

COLORCAST 14 CONDUIT

INSTALLATION GUIDE



CHROMACORE®
BY COLOR KINETICS

POWERCORE®
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OPTIBIN®
BY COLOR KINETICS

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ColorCast 14 Conduit
ITEM# 123-000008-00 (Fixture, White)
123-000008-01 (Fixture, Black)
ITEM# 123-000003-00 (Base, White)
123-000003-01 (Base, Black)

This product is protected by 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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Specifications subject to change without notice.

GETTING STARTED

Color Kinetics® ColorCast™ 14 Conduit offers indoor/outdoor wall washing, up to 15 feet, and large alcove lighting in a conduit ready, compact linear housing. Its power-on-board technology makes it easy to install.

This guide contains important information on planning, installing, and operating your new ColorCast 14 Conduit. For your protection, read it carefully and save it for future reference.

Included in this box

- 1 ColorCast 14 Conduit fixture
- Installation Guide
- Warranty and Registration cards

Additional items needed

- ColorCast 14 Conduit Base (ITEM# 123-000003-00)
- Color Kinetics Data Enabler (ITEM# 106-000003-04/05)
- 12 AWG, 4 conductor, copper wire
- #10 mounting screws (M5) and tools
- 3/4" NPT conduit and hubs as required
- 5/16" hex wrench or adjustable wrench for seal plugs (shipped with base)

Optional items

- 3/16" OD braided safety cable and hardware as required.

SCOPE OF THIS USER GUIDE

The goal of this user guide is to explain in easily understandable language the necessary steps to install ColorCast 14 Conduit 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 provision 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 that, if not avoided, could result in death or serious injury.

“CAUTION” Potentially hazardous situation that, if not avoided, may result in minor or moderate injury or property damage.

DANGER: Ensure that main power supply is off before installation or wiring, ColorCast 14 Conduit. Failure to adhere to these instructions will result in death or serious injury.

DANGER: ColorCast 14 Conduit must be installed by a qualified electrician in accordance with NEC and relevant local codes. Failure to comply will result in death, serious injury, or property damage.

WARNING: Do not attempt to install or use ColorCast 14 Conduit until you read and understand the installation instructions, and safety labels. Failure to adhere to these instructions could result in serious injury or property damage.

WARNING: Do not use ColorCast 14 Conduit if the lens, housing, or power cables are damaged. Doing so can result in death, serious injury, and property damage.

WARNING: As dictated by a Structural Engineer and/or local code, install safety cables to ColorCast 14 Conduit fixtures. Failure to do so can result in injuries or property damage.

WARNING: When using safety cables, ensure that they comply to the specifications given in this user guide. Failure to comply can result in injuries or property damage.

WARNING: ColorCast 14 Conduit has line voltage risk of shock and no user serviceable parts. Do not attempt to open the fixture. Doing so can result in death, serious injury, and property damage.

CAUTION: Use appropriate materials and mounting methods to support the fixture adequately. Failure to do so can result in property damage and void the warranty

CAUTION: Do not exceed the specified voltage and current input. Doing so will result in property damage and void the warranty.

CAUTION: Do not exceed the maximum number of specified fixtures in a light run. Doing so will result in current overload.

CAUTION: Do not use sharp tools near or on the fixture lens. Doing so will result in property damage and void the warranty.

CAUTION: Do not hot swap. Ensure that power to the fixture is off before connecting or disconnecting fixtures. Hot swapping will result in property damage and void the warranty.

CAUTION: ColorCast 14 Conduit is a Class 2 LED product with LED radiation. Do not stare into beam or view directly with optical instruments.

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 ColorCast 14 Conduit in such a manner as to comply with all state and local laws, ordinances, regulations, and the American National Standard Institute Safety Code.

PLAN THE INSTALLATION

The nature and complexity of ColorCast 14 Conduit installation requires in-depth planning to ensure timely, successful installation with minimal complications and down time.

