LUUM.IO

Installation Guide

# SENSOR1 / SENSOR2

Motion, light, temperature and humidity sensing



## INTRODUCTION

### About This Guide

This guide provides instructions for installing the sensor, a Luum wireless environmental sensor. In addition to the step-by-step installation process, this guide provides instructions on how to configure the sensor, 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 low-voltage supply and verify that no voltage is present on the wiring before connecting or disconnecting terminals. Do not apply line (mains) voltage to the sensor.
- When connecting the device to power, properly secure all wire connections to reduce the risk of intermittent operation, overheating, or equipment damage.
- Use wire that is appropriate for your low-voltage control circuit and installation environment.

**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.
- Turn off the low-voltage supply and verify that no voltage is present before connecting or disconnecting wiring.

## PRODUCT OVERVIEW

The Sensor1 / Sensor2 is a wireless environmental sensor, capable of sensing occupancy, light levels, temperature, and humidity. It connects to wireless networks via the Luum Border Router (AMBR).

- Occupancy and vacancy detection.
- Light level monitoring for daylight harvesting applications.
- Temperature and humidity sensing for data collection.
- Cloud connection via AMBR, uploading real-time data from your site to the Luum app.

## ORDERING INFORMATION

### Sensors

| Part number | Description |
|---|---|
| XWS-S1 | Stand-alone wireless sensor |
| XWS-S1-DIM | Stand-alone wireless sensor with 0-10V output for fixture control |
| XWD-S2-H/V | Add-on horizontal or vertical RJ12 sensor for Luum ALC |

# 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) Sensor
- (6) Sensor blinders

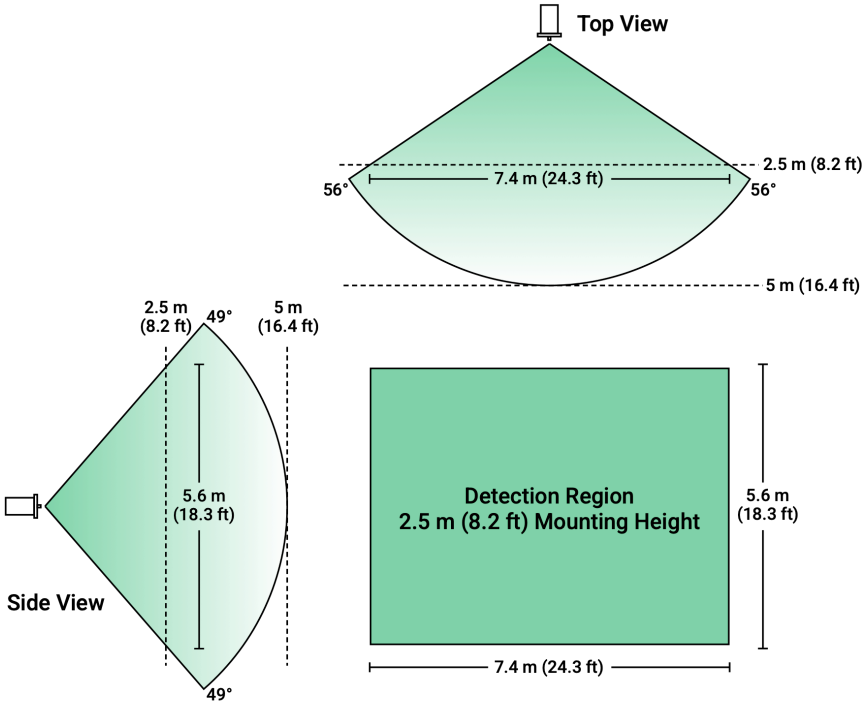
## Placement

Follow these guidelines when deciding where to install the sensor:

- Avoid installing the sensor near moving machinery, air vents, or fans, which could trigger false detections.
- Ensure the sensor's height is appropriate for the area needing coverage to avoid blind spots or unnecessary coverage outside the desired area.
- The sensor should be installed within 200 ft of an AMBR or other wireless node.

## Mounting Height

| Mounting height | Detection area |
|---|---|
| 2.5 m (8.2 ft) | 7.4 m (24.3 ft) L x 5.6 m (18.2 ft) W rectangle |
| 3 m (9.8 ft) | 8 m (26.2 ft) L x 7 m (23 ft) W rectangle |




*Sensor Detection Area*

**NOTE**

- The lower the sensor is, the smaller the detection region will be. This sensor can be mounted higher than the recommended mounting height, but detection will start to be lost near the edges of the detection area.
- 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.

## Sensor Blinders

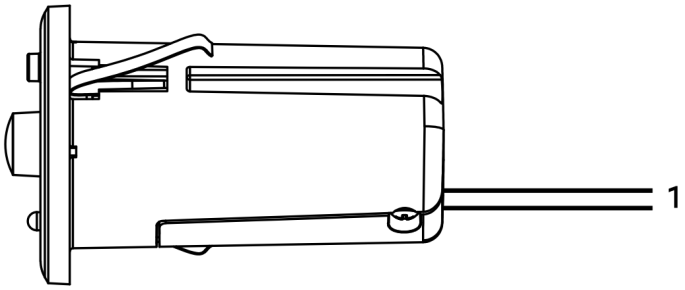
The sensor comes with blinders to mask areas that should be ignored by the sensor. Install and adjust the blinders to cover areas such as doorways or windows if you want to exclude traffic or external movements.




*Sensor Blinders*

## Wiring

Follow the wiring diagrams below for the sensor model being installed. All models operate from 9-26VDC unless noted.



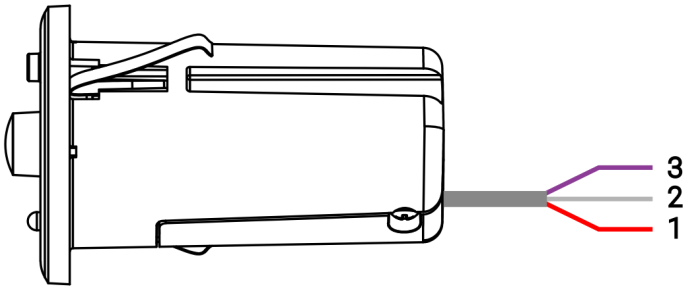

*XWS-S1 Wiring Diagram*

### XWS-S1 Wiring Legend

| Label | Description |
|---|---|
| 1 | Low-voltage input (polarity insensitive) |

**NOTE**

The XWS-S1 input wires are polarity protected; either wire can be positive or negative.




*XWS-S1-DIM Wiring Diagram*

### XWS-S1-DIM Wiring Legend

| Label | Description |
|---|---|
| 1 | Low-voltage positive input |
| 2 | Low-voltage negative input / 0V output (common) |
| 3 | 0-10V dimming output |

**NOTE**

The XWS-S1-DIM provides 0-10V control wires for direct fixture control in addition to the low-voltage power input.

### XWD-S2-H/V Wiring

Sensor2 connects to the Luum Advanced Load Controller (ALC) via an RJ12 port. No separate low-voltage field wiring is required at the sensor beyond the included RJ12 cable.

### 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 sensor.
2. Active power to the sensor.

### 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.

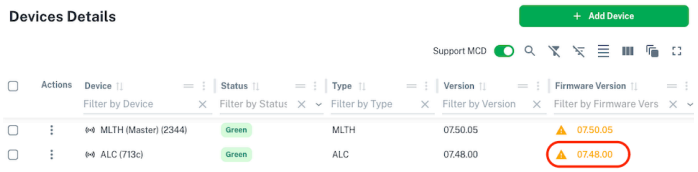
The device is now ready to be added to a location and programmed with the Luum app.

### 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 below.
2. Verify the sensor is detecting motion by observing the LED while moving underneath it.
3. Power cycle the device by turning off the low-voltage source, then 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 |
|---|---|---|
| Green | Solid | Device communicating normally, no motion detected |
| Orange | Solid | Device communicating normally, motion detected |
| Green/Orange | Off | No power to device |
| Green/Orange | Fast flash | Device is booting |
| Green/Orange | Slow flash | Device unable to communicate with an AMBR |

## 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.

> **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 |
|---|---|---|
| 7/2/2026 | A | Initial sensor install guide release |

## Disclaimer

All rights, title, and interest in and to this manual, including without limitation all copyright, trademark, patent, trade-secret, and other proprietary rights, belong solely and exclusively to Luum.io and/or its licensors. This manual is provided solely for the purpose of assisting in the installation and operation of the device, and no license or other rights are granted or implied hereby. No part of this manual may be reproduced, distributed, or transmitted in any form or by any means — including photocopying, recording, or other electronic or mechanical methods — without the prior written permission of Luum.io. The contents of this manual are subject to change without notice. The information contained herein is provided on an 'as is' basis for informational purposes only. Luum.io makes no warranty, express or implied, as to the accuracy, completeness, or usefulness of this information, nor does it assume any legal liability or responsibility for the consequences of any errors or omissions therein.