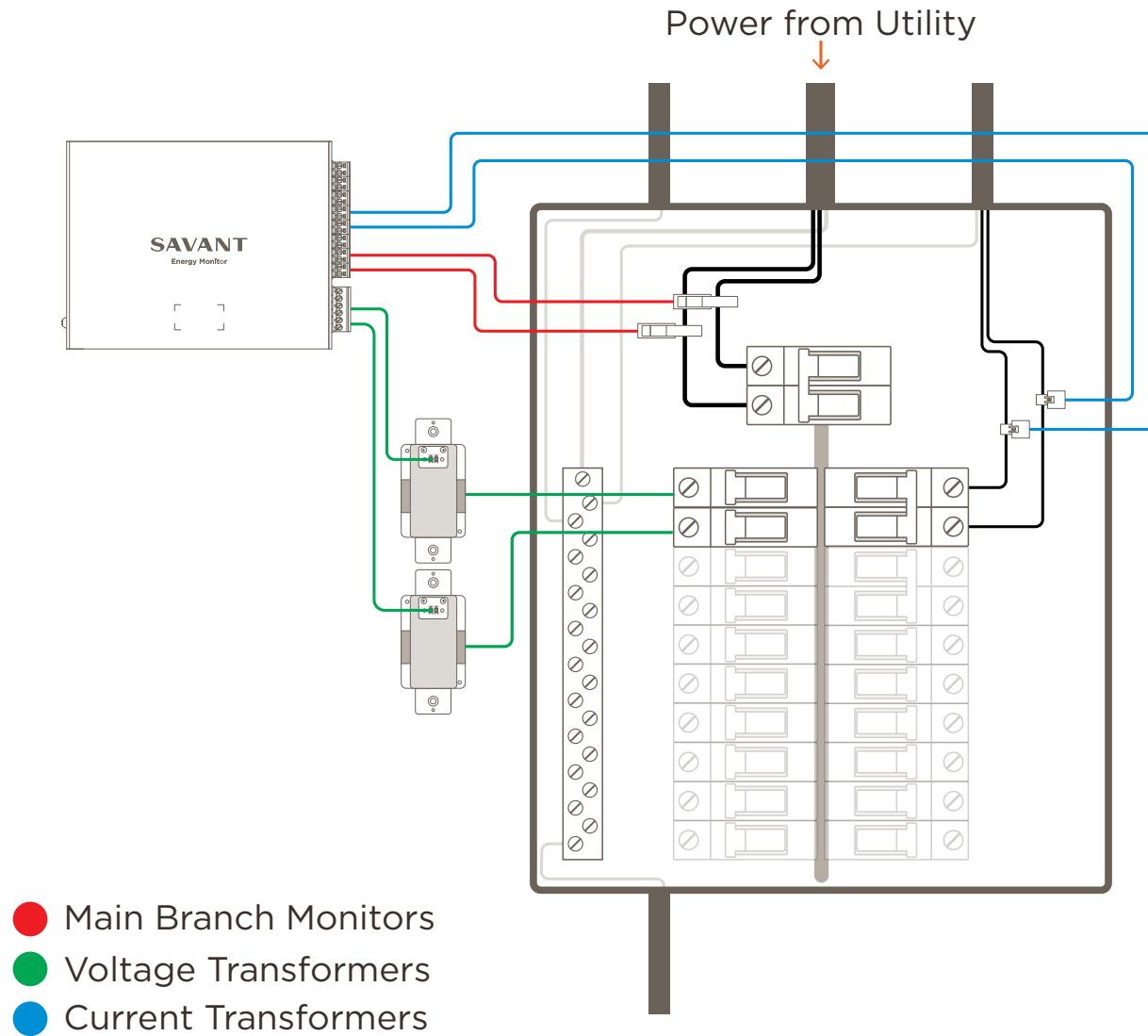
# 1. Deployment Steps

Follow the steps below to successfully deploy a Savant Energy Monitor. This page can be used as a checklist to mark progress as steps are completed.

