PIR Standalone Motion Sensor with Bluetooth® 5.0 SIG Mesh

HBIR28/2CH Low-bay
HBIR28/2CH/R Reinforced Low-bay
HBIR28/2CH/W Wide range Low-bay
HBIR28/2CH/H High-bay
HBIR28/2CH/RH Reinforced High-bay

LENA LIGHTING

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 **Koolmesh**™ app.

HBIR28/2CH HBIR28/2CH/R HBIR28/2CH/W

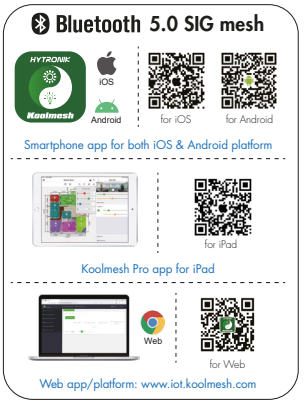
HBIR28/2CH/H HBIR28/2CH/RH (3-pyro)

App Features

- Quick setup mode & advanced setup mode
- Web app/platform for project deployment & data analysis
- Koolmesh Pro app on iPad for on-site configuration
- Floorplan feature to simplify project planning
- One-key device replacement
- Device social relations check
- Remote control via gateway support HBGW01
- Heat map
- Dynamic daylight harvest auto-adaptation
- 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

- VFC: Volt-free Contact/Dry Contact ON/OFF relay switch:
  - 24VDC@2A
  - 250VDC@2A
- Freely select NO or NC contact
- Two relays built-in
- 2 Push inputs for flexible manual control
- Ceiling/Surface mount box available as accessory
- Various PIR lens and blind inserts options
- User-friendly design for installation
- High bay version available (up to 15m in height)
- 5-year warranty



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

Technical Specifications

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

Input & Output Characteristics	
Operating voltage	220~240VAC 50/60Hz
Load ratings	Channel 1: 400VA Channel 2: 24VDC@2A, 250VAC@2A
Warming-up	20s

Sensor Data	
Sensor Model	PIR detection
HBIR28/2CH	Installation Height : 6m Detection Range(Ø) :9m
HBIR28/2CH/R	Installation Height : 6m Detection Range(Ø) :10m
HBIR28/2CH/W	Installation Height : 6m Detection Range(Ø) :18m
HBIR28/2CH/H	Installation height: 15m (forklift) 12m (person) Detection range (Ø): 24m
HBIR28/2CH/RH	Installation height: 20m (forklift) 12m (person) Detection range (Ø): 40m
Detection angle	360°

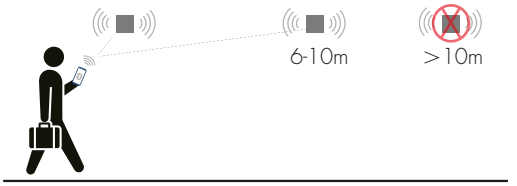
Safety & EMC	
EMC standard (EMC)	EN55015, EN61000, EN61547
Safety standard (LVD)	EN60669-1, EN60669-2-1 AS/NZS60669-1/-2-1
RED	EN300328, EN301489-1/-17
Certification	CB, CE , EMC, RED, RCM, UKCA

