SAVANT

DMX and 0-10V Lighting Deployment Guide [da Vinci 9.0 and Higher]

Document Number:	009-1812-00
Document Date:	May 2019
Document Supports:	da Vinci 9.0 and Higher

This document provides an overview of the steps required for the deployment and configuration of Savant DMX and 0-10V wired lighting solutions, including:

- RacePoint Blueprint and OLA configuration methods,
- Chaining LED Drivers (5 and 10 Meters),
- DMX Decoding mode settings,
- Network requirements.

Contents

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

Important Safety Information - Read First

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

⚠ **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

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. Only use 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 has been exposed to rain or moisture, apparatus having been dropped, or other failure to operate normally.
14. To completely disconnect this equipment from the AC mains, 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 ensure 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 document will guide the installer/integrator through the process of installing, configuring, and adding the following devices to a Savant Pro System.

- Savant Wired DMX Low Voltage Controller (LCB-DMX1),
- Savant Wired 0-10V Control 8 Channel Lighting Controller (LCB-010V8),
- Savant DMX-DRIVER1 (for 5M Strips),
- Savant DMX-DRIVER3 (for 10M Strips).

Before You Begin

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

1. Savant Control System running da Vinci release version 9.0 or higher .... ☐

2. Savant Wired DMX Low Voltage Lighting Controller (LCB-DMX1)
   or

   Savant Wired 0-10V Control 8 Channels (LCB-010V8) .... ☐

3. Unique ID (UID) of the Controller .... ☐

4. Savant Development Environment (SDE/MacBook®) .... ☐
   RacePoint Blueprint da Vinci 9.0 or higher

5. Ethernet network meeting Savant requirements... ☐
   See Appendix B: Network Requirements

6. Lighting fixture(s) that support either DMX or 0-10V Lighting... ☐
   (The type of lighting fixture installed is dependent on the controller used.)

2. **Deployment Steps**

Follow these steps to successfully deploy the controller. This page can be used as a checklist to track the completion of the steps below.

1. Review product specifications and connection details. See Equipment Overview....................................... ☐

2. Wire the controller (DMX or 0-10V) into the Savant Control System. See Connections................................. ☐

3. Add controller to a Blueprint configuration. See Blueprint Configuration - Discover Controller................ ☐

4. Device naming and addressing using the OLA Server. See Blueprint Configuration - OLA Server .... ☐

5. Create lighting groups and add lighting fixtures to groups. See Blueprint Configuration - Add Fixtures to a Smart Group........... ☐

6. Update Lighting Data Table. See Blueprint Configuration - Update Data Table .... ☐

7. Upload the Blueprint configuration to the Savant System Host. See Blueprint Configuration - Upload Config .... ☐

8. Test system using Savant Pro App.. ☐

3. Equipment Overview

The subsections below detail the box contents and specifications for both controller types, and provide an overview of their connections and layout.

3.1. Box Contents and Specifications (LCB-DMX1)

Box Contents

(1) DMX Controller (LCB-DMX1)

(1) Install Kit (075-0218-01)

   (1) 5 VDC, 10 Watt Power Adapter (025-0192-xx)

(1) Documentation and Regulatory Insert (009-1736-xx)

Specifications

Environmental			
Temperature	32° to 104° F (0° to 40° C)		
Humidity	10% to 90% Relative Humidity (non-condensing)		
Dimensions and Weights			
	Length	Width	Height	Weight
LCB-DMX1-01	5.65 in (14.35 cm)	3.74 in (9.5 cm)	1.18 in (30.0 cm)	.7 lb (0.32 kg)
Shipping	8.8 in (22.35 cm)	7.80 in (19.81 cm)	1.6 in (4.06 cm)	1.3 lb (0.59 kg)
Rack Space	1U		
Power			
Input Power	5V DC		
Nominal Power	10 Watts		
Regulatory			
Safety and Emissions	FCC Part 15	CE Mark	C-Tick
	FC	CE	(C-Tick logo)
RohS	Compliant		
Minimum Supported Release			
Savant OS	da Vinci 8.9		

3.2. Right and Left Panel Descriptions

Right Panel
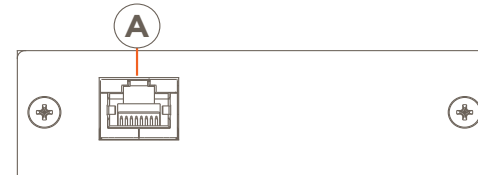
A	**DMX Port** - 8-pin RJ-45 port used to transmit and receive serial binary data to control the DMX fixtures.

Left Panel
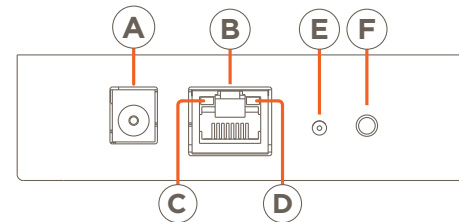
A	**Power Input** - Connect the supplied power adapter between the 5V DC port and a surge protected (120-240V AC, 50/60 Hz) outlet.
B	**Ethernet -** 8-Pin RJ 45 port. 10/100/1000 BaseT auto-negotiating port with link activity LEDs
C	**Link LED** — **Solid Orange** - Network Speed 100/1000 Mbps. / **Off** - Network Speed < l00 Mbps
D	**Data LED** — **Solid Green** - Ethernet link established. / **Green Blinking** - Ethernet activity is occurring. / **Off** - Ethernet link not established.
E	**Status LED** — **Solid Green** - DMX Data is being transmitted out the DMX port. / **Off** - No DMX Data
F	**Reset -** Press and release to perform a hard reset. Status LED will illuminate while button is pressed.

3.3. Box Contents and Specifications (LCB-010V8)

Box Contents

(1) 0-10V Controller (LCB-010V8)

(1) Install Kit (075-0217-02)

   (1) 5V DC, 10 Watt Power Adapter (025-0192-xx)

   (1) 16 Pin Screw Down Plug-In Connector (028-0855-xx)

(1) Documentation and Regulatory Insert (009-1736-xx)

Specifications

Environmental			
Temperature	32° to 104° F (0° to 40° C)		
Humidity	10% to 90% Relative Humidity (non-condensing)		
Dimensions and Weights			
	Length	Width	Height	Weight
LCB-010V8	5.65 in (14.35 cm)	3.74 in (9.5 cm)	1.18 in (30.0 cm)	.7 lb (0.32 kg)
Shipping	8.8 in (22.35 cm)	7.80 in (19.81 cm)	1.6 in (4.06 cm)	1.3 lb (0.59 kg)
Rack Space	1U		
Power			
Input Power	5V DC		
Nominal Power	10 Watts		
Regulatory			
Safety and Emissions	FCC Part 15	CE Mark	C-Tick
RohS	Compliant		
Minimum Supported Release			
Savant OS	da Vinci 8.9		

3.4. Right and Left Panel Descriptions

Right Panel

A	16-pin screw down plug in connector. For wiring information, see the wiring diagrams in the Connections section below.

Left Panel
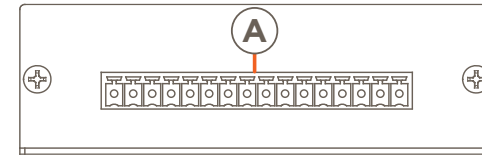

A	**Power Input** - Connect the supplied power adapter between the 5V DC port and a surge protected (120-240V AC, 50/60 Hz) outlet.
B	**Ethernet -** 8-Pin RJ 45 port. 10/100/1000 BaseT auto-negotiating port with link activity LEDs.
C	**Link LED** — **Solid Orange** - Network Speed 100/1000 Mbps. / **Off** - Network Speed < l00 Mbps.
D	**Data LED** — **Solid Green** - Ethernet link established. / **Green Blinking** - Ethernet activity is occurring. / **Off** - Ethernet link not established.
E	**Status LED** — **Solid Green** - During power up. / **Off** - During normal operation.
F	**Reset -** Press and release to perform a hard reset. Status LED will illuminate while button is pressed.

4.   Connections

4.1.   DMX Controller

Use the diagram to make DMX Controller signaling connections.
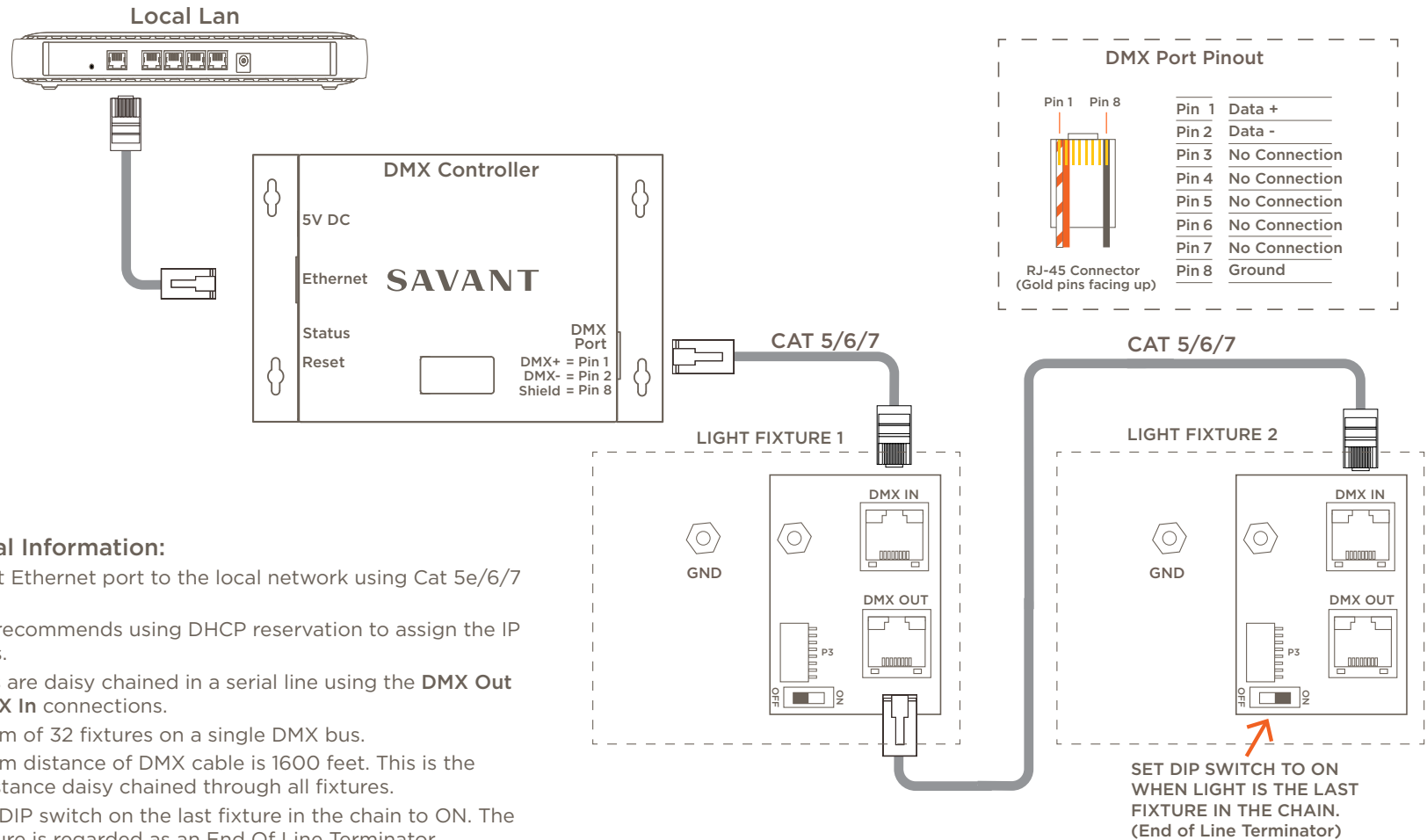
Local Lan

DMX Controller

5V DC

Ethernet   SAVANT

Status   DMX Port

Reset   DMX+ = Pin 1
                        DMX- = Pin 2
                        Shield = Pin 8

DMX Port Pinout

Pin 1   Pin 8

Pin 1	Data +
Pin 2	Data -
Pin 3	No Connection
Pin 4	No Connection
Pin 5	No Connection
Pin 6	No Connection
Pin 7	No Connection
Pin 8	Ground

RJ-45 Connector
(Gold pins facing up)

CAT 5/6/7   **CAT 5/6/7**

LIGHT FIXTURE 1   **LIGHT FIXTURE 2**

DMX IN   DMX IN

GND   GND

DMX OUT   DMX OUT

P3   P3

OFF   ON   OFF   ON

SET DIP SWITCH TO ON
WHEN LIGHT IS THE LAST
FIXTURE IN THE CHAIN.
(End of Line Terminator)

Additional Information:

- Connect Ethernet port to the local network using Cat 5e/6/7 cable.
- Savant recommends using DHCP reservation to assign the IP Address.
- Fixtures are daisy chained in a serial line using the **DMX Out** and **DMX In** connections.
- Maximum of 32 fixtures on a single DMX bus.
- Maximum distance of DMX cable is 1600 feet. This is the total distance daisy chained through all fixtures.
- Set the DIP switch on the last fixture in the chain to ON. The last fixture is regarded as an End Of Line Terminator.
- Savant recommends that the DMX signaling cable not be run in the same conduit as the high voltage AC lines.
- Fixtures will NOT illuminate when no DMX signal is received.

