PDS-150e

Power / data supply for Ethernet and DMX installations

PHILIPS

COLOR KINETICS

PDS-150e

Power / data supply for Ethernet and DMX installations

PDS-150e is an indoor-rated power / data supply designed for C-Splash 2, ColorBlast 6, ColorBurst 6, and ColorBlast 12 fixtures from Philips Color Kinetics. The PDS-150e is designed for use in dry locations.

- Compatible with both Ethernet and DMX controllers

- Can accept Ethernet network data and output DMX signals to downstream devices

- Short-circuit protection prevents failure due to incorrectly wired fixtures

- 14 pre-formed knockout holes accommodate standard US and metric conduit sizes

- Built-in cooling fan and over-temperature protection circuitry prevent the PDS-150e from operating beyond its rated temperature range

- Delivers 150 watts of total output via six output terminals and accommodates input voltages ranging from 100 VAC to 240 VAC

Compatible Fixtures

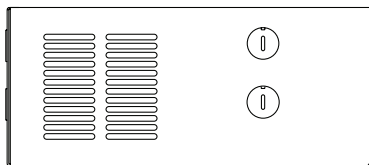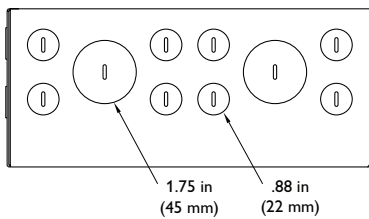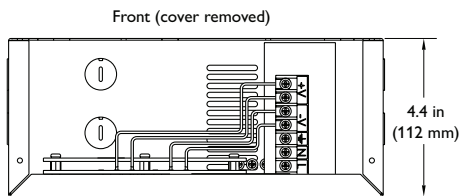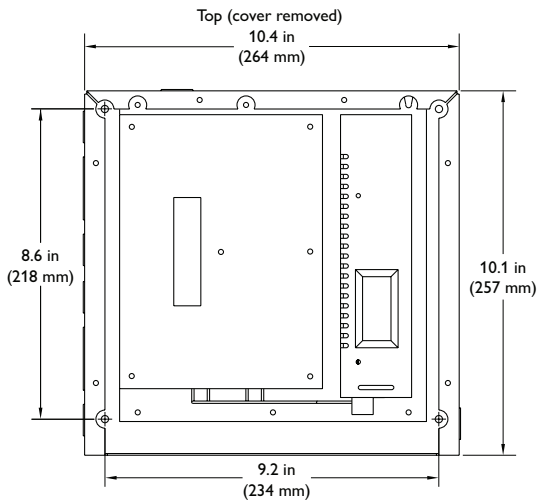| Fixture	Max. Quantity Per PDS-150e	Max. Quantity Per Fuse Group
C-Splash 2	6	2
ColorBlast 12	3	1
ColorBlast 6	6	2
ColorBurst 6	6	2

Robust Power and Data Solution

Supports up to six fixtures and features short-circuit protection and diagnostic indicators to assist with the proper operation of Philips Color Kinetics lighting systems.

Specifications

Due to continuous improvements and innovations, specifications may change without notice.

Item	Specification	Details	
Electrical	Input Voltage	100 – 240 VAC, auto-switching, 50 / 60 Hz	
	Maximum Input Current	2.8 A at 115 VAC, 1.4 A at 230 VAC	
	Power Output	24 VDC, 150 W maximum	
Physical	Dimensions *(Height x Width x Depth)*	4.4 x 10.4 x 10.1 in (112 x 264 x 257 mm)	
	Weight	8 lb (3.6 kg)	
	Construction	Painted steel housing, surface mount design	
	Finish	Black matte	
	Connectors	Data	RJ45 input and output connectors
		Fixture	(6) 3-pin terminal blocks
	Temperature Ranges	14° – 122° F (-10° – 50° C) Operating 14° – 122° F (-10° – 50° C) Startup -40° – 176° F (-40° – 80° C) Storage	
	Humidity	0 – 95%, non-condensing	
	Cooling	Cooling fan	
	Heat Dissipation	25% of total power input at maximum load	
	Data Input	Philips full range of controllers, third-party DMX controllers, or KiNET-compatible* third-party Ethernet controllers	
Certification and Safety	Certification	UL / cUL, FCC Class A, CE, PSE, C-Tick, SAA	
	Classification	UL Class 2 power supply	
	Environment	Dry Location, IP20	

* KiNET is the Ethernet lighting protocol from Philips Color Kinetics.

Ordering Information

Item	Item Number	Philips 12NC
PDS-150e	109-000008-01	910503700092

Use Item Number when ordering in North America.