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

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

Placement Guide and Typical Range for HBIR28/2CH/H & HBIR28/2CH/RH

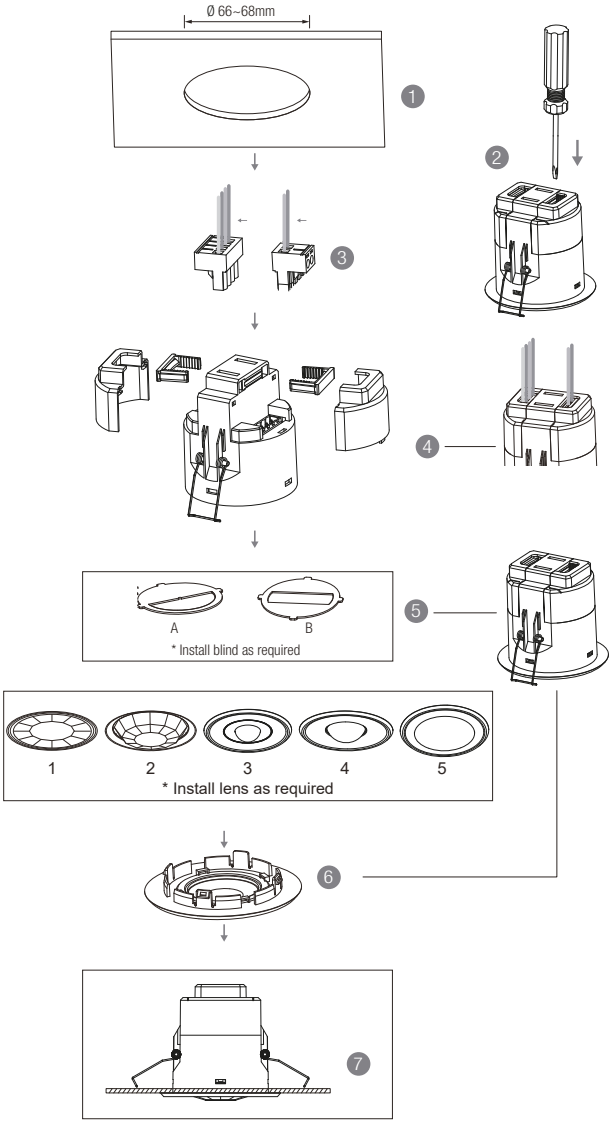
Smart Phone to Device Range



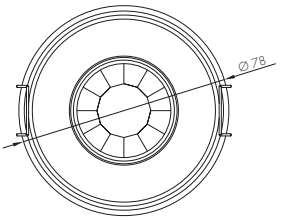
The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

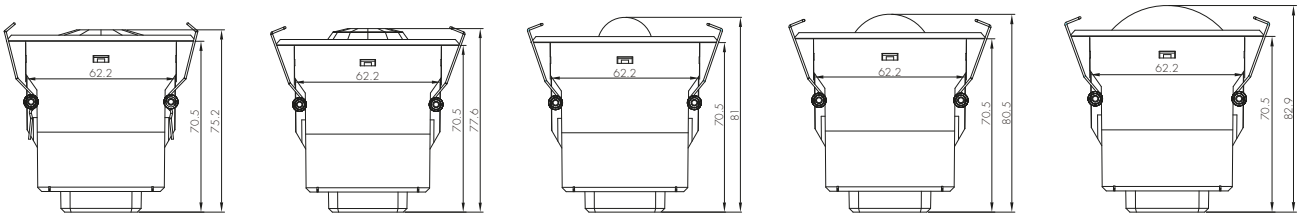
Once the devices have been added to the network via the App, the devices will start communicating within the wireless mesh. This means that once the network is complete, all devices are accessible from the smart device when in a 20m range of a single point.

Mechanical Structure & Dimensions



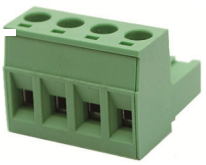
1. Ceiling (drill hole Ø 66~68mm)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip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

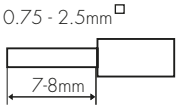




HBIR28/2CH | HBIR28/2CH/R | HBIR28/2CH/W | HBIR28/2CH/H | HBIR28/2CH/RH

Wire Preparation

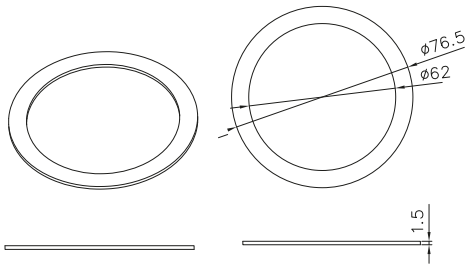




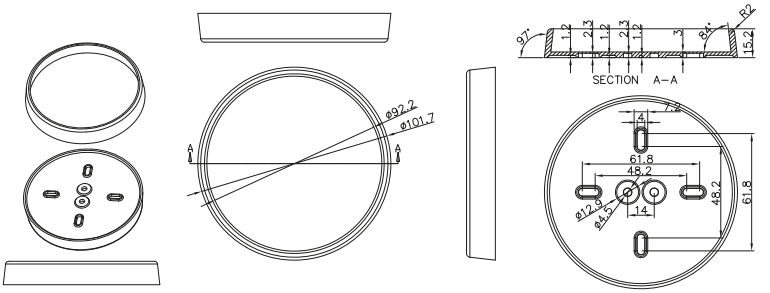
Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

