



HYTRONIK HBIR31 PIR Standalone Motion Sensor with Bluetooth 5.0 SIG Mesh Owner's Manual

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HYTRONIK [®]

  **CB**  **CE** IP20 RED 



HBIR31



HBIR31/R




HBIR31/W



HBIR31/H



HBIR31/RH
(3-pyro)

PIR Standalone Motion Sensor with  5.0 SIG Mesh
HBIR31 HBIR31/R HBIR31/W
Low-bay Reinforced Low-bay Wide range Low-bay
HBIR31/H HBIR31/RH
High-bay Reinforced High-bay

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Product Description

HBIR31 is a Bluetooth PIR standalone motion sensor with 80mA DALI power supply built in, which can control up









to 40 LED drivers. 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.

App Features

	Quick setup mode & advanced setup mode
	Tri-level control
	Daylight harvest
	Floorplan feature to simplify project planning
	Web app/platform for dedicated project management
	Koolmesh Pro iPad version for on-site conguration
	Grouping luminaires via mesh network
	Scenes
	Detailed motion sensor settings
	Dusk/Dawn photocell (Twilight function)
	Push switch conffiguration
	Schedule to run scenes based on time and date
	Astro timer (sunrise and sunset)
	Staircase function (primary & secondary)
	Internet-of-Things (IoT) featured

	Device firmware update over-the-air (OTA)
	Device social relations check
	Bulk commissioning (copy and paste settings)
	Dynamic daylight harvest auto-adaptation
	Power-on status (memory against power loss)
	Offline commissioning
	Different permission levels via authority management
	Network sharing via QR code or keycode
	Remote control via gateway support HBGW01
	Interoperability with Hytronik Bluetooth product portfolio
	Compatible with EnOcean BLE switches
	Continuous development in progress...

Hardware Features

	80mA DALI broadcast output for up to 40 LED drivers
	Support to control DT8 LED drivers
	2 Push inputs for exible manual control
	IP20/IP54 Ceiling/Surface mount box available as accessory
	Two types of blind inserts / blanking plates
	User-friendly design for installation
	High bay version available (up to 15m in height)
	5-year warranty

Bluetooth 5.0 SIG mesh



iOS



Android



for iOS



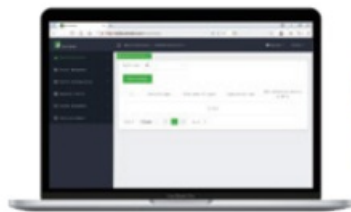
for Android

Smartphone app for both iOS & Android platform



for iPad

Koolmesh Pro app for iPad



Web



for Web

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

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



EnOcean


Self-powered IoT



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	 5.0 SIG Mesh

Sensor Data

Sensor Model	PIR max* detection range
HBIR31	Installation Height : 6m Detection Range(Ø) :9m
HBIR31/R	Installation Height : 6m Detection Range(Ø) :10m
HBIR31/W	Installation Height : 6m Detection Range(Ø) :18m
HBIR31/H	Installation height 15m (forklift) 12m (person) Detection range (Ø) 24m
HBIR31/RH	Installation height 20m (forklift) 12m (person) Detection range (Ø) 40m
Detection angle	360°

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

Input & Output Characteristics

Stand-by power	<1W
Operating voltage	220~240VAC 50/60Hz
Switched power	Max. 40 devices, 80mA
Warming-up	20s

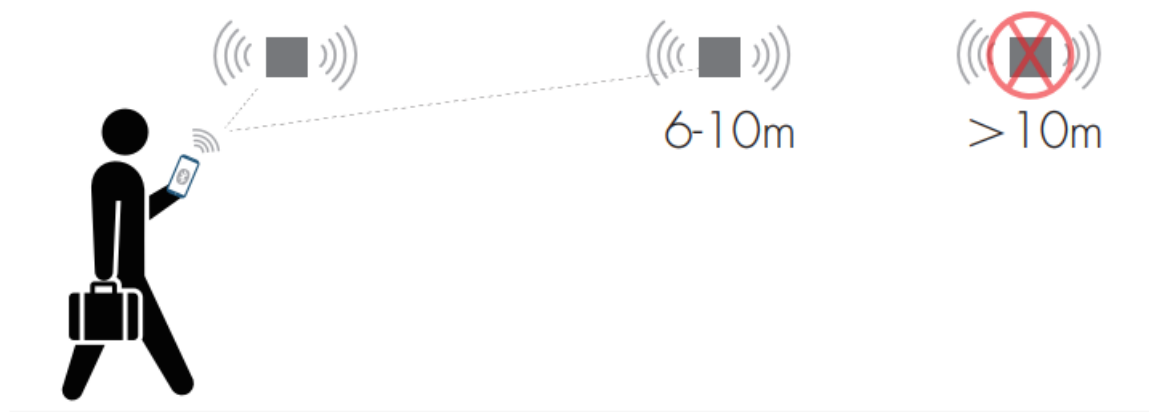
Safety & EMC

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

Environment

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

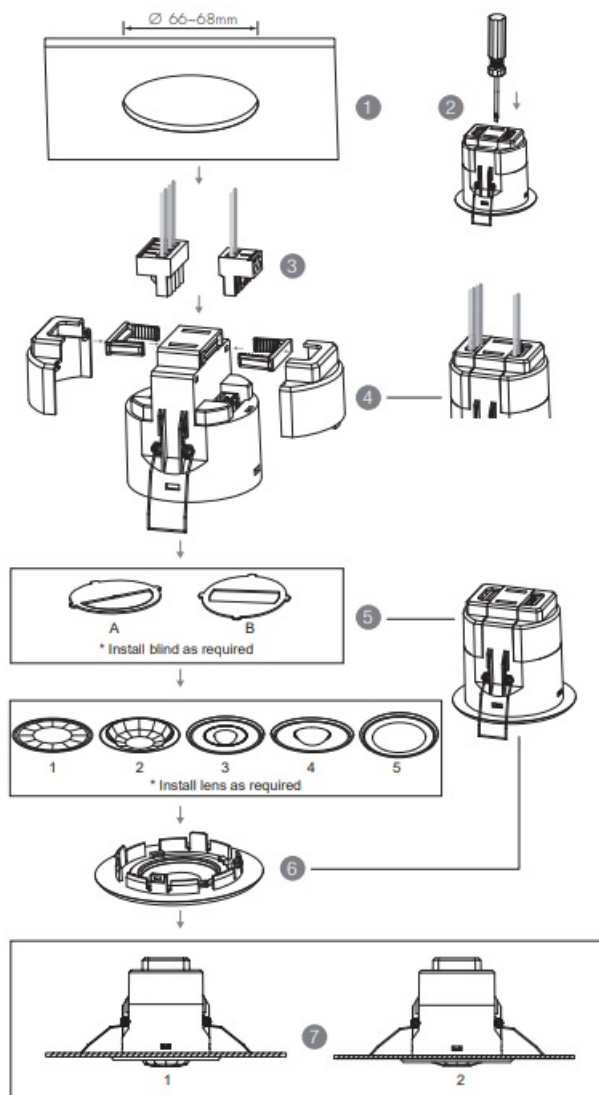
Placement Guide and Typical Range

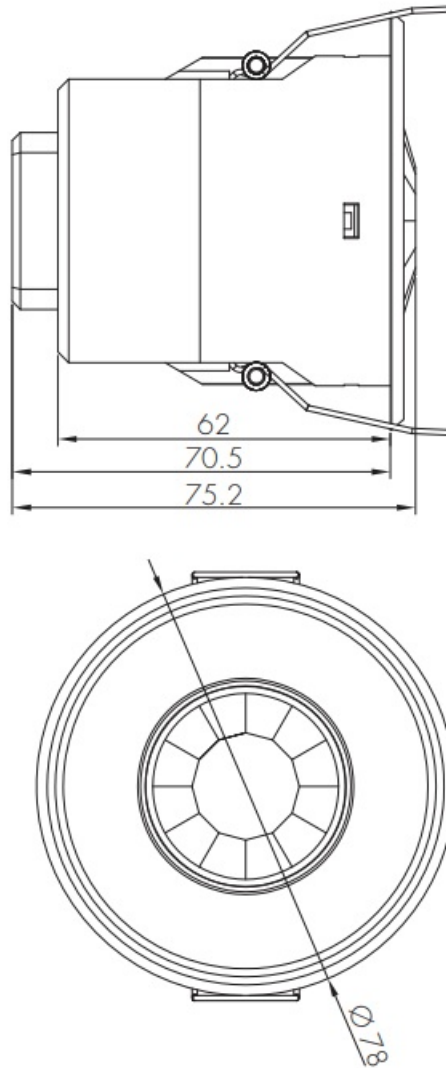


The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

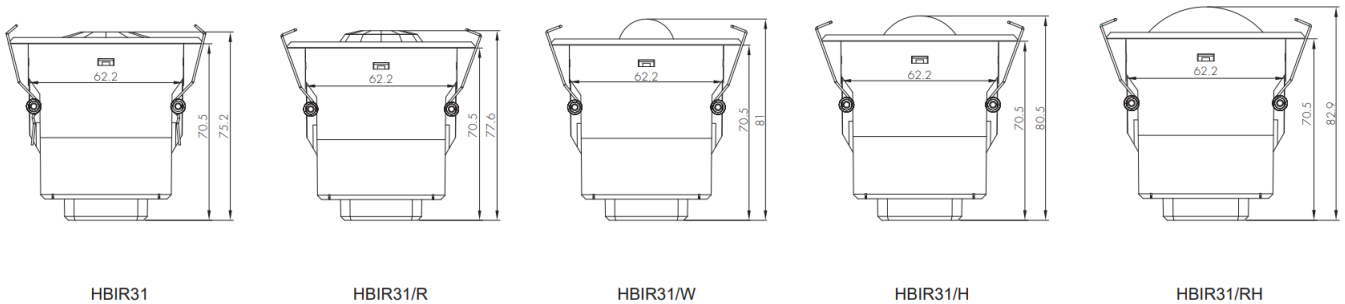
Once the devices have been added to the network via the App, the devices will start communicating within the wireless mesh. This means that once the network is complete, all devices are accessible from the smart device when in a 20m range of a single point.

Mechanical Structure & Dimensions

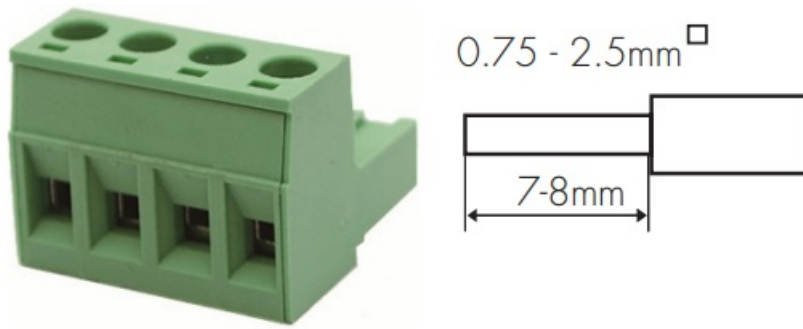




1. Ceiling (drill hole \varnothing 66~68mm)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.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



Wire Preparation



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

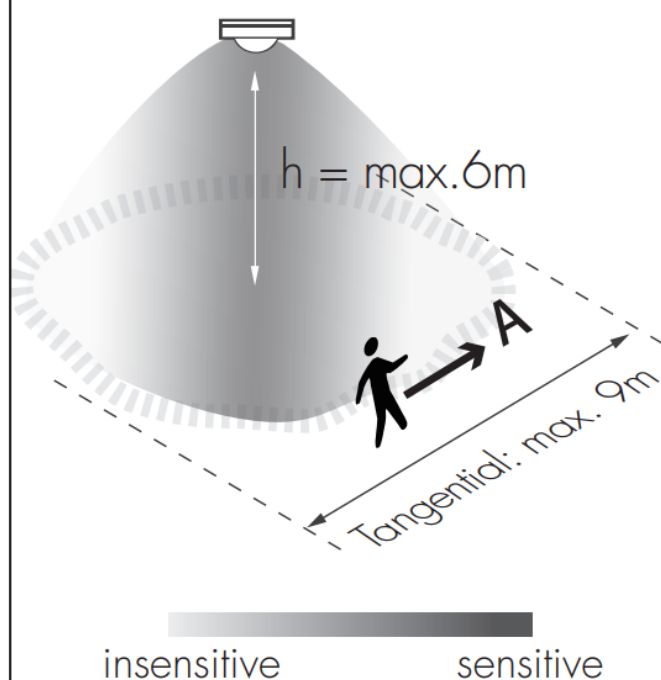
Detection Pattern & Optional Accessories

HBIR31 (Low-bay)

