

# Vignette & NSB Wall Station Inserts



**Models PWWSI [VPOE / V485 / NPOE / N485]**

## Assembly & Wiring Guide

**March 2022**



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## **WARNING ABOUT UNSECURED PROTOCOLS**

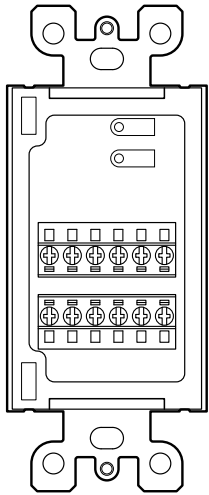
Enabling an open protocol that does not use encryption or authentication - These protocols could be eavesdropped or spoofed by malicious parties. You are strongly encouraged to use Pathway ssACN, and secure access to your network, both physically and technologically. To use unsecured protocols, you must acknowledge that you have read this statement and accept these risks.

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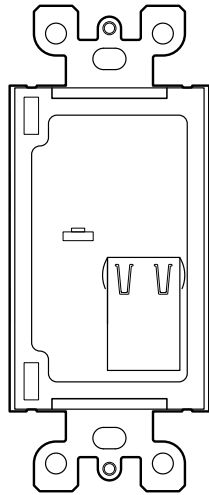
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# ASSEMBLY INSTRUCTIONS

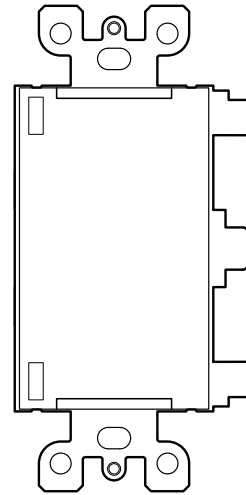
1. Identify the **Master Insert**. **Master Inserts** have either an RJ45 connector or 2 six-pin connectors on the rear. Each Wall Station needs **one** Master Insert; the remaining inserts should all be the **Local** type. Note the Local Inserts have **no connectors on the rear, and have three tabs along one side**.



485 Master Insert  
Rear View

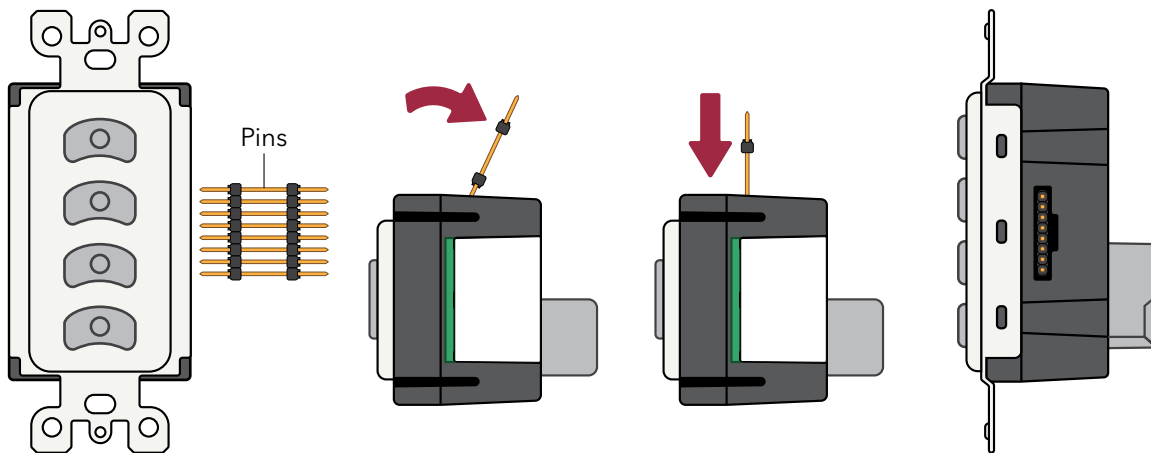


PoE Master Insert  
Rear View



Local Insert  
Rear View

Hold the Master Insert in your **left hand**, and the **8-Pin connector** in your right, as seen in the illustration below.



