

SmartControl RS232 - Wi-Fi Smart Controller with 2 RS232 SSC-W02R

Deployment Guide

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1. Introduction

This Deployment Guide will guide the installer through the process of installing, configuring, and adding a SmartControl RS-232 (SSC-W02R) to the Savant Pro System.

Before You Begin

Read through this document in its entirety and ensure that the following required items are available:

- SmartControl RS232 (SSC-W02R)
- Unique ID (UID) of the controller
(located on bottom of controller)
- Savant Smart or Pro Host licensed and running da Vinci 8.2 or higher
- Savant Development Environment (SDE) MacBook®
(with RacePoint Blueprint® da Vinci 8.2 or higher installed)
- Smart Connect Application (v1.5 or higher) installed on an iOS device
- Network meeting Savant Requirements
(See [Network Requirements](#))
- SSID and Passphrase for the Wi-Fi Router or Switch

2. Deployment Steps

Follow these steps to successfully deploy an SSC-W02R controller. This page can be used as a checklist to record which steps have been completed.

Review the SSC-W02R panel connections and controls
See [SSC-W02R Overview](#)

Mount the hardware
See [Installation](#)

Install the wiring in the system
See [Wiring and Connections](#)

Connect the SSC-W02R to a wireless network
See [Provisioning to the Network - SmartConnect](#)

Add the SSC-W02R to a Blueprint configuration
See [RacePoint Blueprint Configuration](#)

Upload the configuration to the Host
See [Upload Configuration](#)

3. SSC-W02R Overview

Box Contents and Specifications

Refer to the Quick Reference Guide for this product located on the **Savant Customer Community** for Box Contents and Specifications

Front Panel



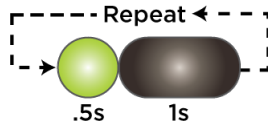
- A** Press and hold for 5 seconds while powered On to clear network settings. Status LED will blink rapidly when reset is complete. Controller will now be in Access Point Provisioning Mode.

Off: No Power

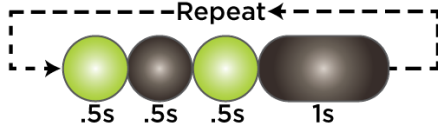
On Solid: Connected/Communicating with the system Host.



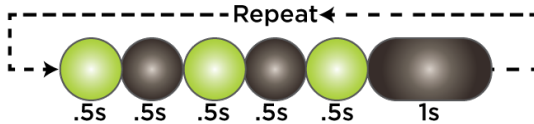
Blinks Once: In Access Point Provisioning Mode. Ready to be provisioned to the local network.



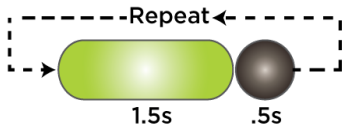
Blinks Twice: Establishing connection with the local network.



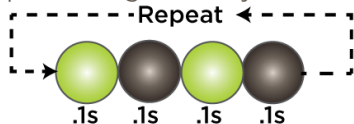
- B** **Blinks Three Times:** Connected to the local network. Is connecting to the Host.



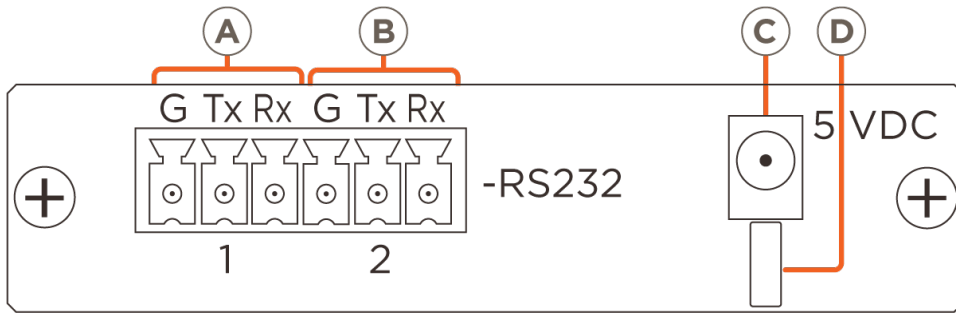
Short Off Blink: Firmware is updating.



Rapid Blink: The reset button was held down for at least five seconds and the SSC-W02R is performing a factory reset.