PLANNING SUGGESTIONS

When planning ColorCast 14 Conduit installation, Color Kinetics suggests doing the following:

- Consult an Electrical Inspector to approve all wiring plans.
- Refer to local and state codes for installation compliance.
- Create a Layout Plan drawing.
- Create a Mapping Grid. Use this grid to record serial numbers for easy reference and addressing.
- Employ Color Kinetics Application Engineering Services.

INSTALLATION CONSIDERATIONS

When creating your installation plan, consider the following:

- Location of Data Enabler in relationship to lights. Each Data Enabler can support up to 38 (120VAC), 58 (220VAC), or 61 (240VAC) ColorCast 14 fixtures, using a 50-foot, field-cutable leader cable. The Data Enabler supports a slightly greater or fewer number of fixtures depending on customized installation parameters.

NOTE: By decreasing the length of the leader cable you can increase the number of ColorCast 14 fixtures per run. For more information contact Color Kinetics or refer to the Configuration Calculator located at www.colorkinetics.com/support.

- Calculate the number of fixtures per Data Enabler. Use the *Configuration Calculator* located at www.colorkinetics.com/support to calculate the number of fixtures you can put on a data enabler. The fixtures to Data Enabler ratio is determined by the parameters of your installation. Installation parameters include all or part of the following: line voltage, fixture type, leader length, jumper lengths, and wire gauge.

- Location of the fixture and method of attaching. Mounting hardware is dictated by the mounting surface. Ensure that the hardware used is appropriate for the mounting surface.

- Spacing between fixtures determines the number of fixtures per run. For the maximum number of ColorCast 14 Conduit fixtures per run, install fixtures butted end-to-end. You can also install the fixtures spaced apart. Increasing the space between fixtures decreases the number of fixtures per run.

- Install and wire the Data Enabler after installing ColorCast 14 Conduit fixtures. Refer to the Data Enabler Installation Guide.

STEPS TO A SUCCESSFUL INSTALLATION

1. Record serial numbers and identify fixtures as you unpack them. Note the installation location on a mapping grid.
2. Install fixtures.
3. Address the fixtures.
4. Install the Data Enablers.
5. Connect power and data from the Data Enabler to the fixtures.

RECORD SERIAL NUMBERS

1. As you unpack the fixtures record the serial numbers. Each ColorCast 14 Conduit fixture has a unique serial number programmed at the time of manufacture.
2. Write the serial numbers onto a Mapping Grid.
3. Using the Layout Plan, assign the fixture to a layout position in the installation.
4. Using a weatherproof label, identify the fixture's installation position. Place an identifying label in an inconspicuous location.

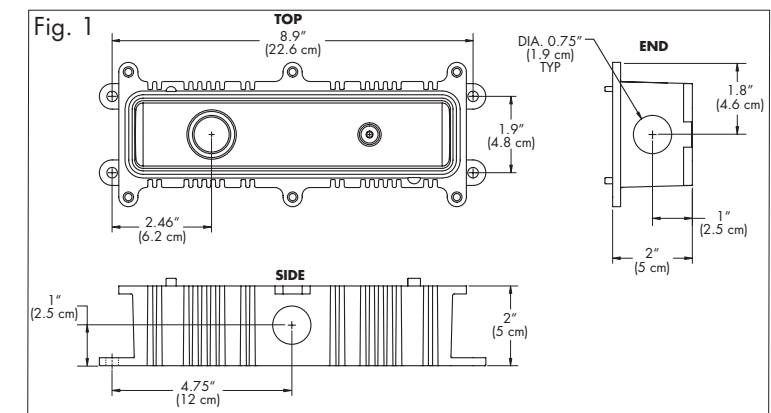
INSTALL THE FIXTURE

ColorCast 14 Conduit fixtures and bases are installed in series, end-to-end or spaced apart, using 12 AWG, 4-conductor, copper cable. To install ColorCast 14 Conduit, begin by installing the ColorCast 14 Conduit Base and conduit. After installing the bases and conduit, pull wiring through the conduit into the bases and then wire the fixtures. Finally mount the fixtures to the bases and attach safety cables as dictated.

NOTE: ColorCast 14 Conduit can also be installed in parallel.

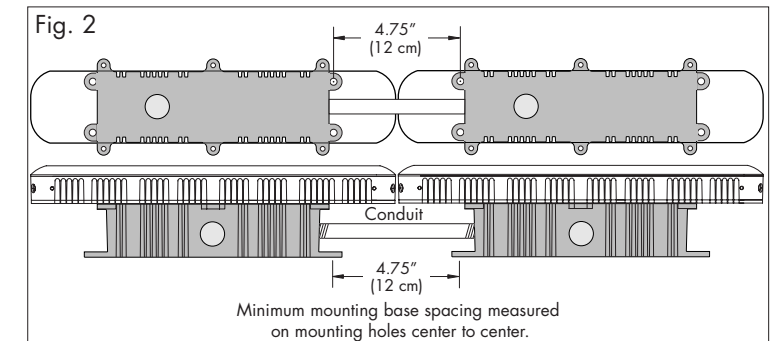
INSTALL COLORCAST 14 CONDUIT BASE

The ColorCast 14 Conduit Base is designed with four 3/4" NPT conduit holes which accommodate threaded pipe, conduit hubs, and flexible conduit. The conduit holes are located on the side, ends, and bottom of the base for installation versatility. The type of conduit you use is dictated by your electrical design plan along with relevant state and local codes.



Attach Conduit: Prior to mounting the bases, attach the necessary conduit and use the seal plugs and gaskets provided, to seal all conduit holes not needed for the installation. Tighten plugs until gaskets are slightly compressed. Do not over tighten. When calculating the conduit length between fixtures, ensure that the spacing between fixtures is at least 4-3/4 (12 cm) inches, measured from the center of one base's mounting hole to the center of the next base's mounting hole. See Fig. 2.

NOTE: ColorCast 14 Conduit must be installed with each fixture oriented in the same direction for expected effects. The fixtures align and mount to the conduit base in one direction only. Ensure that all bases are aligned in the same direction when attaching conduit and installing. An easy to ensure proper alignment is to locate the side and/or bottom conduit holes on each base in the same direction.



NOTE: For outdoor installations, use RTV Silicone on the conduit coupler and plugs ensure that the conduit connections to the base are water-tight.

Mount Base: After attaching the conduit to the base, mount the base by using the four mounting holes located at each end of the base. Use

CAUTION: Do not over tighten the mounting hardware. Doing so can damage the base resulting in possible installation failure.

hardware suitable for the mounting surface. See Fig. 1

NOTE: The ColorCast 14 Conduit base can be used as a template when pre-drilled pilot holes are required. Hold the fixture in place and mark the four screw holes. Ensure that the minimum spacing between base mounting holes is 4-3/4 inches (12 cm).

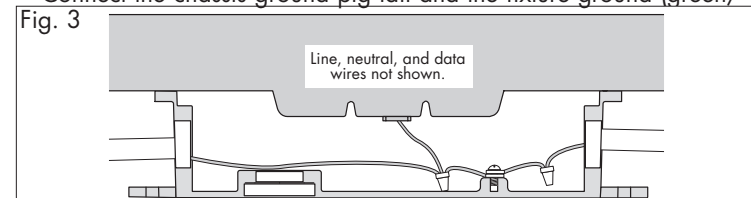
Wire Fixture: Pull 12 AWG, 4-conductor, stranded copper cable

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

through the conduit and into the base.

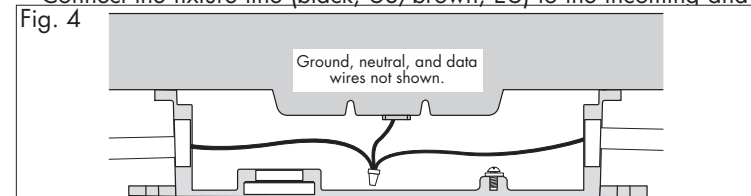
Use wire nuts of suitable size to connect 3-12 AWG wires.

- Connect the chassis ground pig tail and the fixture ground (green/yellow) to the incoming and outgoing ground wires. See Fig. 3.



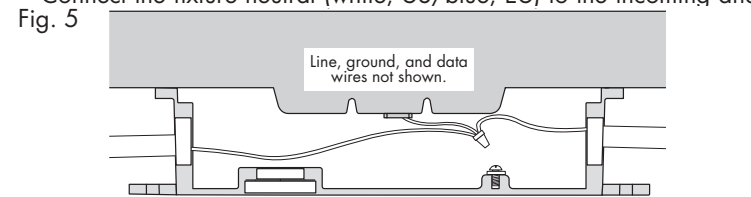
yellow) to the incoming and outgoing ground wires. See Fig. 3.

- Connect the fixture line (black, US/brown, EU) to the incoming and outgoing line wires. See Fig. 4.



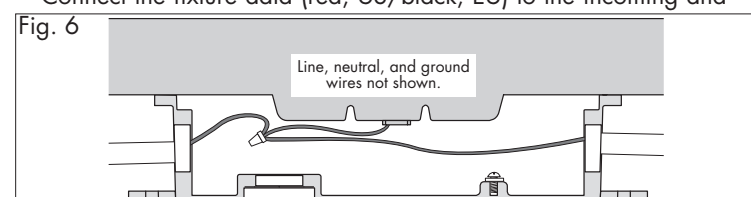
outgoing line wires. See Fig. 4.

- Connect the fixture neutral (white, US/blue, EU) to the incoming and outgoing neutral wires. See Fig. 5.



outgoing neutral wires. See Fig. 5.

- Connect the fixture data (red, US/black, EU) to the incoming and outgoing data wires. See Fig. 6.



outgoing data wires. See Fig. 6.

Attach Fixture to Base: After all wiring connections are complete, you are ready to attach the fixture to the base.

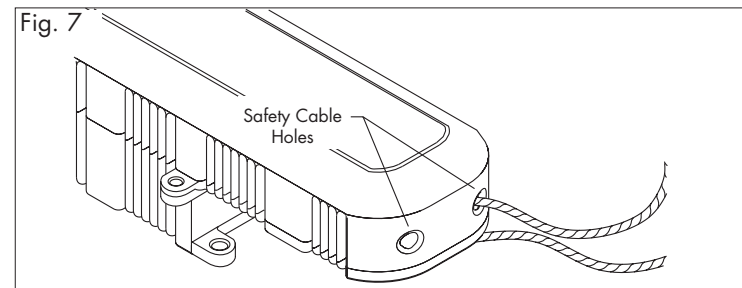
- Ensure that all wires are tucked completely into the base and that the gasket is seated properly.
- Align pins on base to fixture bottom plate. Attach the fixture to base using the six provided screws and lock washers. Tighten screws to

15 to 20 lb_f-in (1.5 to 2.3 N-mm) to create a seal. Do not over tighten.

ATTACH SAFETY CABLE

Each fixture is designed for use with a safety cable. When dictated by local or state code, or by a Structural Engineer, attach a safety cable from the fixture to the mounting surface.

1. Locate the four cable holes are designed into each fixture—two at each end of the fixture. See Fig. 7.
2. Thread a cable through one of the cable holes.
3. Attach the safety cable to the mounting surface.



For the proper mounting method of the safety cable to the installation surface, refer to a Structural Engineer or applicable standards for your specific application.

The safety cables used in the installation should meet the following minimal requirements:

- MATERIAL:** 316 Stainless Steel
- SIZE:** 5/64-inch (0.78-inch nominal diameter) or larger, minimum break load must be greater than 400 pounds. Maximum diameter is 3/16-inch.
- CONSTRUCTION:** 7 x 7 (49 wires) performed stranded
- END TERMINATIONS:** Determined by installer and/or owner
- MOUNTING METHOD:** Determined by installer or owner

DANGER: Ensure that the power source is off before wiring the Data Enabler or connecting fixtures. Failure to do so can result in serious injuries or death.

INSTALL THE DATA ENABLER

Determine number of Data Enablers needed for your installation and the location of each. Use the *ColorCast 14 Installation Tool* located at www.colorkinetics.com/support/install_tool to calculate the number of Data Enablers required for your installation. The ColorCast 14 Installation Tool considers the line voltage, leader length, and fixture spacing when calculating the maximum number of fixtures per Data Enabler.

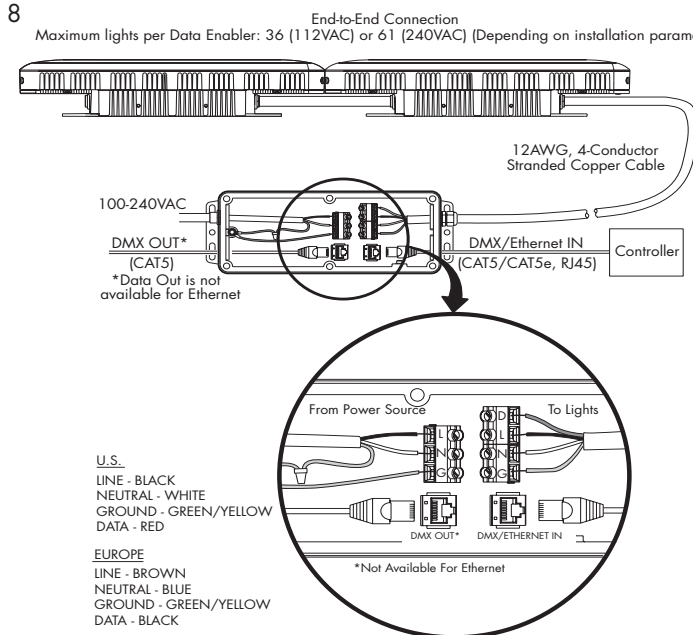
Things to remember:

- Install the Data Enabler according to state and local codes.
- Consult an Electrical Inspector to approve all wiring plans.

Refer to the Data Enabler Installation Guide for complete instructions. After running power and data to the Data Enabler, you are ready to attach the ColorCast 14 Conduit fixtures.

ATTACH FIXTURE RUN TO DATA ENABLER

Fig. 8



After all fixture wiring connections are complete, attach the leader cable from the first light in the run to the Data Enabler. See Fig. 8. Refer to the Data Enabler Installation Guide for complete instructions.

ADDRESS THE FIXTURES

The ColorCast 14 Conduit fixtures are pre-addressed to light number 1 at the time of manufacture. Address each fixture with a new light number, as needed, using one of the follow methods.

ZAPI: Use Color Kinetics Zapi to reset the DMX address for each serial number. Refer to the Zapi User Guide for step-by-step addressing instructions.

SAS: When using a PC with iPlayer 2 or a PC with Smart Jack 3 to address the serial numbers, download the Serial Addressing Software and instructions from <http://support.colorkinetics.com>.

LIGHT SYSTEM COMPOSER: When using ColorCast 14 Conduit fixtures in an Ethernet application, the lights can be addressed after installation using the Light System Composer Management Tool.

TO SET DMX ADDRESS:

PRE-INSTALLATION USING ZAPI OR SAS

1. With power disconnected, connect a single ColorCast 14 Conduit fixture or a series of fixtures to a Data Enabler.
2. Attach the DMX interface (Zapi, iPlayer 2, or Smart Jack 3) to the DMX IN port on the Data Enabler.
3. Connect power to the Data Enabler.
4. Use Zapi or Serial Addressing Software (SAS) to set the light address for each serial number.
5. If addressing individual fixtures, disconnect power and then disconnect the addressed fixture(s). Repeat steps 1 through 5.

NOTE: Serial addressing gives you the option of post-installation addressing multiple fixtures through a single Data Enabler or multiple Data Enablers using the recorded serial numbers. Refer to the Zapi User Guide or SAS Instruction Guide for details.

POST-INSTALLATION USING ZAPI, SAS, OR LIGHT SYSTEM COMPOSER

1. After installing ColorCast 14 Conduit and Data Enabler, connect power to system.
2. Attach the DMX interface (Zapi, iPlayer 2, or Smart Jack 3) to the DMX/Ethernet IN port on the Data Enabler; or attach the Light System Manager Ethernet system to the DMX/Ethernet IN port on the Data Enabler.
3. Using Zapi or Serial Addressing Software (SAS) set the light address for each fixture by entering the serial number.

4. Using Light System Composer software, discover and address all lights attached to the Ethernet system.

ColorCast 14 Conduit Specifications

COLOR RANGE	16.7 million (24bit) additive RGB colors; continuously variable intensity
SOURCE	High intensity, surface mount, power LEDs
BEAM ANGLE	90° (at 50% of peak illuminance)
HOUSING	Die cast aluminum
	Fixture: 13.5" x 3.6" x 1.4" (34.3 cm) x (9.1 cm) x (3.6 cm)
	Base: 8.9" x 1.9" x 2" (22.6 cm) x (4.8 cm) x (5 cm)
	Wire nuts
CONNECTORS	Wire nuts
LISTINGS	C-UL US listed, CE certified
COMMUNICATION SPECIFICATIONS	
DATA INTERFACE	Color Kinetics Data Enabler
CONTROL	Color Kinetics full line of controllers or other DMX512 (RS485) sources
ELECTRICAL SPECIFICATIONS	
POWER REQUIREMENT	100-240VAC, 50-60 Hz
POWER CONSUMPTION	30W at full output
POWER FACTOR	0.95 or greater at 120VAC
ENVIRONMENTAL SPECIFICATIONS	
TEMPERATURE RANGE	-40°F to 122°F (-40°C to 50°C) operating temperature
	-4°F to 122°F (-20°C to 50°C) starting temperature
PROTECTION RATING	IP66

LED SOURCE LIFE

In traditional lamp sources, lifetime is defined as the point at which 50% of the lamps fail. This is also termed Mean Time Between Failure [MTBF]. LEDs are semiconductor devices and have a much longer MTBF than conventional sources. However, MTBF is not the only consideration in determining useful life. Color Kinetics uses the concept of useful light output for rating source lifetimes. Like traditional sources, LED output degrades over time (lumen depreciation) and this is the metric for SSL lifetime.

LED lumen depreciation is affected by numerous environmental conditions such as ambient temperature, humidity, and ventilation. Lumen depreciation is also affected by means of control, thermal management, current levels, and a host of other electrical design considerations. Color Kinetics systems are expertly engineered to optimize LED life when used under normal operating conditions. Lumen depreciation information is based on LED manufacturers' source life data as well as other third party testing. Low temperatures and controlled effects have a beneficial effect on lumen depreciation. Overall system lifetime could vary substantially based on usage and the environment in which the system is installed.

Temperature and effects will affect lifetime. Color Kinetics rates product lifetime using lumen depreciation to 50% of original light output. When the fixture is running at room temperature using a color wash effect, the range of lifetime is in the range of 80,000-100,000 hours. This is LED manufacturers' test data. High output is defined as any LED device that is 1/2 watt or above. For more detailed information on source life, please see www.colorkinetics.com/lifetime.

WARRANTY

This product is sold pursuant to CK's Standard Terms and Conditions (the "T&Cs") which may be found at <http://colorkinetics.com/howtobuy/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.