Big and small silicon gasket used to make IP65 degree protection when HIR23/D2 series device mounted into HA03 housing for ceiling mount

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



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



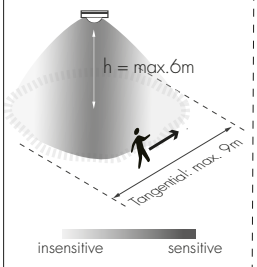
Detection Pattern & Optional Accessories

1. HBIR28/2CH (Low-bay)

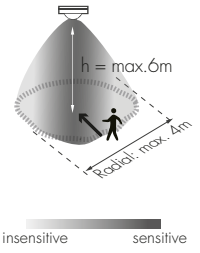
HBIR28/2CH: Low-bay flat lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

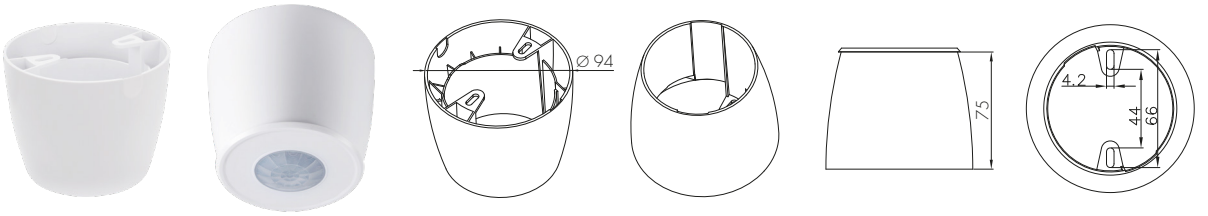


B: Radial movement

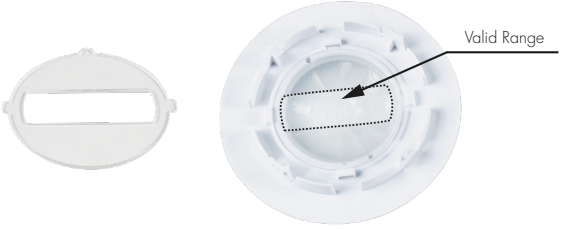


Mount height	Tangential (A)	Radial (B)
2.5m	max 50m² (Ø = 8m)	max 13m² (Ø = 4m)
3m	max 64m² (Ø = 9m)	max 13m² (Ø = 4m)
4m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)
5m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)
6m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)

Optional Accessory -- Ceiling/Surface Mount Box: HA03



Optional Accessory -- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection

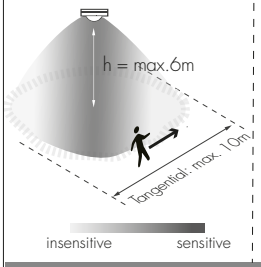
Blind Option 2 --- 180° Detection

2. HBIR28/2CH/R (Reinforced Low-bay)

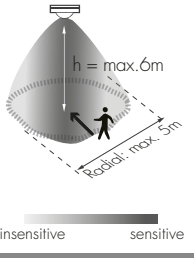
HBIR28/2CH/R: Low-bay convex lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

