



# echoflex ELED2 Controller Installation Guide

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## echoflex ELED2 Controller



## Product Information

- Product Name: ELED2 Controller
- Overview: The ELED2 Controller provides wireless lighting control of light intensity and correlated color temperature (CCT). It includes two 0-10 V outputs and is available in models for general lighting and horticultural applications. The controller supports external set point input from a gateway or outdoor CCT sensor.
- Models:
  - Tunable White Dimming Controller: Controls light intensity and color temperature levels for general lighting applications. Available in regular and high-voltage.
  - Bicolor Luminaire Controller: Modulates light intensity and blends cool and warm LEDs to provide the desired CCT output for horticultural applications.

## Product Usage Instructions

### Prepare for Installation:

To ensure optimal function, consider the installation environment and follow these guidelines:

- Supplies required to install the controller are not provided.

### Installation:

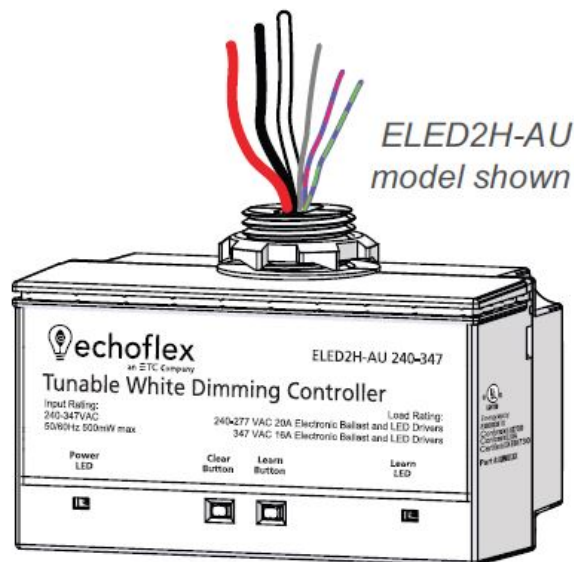
Follow these steps to install the controller:

1. Locate the circuit breaker panel and terminate power to the circuit.
2. Remove the cover plate and other hardware from the junction box to access the wiring.
3. Mount the controller.
4. Refer to the Wiring Diagrams on the next page to connect the controller to line power, neutral, and load wires.  
Use wire nuts on all connections and individually cap any bare wires, except the orange antenna wire.
5. Replace the electrical box cover plate and restore power to the circuit.

**Note:** The USB port is for factory use only. Do not attach cables or accessories to this port.

## Overview

- The ELED2 Controller provides wireless lighting control of light intensity and correlated color temperature (CCT). The controller includes two 0-10 V outputs and is available in models intended for general lighting and for horticultural applications.
- The Tunable White Dimming Controller models control light intensity and color temperature levels for general lighting applications, whether for a single compatible fixture or an entire zone. It also supports external set point input from a gateway or outdoor CCT sensor.
- Available in regular and high-voltage.
- The Bicolor Luminaire Controller model modulates light intensity and blends cool and warm LEDs to provide the desired CCT output for horticultural applications.
- This document covers installation of all the ELED2 models. Echoflex Configuration Guides for both applications are available for download at [echoflexsolutions.com](http://echoflexsolutions.com). The product package includes the controller and the installation guide.



## Prepare for Installation

To ensure optimal function, consider the installation environment and the following guidelines:

- Avoid spaces with high density construction materials and large metal appliances or fixtures as they may disrupt wireless reception.
- For optimal performance, switches and sensors should be installed within a 24 m (80 ft) unobstructed view of the controller. Consider adding a repeater to extend the wireless signal, if required.
- Mount the controller to an electrical junction box (preferably non-metallic) or a panel in a location and at a height where it is not subject to tampering by unauthorized personnel.

