Pathport OCTO

User Guide

May 2019

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About Pathport OCTO

Pathway Connectivity's Pathport® OCTO is a four-port DMX-over-Ethernet gateway intended for use primarily in entertainment lighting systems. The OCTO provides transparent transmission and receipt of the DMX512 lighting control standard, using a number of widely accepted protocols, across a standard Ethernet data network.

The OCTO may be used alone, networked with other OCTOs and Pathport gateways, as well as with a number of other Ethernet-aware lighting control products, such as consoles and controllers.

The OCTO, like all Pathports, is a routing device and does not provide control over the protocols or the data being passed. It only provides control over the path the data takes, how multiple DMX sources are treated (merged or prioritized), and certain other routing characteristics including DMX transmission speed and signal loss behavior.

Installation Instructions

The Pathport OCTO is intended for desktop use, or for mounting in a standard 19" equipment rack, using the included rack ears.

Wall-mount kits (#9002) and truss-mount adaptors (#9003) are also available.
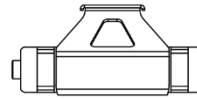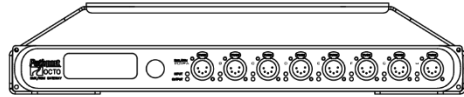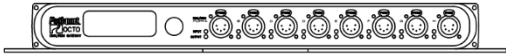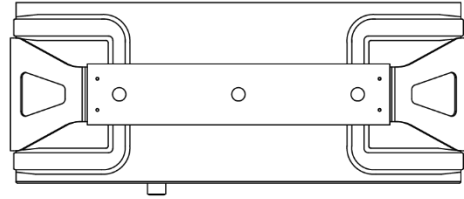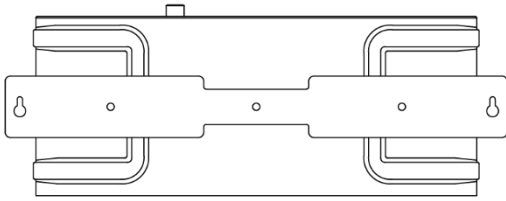
#9002 Wall-mount kit   #9003 Truss-mount kit

The Pathport OCTO is intended for installation in a dry, indoor location. Operating conditions: 14°F to 104°F (-10°C to 40°C); 10-90% relative humidity, non-condensing.

Warning: The AC socket outlet shall be installed near the equipment and shall be easily accessible.

Warning: This equipment relies on building installation primary overcurrent protection.

Warning: Except for the IEC chassis plug marked for AC input, all ports on the Pathport OCTO are intended for low voltage data lines only. Attaching anything other than low voltage sources to the data ports may result in severe equipment damage, and personal injury or death.

Protocols Supported

DMX512

The most widely used digital multiplex protocol for controlling entertainment lighting and effects equipment. The DMX signal consists of 512 8-bit control packets sent asynchronously over a two-pair shielded cable at 250K Baud. The standard connector type is 5 pin XLR. The standard has been revised several times over the years, with the latest being ANSI E1.11 DMX512-A (2005). The Pathport OCTO is designed to work seamlessly with all variants of the protocol.

DMX is a last mile protocol, daisy-chained between end fixtures.

Ethernet Protocols

Ethernet protocols are used to multiplex DMX data over Ethernet networks, largely to circumvent control channel limitations inherent in the DMX standard. The Pathport OCTO supports the most widely accepted.

Pathport Protocol: A broadcast protocol developed by Pathway Connectivity and implemented by a variety of console manufacturers.

ArtNet: A broadcast protocol developed by Artistic Licence. Its free distribution has made in popular with media server manufacturers. Because this is not a standard, some implementations may not work with others.

Strand Shownet: A proprietary broadcast protocol developed by Strand Lighting and used exclusively in Strand lighting consoles.

ANSI E1.31 streaming ACN (sACN): A multicast industry standard developed and maintained by the Technical Standards Program of the Entertainment Services and Technology Association (ESTA). The standard is available for a nominal cost from ESTA. This standard provides the DMX512 data transport for the separate ANSI E1.17 ACN (Architecture for Control Networks) industry standard.

sACN is the DMX transport used by ETC Net3. The OCTO is fully compliant with Net3, and will seamlessly receive either Final Draft 20, or the ANSI approved versions of sACN.

Remote Device Management (RDM)

ANSI E1.20 Remote Device Management (RDM) is an industry standard, also published by ESTA, which allows remote configuration of last-mile DMX devices, using the same wire pair that carries the DMX signal. Like DMX, RDM requires a separate dedicated controller to generate the signal packets the OCTO will route. The freely available Pathscape software is required to use the OCTO as an RDM gateway to configure DMX-based equipment.

