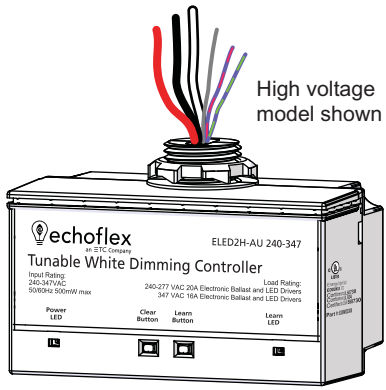
Echoflex Installation Guide
Tunable White Dimming Controller

Overview

The ELED2 Tunable White Dimming Controller includes two output channels of 0-10 V to control light intensity and color temperature levels for a single compatible fixture or an entire zone. It also supports external setpoint input from a gateway or outdoor CCT sensor.



This document covers installation of ELED2 Tunable White Dimming Controller models. The *Echoflex Tunable White Dimming Controller ELED2 Configuration Guide* is available for download at echoflexsolutions.com.

The package contents includes the controller and the installation guide.

Prepare for Installation

Echoflex recommends paying special attention to the installation environment.

- High density construction materials and large metal appliances or fixtures in the space may disrupt wireless reception.
- Mount the controller to an electrical junction box 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
- Small cable ties

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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 per NFPA Standard 70E.

AVERTISSEMENT: Risque de décharge électrique! Cette appareil utilise une haute tension et ne doit être installé que par un installateur qualifié ou un électricien. Suivez tous les codes locaux pour l'installation. Avant de raccorder le câblage du courant alternatif, vérifiez que le disjoncteur principal est en position d'arrêt et suivez les procédures de Consignation/ Déconsignation prescrites par la norme NFPA 70E.

WARNING: For indoor use only! Must install to an electrical junction box or wireway.

AVERTISSEMENT: Uniquement pour usage d'intérieur! Doit être installé sur une boîte de raccordement électrique ou un chemin de câbles.

- This product is suitable for use in dry locations where the ambient temperatures 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

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Installation

All local codes and standard electrical practices should be observed. Ensure that the junction box is clean and free of obstructions and that all wiring is installed correctly.

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

Install the Controller

Mount the controller directly to the exterior of the junction box or panel either at the electrical load or before the load in the circuit.

Review these instructions completely before installing 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 diagram 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. Connect the gray and the striped violet/red wires to the driver or ballast's dimming interface. Connect the striped violet/green 0-10 V analog color control output wire to the tunable white input on the LED driver.
6. Replace the electrical box cover plate.
7. Restore power to the circuit.

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

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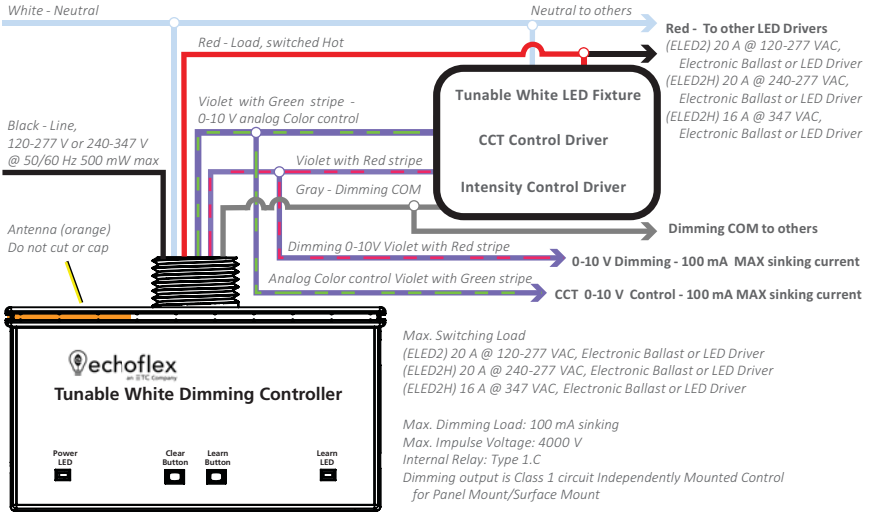
Wiring Diagram