Supplies required to install the controller (not provided):

- Appropriately sized wire nuts
- Wire insulation and small cable ties

## IMPORTANT SAFEGUARDS

## READ AND FOLLOW ALL SAFETY INSTRUCTIONS

- **WARNING: RISK OF ELECTRIC SHOCK!**
- This device utilizes high voltage and should only be installed by a qualified installer or electrician. Follow all local codes for installation. Before terminating the AC power wiring verify that the main breaker is in the off position and follow the proper lockout/tag out procedures required by NFPA Standard 70E.
- **WARNING:** For indoor use only! Must install to an electrical junction box or wireway.
- This product is suitable for use in dry locations where the ambient temperature is -5°C to 50°C (23°F to 122°F).
- Do not use outdoors.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it is not subject to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than its intended use.
- Servicing should be performed by qualified service personnel.
- Pollution Degree: 2.

### **SAVE THESE INSTRUCTIONS**

## **Installation**

Ensure that the junction box is clean and free of obstructions and that all wiring is installed correctly. Review these instructions completely before installing the controller.

**Note:** Follow applicable NEC and local electrical code requirements when installing and powering the controller.

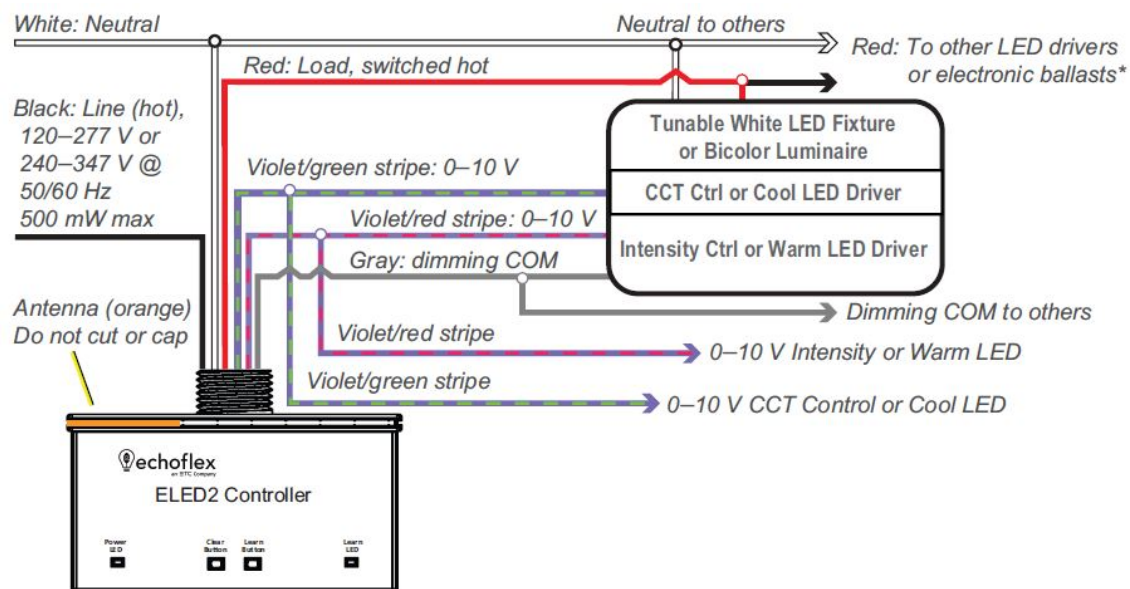
### **Install the Controller**

The controller can be mounted directly to the exterior of the junction box or panel either at the electrical load or before the load in the circuit.

1. Locate the circuit breaker panel and terminate power to the circuit.
2. Remove the cover plate and other hardware from the junction box to access the wiring.
3. Mount the controller.
4. Refer to the Wiring Diagrams on the next page to connect the controller to line power, neutral, and load wires.  
Use wire nuts on all connections and individually cap any bare wires, except the orange antenna wire.
5. Replace the electrical box cover plate and restore power to the circuit.

**Note:** The USB port is for factory use only. Do not attach cables or accessories to this port.

## **Wiring Diagrams**



\*Maximum Switching Load: ELED2: 16 A @ 120–277 V, electronic ballast or LED driver

ELED2H: 16 A @ 240–347 V, electronic ballast or LED driver

Maximum Dimming Load: 100 mA sinking

Maximum Impulse Voltage: 4000 V

Internal Relay: Type 1.C

Dimming Output: Class 1 circuit, independently mounted control for panel or surface-mount

Diagrams for General Lighting Emergency Fixtures 1 of 2

**Note:** Diagrams for emergency fixtures are for general lighting applications only.

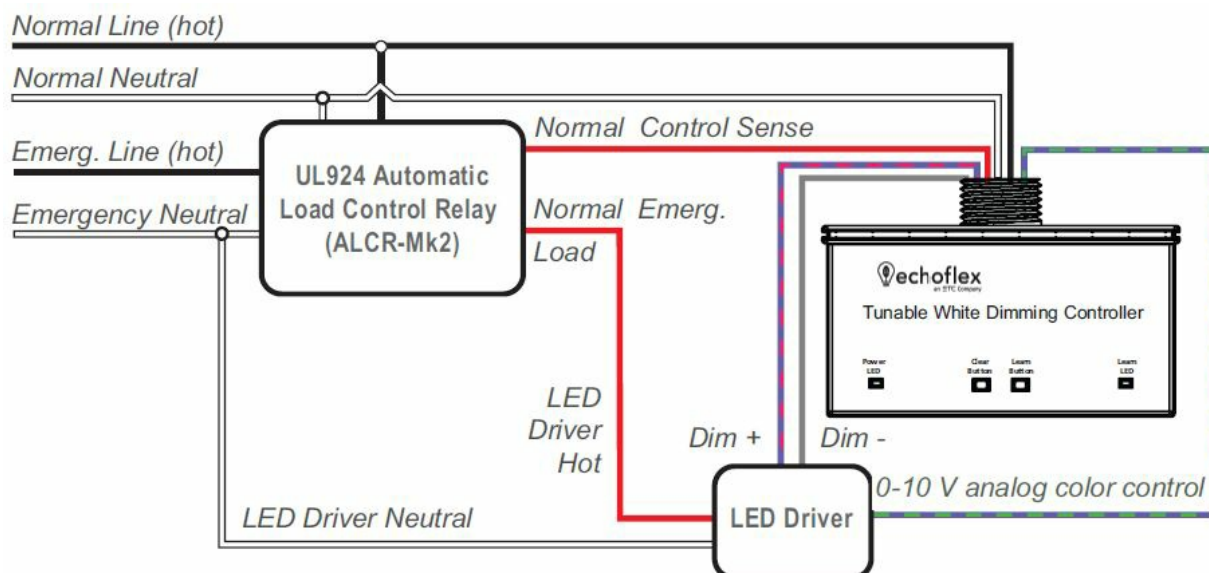
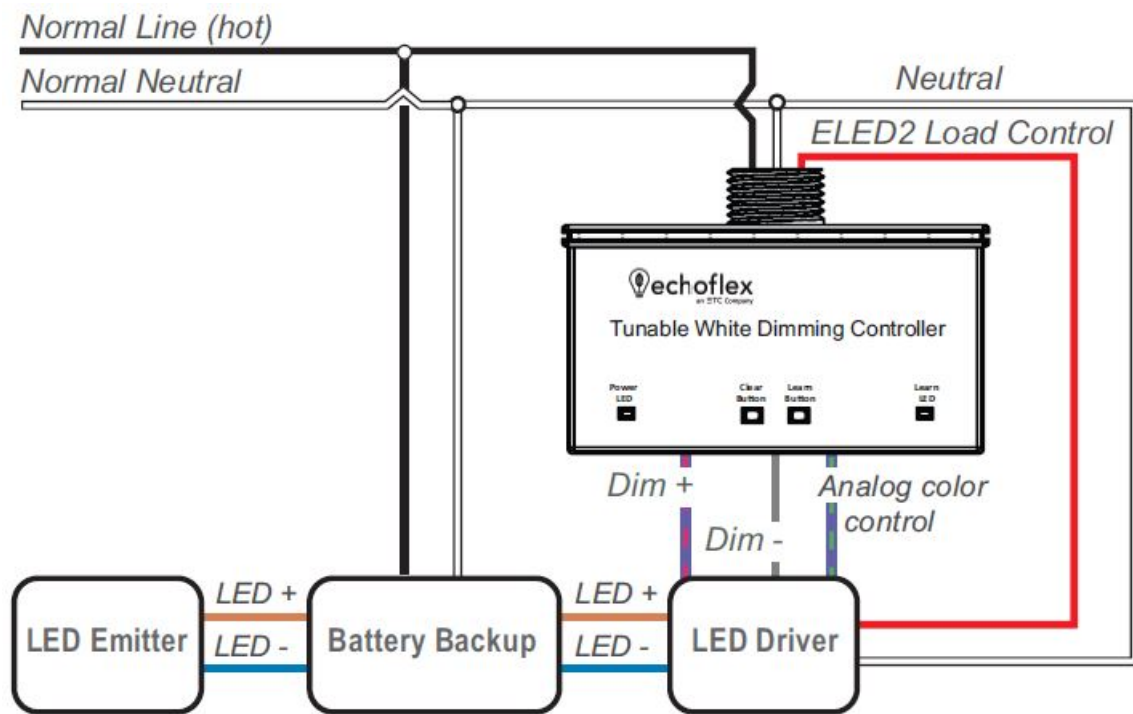


