Pathport Installer's Guide

This guide describes the requirements for and the steps involved in the permanent installation of all Pathway Connectivity Pathport® nodes. Some familiarity with DMX512 and Ethernet lighting networks is assumed.

This guide covers the following model numbers: 1011, 1012, 1014, 6101, 6102, 6151, 6152, 6182, 6201, 6202, 6203, 6225, 6311, 6312, 6316, 6401, 6402, 6403, 6406, 6407 and 6730. It may also cover certain custom Pathport models.

NETWORK REQUIREMENTS - WIRING & LAYOUT

Network wiring should follow standard Ethernet wiring rules and be installed by a qualified person. Category 5 wire or better is required and should be certified under the TIA/EIA-568 standard. Without certification, it may be impossible to determine the source of problems.

Good wiring practice prohibits the termination of building wire with a male RJ45 plug or the "hard-wiring" of data lines to end devices. Pathport two-port nodes ship with an in-line female RJ45 mini-jack, similar to a punchdown connector, as well as a short male-to-male RJ45 jumper. The jumper is then connected to the node.

The in-line jack and jumper are available as an accessory package for the Pathport Uno.

NETWORK REQUIREMENTS - POE

Pathport one–, two– and four–port nodes are designed to utilize the IEEE 802.3af standard, commonly called Power-over-Ethernet (PoE). PoE-enabled switches, such as Pathport Model 6730, are readily available. Their use is strongly recommended to simplify installation and prevent the need for separate power cabling.

PRE-CONFIGURATION

Pathport nodes retain their IP and patch configuration in non-volatile memory. Significant on-site time savings can be attained by configuring the node name and network information in the shop. With a computer and a switch, create a simple network mock-up. Use Pathport Manager software to configure the individual node and port names, and to set IP addresses and basic patches. Put temporary labels on the nodes with their fit-up location, then repackage the nodes for shipping.

DMX CONNECTOR WIRE TERMINATIONS

RS422/485 wire color is manufacturer-specific. Use the connector to determine pin number for each wire.

XLR Pin	Standard RS422/485 Wire Conductor
Pin 1	Shield
Pin 2	Data – (pair 1 complement)
Pin 3	Data + (pair 1 true)
Pin 4	Optional Data – (pair 2 complement)
Pin 5	Optional Data + (pair 2 true)

When Cat5 (or higher) wire is used for DMX transmission, the following chart is used instead:

DMX-over-Cat5e/Cat6		
Wire Color and #	**Function**	**XLR Pin Number**
White/ orange (1)	Data + (pair 1 true)	3
Orange (2)	Data – (pair 1 complement)	2
White/ green (3)	Optional Data + (pair 2 true)	5
Green (6)	Optional Data – (pair 2 complement)	4
Blue (4)	Unassigned	-
White/blue (5)	Unassigned	-
White/ brown (7)	Data signal common for Pair 1	1
Brown (8)	Data signal common for Pair 2	1

This chart is based on ANSI standard E1.27-2 and is intended for DMX cabling. The connection of DMX equipment to non-DMX equipment such as Ethernet switches may result in serious equipment damage.

To help prevent this possibility, unless the wires have another known usage in the existing installation, wires 4 and 5 should be capped and turned back.

The use of RJ45 connectors for DMX equipment should be restricted to patch bays in access controlled rooms and not used for the connection of portable equipment.

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Pathway Connectivity Solutions

Pathport Installer's Guide

IN-LINE JACK INSTALLATION

Good wiring practice does not permit the hard-wiring of data lines to end devices, such as Pathports.

To facilitate proper practice, Pathport two-port nodes ship with an in-line female RJ45 mini-jack, similar to a punchdown connector, as well as a short male-to-male RJ45 jumper to connect the jack to the node. (The jumper and jack are available as an accessory package for the Pathport Uno.)

First determine if the installation is using the TIA568A or TIA568B wiring scheme. Strip back the outer insulation jacket of the building wire no more than ¾". Untwist the pairs, trim them to the same length but do not remove insulation from the individual wires. Slip the individual wires into the clear plastic guide piece, following the color coding scheme on the sticker. Position the guide piece onto the connector half of the jack. Press down firmly or gently apply pressure with a pair of pliers until the two pieces click together. The mini-inline connector is removable, if necessary.

C-SERIES NODE (6201, 6202, 6203)

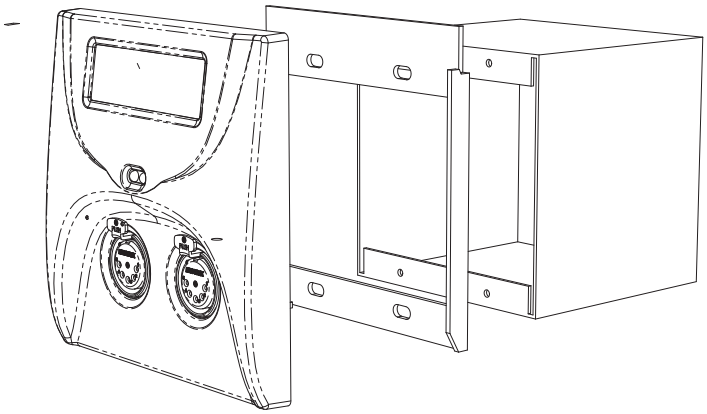
Disconnect all power before proceeding with the installation. If the node has been pre-configured, check the temporary label to ensure the node is being installed in the correct location.

C-series nodes should be installed in standard two-gang masonry deep backboxes (ears in) for flush-mounting or, for surface mounting, in Pathport surface mount backboxes, part number 6901. Use of other surface mount backboxes is not recommended. Check the backbox for obstructions or any foreign material. The backbox should be clean and empty of debris. Install the in-line jack provided, if necessary.

Attach the Pathport trim ring to the backbox with the 4 screws provided. Do not over-tighten or distort the shape of the trim ring.

Inspect the node and make sure all components, including the printed circuit boards, are secure. Note that it is normal to see exposed metal on the mating connectors.

If the backbox contains an RJ45 female punchdown connector, use the male-to-male jumper (included) to connect it to the node. Otherwise, plug the male RJ45 pigtail



directly into the connector on the back of the node. Attach the green ground wire to the ground screw in the backbox.

If local power is required for the node, see the note on local power at the end of this guide.

Gently insert the node straight into the backbox, lifting it slightly so that is high in the backbox. Once all the way in, lower it slightly until the tabs at the top of the trim ring take hold of the face plate. Once the top of the node's faceplate is retained, swing the bottom in tight to the wall. Make sure no wiring or connectors are pinched, excessively bent or stressed. Using a #0 Phillips driver (not included), tighten the two setscrews provided, one on each side of the node's face, to complete installation. If the nodes have shipped with hex-head set screws, instead use a 1/16" Allen key (not provided)

The node is ready to be powered up.

D-SERIES NODE (6225)

Disconnect all power before proceeding with installation.

D-series nodes are surface-mount enclosures, designed for conduit-enclosed cable connection to permanently installed equipment such as dimmers and relay cabinets. D-series nodes are shipped attached to their backboxes.

First, remove the two screws holding the faceplate to the backbox. Keep the screws for later use. Gently remove the faceplate and the attached printed circuit boards. Put the faceplate back into its shipping carton or other container.

Determine the location of the backbox in relation to the incoming and outgoing conduit lines. Remove the appropriate knockouts then securely mount the backbox to the wall using appropriate fasteners. If the backbox must be installed prior to the completion of the conduit and wiring runs, label the backbox and the container holding the removed faceplate. Store the container in a safe location. Make sure the two faceplate screws are stored in the

same box.

Attach the conduit runs to the enclosure using standard connectors (not supplied). The backbox should be clean and free of obstructions or foreign materials. Inside, there should be one Cat5 wire with a female RJ45 punchdown connector (if necessary, install the mini-jack included) and one or two cables for the DMX connections, ending in bare wires. Identify which cable is for DMX Universe A and which is for DMX Universe B.

Retrieve the faceplate from the storage container. Inspect it for damage and to ensure the printed circuit boards are securely fastened.

