PD-DX1
Single Channel Dimmer

Information specifically for:

PD-DX1

V1.1

This manual contains important information.
Please read before operating fixture.

CE

⚠ IMPORTANT INFORMATION ⚠

Save original packing and documentation for warranty, service and return issues.

Limited Warranty: This warranty covers defects or malfunctions in this equipment. This warranty lasts for a period of 90 days from date of purchase. It is the owner's responsibility to provide invoices for proof of purchase, purchase date and dealer or distributor. If purchase date can not be provided, warranty period will start at manufacture date. It is the sole discretion of Techni-Lux to repair or replace parts or equipment. All shipping will be paid by purchaser. This warranty does not cover lamps, fuses, belts, power semiconductors, relays, cleaning, standard maintenance adjustments or normal wear items or any problem resulting from the following: improper wiring, incorrect voltage (including low or over voltage conditions and lightning), abuse, misuse, improper maintenance or an act of God or damage resulting from shipping. Warranty will be null and void if the product is altered, modified, misused, damaged, or subjected to unauthorized repairs. Lamps are covered by relevant manufacturer warranty. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Any liability for consequential and incidental damages is expressly disclaimed. No other warranty, expressed or implied is made. Techni-Lux liability in all events is limited to, and shall not exceed, the purchase price paid.

Returning equipment and Repairs: All returns must be accompanied by a Return Merchandise Authorization (RMA) number and sent pre-paid. Contact the dealer or Techni-Lux directly to obtain an RMA. The RMA number must be clearly listed on the shipping label. Due care must be exercised in packing all merchandise to be returned. All repairs must be accompanied by a written explanation of the claimed problem or error encountered. Techni-Lux is solely responsible for determining a product's eligibility for coverage under warranty. If returning for consideration of credit, all accessories and documentation, original protective material and cartons must be included and the equipment, packing and carton must be in new resalable condition. Credit for returned merchandise will be issued at the lowest current price and is subject to a restocking fee of 20%. No returns accepted on discontinued items. Techni-Lux is not responsible for merchandise damaged in transit and reserves the right to refuse any return that is damaged by the carrier, not accompanied by a Return Authorization Number (RMA#) or sent by freight collect.

Claims: All claims must be made within seven (7) days of receipt of merchandise. Any physical damage must be reported to carrier upon receipt of merchandise.

Please record the following information for future reference:
Model Number: PD-DX1

Serial Number: _____

Dealer: _____

Date of Purchase: _____

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Orlando, FL 32837
U.S.A.

Table of Contents

Specifications

Unit Overview

- Single Channel Dimmer/Switching Output
- 10 Amp Maximum Output
- Slider for easy local control
- Selectable Dimming or Switched Output
- Dimmer Manual Preset and Limit Functions
- Control via DMX512 using 3 pin In/Out XLRs
- Digital display for Addressing and Options
- Truss or Wall Mount

Physical

Color	Black
Size	3.5 in (89 mm) W, 7.5 in (191 mm) D, 3 in (76 mm) H
Weight	2.5 lbs (1.1 kg)

Environmental

Maximum ambient/ exterior temperature	105°F (40°C) / 176°F (80°C)
Minimum distance to flammable surface	1ft (.3m)

Electrical

Voltage	120v 60Hz
Rated Power Out	1,200W, 10A @ 117v
Fuses	12.5A 5x20mm Fast Acting

Control

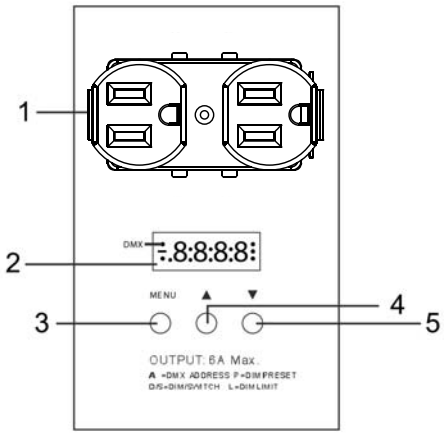
DMX512	1 Channel
Data I/O	3 Pin XLR (Cannon)
Slider	Single slider for local control without a controller