4.2. 0 - 10V Controller (Single Channel)

Use the diagram to make 0 to 10V Controller signaling connections for a single channel type controller. When set to single mode, only single channel fixtures can be used.

Local Lan

The wire colors do not represent any standard.
Colors are used in diagram to distinquish individual wires

0-10V Lighting Controller
4/8 Channel

Minimum #18 AWG

5V DC

Ethernet

Status

Reset

SAVANT

LIGHT FIXTURE
Standard White
(single channel)

LIGHT FIXTURE
Standard White
(single channel)

LIGHT FIXTURE
Standard White
(single channel)

LIGHT FIXTURE
Standard White
(single channel)

Each port supports daisy chaining
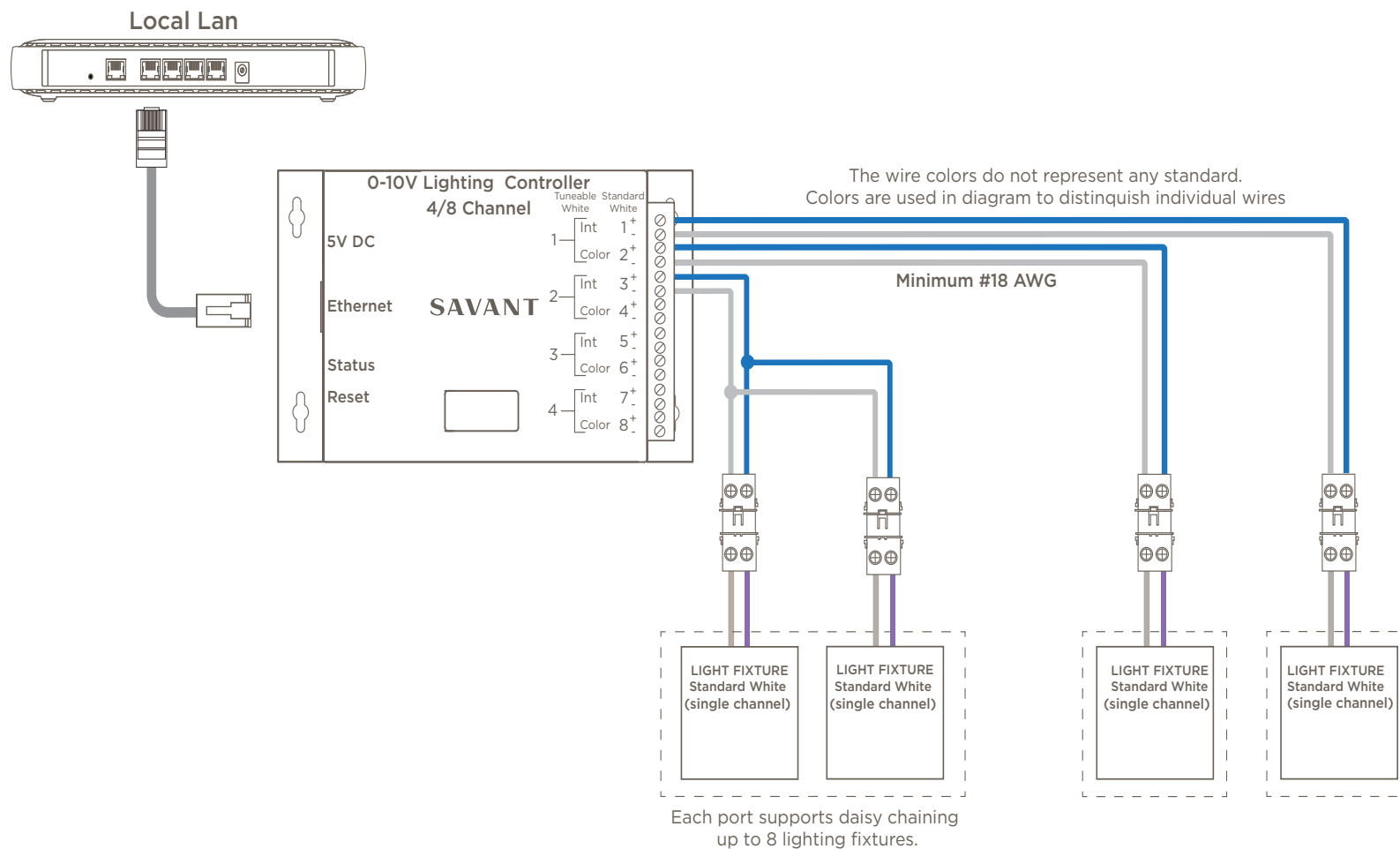up to 8 lighting fixtures.

Additional Information:

- Connect Ethernet port to the local network using Cat 5e/6/7 cable.
- Savant recommends using DHCP reservation to assign the IP Address.
- Up to 8 lighting fixtures per output port is supported.
- See the **USAI Lighting - Products Specification Sheets** located on the **Savant Customer Community** for information regarding the individual lighting fixtures.

4.3. 0 - 10V Controller (Dual Channel)

Use the diagram to make 0 to 10V Controller signaling connections for a dual channel type controller. When set to dual mode, only dual channel fixtures can be used.

Local Lan

0-10V Lighting Controller 4/8 Channel

The wire colors do not represent any standard.
Colors are used in diagram to distinquish individual wires

Minimum #18 AWG

LIGHT FIXTURE Tunable White (dual channel)

LIGHT FIXTURE Tunable White (dual channel)

LIGHT FIXTURE Tunable White (dual channel)

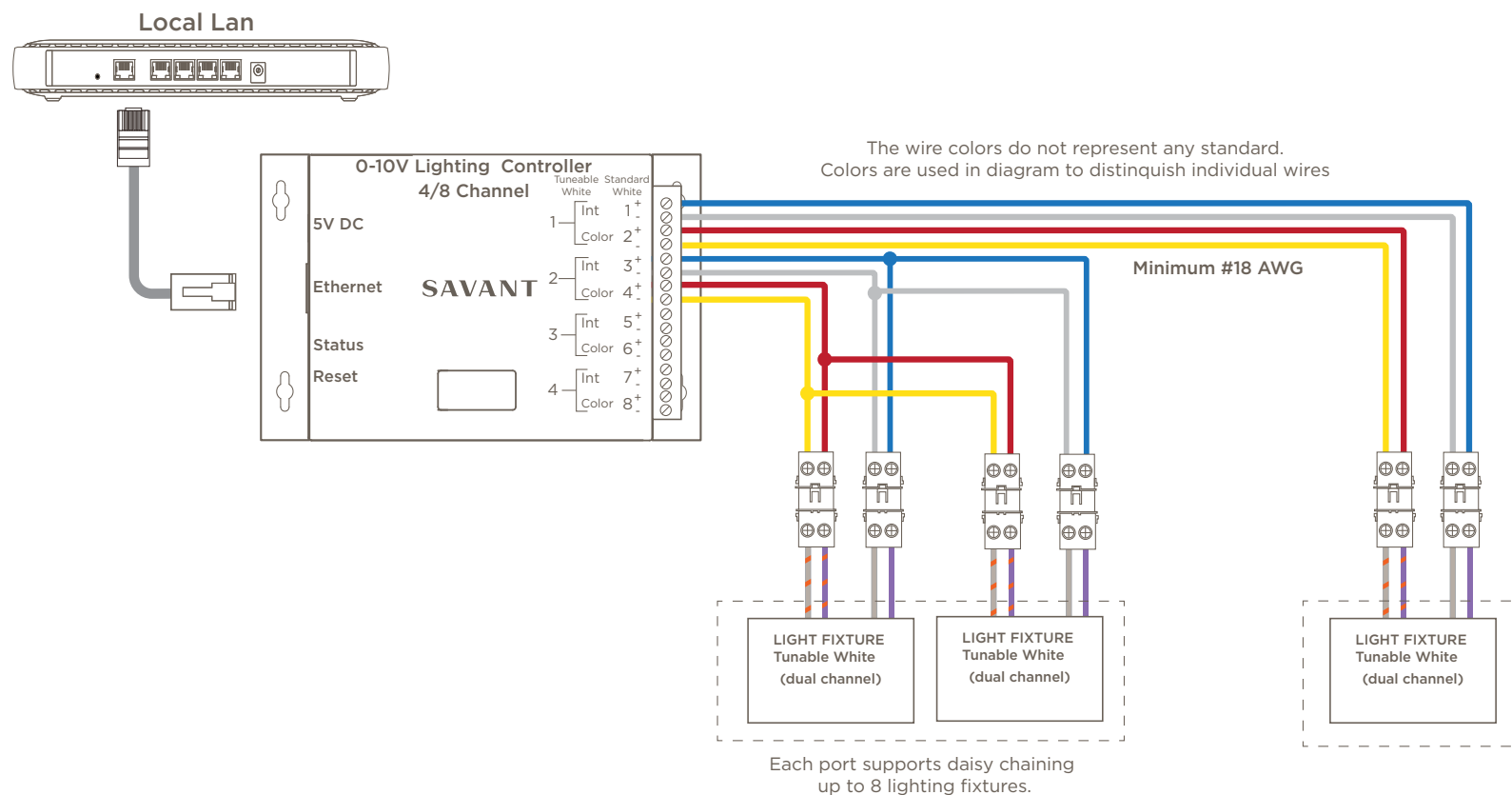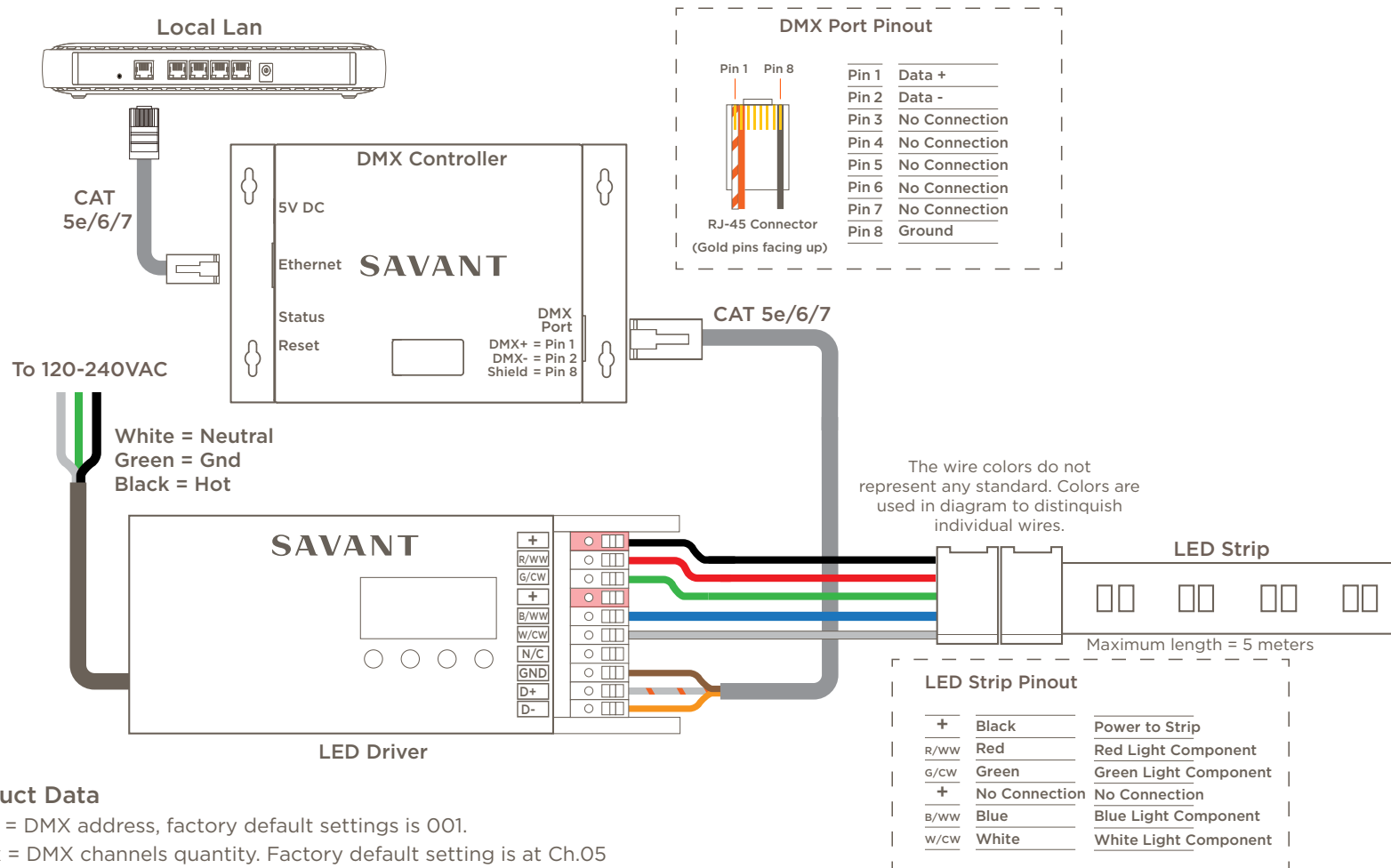Each port supports daisy chaining up to 8 lighting fixtures.