Diagram for Emergency Fixtures 2 of 2



## Electrical Terminations

Power to the controller is connected between the Neutral (white) and the Line (black) power conductors. The Class 1 power limited low voltage lines are used for fixtures with separate inputs for intensity and CCT control (general lighting), or fixtures with separate warm and cool LED color temperature channels (horticulture). The orange wire is an antenna: Do not cut, cap, or connect this wire. Use only UL-approved wire when making connections to the controller.

Connection	Wire Color	Specification
Load	Red	14 AWG, 600 V
Neutral	White	14 AWG, 600 V
Line (hot)	Black	14 AWG, 600 V
Dimming 0–10 V (general lighting) Warm LED (horticultural)	Violet/red	18 AWG, 600 V
Analog color control (general lighting) Cool LED (horticultural)	Violet/green	18 AWG, 600 V
Dimming COM	Gray	18 AWG, 600 V

## User Interface

**Note:** Garibaldi Pro software is the ideal tool to set up your project and configure settings, or even to make edits if your project has been pre-commissioned. Garibaldi Pro is available for download at [echoflexsolutions.com](http://echoflexsolutions.com).

- Two buttons on the controller activate features and set specific configurations directly on the device. Two related status LEDs provide feedback about stored information and activities.

## Learn Button

- The [Learn] button initiates Link mode for manually linking compatible Echoflex devices to the controller. See the relevant switch or sensor documentation for information on linking. Link mode times out after 60 seconds of inactivity.
- Devices can be linked to a controller manually, using Garibaldi Pro, or during the Echoflex pre-commissioning process.

## Remote Linking Solution

- Use the following method to link the first switch if you cannot access the [Learn] button on a controller that has not been pre-commissioned and you do not have Garibaldi Pro software.
  - This method only works if there are no switches linked to the controller.
  - You cannot link a scene station using this method.
1. Ensure you are within wireless range of the controller and have a wireless paddle switch or a button station.
    1. If the controller has a linked sensor, you must press the [Teach] button on the sensor and complete step 2 within 60 seconds.
  2. Click the switch paddle ON three times, OFF three times, and ON three times quickly, for a total of nine consecutive clicks. The relay will toggle and the Power LED will indicate the switch is linked.

## Clear Button

Use the [Clear] button to reset the controller either to its recommissioned state or to its factory default state.

### To reset to pre-commissioned state:

1. Press and hold the [Clear] button until the red Power and green Learn LEDs start blinking.
2. Release the [Clear] button. The LEDs repeat a blink code by color to indicate the type and number of devices linked to each channel at pre-commissioning.