Wiring Diagrams for Emergency Fixtures

Diagram 1 of 2

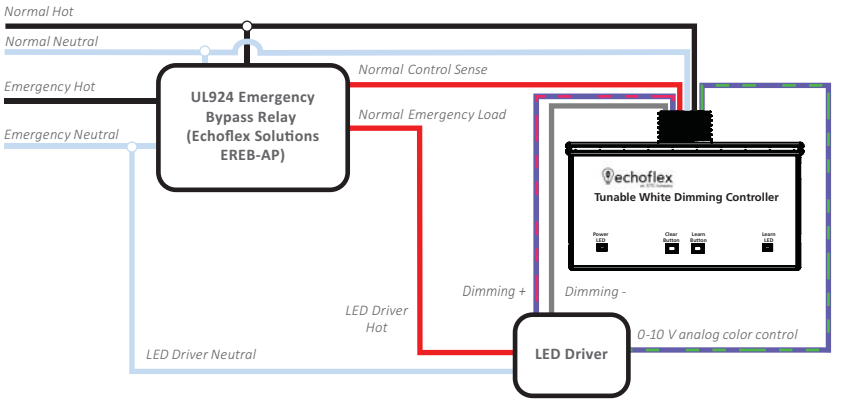
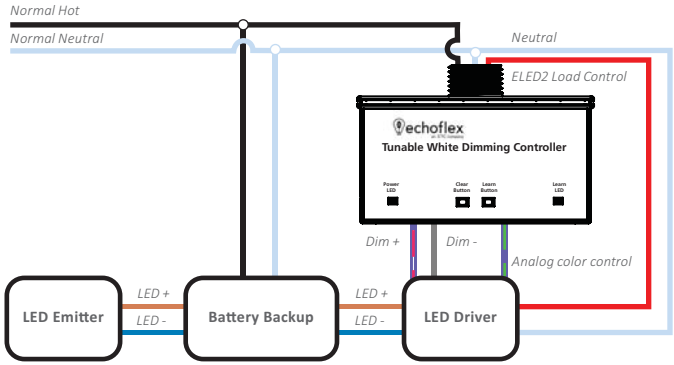


Diagram 2 of 2



Electrical Terminations

Power to the controller is connected between the White (Neutral) and the Black Line power: ELED2 (120-277 VAC) or ELED2H (240–347 VAC). The Class 1 power limited dimming lines (violet with red stripe wires) is used to provide 0–10 V intensity control of a dimming ballast or LED driver. 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 (see table below).

Connection	Wire Color	Specification
Load	Red	14 AWG, 600 V
Neutral	White	14 AWG, 600 V
Line	Black	14 AWG, 600 V
Dimming 0-10 V	Violet with Red	18 AWG, 600 V
Analog color control	Violet with Green	18 AWG, 600 V
Dimming GND	Gray	18 AWG, 600 V

Controller Interface

The controller interface has two tricolor LEDs and two buttons.

Tricolor LEDs

The Power and Learn LEDs can display red, green, or blue. LED color and combinations indicate which of the three channels is providing information via blink codes or is in an operational mode. See ***Blink Codes and Operations*** on ***page 7***.

- Red - Channel 1 - dimming output.
- Green - Channel 2 - tunable white output.
- Blue - Channel 3 - external setpoint input.

Learn Button

The **[Learn]** button initiates Link mode for linking switches or sensors in each of the controller's channels. See the relevant switch or sensor documentation for information on linking. Link mode times out after 30 seconds of inactivity.

Repeating the linking process for a device that is already linked to a controller will unlink it from that controller.

Clear Button

The **[Clear]** button resets the controller either to its pre-commissioned state or to its factory default state.

To reset to pre-commissioned state:

1. Press the **[Clear]** button until the Power and 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 Power and Learn LEDs start blinking. Continue to hold for 15 seconds until the LEDs turn solid.
2. Release the **[Clear]** button. The Power LED displays solid red to indicate factory default state. All links are removed.

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 labelled according to customer specifications. When powered up, the LEDs repeat a blink code by color to indicate the type and number of devices currently linked to each channel. See ***Blink Codes and***

Operations on *page 7*. To test the relay(s), 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 the relay(s), 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.

Blink Codes and Operations

The tables below describe the controller's blink codes and operating activity for each channel by LED color. Long blinks=type. Short blinks=count.

Red: Channel 1 - Dimming

Description	Power LED	Learn LED
Switch(es)	**1 long blink** followed by short blinks counting switches	Off
Occupancy sensor(s)	**2 long blinks** followed by short blinks counting sensors	Off
Photo sensor (max 1)	**3 long blinks** followed by 1 short blink counting sensor	Off
Central command	**4 long blinks** followed by short blinks counting devices	Off
Demand response	**5 long blinks** followed by short blinks counting devices	Off

Green: Channel 2 - Tunable White

Description	Power LED	Learn LED
Switch(es)	**1 long blink** followed by short blinks counting switches	Off
CCT sensor linked (max 1)	**2 long blinks** followed by short blinks counting sensor	Off
Central command	**3 long blinks** followed by 1 short blink counting devices	Off

Blue: Channel 3 - Set Point

Description	Power LED	Learn LED
CCT sensor linked (max 1)	**1 long blink** followed by short blinks counting sensor	Off
Central command	**2 long blinks** followed by short blinks counting devices	Off

Operations

The operating activity is indicated by the respective color LED for each channel.

Activity	Power LED	Learn LED	Relay/Light
Link mode	Blink	On solid	Toggle
Store link ID	On 4 seconds	On solid	On 4 seconds
Clear link ID	Off 4 seconds	On solid	Off 4 seconds
Factory default	On solid	One blink (on power-up)	On solid

Compliance and Listings

For complete regulatory compliance information, see the Echoflex Tunable White Dimming Controller datasheet at echoflexsolutions.com.

FCC Part 15.231 Contains FCC ID: SZV-STM300U
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 and (2.) this device must accept any interference received, including interference that may cause undesired operation.

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