SAVANT

Savant® SmartControl 2 Wireless Controller

SSC-W002G-01

Deployment Guide

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Important Safety Information - Read First

Before installing, configuring, and operating Savant equipment and other vendor equipment, Savant recommends that each dealer, installer, etc. access and read all the required 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

Note:	Provides special information for installing, configuring, and operating the equipment.
IMPORTANT!	Provides special information that is critical to installing, configuring, and operating the equipment.
CAUTION!	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 SHOCK!	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

WEIGHT INJURY!	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

Follow all the safety instructions listed below and apply where relevant. Additional safety information will be included where appropriate.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. To completely disconnect this equipment from the AC mains, disconnect the power supply cord plug from the AC receptacle.

1. Introduction

This Deployment Guide will aid the installer through the process of installing, configuring, and adding a SmartControl 2 (SSC-W002G-01) wireless controller to a Savant Pro System. Read through this document in its entirety before beginning the installation process. To begin, ensure that the following items are available:

SmartControl 2 Smart Wireless Controller (SSC-W002G) ☐

iOS Device with SmartConnect installed ☐

HELPFUL! The SmartConnect application runs on most iOS devices (iPad, iPhone, iPod Touch) and simplifies the provisioning process. If an iOS device is not available, the SmartControl 2 controller can be provisioned using the embedded Web UI. See Appendix B: Provision Controller Using Embedded Web UI for more information on this.

Unique ID (UID) of the SSC-W002G ☐
Unique ID is available on sticker on bottom of controller.

Savant Development Environment (SDE/MacBook®) ☐
RacePoint Blueprint da Vinci 8.5 or higher.

Network meeting Savant requirements ☐
See Appendix A: Network Requirements

SSID and Passphrase for Wi-Fi Router or Switch to the local network ☐

2. Deployment Checklist

The checklist can be used to record which steps have been completed.

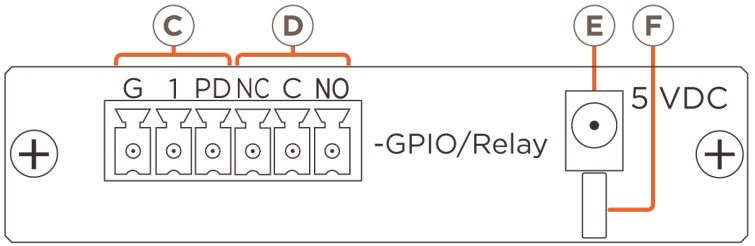
1. Review Front and Rear Panel Descriptions ☐
   See Front and Rear Panel Descriptions
2. Mounting and Wiring ☐
   See Mounting
   See Connections and Wiring
3. Provision Controller to the Network ☐
   See Provision to Local Network
4. Add SCC-W002G to an existing RacePoint Blueprint Configuration ☐
   See Blueprint Configuration
   See Save Configuration, Generate Services, and Upload Configuration

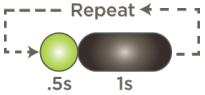
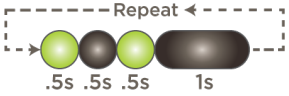
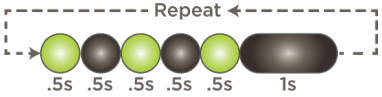
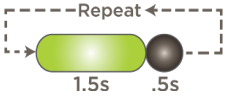
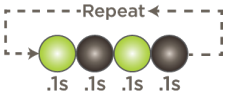
3. Box Contents and Specifications

For Box Contents and Specifications, refer to the Quick Reference Guide to the SmartControl 2 Wi-Fi Controller (009-1505-xx) located on the **Savant Customer Community**.

4. Front and Rear Panel Descriptions

It is important to read and understand the information in this section before beginning the installation process. Understanding the various states of the Status LED as well as the requirements of each port are an important part of the installation process.



A	Reset	Press and hold for five seconds while powered; then release. The Status LED will begin blinking rapidly when reset is complete. After the reset, the controller will be in Provisioning Mode. See **Rapid Blink** below.	
B	Off		No power applied. Power supply may not be plugged in.
	Solid Green		The controller is provisioned to the local network and communicating with the Savant Pro System Host. This is normal operation mode.
	Blinks Once		Is in Provisioning Mode and ready to be added to the local network.
	Blinks Twice		Establishing a connection with the local Savant Pro System Host.
	Blinks Three Times		Provisioned to the local network and trying to connect to the Savant Pro System Host.
	Short Off Blink		Firmware is updating.
	Rapid Blink		The reset button on the front panel was held down for at least five seconds and the controller is performing a factory reset. After the reset, all network settings are cleared and the factory defaults are restored.
C	GPIO (Input)	When configured as an input, the processor looks for either a low (<0.8V DC) or high (>2.4V DC). Minimum 0V DC / Maximum 12V DC.	
	GPIO (Output)	When configured as an output, the port provides a binary output of 0-12V DC 150ma max.	
D	Relay	Dry contacts to control devices requiring basic on/off operation (normally open/normally closed). Max: 30V DC 1A.	
E	Input Power	5V DC 1.2A – Use the included power supply.	
F	Cable Lance	Use with included cable tie to secure power supply connection.	