Rigging

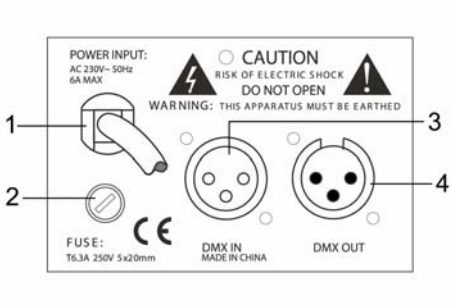
Position	Wall or Truss mount
Orientation	Any

Mounting Points 1 Hole 3/8” (9.5mm)

Unit Parts



1. Power Outlets
2. Display
3. Menu Button
4. Increment Button
5. Decrement Button



1. Power Cord
2. Fuse
3. DMX Input
4. DMX Thru

Unpacking

Immediately upon receipt, carefully unpack and inspect the unit to verify that all parts are present and have been received in good condition. If any parts appear damaged from shipping or the shipping carton shows signs of mishandling, retain all packing material for inspection and notify the shipper immediately. Save all original packing and carton. In the event that the merchandise is to be returned, the original carton and packing must be used. The customer will be billed for a new carton and packing if merchandise is received without the original carton and packing. The plastic bag shipped with the unit can be used to keep the unit clean if stored or installed in a temporarily dusty environment. Do not operate unit with plastic bag in place.

Save Shipping Materials

The packing and carton are designed to provide the unit with protection during shipping. Save original packing and documentation for warranty, service and return issues. Additional charges will be applied to return items not received in original or incomplete packing.

Claims

Physical damage must be reported to the Freight Carrier or Shipping Company upon receipt of merchandise. Damage incurred in shipping is the responsibility of the Freight Carrier or Shipping Company. It is the customer's obligation in the event that merchandise is received damaged caused by shipping to notify the Freight Carrier or Shipping Company immediately. All other claims not related to damage incurred during shipping must be made to the Dealer or Distributor within 7 (seven) days of receiving merchandise.

Returns

Returned merchandise must be sent prepaid, in the original packing with a Return Merchandise Authorization number (RMA) clearly listed on the shipping label. Items sent by Freight Collect or without a RMA number will be refused. Call your sales person and request a RMA prior to shipping. Be prepared to provide the model number, serial number and a brief description of the nature of the return. Shipping damage resulting from inadequate packaging is the customer’s responsibility. Customer will be charged additional shipping charges to return products received in non original packing and or cartons.

Mounting

Always consult a qualified professional when rigging. This unit may be placed on any flat surface or truss that is capable of safely supporting the weight. When selecting a mounting position, take into consideration access for routine maintenance. This unit may be mounted in any position provided there is adequate room for ventilation. Mount the unit securely using mounting clamps and a safety cable. Do not mount in a place where the unit will be exposed to rain, high humidity, extreme temperatures or restricted ventilation. Do not obstruct vents. Keep unit a minimum of 1ft (0.3m) from flammable materials. ***INDOOR USE ONLY – NOT FOR USE OUTDOORS**

Power

Do not apply power to the unit until input voltage setting and power source are verified.
For protection against electric shock, unit must be connected to suitable earth ground.
Make sure unit is cool and disconnected from power mains before any service.

The listed current rating is its average current draw under normal conditions. All units must be powered directly from a switched circuit. This unit cannot be run on a rheostat or dimmer circuit even if used solely for a 0% to 100% switching. Before applying power to a unit, check that the unit's input voltage matches the power source voltage. Consult a qualified electrician if there are any concerns about proper connection to power.

Cable (EU)	Cable (US)	Pin	International
Brown	Black	Live	L
Light blue	White	Neutral	N
Yellow/Green	Green	Earth	⏚

Control Panel Menu

Use the unit's Control Panel to access the Control Menu. The MENU Button moves between options, UP/DOWN selects the Action of the option. Settings are stored and recalled on subsequent power cycles.

A – Address Option

The Address Menu allows the DMX512 Start address to be set. When "A" is displayed, the Increment and Decrement Buttons allow the selection of the address. This value will be immediately active and the dimmer will respond to the current value if DMX is present.

F – Function Option

The Function Option allows the PD-DX1 output to be set as either (d) Dimming or (S) Switching. In Dimming mode, the output will be set by the DMX512 channel value. In the Switching mode, the output will toggle between OFF and FULL only. An additional Menu display will be come active:

S-0f : When in Switching mode(S), indicates current DMX input level has deactivated the output.

S-0n : When in Switching mode(S), indicates current DMX input level has activated the output.

L – Limit Option

The Limit Option allows a maximum output level to be set. Values above this level will be ignored. Option is only available when the Function Option is set to Dimming. Value range is 100% to 30%.

P – Preset Option

The Preset Option allows the output level to be preset using the Increment and Decrement Buttons and ignore DMX512 data if present. Value range is 100% to 0%

Manual Fader

The Manual fader allows quick control of the output. The highest active input takes precedence and the Manual Fader will override the Limit Option.

DMX-512 Channels

The PD-DX1 Dimmer requires a single channel of DMX.

Channel	***Function***
1	Dimmer Level

CH 1 – Dimmer Level	
DMX Value	***Function Option = (d) Dimming***
0 – 255	Level – Off to Full
DMX Value	***Function Option = (S) Switching***
0 – 128	Level – Off
129 – 255	Level – Full

Data Link DMX-512

For data, this unit uses 3 pin XLR (Cannon) type connectors and shielded twisted pair cable approved for EIA-422/EIA485 use. Units are connected in Daisy Chain topography with only one data source and no branching is allowed. Systems using 5 pin DMX interfaces can be accommodated by purchasing 3-to-5 pin adapters or building adapter cables.

DMX-IN
XLR Connector - Plug:

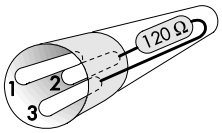
1 - Ground
2 - Signal (-)
3 - Signal (+)

DMX-OUT
XLR Connector - Socket:

1- Ground
2 - Signal (-)
3 - Signal (+)

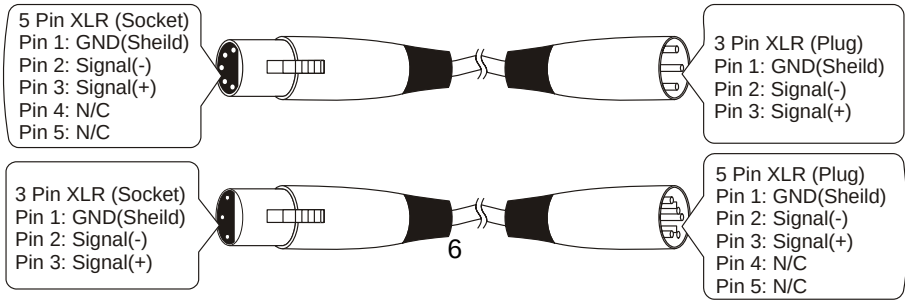
Data Terminator

A Data Terminator can be connected to the DATA OUT/Thru connection of the last unit to reduce the effects of noise in the signal; it is not required for all installations. To make a Data Terminator, connect a 120-ohm ¼ watt resistor across pin 2, Data Negative (S-) and pin 3, Data positive (S+). A qualified technician can determine if a Data Terminator is needed.



Adapter 5-to-3 pin

Numbers designating each pin can be found on connectors. Converting between the two XLR types is done in a pin-to-pin fashion. Connect the shields to pin 1, then connect pin 2 to pin 2 and pin 3 to pin 3. This is true for converting either 5 to 3 pin or 3 to 5 pin regardless of either connector's gender. Pins 4 and 5 are not used on the 5 pin XLR connectors.



Start Address

The Start Address of a unit is set using the “A” Option in the Control Panel Menu. Consult the manual of the system’s DMX512 controller to select a desirable addressing scheme before addressing units. Each unit connected to the DMX-512 data link requires a Start Address to indicate the first DMX channel containing data designated for that unit, see DMX-512 Background. Valid Start Addresses range from 1 to 512. Units requiring more than one channel for control will read subsequent channels up to the total number of channels required. A unit requiring five (5) channels of DMX, set to a Start Address of eleven (11), would read data from channels: 11 and 12, 13, 14, 15. The next logical Start Address would be channel 16. Because all units see the same data, units may be set to any address without concern to order in the DMX-512 chain or physical location. Choose a Start Address so the channels used do not overlap with other units. In some cases, it may be desirable to set two or more same type units to the same Start Address. In this case, the units will be slaved together and respond to the same data.

Example Select Start Addresses for 4 units each requiring 16 channels of DMX.

Since these are the first units added to the system, the first unit will be set to Start Address=1. This unit occupies DMX channels 1 thru 16. The next DMX channel available for a Start Address is found by adding the previous unit’s Start Address to its channel requirement: 1+16=17. In this example, to maximize channel usage no empty channels are left between units so the second Start Address is set to DMX channel 17. The second unit occupies DMX channels 17 thru 32. Repeat the process for the remaining two units: 17+16=33 and 33+16=49. Therefore, the four 16 channel units have Start Addresses of 1, 17, 33 and 49.

DMX-512 Background

DMX-512 is a digital data transmission standard developed by the United States Institute for Theater Technology (USITT). It is designed to enable control of lighting equipment, originally dimmers. DMX deals solely with the formatting of data for transmission and does not dictate how the data is created or used.

Under DMX, signals are transmitted in much the same way a computer modem transmits data. The Data, divided in to channels, is "Framed" using a start bit, high (1), eight data bits and finally, two stop bits, both high (1). DMX uses no parity to check the integrity of the signal. Instead, DMX relies on the ultra low probability of an error occurring in the same place when the data is resent. The rate at which data is sent is fixed at 250k bps, almost four and a half times faster that a 56k modem. Data on a DMX chain can be updated more than 44 times every second.

The transmitted data follows a specific format. DMX allows for 512 channels each with eight data bits, giving each channel the possibility of 256 values. When a data "Packet" is sent, all channels are transmitted one after another. Even if the data on a specific channel has not been changed, it must be sent. In a packet, a "start code" of all zeros is sent before the data to identify the signal as a Standard DMX transmission. This start code is transparent to the user and is handled by the controller.

The physical signals are transmitted using a twisted pair of wires and a common shield, a configuration called Balanced. The controller and all receiving equipment are connected using a “Daisy Chain" connection. The signal is jumped from the controller to a piece of DMX equipment. From there, the signal is jumped to the next piece of equipment and so on until the last piece of equipment is connected. No branches are allowed and the signal does not come back to the controller. The final piece of equipment will have only one cable connection. As a result, all equipment connected to the chain will see exactly the same signal whether it is first or last. When connecting equipment, no particular attention needs to be paid to the order in which the equipment is connected. Depending on the conditions and equipment, a line terminator may be required. If there is any question, in most circumstances the addition of a terminator will not degrade the signal.

The DMX Standard calls for connections between DMX compatible equipment to be made using 5 pin XLR connectors. However, it is common to see units with 3 pin XLR connectors as these types of balanced or “Lo-Z” cables are common in the audio industry. In either case, pin numbers are the same and carry the same signals.

Pin 1 - Signal Common (Shield)
Pin 2 - Signal Data Negative
Pin 3 - Signal Data Positive
Pin 4 - (not used)
Pin 5 - (not used)

Maintenance

Make sure unit is cool and disconnected from power mains before any service.

Weekly operating hours and environmental conditions will establish how often the units need cleaning. Units should be cleaned and inspected at least once a month to maintain optimum performance. Accumulation of dust and fog residue increases heat build up, can lead to malfunctions, overheating. This condition may cause undue stress on electronics, reduce unit life and over all performance. Before conducting any maintenance, disconnect unit from power mains.

1) Disconnect unit from power mains.
2) Use a vacuum with a soft brush to remove dust collected on external vents and internal components. If using an air compressor, use low pressures and extreme care to prevent damaging any internal parts or effects.
3) Inspect clamps and safety cables to ensure unit is secure and safe.

Troubleshooting

Symptom	**Possible Cause / Solution**
No Power	Check for power on mains
	Check main fuse and fuse holder
No response to DMX	Check data cables
	Check Start Address
	Check Menu is not set for “P”
Incorrectly responds to DMX (Diagnostic technique for DMX issues: Set suspect unit’s Start Address the same as a correctly functioning unit. If both units then function correctly, issue is programming)	Check Start Address
	Check for overlapping addresses
	Check Data cables (faults and proper wiring)
Dimmer does not go to full off or full off	Check the Dim Preset and Dim Limit options
Dimmer does not dim, only operates at full on	Check the Dim/Switch option
Erratic operation	See “Incorrectly responds to DMX”
	Check for properly wired DMX cables
	Check for broken wires inside unit
	Check for damaged Data transceiver IC.