Additional Information:

- Connect Ethernet port to the local network using Cat 5e/6/7 cable.
- Savant recommends using DHCP reservation to assign the IP Address.
- Up to 8 lighting fixtures per output supported.
- See the **USAI Lighting - Products Specification Sheets** located on the **Savant Customer Community** for information regarding the individual lighting fixtures.

4.4. WRGB LED Strips (5 Meter)

Use the diagram to make connections between the LED driver (DMX-DRIVER1) and 5 meter LED strips.

NOTE: Savant LED Strips can only be cut at cut marks.

DMX Port Pinout

Pin 1	Data +
Pin 2	Data -
Pin 3	No Connection
Pin 4	No Connection
Pin 5	No Connection
Pin 6	No Connection
Pin 7	No Connection
Pin 8	Ground

RJ-45 Connector
(Gold pins facing up)

Local Lan

CAT 5e/6/7

DMX Controller

5V DC

Ethernet

SAVANT

Status

Reset

DMX Port
DMX+ = Pin 1
DMX- = Pin 2
Shield = Pin 8

CAT 5e/6/7

To 120-240VAC

White = Neutral
Green = Gnd
Black = Hot

The wire colors do not represent any standard. Colors are used in diagram to distinguish individual wires.

SAVANT

LED Driver

+
R/WW
G/CW
+
B/WW
W/CW
N/C
GND
D+
D-

LED Strip

Maximum length = 5 meters

LED Strip Pinout

+	Black	Power to Strip
R/WW	Red	Red Light Component
G/CW	Green	Green Light Component
+	No Connection	No Connection
B/WW	Blue	Blue Light Component
W/CW	White	White Light Component

- **Product Data**
- A xxx = DMX address, factory default settings is 001.
- CH xx = DMX channels quantity. Factory default setting is at Ch.05
- Bt xx = Bit (8bit/16bit). Factory default setting is 16bit.
- PF xx = Output PWM Frequency. Factory default setting is 1K HZ
- 9A xx = Output dimming curve gamma value. Factory default setting is ga 1.5.
- dP xx = Decoding mode. Factory default setting is dp1.1.

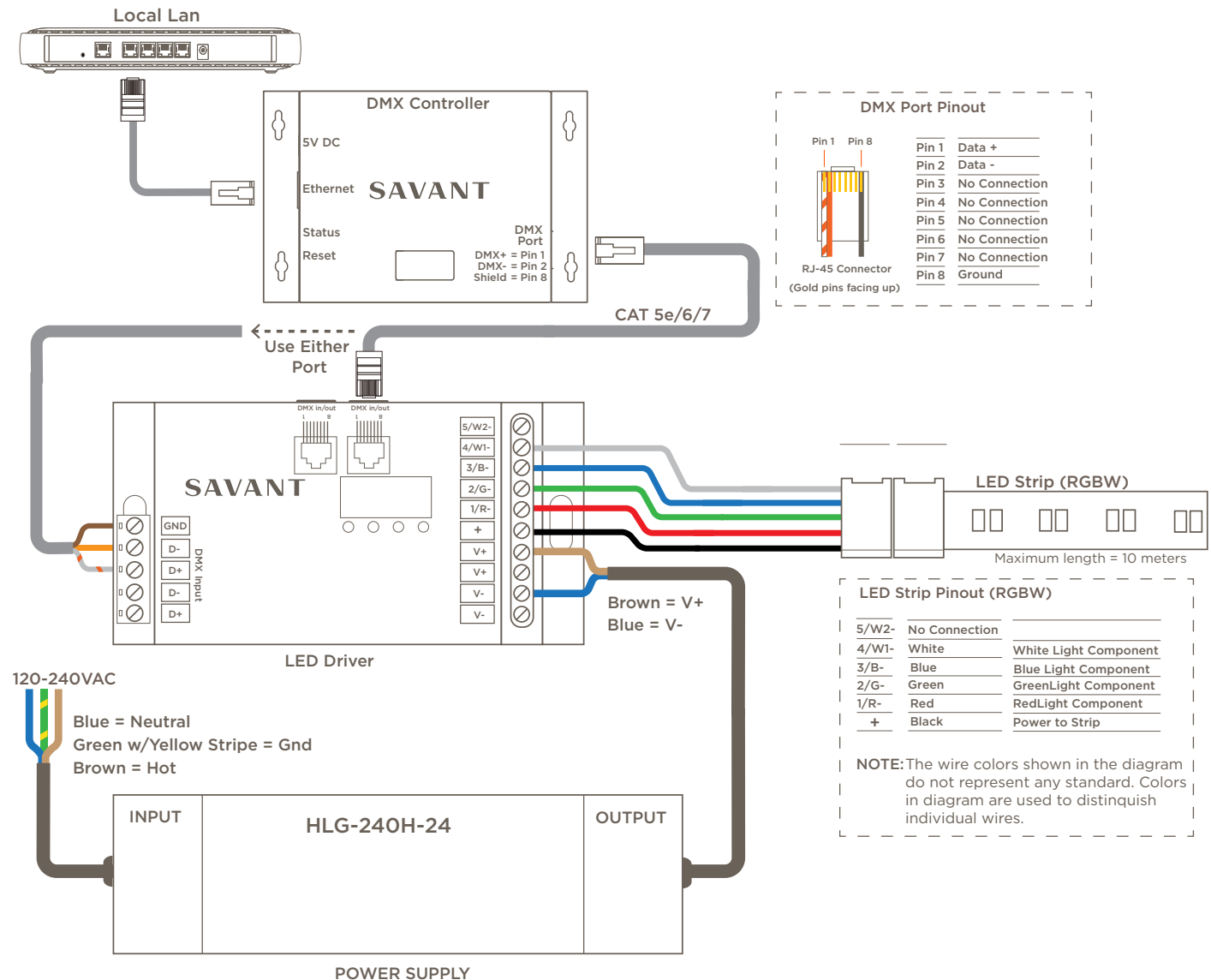### 4.5. WRGB LED Strips (10 Meter)

Use the diagram to make connections between an LED driver (DMX-DRIVER3) and 10 meter LED strips.

When Using USAI Fixtures

- Maximum distance from light fixture to remote power supply is 100' using 16 gauge wire, 50' using 18 gauge wire.
- Minimum enclosure size required is 9.5"W x 4"L x 2"H. Enclosure not included with driver.
- Remote Power Supplies can only be used with specific fixture types. Confirm power supply compatibility on light fixture label.
- Please refer to the QRG for maximum wire distances for LED Tape. Note when the full length 10M tape is used, the maximum distance between driver and the LED tape is 9.8 feet when utilizing 16 AWG wire to power the tape.
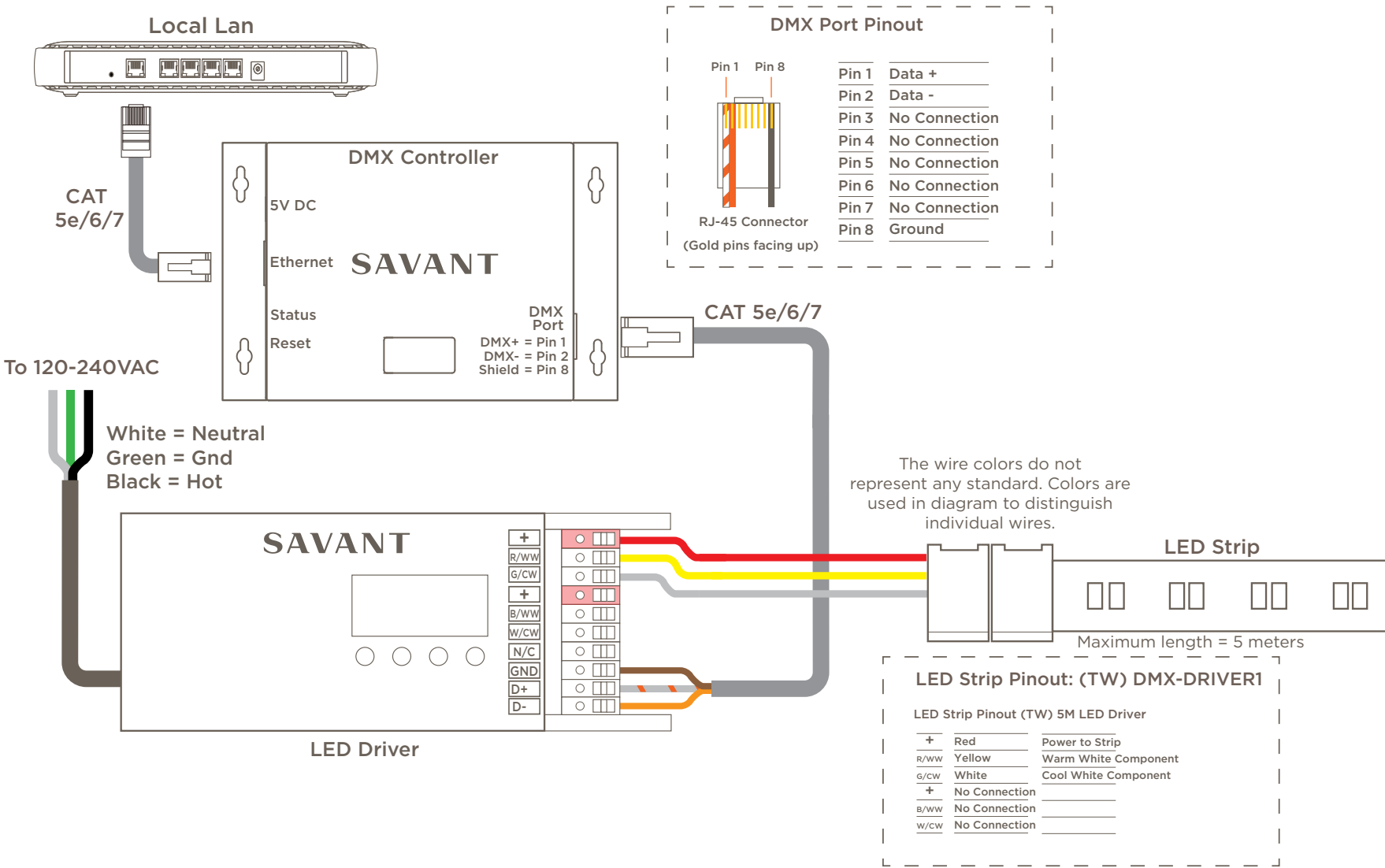
Additional Information:

- DMX signal cable must NOT be run in same conduit as high voltage AC power lines.
- Remote Power Supplies must be daisy chained in one serial line using Data in and Data out.
- Maximum of 32 DMX Drivers on single DMX controller.
- Maximum of 1000' serial communication link distance.
- To avoid signal loss, DMX signal terminator should be used on last Remote Power Supply in line. This is provided through a dip-switch on the RJ45 connector board.
- A Jumper can join two cut sections of a Savant LED Strip.
- A coupler is a connector that can join two Savant LED strips.
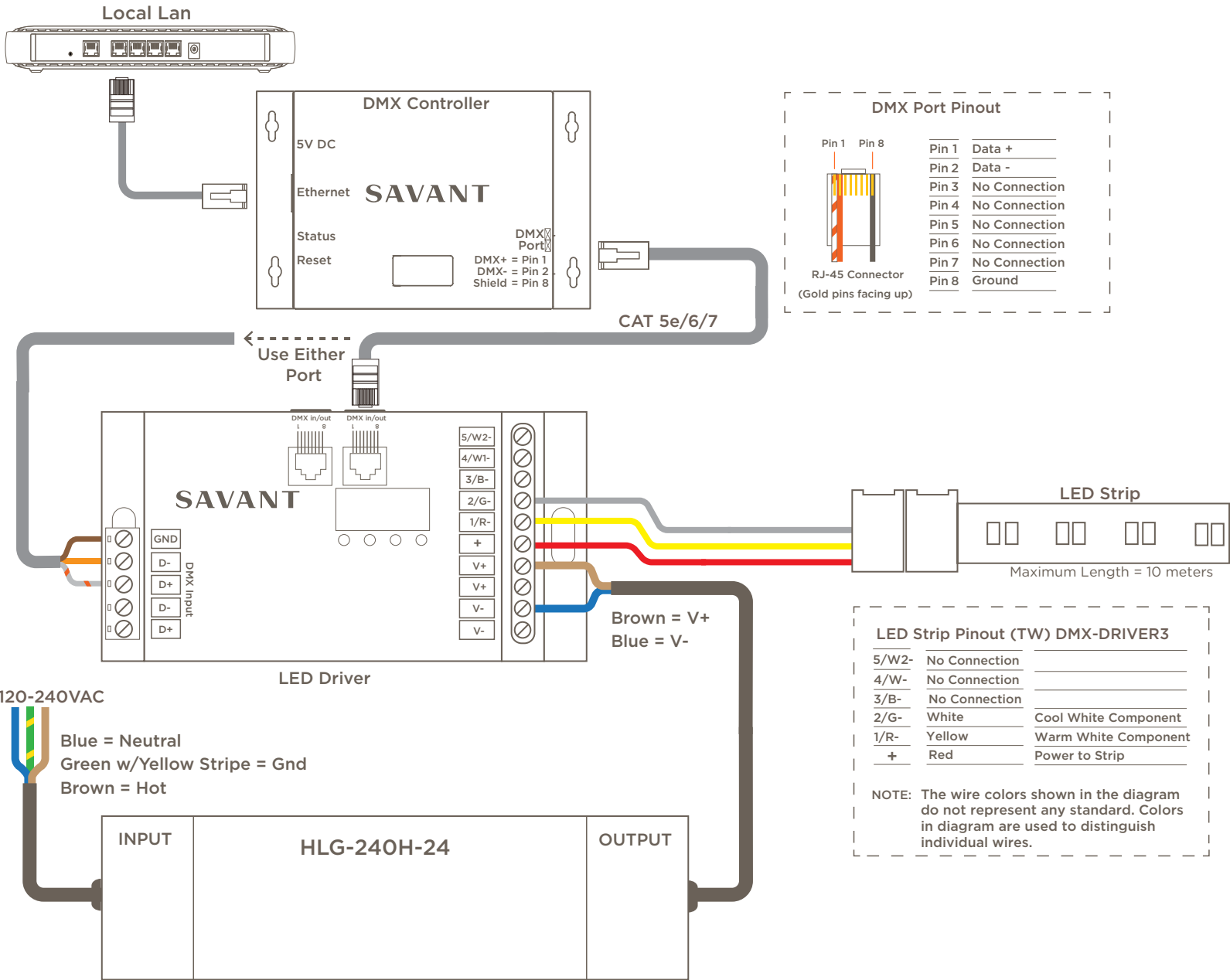- A "T" can join two sections of a Savant LED Strip at a right angle.

Local Lan

DMX Controller

5V DC

Ethernet   **SAVANT**

Status   DMX Port

Reset   DMX+ = Pin 1
                         DMX- = Pin 2
                         Shield = Pin 8

CAT 5e/6/7

DMX Port Pinout

Pin 1   Pin 8

Pin 1	Data +
Pin 2	Data -
Pin 3	No Connection
Pin 4	No Connection
Pin 5	No Connection
Pin 6	No Connection
Pin 7	No Connection
Pin 8	Ground

RJ-45 Connector
(Gold pins facing up)

Use Either Port

DMX in/out   DMX in/out

SAVANT

GND
D-
D+   DMX Input
D-
D+

5/W2-
4/W1-
3/B-
2/G-
1/R-
+
V+
V+
V-
V-

Brown = V+
Blue = V-

LED Driver

120-240VAC

Blue = Neutral
Green w/Yellow Stripe = Gnd
Brown = Hot

LED Strip (RGBW)

Maximum length = 10 meters

LED Strip Pinout (RGBW)

5/W2-	No Connection	
4/W1-	White	White Light Component
3/B-	Blue	Blue Light Component
2/G-	Green	GreenLight Component
1/R-	Red	RedLight Component
+	Black	Power to Strip

NOTE: The wire colors shown in the diagram do not represent any standard. Colors in diagram are used to distinquish individual wires.

INPUT	HLG-240H-24	OUTPUT

POWER SUPPLY

4.6. Tunable White LED Strips (5 Meter)

Use the diagram to make connections between the LED driver and LED strips.

Local Lan

DMX Port Pinout

Pin 1	Data +
Pin 2	Data -
Pin 3	No Connection
Pin 4	No Connection
Pin 5	No Connection
Pin 6	No Connection
Pin 7	No Connection
Pin 8	Ground

Pin 1   Pin 8

RJ-45 Connector
(Gold pins facing up)

CAT 5e/6/7

DMX Controller

5V DC

Ethernet   **SAVANT**

Status

Reset

DMX Port
DMX+ = Pin 1
DMX- = Pin 2
Shield = Pin 8

CAT 5e/6/7

To 120-240VAC

White = Neutral
Green = Gnd
Black = Hot

SAVANT

The wire colors do not represent any standard. Colors are used in diagram to distinguish individual wires.

LED Strip

+
R/WW
G/CW
+
B/WW
W/CW
N/C
GND
D+
D-

LED Driver

Maximum length = 5 meters

LED Strip Pinout: (TW) DMX-DRIVER1

LED Strip Pinout (TW) 5M LED Driver

+	Red	Power to Strip
R/WW	Yellow	Warm White Component
G/CW	White	Cool White Component
+	No Connection	
B/WW	No Connection	
W/CW	No Connection	

4.7. Tunable White LED Strips (10 Meter)

Use the diagram to make connections between the LED driver and LED strips.

Local Lan

DMX Controller

5V DC

Ethernet

SAVANT

Status

Reset

DMX Port

DMX+ = Pin 1
DMX- = Pin 2
Shield = Pin 8

DMX Port Pinout

Pin 1   Pin 8

Pin 1	Data +
Pin 2	Data -
Pin 3	No Connection
Pin 4	No Connection
Pin 5	No Connection
Pin 6	No Connection
Pin 7	No Connection
Pin 8	Ground

RJ-45 Connector
(Gold pins facing up)

CAT 5e/6/7

Use Either Port

DMX in/out   DMX in/out

SAVANT

GND
D-
D+
D-
D+

DMX Input

5/W2-
4/W1-
3/B-
2/G-
1/R-
+
V+
V+
V-
V-

LED Strip

Maximum Length = 10 meters

Brown = V+
Blue = V-

LED Driver

To 120-240VAC

Blue = Neutral
Green w/Yellow Stripe = Gnd
Brown = Hot

| INPUT | HLG-240H-24 | OUTPUT |

LED Strip Pinout (TW) DMX-DRIVER3

5/W2-	No Connection	
4/W-	No Connection	
3/B-	No Connection	
2/G-	White	Cool White Component
1/R-	Yellow	Warm White Component
+	Red	Power to Strip

NOTE: The wire colors shown in the diagram do not represent any standard. Colors in diagram are used to distinguish individual wires.

4.8. Chaining LED Drivers (5 and 10 Meter)

Use the diagram to make chained connections between the DMX-DRIVER1, DMX-DRIVER3 and LED strips.

NOTE: This example shows a secondary connection method between the first two LED Drivers if RJ45 is not available.

The wire colors do not represent any standard. Colors are used in diagram to distinquish individual wires.

DMX-DRIVER3

Brown = V+
Blue = V-

To 120-240VAC

Blue = Neutral
Green w/Yellow Stripe = Gnd
Brown = Hot

HLG-240H-24

INPUT   OUTPUT

POWER SUPPLY

LED Strip
Maximum length = 10 meters

LED Strip Pinout: WRGB

5/W2-	No Connection	
4/W-	White	White Light Component
3/B-	Blue	Blue Light Component
2/G-	Green	Green Light Component
1/R-	Red	Red Light Component
+	Brown	Power to Strip

NOTE: The wire colors shown in the diagram do not represent any standard. Colors in diagram are used to distinquish individual wires.

DMX-DRIVER1

LED Strip
Maximum length = 5 meters

LED Strip Pinout: WRGB

+	Brown	Power to Strip
1/R-	Red	Red Light Component
2/G-	Green	Green Light Component
+	No Connection	No Connection
3/B-	Blue	Blue Light Component
4/W-	White	White Light Component

5. DMX Decoding mode setting

(1) Select MENU dp.xx, click the button ENTER (the display will flash), then click or hold buttons UP and/or DOWN to choose the decoding mode. Click BACK button to confirm.

(2)"dPxx" refers to the DMX address quanitity used for control of the corresponding the PWM output channel. The 1st "x" is DMX address quantity, 2nd "x" is the PWM channel quantity.

(3) Micro dimming: This effect will only be visible when the dimming curve gamma value is set below 1.4. The lower the value, the more apparent the effect will be.

DMX address is 001, CH01

DMX Console Slider number/ DMX Channel	dp1.1	dp2.1
1	For all output dimming	For all output dimming
2	No use	For all output micro dimming

DMX address is 001, CH02

DMX Console Slider number/ DMX Channel	dp1.1	dp2.1	dp3.2
1	For output 1&3 dimming	For output 1&3 dimming	For output 1&3 dimming
2	For output 2,4&5 dimming	For output 1&3 micro dimming	For output 2,4&5 dimming
3		For output 2,4&5 dimming	For all output dimming
4		For output 2,4&5 dimming	

DMX address is 001, CH03

DMX Console Slider number/ DMX Channel	dp1.1	dp2.1	dp4.3	dp5.3
1	For output 1 dimming	For output 1 dimming	For output 1 dimming	For output 1 dimming
2	For output 2 dimming	For output 1 micro dimming	For output 2 dimming	For output 2 dimming
3	For output 3,4&5 dimming	For output 2 dimming	For output 3,4&5 dimming	For output 3,4&5 dimming
4		For output 2 micro dimming	For all master output dimming	For all master output dimming
5		For output 3,4&5 dimming		Strobe effects
6		For output 3,4&5 micro dimming		

DMX address is 001, CH04

DMX Console Slider number/ DMX Channel	dp1.1	dp2.1	dp5.4	dp56.4
1	For output 1 dimming	For output 1 dimming	For output 1 dimming	For output 1 dimming
2	For output 2 dimming	For output 1 micro dimming	For output 2 dimming	For output 2 dimming
3	For output 3 dimming	For output 2 dimming	For output 3 dimming	For output 3 dimming
4	For output 4&5 dimming	For output 2 micro dimming	For output 4&5 dimming	For all master For output 4&5 dimming
5		For output 3 dimming	For all master output dimming	For all master output dimming
6		For output 3 micro dimming		Strobe effects
7		For output 4&5 dimming		
8		For output 4&5 micro dimming		

DMX address is 001, CH05

DMX Console Slider number/ DMX Channel	dp1.1	dp2.1	dp6.5	dp7.5
1	For output 1 dimming	For output 1 dimming	For output 1 dimming	For output 1 dimming
2	For output 2 dimming	For output 1 micro dimming	For output 2 dimming	For output 2 dimming
3	For output 3 dimming	For output 2 dimming	For output 3 dimming	For output 3 dimming
4	For output 4 dimming	For output 2 micro dimming	For output 4 dimming	For output 4 dimming
5	For output 5 dimming	For output 3 dimming	For output 5 dimming	For output 5 dimming
6		For output 3 micro dimming	For all master output dimming	For all master output dimming
7		For output 4 dimming		Strobe effect
8		For output 4 micro dimming		
9		For output 5 dimming		
10		For output 5 micro dimming		

6. Blueprint Configuration - Discover Controller (Recommended Method for 9.0 and Higher)

Savant recommends following the steps below to add the controller to a RacePoint Blueprint configuration via the Discovery method. The example below shows a DMX controller being added to a configuration, however, the same process can be used to add a 0-10V controller.