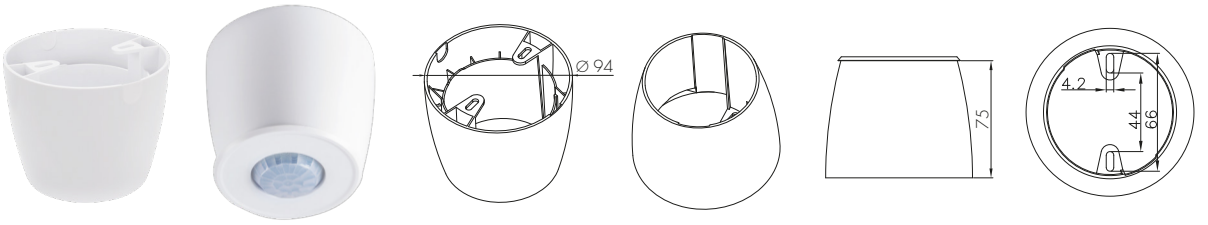


B: Radial movement

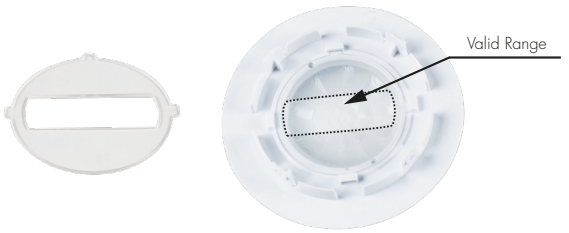


Mount height	Tangential (A)	Radial (B)
2.5m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
3m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
4m	max 64m² (Ø = 9m)	max 20m² (Ø = 5m)
5m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)
6m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03



Optional Accessory --- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection

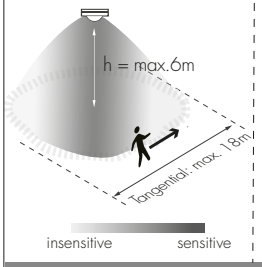
Blind Option 2 --- 180° Detection

3. HBIR28/2CH/W (Wide range Low-bay)

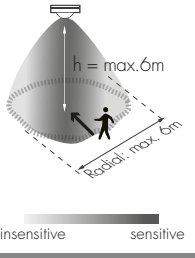
HBIR28/2CH/W: Low-bay convex lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

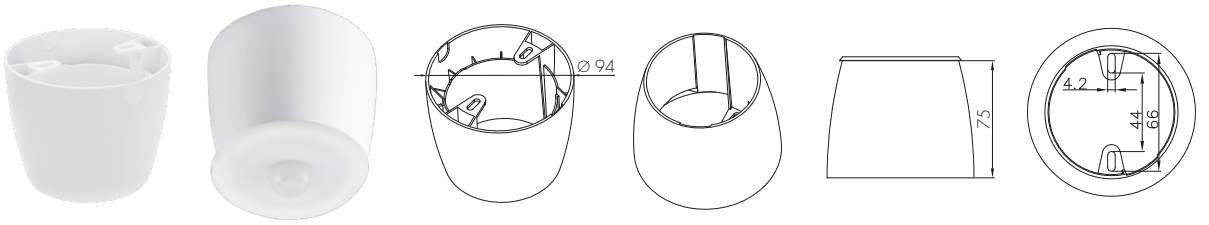


B: Radial movement



Mount height	Tangential (A)	Radial (B)
2.5m	max 254m² (Ø = 18m)	max 28m² (Ø = 6m)
3m	max 254m² (Ø = 18m)	max 28m² (Ø = 6m)
4m	max 154m² (Ø = 14m)	max 28m² (Ø = 6m)
5m	max 113m² (Ø = 12m)	max 28m² (Ø = 6m)
6m	max 79m² (Ø = 10m)	max 13m² (Ø = 4m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03

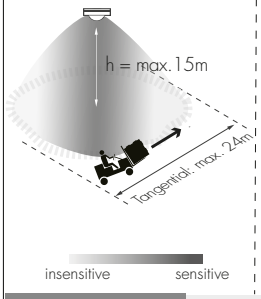


4. HBIR28/2CH/H (High-bay)

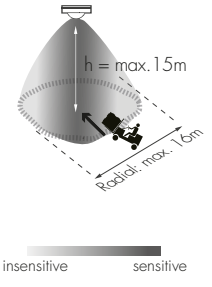
HBIR28/2CH/H: High-bay lens detection pattern for **forklift** @ Ta = 20°C

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

A: Tangential movement



B: Radial movement

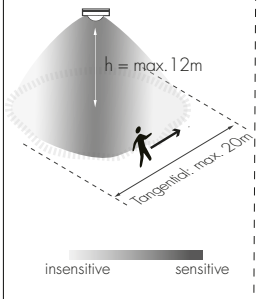


Mount height	Tangential (A)	Radial (B)
10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
14m	max 452m² (Ø = 24m)	max 133m² (Ø = 13m)
15m	max 452m² (Ø = 24m)	max 113m² (Ø = 12m)