Included in the box

PDS-150e power / data supply
(6) 3-pin connectors
5-pin connector
(14) 6-32 x 1/4 Phillips head screws, lock washers
(3) 4 amp 250 VAC fuses (spares)
Cable strain relief connector
(3) Push wire connectors
Installation Instructions

Top (cover removed)
10.4 in
(264 mm)

8.6 in
(218 mm)

10.1 in
(257 mm)

9.2 in
(234 mm)

Front (cover removed)

4.4 in
(112 mm)

1.75 in
(45 mm)

.88 in
(22 mm)

Installation

PDS-150e is an indoor-rated power / data supply designed for LED lighting fixtures from Philips Color Kinetics. It supports up to six fixtures and features short circuit protection and diagnostic indicators to assist with the proper operation of Philips Color Kinetics lighting systems. The PDS-150e enclosure is designed for use in dry locations.

Owner / User Responsibilities

It is the responsibility of the contractor, installer, purchaser, owner, and user to install, maintain, and operate PDS-150e in such a manner as to comply with all applicable codes, state and local laws, ordinances, and regulations. Consult with the appropriate electrical inspector to ensure compliance.

✳ *Refer to the PDS-150e Installation Instructions for specific warning and caution statements.*

Plan the Installation

To streamline installation and ensure accurate configuration, start with a layout or a lighting design plan that shows the physical layout of the installation and identifies the locations of all lighting fixtures, PDS-150e devices, controllers, switches, and cables.
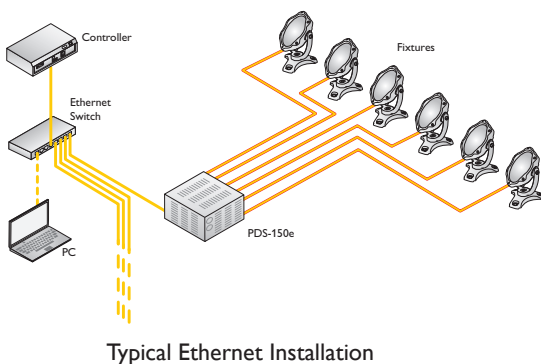
DMX and Ethernet Configurations

PDS-150e can be used in either DMX or Ethernet networks.

Typical DMX installations with intelligent LED fixtures from Philips Color Kinetics use a controller such as iPlayer 3, a Controller Keypad for triggering light shows and turning fixtures on and off, and one or more PDS-150e devices. PDS-150e devices can be connected in series to deliver DMX data from a single controller to all connected lights.

Typical DMX Installation
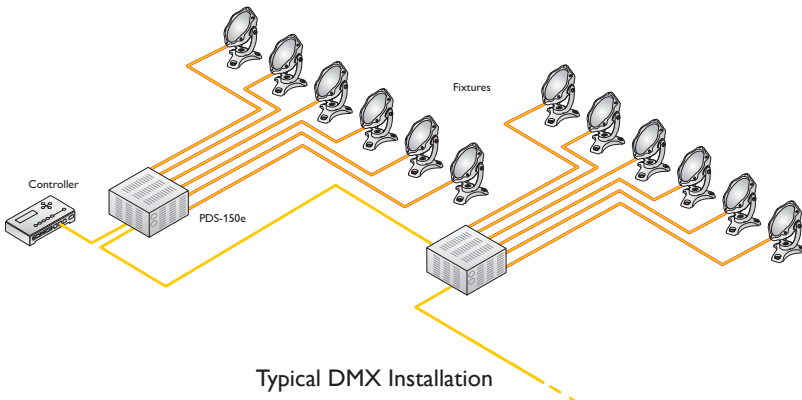
Typical Ethernet installations with Philips Color Kinetics LED fixtures use an Ethernet switch, an Ethernet controller such as Light System Manager or ColorDial Pro, Ethernet Controller Keypads for light show triggering and turning fixtures on and off, and one or more PDS-150e devices.

Typical Ethernet Installation

Ethernet maximum data cable length

DMX maximum data run length

Included in the box

PDS-150e power / data supply
(6) 3-pin connectors
5-pin connector
(14) 6-32 x 1/4 Phillips head screws, lock washers
(3) 4 amp 250 VAC fuses (spares)
Cable strain relief connector
(3) Push wire connectors
Installation Instructions

Electrical Configuration Guidelines

Each PDS-150e power / data supply accommodates up to three ColorBlast 12 fixtures, or six C-Splash, ColorBlast 6, or ColorBurst 6 fixtures.

Each PDS-150e device must be installed on a dry, unobstructed 18 x 18 in (457 x 457 mm) area that allows air to move freely around the device. Startup and operating temperatures are rated to 122° F (50° C). Exceeding this temperature limit may cause device damage or failure.
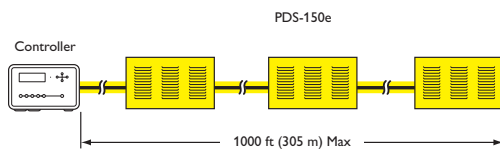
Data Configuration Guidelines

When selecting mounting locations for the PDS-150e devices in your installation, keep cable and fixture run length limits in mind:

- In Ethernet networks, maximum data cables lengths are 328 ft (100 m) between Ethernet devices without a repeater.