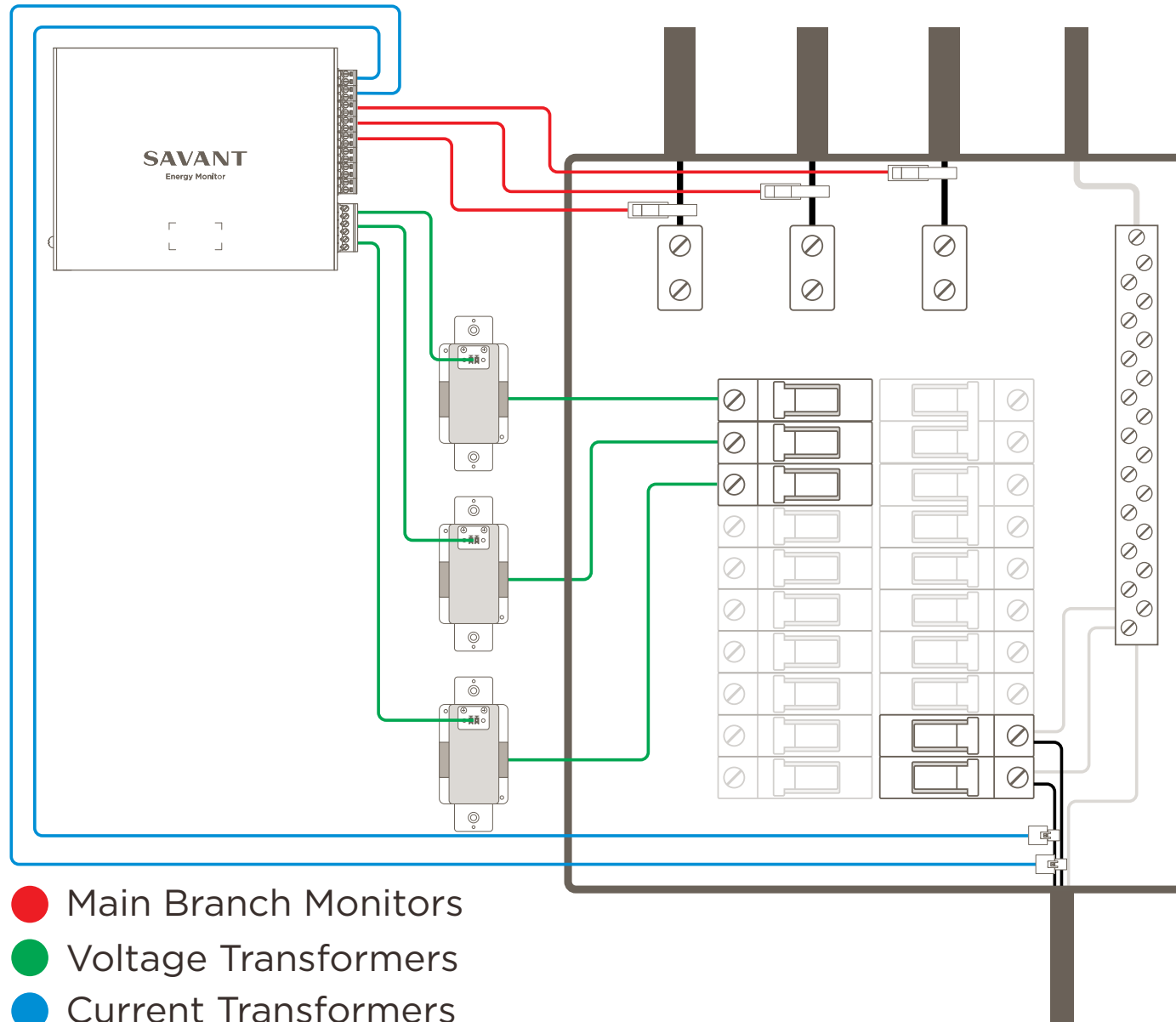
- Review product specifications and connection details .....   
See the device's Quick Reference Guide on the [Savant Customer Community](#).
- Install Energy Monitor .....   
See [Installation](#)
- Add the Energy Monitor into a RacePoint Blueprint™ configuration .....   
See [Blueprint](#)
- Enter circuit information into the Energy Monitor Data Table .....   
See [Energy Monitor Data Table](#)