> ℹ️ **HELPFUL!** The layout of the Lighting and Keypad Manager has changed as of da Vinci 9.0.

6.1. Discovery Process

Follow the steps below to discover controllers on the local network:

1. Open an existing Blueprint configuration.

2. From the menu bar, select **Tools > Savant Lighting and Keypads**, or select the **Manage Lighting** icon from the top toolbar.

3. Select **Keypads and Controllers.**

   NOTE: If the discovered pane is not available, select ⊞ .

4. Select **Discover** and the Controllers will populate under the **Discovered** field, when local to the site and on the same subnet as the Savant Host.

   NOTE: The button will automatically change to Stop Discover. The discover process can be stopped by selecting the button once more.

5. Click the discovered controller to highlight, then right-click and select **Add to configuration.**

6. (Optional): If desired, the name of the controller can be changed. To do this, double click the name of the controller in the Overview Panel.

7. Set the location where the controller will be installed.
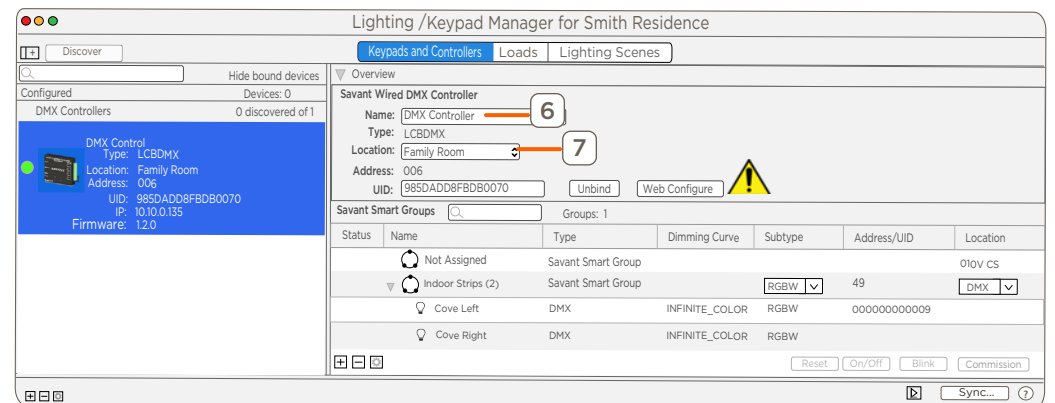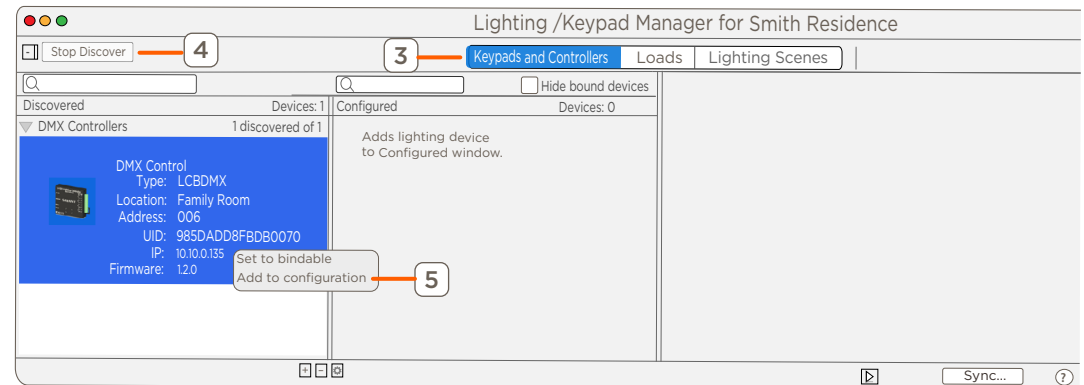
> ℹ️ **HELPFUL!** Please see Appendix B: Network Requirements when using the recommended Discovery method to find DMX Controllers.

> ⚠️ **IMPORTANT!** The Blueprint Configuration - OLA Server section requires Web Configure to be selected in the Lighting/Keypad Manager. This will prompt the OLA server to populate on the SDE.

7. Blueprint Configuration - OLA Server

The sections below descibe configuration of the OLA server. The procedure covers the basics of what is required to add the controllers and fixtures to a Blueprint configuration. More information pertaining to the OLA server and any fields that are not part of the basic setup is available in Appendix A: OLA Server - Additional Information

> ℹ️ **HELPFUL!** When connected to the OLA Server, all control to the Savant Control System is lost. Be sure to close out of the OLA Server before uploading configuration to the Host.

Access OLA Server (Web UI)
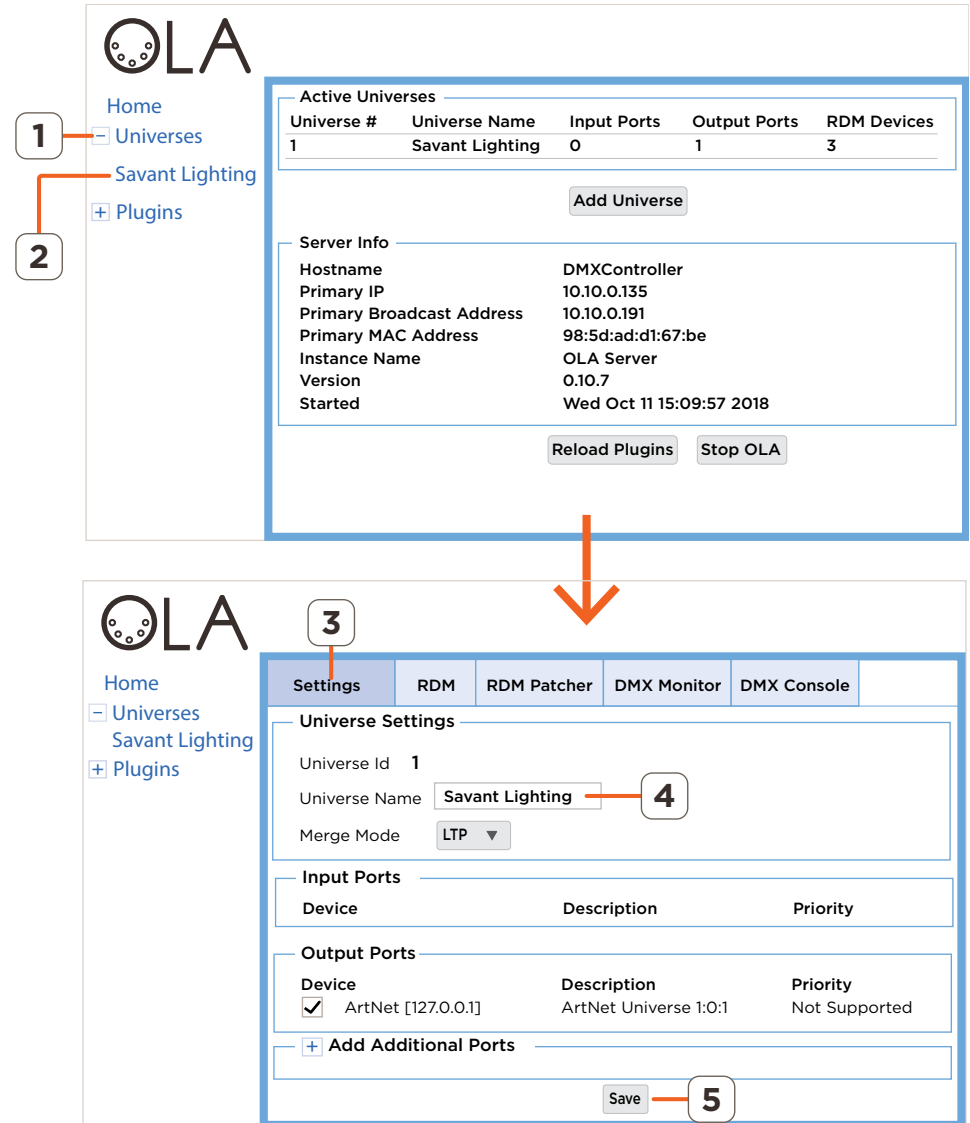
With the controller located, the embedded OLA server can be accessed through a Web UI. Follow next few steps to access the OLA server.

1. Select the **Web Configure** button, as seen in Section 6.1's example.

7.1. Update Preconfigured Universe

To simplify the process, a preconfigured Universe labeled Savant Lighting is available in the OLA server. This Universe is populated with settings all controllers need to function correctly. The steps below configure job site specific information such as naming conventions and DMX network addresses.

1. Select the ➕ icon to expand the Universes field.
2. Select the Universe labeled **Savant Lighting**. This opens the preconfigured Universe. This Universe supports all Savant wired lighting controllers.
3. Select the **Settings** tab.
4. Select the **Save** button if changes were made.

7.2. Configure Lighting Drivers - RDM Tab

The RDM tab gives a user access to the controllers and lighting fixtures. The steps below describe how to update the fields required to make the system functional. For more information regarding each of the fields in the RDM tab, refer to Appendix A: OLA Server - Additional Information.

Configure LED Drivers (Lighting Fixtures and LED Strips)

1. With the Savant Lighting Universe active, select the **RDM** tab.

2. Select the search icon 🔍 to start the discovery process. After a brief delay, any controllers or lighting fixtures on the network will begin to populate.

3. Select an LED Driver (eldoLED/SR). In the right panel, all fields associated with this driver will populate. Configure each of the fields described below. Select **Save** to apply each change made.

    –   **DMX Personality** - Select the color space supported by the lighting fixture.

    –   **DMX Start Address** - The address (footprint) of each lighting will populate automatically. Savant recommends accepting the default addressing scheme. If required, the starting address can be entered here and the rest of the addressing for that lighting fixture will be automatically populated.

        Addressing of the lighting fixtures is described in the Configure Addressing - RDM Patcher Tab section. The RDM Patcher tab includes a clear visual indicator of available addresses.

    –   **Device Label** - Enter a label that identifies the lighting fixture. The label entered is added to the following:

        •   The left side panel in the OLA Server. See the image above for reference.

        •   The Name field within the RacePoint Blueprint Lighting/Keypad Manager.

    –   **Identify Device** - Used to locate the controller and any lighting fixtures communicating with it.

        •   To locate a lighting fixture, add a check to the **Identify Device** check-box and select **Save**. The lighting fixture will begin flashing once per second.

   •   To stop the flashing, uncheck the same box and select **Save**.
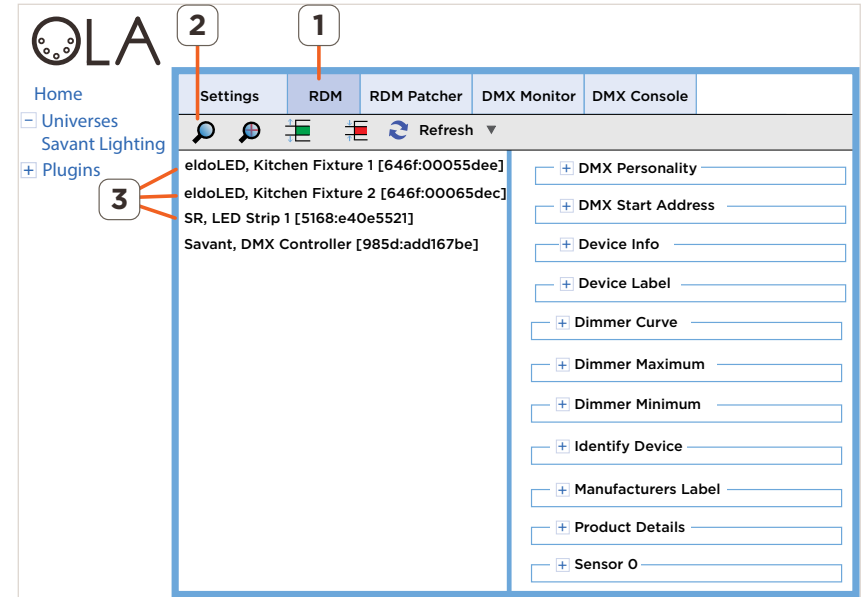
Configure Controller - DMX

1. Select the **RDM** tab if not already there. In the leftmost panel, all the controllers and lighting fixtures on the network are listed. If not, select the search icon 🔍 to re-discover the devices.

2. Select the **DMX Controller**. In the right panel, each of the fields associated with this driver will populate. In the rightmost panel, configure each of the fields as described below.

   - **DMX Personality** - Select the type of controller installed (DMX 128).

   - **Device Label** - This field is populated with DMX Controller and can't be modified.

   - **Identify Device (optional)** - Used to locate the controller and any lighting fixtures communicating with it.

     • To locate the devices, add a check to the check box in the Identify Device field and select **Save**. The Status LED on the controller will begin blinking once per second and all lighting fixtures connected to the controller will begin flashing.

     • To stop the blinking/flashing, uncheck the same box and select **Save**.
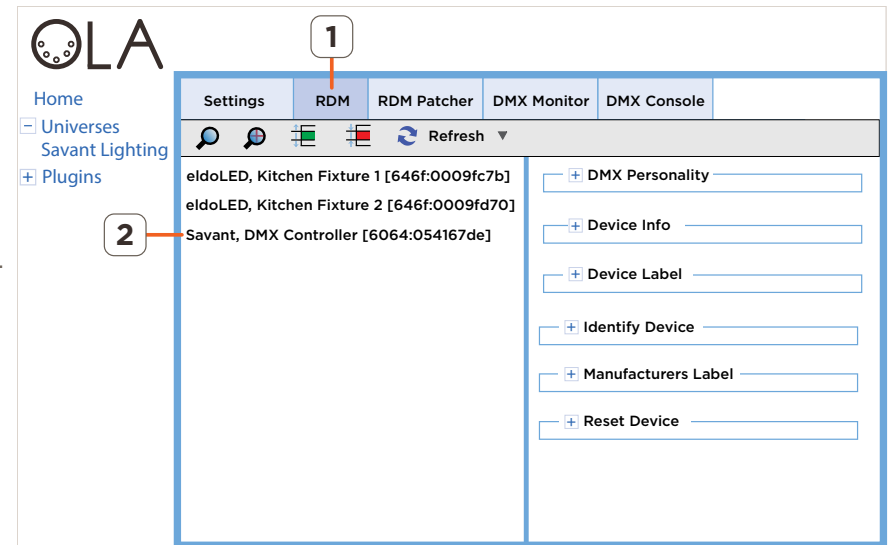
Configure Controller - (0 to 10V)

1. Select the **RDM** tab if not already there. In the leftmost panel, all the controllers and lighting fixtures on the network are listed. If not, select the search icon 🔍 to re-discover the devices.

2. Select the **ZeroToTen Controller**. In the rightmost panel, configure each of the fields described below. Select **Save** to apply each change made.
   - **DMX Personality** - Select the type of controller installed (Dual Channel, Single Channel).

     • **Dual Channel** - Controls Tunable White type lighting fixtures/ drivers. Fixtures that control white light with varying degrees of temperature.

     • **Single Channel** - Control standard white lighting fixtures/ drivers.

   NOTE: Dual Channel controllers will always discover (4) fixtures and Single channel controllers will always discover (8) fixtures, regardless of deployment.

   - **Device Label** - Populated with ZeroToTen Controller and can't be modified.

   - **Identify Device (optional)** - Used to locate the controller and any lighting fixtures communicating with it.

     • Add a check to the check box in the Identify Device field and select **Save**. The Status LED on the controller will begin blinking once per second and all lighting fixtures connected to the controller will begin flashing. To stop the blinking/flashing, uncheck the same box and select **Save**.
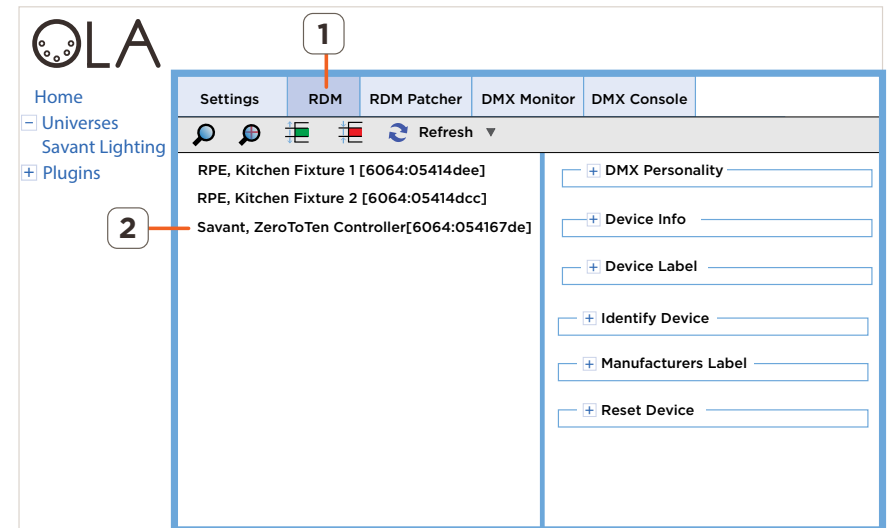
7.3. Light Fixture Addressing - RDM Patcher Tab

Each device in the lighting system utilizes between 1 and 5 addresses (footprint). For example:

– DMX Light Fixture = Between 1 and 5 addresses dependent on the footprint of lighting fixture (W, WW, RGB, RGBW, RGBWW).

– 0-10V Light Fixture = Between 1 and 2 addresses dependent on the footprint of lighting fixture (single or dual channel).

– LED Strip = 2, 3 or 4 addresses (WW, RGB, RGBW)

– 0-10V and DMX Controller = No addresses - Controllers do not use addressing.

Below are 2 methods for setting the addresses. The first method using the Magic Wand utility is the preferred method.

Set Addresses using the Magic Wand

Lighting fixtures ship with pre-assigned address which may not be unique. In the RDM Patcher tab, fixtures with the same address will be displayed stacked on top of one another within the matrix shown below. The OLA Server offers a magic wand utility that assigns unique addresses to each fixture so they no longer overlap. Follow the steps below to use the magic wand

1. Select the **RDM Patcher** tab.

2. Select the magic wand icon 🪄.

3. Select **Yes** if you agree to the pop-over that opens. The addresses for each fixture are then updated and automatically reordered in the matrix.

Set Addresses Manually

The magic wand described above assigns a unique address (footprint) to each lighting fixture. This is displayed in the matrix in the **RDM Patcher** tab (see image below right). However, a user can also change the addressing manually. To change the addressing manually, follow the steps below.

A	Each cell is an address. A DMX Universe contains 512 addresses. Each lighting fixture is assigned between one and five addresses. A portion of that address is added to each packet to ensure the packet is sent to the correct device.
B	The blue rectangle covers all the addresses assigned to each device. For example, The eldoLED, Lighting Fixture 1 is assigned addresses 1, 2, 3, and 4.
C	The bottom row gives an indication of how the table is utilized: – **Free Slots: first 9** - Indicates that the first free address in the table is cell 9. – **last 512** - Indicates the last free address in the table is cell 512. – **max contiguous** - Indicates the largest number of addresses (cells) available that are next to each other in sequence.
D	To move a device to a different address, select, drag, and drop the device to its new location.

⚠️ **IMPORTANT!** 0-10V fixtures are pre-populated and do not need to be modified..

7.4. OPTIONAL: Test Communications - DMX Console Tab

The information below is made available for debug purposes only. From the DMX Console tab, each individual address in each lighting fixture can be tested. If you do not suspect any problems with the lighting fixtures, skip this section.

If a problem is suspected, use the information below to troubleshoot.

1. Select the DMX Console tab.
2. Identify the addressing for each fixture installed.
3. Adjust the sliders for each address to individually test color space for each fixture.

TIP! To switch all channels to full On, select the Yellow light bulb icon. To switch all channels to full Off, select the clear light bulb icon.

4. Select the right facing blue arrow to access the next 16 addresses and test those fixtures. Continue until all lighting fixtures are tested.
5. With all fixtures verified, continue to the next section.

For more information on the functions of the DMX Console tab, refer to the information below.

A	Each number above the slider corresponds to an address. There are 512 addresses available in a DMX network. Sixteen addresses are presented at one time. To access the next 16 addresses, select the blue right facing arrow. To access the previous 16 addresses, select the blue left facing arrow.
B	Adjust the slider to increase or decrease the intensity of the color associated with that address. For example, moving the slider for address 5 up or down, increases or decreases the intensity of the color Red to the lighting fixture using address 5. In addition, the intensity is tracked both in the numbering above the slider and in the table to the right of the sliders. Intensity range = 0-255.
C	Each slider represents a color space to a specific lighting fixture. The lighting fixture installed determines what color space(s) are adjusted. In the image to the right, addresses 5, 6, 7, and 8 are associated with a fixture that supports RGBW. If the fixture installed supports white, just one address is utilized and that slider would adjust the white color space.
D	**Yellow Bulb** - Instantly changes the intensity of all 512 channels to 255 (full on). **Clear Bulb** - Instantly changes the intensity of all 512 channels to 0 (off).

8. Blueprint Configuration - Add Fixtures to a Smart Group

This section describes the process of scanning for a controller's associated lighting fixtures, creating Smart Groups, adding the fixtures to the groups, and testing communication within the RacePoint Blueprint Lighting and Keypad Manager. .

⚠️ **IMPORTANT!** If the steps outline in Section 7 have not been completed, the scan for lighting fixtures will fail.

8.1. Scan for Lighting Fixtures

Locate all lighting fixtures in the controller's lighting network.

1. From Lighting and Keypad manager, select the **Keypads and Controllers.** Select the **Discover** button and all lighting fixtures in your network will automatically populate.

   🔸 **TIP!** If in Discovery mode, the button will say Stop Discover.

8.2. Create Smart Groups and Add Fixtures

Each lighting fixture needs to be added to a lighting Smart Group. If multiple lighting fixtures are to be controlled by single slider, each fixture should be added to the same smart group. Follow the steps below to create a Smart Group and add fixtures.

2. Highlight the controller and select **Connect**.

3. Select the Add icon ➕ and a new Smart Group gets added to the lighting/keypad manager.

4. Double-click the Smart Group and rename to something that identifies the group. The name entered will be used to identify the group within the Savant Pro App.

5. Drag and drop all fixtures into a Smart Group. Each fixture's LED icon will change from Yellow to Green when added to a Smart Group.

6. Edit the location name of the Smart Group, where applicable.

8.3. Test Lighting

7. Connect to the controller again, select the fixture and then select the **On/Off** button at bottom of lighting manager.

   🔸 **TIP!** The Blink button is a useful identify function, similar to On/Off.
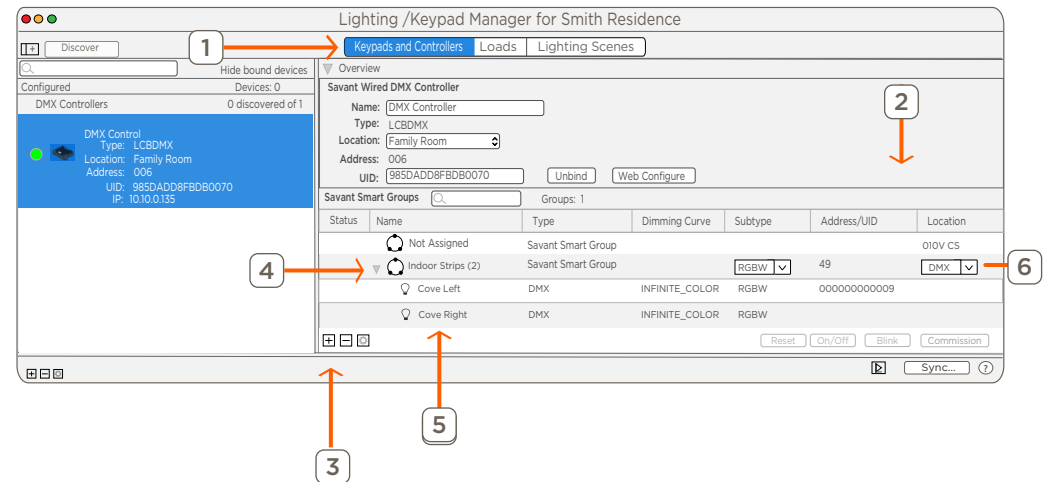
9. Blueprint Configuration - Update Data Table

With all fixtures working, the configuration can now be saved and uploaded to the Host.

9.1. Update the Lighting Data Table

The additions made to the Lighting and Keypad manager must be synced with the Lighting Data Table (Tools > Settings > Lighting). Follow steps below to update the Data Table.

1. Select the **Sync...** button at the bottom of the Lighting/Keypad Manager.

2. In the drop-down menu that opens, check or un-check the appropriate box or boxes. Refer to descriptions below.

Loads, Scenes, Load Scenes, Buttons boxes

Checked - For boxes that are checked:
- An entry for each box checked is added to the lighting data table (Tools > Settings > Lighting).
- If the lighting data table already contains an entry for the box that is checked, that entry is updated with any new information.

Unchecked - For boxes that are unchecked (Loads, Scenes, Load Scenes, Buttons):
- If an entry for the unchecked box exists in the lighting data table (Tools > Settings > Lighting), that entry is removed.
- No new entries are added to the lighting data table.

Reset any user modifications box:

Checked:
- Changes to entries in the Lighting Data Table are returned to their default values.

Unchecked (Default):
- Changes to entries in the Lighting Data Table are left alone.
- Changes to entries through the Lighting and Keypad Manager are updated in the Lighting Data Table.
- New entries created in the Lighting and Keypad Manager are added to the Lighting Data Table.

3. Select **Sync** button in the drop-down menu when satisfied the correct boxes are checked.

4. In the Lighting Data Table that appears, verify the entries are either created or modified. Select **Done** when complete.

NOTE: Savant recommends checking just the Loads and Scenes boxes. Adding checks to the Load Scenes and Buttons boxes increases the number of icons presented in the Savant Pro App. The additional icons make the App look very busy and confusing.

10. **RacePoint Blueprint Configuration - Upload to Host**

With the configuration complete, it can now be uploaded to the Savant Pro System Host. Follow steps below to upload.

⚠️ **IMPORTANT!** When connected to the OLA Server, all control to the Savant Control System is lost. Be sure to close out of the OLA Server before uploading configuration to the Host.

1. Select the **Generate Services** icon from the Blueprint tool bar. The State Icon will change to either Blue or Green, indicating that Services have been generated successfully.

2. Select **Update All UI Screens > Sync with Services** (only if necessary) to sync any TrueControl II interfaces with generated Services. The State Icon will switch to Green when complete.

3. To upload, select the **Upload to Master** icon from the Blueprint tool bar. See image below.

Select Upload to Master

4. In the dialog box that opens, read the dialog and select Save and Upload.
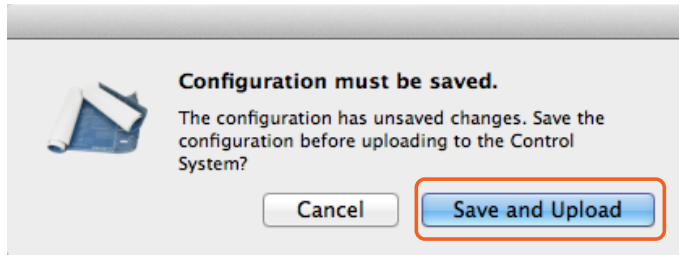
5. The System Monitor application will open as displayed below. Verify the path to the configuration file is correct. Select **Upload** when satisfied. Configuration will now upload to the Host.
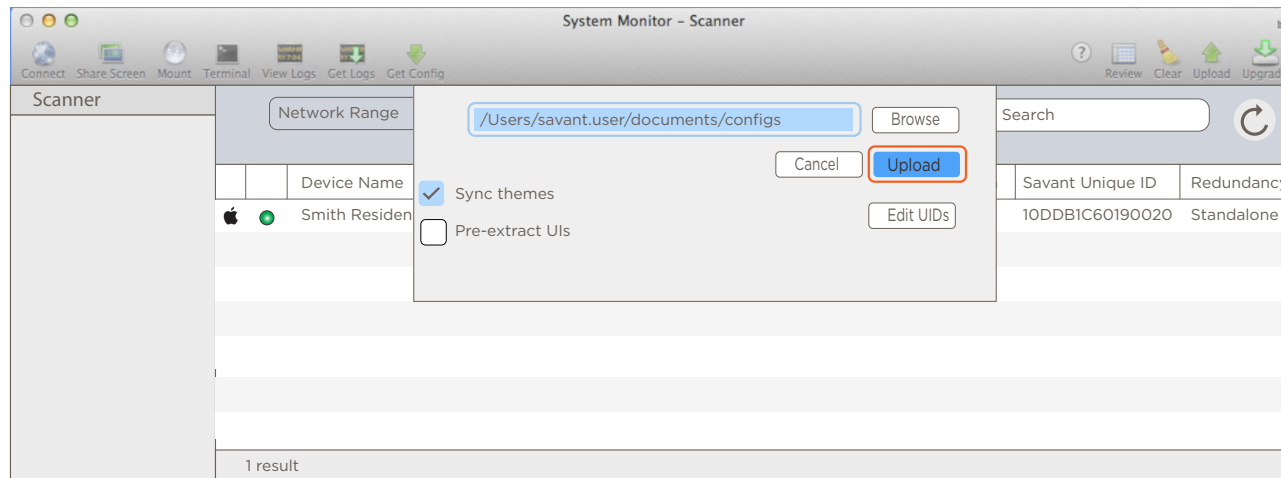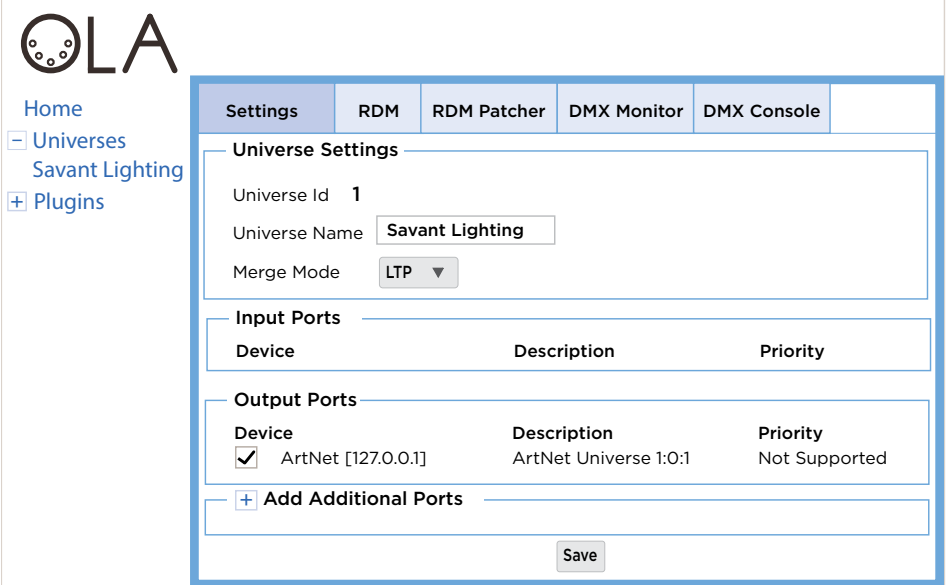
11. **Savant Pro App**

   With the upload complete, the DMX lighting network will either create a Lighting Service in the Savant Pro App or be added to an existing Lighting Service. For further information, refer to the Savant Pro App Lighting Service User Guide (009-1696-xx), available via the **Savant Customer Community**.

SETTINGS TAB

Below are descriptions of the fields in the Settings tab of the Savant Lighting Universe

- – **Universe Id** - The Savant Lighting Universe ID is automatically populated and should NOT be changed.
- – **Universe Name** - By default this field is set to Savant Lighting. To change the name, double-click the Universe Name field and enter a name that identifies the Universe.
- – **Merge Mode** - Set to LTP (latest takes precedent). This is the recommended setting.
- – **Output Ports** - ArtNet[127.0.0] is the data distribution protocol supported.

RDM TAB (Lighting Controllers)

Below are descriptions of the fields in the RDM tab of the Savant Lighting Universe for a DMX or 0-10V lighting controller.

DMX Personality - Sets the DMX personality that indicates the number of channels available. The fields available are dependent on the controller in the system.

- DMX Controller
  - DMX (128) - Select when controller is the LCB-DMX1.

  - DMX_Keypad (128) - Reserved for Future Use

- ZeroToTen
  - Dual Channel - Select if any of the lighting fixtures in the lighting network support the adjustment of both intensity and temperature (Tunable White) type LED.

  - Single Channel - Select only if all fixtures in the lighting network support the adjustment of the standard warm dim type LED.

Device Info - Information regarding the lighting controller is available.

Device Label - Identifies the type of controller installed. This is hard coded and can't be modified. The label set in this field also appears in the left panel of the OLA Server.

Identify Device - Field can be used to identify the controller as well as all lighting fixtures communicating with it. To do this:

1. Expand the Identify Device field.
2. Add a check to the Identify Device check box.
3. Select Save.

The Status LED on the controller will begin blinking once per second and all lighting fixtures connected to the controller will begin flashing. Uncheck the same box and select **Save** to stop the blinking/flashing.

Manufacturers Label - Displays the manufacturer (Savant) of the controller and can't be modified. The label set in this field also appears in the left panel of the OLA Server.

Reset Device - To reset the controller, select from the drop-down menu the type of reset desired.

- Warm Reset - Reboots the controller and reverts all changes made back to their factory defaults..

- Cold Reset - Reboots the controller but keeps all changes made..
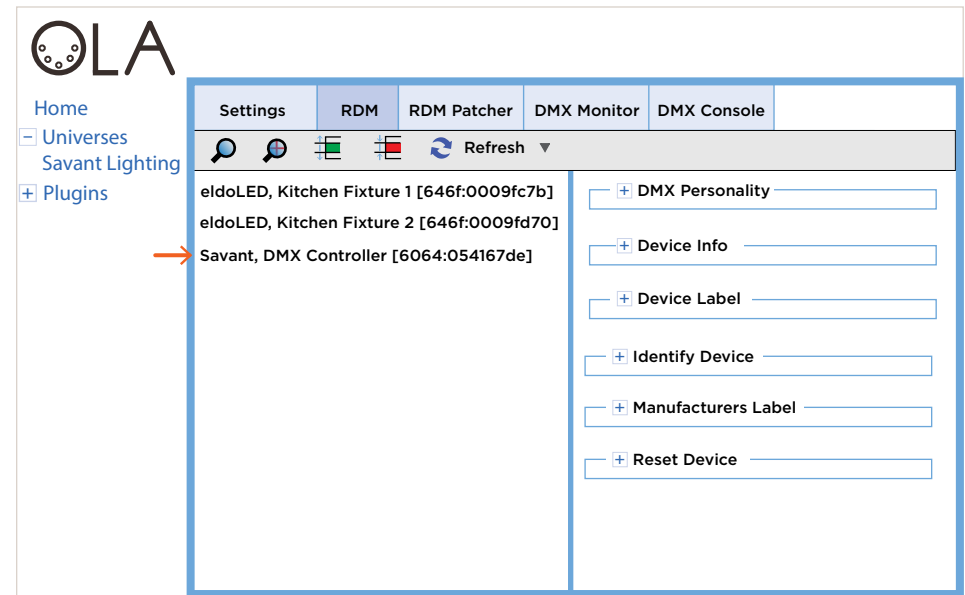
RDM TAB (Lighting Fixtures and LED Strips)

Below are descriptions of the fields in the RDM tab of the Savant Lighting Universe for DMX lighting fixtures and LED strips.

DMX Personality - Set the color space supported by the lighting fixture.

