PIR Standalone Motion Sensor with Bluetooth 5.0 SIG Mesh

624476 Czujnik PIR BT HYT ON/OFF HBIR28/2CH IoT HBIR28/2CH

624483 Czujnik PIR BT HB HYT ON/OFF HBIR28/2CH/H IoT HBIR28/2CH/H

## Product Description

HBIR28/2CH is a Bluetooth PIR standalone motion sensor, On/Off control with two independent relay channel outputs. It has two relays built-in: one is voltage-free contact, which is NO (normally open contact) and NC (normally closed contact) 2-in-1, the other is normally closed relay output. It is ideal for typical indoor applications such as office, classroom, healthcare and other commercial areas. With Bluetooth wireless mesh networking, it makes communication between luminaires much easier without time-consuming hardwiring, which eventually saves costs for projects (especially for retrofit upgrade projects!). Meanwhile, simple device setup and commissioning can be done via Lena Lighting Clue app.

HBIR28/2CH

HBIR28/2CH/H

## App Features

- Quick setup mode & advanced setup mode
- Web app/platform for project deployment & data analysis
- Lena Lighting Clue app on iPad for on-site configuration
- Floorplan feature to simplify project planning
- One-key device replacement
- Device social relations check
- Staircase function (primary & secondary) Remote
- control via gateway support HBGW01 Heat
- map
- Grouping luminaires via mesh network
- Scenes
- Dusk/Dawn photocell (Twilight function)
- Push switch configuration
- Detailed motion sensor settings
- Schedule
- Astro timer (sunrise and sunset)
- Power-on status (memory against power loss)
- Offline commissioning
- Bulk commissioning (copy and paste settings)
- Different permission levels via authority management
- Network sharing via QR code or keycode
- Interoperability with Hytronik Bluetooth product portfolio
- Compatible with EnOcean BLE switches
- Internet-of-Things (IoT) featured
- Device firmware update over-the-air (OTA)
- Continuous development in progress…

## Hardware Features

- On/Off control with ralay output
- Freely select NO or NC contact

  VFC: Volt-free Contact/Dry Contact

  – 24VDC@2A

  – 250VDC@2A
- Two relays built-in
- Zero crossing detection to reduce in-rush current and maximise relay life
- Max withstandable in-rush current: 80A@160µs
- 2 Push inputs for flexible manual control
- Black & White & Gray metal surface mount box option
- Various PIR lens and blind inserts options
- User-friendly design for installation
- High bay version available (up to 15m in height)
- 5-year warranty

EnOcean
Self-powered IoT

Fully support EnOcean self-powered switch module PTM215B (HBES01/W & HBES01/B)

LENA LIGHTING | Clue

Smartphone app for both iOS & Android platform

Web app/platform: www.iot.koolmesh.com

## Technical Specifications

| Bluetooth Transceiver | |
|---|---|
| Operation frequency | 2.4 GHz -2.483GHz |
| Transmission power | 4 dBm |
| Range (Typical indoor) | 10~30m |
| Protocol | Bluetooth 5.0 SIG Mesh |

| Sensor Data | |
|---|---|
| Sensor Model | PIR detection |
| HBIR28/2CH | Installation Height : 6m<br>Detection Range(Ø) :9m |
| HBIR28/2CH/H | Installation height：15m (forklift)<br>12m (person)<br>Detection range (Ø)：24m |
| Detection angle | 360° |

| Input & Output Characteristics | |
|---|---|
| Operating voltage | 220~240VAC 50/60Hz |
| Load ratings | Channel 1: 400VA<br>Channel 2: 24VDC@2A,250VAC@2A |
| Max withstandable in-rush current | 80A@160μs |
| Warming-up | 20s |