Rear Panel



The left three pins **A** shown above are associated with RS-232 stream 1 and the right three pins **B** are associated with RS-232 stream 2.

RS-232 Port 1 - 6-Pin Plug-In Connector (Left 3 Pins)

	G	Signal Ground
A	Tx	Transmit Data
	Rx	Receive Data

RS-232 Port 2 - 6-Pin Plug-In Connector (Right 3 Pins)

	G	Signal Ground
B	Tx	Transmit Data
	Rx	Receive Data
C	Input Power	5V DC 1.2A Connect to included power supply.
D	Cable Lance	Use with included cable tie to secure power supply connection.

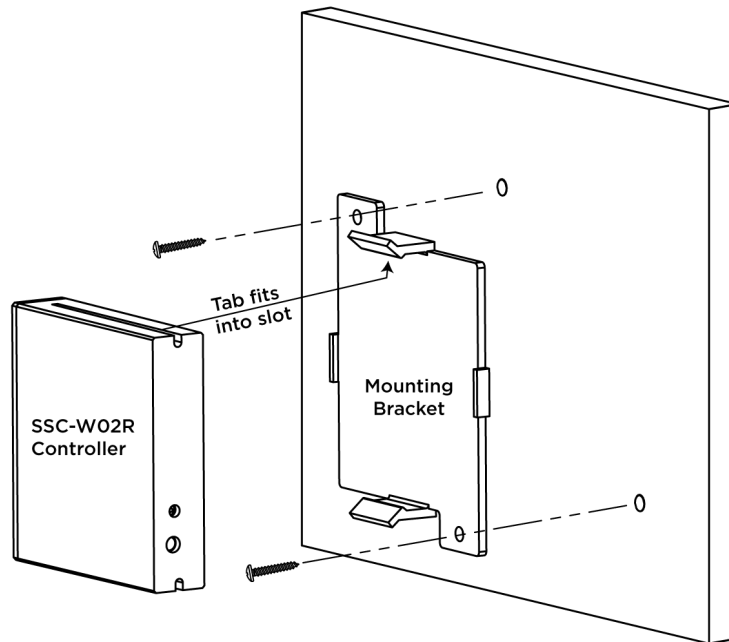
4. Installation

The SSC-W02R should be located in a place that is dry, well ventilated, and out of direct sunlight.

Mounting Plate Installation

A mounting plate (074-0569-xx) is supplied with the SSC-W02R controller. This mounting plate is used to mount the controller to a wall or existing structure. To mount the controller, follow the instructions below.

1. Position the mounting plate onto the wall where the controller will be located. Position the bracket so the tabs that hold the controller are positioned horizontally.
2. Mark the two mounting holes on the wall.
3. Install wall anchors and screw mounting plate to the wall.
4. Snap the SSC-W02R controller into the bracket so the tabs on the mounting bracket seat into the slots on the side of the controller.



