# SAVANT

# Savant<sup>®</sup> IP Audio Speaker and Soundbar

EDG-4-AVB-x | EDG-4-SAT-x | IP-STUDIO46-2CH | IP-STUDIO55-2CH MRS-4-PCB | MRS-4-FMK

### **Deployment Guide**

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### **Important Safety Information - Read First**

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

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

#### Safety Classifications In this Document

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



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 should be read, understood, and applied under all relevant circumstances when working with this equipment.

- 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 any 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 any provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect any power cord from being walked on or pinched; particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11. Use only attachments/accessories specified by the manufacturer, following all relevant safety precautions for any such attachments/accessories.
- 12. Disconnect any outlet powered apparatus from its power source during lightning storms or when unused for long periods of time.
- 13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a damaged power supply cord or plug, liquid being spilled or objects having fallen into the apparatus, the apparatus being exposed to rain or moisture, apparatus having been dropped, or other failure to operate normally.
- 14. To completely disconnect equipment from AC mains power, disconnect the power supply cord plug from the AC receptacle.
- 15. For applicable equipment, use the included power cord with the grounding prong intact to insure proper grounding of the device.
- 16. 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. Introduction

This guide will guide the installer through the process of installing, configuring, and adding Savant IP Audio Speakers and Soundbars to a RacePoint Blueprint™ configuration.

### Before You Begin

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

1.	Savant IP Audio Devices
2.	Unique ID (UID) of the Savant IP Audio Speakers/Soundbars
3.	Savant Host (Smart or Pro) licensed and running da Vinci software Requires da Vinci 8.10 or higher
4.	Savant Development Environment (SDE/MacBook)
5.	AVB Ethernet network meeting Savants requirements

#### **Deployment Steps**

Follow these steps to successfully deploy Savant IP Audio Speakers and Soundbars. This page can be used as a checklist to record which steps have been completed.

1.	Review product specifications and connection details	
	See Equipment Overview	
2.	Install the Savant IP Audio Speakers/Soundbars See Installation	
3.	Add the Savant IP Audio devices into a RacePoint Blueprint® configuration See Blueprint	

### 2. Equipment Overview

#### 2.1. EDG-4-AVB/EDG-4-SAT

IP speakers are a new innovation in the way sound is delivered. Isolated from rooms above through their closed backs, IP Audio speakers are POE powered and can drive up to three IP satellite speakers. This provides a 4-speaker capacity based on a single IP speaker and POE connection. IP Micro Aperture speakers connect directly to the network providing digital signal right to the speaker, eliminating the problems inherent with long analog audio cable runs.

#### **Box Contents and Specifications**

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

#### **Top Panel**



### 2.2. IP-STUDIOxx-2CH

The IP Audio Soundbar complements the Savant family of IP Audio and IP Video solutions for distributing audio over IP networks. A part of the Savant source to speaker audio distribution platform: a scalable network audio architecture over AVB/TSN and includes integrated Class-D amplifiers

#### **Box Contents and Specifications**

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



#### **Rear Panel**

		A IR	<ul> <li>(3) IR Ports</li> <li>Uses 6-pin IR Connectors to send IR signals to control devices with an IR input or IR receiver via an IR flasher (5V tolerant only).</li> <li>See IR Wiring section for important precautions regarding IR functionality before making any connections.</li> </ul>		
		<b>B</b> RS-232	(2) RS-232 Ports Uses 6-pin Screw down plug-in connection. Transmits and receives serial data to and from serial controllable devices. For pin-out information, refer to the RS-232 Wiring section below.		
	E F G	C Ethernet	8-pin RJ-45 port 10/100 Base-T auto-negotiating port. Supports Audio Video Bridging (AVB).		
D Power	100/240V AC (50/60 Hz)				
	Green Blinking: Embedded system is ready, but no communication has been established with the host.				
	Green: Host has established communica	tions with the emb	bedded system.		
	Red Blinking: Embedded firmware is running, but has not received a DHCP IP Address.				
	Red: Host has determined the firmware needs to be updated, but a problem occurred during the process that will initiate a reset.				
$\bigcirc$	Amber Blinking: Embedded system has a valid link local IP Address and is connecting to the host.				
(E) Status LED	Amber: Host is updating the embedded firmware.				
	<b>Off</b> : Embedded processor is resetting, or is powered up, and is booting the embedded firmware.				
	Hardware Failure: If a hardware failure occurs, the status LED indication will be interrupted every three seconds with a solid red indication. For example, if the LED is blinking green when a hardware failure occurs, the LED will alternate between blinking green and solid red at three-second intervals.				
	Resets the network.				
(F) Reset	Hold Reset Button for 5 seconds while powered On to clear network settings. Status LED will rapidly blink red when reset is complete.				
G Digital Audio In	O Digital AudioDigital optical audio inputs (TOSLINK).InSupports up to 192kHz/24-bit digital audio in; PCM stereo format only.				

### 3. Wiring and Connections

The Savant IP Audio Soundbar control connections send data to control a device and receive data to display current status on the user interfaces or trigger a system action. Each port type may support multiple protocols that are determined by the logical connection within Blueprint.

### 3.1. IR Wiring

IR connections are made using a 6-pin screw down plug-in connector supplied with the controller. The stripped wire slips into the rear of the connector and the screws are used to lock the wire in hole.

IMPORTANT! Read precautions below before proceeding!

- All IR emitters must be installed 15 feet (4.6 meters) or less from the chassis or receiver being controlled.
- Use of 3rd party flashing IR emitters with Talk Back is not recommended. These types of emitters can draw voltage away from the IR signal which degrades the IR performance.

	Pin 1	IR 1 -
	Pin 2	IR 1 +
000000	Pin 3	IR 2 -
	Pin 4	IR 2 +
	Pin 5	IR 3 -
Use white stripe	Pin 6	IR 3 +
for Positive (+)		

NOTE: The Control Connector installs with the screws facing down. On the device the pins are in the reverse order.

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 the wire a bit to verify it is installed securely. There should no bare wires protruding from the rear of the connector.
- 6. Plug terminal block back into the rear of the controller.

#### 3.2. RS-232 Wiring

RS-232 connections are made using a 6-pin screw down plug-in connector supplied with the controller. The stripped wire slips into the rear of the connector and the screws are used to lock the wire in hole.

רדה רדה רדה ורה רדה רדה	Pin 1	GND 1
1 2 3 4 5 6	Pin 2	TX 1
666666	Pin 3	RX 1
000000	Pin 4	GND 2
	Pin 5	TX 2
	Pin 6	RX 2

NOTES:

- Wire colors shown do not represent any standard.

- The Control Connector installs with the screws facing down. On the device the pins are in the reverse order.

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 the 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 controller.
- 7. Reapply power.

#### 3.3. Network Connection

The Savant IP Audio devices use a standard RJ-45 port complying with IEEE 802.3 Ethernet standards. This port also supports Audio Video Bridging (AVB) or Time Sensitive Networking (TSN) over Ethernet (AVB/TSN, IEEE 802.1). Up to forty five IP Audio devices can be connected using AVB/TSN compliant switching. For more information on this, see Appendix: Network Requirements.

#### 3.4. Power

#### **IP Soundbars**

The IP Audio Soundbar has a AC Power connection.

#### SURGE PROTECTION!

Use a surge-protected circuit for all components and power supplies requiring 100/240V (AC 50/60 Hz) source power.

#### LECTRICAL 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.

#### **IP Speakers**

The Savant IP Micro Aperture Speakers use Power over Ethernet (PoE). The speakers support the following PoE standards IEEE 802.3af, 802.3at, 802.3bt.

### 4. Savant Music

The IP Audio Soundbar has a single stream of Savant Music. This allows the use of popular music streaming services such as Pandora or Spotify (streaming music service fee may apply). For a full list of supported services, see Savant Media Server/Savant Music Supported Streaming Services on the Savant Customer Community.

The service is generated in Blueprint. The streaming services are managed in the Savant Pro App.

### 5. Installation

#### 5.1. IP Micro Aperture Speakers

#### MRS-4-PCB

Micro Aperture 4 Pre-Construction Bracket. This bracket is to be used when these speakers are being installed before the ceiling boards have been installed.

1. Push wings into place (x2).



2. Once in place, fold tabs on pre-construction bracket down (x4).

#### MRS-4-FMK

Micro Aperture 4 Flush Mount Kit. Requires the Micro Aperture 4 Pre-Construction Bracket.

1. Before drywall, install the mud housing to the pre-construction bracket using the spacers (x4), and long (20 mm) screws (x4). (See Notes).



- 2. Install combined assembly same as above MRS-4-PCB install.
- 3. After drywall, attach the mud ring using the short (6 mm) screws to the mud housing.
- 4. Mud over mesh up to mud wall on the housing. Sand smooth.

#### NOTES:

- The mud housing may be installed for the round or square speakers. Mount with the selected shape facing into the room.
- Select the proper spacer for your drywall finish.
  - 1/2" use 7 mm spacer.
  - 5/8" use 10 mm spacer

#### **IP** Speakers

The IP Audio Micro Aperture 4 speakers and the Micro Aperture 4 speakers install the same way. The images below show IP Audio Micro Aperture 4 speaker.

- 1. Use the cutout template to cut a hole in the ceiling.
- 2. Insert the Ceiling Mount in the hole.



- 3. Push springs into place.
- 4. Connect the speaker connection.
- 5. Insert the speaker into the ceiling mount.



If the ceiling is 5/8" thick or greater remove the rubber friction bands from the springs.

#### 5.2. IP Soundbar

The included install brackets are designed to be used with the VESA Mounting points on Flat Panel Televisions. The Installer MUST verify that the TV Mount/Stand can hold the excess weight of the Soundbar. The Soundbar can be mounted above or below a TV.

#### **Bracket Selection**

The choice of bracket is based on the thickness of the TV. Ideally the Soundbar should be flush with the front of the TV.

TV Thickness	Bracket	Extension	Minimum wall mount depth
0.9 - 1.2 in	C-Shape	None	1.1 in
1.9 - 2.8 in	C-Shape	50 mm	1.1 in
2.7 - 3.6 in	C-Shape	70 mm	1.1 in
2.1 - 2.5 in	L-Shape	None	None
3.0 - 4.0 in	L-Shape	50 mm	None
3.8 - 4.7 in	L-Shape	70 mm	None

#### **Bracket Installation**

- 1. Remove the TV from the Mount/Stand. **NOTE**: This may require two people.
- 2. Place the TV display side down on a soft non-abrasive surface.
- 3. Remove any existing Mounting bracket and screws from the VESA mounting points.



4. Choose the desired Mounting Bracket (use the Bracket Selection table on the previous page). Find the screws that fit the TV's VESA mounting points.

5. Attach the Mounting Bracket to the TV. The Soundbar brackets should be between the TV and the TV mount.



- 6. Adjust the length of the brackets
- 7. Attach the optional extension brackets if needed.
- 8. Attach the Soundbar.



9. Reattach to the TV mount/stand.

#### **UMB Stabilzers**

In cases where the VESA mounting points are narrowly spaced or non VESA compliant use of the UMB Stabilizers is suggested.

- 1. Locate a section of the TV's chassis as close to the end of the Slider Arm that is flat enough to mount the stabilizer foot, preferably close to the edge of the TV.
- 2. Clean the intended attachment area on the TV chassis with an alcohol wipe to remove any latent grease.
- 3. To install the Slider Arm, first screw one of the Stabilizer Nuts onto the thread, close to the swivel base. Place the assembly underneath the Slider Arm and insert the threads through the Arm slot
- 4. Once in place, peel the red backing film off of the base and stick firmly to the TV chassis.
- 5. Install the second nut onto the threads and tighten both in place to hold the speaker brackets in the correct placement.



6. Break off the any additional thread of the stabilizer with a pair of pliers.

### 6. Blueprint

This section covers the process of adding a IP Audio Speaker or Soundbar to a Blueprint configuration. Below is a basic Blueprint example showing 4 IP Micro Aperture Speakers and a IP Audio Soundbar.



#### 6.1. IP Micro Aperture Speakers

The IP Micro Aperture Speakers are a listening only AVB device. They do not count towards maximum number of AVB devices This example show adding a set of AVB speakers and a set of Satellite speakers. It assumes that there are other IP Audio devices and an AVB network switch. In an open Blueprint configuration do the following:

- 1. Click Show Library.
- 2. Search for EDG-4.



- 3. Select the AVB speaker (Round or Square) and drag into a User zone.
- 4. Name the device.



- 5. Select the SAT speaker (Round or Square) and drag into the same User zone as in step 3.
- 6. Name the device.

Repeat steps 5 and 6 twice for a total of three SAT speakers

7. Place all four Speakers in the layout window.

- 8. Select the AVB speaker.
- 9. Open Inspector.
- 10. Enter the UID.



- 11. Make the network (AVB Ethernet) connection to the AVB Speaker
- 12. Make the Speaker connections to the Satellite speakers.

#### 6.2. IP Audio Soundbar

This example shows adding a IP Audio Soundbar to a Blueprint configuration for use other Savant AVB devices. In an open Blueprint configuration do the following:

- 1. Click Show Library.
- 2. Search for



- 3. Select the Soundbar model being used and drag into a User zone.
- 4. Name the device.

	Enter a unique name for the component
	IP Soundbar
?	Cancel Create

5. Place the Soundbar in the Layout window.

- 6. Select the Soundbar.
- 7. Open Inspector.
- 8. Enter UID.



9. Make the network (AVB Ethernet) connection to the Soundbar.

#### 6.3. AVB Speaker Grouping

If there is more than one AVB Audio endpoints in the same User zone Blueprint will group them and use them as a single audio service. Below is an example of a IP Audio Soundbar and a Sub-Woofer attached a PAV-SIPA125SM



Below is an image of the Services window for the Cable TV service in the example shown above. It is included to highlight the service path of this service.



#### Allow Independent Services



### 7. Web User Interface (Web UI)

In addition to Blueprint, the IP Audio devices have a Web UI. This allows control of setting and audio connections. It can be used in troubleshooting.

#### 7.1. Accessing the Web UI

In order to access the Web UI, the IP Address of the IP Audio device is needed. This can be obtained from System Monitor, rpmEmpScanner, or any network scanning software.

1. On the SDE, open a Web Browser and enter the address of the switch in the address bar: Syntax: http://[IP Address of Switch]

	<u>ि</u> 10.0	0.100.50	
		Favo	prites
<b>É</b>	G	S	
Apple	Google	Savant	iCloud

2. Once opened, login credentials will be required: User Name: RPM Password: RPM

Log in to 10.0.100.50:80 Your password will be sent unencrypted.				
User Name				
Password				
Remember this password				
	Cancel	Log In		

#### 7.2. Status Tab

	A Savant ID	UID of the device.
SAVANT	B IP Address	Current assigned IP Address.
	C Firmware Version	Current Firmware Version number.
46-Inch Soundbar, IP-STUDIO46-2CH	D Uptime	Amount of time the unit has been powered without a restart.
Status Network Inputs & Outputs	E Restart	Restarts the software of the unit.
A B C D E Savant ID 001 AAE000000000 IP Address 10.0.100.50 Firmware Version 9.1:62 Uptime 0 days 2 hours 53 minutes		

#### 7.3. Network Tab

	A IP Address Configuration	DHCP (Dynamic Host Configuration Protocol) or Static.
46-Inch Soundbar, IP-STUDIO46-2CH	(B) IP Address	Displays the current IP Address and allows for entry. This is automatically assigned when item A is set to DHCP.
State Network Invest-8-Detruits	C Subnet Mask	Subnet mask of the network. This is automatically assigned when item A is set to DHCP.
Network	D Router	IP Address of the network router. This is also known as Gateway or Default Gateway.
Static	E Revert	Select to erase entered settings and revert back to saved settings.
IP Address         0.0.0         B           Subnet Mask         255.255.255.0         C           Router         10.0.100.1         D	F Apply & Restart	Select to apply entered settings, and restart the device.
Revert Apply & Restart		
E F		

#### NOTE:

Setting the IP Address with a Static Address from the WebUI will automatically set the devices DNS to 8.8.8.8 and 8.8.4.4 (Google).

### 7.4. Inputs & Outputs Tab

	0.0.100.50 C (b) (d) (		Digital Input (TosLink) or Media Server.	
SAVANT		(A) Connector Type	<b>NOTE</b> : Audio paths that originate from a different AVB device do not show here.	
		Adjusts the gain of the input from -10 dB to +10 dB.		
Status Network Inputs & Outputs		(B) Channel Trim	For testing or troubleshooting use. Changes made in the WebUI affect local outputs only, and are over written during system startup. To permanently adjust trim settings, apply the changes in System Monitor.	
Inputs & Outputs	C Input List	List of the inputs on the device.		
A B C D E F G H J J Digital In Odd Input1 Stereo LRPass-Through Process 0/0ms Volume -40 Media Server Odd Input2		D I/O Connection Indicator	Active connections are represented by a black line between the input and output. To connect an input to an output manually from the WebUI, click and drag to draw the connection between the black dot on the input to the black dot on the output.	
	E Output List	List of the outputs on the device.		
(F) Output Channels	Toggle between Stereo and Mor into a single speaker channel ou	o by clicking in this field tput.	d. Mono Summing combines the left and right input signal	
G Left/Right Channel swap				
H Process	Toggle between Process or Pass-Through, this feature is disabled on the IP Audio Studio devices.			
1 Delay	Adjustable delay per channel from 0 - 160ms.			
J Volume	Adjusts the volume level of the output channel. For speaker outputs, the possible adjustment range is different on the various IP Audio devices these changes are made in 1dB increments.			
K Subwoofer Configuration	Toggle on or off. If on it enables a fixed high pass filter at 80Hz.			

#### **Appendix: 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.

#### **AVB Requirements**

Only required if more that one Savant IP Audio device is in use. Savant requires a AVB/TSN Compliant Switch.

#### 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

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.

#### Cycle Power

- Disconnect the IP Video device from the power source.
- Wait 15 seconds and then reconnect.

#### Hot Plug the Ethernet (LAN) Connection

- Disconnect the Ethernet (LAN) connection from the device.
- Wait 15 seconds and then reconnect.

### **Important Notice**

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