- In DMX networks, maximum data run lengths are 1000 ft (305 m). The maximum number of PDS-150e devices that can be connected in series is 32. We recommend using the on-board DMX repeater for runs of more than 32 PDS-150e devices connected in series. However, for run lengths of longer than 1000 ft (305 m), we recommend using a third-party, commercially-available DMX repeater.

PDS-150e allows you to input Ethernet network data and output a DMX signal to downstream devices and fixtures.

Inspect PDS-150e and Accessories

Carefully inspect the box containing the PDS-150e and the contents for any damage.

Assemble Additional Items

The following additional items are required to mount and connect the PDS-150e:

- Four mounting screws suitable for the mounting surface

- The included 14 cover screws and lock washers

- The included six 3-pin connectors, and one 5-pin connector

- One wire nut per C-Splash 2 fixture

- One insulated ring or spade crimp terminal per C-Splash 2 fixture

- One 8 in (203 mm) connecting wire per C-Splash 2 fixture

- The included three push wire connectors

- The included cable strain relief connector

- CAT 5e or better data cable, as required

- If required by local electrical codes, installations using US trade size conduit require 1 1/2 in NPT conduit and fittings for power, and 1/2 in NPT conduit and fittings for data

- If required by local electrical codes, installations using metric size conduit require PG 42 mm conduit and fittings for power, and PG 13.5 mm conduit and fittings for data

- 3-conductor copper wire for power connections, as required. Fixture connections also require 3-conductor copper wire, with the exception of C-Splash fixtures, which require 4-conductor wire. Standard 12 AWG (3.31 mm^2) stranded wire is recommended.

- Screwdrivers, wire strippers, and other tools as needed

Position and Mount the PDS-150e

Make sure the device is powered OFF before mounting and connecting.

1. If you are using an Ethernet network and your installation requires multiple PDS-150e devices, record the IP addresses in a layout grid (typically a spreadsheet or list) for easy reference.

2. Assign each device to a position in the layout or lighting design plan.

3. To accommodate cables or conduit, remove the knockouts from the openings prior to mounting.

4. Position each PDS-150e device in its designated mounting location. Make sure the mounting surface is flat, suitable for the mounting hardware, and clear of debris and other obstructions.

    The overall dimensions of each PDS-150e device are 10.4 in (264 mm) x 10.1 in (257 mm) wide x 4.4 in (112 mm) high. Make sure the mounting location allows a minimum of 4 in (102 mm) around the housing, so that air can move freely around the device. Be careful not to obstruct the vents on the top or sides of the PDS-150e housing. If the device is to be mounted on a wall, be sure that the vented sides of the device are facing up or to the side, never down. (This allows rising heat to escape from the top and sides of the unit.)

5. Use four suitable mounting screws to secure PDS-150e to the mounting location.
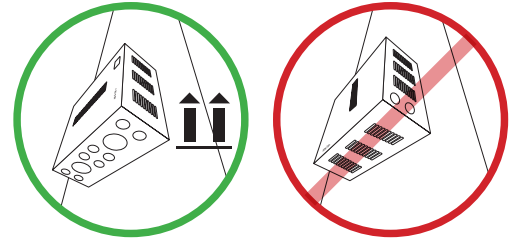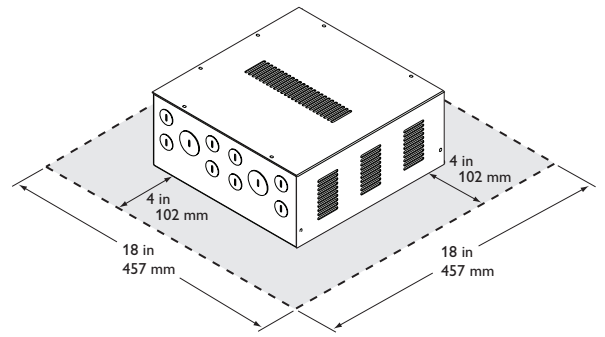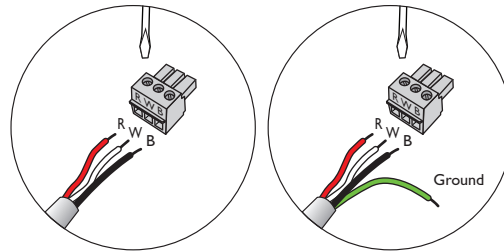

✴ *When mounting PDS-150e on a wall, be sure to position the device with the conduit side facing the floor. This allows rising heat to escape from the housing's top and side vents.*
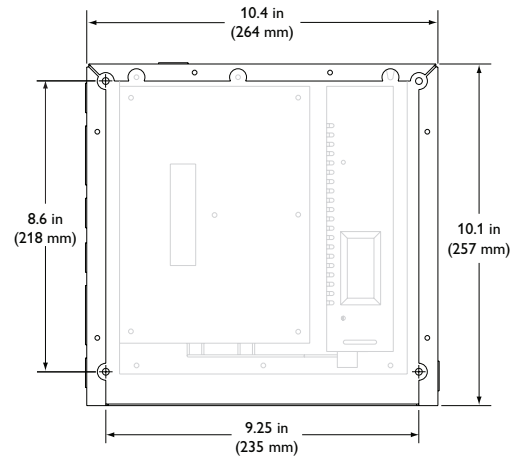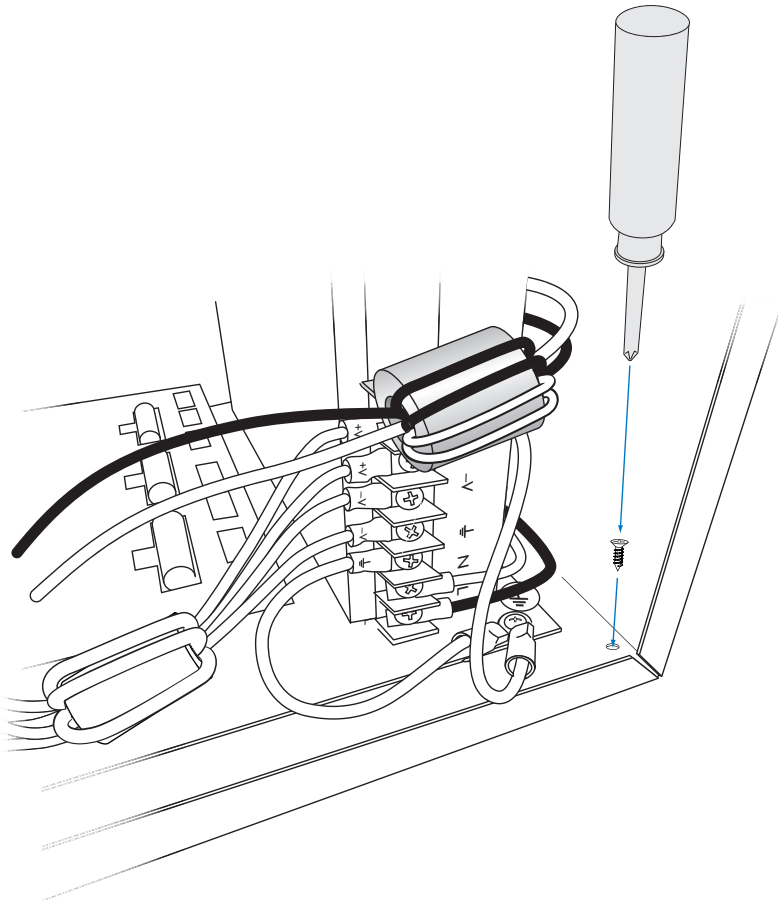
Connect Fixture Cables

1. Using a small flathead screwdriver, loosen the three captive screws inside one of the 3-pin connectors.

2. If necessary, prepare one of the fixture's leader cables by cutting the cable jacket to expose the fixture wire, and then stripping the jacket from the wire.

3. Insert the red, white, and black wires into the connector's corresponding wire entry slots.


ColorBurst 6	C-Splash 2
ColorBlast 6	
ColorBlast 12	

4. Guide the connector and cable through an opening in the housing, and insert it into an open fuse group port. (If installing ColorBlast 12 fixtures, do not connect more than one fixture per fuse group, for a total of three fixtures for each PDS-150e device.)

Fuse Groups
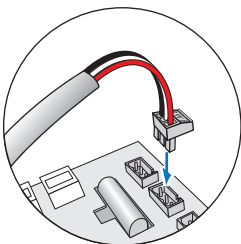
✺ ColorBlast 6, C-Splash 2, and ColorBurst 6 can each use all of the connections available in the PDS-150e (for a total of six fixtures per device). ColorBlast 12 draws more power and requires a dedicated fuse for each fixture (for a maximum of three fixtures per PDS-150e).

ColorBurst 6

C-Splash 2

ColorBlast 6

ColorBlast 12
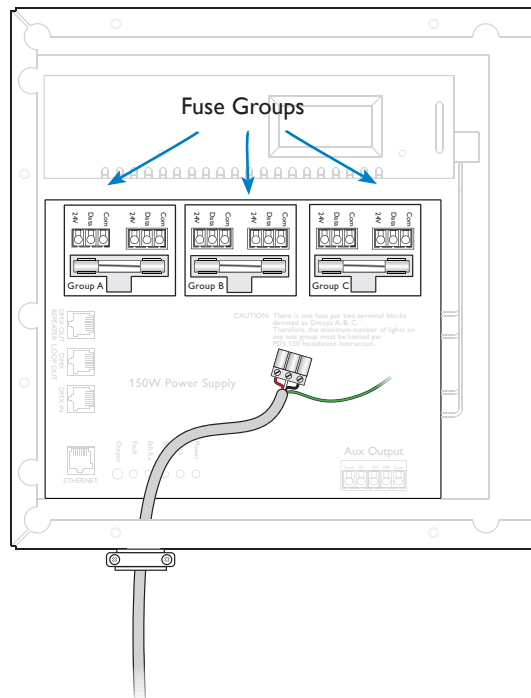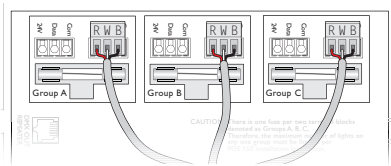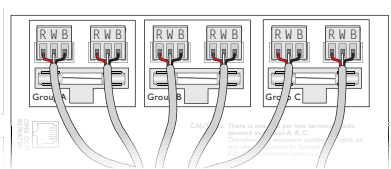
5. If installing a C-Splash 2 fixture, connect the green ground wire to a wire nut and an 8 in (203 mm) connecting wire. Using an insulated ring or spade crimp terminal, attach the connecting wire to the ground located next to the terminal block.

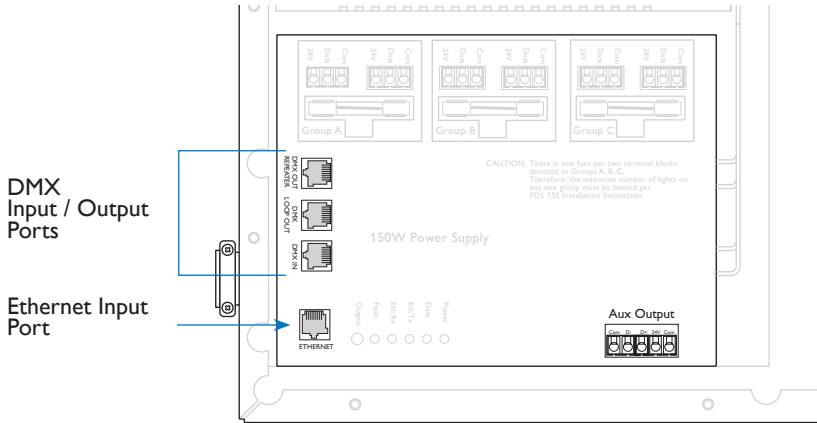6. Repeat steps 1-5 for each fixture you want to connect to the PDS-150e.
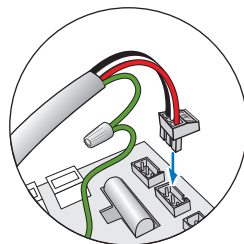
ColorBurst 6   C-Splash 2
ColorBlast 6
ColorBlast 12

Make Data Input Connections

PDS-150e has different connectors for DMX and Ethernet data inputs.

DMX
Input / Output
Ports

Ethernet Input
Port

Group A   Group B   Group C

CAUTION: There is one fuse per two terminal blocks
denoted as Groups A, B, C.
Therefore, the maximum number of lights on
any one group must be limited per
PDS-150 Installation Instruction.

150W Power Supply

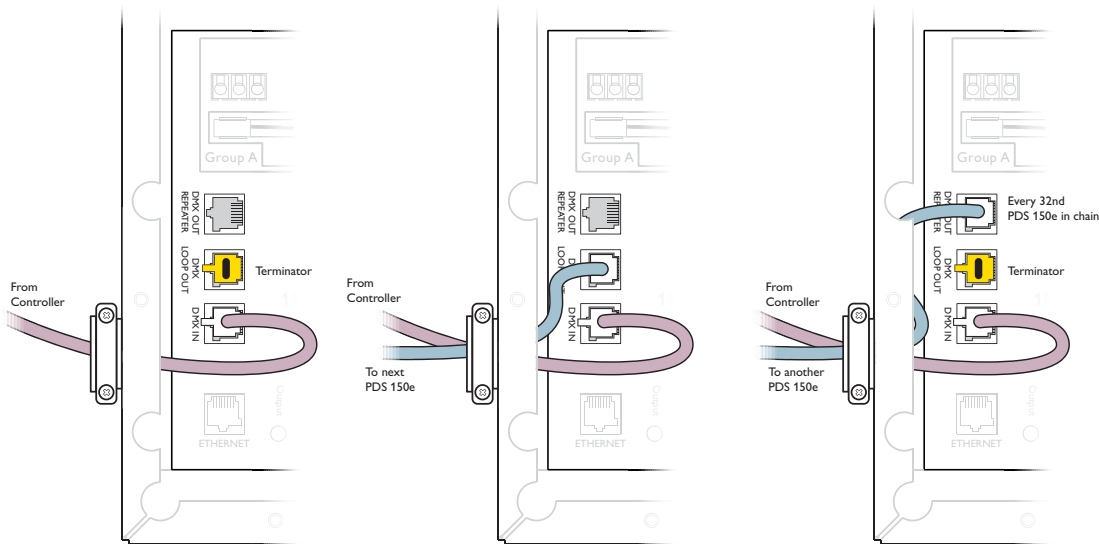DMX OUT REPEATER
DMX LOOP OUT
DMX IN

ETHERNET

Aux Output

❋ *The Aux Output allows you to connect to third-party controllers, as well as to older Philips Color Kinetics controllers. The included 5-pin connector fits into this port, which can supply power and receive data via 5-wire DMX cable.*
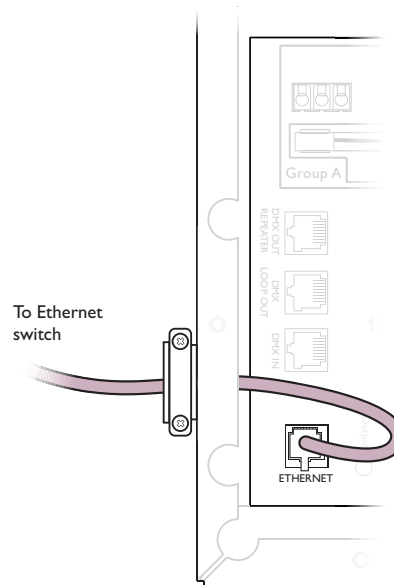
DMX Data Input Connections

1. Run CAT 5e or better cable from the data output port of a Philips Color Kinetics DMX controller, such as iPlayer 3, and connect it to the DMX IN port.

2. To add another power / data supply to the DMX chain, run a cable from the device's DMX LOOP OUT port to the next device's DMX IN port.

3. After 32 devices, insert a DMX terminator in the DMX LOOP OUT port and insert a cable from the DMX OUT REPEATER port to the DMX IN port of the next power / data supply. (This will boost the DMX signal and maintain data integrity.)

4. At the last power / data supply in the DMX chain, insert a DMX terminator in the DMX LOOP OUT port.

❋ *If a total DMX run length exceeds 1000 ft (305 m), we recommend using a commercially available third-party DMX repeater.*

Group A

DMX OUT REPEATER
DMX LOOP OUT
DMX IN
Terminator
From Controller
ETHERNET

Group A

DMX OUT REPEATER
DMX LOOP OUT
DMX IN
From Controller
To next PDS 150e
ETHERNET

Group A

DMX OUT REPEATER
DMX LOOP OUT
DMX IN
Every 32nd PDS 150e in chain
Terminator
From Controller
To another PDS 150e
ETHERNET

Ethernet Data Input Connections

1. Run CAT 5e or better cable from the data output port of a Philips Color Kinetics Ethernet controller (such as Light System Manager or ColorDial Pro) to an Ethernet switch (or a Power-over-Ethernet switch, if required by the controller).

2. Connect a second cable to one of the switch's ports.

3. Locate the Ethernet port inside the PDS-150e housing. Connect the cable to this port.

To Ethernet switch

Group A

DMX OUT REPEATER

DMX LOOP OUT

DMX IN

ETHERNET

### In an Ethernet Network, Connect to Downstream Devices using DMX

The PDS-150e allows you to use the Ethernet input port while outputting a DMX signal to downstream devices.

1. Run a CAT 5e or better cable out of the first device's DMX OUT REPEATER port to the next device's DMX IN port.

2. To add another power / data supply to the DMX chain, run a cable from the previous device's DMX LOOP OUT port to the next device's DMX IN port.

3. After 32 devices in a chain, insert a DMX terminator in the DMX LOOP OUT port, and insert a cable from the DMX OUT REPEATER port to the DMX IN port of the next power / data supply. (This will boost the DMX signal and maintain data integrity.) If a total DMX run length exceeds 1000 ft (305 m), we recommend using a commercially available third-party DMX repeater.

4. At the last power / data supply in the DMX chain, insert a DMX terminator in the DMX LOOP OUT port.

✱ *Note that even if you are using an Ethernet network, if you are outputting a signal to downstream devices using DMX, discovery of downstream fixtures does not happen automatically. You must discover your fixtures by entering fixture serial numbers in QuickPlay Pro as you normally would in a DMX network.*

Connect to Line Power

The PDS-150e ships with the device's line, neutral, and ground wires connected to the terminal block. You connect power to the device's flying leads by using the included push wire connectors.

1. Install the included cable strain relief connector in one of the device's .88 in (22 mm) openings. If necessary, use conduit as required by local electrical codes.
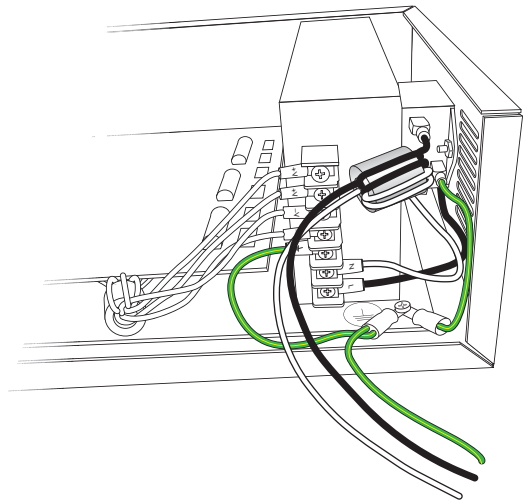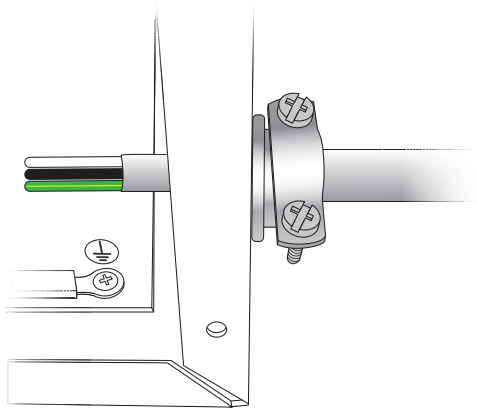
✳ *Refer to your local electrical code for requirements for proper connection to line voltage.*

2. Run the mains voltage power cable through the opening. Pull at least 6 in (152 mm) of wire into the housing.

3. Strip at least .38 in (10 mm) of insulation from the wires. Join the mains line wire with the flying leads using the included push wire connectors.
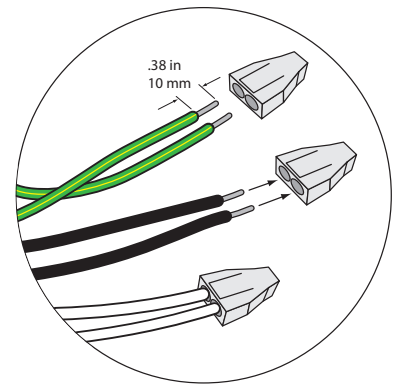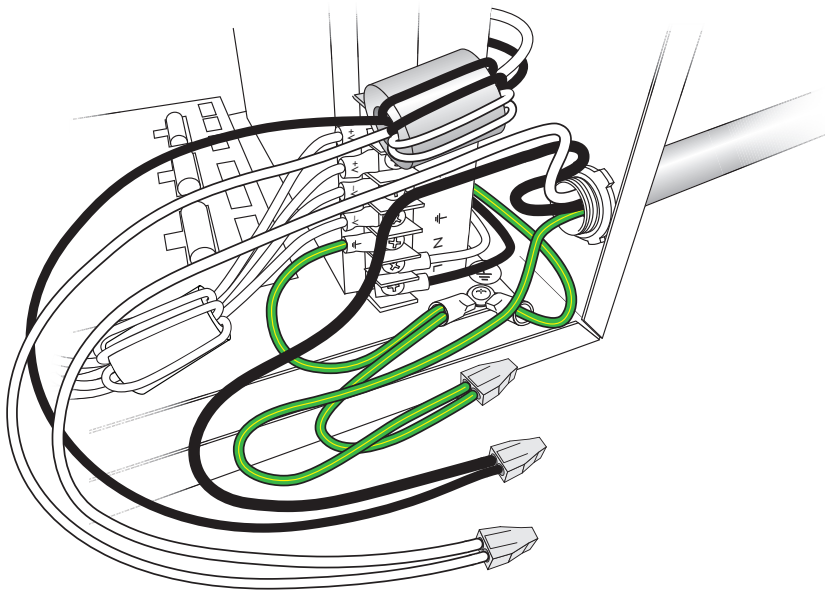
4. If you need to assign DMX addresses your fixtures, or configure the PDS-150e over an Ethernet network, follow the steps in the *Addressing and Configuration Guide* prior to closing the device. Otherwise, secure the wire connections inside the housing, put the cover over the device, and use eight of the included screws and washers to close and secure the device's cover.

150W Power Supply

Power ◎
Data ◎
Eth Tx ◎
Eth Rx ◎
Fault ◎
Output ◎

DMX OUT   DMX   DMX IN   ETHERNET
REPEATER   LOOP OUT

Interpreting PDS-150e Status Indicators

Indicators on the right side of the circuit board provide feedback about the status of the power / data supply.
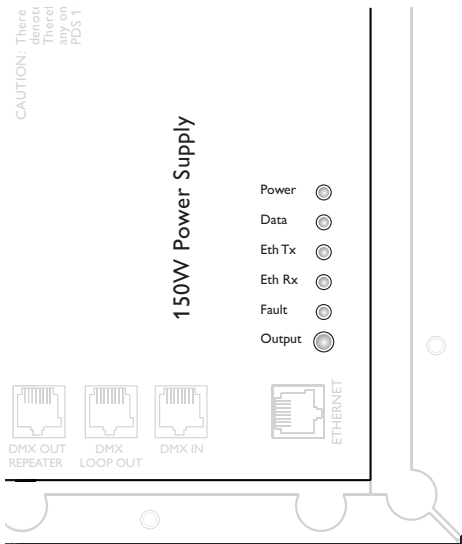
Status Indicators

Indicator	Mode	Meaning
Power Status	White	+24 VAC of power is present on the circuit board
	Off	+24 VAC of power is not present on the circuit board
Data Status	Blue	Valid Ethernet data is being received
	Off	Valid Ethernet data is not being received
Ethernet Tx	Blue	Long blink for every Ethernet packet transmitted
Ethernet Rx	Blue	Long blink for every Ethernet packet received
Fault Indicator	Off	No problems
	Red	Indicates a short circuit, either on the fixture or the circuit board
Output Indicator	Off	No output
	Green	Illuminates when device sends a 1 to fixtures*
	Red	Illuminates when device sends a 0 to fixtures*

* When sending data, the output indicator light appears as a solid orange, as both green and red flash rapidly.

Configuring PDS-150e with QuickPlay Pro (Optional)

✳ *You can download QuickPlay Pro from www.colorkinetics.com/support/addressing/*

You can configure PDS-150e devices and address fixtures using Philips Color Kinetics QuickPlay Pro software. With Ethernet installations, you can automatically discover all of your PDS-150e devices by using QuickPlay Pro on a Mac or PC connected to your network. With DMX installations, you can use QuickPlay Pro to configure fixture addresses by connecting directly to your device's DMX IN port using SmartJack Pro or iPlayer 3.

✳ *For details on addressing and standard QuickPlay Pro software options for PDS-150e devices, refer to the* Addressing and Configuration Guide*, which you can view or download from www.colorkinetics.com/support/addressing/*

You may change a number of PDS-150e settings with QuickPlay Pro connected over an Ethernet network, including device name, IP address, and DMX universe. You may also address the device's associated fixtures.

For details on how to address fixtures and configure a PDS-150e, see the *Addressing and Configuration Guide*.

Replacing Fuses

PDS-150e has three fuses, each of which protects two fixture inputs from excessive current. Three extra fuses are included in the box with each PDS-150e device. Always use 4 amp, 250 VAC fuses.
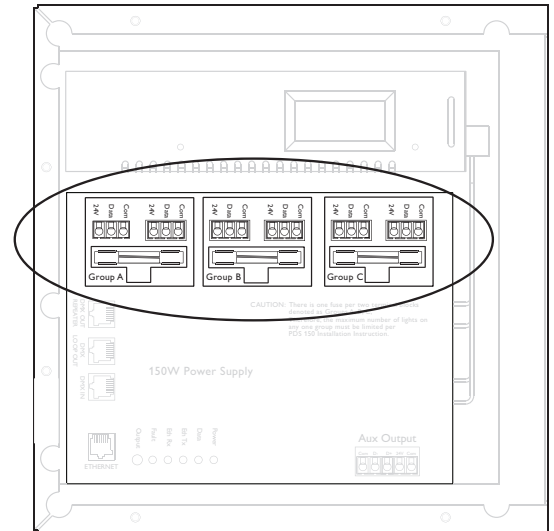
1. Make sure that the device's power is OFF.

2. Using a Phillips screwdriver, unscrew the eight screws holding the cover in place. Remove the device cover.

3. Pull the clear rubber protective cover from the fuse you wish to replace.

4. Remove the fuse from its metal clips.
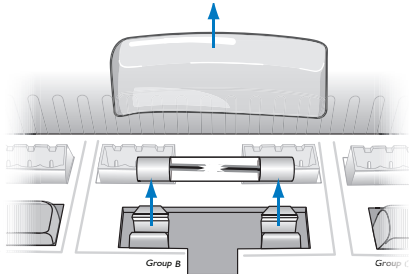
5. Replace with a new 4 amp, 250 VAC fuse.

6. Replace the rubber protective cover over the fuse and clips.
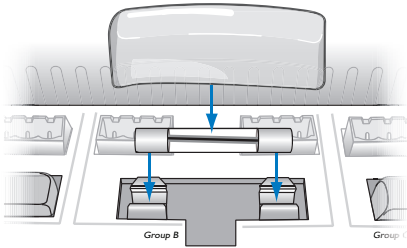
7. Replace the device's cover and secure it with the eight cover screws.