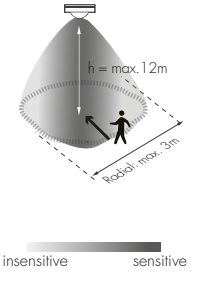
HBIR28/2CH/H: High-bay lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

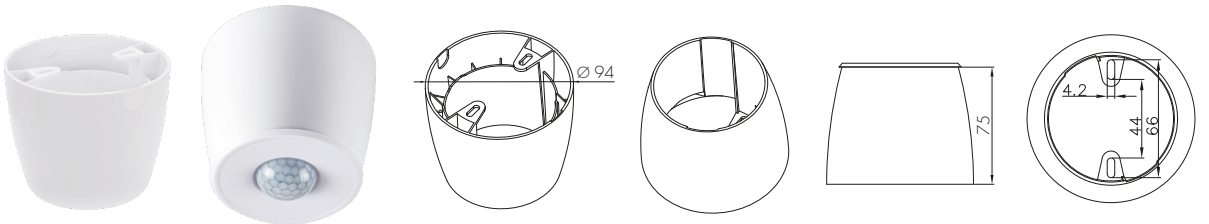


B: Radial movement

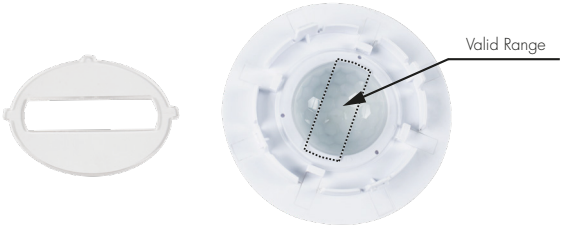


Mount height	Tangential (A)	Radial (B)
2.5m	max 50m² (Ø = 8m)	max 7m² (Ø = 3m)
6m	max 104m² (Ø = 11.5m)	max 7m² (Ø = 3m)
8m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
10m	max 227m² (Ø = 17m)	max 7m² (Ø = 3m)
11m	max 269m² (Ø = 18.5m)	max 7m² (Ø = 3m)
12m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)

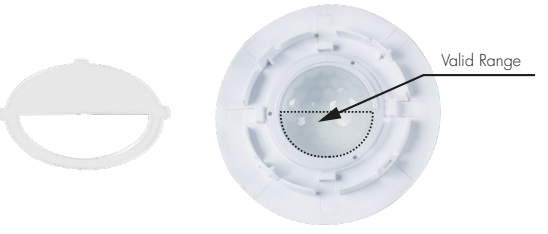
Optional Accessory --- Ceiling/Surface Mount Box: HA03



Optional Accessory --- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection



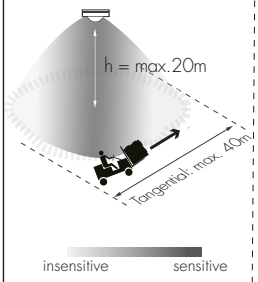
Blind Option 2 --- 180° Detection

5. HBIR28/2CH/RH (Reinforced High-bay with 3-Pyro)

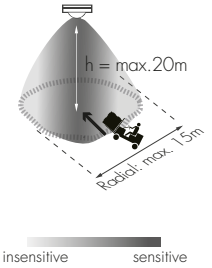
HBIR28/RH/2CH: Reinforced high-bay lens detection pattern for **forklift** @ Ta = 20°C

(Recommended ceiling mount installation height **10m-20m**)

A: Tangential movement



B: Radial movement

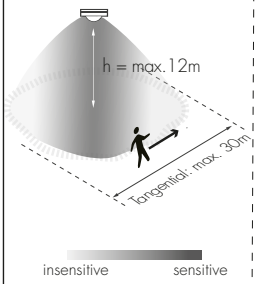


Mount height	Tangential (A)	Radial (B)
10m	max 346m² (Ø = 21m)	max 177m² (Ø = 15m)
11m	max 660m² (Ø = 29m)	max 177m² (Ø = 15m)
12m	max 907m² (Ø = 34m)	max 154m² (Ø = 14m)
13m	max 962m² (Ø = 35m)	max 154m² (Ø = 14m)
14m	max 1075m² (Ø = 37m)	max 113m² (Ø = 12m)
15m	max 1256m² (Ø = 40m)	max 113m² (Ø = 12m)
20m	max 707m² (Ø = 30m)	max 113m² (Ø = 12m)