Rack or Cabinet Installation

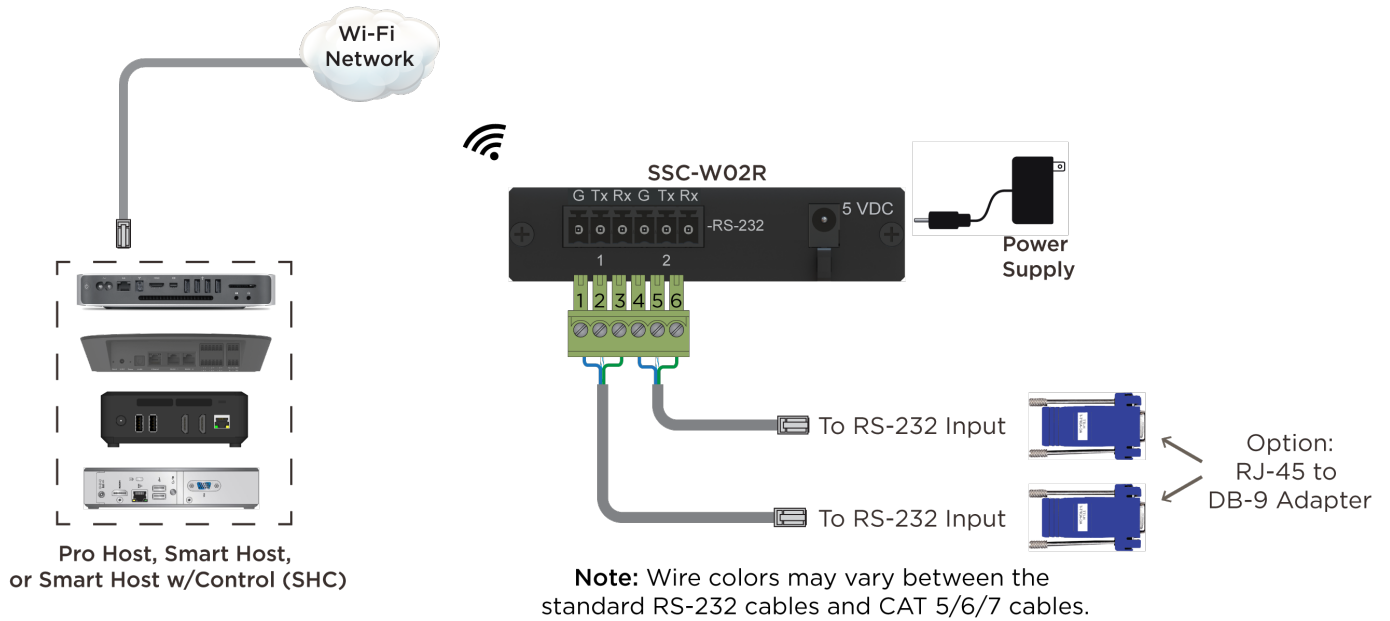
When mounting in a rack or cabinet, the controller should be set on a solid, flat, level surface.

Next step is to connect power and wiring. See [Wiring and Connections](#) section.

5. Wiring and Connections

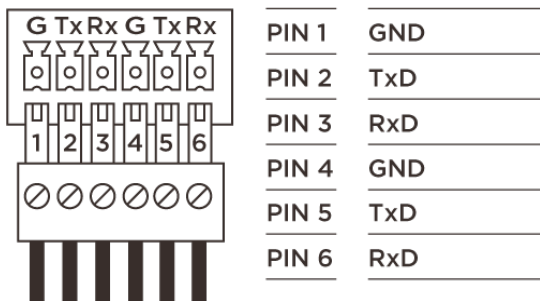
Refer to the diagrams below when making connections. The SSC-W02R incorporates two RS-232 streams. Each stream contains Tx, Rx and Gnd. DCD, RTS, CTS, DTR, and DSR are not supported.

System Diagram



Rear Panel Connections

Below is exploded view of the RS-232 connections.



To connect wires into the terminal block connector:

1. Remove power if power is applied
2. Pull to remove the terminal block from rear of SSC-W02R controller.
3. With a small flat bladed screwdriver, turn the screws on the top of the terminal block counterclockwise until the silver crimps in the front open enough to slide the stripped wires into the square slots.
4. Insert one of the stripped wires from the devices being controlled into its respective slot on the terminal block. Refer to the diagram.
5. Turn the screw clockwise until the silver crimp tightens around the wire. Tug on the wire a bit to verify the wires are installed securely. Make sure a minimal amount of bare wire is exposed to prevent contact between adjacent wires.
6. Repeat for each wire till all wires are installed and plug terminal block back into the rear of the SSC-W02R.
7. Reapply power.

Device Connections

The tables below show some of the possible connections that can be made from the SSC-W02R to the device being controlled.

W02R to DB-9 (Serial Cable)

The table below shows the pinout for connections made from the rear of the SSC-W02R straight into a DB-9 connector.

SSC-W02R	DB-9 Connector to the device being controlled
Pin 1 or 4 (GND)	Pin 5 (GND)
Pin 2 or 5 (TxD)	Pin 2 (RxD)
Pin 3 or 6 (RxD)	Pin 3 (TxD)

- The pinout for the DB-9 in table above follows the EIA-232 standard.
- Cable colors have been omitted since there is no standard color scheme when wiring RS-232.
- Refer to the manufacturers documentation and verify the pinout/signals shown above match what is implemented on the device being controlled. Some devices do not follow the standards described above.

W02R to RJ-45 (Cat 5/6/7 with RJ-45)

The table below shows the pinout for connections made from the rear of the SSC-W02R straight into an RJ-45 connector.

SSC-W02R	Cat 5/6/7 cable	RJ-45 Connector to the Device being controlled
Pin 1 or 4 (GND)	Blue	Pin 4 (GND)
Pin 2 or 5 (TxD)	Blue/White	Pin 5 (RxD)
Pin 3 or 6 (RxD)	Green	Pin 6 (TxD)

- The cable colors and pinout for the RJ-45 in table above follows the T-568B standard for connecting RJ-45 connector to a Cat 5/6/7 cable. The RJ-45 connections shown are using a straight through type connector (Not a Crossover/Null Modem).
- The RS-232 signal connections shown follow the EIA/TIA-561 standard
- Refer to the manufacturers documentation and verify the pinout/signals shown above match what is implemented on the device being controlled. Some devices do not follow the standards described above.

W02R to RJ-45/DB-9 Adapter (Cat 5/6/7 to DB-9 using RJ-45 to DB-9 Adapter)

The table below shows the pin out for connections made from the rear of the SSC-W02R controller straight into an RJ-45 connector and then into an RJ-45 to DB-9 Adapter.

SSC-W02R	Cat 5/6/7 cable	RJ-45 input to Adapter	DB-9 connection to the device being controlled
Pin 1 or 4 (GND)	Blue	Pin 4 (GND)	Pin 5 (GND)
Pin 2 or 5 (TxD)	Blue/White	Pin 5 (RxD)	Pin 2 (RxD)
Pin 3 or 6 (RxD)	Green	Pin 6 (TxD)	Pin 3 (TxD)

- The cable colors and pinout for the RJ-45 in table above follows the T-568B standard for connecting RJ-45 connector to a Cat 5/6/7 cable.
- The RJ-45 connections shown are using a straight through type connector (Not a Crossover/Null Modem). This would be either the Red or Blue RJ-45 to RS-232 Adapter offered through Savant.
- Refer to the **RS-232 Conversion to DB-9 and RS-422/485 Pinout Application Note** on the **Savant Customer Community** for information on the various Adapters offered.
- Refer to the manufacturers documentation and verify the pinout/signals shown above match what is implemented on the device being controlled.
- The RJ-45 connection and the RJ-45 to DB-9 Adapter in table above follow the T-568B standard.

6. Provisioning to the Local Network - SmartConnect

The network parameters are configured into the SSC-W02R using the SmartConnect Application. This section contains the steps required to provision the SSC-W02R to the local network. For information on provisioning the controller using the embedded Web UI, refer to [Appendix A: Provision using Web UI](#) for information on this.

Required Items for Network Configuration

The following items are required to provision the SSC-W02R for the local network.

- iOS Device with SmartConnect (v1.5 or higher) Installed.....
- SSC-W02R Controller
- Unique ID (UID) of the controller
(located on the bottom of the unit)
- SSID and Passphrase for the Wireless router or switch

SSID Guidelines

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


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

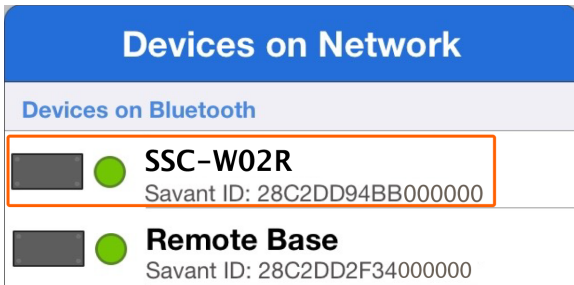
Supported SSID and Passphrase Special Characters

!	#	@	\$	%	^	&	*	()	-	_	`	~
=	+	'	:	;	?	/	.	<>	[]	{ }		,	\

Connect to Wireless Network - SmartConnect

Provisioning the SSC-W02R to the local network utilizes either the SmartConnect (Bluetooth) application or an embedded Web UI (Wi-Fi). Using SmartConnect is described below. For information on using the embedded Web UI, refer to the [Appendix A: Provision using Web UI](#) section.

- Apply power to the controller by plugging the supplied power supply into the 5V DC input connection.
- The SSC-W02R is set to provisioning mode when shipped from the factory which is indicated by the Status LED on the front panel blinking once per second (See the [SSC-W02R Overview](#) section above). If the device is not in provisioning mode, press and hold the reset button on the front panel for 5 seconds until the Status LED begins blinking rapidly; then release button. This resets the controller to its factory settings and the SSC-W02R is ready for provisioning.
- Open the SmartConnect Application .
- Tap the device in the **Devices on Bluetooth** dialog window.



- Tap the SSC-W02R to open the Network screen.
- Each device is identified with the Savant ID (UID).

- In the **Pick a Network** dialog window that opens, tap the **Join Other Network...** selection (image not shown).
- In the **Other Network** dialog window that opens (shown below), enter the following:



TIP!

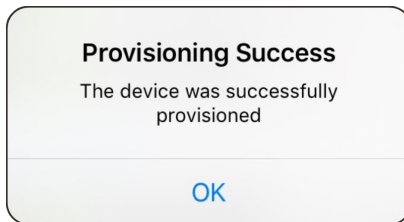
Tapping the **Use Current Network SSID** field will auto populate the Name field with the SSID of the local network that the iOS device is connected to

-
- A** Enter the SSID of the local network.

 - B** Tap the Security field. In the dialog window that opens, select the security configured on the local network.

 - C** Enter password to the local network.
-

- Tap **Join** when complete.
- A **Provisioning Success** dialog window will open informing the user that the device successfully provisioned to the network. Select **OK**.



- The Controller is now provisioned to the local network. The next step will be to configure the controller into **RacePoint Blueprint**.

Additional Information

- The Status LED on the controller will blink three times indicating it is connected to the local network and trying to connect to the Host.
- The SSC-WO2R will now be displayed in the **Devices on Wi-Fi** section in SmartConnect.
- If desired, the IP Address and Unique ID (UID) for the SSC-WO2R can be discovered using rpmEmbScanner located in the Launch Menu of the Savant Application Manager (SAM).

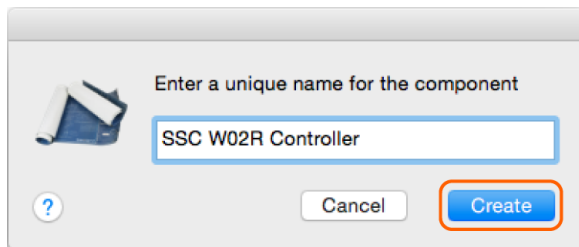
7. RacePoint Blueprint® Configuration

Add the SSC-W02R controller to RacePoint Blueprint.

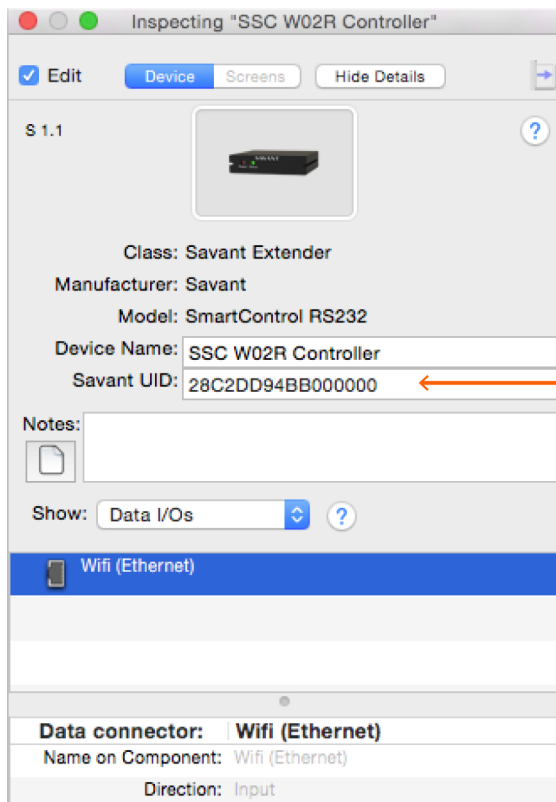
1. Open the Savant Application Manager (SAM).
2. Open Blueprint by selecting the Blueprint button on the right side menu within the Savant Application Manager (SAM) or drag an existing configuration into that same location to open.

Note: If starting a new configuration, a Smart or Pro Host and Network Switch will need to be in the configuration before continuing.

3. Open the **Component Library** by clicking **Show Library** from the Blueprint toolbar.
4. Enter **SSC** into the Search bar.
5. Drag the **SmartControl RS232 (SSC-W02R)** controller into the Shared Equipment room of the Zone Component List panel.
6. Enter a name into the window that opens. The name entered should describe the component being added to the configuration. Select **Create**.



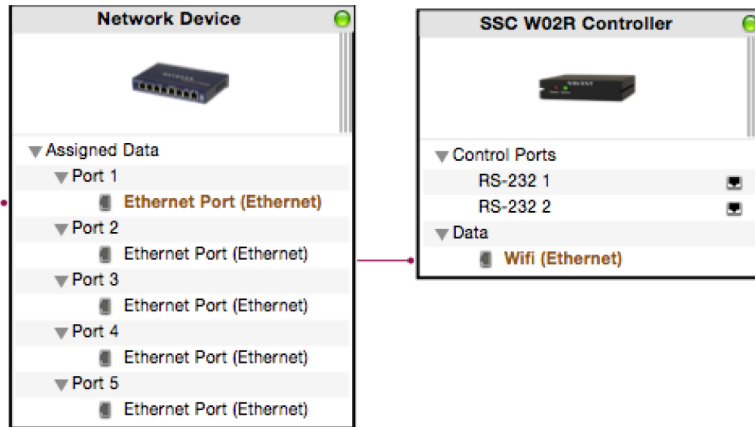
7. Drag the controller into the Layout panel of Blueprint.
8. When all of the components have been added to their appropriate zones, close the **Components** window by clicking **Hide Library** in the toolbar.
9. Double-click the SSC-W02R to open the Inspector. Add the Unique ID (UID) to the Savant UID field. The UID is located on a sticker on the bottom of the controller.



10. Close the Inspector window.

11. In Blueprint, connect the **Wi-Fi (Ethernet)** connection on the SSC-W02R to the Network switch or router in your configuration.

Note: Although making the **Wi-Fi (Ethernet)** connection between the Controller and the Network Device is not required, it is considered a best practice step for keeping track of the number of Ethernet devices communicating with the network switch.

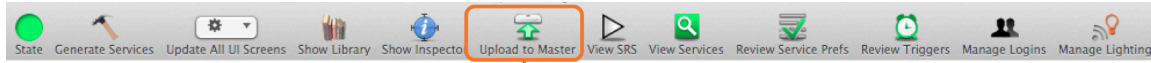


12. If any of the RS-232 Control ports on the SSC-W02R will be controlling other equipment, the profiles for these devices can be found in the RacePoint Blueprint Component Library. Add the required equipment and connect to the RS-232 port(s).
13. When the configuration is complete, save the configuration. Select **File > Save** from the Blueprint menu bar.

8. Upload Configuration

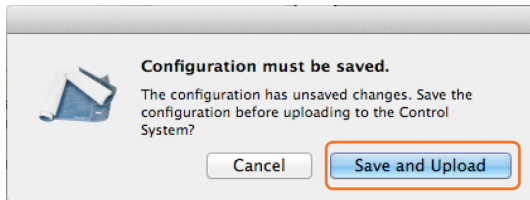
After the SSC-W02R has been added to Blueprint and the configuration is complete, it needs to be uploaded to the Host.

1. Save the configuration
Select **File > Save** from the Blueprint menu bar.
2. Select the **Generate Services** icon in the Blueprint toolbar. The State icon will change to blue or green indicating the services for the keypads have been created.
3. Select **Update All UI Screens > Sync with Services** (only if necessary) from the Blueprint toolbar to sync the user interfaces such as the iPad® to the services. The **State** icon will change to green when complete.
4. To upload the configuration, select the **Upload to Master** icon from the Blueprint toolbar and send the configuration to the Host

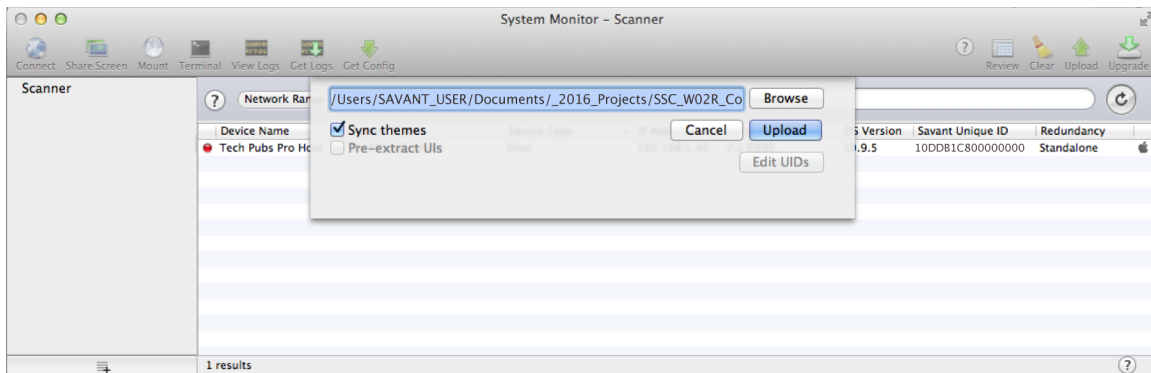


Select Upload to Master

In the **Configuration must be saved** dialog window that opens, read the dialog and select **Save and Upload**.



5. In the System Monitor application that opens, verify the path to the configuration file is correct. Select **Upload** when satisfied.



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

9. Additional Documentation

Additional documentation is available on the [Savant Customer Community](#).

[SmartControl RS232 - Wi-Fi Smart Controller with 2 RS232 \(SSC-W02R\) QRG - 009-1373-xx](#)

[RS-232 Conversion to DB-9 and RS422/485 Pin out: Application Note](#)

[RS-232 Adapter Troubleshooting: Application Note](#)

[Savant Controllers Family Video: Savant University](#)

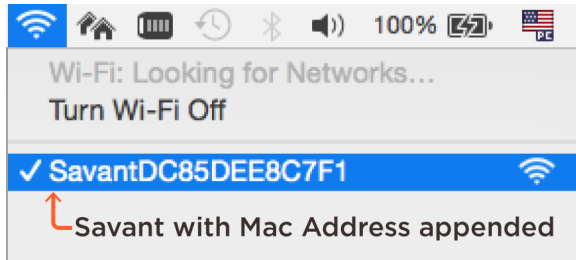
Appendix A: Provision to the Local Network – Web UI

If the SmartConnect application is not available, the SSC-W02R can be provisioned using the embedded Web UI. Follow steps below to provision using the Web UI.

1. Apply power to the controller by plugging the supplied power supply into the 5V DC input connection.
2. Press and hold the Reset button on the front panel of the controller for 5 seconds until the Status LED begins blinking rapidly then release button. This will reset the controller to its factory default settings. The SSC-W02R is ready to be provisioned.

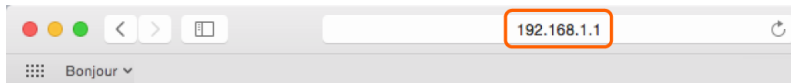
Note: The Status LED will now blink once per second indicating it is in Access Provisioning Mode. See the [SSC-W02R Overview](#) section for LED state information.

3. On the MacBook/SDE, select the Wi-Fi icon in the menu bar and select the SSC-W02R from the available networks. The SSC-W02R will appear as **Savant[Mac Address]**. The Mac Address will be the first 12 characters of the Savant UID and can be found on a label located on the bottom of the controller's chassis.



The check indicates the controller is connected to your MacBook/SDE.

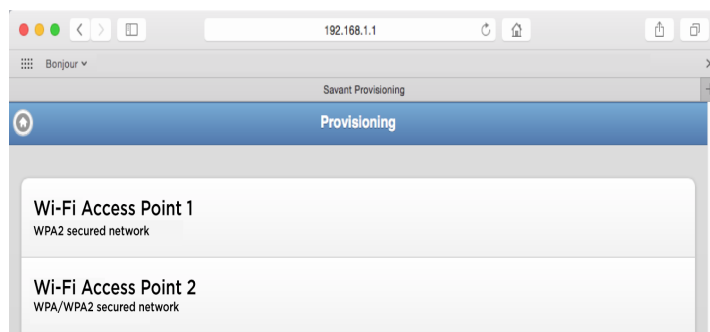
4. In the address bar of a browser, enter the following IP Address: **192.168.1.1**



5. Select **Provisioning** to display a list of available networks.



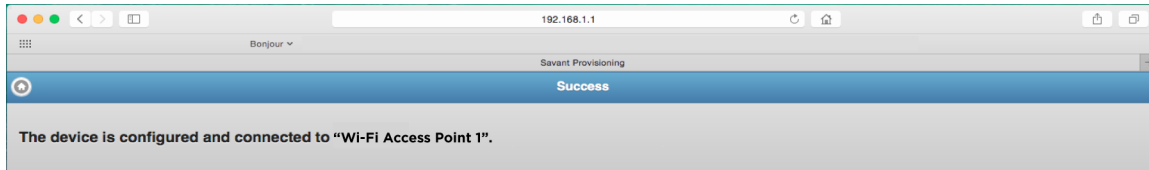
6. In the list of available networks, select the network to connect to.



Note: Refer to the Additional Information section below if your network is not in the list of available networks.

Follow the prompts and enter the Passphrase to the network selected.

7. Once connected, a verification message will appear.



- The Status LED on the Controller will now blink three times indicating it is connected to the local network and trying to connect to the Savant Pro System Host.
 - If desired, the IP Address and Unique ID (UID) for the SSC-WO2R can be discovered using rpmEmbScanner located in the Launch Menu of the Savant Application Manager (SAM).
8. The Controller is now provisioned to the local network. The next step will be to configure the controller into **RacePoint Blueprint**.

Additional Information:

- In step 6 above, if the desired network does not appear in the list, it can be manually configured to a network by selecting **Other SSID** at the bottom of the list of available networks and following the prompts.



Select **Other SSID** if the local network does not appear in the list of available networks

Appendix B: Firmware Info

Firmware is updated automatically when the controller starts communicating with the Savant Pro System Host. When this occurs, the Status LED will blink in the sequence Short Off Blink. This sequence is displayed in the [SSC-W02R Overview](#) section.

Additional information on the **Firmware Upgrade Status** and **Firmware Revision** currently installed on the controller can be accessed through the System Monitor Application.

System Monitor > Controller Info tab

Below is the System Monitor page:

The screenshot displays the 'System Monitor' application interface. At the top right, the 'System Status' is 'Online'. The main heading is 'Select Controller'. On the left, a sidebar lists navigation options under 'GENERAL', 'CONTROL', 'AVV', and 'ENVIRONMENT'. The 'Controller Info' tab is selected, showing a table with one entry: 'W02R'. To the right of the table, a 'Connect' button is visible. Below the table, the 'Slot Info' section is empty. The main content area displays the following information:

- Controller General Info:** Device Type: SmartControl RS232, IP Address: 192.168.5.6, Unique ID: 28C2DD94FBA00000, Serial Number: 41010049, Part Number: 06804920000.
- Firmware Info:** Boot ROM Revision: 1.1:12, Firmware Revision: 1.1:101, Firmware Upgrade in Progress: No, Controller Active: Yes.
- Controller Wi-Fi Signal Info:** Wi-Fi Signal: [Signal strength indicator]

The 'Slot Info' section displays the following information:

- Module Type: No Selection
- Serial Number: No Selection
- Part Number: No Selection
- Hardware Revision: No Selection
- State: No Selection
- Total Failures: No Selection
- Last Failure Reason: No Selection
- Status: No Selection
- Recovery: No Selection
- Online: No Selection

At the bottom, the 'FPGA Information' section shows a table with columns for 'FPGA', 'Auto Updates', 'Update Info', and 'Update'.

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.

Connect all Savant devices to the same local area network (LAN) or subnet as the Savant Pro System 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.

Network Configuration

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

The SSC-W02R requires rebooting after connecting to a new network, changing routers, or if the IP address range is changed in the current router.

To Reboot the Controller:

Cycle Power

Disconnect the controller from the AC power for 15 seconds and then reconnect.

To Reset to Factory Defaults

Press & Hold the **Reset Button** on the front panel for 5 seconds until the Status LED starts a rapid blink. Release the Reset Button once the rapid blink begins. Allow 1 minute for the controller to reboot. See the [SSC-W02R Overview](#) section for LED state information.

Important Notice

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To contact Savant Support, access the **Savant Customer Community** and enter a support case ticket.

To contact Savant Sales, visit Savant.com and select **Contact Us** to locate a local sales representative in your area.