Front Panel
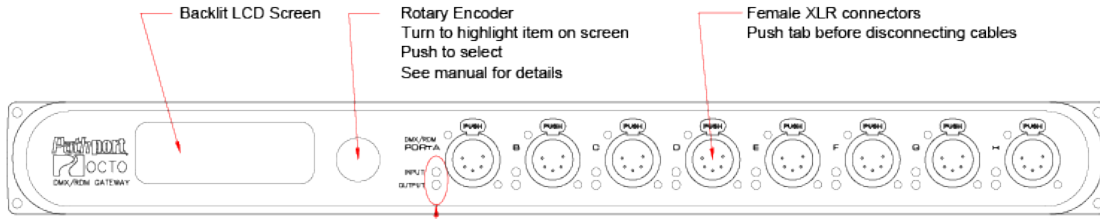
Model 6423 shown

Depending on the model number ordered, the DMX ports are: 5-pin XLR, 3-pin XLR or RJ45 Ethercon connectors, mounted front or rear, or terminals strip connectors, rear only.

Rear Panel

The RJ45 Ethercon network connection is located on the rear panel and cannot be front mounted. The 2-pole Contact Closure/Expansion port, along with the AC input, are located here also.
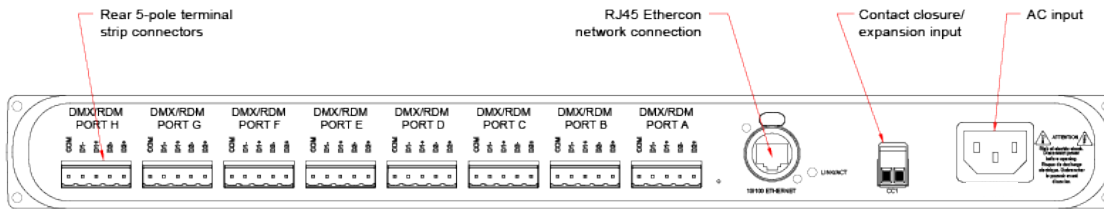
Model 6422 shown

Front Panel Display

The front panel controls of the OCTO allow the user to configure properties of the gateway. Current settings are displayed on the LCD screen.

The rotary knob will scroll the screen between base gateway information and properties of each port. When pushed, the knob acts as a selector.

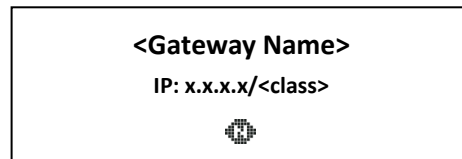By default, the LCD display shows the gateway name, or soft label, its IP address and subnet class. At the bottom of the display, a flashing "N" will appear when the OCTO detects it is connected to a network via the rear-panel Ethercon® port.

```
                    <Gateway Name>
                   IP: x.x.x.x/<class>

                          ⚙
```

If no soft-label name has been assigned to the gateway, the IP address will be shown on the top line as well as the middle. The subnet class, shown after the IP on the middle line, will be "/8", "/16" or "24" which are, respectively, a Class A subnet mask of 255.0.0.0, a Class B subnet mask of 255.255.0.0, and a Class C subnet mask of 255.255.255.0.

From the default display, turn the knob to scroll through the Port status screens. A typical port status screen shows the port name or soft label, the port letter and universe patch name, and its DMX status and port direction.

```
                    <Port Name>
                Port x: <patch name>
               Status:<state><direction>
```
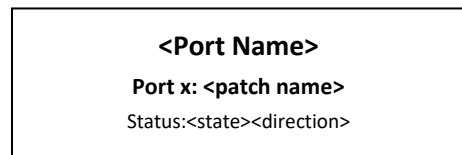
If no soft-label name has been assigned, "Port <letter>" will be displayed instead.

Setting Gateway Properties

With the default display showing, press the encoder knob. The Node Configuration menu will be shown.

<u>**Node Configuration**</u>
Network Setup
Device Info / Status

The current menu choice will be highlighted in black. Rotate the knob to scroll through the list. Push the knob to select the highlighted menu option. Scroll to the bottom of the list and select "<Back>" to return to the previous menu level. The following are the Node Configuration menu options.

Node Configuration
Network Setup
Device Info / Status
Protocol Support
Utilities
<Back>

Network Setup		
Property	**Explanation**	**Available Settings**
IP Address	Set IP address for gateway	Select, then turn knob to set each octet. Push to accept.
Subnet Mask	Set subnet mask for gateway	Select, then turn knob to set each octet. Push to accept.
Default Gateway	Set default gateway (Not typically required)	Select, then turn knob to set each octet. Push to accept.

		Auto Negotiate (default)
Link Max	Set the maximum connection speed for the Ethernet port	10Mb Half Duplex
		10Mb Full Duplex
		100Mb Half Duplex
		100Mb Full Duplex
<Back>	Returns to previous menu	

Device Info / Status		
Property	**Explanation**	**Available Settings**
Serial Number	Reports gateway's serial number	
MAC Address	Reports gateway's MAC address	
Firmware Version	Reports current firmware version	
<Back>		

Protocol Support		
Property	**Explanation**	**Available Settings**
Art-Net Rx (receive)	Set gateway to listen for Artnet	Enable (default) Disable
sACN Rx (receive)	Set gateway to listen for sACN	Enable (default) Disable
Shownet Rx (receive)	Set gateway to listen for Shownet	Enable (default) Disable
Pathport Rx (receive)	Set gateway to listen for Pathport	Enable (default) Disable
Tx Data Protocol (send)	Choose transmit protocol	Artnet sACN Shownet Pathport (default)
<Back>		

| Utilities		
Property	**Explanation**	**Available Settings**
Reboot	Power cycle the gateway	
Factory Default	Resets patches and all properties except the IP settings to factory values. Includes properties, such as signal loss, that are set from Pathscape.	
Factory Default Including Network Setup	Resets patches and all properties including the IP settings to factory values. Includes properties, such as signal loss, that are set from Pathscape.	
<Back>		

Note Regarding ArtNet, Shownet and Subnet Mask

The ArtNet protocol is explicitly sent to a broadcast address, typically 2.255.255.255 or 10.255.255.255. The OCTO must have its subnet mask set wide enough to include this broadcast address. When using ArtNet, a Class A subnet mask of 255.0.0.0 is recommended to ensure DMX output.

Shownet is explicitly sent to 192.168.1.255. On most Shownet systems, an OCTO should use an IP of 192.168.1.x and a subnet mask of 255.255.255.0.

Setting Port Properties

From the Port Status screen of the desired port, push the button. The Port Configuration screen will be shown.

```
Port x Configuration

DMX Port: Enabled
Port Direction: DMX Out
```
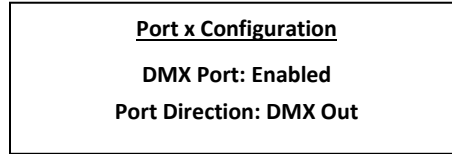
The property available for editing will be highlighted in black. Rotate the knob to scroll through the list of properties. Push the knob to select for editing. The list of choices will be displayed, with asterisks on either side of the current setting. Highlight the desired new setting by rotating the knob and push to select. The asterisks will now appear beside the new setting. Scroll to the bottom of the list and select "<Back>" to return to the previous menu level.

The following properties are available from Port Configuration. Further options may be added from time to time:

Property	Explanation	Available Settings
DMX Port	Turns blue power light on/off	Enable (default) Disable
Port Direction	Sets DMX direction for port	Input Output (default)
Patch	Allows selection from a list of standard universe patches	Unpatched Univ 1 through Univ 63999
DMX Speed	Sets DMX output speed (no effect on ports set as inputs)	Slow (32 packets per second) Medium (37 pps) Fast (40 pps) Maximum (44 pps) (default)
<Back>	Returns to previous menu	

Contact Closure Input (CC1)

On the rear panel, there is a 2-pole terminal plug for dry contact closure input.
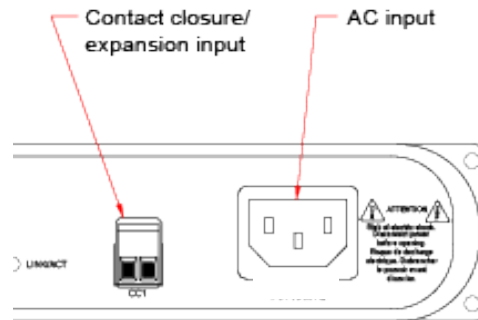
Currently, as of the publish date of this document, there is no supported feature making use of this input; however this will be expanded in future firmware updates.

Advanced Configuration

Several gateway and port properties may only be altered using Pathscape software, available on the Pathway website: www.pathwayconnect.com.

Please refer to the Pathscape manual for information on these values and how to set them.

Firmware upgrades may only be done using Pathscape.

Appendix

Electrical information

- Power input: 100-240VAC, 50/60 Hz
- Max current consumption: 0.08A
- 2000V isolation between DMX ports
- 250V protection on DMX ports

Compliance

- USITT DMX512 – 1990 / ANSI E1.11 DMX512-A R2013
- E1.20 RDM – Remote Device Management
- E1.31 sACN – Streaming ACN
- ETL
- RoHS 2011/65/EU
- CE