## 2. System Diagrams

### 2.1. Single Phase Consumption Only (Typical 200 Amp Service)

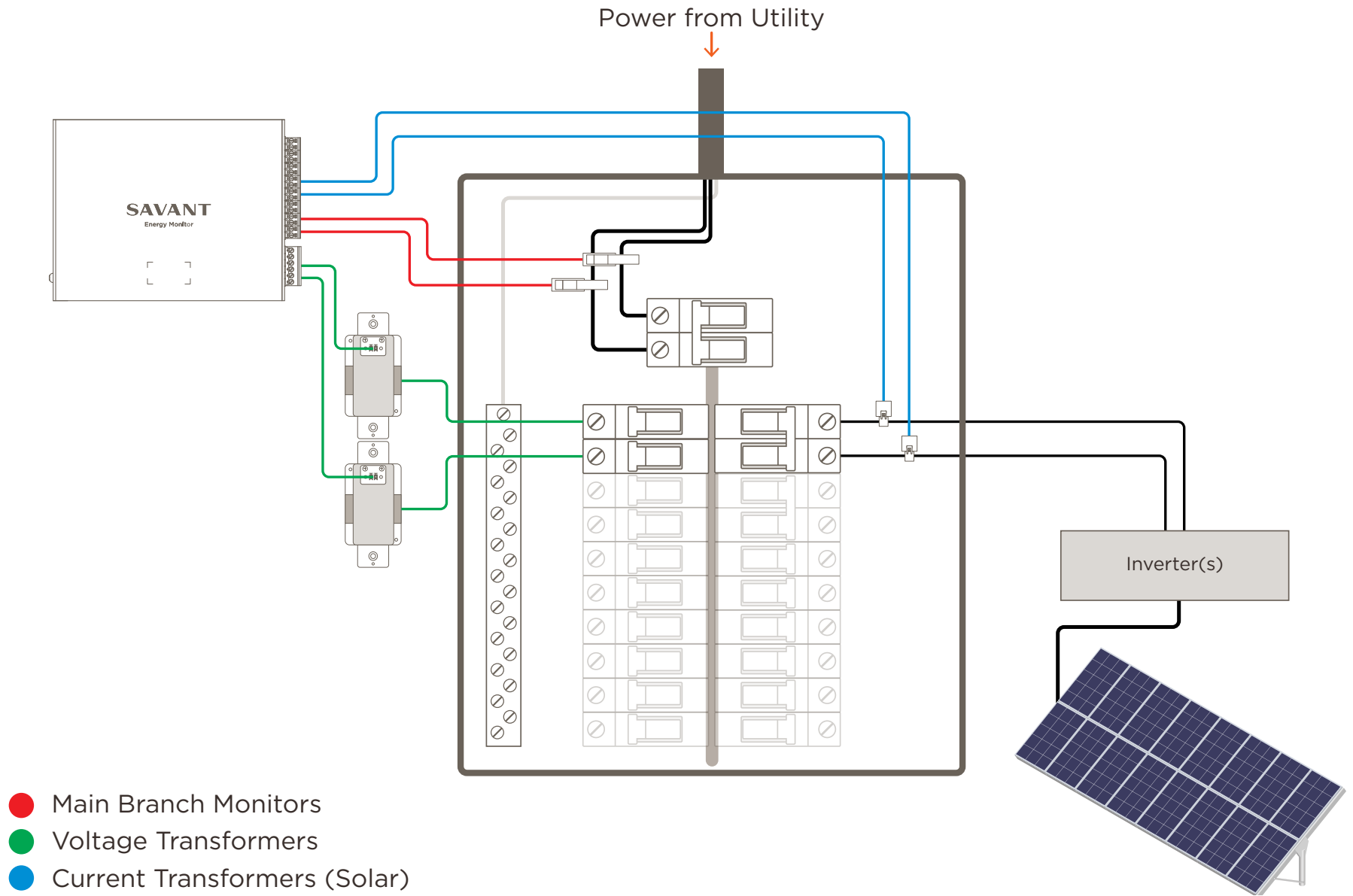


## 2.2. Three Phase Consumption Only



### 2.3. Single Phase with Power Generation

The image below shows Solar (Photovoltaic) generation. This example holds true for Wind, Geothermal, or Auxiliary Generators.



 **TIP!** The diagram above shows one example of how to connect solar cells to an electrical system. While the wiring method may vary across individual systems, current transformers should always be placed to monitor the incoming lines as close to their junctions as possible.

## 3. Installation

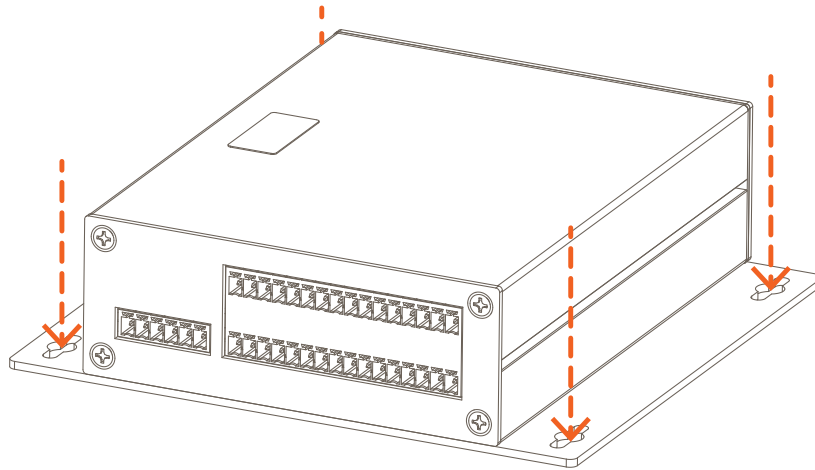
### 3.1. Flat Surface

#### SEM-2015

Mounts to a wall or similar surface. Mount chassis in a place that is dry, well ventilated, and out of direct sunlight.

The SEM-2015 comes with the mounting plate installed.

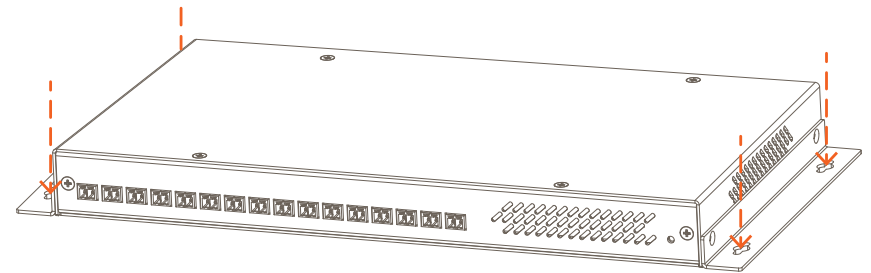
1. Set the SEM-2015 onto the wall where it will be mounted. The SEM-2015 can be positioned with ports facing vertically or horizontally. Level the unit and mark the positions of the mounting plate holes on the wall.
2. If there is a sub-wall to screw into, screw unit to wall using appropriate screws. If no sub-wall is available, wall anchors can be used.



#### SEM-1024

Mounts to a wall or similar surface using the included chassis-mounted side brackets and supplied M3 x 8mm flat head screws. Mount chassis in a place that is dry, well ventilated, and out of direct sunlight.

1. Remove side brackets and M3 x 8mm screws from shipping box.
2. Align the holes in the bracket with threaded holes on the two short sides of the SEM-1024 energy monitor.
3. Screw bracket to chassis using the supplied M3 x 8mm screws. Do not over-tighten.
4. Set the SEM-1024 onto the wall where it will be mounted. The SEM-1024 can be positioned with ports facing vertically or horizontally. Level the unit and mark the positions of the mounting holes on the wall.
5. If there is a sub-wall to screw into, screw unit to wall using appropriate screws. If no sub-wall is available, wall anchors can be used.