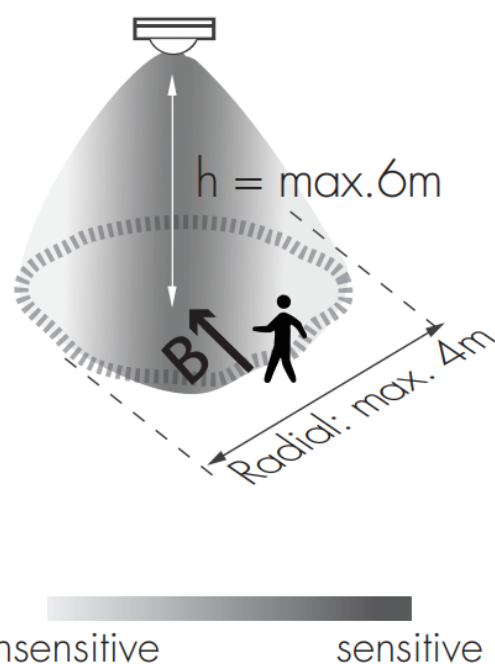


HBIR31: Low-bay fat lens detection pattern for single person @ $T_a = 20^{\circ}\text{C}$
(Recommended ceiling mount installation height 2.5m-6m)

A: Tangential movement

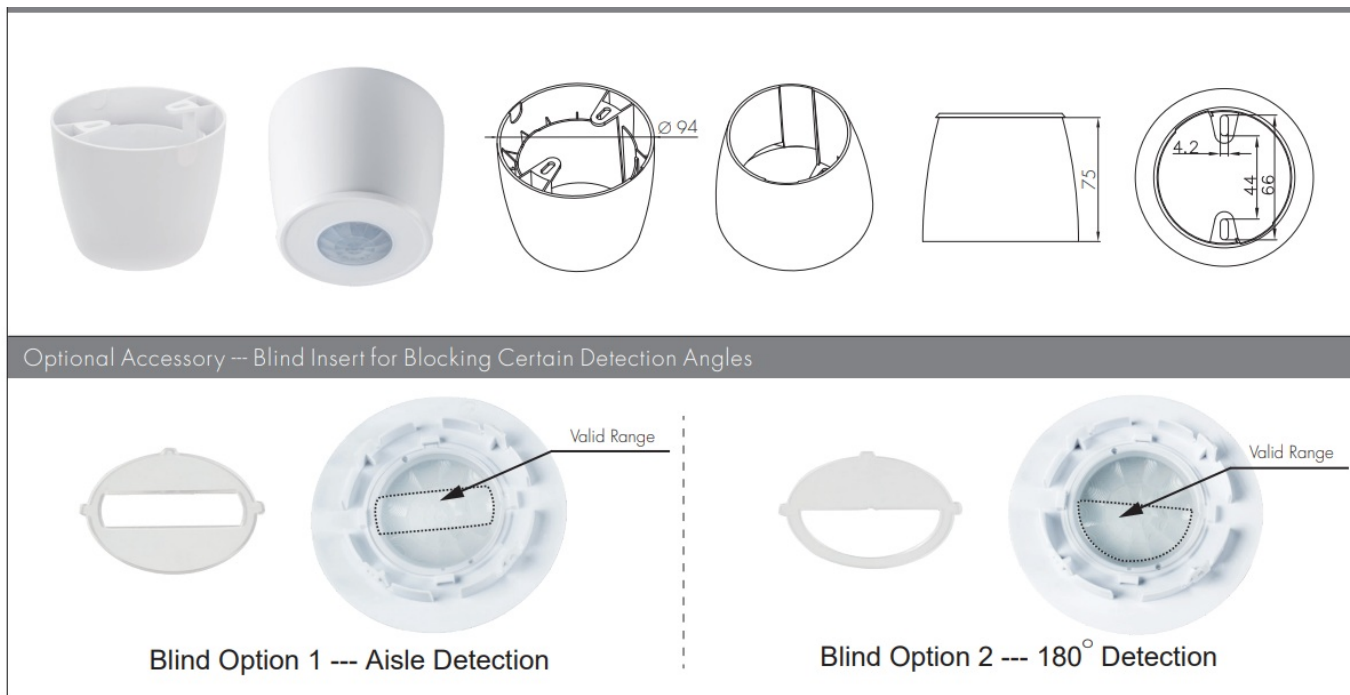


B: Radial movement



Mount height	Tangential (A)	Radial (B)
2.5m	max 50m 2 ($\varnothing = 8\text{m}$)	max 13m 2 ($\varnothing = 4\text{m}$)
3m	max 64m 2 ($\varnothing = 9\text{m}$)	max 13m 2 ($\varnothing = 4\text{m}$)
4m	max 38m 2 ($\varnothing = 7\text{m}$)	max 13m 2 ($\varnothing = 4\text{m}$)
5m	max 38m 2 ($\varnothing = 7\text{m}$)	max 13m 2 ($\varnothing = 4\text{m}$)
6m	max 38m 2 ($\varnothing = 7\text{m}$)	max 13m 2 ($\varnothing = 4\text{m}$)

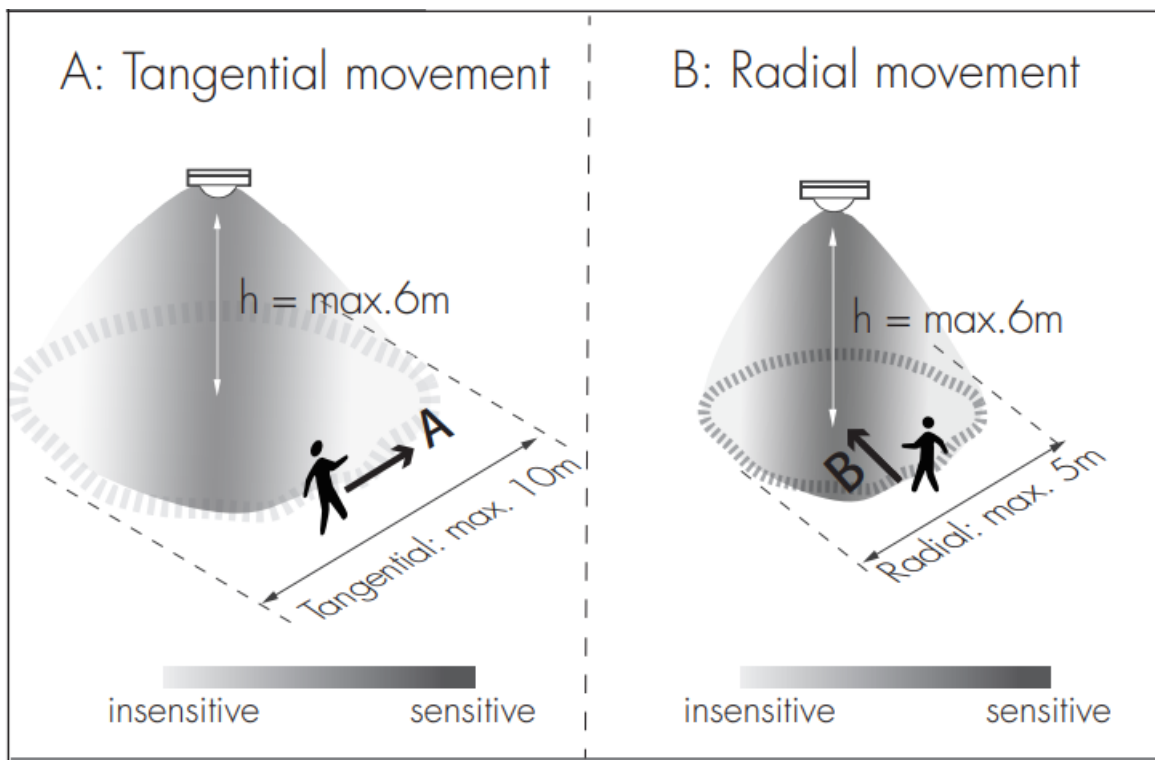
Optional Accessory — Ceiling/Surface Mount Box: HA03



