Installation Guide

# ADVANCED LOAD CONTROLLER (ALC)

Wireless Load Controller



## INTRODUCTION

### About This Guide

This guide provides instructions for installing the Advanced Load Controller (ALC), a Luum.io wireless load controller. In addition to the step-by-step installation process, this guide provides instructions on how to configure the ALC, as well as some basic troubleshooting steps.

### Cautions and Warnings

When installing hardware, it is important to follow safety precautions to avoid potential injuries or damage to the equipment. Failure to follow safety guidelines can result in electric shock, fire, or other hazards.

### Definitions

> **NOTE**
>
> A note provides additional information or clarification that is relevant to the installation process. It may include recommendations, tips, or other useful information that can help ensure a successful installation.

> **CAUTION**
>
> A caution statement indicates a potential hazard that could result in minor or moderate injury, or cause damage to the product if appropriate precautions are not taken. It alerts the reader to a potential risk and provides instructions on how to avoid it.

**DANGER**

A danger statement indicates a potential hazard that could result in serious injury or death if appropriate precautions are not taken. It alerts the reader to a critical risk that requires immediate attention to prevent harm.

### Safety Precautions

**DANGER**

- Turn off the circuit breaker and verify that no voltage is present before wiring the device. Failure to observe this warning may result in electrical shock or death.
- When connecting a device to power, it is important to properly secure all wire connections to prevent the risk of electrical shock or fire. Failure to do so could result in damage to the equipment, injury, or death.
- Always use the proper gauge wire for the circuit being controlled. Using an incorrect gauge wire can result in overheating, electrical fires, or other dangerous situations.
- The ALC is rated for a maximum of 20A at 120VAC, 16A at 277VAC, and 7A at 347VAC. Do not exceed these ratings.

**CAUTION**

- This device is for indoor use only.
- Disassembling any part of the unit voids the warranty and regulatory certifications. There are no user-serviceable parts inside the unit.
- This equipment is not suitable for use in locations where children are likely to be present.
- Ensure that all wire connections are secured with the provided wire nuts before restoring power.

## PRODUCT OVERVIEW

The Advanced Load Controller (ALC) is a wireless fixture or load controller, offering features like 0-10V dimming control, power monitoring, and energy management. It connects to wireless networks via the Luum Border Router (AMBR) and includes an RJ12 port for environmental monitoring with an optional Sensor2 (not included), which tracks occupancy, light levels, temperature, and humidity.

- Up to 20A relay for load switching.
- 0-10V output for dimming of one or more drivers.
- RJ12 port for add-on environmental sensor.
- Energy consumption tracking and detection of failed drivers or lamps.
- Cloud connection via AMBR, uploading real-time data from your site to the Luum app.

## ORDERING INFORMATION

### Controllers

| Part number | Description |
|---|---|
| XWS-ALC-C | Advanced Load Controller with relay, 0-10V dimming, and onboard power metering |

### Accessories

| Part number | Description |
|---|---|
| XWD-S2-H | Multi-sensor (motion, light, temperature, humidity) — connects via horizontal RJ12 port |
| XWD-S2-V | Multi-sensor (motion, light, temperature, humidity) — connects via vertical RJ12 port |
| XWS-AMBR-KIT | Luum Border Router — required for network connectivity |

# INSTALLATION

## Parts List

Before getting started with the installation process, make sure all the necessary components are included. Here's what should be found inside the box:

- (1) Advanced Load Controller (ALC)
- (4) Wire Nuts

Please ensure all items are accounted for. If any item is missing or damaged, contact the place of purchase for a replacement.

## Placement

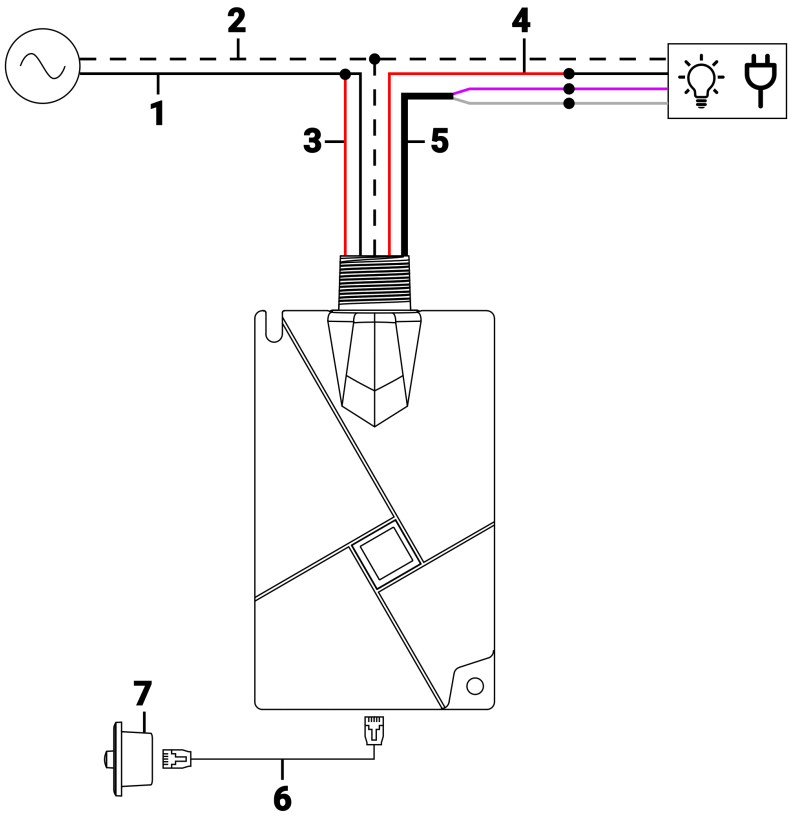
Follow these guidelines when deciding where to install the ALC:

- The ALC should be installed on a junction box or other electrical enclosure to manage the wire connections.
- If a Sensor2 is going to be used, the ALC should be installed within 3 ft of the sensor, or within 20 ft with an extension cable (not included).
- The ALC should be installed within 200 ft of an AMBR or other wireless node.

> **NOTE**
> The Luum system supports communication ranges up to 200 ft with a clear line of sight. Obstacles such as walls or floors will significantly impact communication range.

## Wiring

Follow the wiring diagram to connect the Advanced Load Controller:




*ALC Wiring Diagram*

1. BLACK: Line (100-347 VAC)
2. WHITE: Neutral
3. RED: Relay COM/NC
4. RED: Relay COM/NC
5. PURPLE: 0-10V+
   GRAY: 0-10V-
6. RJ12 Sensor Cable (not included)
7. Sensor2 (not included)

> **NOTE**
> The ALC functions as a normally closed relay, and either red wire can be used as the common.

### Labeling and MAC Capture

After installing any Luum wireless device, it is important to note the device ID with the associated load, fixture, or device. This is how the devices will be identified during programming. It is also a good idea to label any Luum load controllers with the load they are controlling.

> **NOTE**
> The device ID can be found on the device's packaging or on the device itself.

## INITIAL SETUP

### Necessary Parts

Review the following list to ensure all necessary parts are available:

1. An active AMBR within communication range of the ALC.
2. Active line voltage power to the ALC.

### Device Configuration

Perform the following steps to configure the device:

1. Open the Luum app and navigate to the site.
2. Open the Devices table and ensure a device with the ID noted in the previous step is active and communicating.

The device is now ready to be added to a location and programmed with the Luum app.

### Load and Fixture Control

When the ALC is being used for load or fixture control, no additional consideration is needed. The device can be put into locations and zones and programmed.

### Plug Load Control

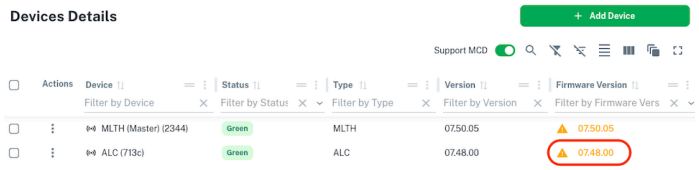
When the ALC is being used for control of receptacles, it is highly recommended that the device be put into a separate plug load zone in the location. This will allow special programming considerations to be applied to the plug load.

> **NOTE**
> The Luum system meets automatic receptacle control requirements for California Title 24 and ASHRAE 90.1 2016.

### Firmware Update

Perform the following steps to update the device's firmware:

1. Open the Luum app and navigate to the site.
2. Open the Devices table and find the device to be updated.
3. Make sure the **Firmware Version** column is visible. If the firmware is out of date, it will show a yellow alert and yellow text.
4. Click on the out-of-date firmware entry to request a firmware update.




*Firmware Update Button*

> **NOTE**
> Depending on how out of date the firmware is, the programming may need to be synced to the devices after a firmware update.

## RELATED INFORMATION

### Basic Troubleshooting

Perform the following steps for basic troubleshooting of the device:

1. Verify the device is operating normally using the LED Troubleshooting Matrix above.
2. Verify the load is being switched by pressing the device button. This should toggle the load on and off, and the relay should make an audible click.
3. Power cycle the device by turning off the circuit breaker, and turning it back on 30 seconds later.

## LED Indicator Troubleshooting

Use the following table to troubleshoot specific issues with the device based on the LED indicators:

### LED Troubleshooting Matrix

| LED Color | State | Description |
|---|---|---|
| Off | Off | No power to device |
| Blue | Flashing | Device unable to communicate with an AMBR |
| Blue | On | Device communicating normally |

## Button Operation

On the top of the ALC, there is a button that also functions as the indicator LED.

### Button Operation

| Presses | Behavior |
|---|---|
| 1 Press | Toggle the relay on or off |
| 10 Presses | Set the device to the default network profile |

## Technical Support

If you experience any issues during installation or operation of this product, contact our technical-support team via email at support@luum.io. Please provide a detailed description of the issue, including any error messages or other relevant information.

## Warranty

All Luum.io lighting products and controls come with a 5-year parts warranty. We warrant that our products will be free from defects in material and workmanship for a 5-year period from the date of purchase. Defective products under warranty will be replaced with an equal or higher-quality product.

If you experience any issues during the warranty period, we will repair or replace the product at no charge. To initiate a warranty claim, contact our customer-service team at support@luum.io. For additional support options, visit luum.io.

> **NOTE**
>
> The Luum Border Router (AMBR) connected to your affected device must have remained connected to the Luum cloud via the internet or cellular connection from the start of site commissioning to the date of return request. Non-connected systems are eligible for a 2-year limited warranty (730 days) from shipment date.

## Contacts

**Luum.io Headquarters**
625 Kenmoor Ave STE 350
PMB 51933
Grand Rapids, MI 49546
Phone: +1 (313) 314-3617

## Document Feedback

While we have taken great care to ensure the accuracy and completeness of this document, we welcome your feedback and suggestions. If you notice any errors or omissions, or feel a topic could benefit from further explanation, please email your feedback to support@luum.io.

## Revision History

| Date | Revision | Notes |
|---|---|---|
| 6/27/2023 | A | Initial ALC install guide release |
| 4/29/2026 | B | Port to PDF |

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