2023

GRYDSENSE WIRELESS DALI SENSOR

TECHNICAL SPECIFICATION

Revision History

Sl #	Change Description	Version	Date
1	Initial Draft	1.0	11-09-20
2	Formatted and added wiring details	1.1	18-07-23

Table of Contents

Overview

GrydLight Wireless DALI Sensor is an occupancy detection device used for control of light(s) using DALI control systems. The passive infrared (PIR) sensors automatically control lights via integrated dimming and switching devices, control of LED drivers using DALI protocol. The data is then transmitted to the cloud-based application for analytics. Ambient Light Sensor on board measures the current light intensity and provides a closed control loop to the system for efficient dimming of the light(s)

The control system is dynamic, configurable during installation and commissioning process. Option for ON/OFF control system is also provided with the sensor.

Features

Individual loads could be switched on/off and dimmed.

- Up-to 8 lighting loads can be looped on DALI protocol.
- 6 Scene settings
- 5 Groups
- Non-Volatile memory backup.
- Zero commissioning requirement for default operations.

Power

- Supply voltage 12 VDC
- Supply current 100 mA @ 12VDC.

Environment

- Ambient temperature operating range: 0°C - 50°C
- Relative humidity: less than 90% non-condensing
- For indoor use only

Compliance

- CE and FCC Certified
- RoHS Compliant
- IP rating - IP22

Communication Module

- Port : 1 x DALI

Ambient Light Sensor

- Lux detection range – 0 to 60,000 Lux
- Accuracy - ± 0.1%

PIR Timeout Options

- Field programmable using secure BLE Mesh protocol from 2 Minutes to 1 Hours.
- PIR un-occupancy time range :- 1 min to 1hour.
- PIR re-transmission time range :- 2 min to 1hour.
- The sensor has a set of pre-set timeouts for switching off when, no motion is detected. These timeouts can be changed using a magnet on the field as required.
    - Pre-set timeout available
        - 2 minutes
        - 5 minutes
        - 10 minutes
        - 12 minutes
        - 15 minutes (Default)
- The timeout can be changed by just holding the magnet near the sensor (please look for magnet icon on the sensor body) for 15 seconds while the sensor is powered ON.

ALS Integration and Timeout Options

- Field programmable using secure BLE Mesh protocol.
- Mapping of Light Drivers to ALS sensor
- Threshold range :- 25 to 300 lux
- Measuring time range :- 5 sec to 30 min
- The sensor has a set of pre-set timeouts for detect the ambient light to regulate the intensity of ballast. These timeouts can be changed using a magnet on the field as required.

- Pre-set timeout available
  - 15 seconds(Default)
  - 30 seconds
  - 60 seconds
  - 2 minutes
  - 5 minutes
- The timeout can be changed by just holding the magnet near the sensor (please look for magnet icon on the sensor body) for 20 seconds while the sensor is powered ON.

Temperature and Humidity Timeout Options

- Field programmable using secure BLE Mesh protocol.
- Temperature Threshold range :- 0.5 to 5 ˚C
- Humidity Threshold range :- 5% to 20% RH
- Measuring time range :- 1 min to 1 hour
- Re-transmission time range :- 2 min to 1 hour

Terminals & Wires

- Screw size: M2
- Torque: 0.2 N-m
- Colour: Blue
- Mains Wiring: 2 core - 26~16 AWG
- Sensor Wire: 2 core - 26~16 AWG
  - Strip Length: 7 mm

Material and Color

- Material: ABS
- Colour: Roma white

Models Available

- GRYD-WR-DL-1CH-PIR – Wireless PIR Only
- GRYD-WR-DL-1CH-ALS-PIR – Wireless PIR with Ambient light sensing
- GRYD-WR-DL-1CH-TH-PIR – Wireless PIR with Temperature Humidity

Technical Specification

Radio

BLE Mesh:

- Supported Standards and Modulation Techniques.
- 802.15.5 - GFSK/ 1Mbps
- Antenna - Whip Antenna
- Antenna Gain - 0 dBi
- Expected Indoor Range - 30 meters.

PIR Sensor Specification

Basic Principles

Pa-PIRs is a pyroelectric infrared sensor that detects variations in infrared rays. It could also detect the presence of heat sources of a human body. Efficiency and reliability of the system may vary depending on actual operating conditions.

- Difficulty in sensing

  Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays. Non-movement or quick movements of the heat source inside the detection area also make it difficult for detection.

