2023

GRYDLIGHT WIRELESS SENSOR

TECHNICAL SPECIFICATION

Revision History

Sl #	Change Description	Version	Date
1	Initial Draft	1.0	11-07-2020
2	Updated Time out for PIR, TH and ALS	1.1	13-07-2023

Table of Contents

Overview

GrydLight Wireless Battery Sensor is an occupancy detection device. The passive infrared (PIR) sensors detect and transmit the human presence data to the controller for action on the sensor input. 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/control of the light(s). The control system is dynamic, configurable during installation and commissioning process.

Features

Individual loads could be switched on/off and dimming

- Based on latest secure Bluetooth Mesh wireless Technology
- Sensor has settings for
  - Auto On/Auto Off
  - Auto Low light On/Auto Off
  - Manual-On/Auto Off
- Auto Low-Light feature turns on the light when Ambient light falls below configured level.
- Passive Infrared motion detection with fine motion detection
- Inbuilt temperature and Humidity sensor.

Power

- Battery – CR123A
- 9 years battery life

Environment

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

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
- For Indoor use only

Compliance

- CE Certified
- RoHS Compliant
- IP rating - IP22

Ambient Light Sensor

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

Temperature

- Range: -20 to +80 °C
- Resolution: 0.01 °C
- Accuracy: ± 0.2°C

Humidity

- Range: 0 to 95 %RH
- Precision: 0.01 %RH
- Accuracy: ±2 %RH

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

Temperature and Humidity data transmitted at 15 minutes (Default) interval.

Sensor transmits the temperature within 15 minutes interval if it exceeds the configured threshold (0.75˚)

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

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

Models Available

GRYD-PATH-WL-SR-WH → Colour Code
→ Range*
→ Wireless
→ PIR, Ambient Light sensor, Temperature and Humidity sensor

GRYD-PA-WL-WH – PIR, Ambient Light Sensor
GRYD-P-WL-WH – PIR only Sensor

Available Colour Codes

- WH – White
- BL – Black

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

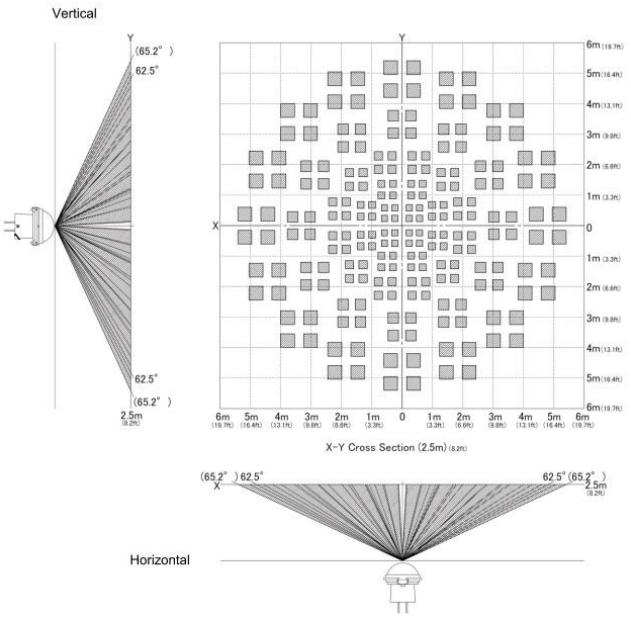
Temperature Difference	Value
8ºC (14.4ºF)	Up to 3.5m
4ºC (7.2ºF)	Up to 2.5m

- 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.

Sensor Sensitivity



Sensor Coverage

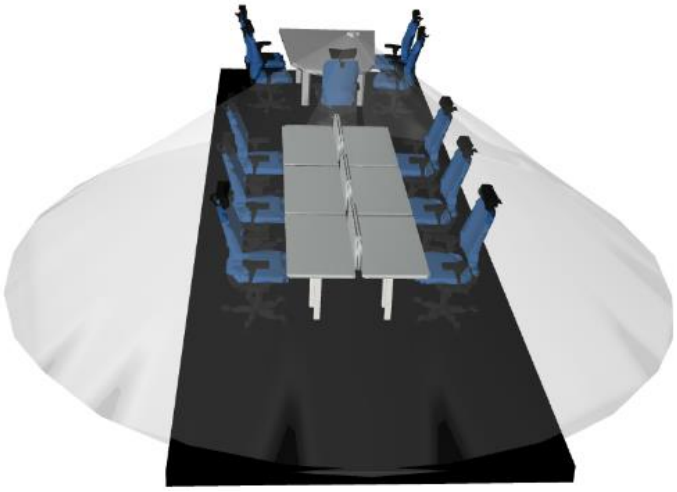
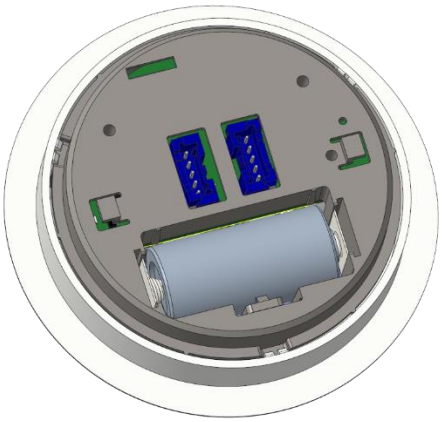


Illustration – At a mounting height of 8 feet, the sensor covers 6 linear work desks covering a total area of 70-meter square.