HBIR31/R (Reinforced Low-bay)

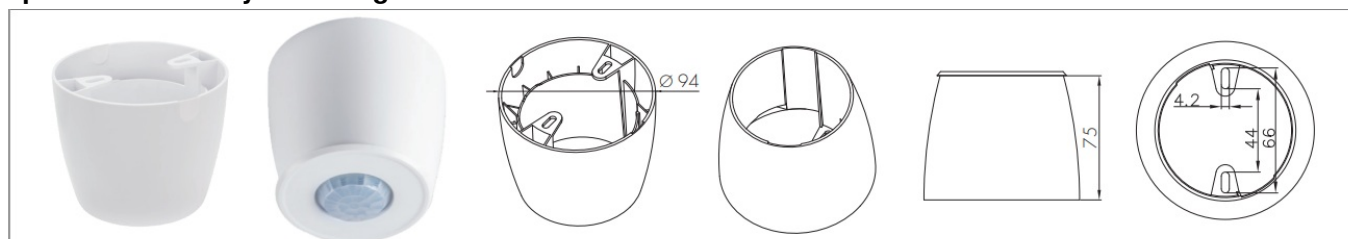


HBIR31/R: Low-bay convex lens detection pattern for single person @ $T_a = 20^\circ \text{C}$
(Recommended ceiling mount installation height 2.5m-6m)



Mount height	Tangential (A)	Radial (B)
2.5m	max 79m 2 (Ø = 10m)	max 20m 2 (Ø = 5m)
3m	max 79m 2 (Ø = 10m)	max 20m 2 (Ø = 5m)
4m	max 64m 2 (Ø = 9m)	max 20m 2 (Ø = 5m)
5m	max 50m 2 (Ø = 8m)	max 20m 2 (Ø = 5m)
6m	max 50m 2 (Ø = 8m)	max 20m 2 (Ø = 5m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



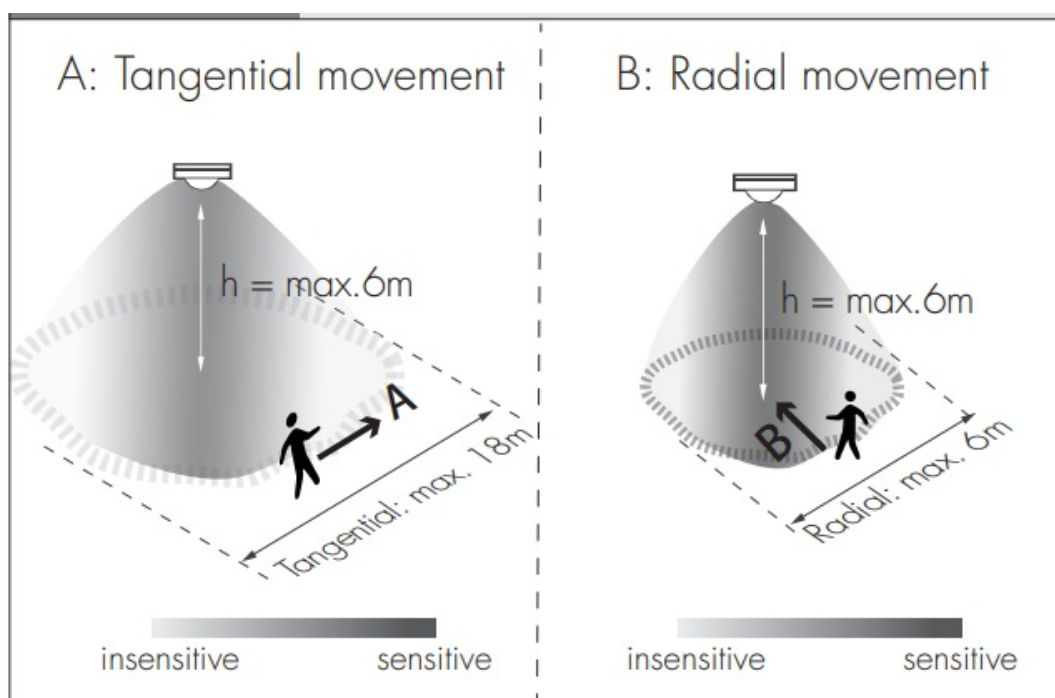
Optional Accessory — Blind Insert for Blocking Certain Detection Angles



HBIR31/W (Wide range Low-bay)

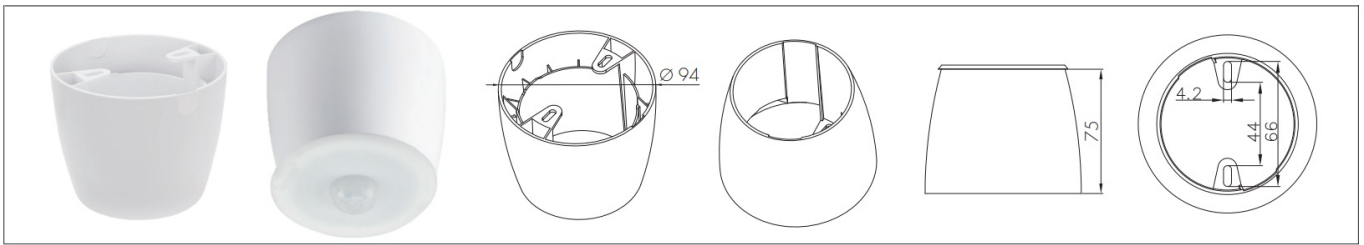


HBIR31/W: Low-bay convex lens detection pattern for single person @ Ta = 20 °C
(Recommended ceiling mount installation height 2.5m-6m)



Mount height	Tangential (A)	Radial (B)
2.5m	max 254m ² (Ø = 18m)	max 28m ² (Ø = 6m)
3m	max 254m ² (Ø = 18m)	max 28m ² (Ø = 6m)
4m	max 154m ² (Ø = 14m)	max 28m ² (Ø = 6m)
5m	max 113m ² (Ø = 12m)	max 28m ² (Ø = 6m)
6m	max 79m ² (Ø = 10m)	max 13m ² (Ø = 4m)

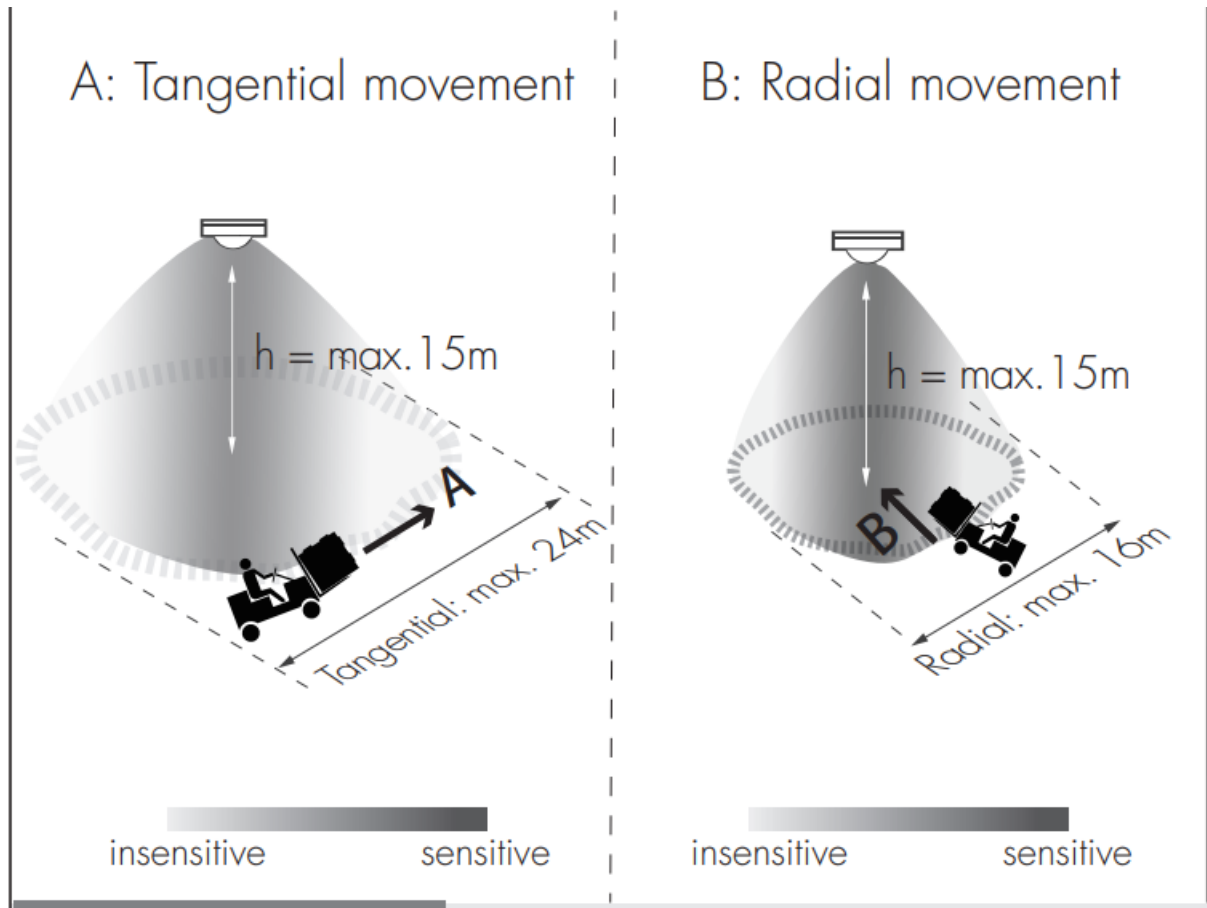
Optional Accessory — Ceiling/Surface Mount Box: HA03



Subject to change without notice.

HBIR31/H (High-bay)

HBIR31/H: High-bay lens detection pattern for forklift @ Ta = 20 °C
(Recommended ceiling mount installation height 10m-15m)

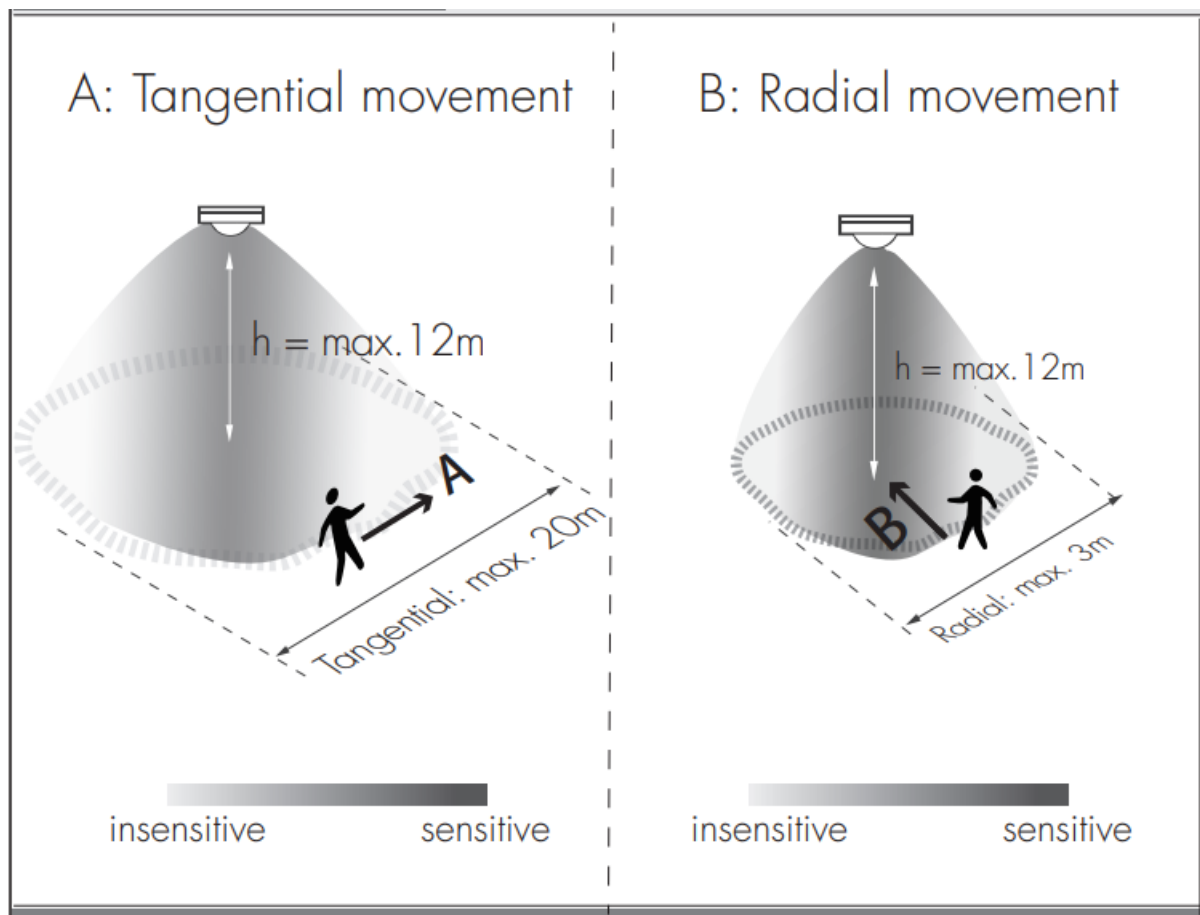


Mount height	Tangential (A)	Radial (B)
10m	max 380m 2 (Ø = 22m)	max 201m 2 (Ø = 16m)
11m	max 452m 2 (Ø = 24m)	max 201m 2 (Ø = 16m)
12m	max 452m 2 (Ø = 24m)	max 201m 2 (Ø = 16m)
13m	max 452m 2 (Ø = 24m)	max 177m 2 (Ø = 15m)
14m	max 452m 2 (Ø = 24m)	max 133m 2 (Ø = 13m)
15m	max 452m 2 (Ø = 24m)	max 113m 2 (Ø = 12m)

HBIR31/H: High-bay lens detection pattern for single person @ Ta = 20 °C

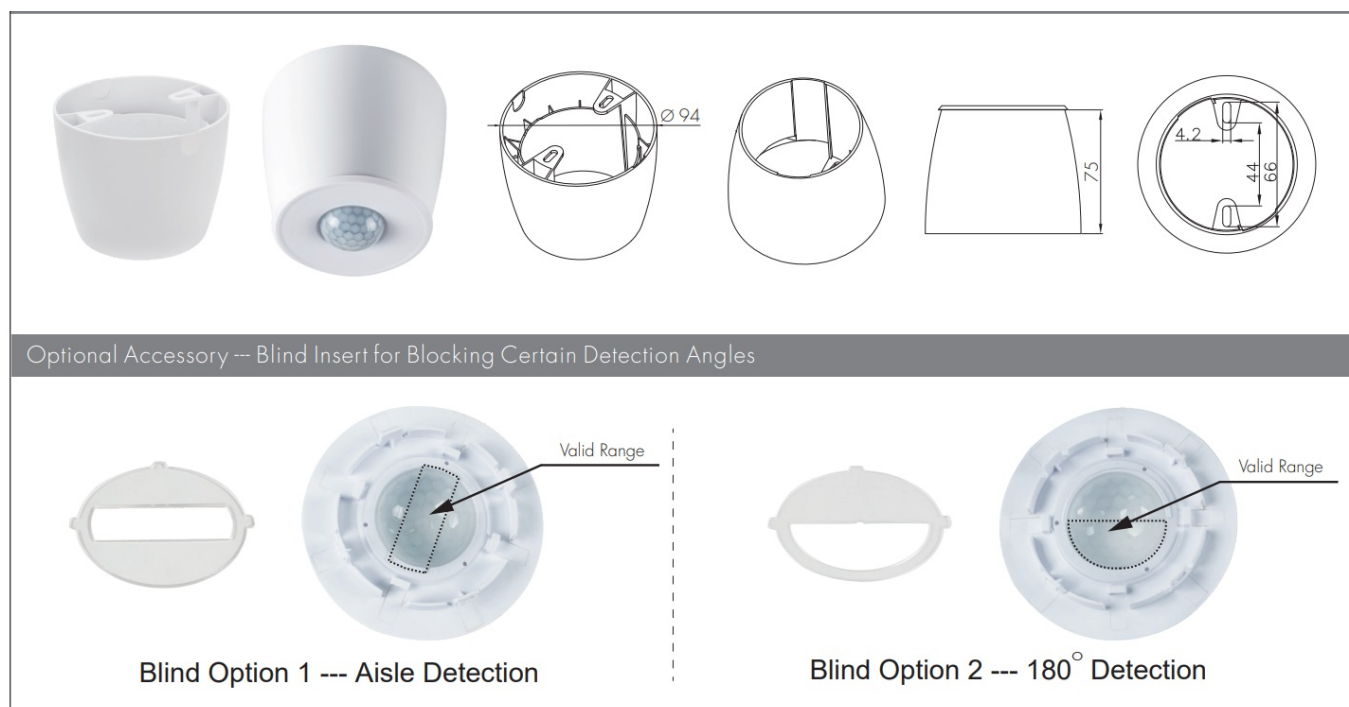


(Recommended ceiling mount installation height 2.5m-12m)



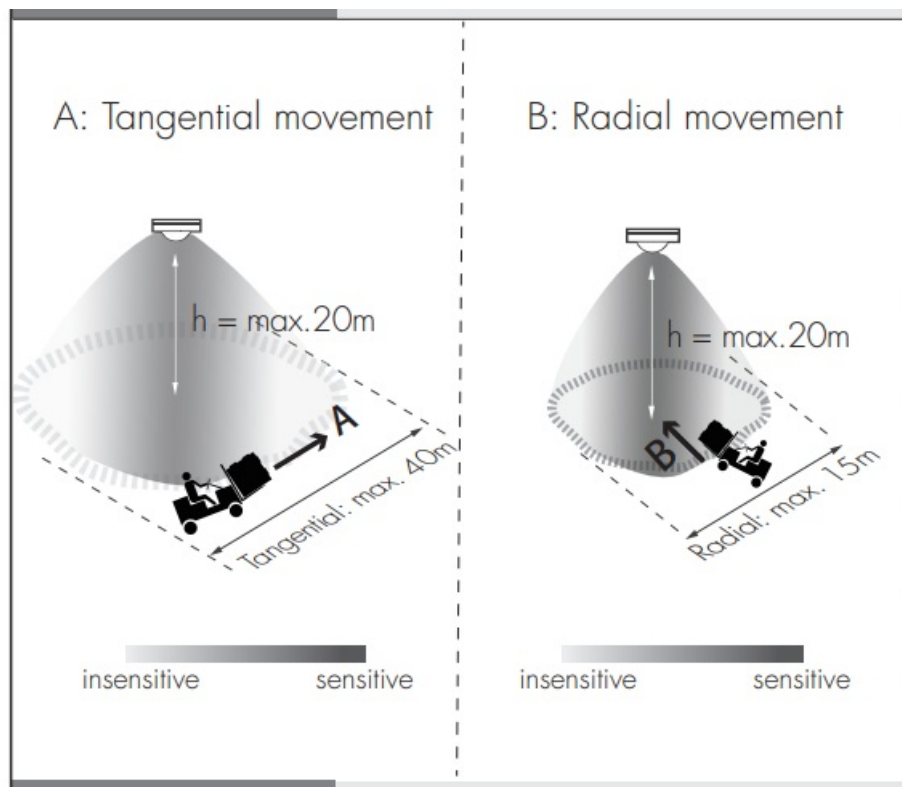
Mount height	Tangential (A)	Radial (B)
2.5m	max 50m 2 (Ø = 8m)	max 7m 2 (Ø = 3m)
6m	max 104m 2 (Ø = 11.5m)	max 7m 2 (Ø = 3m)
8m	max 154m 2 (Ø = 14m)	max 7m 2 (Ø = 3m)
10m	max 227m 2 (Ø = 17m)	max 7m 2 (Ø = 3m)
11m	max 269m 2 (Ø = 18.5m)	max 7m 2 (Ø = 3m)
12m	max 314m 2 (Ø = 20m)	max 7m 2 (Ø = 3m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



HBIR31/RH (Reinforced High-bay with 3-Pyro)

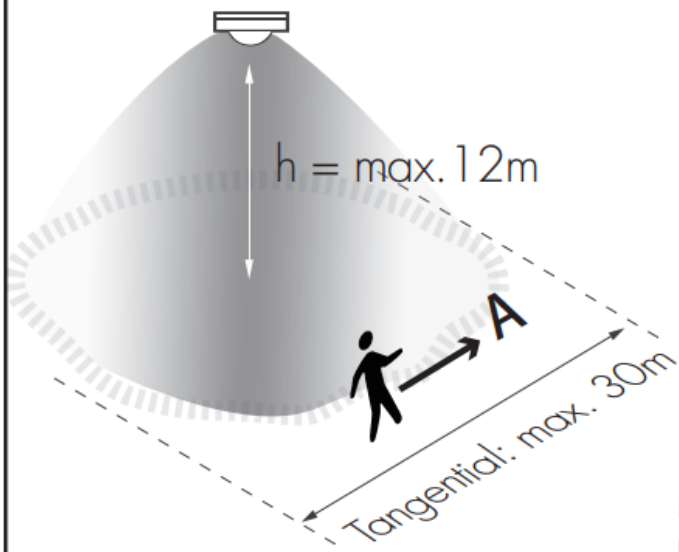
HBIR31/RH: Reinforced high-bay lens detection pattern for forklift @ Ta = 20 °C
(Recommended ceiling mount installation height 10m-20m)



Mount height	Tangential (A)	Radial (B)
10m	max 346m 2 ($\varnothing = 21\text{m}$)	max 177m 2 ($\varnothing = 15\text{m}$)
11m	max 660m 2 ($\varnothing = 29\text{m}$)	max 177m 2 ($\varnothing = 15\text{m}$)
12m	max 907m 2 ($\varnothing = 34\text{m}$)	max 154m 2 ($\varnothing = 14\text{m}$)
13m	max 962m 2 ($\varnothing = 35\text{m}$)	max 154m 2 ($\varnothing = 14\text{m}$)
14m	max 1075m 2 ($\varnothing = 37\text{m}$)	max 113m 2 ($\varnothing = 12\text{m}$)
15m	max 1256m 2 ($\varnothing = 40\text{m}$)	max 113m 2 ($\varnothing = 12\text{m}$)
20m	max 707m 2 ($\varnothing = 30\text{m}$)	max 113m 2 ($\varnothing = 12\text{m}$)

HBIR31/RH: Reinforced high-bay lens detection pattern for single person @ $T_a = 20^\circ\text{C}$
 (Recommended ceiling mount installation height 2.5m-12m)

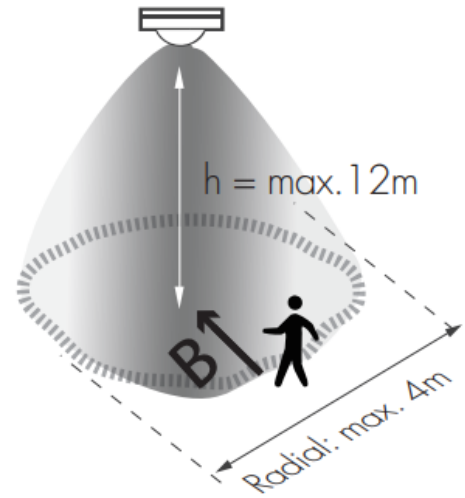
A: Tangential movement



insensitive

sensitive

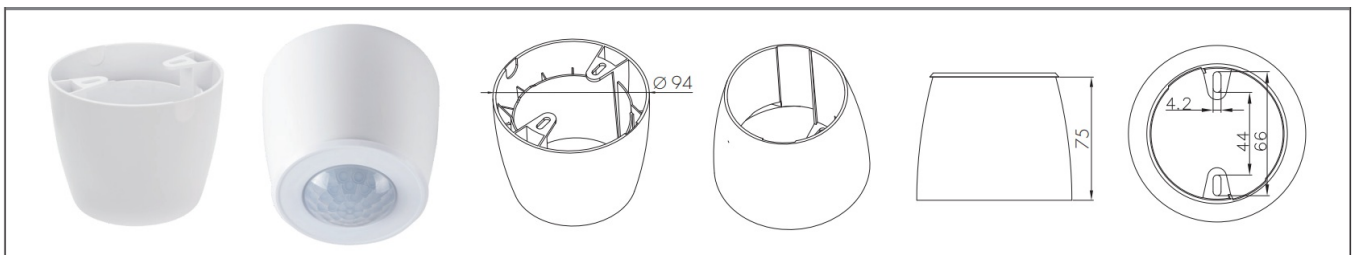
B: Radial movement



insensitive

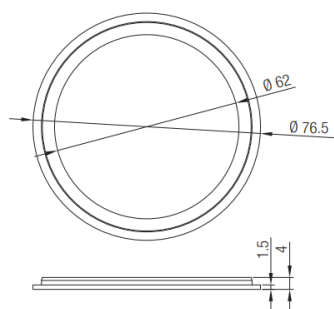
sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 38m (Ø = 7m)	max 7m 2 (Ø = 3m)
6m	max 154m 2 (Ø = 14m)	max 7m 2 (Ø = 3m)
8m	max 314m 2 (Ø = 20m)	max 7m 2 (Ø = 3m)
10m	max 531m 2 (Ø = 26m)	max 13m 2 (Ø = 4m)
11m	max 615m 2 (Ø = 28m)	max 13m 2 (Ø = 4m)
12m	max 707m 2 (Ø = 30m)	max 13m 2 (Ø = 4m)

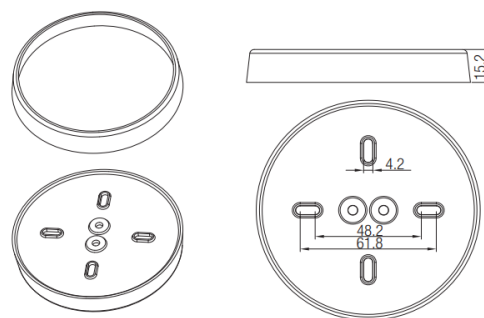


Big and small silicon gasket used to make IP54 degree protection when HBIR31 series device mounted into HA03 housing for ceiling mount

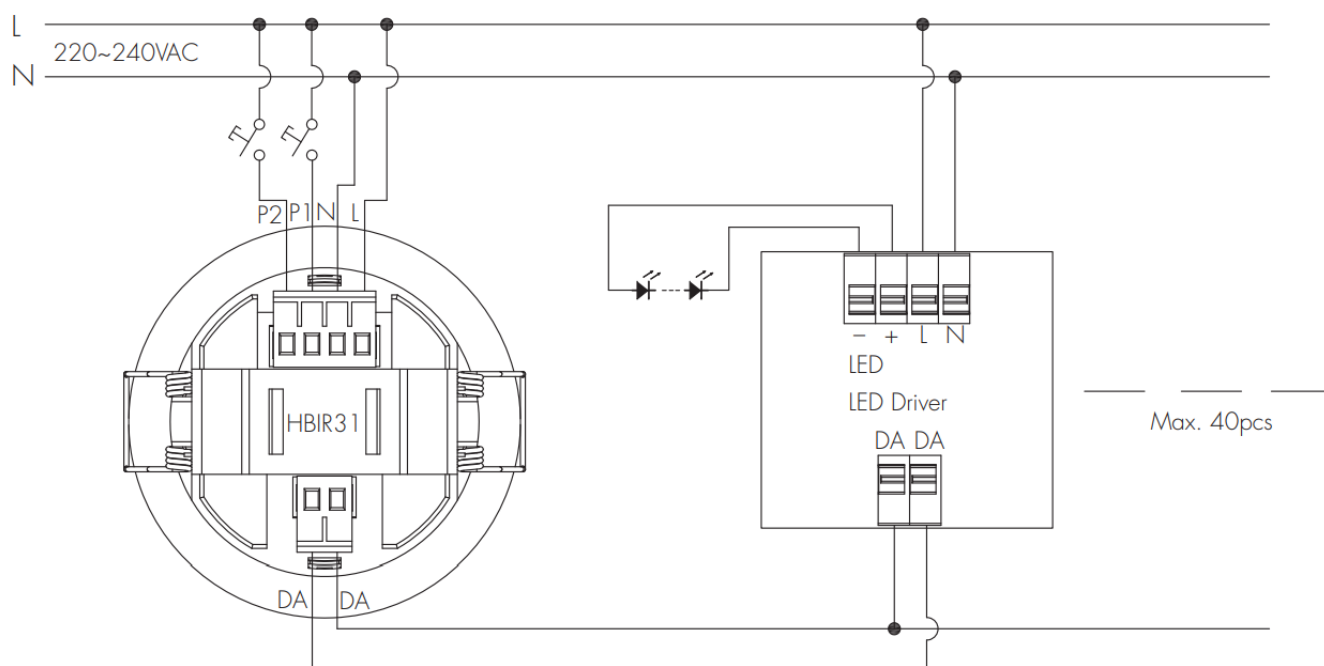
Small silicon water-proof gasket dimension(size:mm)



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



Wiring Diagram



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 0.1 s, or it will be invalid.	<ul style="list-style-type: none"> – Turn on/off – Recall a scene – Turn on only – Exit manual mode – Turn off only – Do nothing
	Double push	<ul style="list-style-type: none"> – Turn on only – Exit manual mode – Turn off only – Do nothing – Recall a scene
	Long press (1 second)	<ul style="list-style-type: none"> – Dimming – Colour tuning – Do nothing
Simulate sensor	/	<ul style="list-style-type: none"> – Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor

Additional Information / Documents

1. To learn more about detailed product features/functions, 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

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Documents / Resources

	HYTRONIK HBIR31 PIR Standalone Motion Sensor with Bluetooth 5.0 SIG Mesh [pdf] Owner's Manual HBIR31, HBIR31-R, HBIR31-H, HBIR31-RH, HBIR31-W, HBIR31 R, HBIR31 W, HBIR31 H, HBIR31 RH, HBIR31 PIR Standalone Motion Sensor with Bluetooth 5.0 SIG Mesh, PIR Standalone Motion Sensor with Bluetooth 5.0 SIG Mesh, HBIR31 PIR Standalone Motion Sensor, PIR Standalone Motion Sensor, Standalone Motion Sensor, Motion Sensor, Sensor
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References

- [Catalogue_Hytronik](#)

-  iot.koolmesh.com

Manuals+.