Front view

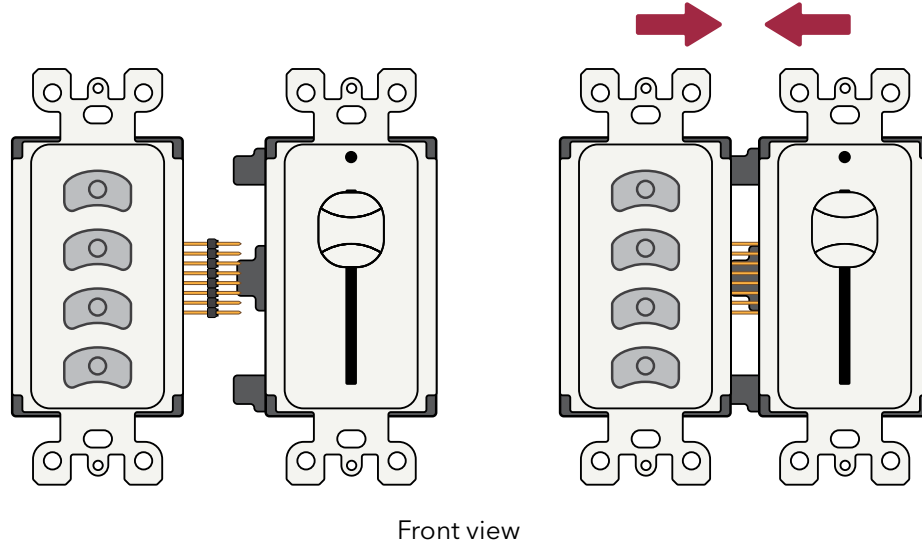
Bottom view

Side view

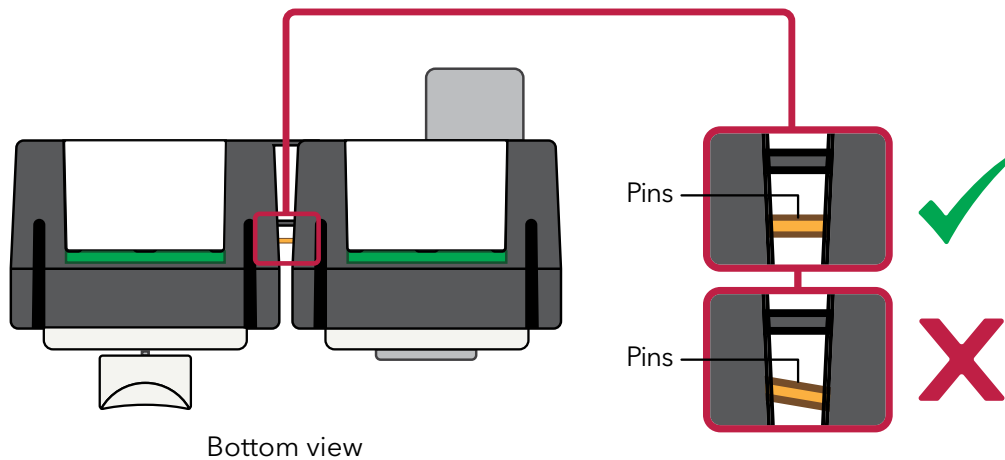
**Angle the connector slightly** to visually locate the pin receptacles inside the Insert unit, then push the pins into the connector.

- Hold the **Master Insert** in your **left hand** and the first **Local Insert** in your **right**. Keep the two inserts as straight and square to each other as possible.

With the **tabs on the Local Insert aligned with the tab slots on the Master Insert**, push them directly toward each other, as seen in the illustration below.



- Verify proper contact** by looking at the pins between the two inserts, from either above or below.



