SAVANT POWER SYSTEM

Savant Power & Light App Deployment Guide

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This document guides the installer through the complete process of deploying and configuring a Savant Power System using the Savant Power & Light app, including:

- Director and Power System wiring
- Pairing Power Modules using On-Device Onboarding or the Power & Light App

If Applicable Steps:

- Discovery of the Director
- Uploading and Downloading the Configuration from the Savant Power Director
- Integrating a Microgrid, Battery, or Generator
- Creating Energy Scenes
- Customer Perspective Savant App Initial Log-in

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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 Power technical documentation can be located by visiting Savantpower.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

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

Electric Shock Prevention

ELECTRIC	The source power poses an electric shock hazard that has the potential to cause serious injury to installers and end users.
ELECTRICAL DISCONNECT:	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



IDURY! Installing some of the Savant equipment requires two installers to ensure safe handling during installation. Failure to use two installers may result in injury.

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. Before You Begin

This document assumes the installer has read all relevant third party documentation. Read this document in its entirety before starting deployment of any product listed within. Ensure that the following items are available:

1.	Savant Power Director (HST-DIRECTOR)
2.	Savant Power Modules (GPM-QP2R20120-21, GPM-QP1R30240-21, GPM-CP1R60240-21)
	OPTIONAL:
3.	Panel Bridge Controller (PBC-1000)
4.	Smart Energy Monitor (SEM-2015)

1.1. Third Party Documentation

Read the following documentation before continuing deployment.

Tesla

- Tesla PowerWall 2
- Appendix B: Tesla Wiring Diagram

2. Introduction

This document describes the process to establish communication between the Savant Director and Power Modules installed into the Main Distribution Panel (MDP). The initial setup of this communication is called **Onboarding**, and there are two methods to onboard Power Modules:

IMPORTANT: Follow either OPTION 1: Device Onboarding or OPTION 2: App Onboarding. Then, for further optional configuration, follow the sections below listed in Power Source and Energy Scene Configuration:

2.1. OPTION 1: Device Onboarding

Device Onboarding is when the PAIR button on the Power Module device is used to to name the circuit and pair the Power Module to the Director. Afterwards, the Savant Power & Light app can optionally be used to test circuits and configure Power Sources in the system if applicable.

1.	Complete Physical Installation See Before You Begin and Appendix C: Power Panel Wiring Diagrams	
2.	Complete Device Onboarding See Device Onboarding (OPTION 1)	
3.	Pair Power Modules	

IMPORTANT!: Only Appendix A:Physical Installation, Device Onboarding, and Pair Modules must be completed. No further steps are required unless configuring Power Sources and Energy Scenes.

2.2. OPTION 2: App Onboarding

The second option is **App Onboarding**, or when the Savant Power & Light app is used to complete onboarding of the Savant Power System, including installed Power Modules.

1.	Complete Physical Installation See Before You Begin, Tesla Wiring, and Appendix C: Power Panel Wiring Diagrams	∟
2.	Discover Devices and Get Configuration from Director	
	See App Onboarding (OPTION 2)	
3.	Add and Configure Breaker Panel	
4.	Add and Pair Modules	

2.3. Power Source and Energy Scene Configuration

5.	Review Energy Dashboard See Energy Dashboard
6.	Test Functionality See Test Circuits
7.	Add Power Sources See Add Power Source (If Applicable)
8.	Configure Dedicated Circuits
9.	Create Energy Scenes and Configure Energy Loads
10.	Upload Configuration to Director See Upload Configuration

3. On-Device Onboarding (OPTION 1)

Configuring Power Modules using **On-Device Onboarding** is the quickest method to onboard Power Modules. Once wired and installed as according to Appendix C: Power Panel Wiring Diagrams, apply power to the Savant Power Panel. The LCD screen for all Power Modules will light up. Once all Power Modules are powered on fully, their Module Data must be configured.

3.1. Configure Channel & Slot Number

Module Data consists of four parts:

Slot The slots a Power Module occupies within the Power Module Panel.	
Bluetooth Address Bluetooth information for the Power Module	
Circuit Name	Name of each circuit controlled by its respective Power Module Channel.
Room Name	The name of the room the circuit provides power to as it is represented in the Savant App.

Room and Circuit names are configured on a per-channel basis. A **Channel** is the relay within Power Module that controls the circuits associated with the slots the Power Module is installed into. Dual relay Power Modules have **Channel A** and **Channel B**, while single relay modules have only **Channel A**. The image below shows the process of configuring the Room Name, Circuit Name, and Slot Numbers of dual-relay Power Module.



3.2. Pair Power Modules

Once slot numbers and circuit names have been configured, the Power Module has all the information it needs to represent the load within the Savant App. However, until the Power Module is paired to the Director, the Power Module cannot communicate to the Director. **Pairing** is using the PAIR button to establish Bluetooth communication with the Director by transmitting the Bluetooth address of each Power Module to the Director. To complete the pairing process, follow the steps below:

- 1. For each Power Module, press and hold the **PAIR** button for 3 seconds.
- 2. Confirm that the **Gear** icon displaying on the LCD screen.
- 3. On the front of the Director, firmly press the PAIR button.
- 4. Confirm the Director is in **Association** Mode by the Status LED alternating between red and green continuously.
- 5. Pairing is complete when all Savant Power Modules have the gear icon replaced with a Bluetooth [§] icon and the status LCD of the Director is solid green.

At this stage, the Savant Director and Power Modules have been onboarded and are communicating with the Director. The Director can access Module Data and displays that information when accessed by the Savant Power & Light app.

A: Kitchen Outlets	∲ ₿ KCHOUTLET	10W
B: Refrigerator	RFRGRTOR POWER	90W



- This process takes between 2-5 minutes.
- Only Appendix A: Physical Installation, Enter Module Data, and Pair Modules must be completed. No further steps are required unless configuring Power Sources and Energy Scenes.



4. App Onboarding (OPTION 2)

App Onboarding is the process of establishing communication between Power Modules and the Director to establish a Savant Power system. The version of the process uses the Power & Light app on an iOS or Android device primarily. Once the Power System is wired and installed according to the Savant Power Wiring & Installation Guide, do the following:

- 1. Apply power to Savant Power Panel and Director. The LCD screens for all Power Modules will light up.
- 2. Using the App Store, search for **Savant Power & Light** app and tap install.
- 3. When the app is downloaded to an Android or iOS Device, connect to the network the Savant Director is connected to, launch the app.
- 4. Create a Savant Power account and Home, then complete the sections below:

4.1. Device Discovery

The Director is the main **Device** the Savant Power & Light App communicates with. **Device Discovery** is the process of using the Savant Power & Light app to discover the Director. This step is required each time the Savant Power System is accessed using the Savant Power & Light App.



4.2. Get Config

Once the Director has been discovered, the Savant Power & Light App has a network connection to the Director. However, the Power & Light app does not have the information required to communicate with and control the Power Modules. This information is stored as a **Config**, which is a file saved to the Director that contains information and addressing for the entirety of the Savant Power System. **Get Config** is the process to copy a version of the Config to the Savant Power & Light app for further editing as described below:

IMPORTANT NOTE!: This process must be completed before making any edits to a Config.



4.3. Add Breaker Panel

Panels with Power Modules are represented as **Breaker Panels** within the Config. Breaker Panels contain the slot and channel number for all monitored circuits in the Power & Light app. This section describes the process of creating a Breaker Panel. These steps are identical for any type of distribution panel, the only difference is the information entered.

V TIP: All of settings configured after step 4 are referenced in Appendix D: Breaker Panel Settings and can be changed at any time by swiping left on an existing breaker panel and tapping the pencil icon.



BACKUP POWER

4.4. Add Breakers and Modules

Breakers and Power Modules are added to the Breaker Panel to create a visual representation of the panel in the home. From the Breaker Panel view, add either breakers or modules. In the example below a Power Module is added.



For more information on the Slots menu, see Appendix D: Breaker Panel Information

4.5. Pair Added Modules

Once a Power Module has been added to the Breaker Panel, this data must be sent to the Power Module itself. To transmit this data between all Power Modules and the Director, they must be paired. **Pairing** is when the Director establishes Bluetooth communication with Power Modules by searching for all Power Modules in Association Mode.



NOTE: Repeat these steps for all Power Modules.

5. Dashboard

The main screen of the Savant Power & Light app is the **Dashboard**. The Dashboard appears after all devices have been discovered, or when the Savant Home is selected after initial deployment. It contains a list of all menus available within the app, the basic functionality of that menu, and any previously configured settings within that menu.



A	Menu	Tap to open the Menu screen. Account details,, switching Savant Power Homes, and logging out can be accessed here.
B	Breaker Panels	Tap to open the Slots menu.
C	Panels	Quantity of Breaker Panels configured.
D	Power Modules	Quantity of Power Modules configured.
E	Test Circuits	Tap to view the Test Circuits screen and manually control all configured circuits.
F	Power Sources	Tap to view and configure a Power Source.
G	Power Source Type	Type of Power Source configured.
H	Energy Monitoring	Tap to view and configure Current Monitors and Contactors.
	Current Monitors	Quantity of detected Current Monitors over configured Current Monitors.
J	Energy Management	Quantity of Energy Scenes created. Tap to view Energy Scenes.
K	Energy Scenes	Quantity of Energy Scenes configured.

IMPORTANT NOTE!: Optionally, after completing On-Device Onboarding (OPTION 1) or App Onboarding (OPTION 2), begin here. Complete all sections below that are applicable to the equipment installed.

6. Test Circuits

Regardless of method to complete the onboarding process, basic communication within the Savant Power System can now be tested. Use the **Test Circuits** menu on the Dashboard to control individual circuits within the Power & Light app.



7. Add Power Source (If Applicable)

A Power Source, such as a generator, battery, may be installed in the home to provide local power. Configure a Power Source within the Power & Light app by following the steps below.

IMPORTANT NOTES:

- Only one Power Source can be configured.
- Savant Power Systems with Tesla PowerWall inverters require Whole Home Backup.
- Solar values must show negative outside of the Savant Power System for production.



8. Configure Dedicated Circuits (If Applicable)

A **Dedicated Circuit** is a circuit that serves appliances or electrical fixtures with an expected minimum wattage such as washing machines or refrigerators. When a load is set up as a Dedicated Circuit within the Power & Light app, the max wattage must be entered and will be used during the creation of Off Grid Scenes. A load that is set up as a Dedicated Circuit can be configured as **Critical** or **Non-Critical** in Off Grid Scenes.

IMPORTANT!: For sites with a partial home Battery or Generator backup, Circuits must be manually configured as dedicated to be included in Off Grid Scenes. For information on Off Grid Scenes, see Create Energy Scenes.



BY A POWER SOURCE

9. Create Energy Scenes

An **Off Grid Scene** is a series of commands sent from the Director to control loads in the home in the event of a power outage. Off Grid Scenes can be set up to activate automatically upon power outage or based on battery state-of-charge. They can also be activated on the fly by the end-user from the Savant App. Energy Scenes are commands configured within the Savant Power & Light app that can be recalled on demand. Energy Scenes determine which loads will be enabled if a power outage occurs and have a priority list:

- 1. If the battery state of charge has reached a level that exists in an Off Grid Scene condition **when the grid goes down**, that particular Off Grid Scene will activate.
- 2. If the battery state of charge reaches a level that exists in an Scene condition while the grid is down, that Off Grid Scene will activate.
- 3. If two Off Grid Scenes have the same battery and grid conditions and are scheduled to occur at the same time, the **Energy Scene that satisfies more specific conditions is run**.

9.1. Create Energy Scene

The default **Essentials** Off Grid Scene will automatically activate in the event of a power outage. However additional scenes can be created and configured to trigger based on battery state of charge or on a schedule.



9.2. Edit Scene Loads

This window is a visual representation of all Scene Circuits, where Dedicated Circuits can be selected to remain powered when that Scene is activated. When a load is unchecked, the load will be turned off when the Off Grid Scene is active. Tap **Done** to finish Off Grid Scene creation.



10. Upload Config

Any changes made after **Device Discovery** are made to a local copy of the Config. The Config must then be **Uploaded**, or sent to the Director for any changes to take effect. Only complete this step after all changes to the Config have been made.

IMPORTANT NOTE: This process overwrites the current Config on the Director.



11. Savant App Integration

Once the Config has been uploaded, all changes are made to the Config and uploaded to the Director. The user can now access all of the information and settings provided by the completed installation using the Savant App.



12. Confirm System Functionality

Once the configuration is synced to the Director, Savant Power & Light app configuration is complete. However, it is important to test the system to ensure correct functionality

1.	Check that All Circuits are Named Correctly on Companion Module Display
2.	Confirm that Circuit Power Readings appear Correctly on Companion Module Display
3.	Ensure that All Circuits can be Powered On and Off from the Savant App
4.	Check that All Loads Report Energy Readings Properly in the Savant App
5.	Check that Total Consumption, Battery, and Grid Power are Reported Properly in the Savant App
6.	Take the System Off the Grid and Check that the appropriate Off Grid Scene Triggers
7.	Test all Configured Off-Grid Scenes — Check that the Load States are Set Accordingly
8.	Bring the System Back onto the Grid and Check that All Loads are Restored

Appendix A: Savant Power Module Information

A Savant Power Module functions by being installed into a distribution panel as simply as a The Power Module then controls and provides visual information the status of any circuit it is connected to. Power Modules achieve this in three parts: Circuit Monitoring, Bluetooth Communication, and Circuit Control.

Energy Monitoring

Energy Monitoring is the process of gathering Savant Energy Monitor and Power Module data before it is transmitted to the Director. **Live Module Data** consists of total load usage through each circuits wired to the slots that the channels of the Power Module occupies within the Savant Power Panel. This information is represented on the Power Module LED screen as icons.

Power Module Screen Icons

The companion module LED screen contains icons to indicate different states or events that are happening on the module in real time. These icons can be used as an indicator of the state of a function on the module or can be used for troubleshooting a possible problem.

lcon	Description			
\bigotimes	Indicates the companion module is communicating with the Director.			
	Indicates the module installed is a dimmer type module.			
4	Indicates the module installed is a relay type module.			
AB	Indicates the manual circuit power switches on the Power Module are in the AUTO position. As power is applied to the loads, the color becomes green and the gray bar in this icon tracks the intensity of the load. Output A = leftmost switch on LCD (position of module in panel doesn't matter). Output B = rightmost switch on LCD (position of module in panel doesn't matter)			
₩ ₩	Indicates the manual circuit power switches on the companion module are in the ON position.			
\$	Indicates the module is in Association Mode and is waiting to communicate with the director.			
	Indicates the module is being located via the Identify Device feature.			

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DENTIFY

Bluetooth Communication

Live Module Data is not stored on the Power Module, but instead is transmitted and saved to the Director via Bluetooth. **Onboarding** is the process to establish that Bluetooth line of communication so that accurate information is presented in the Savant Power. Using the **PAIR** button on the Power Module is the main method of OPTION 1: Device Onboarding, while OPTION 2: App Onboarding configures the Slot Address and Room Name parts of Live Module Data to the Director using the Power & Light App.

PAIR Button Functions



Length of Press	Action	Description
Тар	Cycle	Cycle through actions available in the menu displayed on the Power Module LED screen.
1 Second	Select	Selects the option highlighted within the menu.
3 Seconds	Clear Pairing	Removes the Bluetooth association between Power Module and a paired Director.
5 Seconds	Reset	Resets the Power Module to factory defaults.

Circuit Control

When the Live Module Data is communicated to the Director, the Director makes decisions based on user and installer configured commands called Energy Scenes. These scenes can be used to control which Power Module controlled loads have power applied to them under specific circumstances.

Appendix B: Tesla Wiring Diagram

The only physical connection required between the Tesla Gateway and the Savant Director is an ethernet connection for communication. All other communication is between the Power Modules and the Director.







Appendix C: Power Panel Wiring Diagrams

A Savant Power Panel is a power distribution panel with Power Modules installed into it. The Savant Power System monitors and uses flexible load management to manage and control the loads attached.

120V 20A Savant Power Dual Relay Modules (GPM-QP2R20120-21)

ARC Fault Breakers



Standard Non-ARC Fault Breakers



IMPORTANT NOTES!

- The 120V 20A Dual Relay Modules switches on and off Loads A and B.
- The main electrical panel contains standard non-ARC fault breakers. See the next page for a diagram using ARC fault breakers.
- Neutral and ground wires on both load centers must be common.

240V 30A Savant Power Relay Modules (GPM-QP1R30240-21)



240V 60A Relay Module (GPM-CP1R60240-21)





- The 240V 60A Relay Module can accept up to a #4 AWG wire.

Appendix D: Breaker Panel Settings

Refer to the manufacturers documentation to confirm the following settings are correct before uploading the configuration to the Director.



A	Panel Name	Name of the breaker panel as it will appear in the Power & Lighting app.
B	Panel Hierarchy	Main Distribution Panel: Panel will control distribution of power throughout the Savant Home.
		Sub Panel: Panel is subordinate to a Main Distribution Panel.
C	Main Breaker (Feed)	Current output from the main feed into this panel.
D	Phase Type	Quantity of phases in this panel.
E	Panel Size	Quantity of slots in the breaker panel.
F	Panel Breaker Columns	Quantity of columns in the breaker panel.
G	Location	Room within the Savant App the breaker panel is located.
H	Backup Power Source	Which Power Source is backing up the panel.
	Panel Type	Make and Model of the breaker panel.

Appendix E: Breaker Panel Information

The Slots screen provides information regarding the status of paired and Power Modules and breakers.



Panel					
A	Panel Side	Which side of the panel is being displayed.			
B	Slot Number	Individual slot in the panel. Tap to test the associated load.			
C	Empty Slot	Tap to add a module to the slot.			
D	Model	User-entered breaker panel model.			
Module					
E	Menu	Tap to change zoom level or save panel template.			
F	Load Type Indicator	Indicates whether the Power Module controls a Lighting or Energy type load.			
	Status Indicator	🌣: Unpaired.			
		Beired to the Director.			
H	Power Meter	Current load out of maximum load per channel, in watts.			
	Switch Status	Indicates whether or not the circuit is enabled.			
J	Circuit Name	Name of associated circuit as it will appear in the Savant App. Tap to assign or re-assign Circuit Name.			
K	Display Name	Shorthand name for the circuit.			

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