

ILC-460-xx Family Quick Reference Installation Guide (with e-Node/dmx or ext. DMX encoder for control)

The Converging Systems ILC-460-xx™ constant current DMX single zone/light processing engine is an advanced front-end DMX decoder designed to support a range of Clarte Lighting's LED light fixtures that comply with rigorous standards for consistency, colorimetric output, thermodynamic stability as well as other technical features necessary to insure accurate color and color temperature (CCT) output from supported front end-control systems. The ILC-460-xx's DIN-rail packaging and its 32-bit embedded microprocessor enables 1 or more daisy-chained compatible lighting fixtures* to be supported from a single ILC-460xx device (typically up to four fixtures can be supported from a single ILC-460-xx device). The ILC-460-xx can be installed within an approved low-voltage wiring box along with a recommended power supply. Low-voltage (Class 2) wiring is utilized to connect the ILC-460-xx to the first fixture and subsequently to each additional permitted downstream fixture*. The only Class 1 (AC connection) within this system is to the above power supply. Connectivity with 3rd party lighting/automation systems (Lutron, Crestron, Elan, Contro4, RTI, URC, etc.) is possible through a single e-Node/dmx (IP) gateway (recommended) or through any third-party DMX encoder. Standalone operation is also available through various low-voltage Converging Systems Decora® -style keypad devices when used with the e-Node/dmx gateway.

***Note:** For maximum number of downstream supported fixtures per ILC-460 (as well as full documentaton for all products), consult documentation at http://www.convergingsystems.com/lighting_install_library.php.

HARDWARE SETUP of ILC-460-xx Controller

Step 1

Wiring Requirements between ILC-460-xxx and downstream Compatible Fixtures

Wire Type Required. Use 20awg* 8-conductor Thermostat solid wire (max run 233 feet from ILC-460 to last fixture).

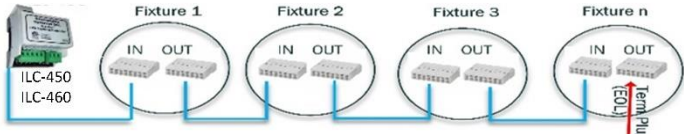
Maximum Wire Run. Max run length from ILC-460 to last fixture-233 feet (71 m).

Wiring Topology. Daisy-chain connection between front-end DMX decoder (LC-460-xx) and downstream fixtures. Same type connection is required from first fixture to next downstream fixture (see Figure below).

Note on Wiring. Obey wiring scheme shown in [Step 2](#) (mandatory). **Any splits, opens, shorts or miswirings may cause significant damage and is not covered under warranty.** Cut off .25" (4mm) of insulation (min./max) for optimal results for inserting wires into Phoenix plugs. If you need to remove a wire once inserted, insert a very small jeweler's screwdriver (max 2.0 mm/wide x .4mm/thick) into the adjacent rectangular hole above or below the wire to release the tab.

Max Number of supported fixtures per ILC-460-xx. See Table in [Step 3](#). Do not exceed specified number of fixtures.

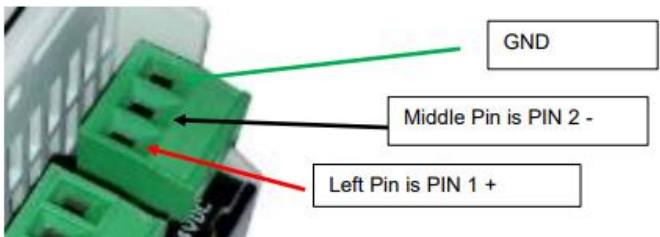
End-of-Line (Termination) REQUIRED. Insert supplied Terminator that comes with each Absolute Light into the **OUT** bus on the last fixture (mandatory). Pin out for Terminator is in [Step 2](#) (1 to 2, 3 to 4, 5 to 6 and 7 to 8 using same 18awg or 20awg wires).



*Note: 18awg can be used but is incompatible with the proper operation of Phoenix 8-pin plugs.

Step 3

DC Connection (Class 2 power) to ILC-460



DC Constant Voltage Power Supply Connection. Connect specified power supply (24v or 48v as defined below) to the input power connector on each ILC-460-xx. Obey the polarity printed on the ILC-460-xx case. Each controller has a 3-pin power connection (+, - and GND), you should connect a separate GND lead from a solid earth ground to the ILC-460-xx's Ground connection.

Required DC Class 2 Power Supply. See Table below for required Class 2 power supply units (PSU) required for each ILC-460. Failure to install the wrong power supply will either (i) cause damage to the fixture, or (j) not properly drive the fixture.

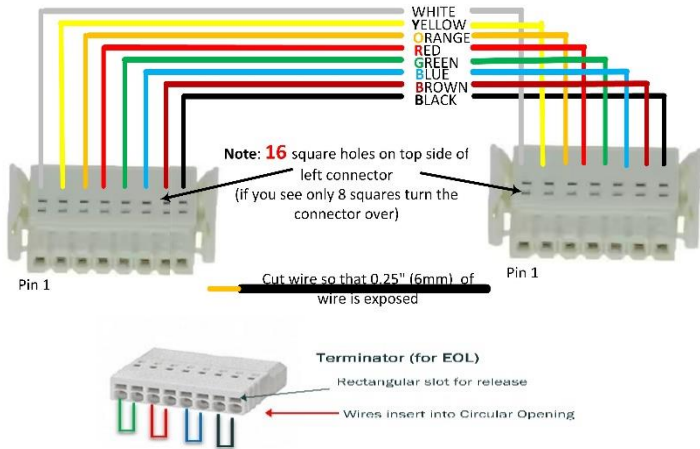
WIRING TOPOLOGY (Fixture Quantity is Dependent upon type of Fixtures and Power Supply (PSU) Units utilized.

Absolute Light Fixture Type	24vdc	48vdc
Par 16	1 ~ 2 fixtures max	3 ~ 4 fixtures max
Par 8	1 ~ 6 fixtures max	7 ~10 fixtures max
Par 20	1 fixture only	2 fixtures max

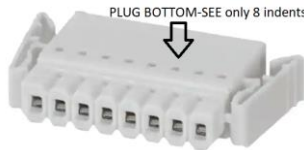
WARNING: Leave power off to each ILC-460xxx until Step 4.

Step 2

Pinouts/Wiring for Fixture (Load) Interconnect Cable and Terminator
RECOMMENDED COLOR CODING FOR THERMOSTAT WIRE CONNECTING FIXTURES TO ILC-450/ILC-460



WARNING: Maintain 1/1 pinouts between ends (see image above). Make sure that you differentiate between the Plug Top (as shown above with 16 square indents-good) and the Plug Bottom (only 8 square indents as shown below-bad) when wiring



If you position connectors in the Phoenix plug without regard to the proper location of PIN 1, you may inadvertently mis-wire the connector and cause damage to your fixture.

Step 4

DMX Connection

DMX Data Ports. On each ILC-460-xx are pair of RJ-45 connectors. Use **DMX OUT** for downstream connections (and DMX In for a duplicate branched output connection-but not to another DMX master).

DMX Port Pin-Outs. The configuration of the pins for the ILC-460xx as well as standard DMX encoders are summarized below:

ILC-460-xx	XLR connector	Std RJ-45 DMX encoders	Philips RJ-45 (non std)
Pin 1 (485+)	Pin 3	RJ-45 Pin 1	RJ-45 Pin 2
Pin 2 (485-)	Pin 2	RJ-45 Pin 2	RJ-45 Pin 1
Pin 7 (Gnd)	Pin 1	RJ-45 Pin 7	RJ-45 Pin 7
(all other pins)	N/C	N/C	N/C

DMX Termination. You should always add a DMX terminator at the end of the DMX bus. These are commonly available and they include a 120-ohm resistor between the 485+ (high) and 485- (low) pins. A non-terminated DMX bus can exhibit jittering control, or non-predictable, flickering or delayed response to control.

Note: The ILC-460 does not have a built-in DMX terminator built-in.

DMX Maximum Cable Runs. ESTA DMX512 standard states 300m (1000ft) is acceptable for DMX over CAT5 cable. Some vendors (ETC) support DMX over CAT5 with a maximum wire length of 500m (1640ft).

Maximum Number of DMX Fixtures. A maximum of 32 devices (decoders) can be on a daisy chain without repeating/boosting hardware.

Suggested Wiring Practices. Don't run data cables next to or in the same conduit as high-power sources. Run in grounded metal conduit where there might be a concern for radiating high power devices.

Step 5

Power Up Unit(s)

You have now completed the hardware installation process. You are now free to power up the system and proceed to the next Section.

SOFTWARE SETUP-DMX Commissioning Requires RDM Commissioning Tool (Swisson XMT-120A, City Theatrical DMXcat) or similar*

Step 6

Note on Embedded Color Computer

Background. The ILC-460 has a range of available options to support connected fixtures. These options range from typical **RGBW** color space support to the more sophisticated **Hue/Saturation/Brightness** color space with calibrated Color Temperature (**CCT**) control as well.

Standard Configuration. In order to remain plug-and-play compatible with standard integration platforms, the ILC-460 provides legacy 8-bit RGB(W) support. However, where front-end platforms can accommodate Converging Systems' advanced technologies (16-bit, color temperature support, and HSV support), the ILC-460 can be field customized with a variety of options using RDM . See [Step 7](#) for more information or contact the factory for more information.

Color Models Available. The HSV color model along with Calibrated Color Temperature is recommended (if your front-end platform can accommodate this technology).

Dimming Gamma Curves Available. Simple linear to more advanced gamma corrected dimming curves are available.

Available Modes

Color Space (choices)	Precision (options for all modes)	Dimming Curves (for all modes)
HSV (Hue Saturation Brightness)	8-bit per operator	Flat linear
RGBW	16-bit per operator	Logarithmic
CCT (Correlated Color Temp)		Custom Gamma

Step 7

RDM Background

RDM DMX. The ILC-460/dmx fully supports RDM DMX to

- Select or change the starting DMX address, and
- Select alternative configurations or DMX Personalities with varying dimming curve, and color space models, and
- Monitor lamp life (in hours), and
- Determine internal firmware version

Caution: In order to use RDM you need to have a controller or RDM tool that can support this standard and you must use RDM compatible DMX buffers/splitters in those parts of the DMX system in order to allow two-way communication back to the controller. Generally, a RDM terminator on the DMX bus is mandatory.

Factory Default (for non-Crestron Home* systems). The factory setting for the ILC-460/dmx is as shown below.

DMX Channel Starting Address=**1** / DMX Personality=**16** / Dimming Curve-Linear

First Channel	2 nd Channel	3 rd channel	4 th channel
Red (8-bit)	Green (8-bit)	Blue (8-bit)	White(8-bit)

Factory Default for ILC-460-CH (Crestron version). For Crestron Home installations, the ILC-460-C product is factory programmed with the Crestron DMX personality set as default (i.e., Hue/Saturation/CCT/Brightness color space). The Crestron Home processor will automatically set the starting DMX address as required for its system (with no user intervention required).

Step 8

RDM Commissioning

Set DMX Channel. Use a RDM DMX commissioning tool and change the starting DMX address if required.

Change DMX Personality. Use a RDM DMX commissioning tool and change the default DMX personality (that is supported by your system).

Non-Volatile Memory. Once these changes are made, the changes become standard and there is not any requirement to change them again.

Important Safety Information

The ILC-x00 LED Controller and specified associated components are listed under UL File-2108 and has been tested by the following safety agency:
TO REDUCE THE RISK OF ELECTRIC SHOCK, THIS EQUIPMENT HAS A GROUNDING TYPE PLUG THAT HAS A THIRD (GROUNDING) PIN. THIS PLUG WILL ONLY FIT INTO A GROUNDING TYPE OUTLET. IF THE PLUG DOES NOT FIT INTO THE OUTLET, CONTACT A QUALIFIED ELECTRICIAN TO INSTALL THE PROPER OUTLET. DO NOT CHANGE THE PLUG IN ANY WAY.

POUR REDUIRE LES RISQUES DE CHOC ELECTRIQUE, CET APPAREIL EST QUIPE D'UNE FICHE AVEC MISE A LA TERRE COMPORTANT UNE TROISIEME BROCHE (BROCHE DE TERRE). CETTE FICHE NE PEUT ETRE BRANCE QUE DANS UNE PRISE AVEC MISE A LA TERRE. S'IL N'EST PAS POSSIBLE DE LA BRANCHER DANS LA PRISE, FAIRE POSE UNE PRISE APPROPRIEE PAR UN ELECTRICIEN QUALIFIE. NE PAS MODIFIER LA FICHE *UTILISER A L'INTERIEUR SEULEMENT



Additional Terms and Conditions and exclusions and Warranty Information are available on the Converging Systems website