### To reset to factory default state:

1. Press and hold the [Clear] button until the red Power and green Learn LEDs start blinking, and continue to hold for 15 seconds until the LEDs stay on solid.
2. Release the [Clear] button. The Power LED displays solid red to indicate factory default state.

## Blink Indications

The following tables describe the LED codes that identify linked devices and the LED indications that describe linking activities.

### Red: Linking Channel 1 (Intensity)

Device Type	Power LED	Learn LED
Switches	<b>1 long blink</b> followed by short blinks that count the switches	Off
Occupancy sensors	<b>2 long blinks</b> followed by short blinks that count the sensors	Off
Photo sensor or Multisensor y	<b>3 long blinks</b> followed by short blink that counts the sensor	Off
Gateways and Time Clocks	<b>4 long blinks</b> followed by short blinks that count the devices	Off
Demand response	<b>5 long blinks</b> followed by short blinks that count the devices	Off
Entry door sensors	<b>6 long blinks</b> followed by short blinks that count the sensors	Off
Window sensors	<b>7 long blinks</b> followed by short blinks that count the sensors	Off
Keycard switches	<b>8 long blinks</b> followed by short blinks that count the switches	Off

#### Green: Linking Channel 2 (Color Temperature)

Device Type	Power LED	Learn LED
Switches	<b>1 long blink</b> followed by short blinks that count the switches	Off
CCT sensor linked (maximum of 1)	<b>2 long blinks</b> followed by short blink that counts the sensor	Off
Central command	<b>3 long blinks</b> followed by short blinks that count the devices	Off

#### Blue: Linking Channel 3 (CCT Set Point)

Device Type	Power LED	Learn LED
CCT sensor linked (maximum of 1)	<b>1 long blink</b> followed by short blink that counts the sensor	Off
Central command	<b>2 long blinks</b> followed by short blinks that count the devices	Off

#### Linking Activities



Activity	Power LED	Learn LED	Light Response
Link mode	Blinking	On solid	Cycles ON and OFF
Store link ID	On for 4 seconds, and then blinking	On solid	ON for 4 seconds, and then cycles
Clear link ID	Off for 4 seconds, and then blinking	On solid	OFF for 4 seconds, and then cycles

## Test the Controller

Echoflex provides the controller in either a pre-commissioned state or a factory default state.

- Pre-commissioned devices are linked, configured, and labeled according to customer specifications. When powered up, the red Power LED repeats a blink code to indicate the type and number of devices currently linked to the controller. When powered up, the Power LED repeats a blink code by color to indicate the type and number of devices currently linked to each channel. To test, press the [Learn] button or use a linked switch.
- In factory default state, when powered up, the Power LED displays solid red to indicate the controller has no linked devices. To test, press the [Learn] button or link a switch. See relevant switch documentation. A maximum of 20 switches or sensors can be linked to one controller.

## Compliance

For complete regulatory compliance information, see the Echoflex ELED2 Controller datasheet at [echoflexsolutions.com](http://echoflexsolutions.com).

### FCC Compliance

- Echoflex ELED2 Controller
- (For any FCC matters):
- Echoflex Solutions, Inc.
- 3031 Pleasant View Road
- Middleton, WI 53562
- +1 (608) 831-4116
- [echoflexsolutions.com](http://echoflexsolutions.com)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions

1. this device may not cause harmful interference,
2. this device must accept any interference received; including interference that may cause undesired operation.

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.

- These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
- This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in

accordance with the instructions, may cause harmful interference to radio communications.

- Any modifications or changes to this product not expressly approved by Electronic Theatre Controls, Inc. could void the user's authority to operate the product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.
- Contains FCC ID: SZV-STM300U

## ISED Compliance

This device contains a license-exempt transmitter/receiver that complies with Innovation, Science, and Economic Development Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

- **Contains** IC ID: RSS 210
- **ID** IC: RSS 210

**Corporate Headquarters n Middleton, WI, USA | +1 608 831 4116**


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## Documents / Resources

	<p><a href="#">echoflex ELED2 Controller</a> [pdf] Installation Guide ELED2H-AU, ELED2 Controller, ELED2, Controller</p>
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## References

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