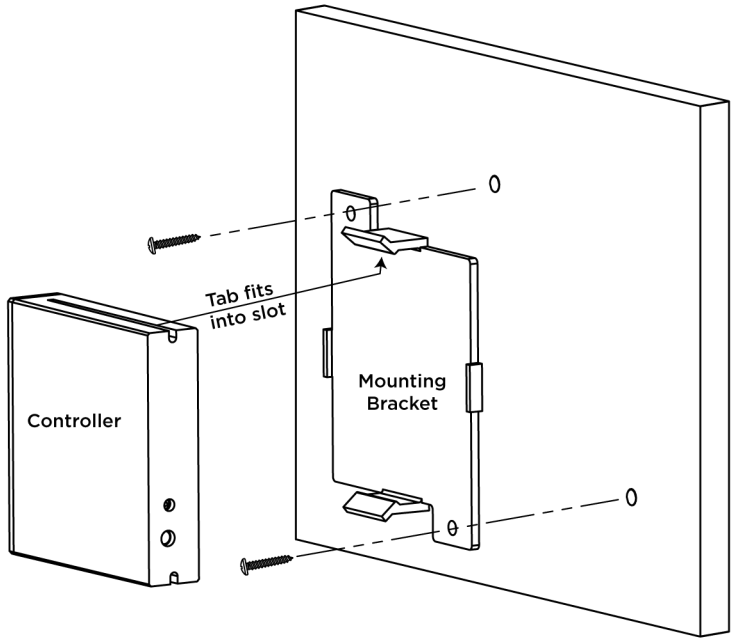
5. Mounting

Mount the controller in a place that is dry, well ventilated, and out of direct sunlight.

5.1. Mounting Plate Installation

The mounting plate included in the shipping box can mount the controller to a wall or existing structure. Follow instructions below to mount the controller.

1. Place the mounting plate onto a wall so the tabs that hold the controller are oriented horizontally.
2. Mark on the wall the two mounting holes. Install wall anchors and screw the mounting plate to the wall.
3. Snap the controller into the bracket so the tabs on the bracket seat into the slots on the side of the controller.



5.2. Rack or Cabinet Installation

When mounting in a rack or cabinet, the controller should be set on a solid, flat, level surface.

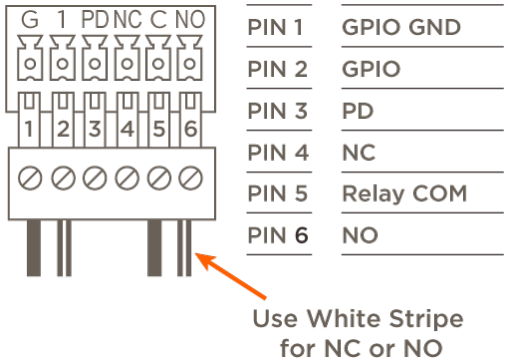
6. Connections and Wiring

The GPIO and relay connections are made using a 6-pin screw down plug-in connector supplied with the controller and power is supplied using the included power supply. Use the information below when making control and power connections.

6.1. GPIO and Relay

General Purpose Inputs/Outputs (GPIO) are binary I/O ports used on Savant controllers to trigger an action within the system. Events can be to control a device such as turning on an amplifier (output) or detecting a state change for a device (input) to perform a workflow. The left 3 pins of the supplied connector are used for the GPIO connections.

Relays are used when a contact closure (normally open/normally closed) is needed to activate a device such as raising or lowering shades, opening or closing a gate, or sending control signals to an HVAC system are a few examples. The right 3 pins of the supplied connector are used for the relay connections.



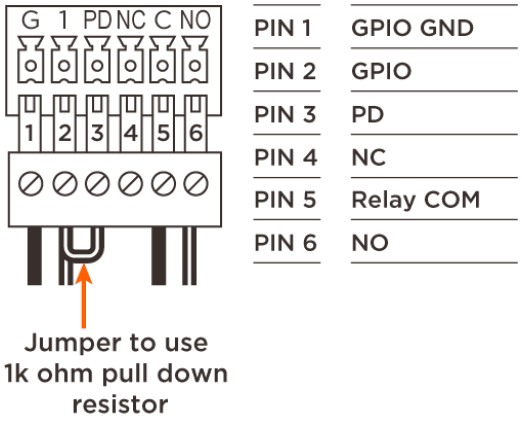
PIN 1	GPIO GND
PIN 2	GPIO
PIN 3	PD
PIN 4	NC
PIN 5	Relay COM
PIN 6	NO

To connect wires into terminal block connector:

1. Remove power if power is applied.
2. Pull to remove the connector from the rear of the controller.
3. With a small flat bladed screwdriver, turn the screws on the top of connector counterclockwise until the silver crimps in the front open enough to slide the wire into the square slot.
4. Strip the ends of each wire to ¼ inch. Using the diagram to the left, insert the stripped wires into the proper slots.
5. Turn the screws clockwise until the screw tightens around each wire. Tug on each wire a bit to ensure they are installed securely. There should be no bare wires protruding from the rear of the connector.
6. Plug connector back into the rear of the controller.

6.2. GPIO Pull Down Resistor (PD) Usage

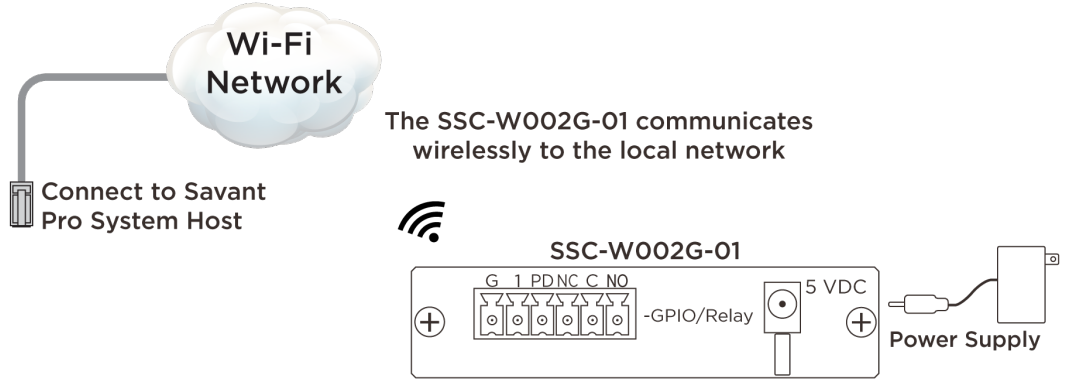
GPIO pins are configured as inputs and are pulled high to 12V while the Host is booting up. To make the GPIO signal low during a Host reboot or a power cycle, attach the GPIO 1 pin to the PD pin. The PD pin is a 1K ohm pull down resistor (to signal earth ground) which keeps the GPIO output below 0.8V during the processor boot times.



PIN 1	GPIO GND
PIN 2	GPIO
PIN 3	PD
PIN 4	NC
PIN 5	Relay COM
PIN 6	NO

6.3. Power and Network Connections

Connect the provided power supply between the 5V DC connection on the rear of the controller and a surge protected 120 – 240V AC 50/60Hz outlet receptacle. The SSC-W002G-01 communicates with the network over the local Wi-Fi network so a wired connection between the controller and the network is not required.



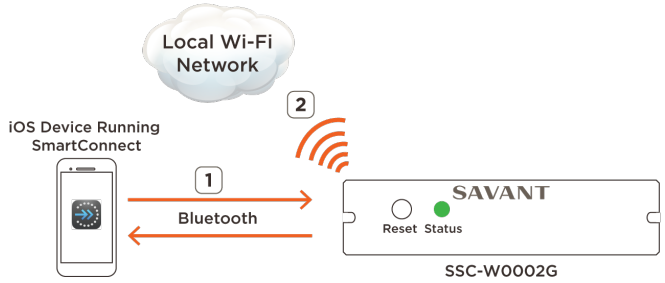
HELPFUL! No Ethernet connection is needed. The controller communicates with the Savant Pro System Host over the local Wi-Fi network.

7. Provisioning Controller to the Local Network

The controller communicates with the Savant Pro System Host over the local Wi-Fi network. Read through sections 7.1 – 7.3 to understand the process and guidelines. Follow sections 7.4 and 7.5 to perform the provisioning process.

7.1. Network Diagram (Provisioning Process)

The diagram below demonstrates the provisioning process. Review the diagram for an understanding on how the process works.



1. During the provisioning process, the SmartConnect application communicates with the controller using Bluetooth signaling.
2. Once the controller is provisioned, it can communicate using the local Wi-Fi network.

HELPFUL!

- Savant recommends using DHCP reservation. Refer to the owner's manual for the local router for information on setting DHCP reservations.
- 802.11r (fast roaming) is not supported. If using a router that supports fast roaming, it should be disabled.

7.2. Checklist for Provisioning

The following items are required to provision the controller using the SmartConnect application.

- SSC-W002G SmartControl 2 wireless controller ☐
- iOS Device with SmartConnect App (v1.6 or higher) installed ☐
- Network SSID and passphrase for the wireless router or switch in local network ☐
- Unique ID (UID) of the controller (obtained from sticker located on bottom of controller) ☐
- **Optional:** rpmEmbScanner ☐
  (Used to access the IP Address of the controller)

7.3. SSID Guidelines

Savant Wi-Fi products can connect to a wireless network that meet the following SSID guidelines.

Maximum SSID Length	32 characters	
Maximum Passphrase Length	WPA/WPA2:	8-50 characters
	WEP:	10-26
Wireless Standard	802.11 a/b/g/n (2.4 or 5 GHz)	

Supported SSID and Passphrase special characters.

!	#	@	$	%	^	&	*	(	)	-	_	`	~
=	+	‘	:	;	?	/	·	<>	[ ]	{ }	|	’	\

7.4. Install SmartConnect

To connect the controller to the network, the Savant SmartConnect application must be installed and running on an iOS device such as an iPhone® or iPad®. The SmartConnect Application can be downloaded from the Apple App Store to your iPhone or iPad.

- From the Apple App Store search for Savant Systems LLC.
- Locate the SmartConnect App and download/install onto your iOS device.

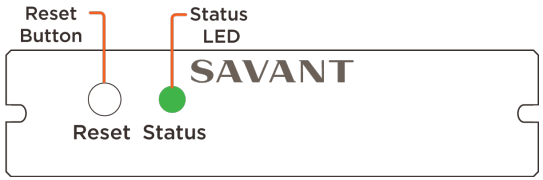
For more information, refer to the **SmartConnect Reference Guide (009-1046-xx)** located on the **Savant Customer Community**.

HELPFUL INFORMATION!

- SmartConnect v1.6 or higher is required to provision the SSC-W002G-01.
- The iOS device that the SmartConnect application is running on does not need to be connected to the same network the controller is being added to.
- The SmartConnect is only supported on the iOS platform. Refer to Appendix B: Provision Controller Using Embedded WebUI for instructions on how to connect the controller to the local network if the SmartConnect application is not available.
- During the provisioning process, the SSC-W002G must be within 30 feet of the device running the SmartConnect app.
- The iOS device must be running Bluetooth v4.0 or higher.

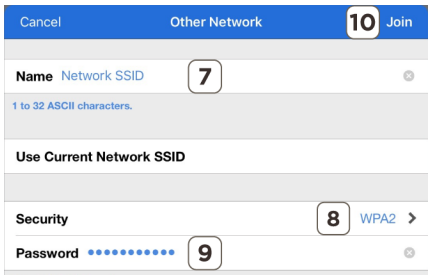
7.5. Provision Instructions

1. If not already powered, plug the provided power supply and cable between the controller and a surge protected 100 – 240V AC receptacle. Refer to the Power and Network Connections section above.
2. By default, a new SSC-W002G-01 controller is set at the factory, to be in provisioning mode. If the Status LED is flashing the Blinks Once sequence, **skip this step**. If, however, the LED is blinking a different sequence, follow the bulleted items below to set the controller to provisioning mode.
   - Press and hold the reset button for five seconds until the Status LED blinks green rapidly, then release.
   - After the reboot (1 – 2 seconds), the Status LED will begin the Blinks Once sequence. This sequence indicates it is in provisioning mode and ready to be added to the local network.
3. On the iOS device (iPhone, iPad, etc.), tap the SmartConnect (Connect) icon .
4. Locate the **SSC-W002g** in the **Devices on Bluetooth** section. Record the Savant ID (UID) displayed. This UID will be used later in this procedure.

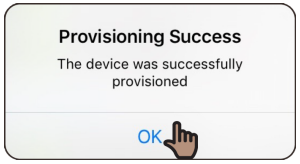


5. Tap the SSC-W002G entry from the **Devices on Bluetooth** section of the App.

6. In the **Pick a Network** window that opens, tap **Join Other Network...** (image not shown).
7. Populate the **Name** field with the SSID of the local Wi-Fi network.
   - or -
   Select the **Use Current Network SSID** field. Select this field only if the iOS device that the SmartConnect App is running on, is connected to the same network the Savant Pro System Host is communicating with.
8. Tap **Choose** from the Security field and select the security configured on the local network.
9. Enter the password to the local network into the **Password** field.
10. Tap **Join** when complete.

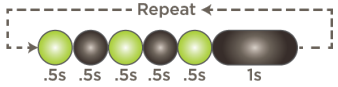


11. A **Provisioning Success** window will open informing the user the device is provisioned. Select **OK**.



HELPFUL INFORMATION!

- The SSC-W002G will now be listed in the **Devices on WiFi** section in SmartConnect if the iOS device is connected to the same local network that the controller just got added to.
- With the SSC-W002G provisioned, the Status LED will blink one of the images below.



Blinks Three times – The controller is provisioned to the local network and trying to connect to the Savant Pro System Host. The controller needs to be added to a Blueprint configuration and the configuration uploaded to the Host. Follow the steps in the Blueprint Configuration section below to do this.

Solid Green – The controller is communicating with both the local network and the Savant Pro System Host. The configuration running on the Host already has this controller in its configuration.

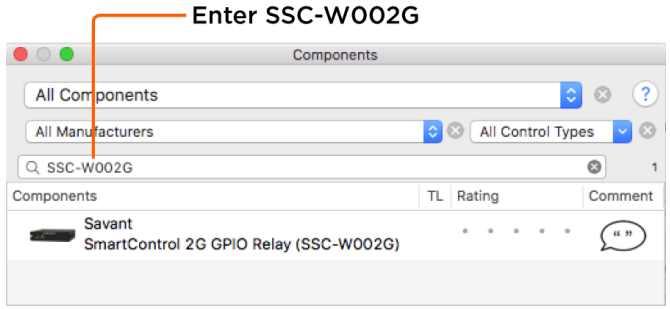
- If the IP Address for the controller is needed (i.e. for DHCP reservations or troubleshooting), the IP Address of the controller can be discovered using the **rpmEmbScanner** utility located under the **Launch** menu of the Savant Application Manager (SAM).

8. Blueprint Configuration

The instructions below add the SSC-W002G controller to a Blueprint configuration. Once added, it can then be uploaded to the Savant Pro System Host.

8.1. Add Controller to Blueprint

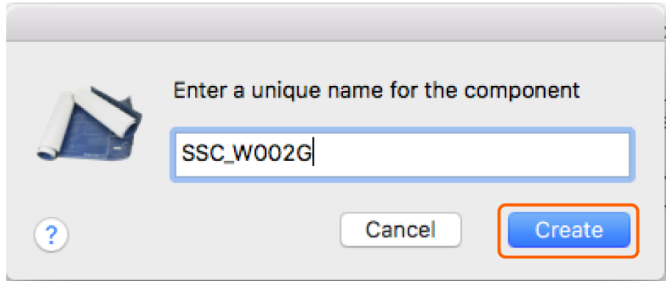
1. Open the Savant Application Manager (SAM).
2. Through SAM, open a RacePoint Blueprint configuration.
3. Select **Show Library** from the Blueprint toolbar to open the Components library.
4. Enter **SSC-W002G** into the Search bar (see image to right).



5. Drag the controller into either a shared equipment or user zone.

   HELPFUL INFORMATION! Placing a component in the Shared Equipment zone ensures that it will be accessible from any zone in the Savant Pro App. Placing a component in a user zone limits its availability to only that zone.

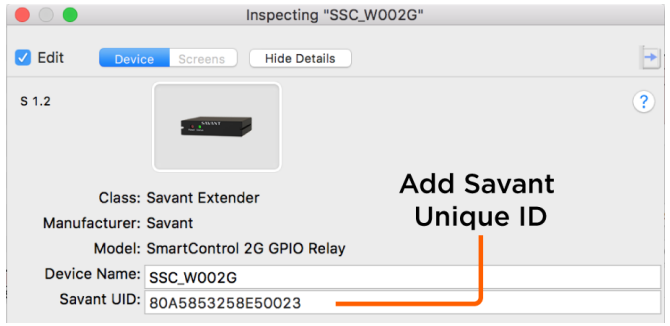
6. In the window that opens, enter a unique name that describes the component being added.
7. Select **Create**



8. Drag the controller into the layout window.
9. Close the Component library by selecting **Hide Library** from the Blueprint toolbar.
10. Double-click the controller to open the Inspector.
11. Enter the 16 character UID for the controller into the **Savant UID** field. This is the UID obtained in step 4 of the Provision Instructions section above.

    TIP! The UID can also be obtained from the sticker located on the bottom of the controller.

12. Close the Inspector.
13. In Blueprint, make the required control connections (Relay/GPIO). The profiles for these devices can be found in the RacePoint Blueprint Component Library.



8.2. Save Configuration, Generate Services, and Upload Configuration

With the controller added and the Blueprint Configuration complete, the configuration needs to be uploaded to the Savant Pro System Host. Follow steps below to do this.

1. Select **File > Save** from the Blueprint menu bar.
2. Select the **Generate Services** icon from the Blueprint toolbar and answer the prompts. The State icon in the RacePoint Blueprint toolbar will change to either blue or green indicating the services for the configuration are created.

   HELPFUL INFORMATION! If this is a new configuration and the **Generate Services** icon is not accessible (grayed out), add a **Generic Network Switch** to the configuration and connect the **Wifi (Ethernet)** port on the SSC-W002G to an **Ethernet Port** on the network switch. This will make the Generate Services icon active.
3. **OPTIONAL:** Select **Update All UI Screens > Sync with Services** (only if necessary) from the Blueprint toolbar to sync any user interfaces such as an iPad® to the services. The State icon will change to green when complete.

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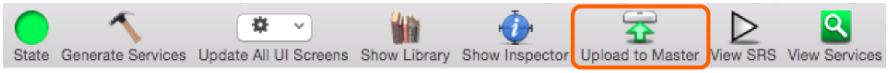
4. Select the **Upload to Master** icon from the Blueprint toolbar to upload the configuration to the Savant Pro System Host. Answer any prompts that may open.



Select Upload to Master

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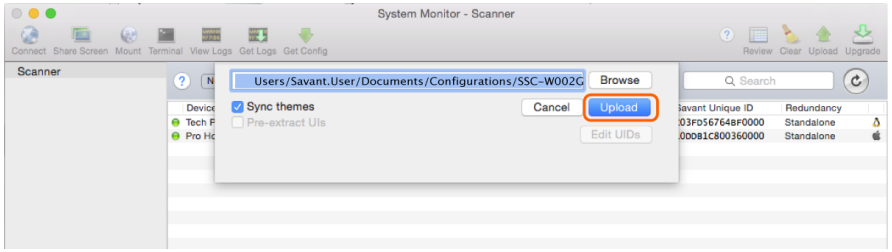
5. The System Monitor application will automatically open as displayed to the right. Verify the path to the configuration file is correct. Select **Upload** when satisfied.

   The configuration will now upload to the Host. Once uploaded, the Host can now communicate with the controller. The Status LED on the controller will illuminate solid green indicating it is communicating with the Host.



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9. Additional Information

Refer to the following documents located on the **Savant Customer Community** for additional information.

- SSC-W002G-01 Quick Reference Guide (009-1505-xx)
- Smart Connect Software Reference Guide (009-1049-xx)
- Savant Application Manager (SAM) Reference Guide (009-1382-xx)
- System Monitor Reference Guide (009-1421-xx)
- Relay and General Purpose Input/Output Profiles: Application Note
- Review the following Video from Savant Community > Savant University > Course Catalog > Controllers.
  - 7.0 Savant Controllers Family.

Appendix A: Network Requirements

Savant requires the use of business class/commercial grade network equipment throughout the network to ensure the reliability of communication between devices. These higher quality components also allow for more accurate troubleshooting when needed.

Device Network Connections

Connect all Savant devices to the same local area network (LAN) or subnet as the Host. Savant recommends not implementing any type of traffic or packet shaping in your network topology for the Savant devices as this may interfere with performance.

Managing IP Addresses

To ensure that the IP Address will not change due to a power outage, a static IP Address or DHCP reservation should be configured. Savant recommends using DHCP reservation within the router. By using this method, static IP Addresses for all devices can be managed from a single UI avoiding the need to access devices individually. Setting DHCP reservation varies from router to router. Refer to the documentation for the router to configure DHCP reservation.

Network Changes

Savant recommends performing one of the following steps to refresh the IP connection after connecting to a new network, changing routers, or if the IP Address range is changed in the current router. This will reset any IP connection and ensure that the Host is communicating with the network correctly.

To refresh the IP connection, do the following:

- **Restore System Defaults**
  To restore system IP default settings, press and hold the reset button for 5 seconds until the Status LED starts a rapid blinking sequence; then release. System will reset and IP Address settings will be cleared.

Appendix B: Provision Controller Using Embedded Web UI

The steps below describe how to provision the SSC-W002G-01 to the local network using the embedded Web UI. All SSID and Passphrase guidelines described in Section 7.3 above also pertain to the process below.

1. Apply Power and Clear Network Settings

1. Apply power by plugging the provided power supply between the 5V DC connection on the rear of the controller and a surge protected 120 – 240 V AC outlet.
2. Press and hold the reset button on the front panel for five seconds until the Status LED on front panel of the controller begins a Rapid Blinking sequence; then release. The controller will reboot (1-2 seconds) and return to its factory default settings and the Status LED on the front panel will blink once a second indicating it is in provisioning mode. Refer to the LED status Blinks Once for more information.

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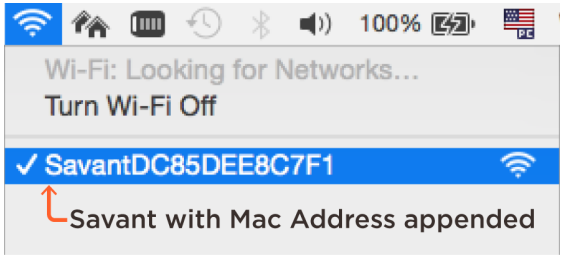
2. Connect to Network.

1. On the MacBOOK/SDE, select the Wi-Fi icon from the menu bar and then select the controller from the available networks. The controller will be presented as **Savant<mac address>**.

   Note: The Mac Address is the first 12 characters of the UID. The UID is printed on a sticker on the bottom of the controller.



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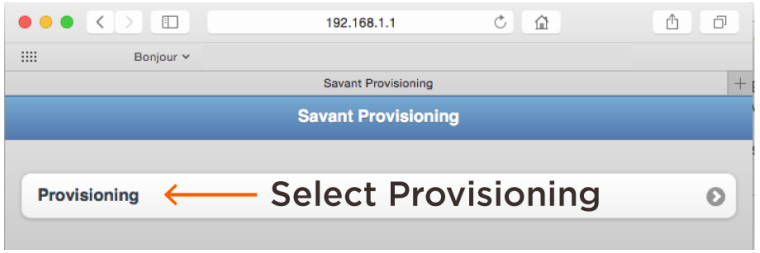
2. Open a browser, enter the IP Address **192.168.1.1**, and then select the **<enter>** key.
3. Select **Provisioning** from the web page that opens.



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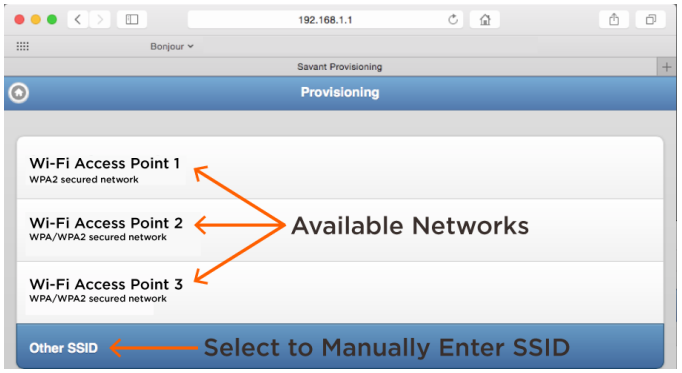
4. Select the network from the list of available networks.

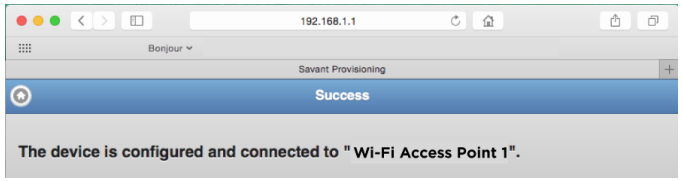
   Optional: If the network is not displayed in the list of available networks, select **Other SSID** and enter the network SSID manually.

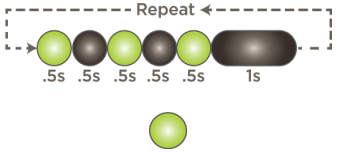
5. Follow the prompts and enter the passphrase for the network selected.



6. The controller will join the specified local network and a **Settings Applied** message will appear. Read and understand the statement in this window.

7. The Status LED will now blink one of the sequences described below:





Blinks Three times – The controller is connected to the local network and is trying to connect to the Savant Pro System Host. In this scenario, this controller needs to be added to a Blueprint configuration and uploaded to the Host. Follow the steps in the Blueprint Configuration section above to do this.

Solid Green – The controller is communicating with both the local network and with the Savant Pro System Host. The configuration running on the Host already has this controller in its configuration.

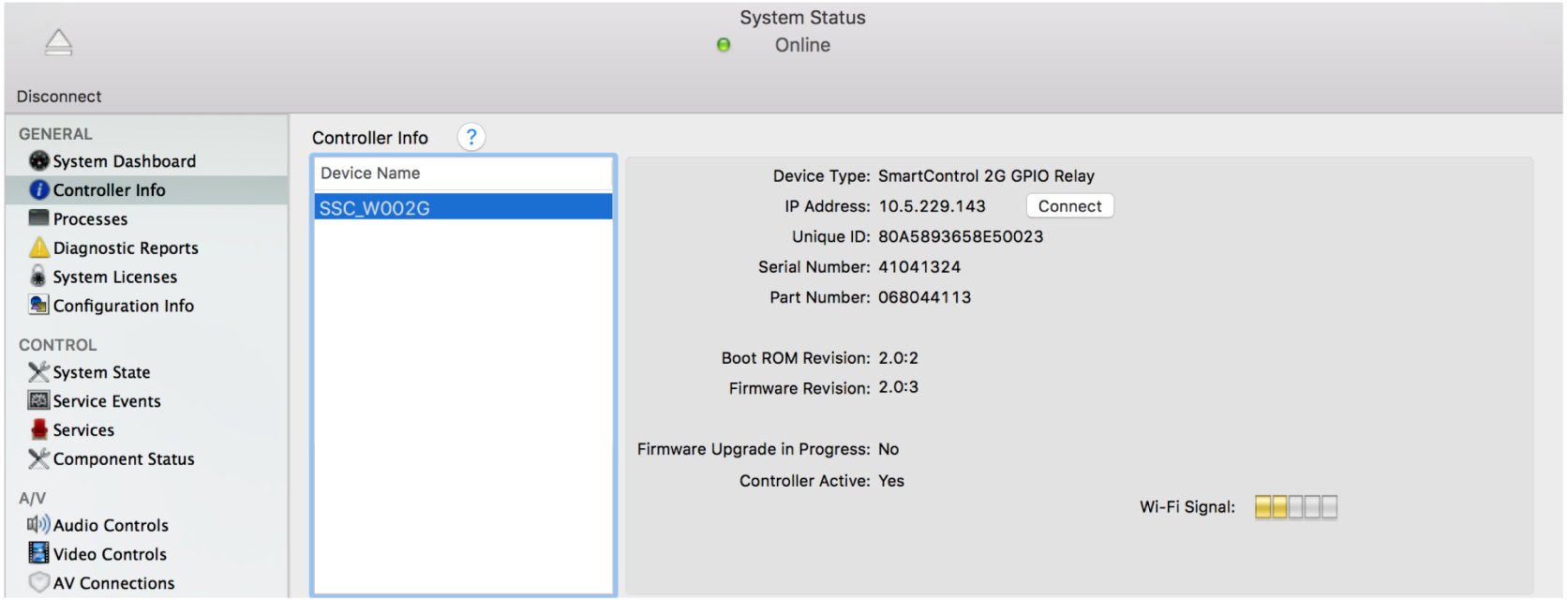
8. The controller is now connected to the local network. If required, the next step is to configure the controller into RacePoint Blueprint.

HELPFUL! Once the controller is provisioned and assigned an IP Address, the SDE/MacBook will automatically disconnect from the controller. At this point, the SDE/MacBook will no longer be connected to a wireless network. If network connectivity is required, the user will need to reconnect to the local network.

Appendix C: System Monitor

The System Monitor application is a tool that allows a user the ability to inspect, monitor, and make updates to the components in the Savant Pro System. As part of the Savant Pro System, the SSC-W002G is one of those components available in System Monitor. Relevant System Monitor information regarding this controller is described below.

General Information



Device Type	The product selected.
IP Address	IP Address assigned to the controller. Select the **Connect** button to open a terminal window into the device.
Unique ID	A 16-character Savant ID that identifies the controller to the Savant Pro System Host.
Serial Number	Serial Number assigned to the controller.
Part Number	The Savant part number assigned to the controller. The Savant Support Team may require this number during troubleshooting or if a replacement is required.
Boot ROM Revision	Version of Boot ROM running.
Firmware Revision	The revision of firmware running.
Firmware Upgrade in Progress	Displays the progress of a firmware download. Displays **No** if no update is happening.
Controller Active	Displays **Yes** when active and can be used in a Savant Pro System. Displays the state of the controller when not in the active state (e.g. rebooting)

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