Using the XLR pin-out chart at the start of this guide, attach the cable for DMX Universe A to the terminal block marked DMX Port A. Repeat, if necessary, for DMX Port B. If Cat5 cable is being used to complete the DMX run, use the Cat5 pin-out guide instead.

Using the male-to-male jumper, connect the female RJ45 connector to the connector on the back of the circuit board of the node.

If local power is required, see the note at end of this guide.

Gently position the faceplate on the backbox until the screw holes line up, while taking care that no wiring is pinched, excessively bent or stressed inside the box. Using the original two screws, reattach the faceplate. Do not over tighten.

The node is ready to be powered up.

PATHPORT UNO (6101SS/BL, 6102SS/BL)

Disconnect all power before proceeding with installation.

Pathport Uno single-port nodes are designed to be installed in standard masonry deep backboxes (ears in) for flush mounting, or deep (minimum 58mm or 2.25") surface mount backboxes.

If the node has been pre-configured, check the temporary label to ensure the node is being installed in the correct location.

Uno nodes can be permanently set to a specific DMX universe, 1 through 4, by use of a jumper on the back edge of the circuit board. If the system designer has not given specific instructions about the setting, then leave the jumper in the NET position.

Each Uno node ships with additional serial number stickers. Do not lose these stickers. Because Unos do not have a faceplate screen, tracking serial numbers and their locations is necessary to configure the system. Losing track of this information will add considerable time to commissioning.

As each node is installed, remove one of the additional serial number stickers and place it on the Installation Record Sheet included with each Uno. Write down the location, jumper settings and any other comments. A second sticker can be placed on the face of the Uno for identification during commissioning. This sticker can be easily removed and discarded when no longer needed.

Once this information is recorded, check the backbox for obstructions or foreign material. The backbox should be clean and empty of debris. Inspect the Uno and make sure all components are securely fastened and that the printed circuit boards are intact.

If the back backbox contains an RJ45 female punchdown connector, use a male-to-male jumper to connect it to the node. Otherwise, plug the male RJ45 pigtail directly into the connector on the back of the node. Attach the green ground wire to the ground screw in the backbox.

Gently insert the Uno straight into the backbox and screw it into place with the long mounting screws provided. Place the cover plate over the installed Uno and use the two short screws to fasten the cover plate. Do not over-tighten these screws.

The Uno is ready to be powered up.

PATHPORT EDIN (1011, 1012, 1014)

Disconnect all power before proceeding.

Each Pathport eDIN ships with additional serial number stickers. Do not lose these stickers. Because Pathport eDINS are intended for installation within enclosures, maintaining a log of serial numbers and their locations is necessary to configure the system. Losing track of this information will add considerable time to commissioning.

As each node is installed, remove one of the additional stickers and place it on the Installation Record Sheet included with each Pathport eDIN. Write down the location, jumper settings and any other relevant comments.

A second serial number sticker may be placed on the exterior cover of the enclosure as a further identifying aid during commissioning. This sticker can easily be removed and discarded when no longer needed.

Securely mount DIN rail (if not already installed in the enclosure). Hook the upper slots on the back of the plastic extrusion to the DIN rail and then gently but firmly press on the bottom front corners of the extrusion to snap the module onto the rail. Do NOT press directly on the PCB card itself.

Attach the DMX wiring to the terminal strip output connector(s). If the Pathport eDIN is using an auxiliary power supply, connect the terminal strip. Observe DC polarity.

Attach the network cable to the RJ45 connector marked Ethernet. The node is ready to be powered up. Both auxiliary power and PoE can be connected simultaneously without damaging the Pathport eDIN.

Pathport 1011 nodes may be set permanently to a specific DMX universe, 1 through 4, by use of a dip switch block on the circuit board. If the system designer has not given specific instructions about this setting, all switches should be left in the OFF position.

Pathway Connectivity Solutions

Pathport Installer's Guide

PATHPORT PORTABLE UNO (6151, 6152)

The Portable Uno may be powered using Power-over-Ethernet or a 24VDC supply with a 2.5mm center-positive barrel connector.

To attached the hanging bracket (included), remove the top two screws from either end of the portable enclosure (four screws altogether), position the hanging bracket over the top of the enclosure, then use the same screws to attach the bracket to the enclosure.

The hanging bracket has a 1/2" (12.5mm) hole suitable for a C-Clamp or other hanger (not included).

PATHPORT TOURING EDITION (6182)

The Pathport Touring Edition operates on Power-over-Ethernet during normal operation, but may be configured using power from a 9V battery (included).

Once connected to a PoE source, the Pathport Touring Edition is ready for use.

PATHPORT QUATTRO (6311, 6312, 6316)

The Pathport Quattro operates on Power-over-Ethernet or an auxiliary 24VDC supply with a 2.5mm center-positive barrel connector (supply not included).

Once powered up, the Pathport Quattro is ready for use. There is no on/off switch.

The Pathport Quattro is designed for installation in a standard EIA 19" rack, with the LCD and encoder facing out. Attach the rack ears (included) to either side of the enclosure using the Phillips screws provided (two per ear). Attach the Pathport Quattro to the rack using standard rack screws (not included).

A joiner is included to allow two Quattros to be installed side-by-side in 1RU of rack space. Wall and truss mount adapters are available as accessories.

PATHPORT OCTO (6401, 6402, 6403, 6406, 6407)

The Pathport Octo will only operate on wall power, accepting an input voltage between 85-250VAC at either 50 or 60 Hz. The AC outlet shall be near the equipment and shall be easily accessible. There is no on/off switch. This equipment relies on building installation overcurrent protection.

Once powered up, the Pathport Octo is ready for use.

The Pathport Octo is designed for installation in a standard EIA 19" rack, with the LCD and encoder facing out. Attach the rack ears (included) to either side of the enclosure using the Phillips screws provided (two per ear). Attach the Pathport Octo to the rack using standard rack screws (not included).

Wall and truss mount adapters are available as accessories.

PATHPORT VIA 10+1 GIGABIT SWITCH (6730)

The Pathport VIA will only operate on wall power, accepting an input voltage between 85-250VAC at either 50 or 60 Hz. The AC outlet shall be near the equipment and shall be easily accessible. There is no on/off switch. This equipment relies on building installation overcurrent protection.

Once powered up, the Pathport VIA is ready for use.

The Pathport VIA is designed for installation in a standard EIA 19" rack, with the LCD and encoder facing out. Attach the rack ears (included) to either side of the enclosure using the Phillips screws provided (two per ear). Attach the Pathport VIA to the rack using standard rack screws (not included).

Wall and truss mount adapters are available as accessories.

LOCAL POWER

All C-series, D-series and R-series nodes, Pathport eDINS and Unos shipped since mid-2010, may be connected to an external power supply, when Power-over-Ethernet is not available. Each node will require a supply between 18 and 50VDC and consume no more than 4 watts of power.

With the power supply turned off, connect the bare wire ends to the 2-wire terminal block (included). Slip the block over the pins marked V+ and V-, observing polarity. On C- and D-series nodes and Uno nodes, these pins are mounted on the circuit board. On the Pathport eDIN, use the terminal block marked for Power In, and use the V+ and V- positions. Observe polarity.

Check all wiring, then connect the power supply to the mains power. Pathway does not provide external local power supplies. The AC connection required should be provided in accordance with local regulations.

OPERATING ENVIRONMENT

All Pathport nodes are designed for indoor use in a dry location. To maximize equipment life and minimize unreliability and sudden failure, the following environment should be maintained:

- ambient temperature extremes: -10 to +50 degrees C
- operating temperature: 0 to +40 degrees C
- relative humidity: 10 – 95%, non-condensing
- general conditions: clean, dust-free

CONFIGURATION

Pathport configuration is done with Pathport Manager 5 software or through the front panel user interface on some models. Please refer to the Pathport Manager manual, or the individual model's manual, for instructions on device configuration.

WARNING

Except for the IEC chassis plug marked for AC input on the Pathport Quattro, the Pathport Octo and the Pathport VIA, all ports on all Pathport Nodes are to receive low voltages only.

All ports intended for DMX or other EIA485 signals shall not be connected to anything other than low voltage signal sources or receivers.

Attaching anything other than low voltage sources to the data ports may result in severe equipment damage, and personal injury or death.