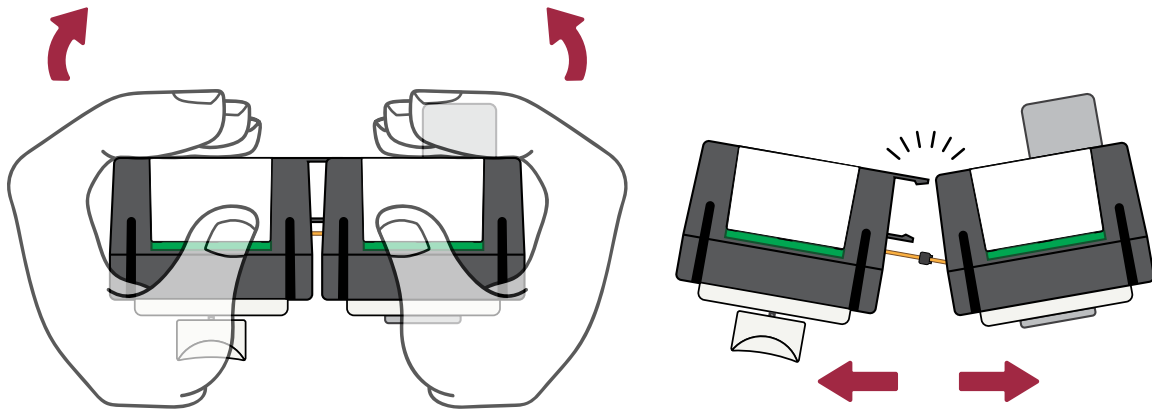
If misaligned, the pins will likely be **resting at an angle**, and will not make contact with the internal connector, as seen above. In this case, pull the two inserts apart (see step 4) and try again.

If successful, **repeat this process for each additional Local Insert**. Once finished assembling the station, plug in cabling and **test functionality before mounting the station into place (see step 5)**.

Within the first 10 seconds of powering up, all LEDs on each insert of the station should flash. Power and check that each Local Insert passes this test before installing the station into the back box.

**If the LEDs on the Local Inserts do not flash**, there is a problem with the connection between the Local and Master Insert. Proceed to step 4 and try again.

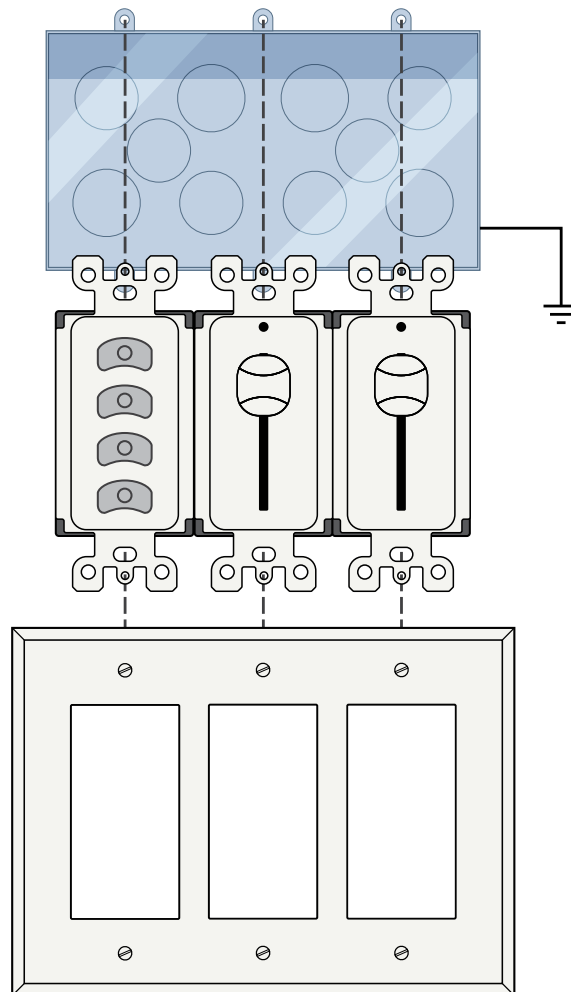
4. To **separate two inserts**, hold one in each hand, with your fingers on the rear of the inserts and your palms on the front.



Bottom view

**Gently pry them apart** in the direction of the arrows shown above. The tabs will disengage, at which point you may pull them apart.

5. **Install the wall stations in earthed metallic backboxes** and cover with Pathway Faceplates (part number: **PWFP G[x]**; PWFP G3 [3-Gang] shown in illustration below)



# WIRING GUIDE

The following section will detail the **wiring and termination of cabling** used for the **485 versions of PWWSI (N485 or V485) using legacy multi-drop wiring**. Category cable may also be used.

For PoE versions, each Master Insert needs only an Ethernet cable run back to a network switch.

## 485 ARCHITECTURAL GATEWAYS

The 485 Models require the use of a 485 Architectural Gateway, ordered separately (PWGW DIN). The Gateway is the central “hub” of the 485 Wall Station system; each Gateway has 4 Busses which can support up to 16 Stations each for a total of 64 Wall Stations in total.

The Gateway then has a standard Ethernet port for connecting it to the main lighting network.

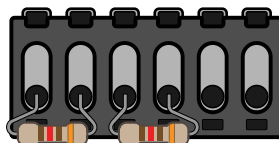
Refer to the table below for compatible 485 Architectural Gateways for Vignette (V485) or NSB (N485) Wall Station systems.

485 ARCHITECTURAL GATEWAYS	
Part Number	Model Description
<b>VIGNETTE SYSTEMS (PWWSI V485 MODELS)</b>	
PWGW DIN V	Vignette Architectural Gateway; no additional inputs/outputs/buttons (4.5" length)
PWGW DIN VD2	Vignette Architectural Gateway with 2 DMX Ports (6.25" length)
PWGW DIN VD2C8	Vignette Architectural Gateway with 2 DMX Ports & 8 Contact Closures/Buttons (8" length)
PWGW DIN VC16	Vignette Architectural Gateway with 16 Contact Closures/Buttons (8" length)
PWGW DIN VE	Vignette Architectural Gateway with Secondary Ethernet Port (6.25" length)
PWGW DIN VE2C8	Vignette Architectural Gateway with Secondary Ethernet Port & 8 Contact Closures/Buttons (8" length)
<b>NSB SYSTEMS (PWWSI N485 MODELS)</b>	
PWGW DIN N	NSB Architectural Gateway; no additional contact closure inputs/buttons (4.5" length)
PWGW DIN NC8	NSB Architectural Gateway with 8 Contact Closures/Buttons (6.25" length)
PWGW DIN NC16	NSB Architectural Gateway with 16 Contact Closures/Buttons (8" length)

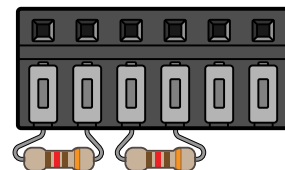
## 485 WIRING

- All wiring must be in a continuous run and daisy-chained. No “tees” are permitted.
- Maximum cable length for Category 5 wiring is 500 feet (152 meters)
- Maximum cable length for Belden 9773 or equivalent wiring is 1000 feet (305 meters)
- The last wall station on the line must be terminated with two resistors with a value of 100Ω to 120Ω, between pins 1 & 2 and 3 & 4 (see illustration below). Architectural Gateways ship with four terminated connectors, one per bus.

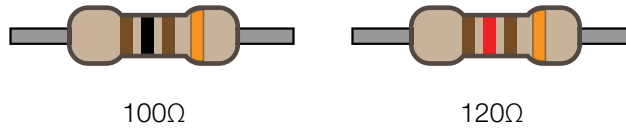
Insulation Displacement Contact (IDC) Connector