DMX Start Address - The starting (first) address of the lighting fixture is presented and can be modified using this field. However, Savant recommends using the RDM Patcher tab and not the DMX Start address field to make changes to the lighting fixture addresses. The matrix in the RDM Patcher tab gives a clear indication of the addressing used for each fixture.

Device Info - Information regarding the lighting fixture or LED strip is available.

Device Label - Name given to the lighting fixture selected. This field generates the driver manufacturer and then the MAC address. The name presented in this field is initially blank and can be modified by double clicking the field, entering a new label, and selecting Save.

Dimming Curve - The Dimming Curve adjustment is handled in the Savant Pro App. Set the dimming curve to the appropriate capabilities. If the fixture can do RGBW, then the curve should be Infinite Color.


Dimmer Info

– **Minimum Level Lower Limit** - Lowest value that Minimum Level can be set to.
– **Minimum Level Upper Limit** - Highest value that Minimum Level can be set to.
– **Maximum Level Lower Limit** - Lowest value that Maximum Level can be set to.
– **Maximum Level Upper Limit** - Highest value that Maximum Level can be set to.
– **# of Supported Curves** - Number of dimming curves supported on the device.
– **Levels Resolution** - Number of bits used by the device to output the level of intensity. Savant uses an 8-bit system (0-255 levels).
– **Split Levels Supported** - Are split levels supported (Minimum / Maximum Level Increasing). 00=No, 01=Yes

Dimmer Minimum

– **Minimum Level Increasing** - When increasing power at the output of a dimmer, this field sets the level of brightness that the LED will switch On. Setting this field correctly will reduce unintended behavior such as flickering. Values range from 0-255
– **Minimum Level Decreasing** - When decreasing power at the output of a dimmer, this field sets the level of brightness that is output before the LED switches Off. Setting this field correctly will reduce unintended behavior such as flickering. Values range from 0-255
– **On Below Minimum** - Add a check to this box to provide preheat functionality to bulbs with filaments. When selected, a small amount of power will always be present at the bulb to prevent the bulb from cooling down. On Below Minimum reduces the stress put on bulbs when they are first powered on.

Dimmer Maximum

– Maximum Level - When increasing power at the output of a dimmer, this field sets the maximum level of brightness allowed.
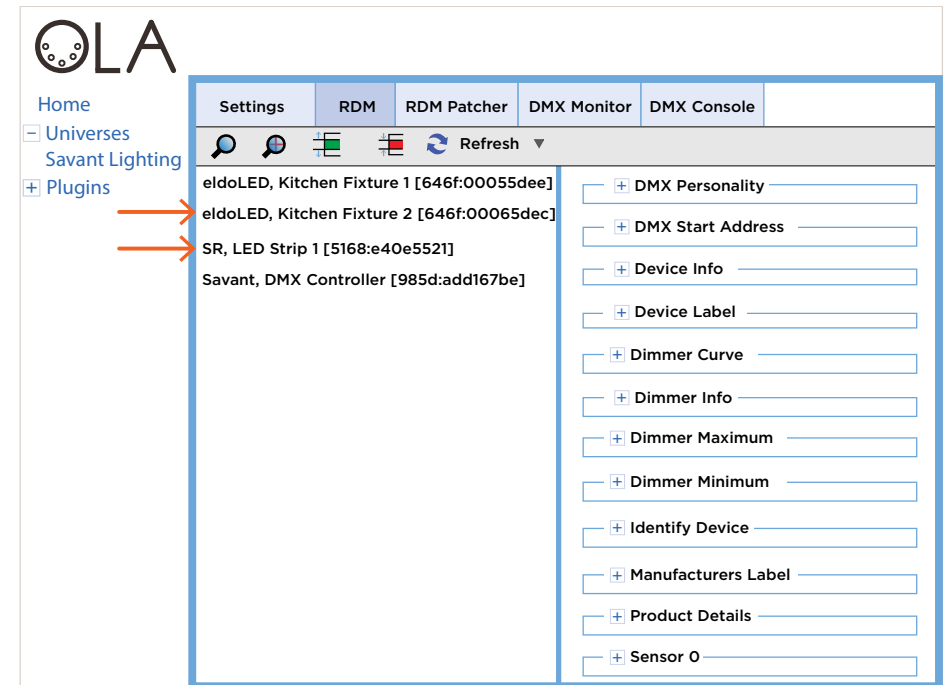
RDM TAB (Lighting Fixtures and LED Strips) - Continued from previous page

Identify Device - Use this field to locate a lighting fixture in the lighting network.
1. Expand the Identify Device field.
2. Add a check to the Identify Device check box.
3. Select **Save**.

The lighting fixture will begin flashing once per second. Uncheck the same box and select **Save** to stop the flashing.

Manufacturers Label - The manufacturer of the driver installed in the lighting fixture is displayed.

Product Details - Information regarding the lighting fixture is presented.

Sensor 0 (DMX Light Fixture Only) - Displays the internal temperature recorded by the temperature sensor embedded in the lighting fixture.

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, perform one of the following steps:

– **Unplug/Plug Ethernet Connection**
   1. Unplug Ethernet cable.
   2. Wait 15 seconds.
   3. Re-insert Ethernet cable back into Ethernet port.

– **Cycle Power**
   1. Disconnect the controller from the AC power source.
   2. Wait 15 seconds.
   3. Reconnect.

– **Reset Button**
   1. Press and release the reset button. The system will reset and IP Address settings will be cleared.
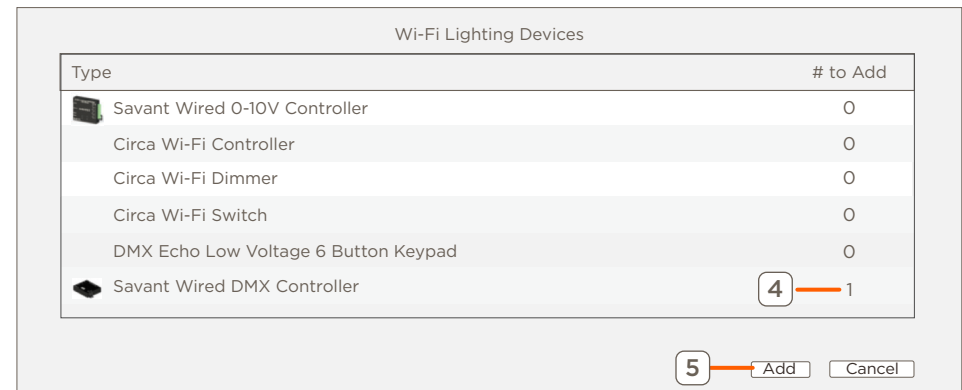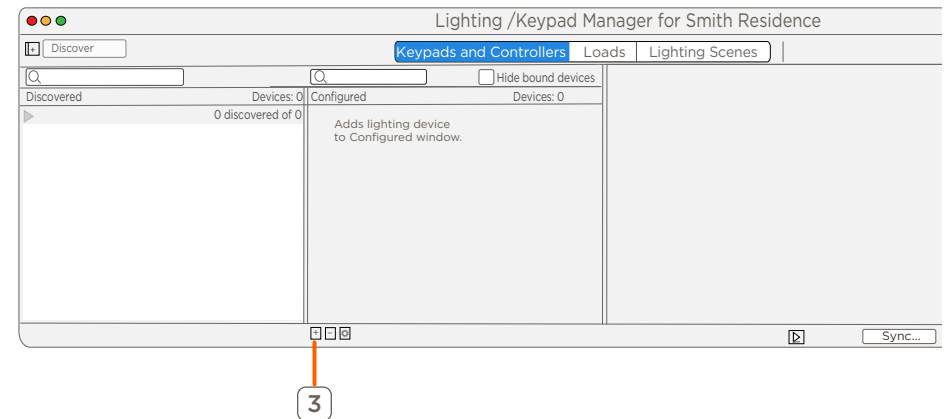
Savant recommends being local to the site to discover and bind the controllers. However, the controller can be added remotely, before using Discover to bind.

ⓘ **HELPFUL!** The UID can be found printed on a label, located on the top cover of the DMX controller.

Add Controller to Lighting Manager

Add the controller to an existing Blueprint configuration by following the steps below:

1. Open an existing Blueprint configuration.
2. From the menu bar, select **Tools > Savant Lighting and Keypads** or select the **Manage Lighting** icon from the top toolbar.
3. From within the **Keypads and Controllers** tab, select the **Add** ➕ icon.
4. Double-click the **# to Add** field for each controller being added and enter the number of that type of controller.
5. Select the **Add** button and verify the controller(s) are added to the Keypads and Controllers, in the configured pane.

Wi-Fi Lighting Devices	
Type	# to Add
Savant Wired 0-10V Controller	0
Circa Wi-Fi Controller	0
Circa Wi-Fi Dimmer	0
Circa Wi-Fi Switch	0
DMX Echo Low Voltage 6 Button Keypad	0
Savant Wired DMX Controller	1

Binding Controller

Once the controller has been added to the Lighting Manager and the SDE is local to the site, follow the steps below:

1. From the **Keypads and Controllers** tab, select the **Discover** button and wait for network discovery to complete (this may take approximately up to 1 minute), then select the controller from the Discovered devices tab.

2. Then right-click the now highlighted controller and select **Set to bindable.**

   NOTE: This will link the remotely added controller with the locally discovered controller.

3. Select **Bind.**

4. (Optional): If desired, the name of the controller can be changed. To do this, double click the name of the controller in the Overview Panel, type in the new name and press enter.

5. Set the location where the controller will be installed.

   NOTE: If the controller is not visible, select the disclosure triangle under **Discovered** to open a list of devices.

   i HELPFUL! To remove an entry from the Lighting/Keypad Manager, select the device, select the remove icon ⊟, and follow the prompts.
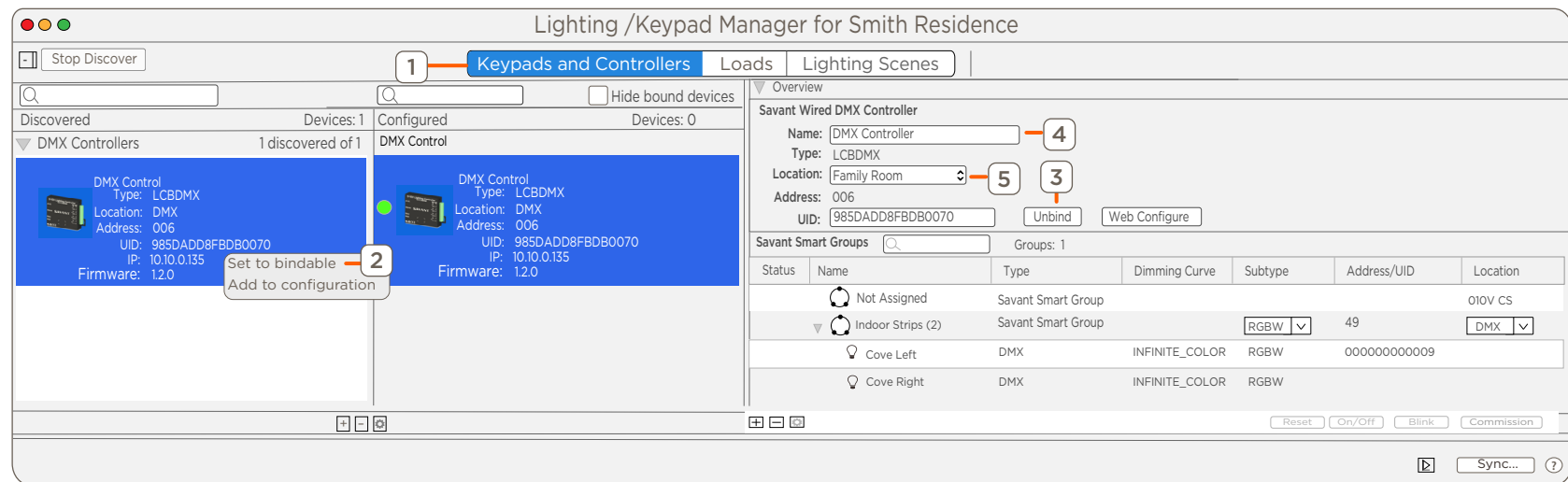
⚠ **IMPORTANT!** If Discovery is not an available option, follow these steps to bind the Lighting Controller:

1. Manually add the controller to the configuration (see Add Controller to Lighting Manager).

2. Enter the UID (found on the Lighting Controller's UID label) into the Overview pane.

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