SAVANT

Savant® SmartControl 12 Controller
SSC-0012

Deployment Guide

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Contents

To access the link to the topics in this document, click the topic text or topic page.

1. Introduction

This Deployment Guide will guide the installer through the process of installing, configuring, and adding a SmartControl 12 (SSC-0012) controller.

Before You Begin

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

SmartControl 12 (SSC-0012) controller.. ☐

Unique ID (UID) of the controller .... ☐
(located on the bottom of the unit)

Savant Host (Smart or Pro Host) licensed and running da Vinci 7.0 or higher.. ☐

Savant Development Environment (SDE) MacBook®... ☐
(with RacePoint Blueprint da Vinci 7.0 or higher installed)

Ethernet network meeting Savant requirements... ☐
(see Network Requirements)

2. Deployment Steps Checklist

Follow these steps to successfully deploy the SmartControl 12 (SSC-0012) controller. This page can be used as a checklist to record which steps have been completed.

1. Review the SSC-0012 Connections and Controls...☐
    See SmartControl 12 Overview

2. Mount Controller...☐
    See Installation

3. Wire Controller to Savant Control System ....☐
    See Wiring and Connections

4. Add the SSC-0012 to a RacePoint Blueprint configuration..☐
    See RacePoint Blueprint Configuration

5. Upload Configuration to Savant Host ....☐
    See Upload Configuration

3. SmartControl 12 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	Reset Button	Press and hold for 5 seconds while powered On to clear network settings. **Status** LED will blink rapidly when reset is complete.
B	Status LED	**Blinks Once:** No IP Address **Blinks Twice:** Waiting for Host Connection **Blinks Three Times:** Host Connection Lost **Solid:** Connected to Host

Rear Panel

A Ethernet	10/100 Base-T auto-negotiating port with Link/Activity LEDs: 8-pin RJ-45 female. See items B and C for LED functionality.	
B Link LED	**Off:** Ethernet link is not established. **Green Solid:** Ethernet link is established. **Green Blinking:** Ethernet activity is occurring.	
C Data Rate LED	**Off:** 10 Mbps data rate **Green:** 100 Mbps data rate	
D RS-232	Used to transmit and receive serial binary data to and from RS-232 controllable devices. Ports 1 & 2 support CTS/RTS handshaking. 8-pin RJ-45 female. See RS-232 Pinouts.	
E IR	Used to send IR signals to control devices with an IR input or IR receiver via an IR flasher (5V tolerant only). 6-pin Screw Down Plug-in Connector. See IR Wiring for important precautions regarding IR functionality before making any connections.	
F	GPIO (General Purpose Input and Output Ports)- 6-pin Screw Down Plug-in Connector. See GPIO Wiring for pinouts.	
	GPIO Input	When configured as an input, the processor will look for a low (<0.8V DC) or high (>2.4V DC) state. 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.
G	Normally Open / Normally Closed - Relays 6-pin Screw Down Plug-in Connector	
	Relay	Dry contacts (open/closed) to control devices requiring basic on/off operation. DC Voltage Max: 30V DC 1A. 6-pin Screw Down Plug-in Connector
H Input Power	12V DC 1.6A – Connect to included power supply.	
I Cable Lance	Use with included cable tie to secure power supply connection.	

4. Installation

The SSC-0012 should be located in a place that is dry, well ventilated, and out of direct sunlight.

Mounting Plate Installation

A mounting plate (074-0577-xx) is supplied with the SSC-0012 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-0012 controller into the bracket so the tabs on the mounting bracket seat into the slots on the side of the controller.
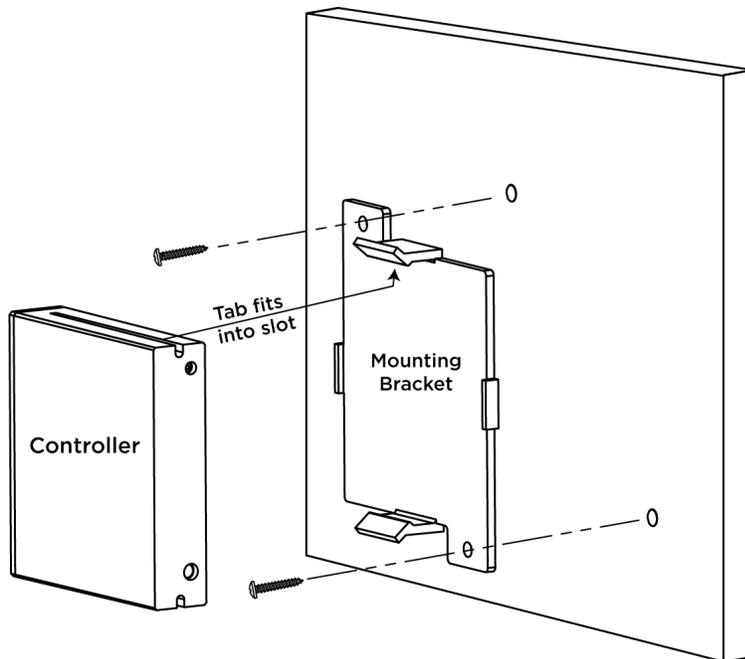
Rack or Cabinet Installation

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

The next step is to connect the required ports. Refer to the Wiring and Connections section below.

5. Wiring and Connections

Refer to the diagrams below when making connections.

Power and Ethernet
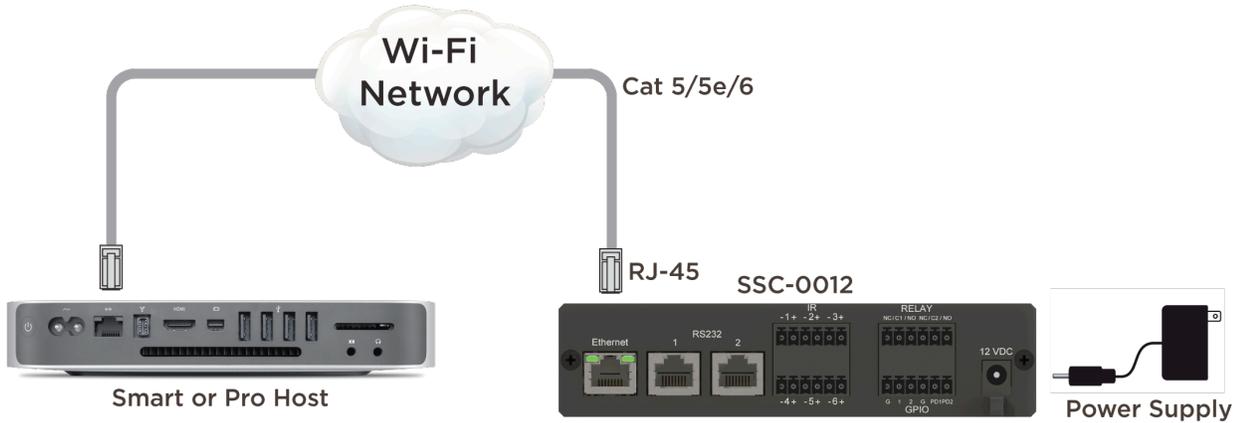
1. Connect RJ-45 Cat 5/5e/6 Ethernet cable from Ethernet port to the local network switch.
2. Plug the supplied power supply from the 12V DC port to a 120V AC surge protected outlet.

RS-232 Connections

The SmartControl RS-232 connections are used to transmit serial binary data to a device for control and receive serial binary data from devices to display current status on the user interfaces. Each port type can support multiple protocols that are determined by the logical connection within Blueprint.

Savant recommends planning control connections and protocols to be used prior to building any cables and connecting equipment. This will ensure that devices will respond to commands and will not be damaged by an incorrect cable configuration.

RS-232 Pinouts

Pin 1: -------	Pin 5: RXD (RS-232)
Pin 2: -------	Pin 6: TXD (RS-232)
Pin 3: -------	Pin 7: CTS (RS-232)
Pin 4: GND (RS-232)	Pin 8: RTS (RS-232)

- Pins 7 & 8 are only required for CTS/RTS handshaking.

- Wire coloring is included to identify the pins used for this connection. Colors shown do not represent any wiring standard.
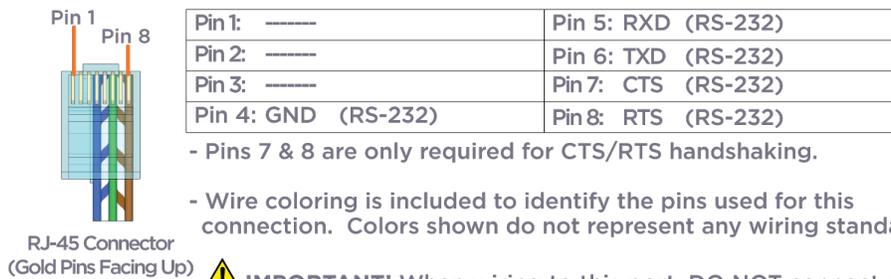
⚠ **IMPORTANT!** When wiring to this port, DO NOT connect any wires within the cable that are not required for communication.

RJ-45 to DB9 Adapters

Savant uses RJ-45 connectors for RS-232/422/485, other manufacturers devices may use the standard DB9. To make connection easy, Savant offers RJ-45 to DB9 adapters in a variety of configurations that can be used for RS-232/422/485 control. Be sure and choose the adapter that provides a proper connection to the devices RS-232/422/485 port. Refer to the manufacturer's support documentation for the devices configuration.

For more information on Savant RJ-45 to DB9 adapters, refer to the **RS-232 Conversion to DB9 and RS-422/485 Pinout** application note located on the **Savant Customer Community**.

⚠ **IMPORTANT!**
   If you are using RJ-45 to DB9 adapters not supplied by Savant:

- Ensure that any wires required for communication/control are terminated within the adapter.
- Ensure that all wires NOT required for communication/control are NOT terminated in the connector.
- Ensure that the unused wires in the connector are cut to prevent them shorting out, as they are still terminated in the RJ-45 connector on the controller side.

IR Wiring

IR connections are made using 6-pin Screw Down Plug-in Connectors supplied with matrix or receiver. The wire slips into the hole and locks screw located at the top of the connector.

⚠️ **IMPORTANT! IR Wiring Precautions**

- Ensure that all IR emitters are within 15 feet (4.6 meters) from the controller's location.
- 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 that can degrade IR performance.

IR Connector Pinout

Pin	Signal
1:	IR 1 -
2:	IR 1 +
3:	IR 2 -
4:	IR 2 +
5:	IR 3 -
6:	IR 3 +
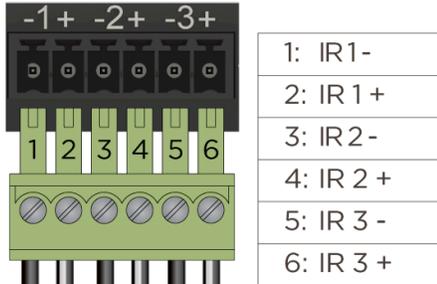
Use White Stripe for Positive (+)

GPIO Wiring

General Purpose Input/Outputs (GPIO) are binary I/O ports used on Savant controllers to trigger an action within the system. Events can control a device, such as turning on an amplifier (output) or detecting a state change for a device (input) to perform a workflow. Pins 1-4 are used for input or output depending on configuration.

GPIO Pull Down Resistor (PD) Usage (Option)

The GPIO pins are by default configured as inputs and pulled high to +12V while the host is booting up. To pull the GPIO signal low during a host reboot and/or power cycle, a jumper wire can be connected between a GPIO pin and its corresponding PD1 or PD2 pin. Doing this adds a 1k ohm resistor between the GPIO pin and ground which keeps the GPIO output below 0.8V while host is rebooting.

Pin	Signal
1:	GND
2:	GPIO 1
3:	GPIO 2
4:	GND
5:	PD1
6:	PD2
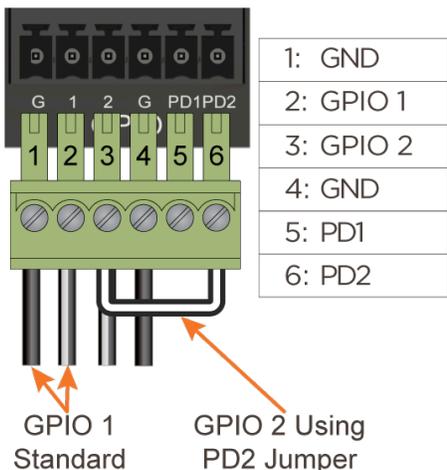
- Add jumper between GPIO 1 and PD1 to pull the GPIO 1 pin low while host is rebooting.
- Add jumper between GPIO 2 and PD2 to pull the GPIO 2 pin low while host is rebooting.

GPIO 1 Standard

GPIO 2 Using PD2 Jumper

Relay Wiring

Relays are used when a contact closure (normally open or normally closed) is needed to activate a device such as raising or lowering shades, opening or closing a gate, etc.

RELAY NC / C1 / NO NC / C2 / NO	
1: NC	(R1)
2: C1	(R1)
3: NO	(R1)
4: NC	(R2)
5: C2	(R2)
6: NO	(R2)

Use a white stripe for NC or NO

NC = Normally Closed
C = Common
NO = Normally open
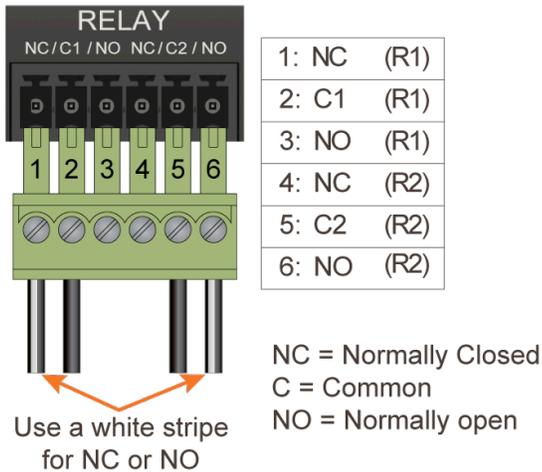
Making Connections

1. Remove Power if power is applied.
2. Pull to remove the terminal block 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 of the connector opens enough to slide the wire into the square slot.
4. Insert one of the stripped wires from the device being controlled into its respective slot in the connector. Refer to the diagrams above.
5. Turn the screw clockwise until the screw tightens around the wire. Tug on the wire a bit to verify it is installed securely. Do not allow more than 1/2 inch of stripped wire exit from the rear of the connector.
6. Repeat for each wire till all wires are installed in that connector.
7. Repeat steps above for all connectors as required.
8. Plug terminal blocks back into rear of the controller.
9. Reapply power.

6. RacePoint Blueprint® Configuration

Add the SmartControl 12 controller to the configuration.

1. From the RacePoint Blueprint menu bar, open the Component Library.
    View > Show Component Library.

2. Enter **SSC-0012** in the search box.

3. Select the **SSC-0012** from the **Component Library** and drag it into one of the zones/rooms.

Note: Controllers are typically added to the Shared Equipment Zone but not required.

4. Drag the **SSC-0012** into the RacePoint Blueprint layout window. If using an existing configuration, remove the component that the SSC-0012 is replacing.

5. Select the **SSC-0012** and open the inspector.
    View > Show Inspector

6. Enter the SmartControl 12 Unique ID (UID) for the SSC-0012 being used in the system. In order to be recognized by the Host, the UID located on the bottom of the SmartControl 12 is required within Blueprint.
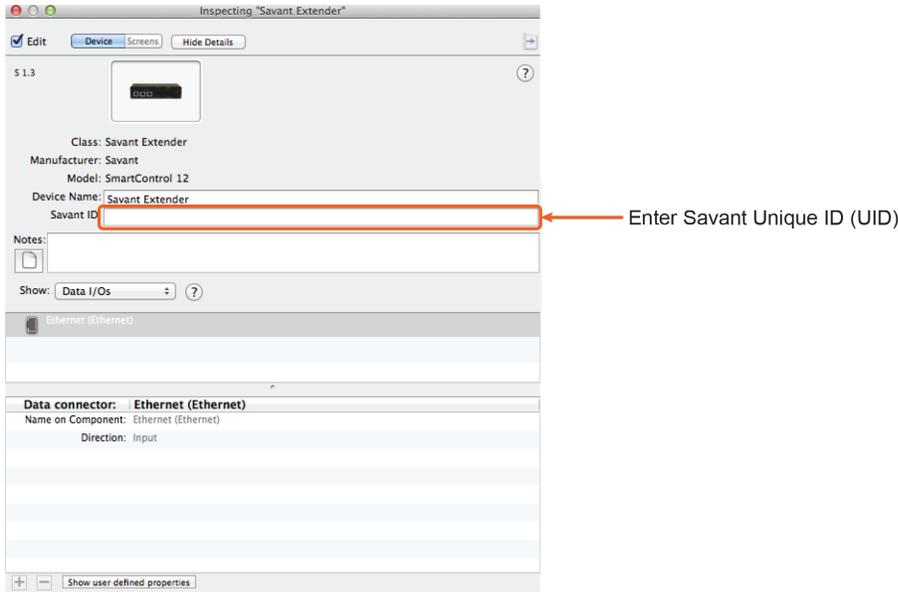
7. Close the Inspector

8. Connect the Ethernet port of the SSC-0012 to the local network device.
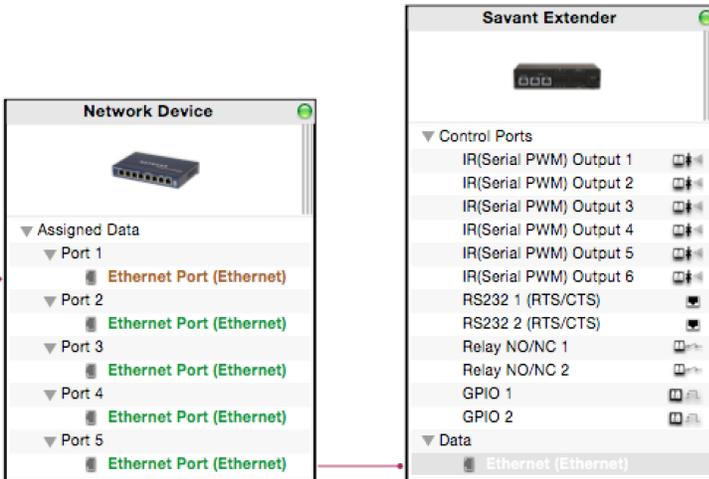
9. If any of the Control Ports on the SSC-0012 are to be controlling other equipment, the profiles for these devices can be found in the RacePoint Blueprint Component Library. Add this equipment and connect to the appropriate Control Port (RS-232, IR, Relay, GPIO).

    Refer to the **Relay and General Purpose Input/Output Profiles Application Note - 009-0482-xx** on the **Savant Customer Community** for details on using these profiles.