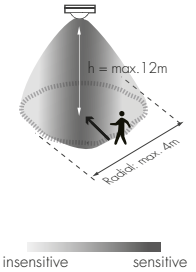
HBIR28/2CH/RH: Reinforced high-bay lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

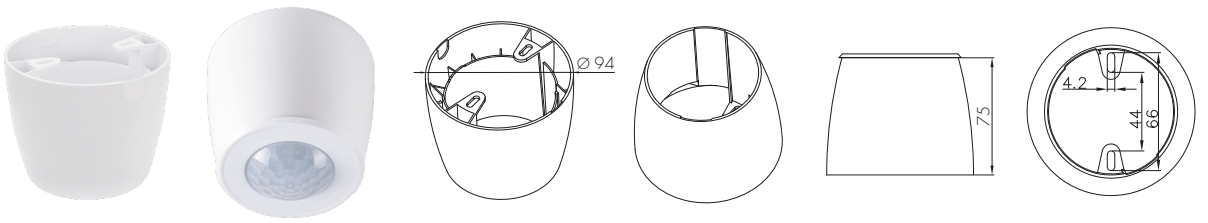


B: Radial movement



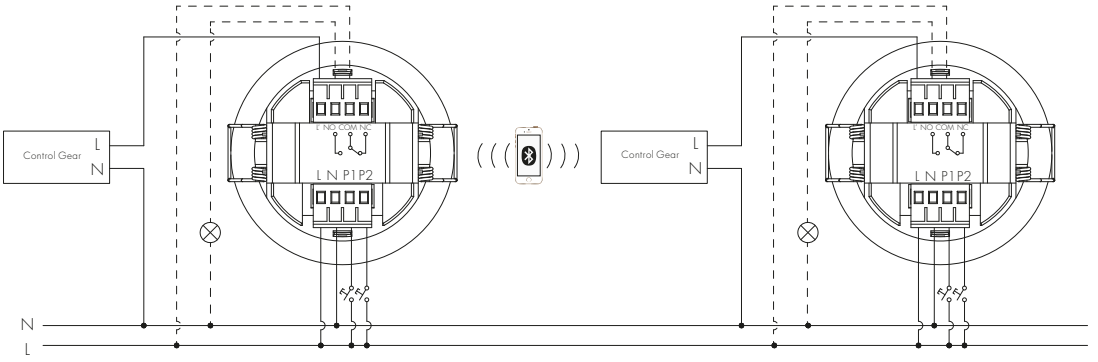
Mount height	Tangential (A)	Radial (B)
2.5m	max 38m² (Ø = 7m)	max 7m² (Ø = 3m)
6m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
8m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)
10m	max 531m² (Ø = 26m)	max 13m² (Ø = 4m)
11m	max 615m² (Ø = 28m)	max 13m² (Ø = 4m)
12m	max 707m² (Ø = 30m)	max 13m² (Ø = 4m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03



Wiring Diagram

Original status (stand-by)



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

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 Koolmesh app.

Switch Function	Action	Descriptions
Push switch	Short press (<1 second) * Short press has to be longer than 0.1s, or it will be invalid.	- Turn on/off - Turn on only - Turn off only - Recall a scene - Quit manual mode - Do nothing
	Double push	- Turn on only - Turn off only - Recall a scene - Quit manual mode - Do nothing
	Long press (≥1 second)	- Do nothing
Simulate sensor	/	- Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor

Additional Information / Documents

1. To learn more about detailed product features/funcvtions, please refer to www.hytronik.com/download ->knowledge ->Introduction of App Scenes and Product Functions

2. Regarding precautions for Bluetooth product installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->Bluetooth Products - Precautions for Product Installation and Operation

3. Regarding precautions for PIR Sensors installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->PIR Sensors - Precautions for Product Installation and Operation

4. Data sheet is subject to change without notice. Please always refer to the most recent release on www.hytronik.com/products/bluetooth technology ->Bluetooth Sensors

5. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy