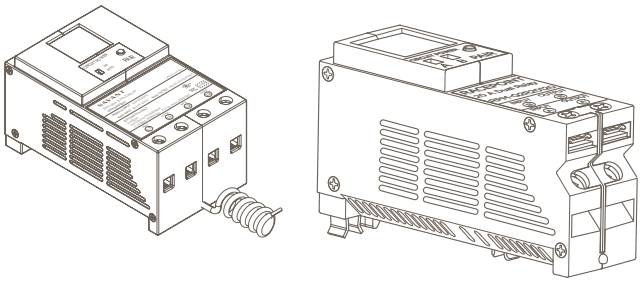
SAVANT

# Smart Panel Reference Guide

Document Number: 009-2500-00

Document Date: April 2025

## Power Modules



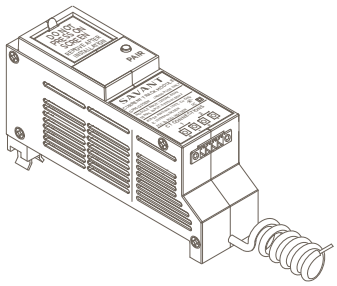
### Key Features

- Monitor individual load consumption
- Circuit level load control via Savant app
- Plugs into a standard electrical panel the same way a circuit breaker does
- Electrician-friendly installation & onboarding

### Supported Sizes

- 20A Dual Relay = 2-up to 20A 120V circuits
- 30A 2-Pole Relay = 1- up to 30A 240V circuits
- 60A 2-Pole Relay = 1- up to 60A 240V circuits

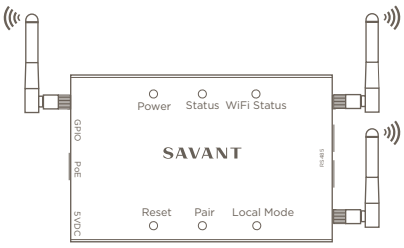
## Current Track Module & CT's



### Key Features

- Monitor the home's total energy consumption, solar power, & larger loads in the home. Single phase application 20A to 600A
- Daily energy metrics reporting via Savant app
- Plugs into a standard electrical panel the same way a circuit breaker does
- Electrician-friendly installation & onboarding

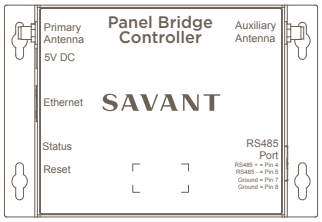
## Savant Director




### Key Features

- Energy monitoring, management, and control for the complete Savant Power System
- Supports battery and inverter integration (Savant, Tesla, Enphase, and Franklin)
- Controls up to 40 Savant Power Modules via Bluetooth Low Energy (BLE)
- 1 RJ45 Ethernet port
- PoE and/or 5V Power

## Savant Panel Bridge Controller (PBC)




### Key Features

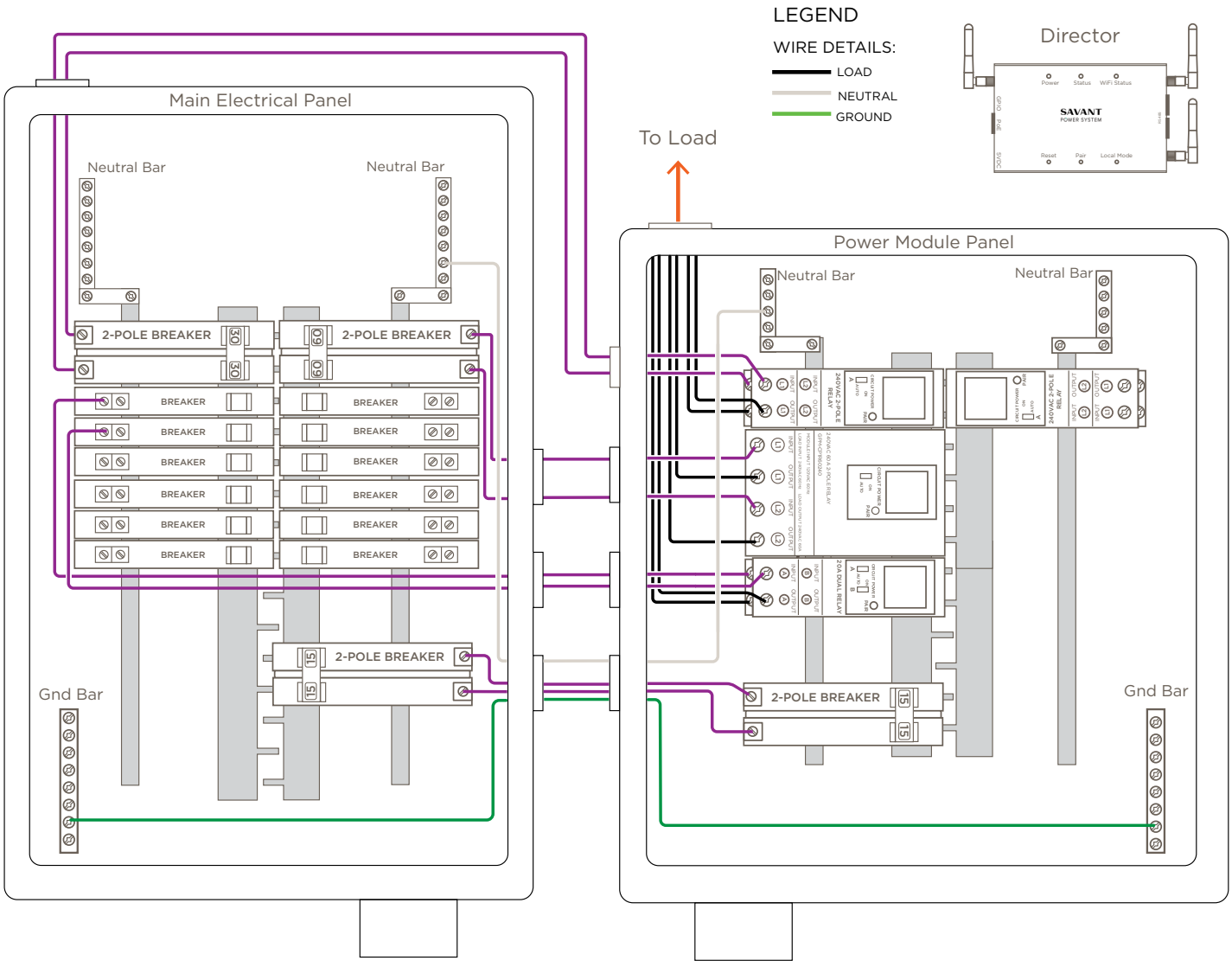
- Used as compliment to Savant Host/Director
- Supports sub-panel or sites greater than 40 Power Modules
- Controls up to 40 Savant Power Modules via Bluetooth Low Energy (BLE)
- 1 RJ45 Ethernet port
- PoE and/or 5V Power


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## Deployment Options

| | |
|---|---|
| Q1 | Do branch circuit neutrals land in the over current panel vs the power module panel?<br>– Over current panel: No additional calculation required.<br>– Critical load panel: The neutral wire will need to be sized to potentially handle the full capacity of a single phase worth of branch circuit capacity. |
| Q2 | Will the critical load panel have any branch circuit breakers?<br>– No: No additional calculation required.<br>– Yes: Will require load calculation and correctly sized feeders. |
| Q3 | Will the critical load panel be energized via a 2 pole breaker or terminal lugs?<br>– 2 pole breaker: No additional calculation required.<br>– Terminal lugs: Feeder wire must be of an AWG size rated for termination in the terminal lugs and the feeder circuit breaker must be rated to accept that gauge of wire. |

### Option 1

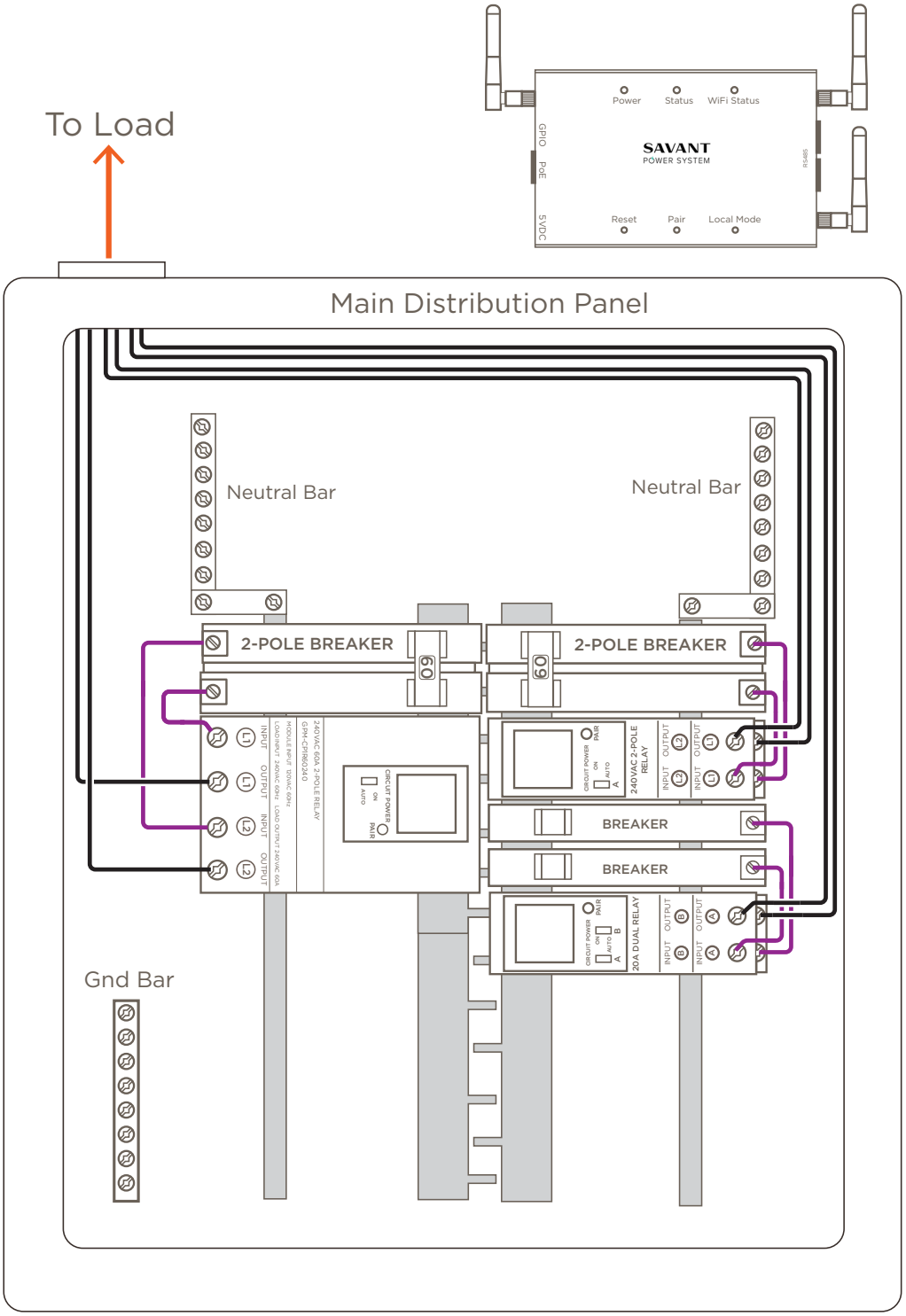




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Option 2

- Mixed controls panel
- Uses space in existing load centers in the home





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## Savant Power Module Design Strategy

### Full Home Control

- All loads on site to be paired with Savant Power Modules
- Feeds to sub-panels do not need Power Modules

### Partial Load Control

Identify loads to control at a minimum.

- Large inductive loads that could overload surge ratings of inverter or generator
- Large continuous loads that will drain battery quickly
- Sub-panel feeds (pool equipment, casitas/ In-laws house, etc.) Understand estimated draw of non-backed up loads to understand what controlled loads are available for off-grid situations

1. Specify on site load to be controlled
   - Full Home Control
     - Count all 15A and 20A 1 pole circuits. Each dual 20A module can control 2-1 Pole up to 20A circuits
     - Count all 20A and 30A 2 pole circuits. 1- 240V 30A module for each circuit
     - Count all 40A, 50A, and 60A 2 pole circuits. 1 - 240V 60A module for each circuit
   - Partial Load Control
     - Count all 1 and 2 pole circuits to be controlled and spec modules using strategy listed above

2. Identify load center make and model
   - Validate number of spaces in load center based on breaker count + Module space count = Total # of spaces needed

3. Specify additional energy monitoring
   - Current track module with appropriately sized CT's (20A to 600A) = 1-2 pole circuit or feeder
   - SEM-2015 = Standalone Energy Monitor with 15 channels that will monitor single and three phase circuits or feeders

4. Identify unique situations requiring PBC
   - Separate load center(s)
   - Savant Smart Home system
   - More than 40 Savant Power Modules in use on site


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## Dual 120V 20A Power Module (for two 120V loads <20A)

**A**

- Controls (2) 120V single pole loads <20A.
- Current sensing of load happens within the Power Module.
- Spacing rule of thumb: (2) single pole breakers <20A will need 2 breaker spaces reserved for Power Module.

## 2 Pole 240V 30A Power Module

**B**

- Controls 240V 2 pole loads <30A.
- Current sensing of load happens within the Power Module.
- Spacing rule of thumb: 2 pole breakers <30A will need 2 breaker spaces reserved for Power Module.

## Dual 120V 20A Power Module (for 3 phase loads)

**C**

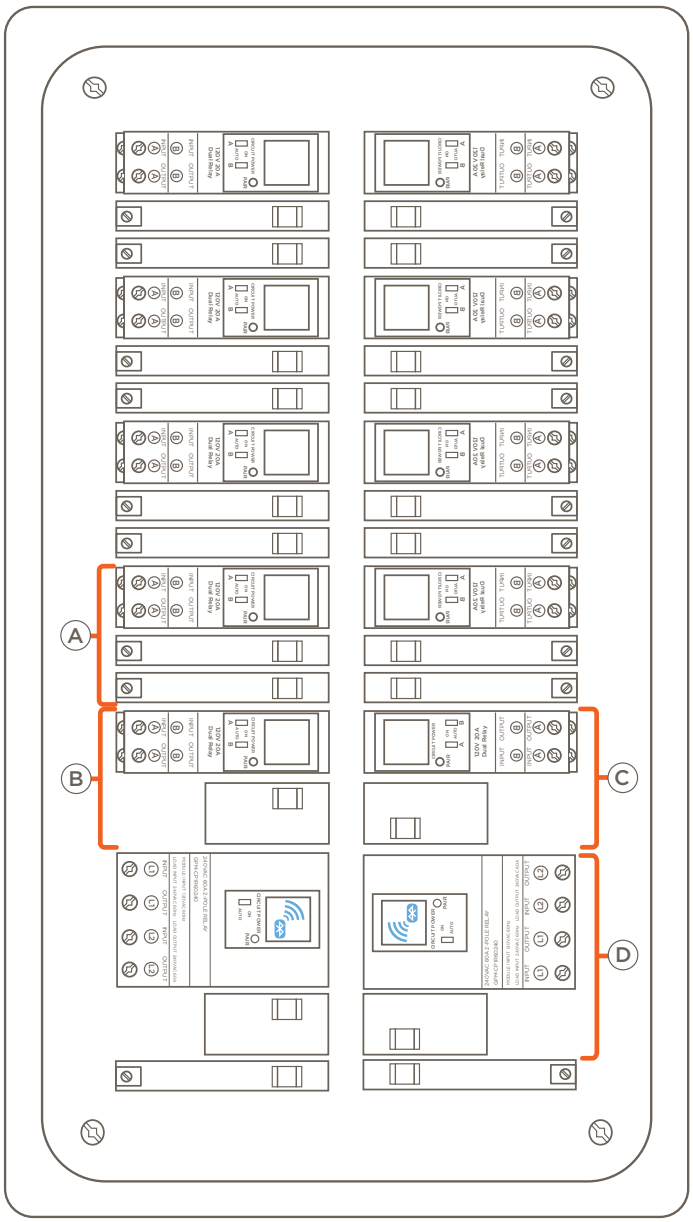
- Can also control (2) 3 phase loads control signal.
- 3 pole Breaker for load gets wired to a 3 phase contactor. Then out of contactor to load. Two 20A control signals comes from the Dual 120V Power Module.
- Requires a clamp on Current Sensor per phase of load.
- Spacing rule of thumb: (2) 3 pole breakers will need 2 breaker spaces reserved for Power Module and one breaker space reserved for control signal.

## 2 Pole 240V 60A Power Module

**D**

- Controls 240V 2 pole loads 35A to 60A.
- Current sensing of load happens within the Power Module.
- Spacing rule of thumb: 2 pole breakers between 35A and 60A will need 4 breaker spaces reserved for Power Module.

**Note:** Reserve 4 breaker spaces for QO and CH models, and 3 spaces for 1-inch (1") standard models.



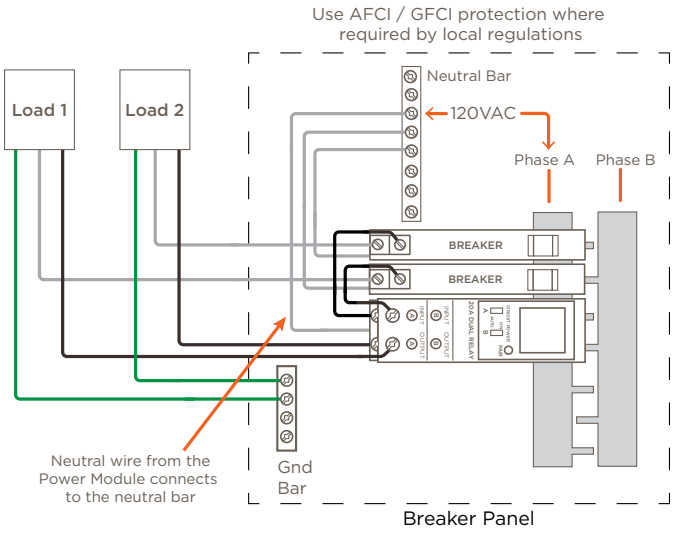


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## Standard Neutral Bus Bar with ARC Fault Breakers

Breaker panel without a plug-on neutral bus bar (with ARC Fault type feeder breakers).

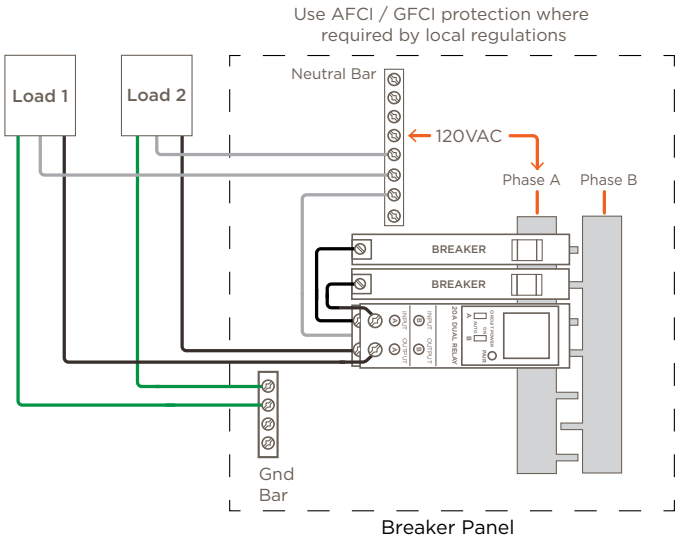
Pig Tail neutral dual 120V 20A Power Module for two 120V loads <20A with AFCI or GFCI protection




## Standard Neutral Bus Bar with Standard Breakers

Breaker panel without a plug-on neutral bus bar and standard type feeder breakers.

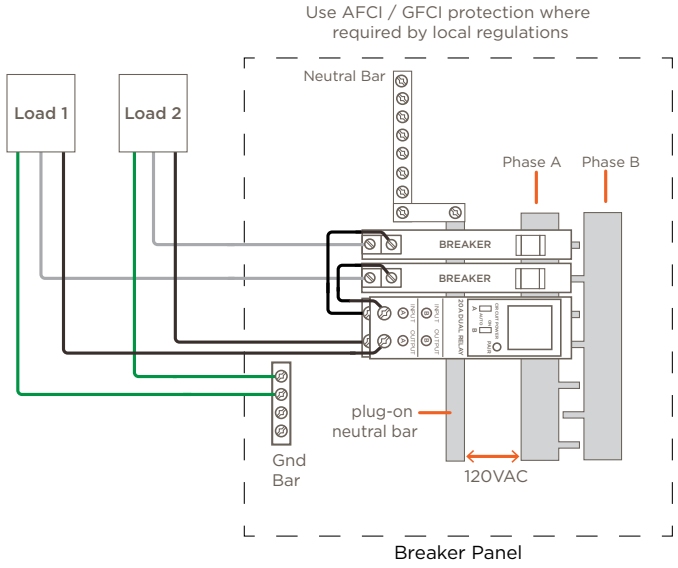
Pig Tail neutral dual 120V 20A Power Module for two 120V loads <20A




## Plug-on Neutral Bus Bar with ARC Fault Breakers

Breaker panel with a plug-on neutral bus bar (with ARC Fault type feeder breakers).

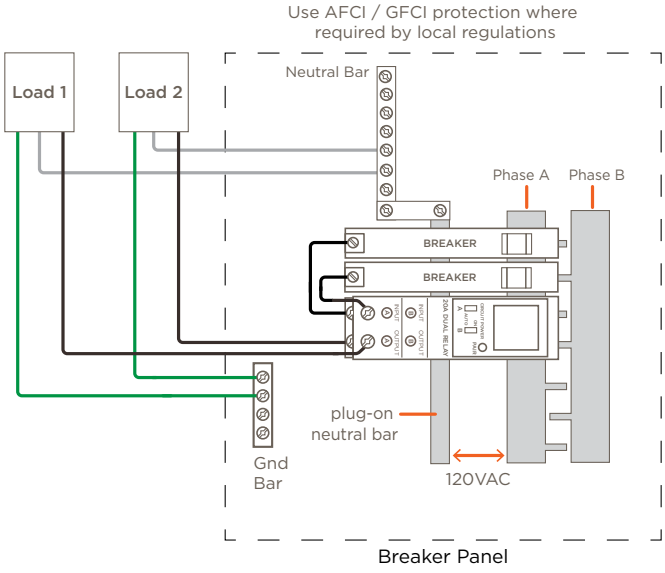
Plug on neutral dual 120V 20A Power Module for two 120V loads <20A with AFCI or GFCI protection




## Plug-on Neutral Bus Bar with Standard Breakers

Breaker panel with a plug-on neutral bus bar (with standard type feeder breakers).

Plug on neutral dual 120V 20A Power Module for two 120V loads <20A

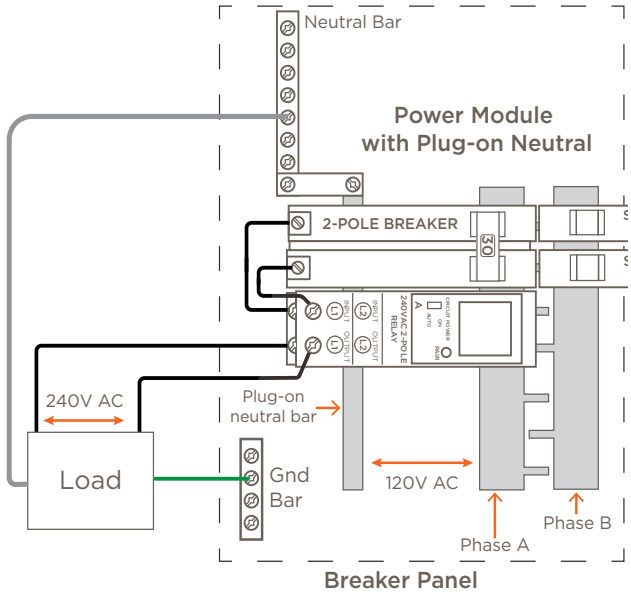




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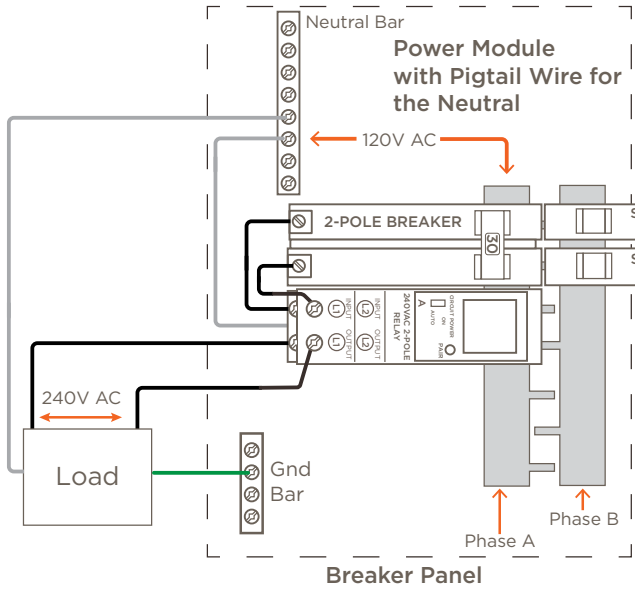
## Wiring with Plug-on Neutral

Plug on neutral single 240V 30A Power Module



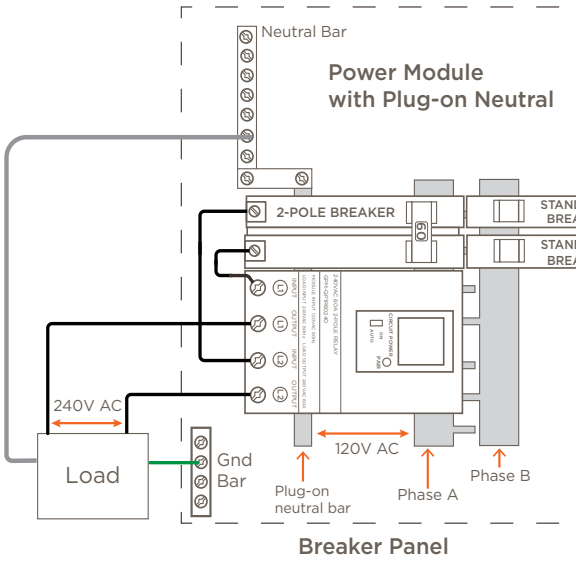

## Wiring with Pigtail Neutral

Pig tail neutral single 240V 30A Power Module



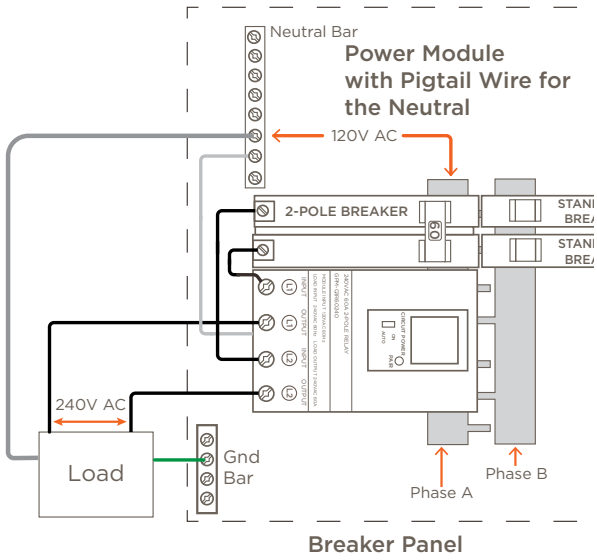

## Wiring with Plug-on Neutral Clip

Plug on neutral single 240V 60A Power Module

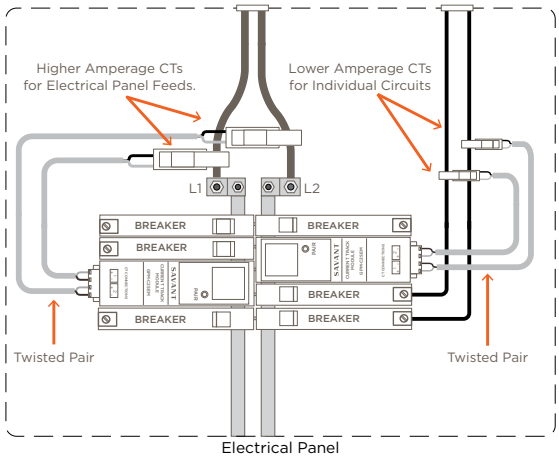



## Wiring with a Pigtail Neutral Wire

Pig Tail neutral single 240V 60A Power Module




## Current Track Module – Energy Monitor

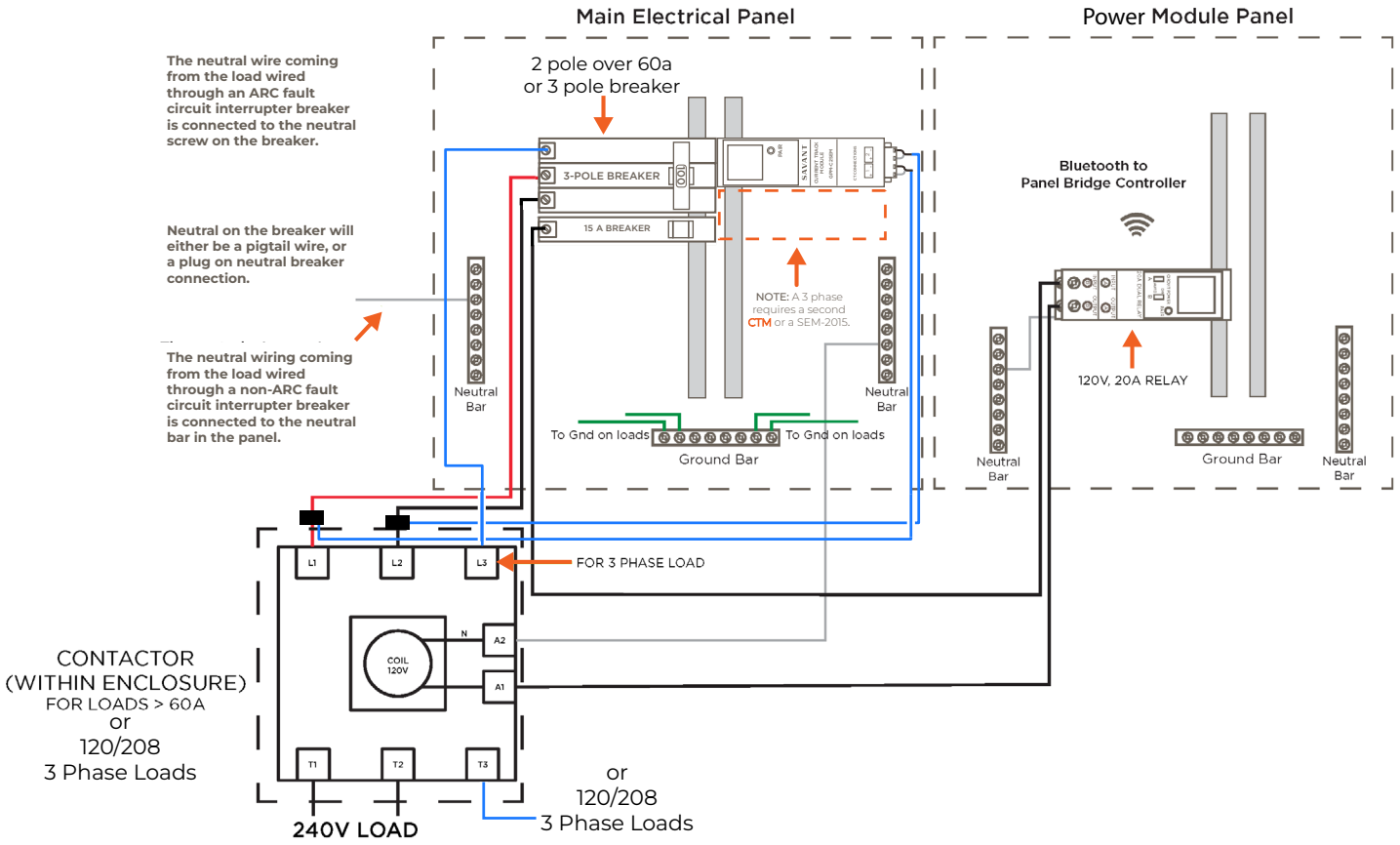




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## Savant Power Control of Loads Over 60A and 120/208V Three-phase Loads

- The Savant Power System uses a standard 120V coil N.O. contactor to control circuits exceeding 60A single-phase and for 120/208V three-phase applications.
- Circuit is run from the circuit breaker through the contactor to the load.
- The 120V coil from the contactor is run through one of the channels on a Savant Power module controlling the power to the coil, which opens and closes the circuit.
- Savant Power CTs are used to monitor the power in this application.
- No limit on circuit size. If the contactor has a 120V coil it can be controlled by a Savant Power Module.





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