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7. Upload Configuration

After the SSC-0012 has been added to Racepoint 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 on the Blueprint toolbar will change to green indicating the services for the configuration were created.

3. 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

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

Configuration must be saved.

The configuration has unsaved changes. Save the configuration before uploading to the Control System?

Cancel   Save and Upload
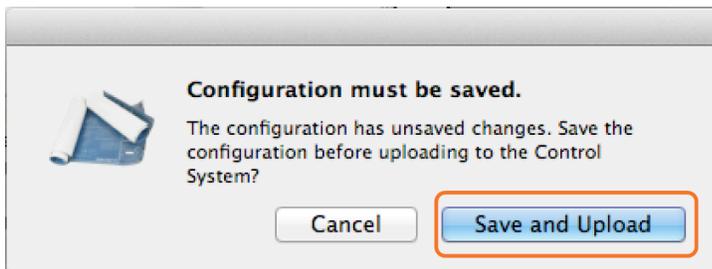
5. The System Monitor application will automatically open as shown below. Verify the path to the configuration file is correct. Select **Upload** when satisfied.
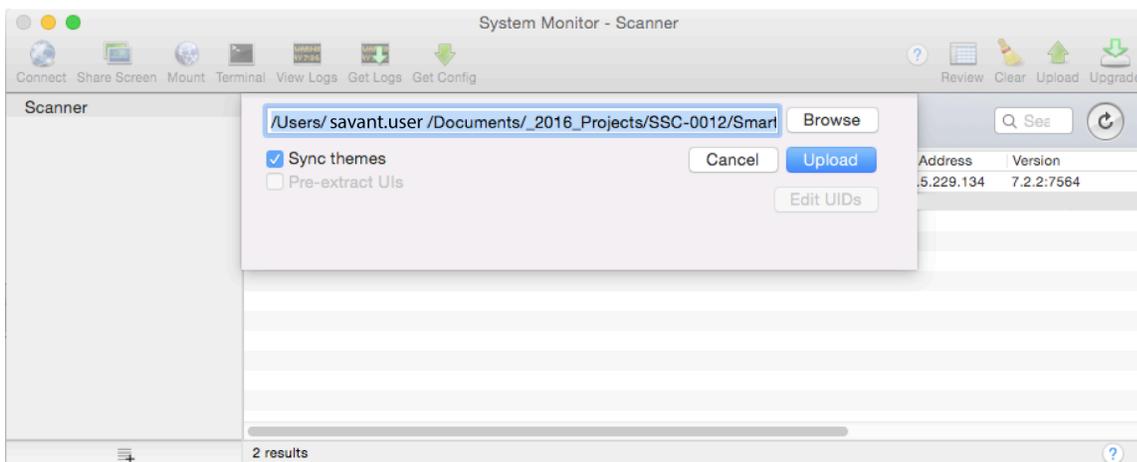
6. The configuration will now upload to the host. Once uploaded, the Savant Pro or TrueControl II App can now be opened and connected to the host.

8. Additional Documentation

Additional documentation is available on the **Savant Customer Community**.

- SmartControl 12 Smart Controller (SSC-0012) QRG - 009-1255-xx
- Relay and General Purpose Input/Output Profiles Application Note - 009-0482-xx
- Savant Controllers Family video in the Savant University pages

Appendix A: Document Revision History

009-1268-01 - February 2016

Section	Update
Rear Panel	• Removed Specifications Table • Updated Power Supply specifications • Added Upload Configuration section • Updated RacePoint Blueprint Configuration section

009-1268-00 - November 2014

Section	Update
All	Initial release of this Deployment Guide

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 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 on how 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 SSC-0012 is communicating with the network correctly.

To Reboot the Controller:

- **Cycle Power**
  Disconnect the controller from the AC power source for 15 seconds and then reconnect.

- **Hot Plug the Ethernet (LAN) Connection**
  Disconnect the Ethernet (LAN) connection from the controller for 15 seconds and then reconnect.

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