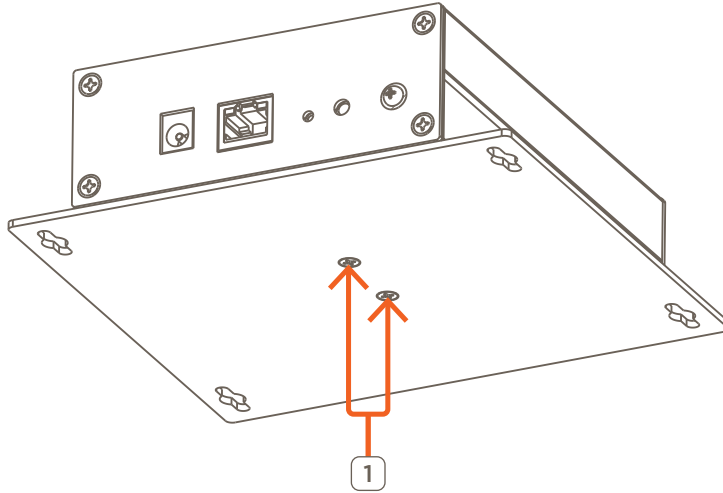


### 3.2. Din Rail

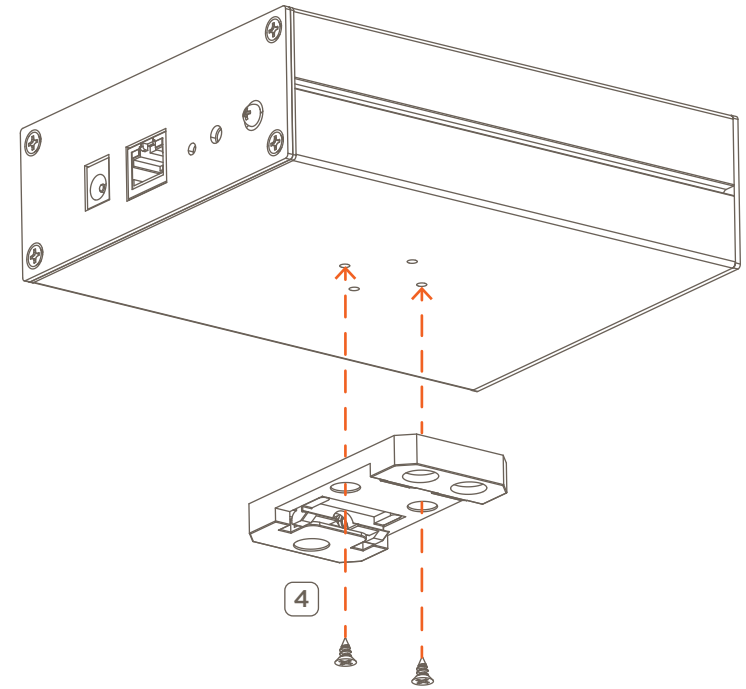
The SEM-2015 has an included universal din rail clip.

To install using a Din Rail do the following:

1. Remove the screws holding the mounting plate on the bottom of the unit.



2. Remove the mounting plate.
3. Align the Universal Din Rail Mounting Clip on the bottom of the unit.  
**NOTE:** The clip can be mounted facing either direction.
4. Attach using the screws from the mounting plate.



### 3.3. Voltage Transformers


The SEM-VT01 is a highly accurate voltage transformer that reduces the input voltage by a factor of 0.00111. For example, if the input voltage is 120V AC, the output of the SEM-VT01 will be  $0.133V_{RMS}$ . By reducing the voltage, the SEM-2015/SEM-1024 can monitor individual circuits with exceptional accuracy.

#### IMPORTANT INFO!

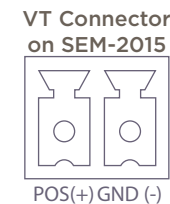
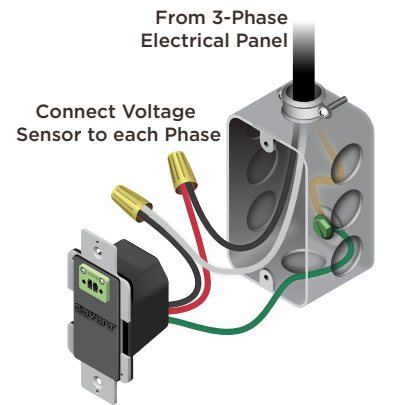
- One voltage transformer is required for each phase.
- Install SEM-VT01 voltage sensor as close to the electrical breaker panel as possible.
- Between the voltage transformer and the SEM-2015/SEM-1024 it is best to have as short a run as possible.
- Voltage transformers should be installed on their own breakers with no load attached.

Savant requires a licensed electrician be used to connect the SEM-VT01 to the high voltage side. Follow instructions below to install. The instructions assume the electrical outlet boxes are mounted and an electric circuit is run into the box.

1. Switch the circuit breaker to the circuit that the SEM-VT01 is being added to.
2. Using diagram to the right, make high voltage connections.
3. Screw the SEM-VT01 into the electrical box.
4. Using the supplied 2-pin screw down connectors and #18 AWG wire, install the wires into the 2-pin connector. Refer to the connector diagrams below when wiring.
5. For instructions on how to install wires into the 2-pin connectors, refer to step 4 of the Current Transformers section.

 **IMPORTANT!** Voltage transformer and SEM connection terminals use reversed polarities. Exercise caution when making connections to avoid error.

6. Once all connections are made, switch the breaker back ON.



**HELPFUL INFO:** Each voltage transformer is capable of supporting up to three SEM-2015 units, provided the following requirements are met:

- SEM-2015 units must be connected in a daisy chain pattern.
- Wiring used must be 18 AWG or greater twisted pair.
- Total run length must not exceed 8 ft (2.4 m).

Additional voltage transformers must be utilized when deploying more than 3 SEM-2015 units.

### 3.4. Current Transformers



**SAFETY PRECAUTIONS!** Before beginning the installation process, read through the following precautions.

- The installation of a current transformer requires making connections within an electrical panel. Savant recommends that a licensed electrician perform the installation.
- The install should obey all local electrical codes.
- Only current transformers offered from Savant are supported. These CT's are internally shunted and safer than other commercially available current transformers

#### Connecting Current Transformers

Follow instructions below when installing the current transformers into an electrical breaker panel.

1. Remove power from electrical panel by switching the main breaker to the off position.
2. Remove the electrical panel front cover and set aside. With a voltage tester, verify that there is no power going to individual breakers.
3. Install the current transformers over each conductor being monitored. Depending on the current transformer being used will determine how it is installed. See below.

#### 20 and 50 Amp Current Transformers

- A. Pry the clip on the side away from the housing and hinge open the current transformer.
- B. Position the conductor being measured into the opening of the current transformer. Close the current transformer ensuring the clip on the side snaps into place.



**IMPORTANT!** To observe proper polarity, install the 20 and 50A current transformers with arrows pointing in the direction of current flow (towards the load).

- C. Route the wire through a cable clamp on the side of the panel and run wire to the SEM-2015 chassis.

#### 150 Amp Current Transformers

- A. Squeeze the handle on side of current transformer until the opposite end opens.
- B. Position the open end of current transformer over the conductor and release the handle so the wire settles inside the opening of current transformer.



**IMPORTANT!** To observe proper polarity, install the 150A or larger current transformers with the label on the current transformer facing the source of the power.

- C. Route the wire through a cable clamp on the side of the panel and run wire to the SEM-2015/SEM-1024.
4. Following steps below, install the supplied 2-pin screw down connector onto the wires of each current transformer.
  - A. With a small slotted screwdriver, turn the screws on the connector counterclockwise (CCW) until the silver crimps open enough to slide the stripped wire into the square slots.
  - B. Strip back insulation on each wire to 1/4 inch and insert the stripped wire into proper connection. See the Current Transformer and Voltage Sensor Input Polarity section for polarity information.
  - C. Turn screws clockwise (CW) until the crimps tighten around each wire. Gently pull on wire to confirm a secure connection. Repeat this process for each current transformer being added.
5. Plug the connector into the appropriate current transformer input on the SEM-2015/SEM-1024.
6. Replace the breaker panel front cover once all current transformers are installed.
7. Switch main breaker to the ON position.

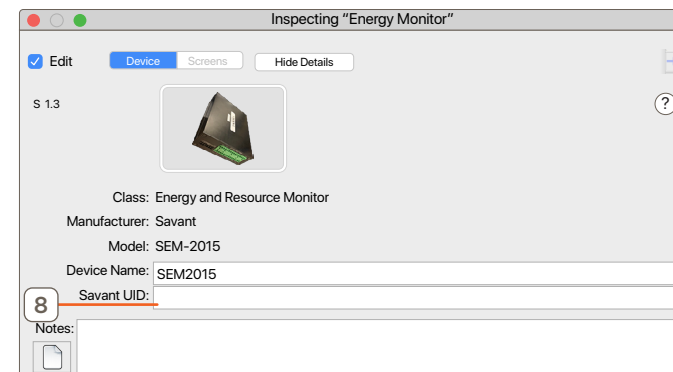
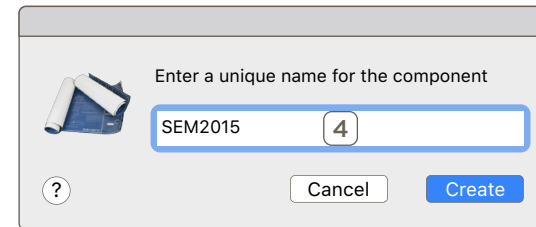
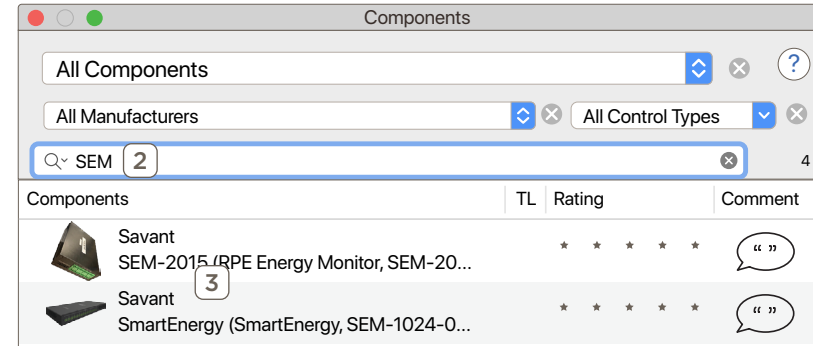
## 4. Blueprint

The subsections below describe the required steps for configuring a Savant Energy Monitor device within RacePoint Blueprint.

### 4.1. Adding an Energy Monitor to a Configuration

From an open Blueprint configuration do the following:

1. Click Show Library.
2. Search of **SEM**.
3. Select the Energy Monitor and drag into a Global Zone.
4. Name the device.
5. Place the Energy Monitor in the Layout window.
6. Select the Energy Monitor.
7. Open Inspector.
8. Enter UID.



## 4.2. Energy Monitor Data Table

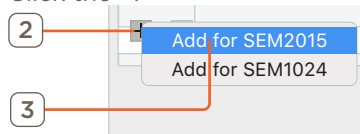
The Energy Monitor Data Table is required for the Pro App to populate energy data. The following examples will demonstrate how to configure the Energy Monitor Data Table. To access the Energy Monitor Data Table from an open Blueprint configuration go to **Tools > Settings > Energy Monitor...** For more information on the fields in this data table see [Appendix B: Energy Monitor Data Table Index](#).

### Add Circuit (SEM-2015)

This example demonstrates how to measure the main feed for the house. A typical single phase system will have 2 legs. The process for adding any standard circuit is the same except the Classification is different based on what is being added. Then number of phase channels is based on the number of slots the breaker uses in the panel.

From an open Blueprint configuration do the following:

1. Go to **Tools > Settings > Energy Monitor...**
2. Click the +.



3. Select the Energy Monitor to be used.
4. Double click on the Circuit Description.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power Phase 1 Channel	Feed			None	SEM2015	1			None	Choose...	Utiliy Ro...	

5. Enter the name for this circuit.
6. Select the Classification.
7. Select an Image for the circuit.
8. Select a Group (Optional).
9. Select the Channel.
10. Select the Savant Zone.
11. Select the Phase 1 Channel
12. Click the button at the bottom of the window.
13. Repeat step 9 for the Second Phase Channel. The image below shows the finished entry.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power Phase 1 Channel	Feed			None	SEM2015	1			None	Choose...	Utiliy Ro...	
	Phase 2 Channel						2						



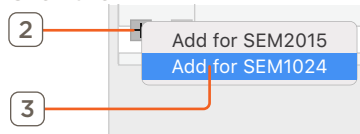
**IMPORTANT!** When configuring SEM-2015 devices, the size and voltage source must be defined within the component's web UI. Refer to the [Web User Interface](#) section below for details.

### Add Circuit (SEM-1024)

This example demonstrates how to measure the main feed for the house. A typical single phase system will have 2 legs. The process for adding any standard circuit is the same except the Classification is different based on what is being added. Then number of phase channels is based on the number of slots the breaker uses in the panel.

From an open Blueprint configuration do the following:

1. Go to **Tools > Settings > Energy Monitor....**
2. Click the +.



3. Select the Energy Monitor to be used.
4. Double click on the Circuit Description.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utiliy Ro...	
	Phase 1 Channel						1	250 A	Voltage Sensor 1				

5. Enter the name for this circuit.
6. Select the Classification.
7. Select an Image for the circuit.
8. Select Group (optional).
9. Select the Channel.
10. Select Transformer Size.
11. Select Voltage Source.
12. Select the Savant Zone.
13. Select the Phase 1 Channel.
14. Click the **+** button at the bottom of the window.
15. Repeat steps 9 though 11 for the Second Phase Channel. The image below shows the finished entry.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utiliy Ro...	
	Phase 1 Channel						1	250 A	Voltage Sensor 1				
	Phase 2 Channel						2	250 A	Voltage Sensor 2				

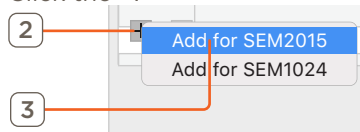
## Adding a Child Circuit

Follow the steps below to add a child circuit where applicable. Note that while the example uses an SEM-2015, the same process applies for SEM-1024 devices, apart from the minor differences described in the previous sections.

This Example is adding a Lighting circuit to a secondary panel to power a workshop. The image under step 4 shows the parent circuit for this sub-panel, and the Main Power feed. This represents the feed to the sub-panel. However this is not classified as a Feed circuit because its power consumption is a part of the main feed coming into to the house.

From an open Blueprint configuration do the following:

1. Go to **Tools > Settings > Energy Monitor...**
2. Click the +.



3. Select the Energy Monitor to be used.
4. Double click on the Circuit Description.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utliiy Ro...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
<input checked="" type="checkbox"/>	▼ WorkShop Panel	Consumption			None	SEM2015				None	Choose...	Utliiy Ro...	
	Phase 1 Channel						10						
	Phase 2 Channel						11						
<input checked="" type="checkbox"/>	▼ Lighting	Consumption			Lighting	SEM2015				WorkSho...	Choose...	Work Sh...	
	Phase 1 Channel						12						

5. Enter the name for this circuit.
6. Select the Classification.
7. Select an Image for the circuit.
8. Enter Group.  
Use the drop-down or type a new group.
9. Select the Channel.
10. Select Parent Circuit.
11. Select the Savant Zone.

## Example Data Tables

### Consumption Only (Key Loads)

The example below shows a completed Energy Monitor Data Table configured for monitoring of key loads only - the main power feed for the site is not monitored in this setup.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Refrigerator	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Stove	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ Dishwasher	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						7						
<input checked="" type="checkbox"/>	▼ A/C	Consumption			hvac	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						8						
	Phase 2 Channel						9						
<input checked="" type="checkbox"/>	▼ Family Room	Consumption			Room	SEM2015				None	Choose...	Family R...	
	Phase 1 Channel						10						

### Consumption Only (Main Feed + Key Loads)

This example shows the main power feed and key loads being monitored. Key loads are added as child circuits of the main feed, allowing the user to track total power use in addition to key load specific consumption.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
<input checked="" type="checkbox"/>	▼ Refrigerator	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Stove	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ Dishwasher	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						7						
<input checked="" type="checkbox"/>	▼ A/C	Consumption			hvac	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						8						
	Phase 2 Channel						9						
<input checked="" type="checkbox"/>	▼ Family Room	Consumption			Room	SEM2015				None	Choose...	Family R...	
	Phase 1 Channel						10						



### Solar (Grid-Tied)

The example below shows a completed configuration that includes solar panels.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
<input checked="" type="checkbox"/>	▼ Refrigerator	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Stove	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ Dishwasher	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						7						
<input checked="" type="checkbox"/>	▼ A/C	Consumption			hvac	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						8						
	Phase 2 Channel						9						
<input checked="" type="checkbox"/>	▼ Family Room	Consumption			Room	SEM2015				None	Choose...	Family R...	
	Phase 1 Channel						10						
<input checked="" type="checkbox"/>	▼ Gas Generator	Production			Solar	SEM2015				None	Choose...	Utily Ro...	Solar
	Phase 1 Channel						3						

### Auxiliary Generator

The example below shows a completed configuration that includes an auxiliary gas generator.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			None	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
<input checked="" type="checkbox"/>	▼ Refrigerator	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Stove	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ Dishwasher	Consumption			Appliances	SEM2015				None	Choose...	Kitchen	
	Phase 1 Channel						7						
<input checked="" type="checkbox"/>	▼ A/C	Consumption			hvac	SEM2015				None	Choose...	Utily Ro...	
	Phase 1 Channel						8						
	Phase 2 Channel						9						
<input checked="" type="checkbox"/>	▼ Family Room	Consumption			Room	SEM2015				None	Choose...	Family R...	
	Phase 1 Channel						10						
<input checked="" type="checkbox"/>	▼ Gas Generator	Production			None	SEM2015				None	Choose...	Utily Ro...	Generator
	Phase 1 Channel						3						
	Phase 2 Channel						4						

### Three Phase with Sub-Panel

The example below shows a completed data table for a system that uses two SEM-2015s and has a secondary panel for a work shop.

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type
<input checked="" type="checkbox"/>	▼ Main Power	Feed			Grid	SEM2015 01				None	Choose...	Utily Ro...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
	Phase 3 Channel						3						
<input checked="" type="checkbox"/>	▼ Refrigerator	Consumption			Appliances	SEM2015 01				None	Choose...	Kitchen	
	Phase 1 Channel						4						
<input checked="" type="checkbox"/>	▼ Stove	Consumption			Appliances	SEM2015 01				None	Choose...	Kitchen	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Dishwasher	Consumption			Appliances	SEM2015 01				None	Choose...	Kitchen	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ A/C	Consumption			hvac	SEM2015 01				None	Choose...	Utily Ro...	
	Phase 1 Channel						7						
	Phase 2 Channel						8						
<input checked="" type="checkbox"/>	▼ Family Room	Consumption			Room	SEM2015 01				None	Choose...	Family R...	
	Phase 1 Channel						9						
<input checked="" type="checkbox"/>	▼ Work Shop	Consumption			None	SEM2015 02				None	Choose...	Work Sh...	
	Phase 1 Channel						1						
	Phase 2 Channel						2						
<input checked="" type="checkbox"/>	▼ Shop Lighting	Consumption			Lighting	SEM2015 02				Work Shop	Choose...	Work Sh...	
	Phase 1 Channel						3						
<input checked="" type="checkbox"/>	▼ Left Wall Outlets	Consumption			Outlet	SEM2015 02				Work Shop	Choose...	Work Sh...	
	Phase 1 Channel						4						
<input checked="" type="checkbox"/>	▼ Right Wall Outlets	Consumption			Outlet	SEM2015 02				Work Shop	Choose...	Work Sh...	
	Phase 1 Channel						5						
<input checked="" type="checkbox"/>	▼ Floor Outlets	Consumption			Outlet	SEM2015 02				Work Shop	Choose...	Work Sh...	
	Phase 1 Channel						6						
<input checked="" type="checkbox"/>	▼ Shop Heat Pump	Consumption			hvac	SEM2015 02				Work Shop	Choose...	Work Sh...	
	Phase 1 Channel						7						
	Phase 2 Channel						8						

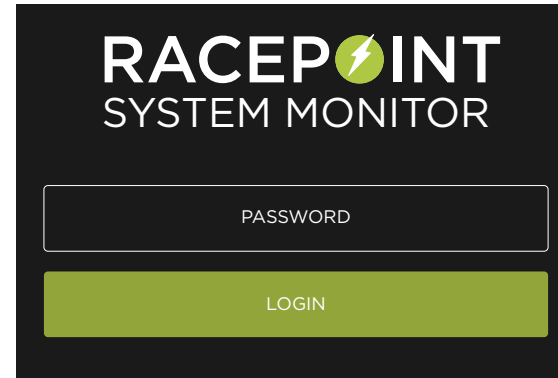
## 5. Web User Interface (Web UI SEM-2015 Only)

The SEM-2015 includes a web-based user interface (web UI) with additional programming and configuration options, some of which are required for successful deployment. To access and configure the Web UI, follow the steps listed below from the Savant Development Environment (SDE/MacBook) while connected to the same local network as the SEM-2015.

1. Locate the IP address for the SEM-2015 via System Monitor, or using any network scanning utility.
2. Open a web browser and enter the device IP into the address bar.

### IMPORTANT!

- When first connecting to the SEM-2015, the user is required to set a password.
  - If the password needs to be reset, follow the Device Reset instructions found in the device's Quick Reference Guide.
3. Enter device password (or set password if accessing for first time), then select **LOGIN** to continue.








4. Select the Voltage Transformer Connection.
5. Enter a label for the current transformer.
6. Enter the Current rating of the current transformer.
7. Select the circuits Classification.
8. Repeat steps 4 though 7 for each current transformer is use.
9. Click **Deploy Config**.




ID	Inv	VT Conn.	Label	Current	Classification	Group	Linked Phases
1	<input type="checkbox"/>	A	Main Feed	250	Consumption	---	2
2	<input type="checkbox"/>	B	Main Feed	250	Consumption	---	1
3	<input type="checkbox"/>	A	HVAC	150	Consumption	---	4
4	<input type="checkbox"/>	B	HVAC	150	Consumption	---	3
5	<input type="checkbox"/>	A	Dryer	50	Consumption	---	6
6	<input type="checkbox"/>	B	Dryer	50	Consumption	---	5
7	<input type="checkbox"/>	A	Refrigerator	20	Consumption	---	---
8	<input type="checkbox"/>	B	Stove	20	Consumption	---	---

### HELPFUL INFO:

- **Inv:** This column stands for invert. If a current transformer reports a negative current value (potentially wired backward), check this option to multiply reported value by -1, making it positive.
- **Linked Phases:** Combines the readings from multiple current transformers when a circuit utilizes more than 1 phase.
- **Auto-Link:** Links circuits with matching labels. To disable this feature, check the Disable Auto-Link option above the table.
- **Link Highlighting:** Shows matching green squares on linked current transformers. This feature can be disabled by checking the box labeled Disable Link Highlighting above the table.

## Appendix A: Accessories

SKU	Description	Image
SEM-VT01	SEM-VT01 is an optional Voltage sensor, for use in conjunction with Savant Energy Monitors.	
SEM-020A5	SEM-020A5 is a 5 pack of 20 Amp, split-core, clip-on current transformers.	
SEM-050A5	SEM-050A5 is a 5 pack of 50 Amp, split-core, clip-on current transformers.	
SEM-150A1	SEM-150A1 is a 150 Amp, split-core, clip-on current transformer.	
SEM-150A5	SEM-150A5 is a 5 pack of 150 Amp, split-core, clip-on current transformers.	

SKU	Description	Image
SEM-250A1	SEM-250A1 is a 250 Amp, split-core, clip-on current transformer.	 <p>A black, split-core clip-on current transformer with a white label at the top showing '250A'. The bottom label contains technical specifications: 'SPLIT CORE CT', 'CT80318-250A0.333V', 'R<sup>2</sup> 1.0 Class 1.0% 50/60Hz', and 'THIS SIDE TOWARDS SOURCE'.</p>
SEM-400A1	SEM-400A1 is a 400 Amp, split-core, clip-on current transformer.	 <p>A black, split-core clip-on current transformer with a white label at the top showing '400A'. The bottom label contains technical specifications: 'SPLIT CORE CT', 'CT80318-400A0.333V', 'R<sup>2</sup> 1.0 Class 1.0% 50/60Hz', and 'THIS SIDE TOWARDS SOURCE'.</p>
SEM-600A1	SEM-600A1 is a 600 Amp, split-core, clip-on current transformer.	 <p>A black, split-core clip-on current transformer with a white label at the top showing '600A'. The bottom label contains technical specifications: 'SPLIT CORE CT', 'CT80318-600A0.333V', 'R<sup>2</sup> 1.0 Class 1.0% 50/60Hz', and 'THIS SIDE TOWARDS SOURCE'.</p>

## Appendix B: Energy Monitor Data Table Index

Enabled	Circuit Description	Classification	Image	Group Image	Group	Monitoring Device	Channel	Size	Voltage Source	Parent Circuit	Control	Savant Zone	Production Type

?

Enabled	A check indicates the row is enabled. No check indicates the row is disabled. If the row is unchecked, that row will not generate a control interface within the Savant UI.
Circuit Description	This category describes the physical wiring to which one or more Current Transformers are attached. A circuit must consist of at least one phase channel, and may have up to three. Phase channels can be added or removed by only selecting a phase channel within the circuit and pressing “+” or “-” located in the bottom left corner of the dialog. New circuits will have one phase added automatically.
Classification	Consumption: A circuit that consumes power, which is the most typical kind of circuit. Production: Used for any circuits that add power to monitored system. Feed: Designates that this circuit is the Main Power input from the utility company.
Image	Allows the user to select an icon to appear in the Savant Pro App for the selected load to be monitored. Available icons are Geo-Thermal, Wind, Stove, Solar, Pool Garage, HVAC, Dish Washer, Washing Machine, None, Lighting, Hydro, Refrigerator, Room, Water Heater, and Appliances.
Group Image	Available icons are Geo-Thermal, Wind, Stove, Solar, Pool Garage, HVAC, Dish Washer, Washing Machine, None, Lighting, Hydro, Refrigerator, Room, Water Heater, and Appliances.
Group	Allows for grouping and categorization of circuits that will define how the end user accesses their monitoring info within the Savant UI. Select a predefined group (same list) or select the text field to enter a custom group name. Configured groups form the top level navigation options presented to the user.
Monitoring Device	Choose the specific physical monitoring device, such as Energy and Resource Monitor that is connected to the circuit.
Channel	Under this category select the physical port on the energy-monitoring device to which the Current Transformer for that circuit is connected.
Size	Under this category select the capacity of the Current Transformers used for the circuit. This capacity must exactly match the 20A, 50A, 150A or other supported CT size physically clamped onto that circuit.
Voltage Source	Under this category select from the available voltage monitoring sources that correspond to the phase channels of the circuit. For the best and most accurate monitoring results, ensure that the voltage of each phase channel is accurately measured as close to the trunk as possible, and that every circuit phase channel is correctly matched to its corresponding voltage sensor. External Voltage Transformer sensors will provide more accurate voltage and power reporting, but must be physically connected to the correct phase and each phase channel must have the correct voltage sensor selected here.
Parent Circuit	Use this category when using a current transformer on the Main Power Feed, so that the energy reading from this device does not double-report on the energy consumption total.

Control	<p>This setting is only needed when using TrueControl II.</p> <p>Under this category, for those circuits that have Savant-controllable resources, double click on Choose... to be presented with a Service or Zone selector. Convenient links will be presented within Savant's end-user Energy Monitoring UI to control these resources and impact energy utilization.</p>
Savant Zone	Determines the zone in the configuration where the circuit is visible.
Production Type	Choose the type of power source for entries with the Production classification. Options include Generator, Solar, or Battery.
+	<p>Clicking this box will do the following:</p> <p>If a circuit level row is selected or there is no selection, a new circuit will be added.</p> <p>If a phase channel is selected, a new phase will be added (up to 3).</p>
-	Clicking this box removes a selected phase channel or circuit per the selection.
Import	Clicking this button will import a copy of the energy monitor table configuration that has previously been exported with the Export option. This function is useful for backing up before making changes, or it can be used for template management in installations that are very similar.
Export	Clicking this button saves a copy of the energy monitor table configuration for use with the Import function described above.
Cancel	Clears changes and closes the window.
Done	Saves changes and closes the window.

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