

# **LightLink™** LL-301

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## Installation Guide

**i2Systems**  
ADVANCED LED LIGHTING

Thank you for purchasing  
the **LightLink™** LL-301!

## LightLink LL-301 Installation Guide

### Support

If you have questions after reading this information or would like our advice on your project, call us before working with any product from i2Systems.

i2Systems Technical Support is available from 9 a.m. to 5 p.m. EST by phone at 1.860.567.0708 or email at [support@i2systems.com](mailto:support@i2systems.com).

A free copy of this installation guide is available online at [www.i2systems.com](http://www.i2systems.com) along with these resources:

- LL-301 Spec Sheet
- Installation Guides for i2Systems Fixtures listed as LightLink Compatible

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Product information is subject to change without notice.

### Electrical Warnings

**Caution! High Voltage. Disconnect Power before Installing or Servicing.**

**Failure to follow these warnings could cause injury or death, damage the LL-301, and/or void the warranty.**

- Read and understand the LL-301 installation instructions and safety labels before you begin your installation.
- Turn off the power before installing or servicing the LL-301.
- Follow all national and local electrical and construction codes and regulations.
- **DO NOT disassemble the LL-301.** There are no user serviceable parts and tampering with it could cause electrical shock.
- Comply with the maximum voltage rating of the LL-301. i2Systems is not liable for damage due to miswiring of low voltage signal wires to line voltage or any voltage higher than their maximum rating.
- Use the LL-301 only with i2Systems LED Lighting Products marked as LL-301 Compatible.
- Use wire rated for +105°C or higher.

### Introduction

Use these instructions to plan, install, and wire your new LL-301. Proper installation will ensure that this equipment will provide superior service as a digital controller with minimal maintenance for many years.

**WARNING: Only a qualified electrician should install i2Systems products.**

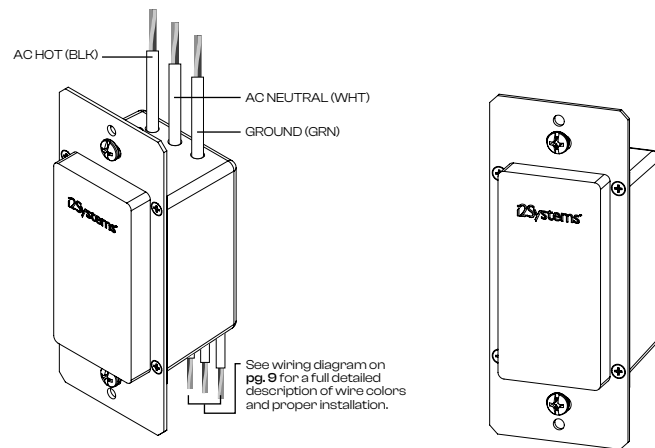
While it may be tempting to skip sections, we assure you that reading this material will help to avoid problems and speed up the installation process.

### Certifications



### Contents

Please take note of the following component(s) included in the box.



(1) LightLink LL-301

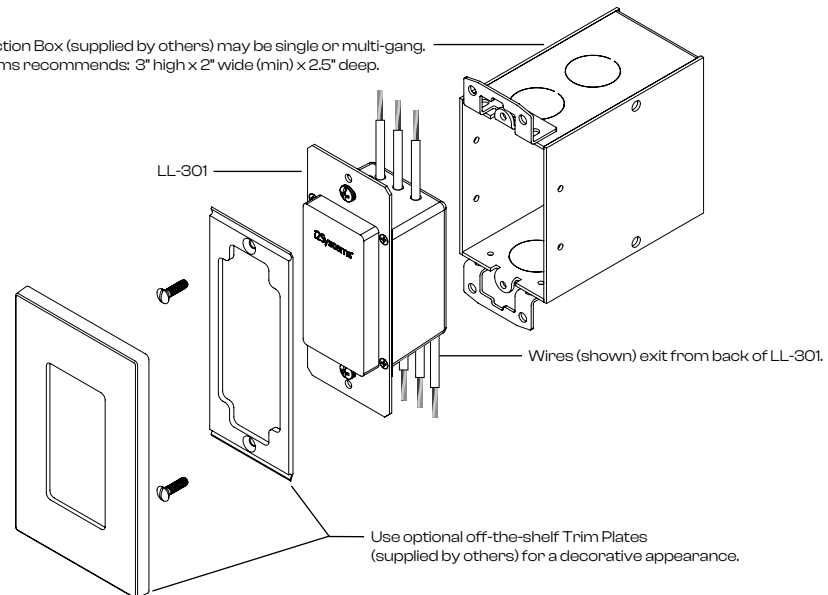


## Specifications

| PARAMETER                  |                                   |
|----------------------------|-----------------------------------|
| <b>Input</b>               |                                   |
| Voltage                    | 120, 277 VAC                      |
| Frequency                  | 50/60Hz                           |
| <b>0-10V Control Input</b> |                                   |
| Typical Voltage            | 0-10V DC                          |
| Max Voltage                | 15V DC                            |
| Typ. Current               | 0.5mA                             |
| <b>Dimming Output</b>      |                                   |
| Max Voltage                | 5V DC                             |
| Max Current                | 100mA                             |
| Max Number of Loads        | 100                               |
| Max Cable Length           | from LL-301 to Last Light 1000 ft |
| <b>Environmental</b>       |                                   |
| Operating Temp             | -20 to 40°C                       |
| Humidity                   | 95% Non-Condensing                |

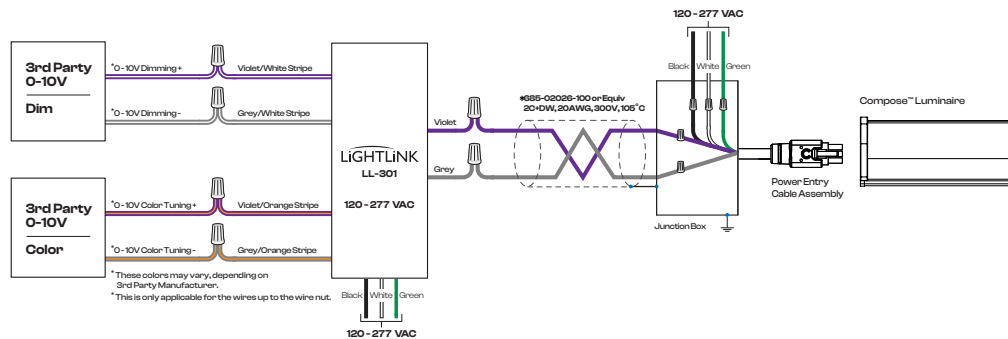
## Installation into a Junction Box

UL Junction Box (supplied by others) may be single or multi-gang.  
i2Systems recommends: 3" high x 2" wide (min) x 2.5" deep.



## O-10V Sink / Source: Operation

### Use LL-301-10V Model



• **USE ONE (1) LL-301 per LIGHT RUN.**

• **USE i2Systems Shielded Dimming Cables or Equivalent.**

## O-10V Sink / Source: Operation

- The LL-301-10V reads 0-10V levels and translates them to i2Systems dimming protocol.
  - Less than 1V = 0%.
  - Greater than 9V = 100%.
- Voltages between 1V and 9V will set intensity levels. The LL-301 is compatible with industry standard 0-10V sink or source dimmers.

### Installation Tips:

The LL-301-10V input is electrically isolated and consumes 0.5mA per channel per LL-301. Use of more than one LL-301-10V on a single 0-10V dimmer is permitted. Refer to your 0-10V dimmer maximum load. Typically this is up to 60 "ballasts" or in our case would be 60 LL-301-10V dimmers.

Some 0-10V dimmers and dimming panels include an ON/OFF control used for triggering a remote relay (supplied by a 3rd party). This remote relay may be used for ON/OFF operation of i2Systems light fixtures.



### Frequently Asked Questions

**Q: When using the LightLink LL-301 Dimming Module, do I need a third party dimmer?**

A: Yes. The LL-301 can not be used as a standalone dimmer.

**Q: How many LL-301-10Vs can I install to a single 0-10V interface?**

A: The LL-301's 0-10V Interface is electrically isolated and appears to a 0-10V dimmer as would a 0-10V fluorescent ballast. Consult your 0-10V dimmer for maximum number of ballasts. Typically, this is up to 60 ballasts, which equates to 60 i2Systems LL-301-10V dimmers.

### Frequently Asked Questions

**Q: What 0-10V Dimmers are compatible with the LL-301-10V?**

A: The LL-301-10V operates in both 0-10V Sink and Source Modes of operation, making it compatible with all IEC 60929 (Annex E) compliant 0-10V Dimmers.

**Q: How many Dimming Zones will an LL-301 Control?**

A: The LL-301 controls 1 Light Run. Use additional LL-301s for additional Zones.

**Q: Should I use the LL-301 to turn Fixtures on/off?**

A: No.

**Q: Can I mix and match i2Systems Fixtures on the same LightLink LL-301?**

A: Generally, the practice is not recommended; rather add a second LightLink dimmer and control both LightLinks with the same 0-10V Input.

**Q: Where can I install the LL-301?**

A: The LL-301 must be installed into a junction box. For installations where the LL-301 is to be used as a standalone Dimmer, use an off-the-shelf decorative wall plate (not included).



## Warranty

**1.1 Limited Warranty.** Products are warranted to be free from defects in material and workmanship and to conform substantially to i2Systems' then-current (as of the date of Product shipment) user documentation and specifications for a period of one (1) year from the date of invoice (the "Warranty Period"), provided the Products are used under those operating conditions (including electrical values and environmental conditions) described in i2Systems' then-current user documentation and specifications for such Products. i2Systems shall not be liable under the foregoing warranty if Buyer fails to provide i2Systems with notice of the alleged defect during the Warranty Period.

**1.2 Remedies.** In the event a Product does not comply with the foregoing express warranty, Buyer may notify i2Systems within the Warranty Period and if so notified i2Systems will, at i2Systems' option: (a) provide a replacement for such Product or defective component or part thereof that has caused the warranty claim (such Product or defective component or part thereof that has caused the warranty claim, the "Warranty Item"); or (b) refund to Buyer the lesser of (1) the amount Buyer paid for the Warranty Item, or (2) Buyer's cost to replace the Warranty Item, in each case as determined by i2Systems in its sole and absolute discretion following receipt and inspection by i2Systems of the Warranty Item. For the avoidance of doubt, "provided a replacement for such Product or defective component or part thereof" expressly does not include any removal or reinstallation costs or expenses, including without limitation labor costs or expenses. All exchanged Warranty Items shall become the property of i2Systems. i2Systems may use either new or remanufactured, reconditioned or refurbished components or parts (if in like-new condition), or functionally equivalent components or parts, in the furnishing of replacement(s) for any Warranty Item. i2Systems' warranty flows only to Buyer of the products. If i2Systems chooses to replace the Product and is not able to do so because it has been discontinued or is not available, i2Systems may replace it with a comparable product.

**1.3 Limitations.** The foregoing warranty is limited, and does not extend to, and i2Systems shall incur no liability for: (a) lumen maintenance of the Products; (b) color shift of light output of the Products; (c) degradation or discoloration of the Product housing(s); (d) mechanical or cosmetic deterioration of the Products associated with normal wear and tear. For clarity and without limiting the generality of the foregoing, the foregoing warranty does not apply if a Product's light module continuously generates light at any intensity, regardless of whether such intensity has decreased since the date of first use of such Product [(viz., warranty coverage only applies in the event that such light module generates no light or generates light intermittently)]. This limited warranty only applies when the product has been properly wired and installed and operated within the electrical values, operating range and environmental conditions provided in the Specifications. This warranty does not apply to damage or failure to perform arising as a result of any Acts of God or from any abuse, misuse, abnormal use or use in violation of any applicable standard, code, or instructions for use including those contained in the latest National Electrical Code, the Standards for Safety of Underwriters Laboratory, Inc., the Standards for the American National Standards Institute or, in Canada, the Canadian Standards Association. This Warranty shall become void in the event any repairs or alternations not duly authorized by i2Systems in writing are made to the Product by any person.

## Warranty

Buyer shall convey with each Product distributed to end users this LIMITED WARRANTY, and if i2Systems determines that the appropriate remedy for a defective product is refund of Buyer's purchase price, Buyer shall refund to the end user (or arrange for the refund to the end user of) the full purchase price paid by the end user for such defective Product.

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