Installation Overview

Battery Installation

To install battery, remove the back-mounting cover and insert the battery in the Battery holder.

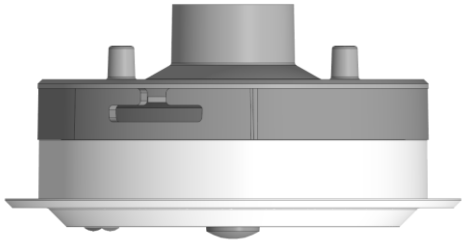


Sensor Placement

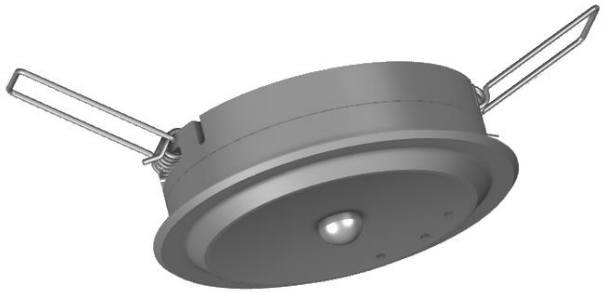
To detect motion, the sensor requires line of sight of room occupants. The sensor must have an unobstructed view of the room.

Hot objects and moving air currents can affect the sensor performance. It is recommended to install the sensor away from HVAC vents.

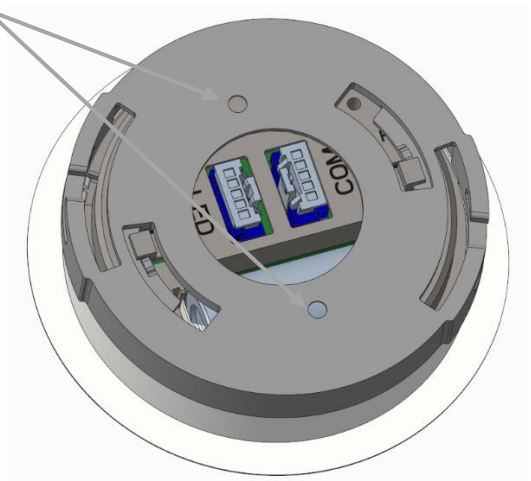
Mounting Option 1 - Ceiling drop with Conduit



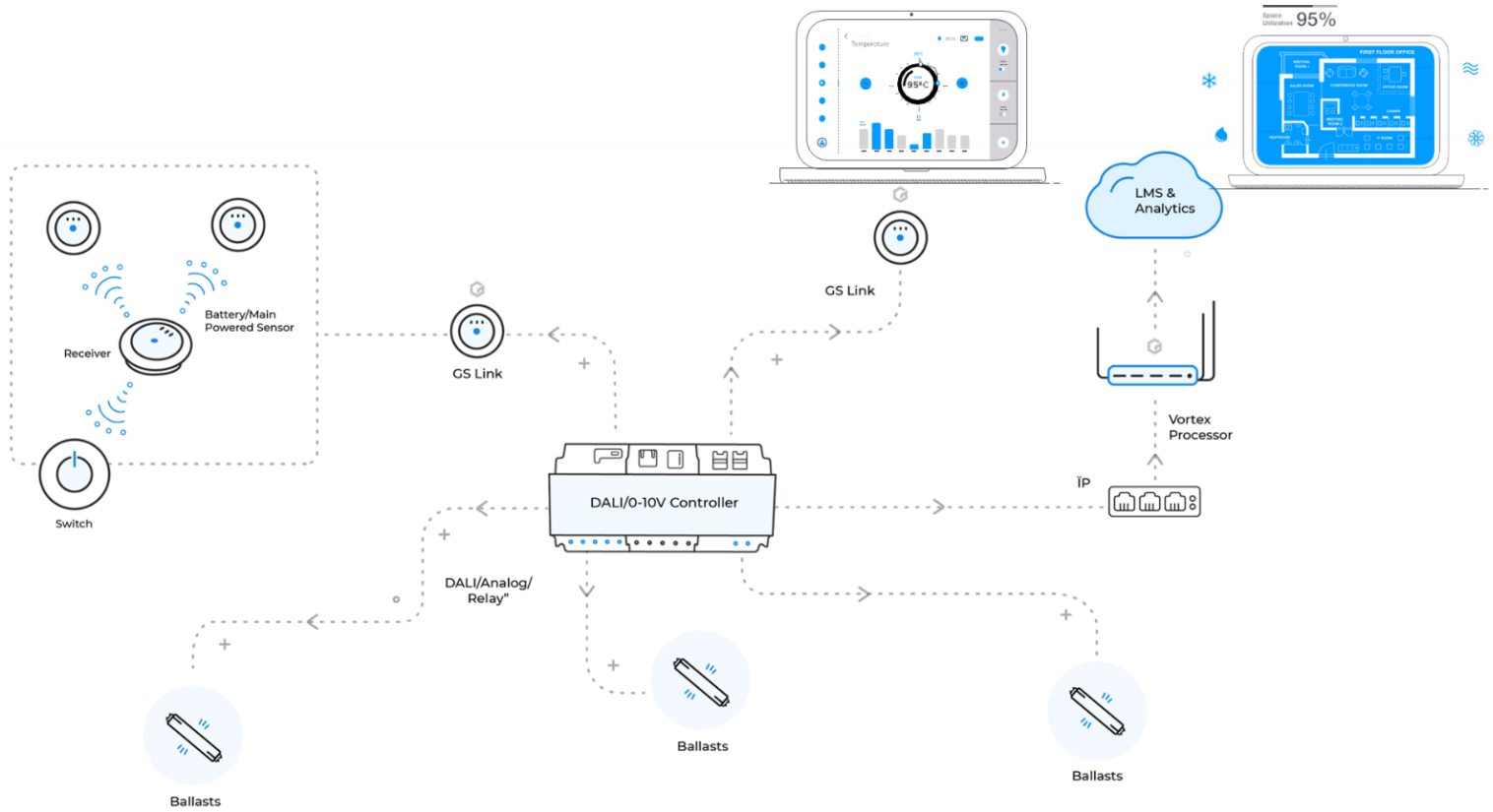
Mounting Option 2 - with Ceiling mount Springs



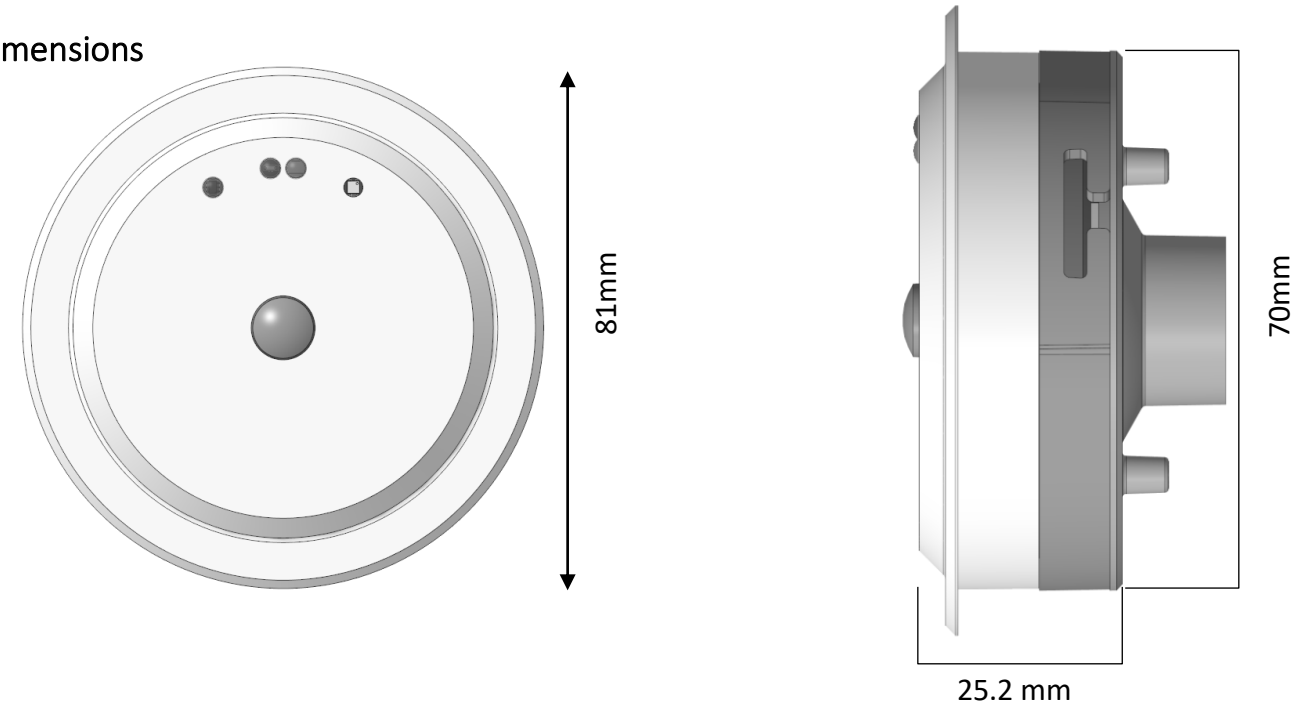
Mounting Option 3 - Ceiling mount with screws



System Diagram



Dimensions



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
Red and green blink alternatively	Device entered pairing mode

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.