- Detection Zones: 208

	Value
Horizontal	125º
Vertical	125º

- Detection Performance / Detection Range

Temperature Difference	Value
8ºC (14.4ºF)	Up to 3.5m
4ºC (7.2ºF)	Up to 2.5m

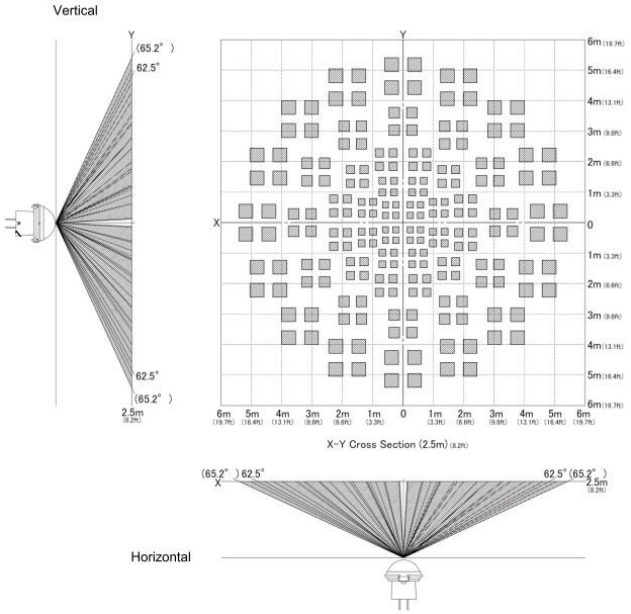
- Area Coverage

  Approximately 70-meter square

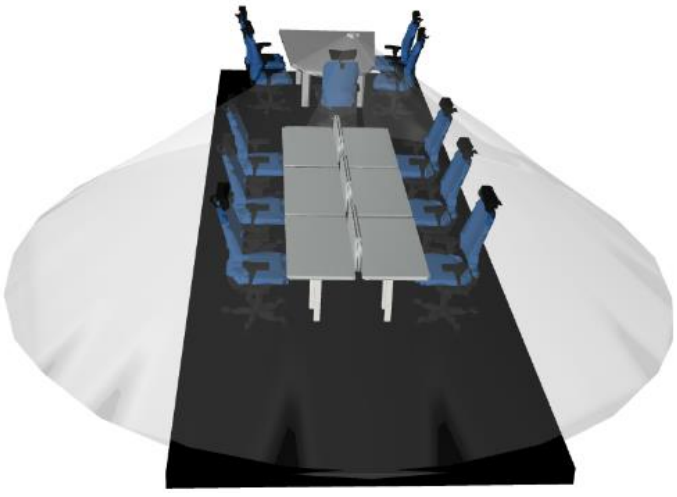
Depending on the temperature difference between the target (Object Size 700mm x 250mm) and the surroundings, detection range will change.

*Note: Standard Range or Extended Range PIR options are available.

Sensor Sensitivity



Sensor Coverage



Installation Overview

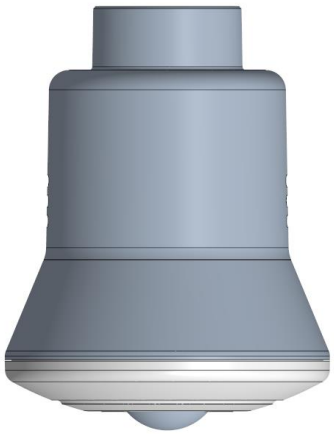
Sensor Setup

Sensor setup is available as a service by GrydLight.

Sensor Placement

To detect motion, the sensor requires line of sight of room occupants. The sensor must have an unobstructed view of the room.

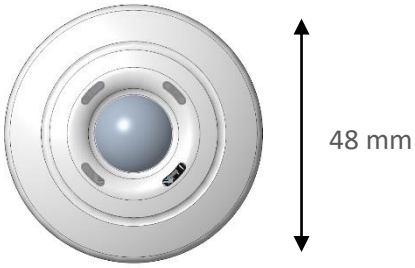
Mounting Option 1 - Ceiling drop with Conduit



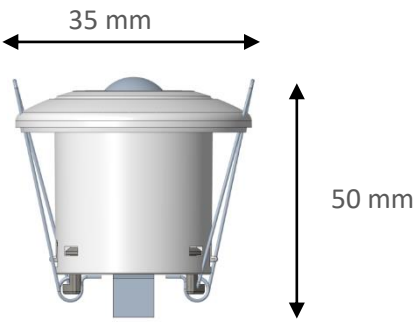
Mounting Option 2 - with Ceiling mount Springs

Dimensions

Front

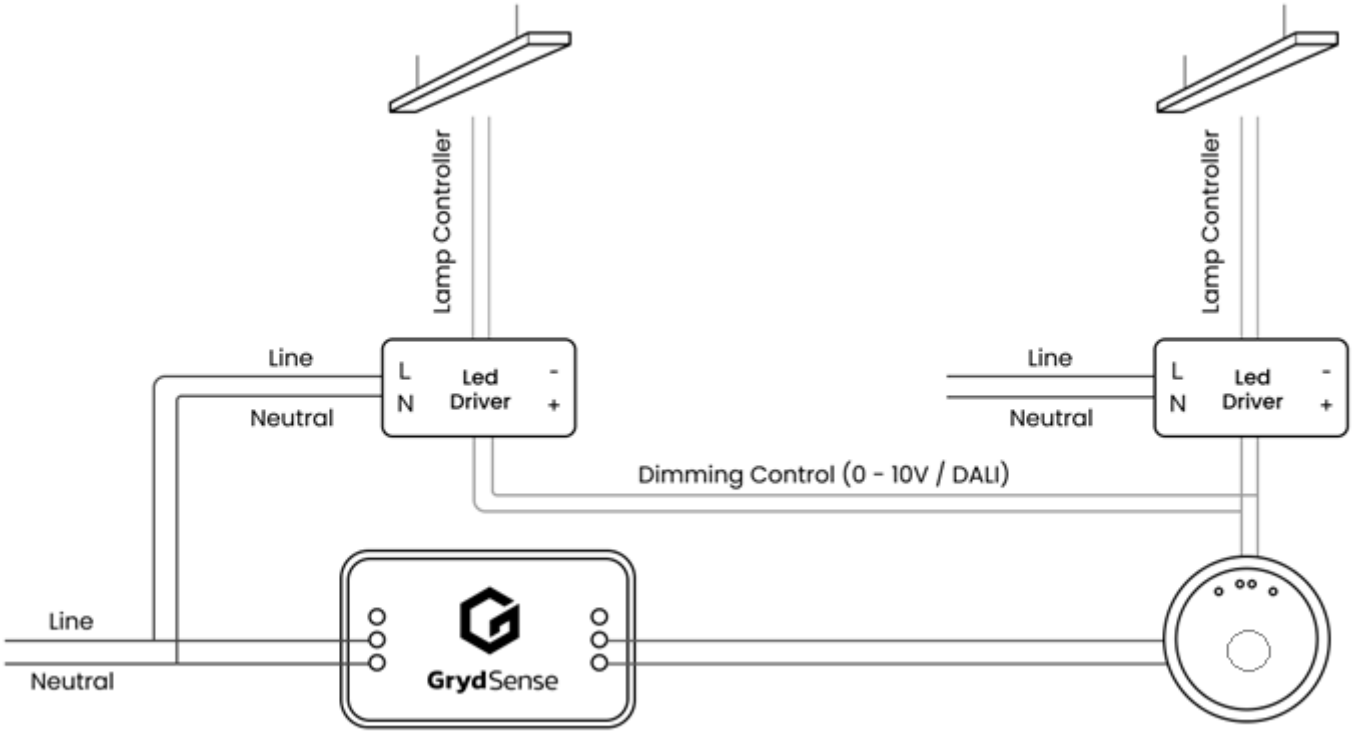


Height and Width

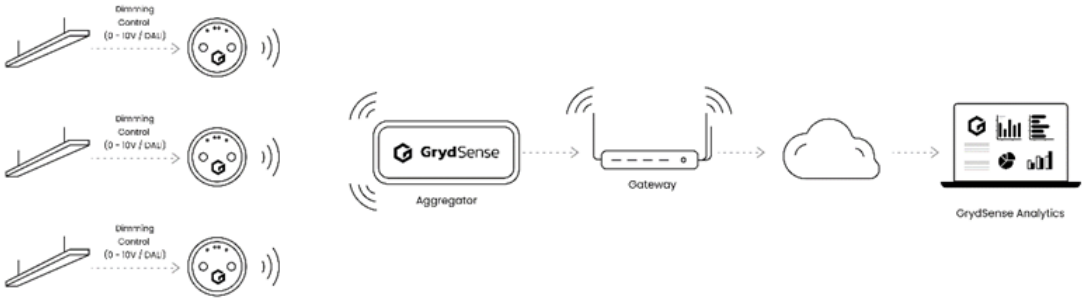


With Ceiling Drop option

Wiring Diagram



System Diagram



LED Indications

The product has two LED (Red and Greed) indicating various Lighting states of the product and the functions the sensors is performing. The following table summarises the system and LED state,

LED	Description
Red led blink only once	PIR detected some movement
green led blinks, after that red blink 5 times	Indicates seconds count for magnetic configuration change

Compliance Statements

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

- This device may not cause harmful interference.
- This device must accept any interference received, including, an interference that may cause undesired operation.

Caution Statements

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Information To the User

NOTE: 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful