

# PDS-60 24V

USER GUIDE



## DMX/Ethernet Control

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### ITEM# 109-000017-03 (DMX/Ethernet)

For use under one or more of the following patents:  
U.S. Patent Nos. 6,016,038, 6,150,774 and other patents listed at  
<http://colorkinetics.com/patents/>. Other patents pending.

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## GETTING STARTED

Color Kinetics<sup>®</sup> PDS-60 24V is a compact, robust power/data supply designed for indoor and outdoor installations. The PDS-60 24V provides power and data to Color Kinetics non-Chromatic<sup>®</sup> product lines, including ColorBlast<sup>®</sup>, ColorBurst<sup>®</sup>, and select iColor<sup>®</sup> Series products. PDS-60 24V provides both DMX and Ethernet options in one unit.

This guide contains important information on installing and using your new PDS-60. Please read it carefully and save it for future reference.

### Included in This Box

- Power/data supply with cover, gasket, mounting screws, and NPT threaded seal plugs.
- User Guide.

### Additional Items Needed

- Mounting hardware and tools.
- Water-tight conduit and fittings (as required per local codes).
- Electronic grade RTV Silicone (UL recognized) to seal conduit connections as required.
- 5/16" hex wrench or adjustable wrench for seal plugs.
- Standard strain relief cable clamps (Indoor applications).
- Wire nuts.

## Scope of This User Guide

The goal of this user guide is to explain the steps necessary to install the PDS-60 with DMX and Ethernet control and assure peak performance. Its intended use is for reference only, by persons who are fully qualified. This document should never be considered a substitute for any provisions of a regulation or state and/or local code.

## Identification and Warnings of Safety Hazards

In accordance with ANSI Z535.4-2002 the following system of identifying the severity of the hazards associated with the products is used:

**"DANGER"** Imminently hazardous situation which, if not avoided, will result in death or serious injury.

**"WARNING"** Potentially hazardous situation which, if not avoided, could result in death or serious injury.

**"CAUTION"** Potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage. Also used to alert against unsafe practices.

### IGNORING A HAZARD WILL VOID ANY WARRANTY.

**DANGER:** Ensure that main power supply is off before installing, wiring, or servicing the PDS-60 power supply.

**WARNING:** The PDS-60 power supply must be installed by a qualified professional in accordance with NEC and relevant local codes.

**WARNING:** Do not attempt to install or use the PDS-60 until you read and understand the installation instructions and safety labels.

**WARNING:** Do not use the PDS-60 if power cables are damaged.

**WARNING:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to take adequate measures.

**CAUTION:** Ensure that the PDS-60 is securely attached, properly mounted, and free of excessive vibration.

**CAUTION:** When sealing the PDS-60, ensure that the gasket is seated properly, that no wires are pinched, and that the housing is free of foreign material and debris.

**CAUTION:** Do not hot swap. Ensure the power supply is off before connecting or disconnecting fixtures.

**CAUTION:** Do not modify or alter the PDS-60.

**NOTE:** The instructions and precautions set forth in this user guide are not necessarily all-inclusive, all conceivable, or relevant to all applications as Color Kinetics cannot anticipate all conceivable or unique situations.

## Owner/User Responsibilities

It is the responsibility of the contractor, installer, purchaser, owner, and user to install, maintain, and operate the PDS-60 in such a manner as to comply with all state and local laws, ordinances, regulations, and the American National Standard Institute Safety Code.

## INSTALLING THE PDS-60

The PDS-60 shall be installed by a qualified electrician in accordance with NEC and relevant local codes for power supplies.

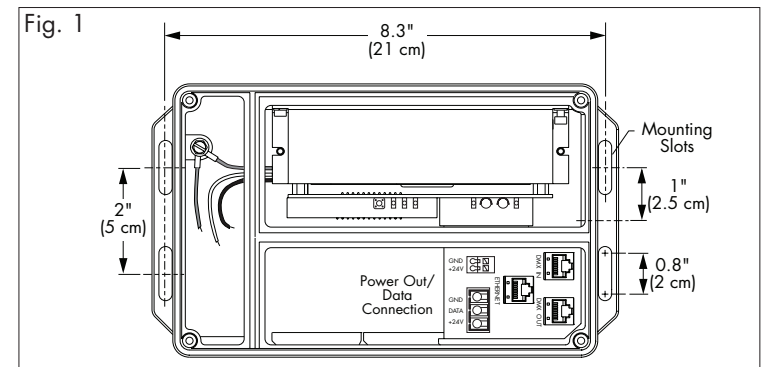
**CAUTION:** Ensure proper installation for outdoor applications to maintain NEMA 4 ratings. Failure to do so will result in minor or moderate injury or property damage and will void the warranty.

## Mounting the Housing

- Select the location to mount the housing, keeping the PDS-60 within the maximum distance specified for your fixture. Refer to your fixture user guide for the cable run information.

**CAUTION:** PDS-60 must be installed in a location that allows air to move freely. Packing insulation around the housing or mounting it in a sealed location that raises ambient temperature above 104°F (40°C) may result in minor or moderate injury or property damage and will void the warranty.

- Using the seal plugs and gaskets provided, seal all conduit holes not needed for the installation. Tighten plugs until gaskets are slightly compressed. Do not over tighten.
- Mount the housing to a flat surface using four screws suitable for the mounting surface. Mounting slots are located on the flanges at each end of the housing. See Fig. 1 for mounting details.



## WIRING THE PDS-60

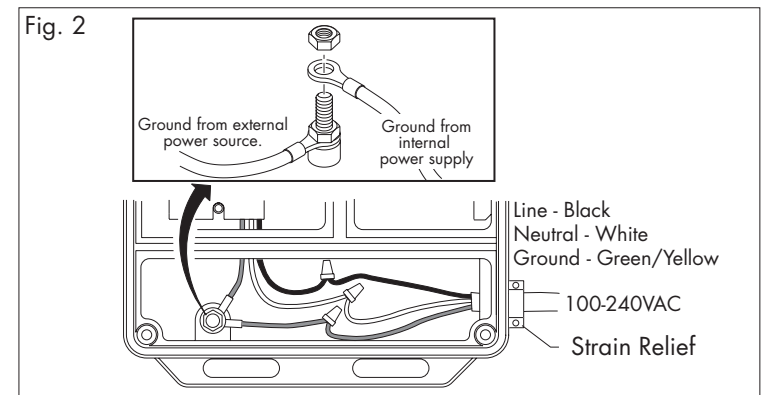
After mounting the PDS-60, you are ready to connect power, lights, and data.

### Connecting Power to the PDS-60

**DANGER:** Turn off the main power supply before wiring the PDS-60. Failure to do so will result in death or serious injury.

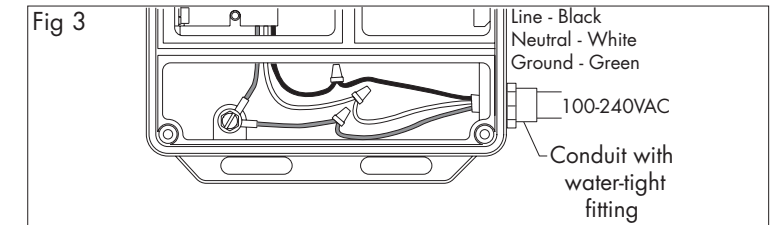
#### Indoor Installation

- Insert the power supply cable into the power connection chamber of the PDS-60.
- Using pig tails and wire nuts, connect Line (black), Neutral (white), and Ground (green/yellow). Follow local electrical codes for internal wire bending.
- Use a strain relief clamp to hold the power cable. (See Fig. 2.)



## Outdoor Installation

- Pull the power cable through an outdoor rated conduit and into the power connection chamber of the PDS-60. Use RTV Silicon on the conduit coupler and ensure that the conduit connection to the PDS-60 is water-tight.
- Using wire nuts, connect Line (black), Neutral (white), and Ground (green/yellow). Follow local electrical codes for internal wire bending. (See Fig. 3.)

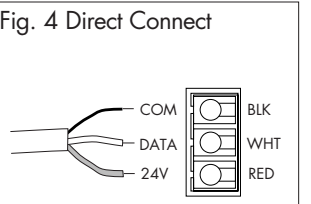


**NOTE:** It is the end user's responsibility to use the proper conductors to permanently connect the incoming facility power, and to provide means for disconnecting the system.

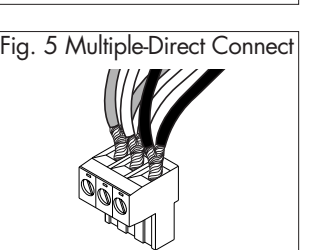
## Connecting Lights to the PDS-60

The PDS-60 has one terminal block connector. All fixtures are connected to this terminal block connector using one of the following methods: direct connection, multiple-direct connection, daisy chained connections, or harness.

**DIRECT CONNECTION:** A single light, such as ColorBlast 12 or iColor Accent 8-foot, is home run to the PDS-60 and is connected directly to the terminal block connector matching red, white, and black wires to the corresponding terminal block notations. (See Fig. 4.)

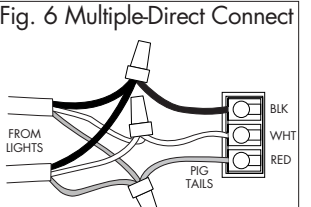


**MULTIPLE-DIRECT CONNECTION:** Two lights, such as ColorBlast 6 or ColorBurst 6, are home run to the PDS-60 and are both wired directly to the terminal block connector matching red, white, and black wires to the corresponding terminal block notations. (See Fig. 5.)



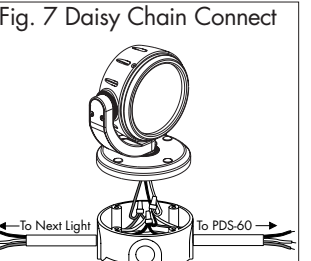
**NOTE:** iColor Accent cable is 12AWG; therefore, two fixtures cannot be wired to the terminal block because of size restrictions.

When using two or more lights, multiple-direct connections can be made by wiring each home run to pig tails which is then wired directly to the terminal block connector matching red, white, and black wires to the corresponding terminal block notations. (See Fig. 6.)



**NOTE:** This method may require an external junction box when the volume of cables exceeds the PDS-60 power/data connections compartment's capacity.

**DAISY CHAIN CONNECTION:** Two or more lights, such as ColorBurst 4 and iColor Fresco, are wired in series, with the first light wired directly to the PDS-60 and the remaining lights connected within junction boxes. Not all Color Kinetics lights can be daisy-chained. Refer to the user guide for your light to determine whether it can be wired this way. (See Fig. 7.)



**HARNESS CONNECTION:** The iColor Cove products are wired using a cable harness.

To connect lights to the PDS-60:

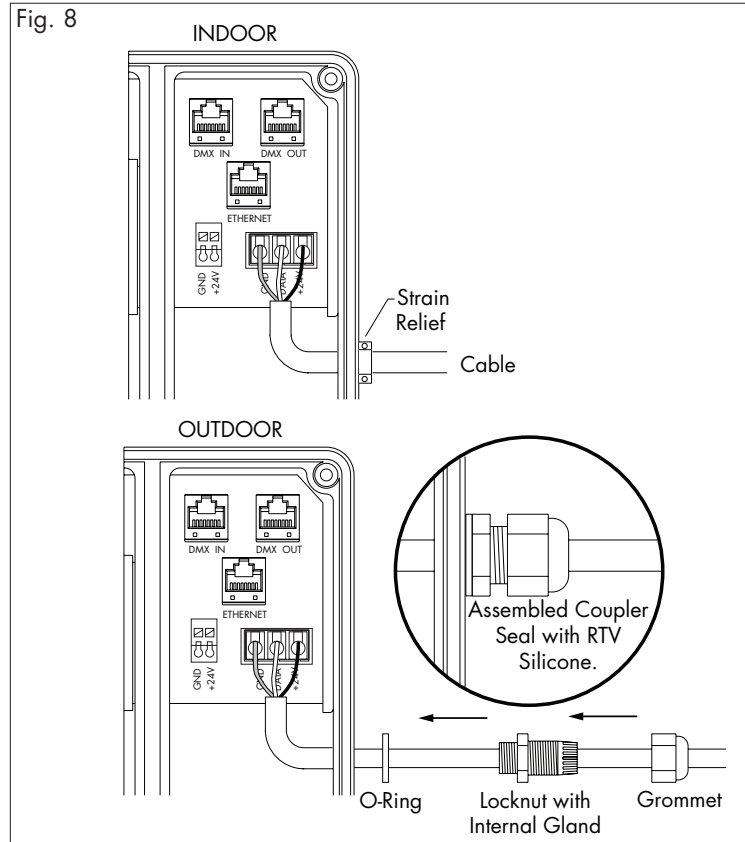
- Refer to the following table for maximum fixture specifications.

Fixture	Max. per PDS-60	Best Wiring Method(s)
ColorBurst 6	2	Direct Connect or Multiple Direct Connect
ColorBurst 4	6	Daisy Chain or Multiple Direct Connect
ColorBlast 12	1	Direct Connect
ColorBlast 6	2	Direct Connect or Multiple Direct Connect
iColor Accent 1'	8	Direct Connect
iColor Accent 4'	2	Direct Connect
iColor Accent 8'	1	Direct Connect
iColor Fresco 1'	10	Daisy Chain
iColor Fresco 2'	5	Daisy Chain
iColor Fresco 4'	2	Daisy Chain
iColor Cove NXT 6"	12	Harness
iColor Cove NXT 12"	10	Harness

- Using one of the above wiring methods, insert the fixture cable into the power/data connection chamber of the PDS-60 and wire the fixture(s) to the terminal block connector.

**NOTE:** Outdoor rated lights require water-tight couplers on the cables. Ensure that the water-tight coupling is properly installed according to manufacturer's instructions to ensure NEMA 4 protection. Refer to the user guide for your lights for instructions. These couplers also provide strain relief. (See Fig. 8.)

- For indoor rated lights, use a standard strain relief clamp to hold the fixture cable. (See Fig. 8.)
- Refer to the user guide for your lights to determine the specific wiring requirements.

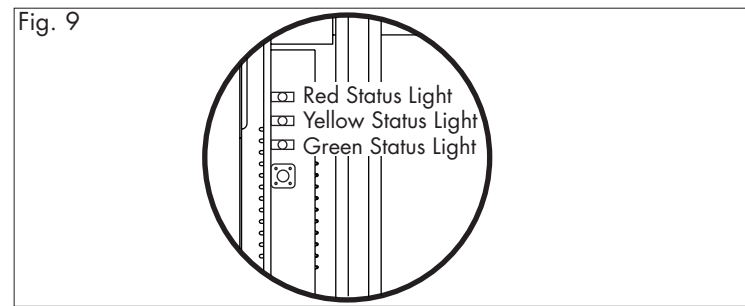


### DMX/Ethernet Modes

When the PDS-60 is first powered on, it listens for data on both the DMX and Ethernet ports. (The red status light blinks once per second while waiting for data.) When the PDS-60 detects valid data on either port, it switches to the appropriate mode. The PDS-60 stays in that mode until power is cycled.

- In DMX mode, the red status light is lit continuously.
- In Ethernet mode, the red status light blinks approximately once per second.
- The green status light is when a valid Ethernet link is detected.
- The yellow status light will flicker as Ethernet data is received.

Fig. 9 shows the location of the status lights.



### Connecting DMX Data to the PDS-60

When using the PDS-60, follow the steps below to connect DMX data.

- Pull the CAT 5 data cable, with RJ45 connectors, into the power out/data connection chamber of the PDS-60. Secure the cable with standard screw connection strain relief.

**NOTE:** For outdoor applications, pull the data cable through outdoor rated conduit and ensure that the conduit connection is water-tight.

- Plug the data RJ45 connector into the DMX IN port.

**NOTE:** The DMX controller connected to the RJ45 port must be powered by another source.

- To send data to another PDS-60, connect a CAT5 cable between the DMX OUT port of the sending unit and the DMX IN port of the receiving unit. Plug a terminator into the DMX OUT port of the last power supply in a data chain. (See Fig. 10.)

### Addressing the Lights (for DMX)

- Lights must be addressed prior to wiring them to the PDS-60. Address the lights using a Zapi or Serial Addressing Software.

### Connecting Ethernet Data to the PDS-60

The PDS-60 receives data from Color Kinetics Light System Manager (LSM) or Video System Manager (VSM) via the Ethernet port. A dedicated network and one or more Ethernet switches are required for an Ethernet-based controller. See Fig. 11. Refer to the Light System Manager or Video System Manager User Guide for setup and configuration information.

- Pull the CAT 5E data cable, with an RJ45 connector, from the Ethernet switch into the power out/data connection chamber of the PDS-60. Secure the cable with a strain relief cable clamp.

**NOTE:** For outdoor applications, pull the data cable through outdoor rated conduit and ensure that the conduit connection is water-tight.

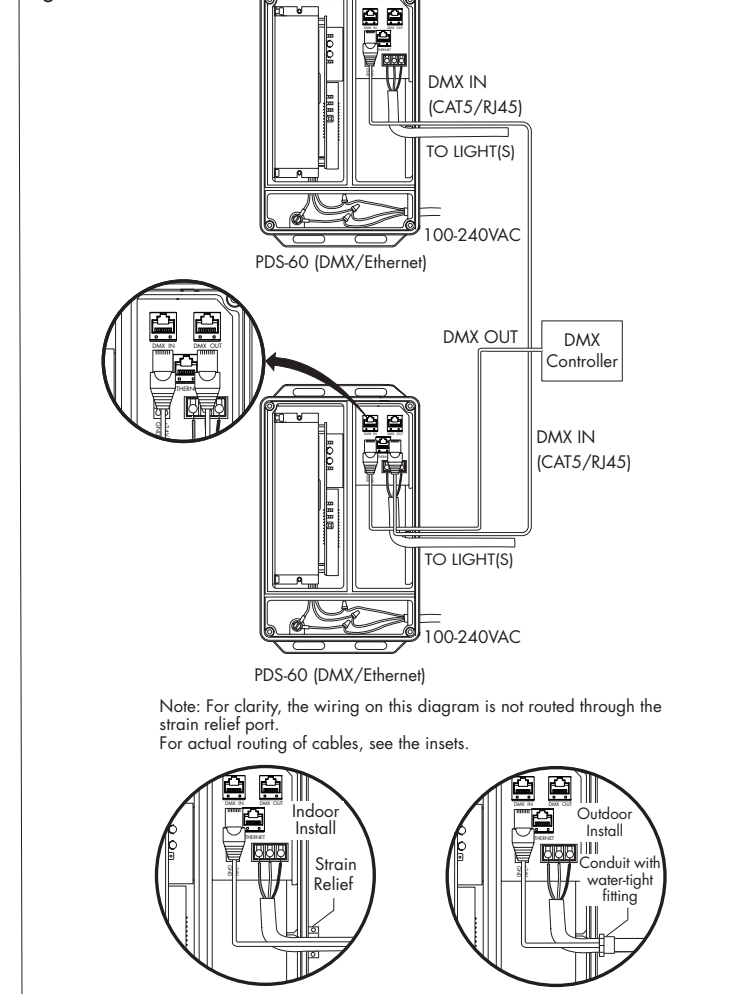
- Plug the data RJ45 connector into the Ethernet IN port.

**NOTE:** End-run Ethernet data to each PDS-60 in an installation. Ethernet cannot be daisy chained. (See Fig. 11.)

### Mapping the Lights (for Ethernet)

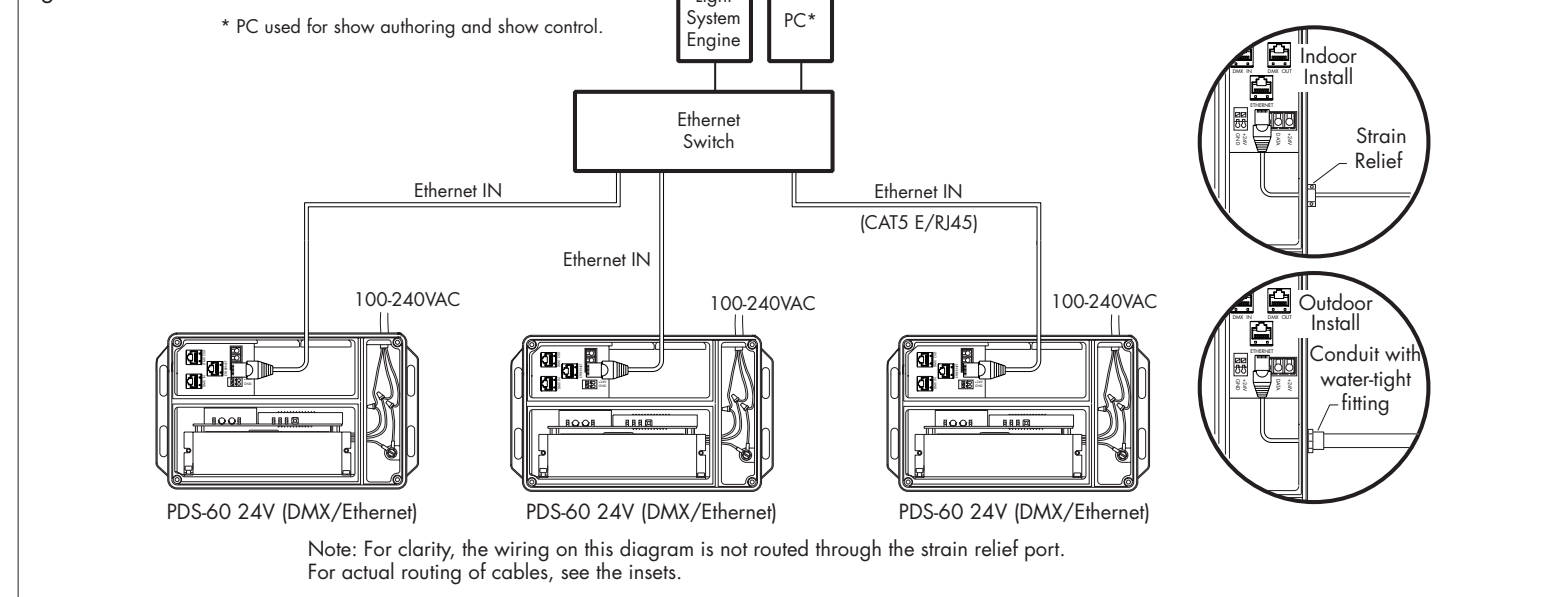
- Once the PDS-60 installation is complete, use the Color Kinetics Light System Manager to map the light installation.
- Light System Composer lets you query the Light System Engine to discover all power/data supplies and lights attached.
- Once the power/data supplies and lights have been mapped, then you are ready to begin designing shows.

Fig. 10



Note: For clarity, the wiring on this diagram is not routed through the strain relief port. For actual routing of cables, see the insets.

Fig. 11



Note: For clarity, the wiring on this diagram is not routed through the strain relief port. For actual routing of cables, see the insets.

### Sealing the PDS-60

After all the power and data connections have been made, and all conduit holes are water-tight, replace the cover and attach it with the provided screws. Tighten the screws to 8 to 10 in-lbs (1 in-lb = 11.2985 N-cm). Apply equal pressure on all screws.

**NOTE:** Before attaching the cover, ensure the gasket is seated properly and that no wires are pinched.

### Using the Accessory Port

The PDS-60 24V has a two pin spring terminal Accessory Port, that allows you to power controllers, such as the Color Dial or iPlayer2, directly from the PDS-60 24V. The Accessory Port provides 24VDC at up to 100mA. For information on connecting the controllers to the Accessory Port, refer to the user guide for the controllers.

### PDS-60 SPECIFICATIONS

<b>POWER OUTPUT</b>	24VDC, 62W
<b>POWER INPUT</b>	100-240VAC (auto ranging), 50-60 Hz; 1.7A Power factor correction (PFC)
<b>HEAT DISSIPATION</b>	25 percent of total power output
<b>AMBIENT TEMP</b>	14°F to 104°F (-10°C to 40°C)
<b>HOUSING</b>	NEMA 4 enclosure
<b>DIMENSIONS</b>	8.27" (31 cm) X 5.36" (14 cm) X 3.57" (9 cm)
<b>WEIGHT</b>	4.5 lbs. (2 kg)
<b>CONNECTORS</b>	Data: RJ45 input and output connectors Power: 3-pin screw terminal Accessory Port: 2-pin spring terminal
<b>DATA INPUT</b>	DMX: CK DMX controllers or DMX 512 compatible Ethernet: CK Light System Manager or Video System Manager
<b>DATA OUTPUT</b>	CKDMX
<b>PROTECTION RATING</b>	IP66
<b>FUSED PROTECTION</b>	Two 4Amp, 3AG fuses
<b>CLASSIFICATION</b>	Class 2
<b>LISTINGS</b>	UL/cUL, CE

### WARRANTY

This product is sold pursuant to CK's Standard Terms and Conditions (the "T&Cs") which may be found at <http://colorkinetics.com/how-to-buy/buy/terms> and which contain important provisions, including, among others, Limited Warranty, exclusions and limitations on CK's liability for damages, and restrictions on the remedies that are available to you.