Insulation Displacement Contact (IDC) Connector

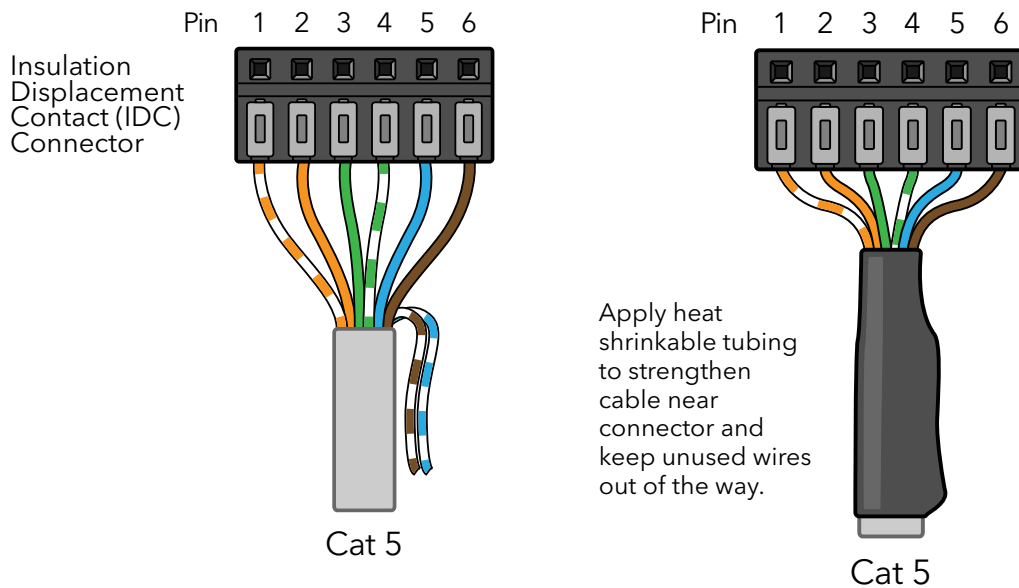


Quick Resistor reference guide:



## CATEGORY 5 WIRING

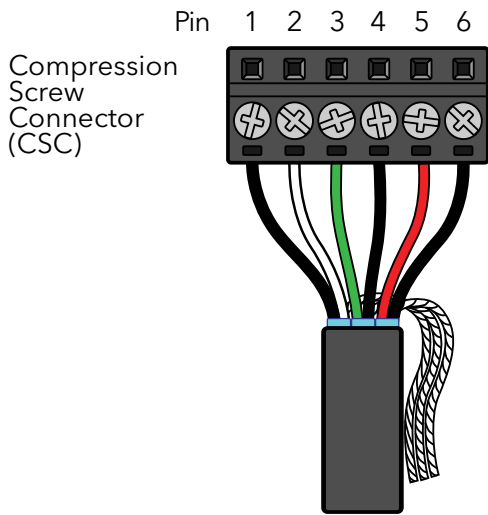
USING INSULATION DISPLACEMENT CONTACT (IDC) CONNECTOR		
Connector Pin #	Purpose	Wire Color
1	Rx+ (True)	White / Orange
2	Rx- (Complement)	Orange
3	Tx- (Complement)	Green
4	Tx+ (True)	White / Green
5	+24V	Blue
6	GND	Brown
7	Not Connected	White / Blue
8	Not Connected	White / Brown





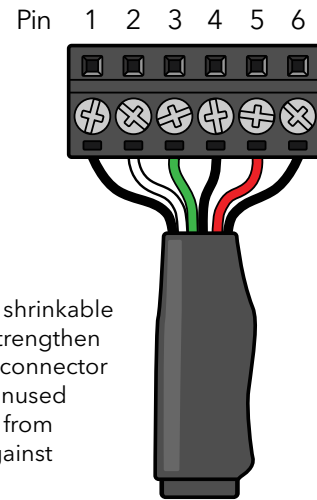
## BELDEN 9773 (OR EQUIVALENT) WIRING

USING COMPRESSION SCREW CONNECTOR (CSC)		
Connector Pin #	Purpose	Wire Color
1	Rx+ (True)	Black (White Pair)
2	Rx- (Complement)	White
3	Tx- (Complement)	Green
4	Tx+ (True)	Black (Green Pair)
5	+24V	Red
6	GND	Black (Red Pair)
7	Not Connected	Shield Foil
8	Not Connected	Drain Wire



Belden 9773  
(or equivalent)

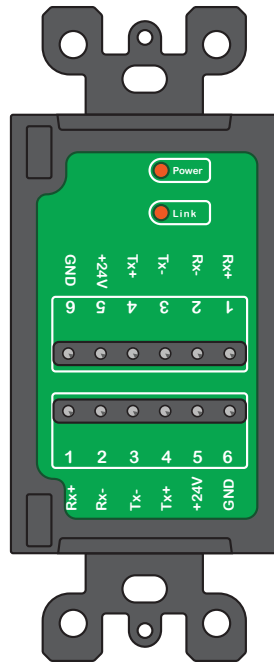
Apply heat shrinkable tubing to strengthen cable near connector and keep unused drain wires from shorting against terminals.



Belden 9773  
(or equivalent)

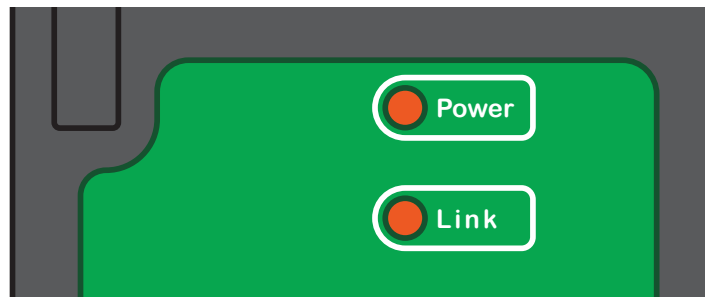
## CONNECTING WIRING

Once the connectors have been wired up, connect them to the 6-pin headers on the rear of the 485 Master Insert.

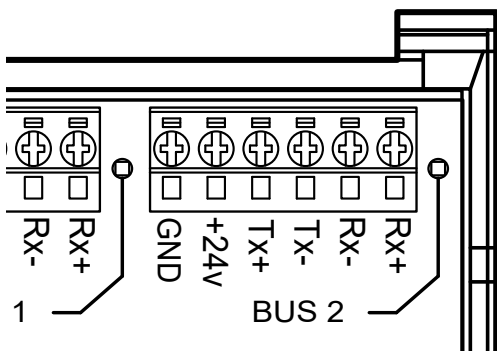


**Note that neither 6-pin header is designated as the “In” or “Thru”; either may be used for either purpose.**

Once wiring is connected, the **“Power”** LED should light, and the **“Link”** LED should flash at **1Hz**.



If the power LED is **not illuminated** or the Link LED is **not flashing**, check the wiring on the connector(s).



Also check the BUS LEDs on the 485 Architectural Gateway. **These will blink when the Gateway is communicating with downstream Wall Stations.**

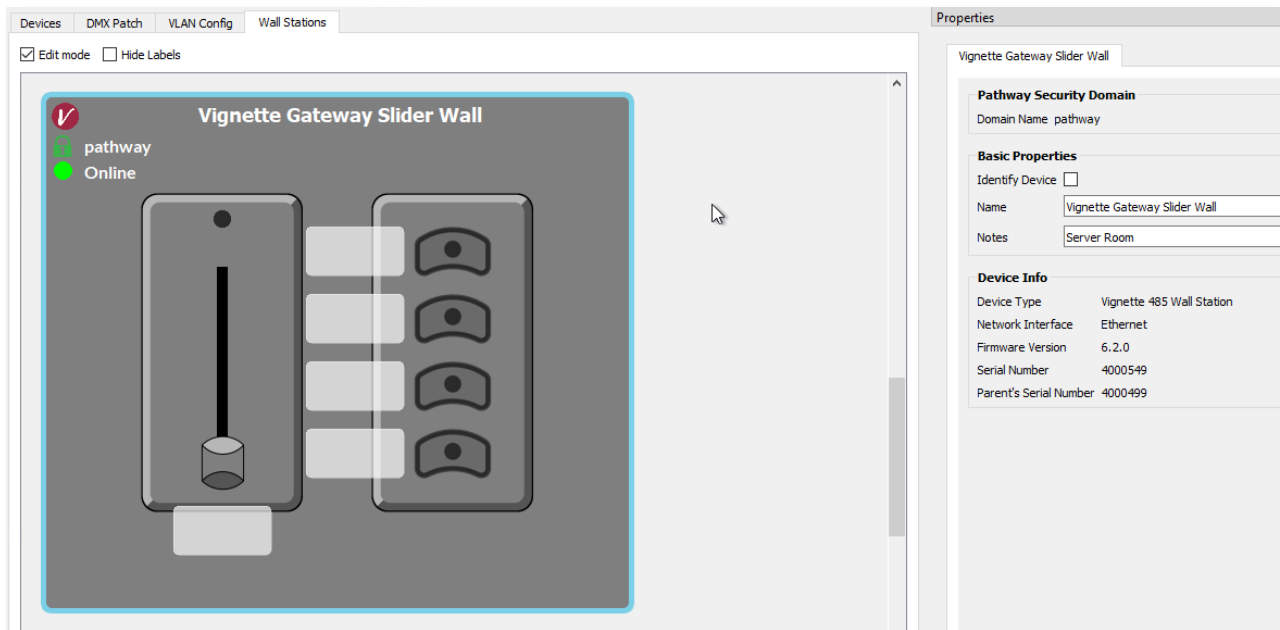
**If these LEDs are not blinking** when connected to Wall Stations, check the wiring.

## CONFIRMING WALL STATIONS IN PATHSCAPE

After completing wiring and installation, **open Pathscope** to confirm all Wall Stations are appearing and are communicating with the lighting network.

All Wall Stations should appear in the Pathscope **Device View** as well as the **Wall Station** view.

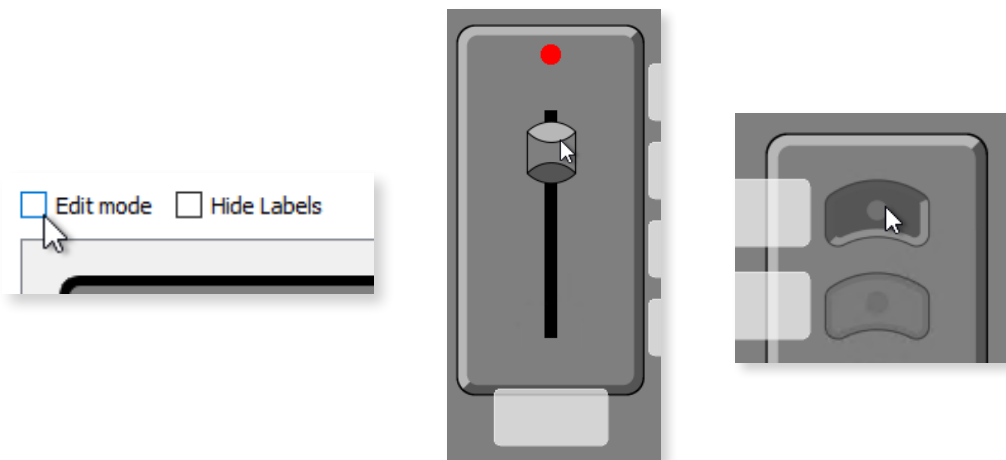
Status	Security Domain	Name	Type
> Online	pathway	Wall Vignette Gateway	Vignette Architectural Gateway
▼ Online	pathway	Vignette Gateway Slider Wall	Vignette 485 Wall Station
			Slider
			Button
			Button
			Button
			Button



The screenshot shows the Pathscope interface with the 'Wall Stations' tab selected. The main view displays a 'Vignette Gateway Slider Wall' with a status indicator (Online) and a 'pathway' security domain. The wall station is shown with a slider and four buttons. The Properties panel on the right provides details for the 'Vignette Gateway Slider Wall':

- Pathway Security Domain:** Domain Name: pathway
- Basic Properties:** Identify Device: ; Name: Vignette Gateway Slider Wall; Notes: Server Room
- Device Info:** Device Type: Vignette 485 Wall Station; Network Interface: Ethernet; Firmware Version: 6.2.0; Serial Number: 4000549; Parent's Serial Number: 4000499

The stations' sliders and/or buttons should respond/animate when operating them from the Wall Station view (**make sure you are not in Edit Mode to view the operation of the buttons and sliders**).



## RECOMMENDED PRACTICES

- Minimize extra wire in the box. Tension on the electronics may result in damage to the station.
- Do not over-tighten compression screw terminal connectors. Tighten to 2.75 In-lbs (0.31 N-m)
- Wire pairs should remain twisted together for proper performance. Twists aid with noise rejection properties of differential signals.
- Vacuum out or otherwise clean the backbox prior to installing the station. Metallic or conductive debris may result in station damage.
- After connecting all wires to either type of connector (IDC or CSC), pull gently on each conductor to ensure the connection is secure. Wires should not easily pull out of the connectors.
- Install into an earthed metal backbox.