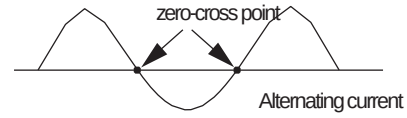
| Safety & EMC | |
|---|---|
| EMC standard (EMC) | EN55015, EN61000-3-2/-3-3, EN61547 |
| Safety standard (LVD) | EN60669-1, EN60669-2-1<br>AS/NZS60669-1/-2-1 |
| RED | EN300328, EN301489-1/-17 |
| Certification | CE, RED, RCM, UKCA |

| Environment | |
|---|---|
| Operation temperature | Ta: -20°C ~ +50°C |
| IP rating | IP20/IP54 |

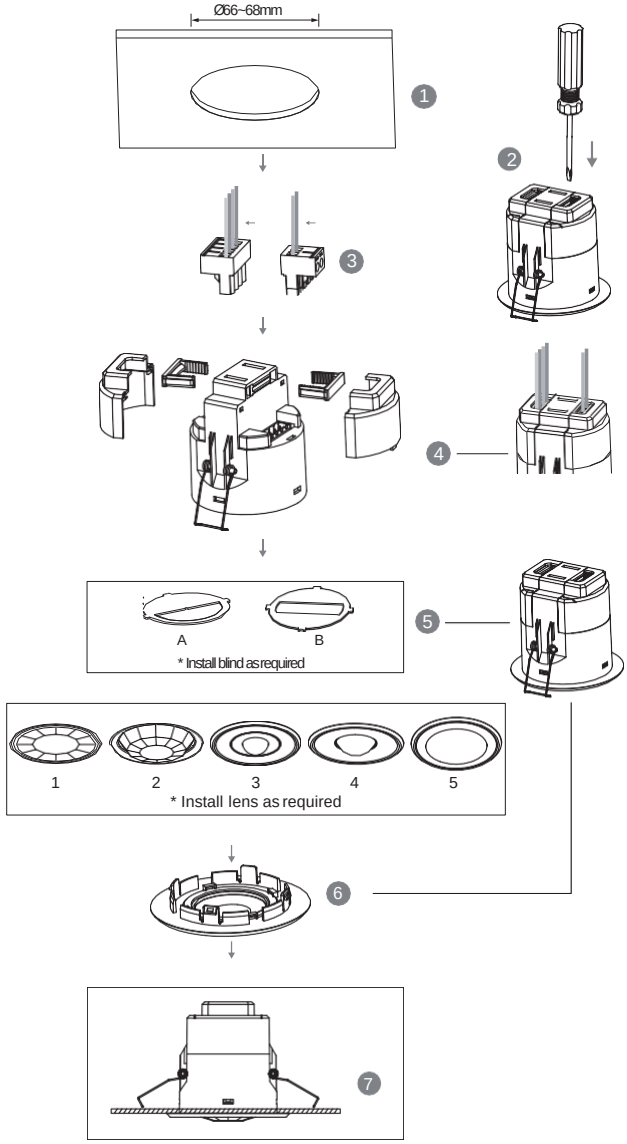
* For more details of detection range, please refer to "detection pattern" section.

Zero-cross Relay Operation

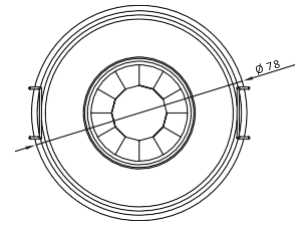
The sensor switches on/off the load right at the zero-cross point, to ensure that the in-rush current is minimised, enabling the maximum lifetime of the relay.

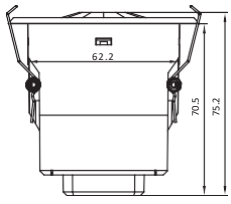


## Mechanical Structure & Dimensions

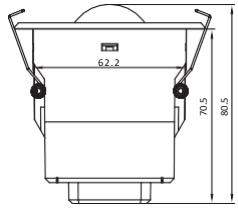



1. Ceiling (drill hole Ø 66~68mm)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip fascia to body.
7. Bend back springs and insert into ceiling.



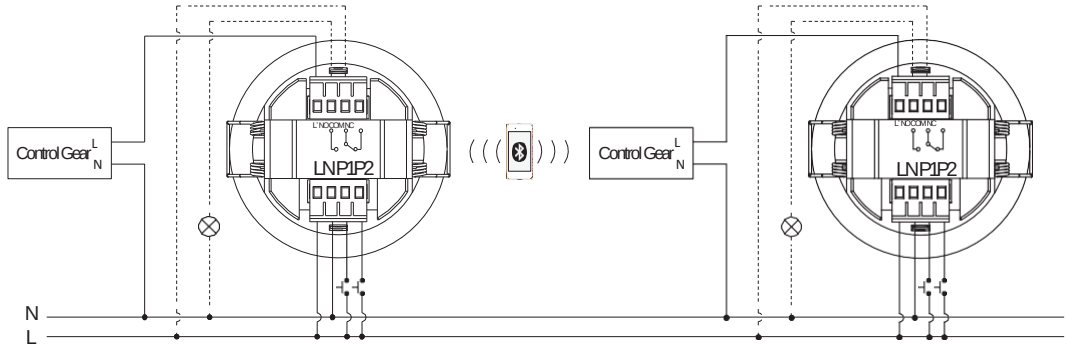

HBIR28/2CH




HBIR28/2CH/H

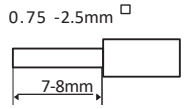
## Wiring Diagram

Original status (stand-by)




*By connecting Land COM, the VFC (voltage-free contact) channel can also be turned into a common Switch Loutput to achieve separate control of the two Switch Lchannels.

## Wire Preparation

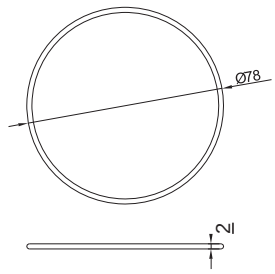



Pluggable screw terminal. Itis recommended to make connections to the terminal before fitting to the sensor.

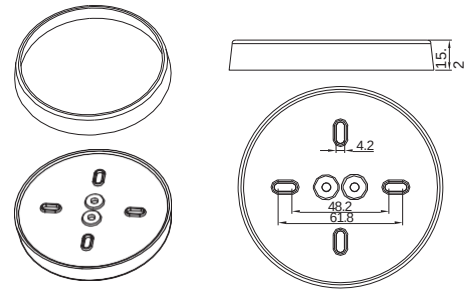
## Detection Pattern & Optional Accessories

Big and small silicon gasket used to make IP54 degree protection (mounted into HA09 housing for ceiling mount)

Small silicon water-proof gasket dimension(size:mm)

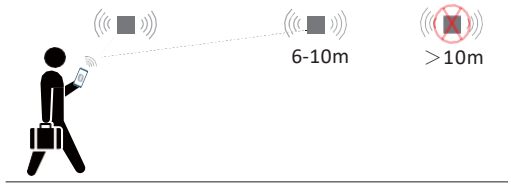



Big silicon water-proof gasket dimension(size:mm)




## Placement Guide and Typical Range

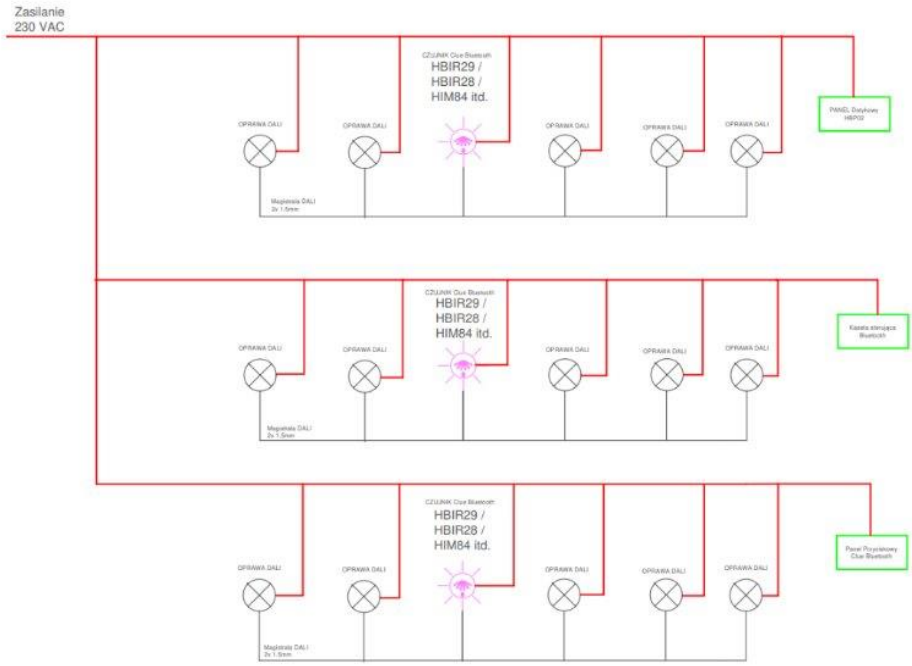
Smart Phone to Device Range




The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

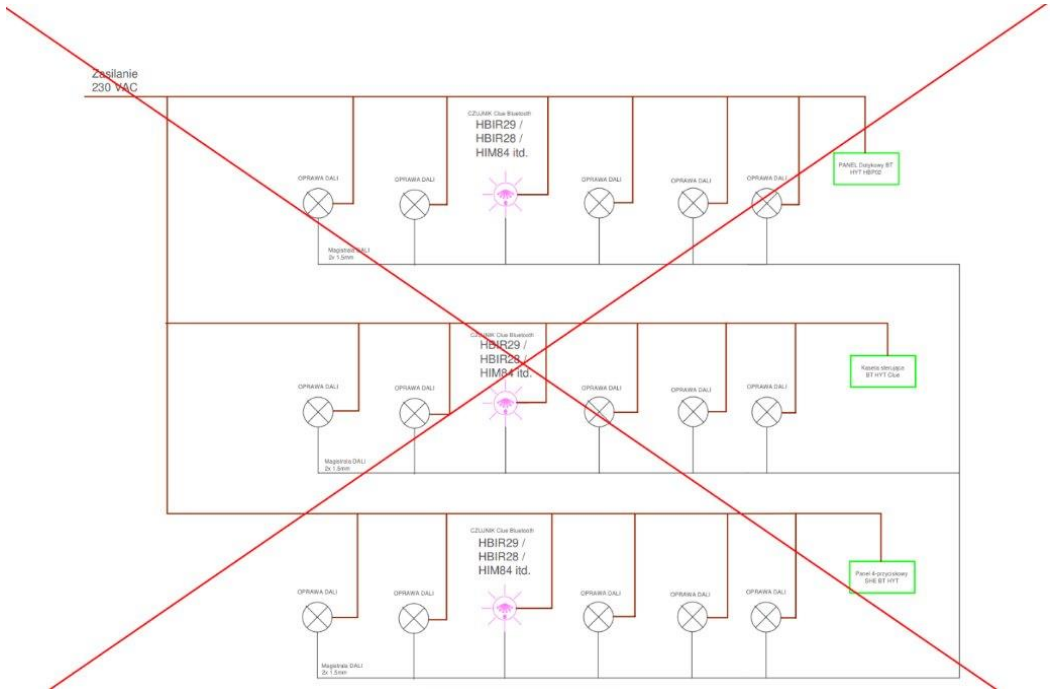
Once the devices have been added to the network via the App, the devices will start communicating within the wireless mesh. This means that once the network is complete, all devices are accessible from the smart device when in a 20m range of a single point.

**Wiring – connecting two or more sensors**




HBIR sensors are powered by a 3x2.5 mm2 cable and connected to the DALI bus to lamps within a given zone as shown in the diagram.

**REMARK! Do not connect 2 or more sensors together via the DALI bus – this can lead to incorrect operation or even damage to the sensor.**

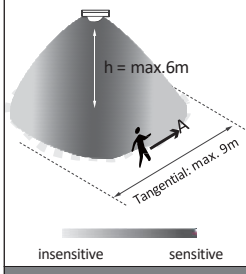


## 1. HBIR28/2CH (Low-bay)

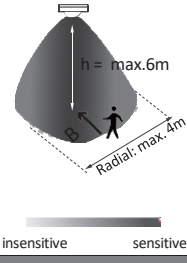
**HBIR28/2CH**: Low-bay flat lens detection pattern for **single person** @ Ta = 20°C

(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement

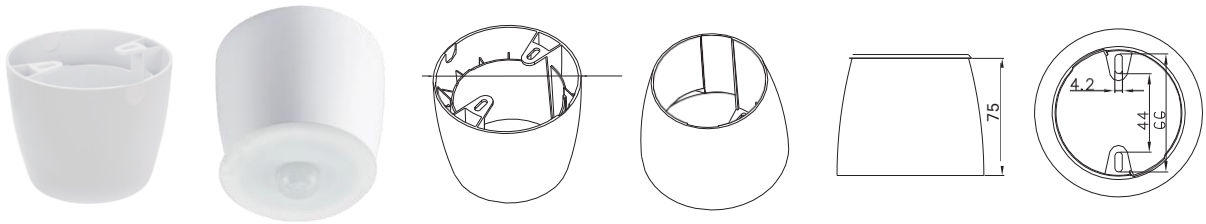



B: Radial movement

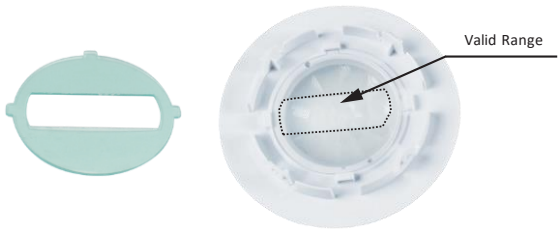



| Mount height | Tangential (A) | Radial (B) |
|---|---|---|
| 2.5m | max 50m² (Ø = 9m) | max 13m² (Ø = 4m) |
| 3m | max 64m² (Ø = 10m) | max 13m² (Ø = 4m) |
| 4m | max 38m² (Ø = 8m) | max 13m² (Ø = 4m) |
| 5m | max 38m² (Ø = 8m) | max 13m² (Ø = 4m) |
| 6m | max 38m² (Ø = 8m) | max 13m² (Ø = 4m) |

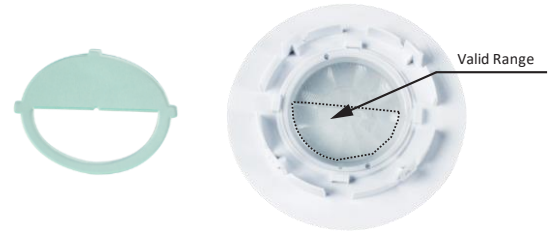
### Optional Accessory – Ceiling/Surface Mount Box: HA03




### Optional Accessory –Blind Insert for Blocking Certain Detection Angles




Blind Option 1 --- Aisle Detection



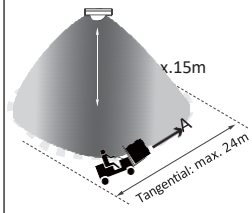

Blind Option 2 --- 180° Detection

## 4. HBIR28/2CH/H (High-bay)

**HBIR28/2CH/H**: High-bay lens detection pattern for **forklift** @ Ta = 20°C

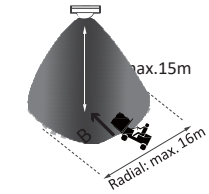
(Recommended ceiling mount installation height **10m-15m**)

A: Tangential movement




insensitive sensitive

B: Radial movement



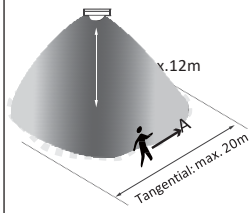

insensitive sensitive

| Mount height | Tangential (A) | Radial (B) |
|---|---|---|
| 10m | max 380m² (Ø = 22m) | max 201m² (Ø = 16m) |
| 11m | max 452m² (Ø = 24m) | max 201m² (Ø = 16m) |
| 12m | max 452m² (Ø = 24m) | max 201m² (Ø = 16m) |
| 13m | max 452m² (Ø = 24m) | max 177m² (Ø = 15m) |
| 14m | max 452m² (Ø = 24m) | max 133m² (Ø = 13m) |
| 15m | max 452m² (Ø = 24m) | max 113m² (Ø = 12m) |

**HBIR28/2CH/H**: High-bay lens detection pattern for **single person** @ Ta = 20°C

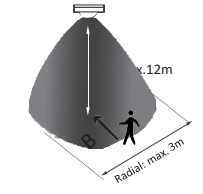
(Recommended ceiling mount installation height **2.5m-12m**)

A: Tangential movement




insensitive sensitive

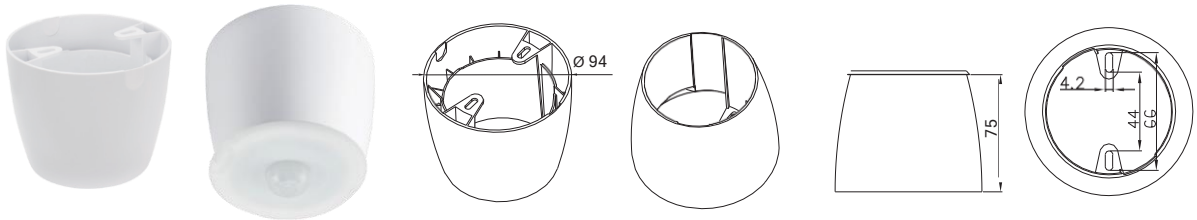
B: Radial movement



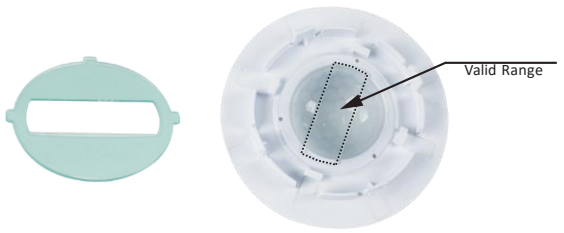

insensitive sensitive

| Mount height | Tangential (A) | Radial (B) |
|---|---|---|
| 2.5m | max 50m² (Ø = 8m) | max 7m² (Ø = 3m) |
| 6m | max 104m² (Ø = 11.5m) | max 7m² (Ø = 3m) |
| 8m | max 154m² (Ø = 14m) | max 7m² (Ø = 3m) |
| 10m | max 227m² (Ø = 17m) | max 7m² (Ø = 3m) |
| 11m | max 269m² (Ø = 18.5m) | max 7m² (Ø = 3m) |
| 12m | max 314m² (Ø = 20m) | max 7m² (Ø = 3m) |

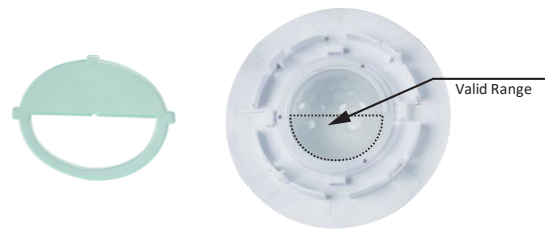
### Optional Accessory – Ceiling/Surface Mount Box: HA03




### Optional Accessory – Blind Insert for Blocking Certain Detection Angles

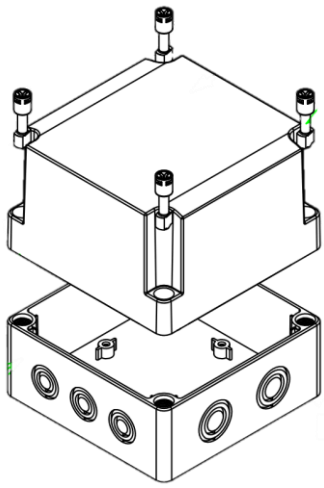


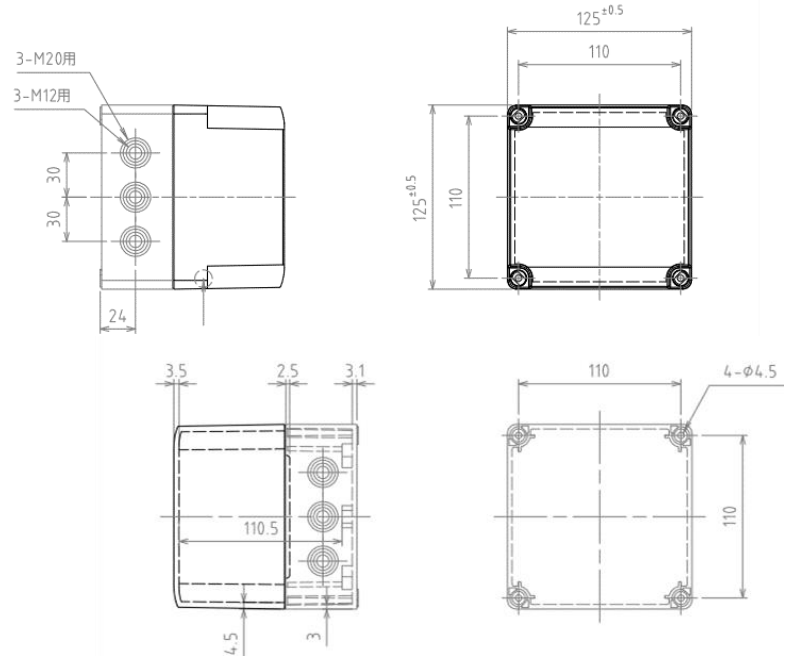

Blind Option 1 --- Aisle Detection




Blind Option 2 --- 180° Detection

Optional Equipment – Ceiling/Surface Mount Box: TAKACHI IP67 (625596)






| Manufacturer's code | Dimensions | | | Internal dimensions | | | Can color | Weight [g] |
|---|---|---|---|---|---|---|---|---|
| | S | W | G | s | w | g | | |
| SPCM131313G | 125 | 125 | 125 | 114.5 | 110.5 | 90 | RAL7035 | 401 |

## Dimming Interface Operation Notes

Switch-Dim

The provided Switch-Dim interface allows for a simple dimming method using commercially available non-latching (momentary) wall switches. Detailed Push switch configurations can be set on Lena Lighting Clue app.

| Switch Function | Action | Descriptions |
|---|---|---|
| Push switch | Short press (<1 second)<br>* Short press has to be longer than 0.1s, or it will be invalid. | - Turn on/off<br>- Turn on only<br>- Turn off only<br>- Recall a scene<br>- Quit manual mode<br>- Do nothing |
| | Double push | - Turn on only<br>- Turn off only<br>- Recall a scene<br>- Quit manual mode<br>- Do nothing |
| | Long press (≥1 second) | - Dimming<br>- Colour tuning<br>- Do nothing |
| Sensor-link | / | - Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor |
| Emergency Self-Test Function | Short press (<1 second)<br>* Short press has to be longer than 0.1s, or it will be invalid. | - Start Self test (Monthly)<br>- Stop Self test<br>- Start Self test (Annually)<br>- Invalid |
| | Long press (≥1 second) | - Start Self test (Monthly)<br>- Stop Self test<br>- Start Self test (Annually)<br>- Invalid |
| Fire Alarm (VFC signal only) | Refer to Lena Lighting Clue App User Manual V2.1 | -Able to connect the Fire Alarm system<br>-Once the fire alarm system is triggered, all the luminaries controlled by the Push Switch will enter the preset scene (normally it's full on), after the fire alarm system gives the ending signal, all the luminaries controlled by this Push Switch will revert back to normal status. |

For more information, please contact iot@lenalighting.pl