




mesh PIR Standalone Motion Sensor with Bluetooth User Guide

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HYTRONIK®



PIR Standalone Motion Sensor with  **Bluetooth** 5.0 SIG Mesh
HBIR31 Low-bay
HBIR31/R Reinforced Low-bay
HBIR31/H High-bay
HBIR31/RH Reinforced High-bay



HBIR31



HBIR31/R



HBIR31/H



HBIR31/RH
(3-pyro)

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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 configuration
	Grouping luminaires via mesh network
	Scenes
	Detailed motion sensor settings
	Dusk/Dawn photocell (Twilight function)
	Push switch configuration
	Schedule to run scenes based on time and date
	Astro timer (sunrise and sunset)
	Staircase function (master & slave)
	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 switch EWSSB/EWSDB
	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 flexible manual control
	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



for iOS

<https://apps.apple.com/cn/app/koolmesh/id1483721878>



for Android

<https://play.google.com/store/apps/details?id=com.koolmesh.sig>

Smartphone app for both iOS & Android platform





for iPad

<https://apps.apple.com/cn/app/koolmesh/id1570378349>

Koolmesh Pro app for iPad



for Web

www.hytronik.com

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

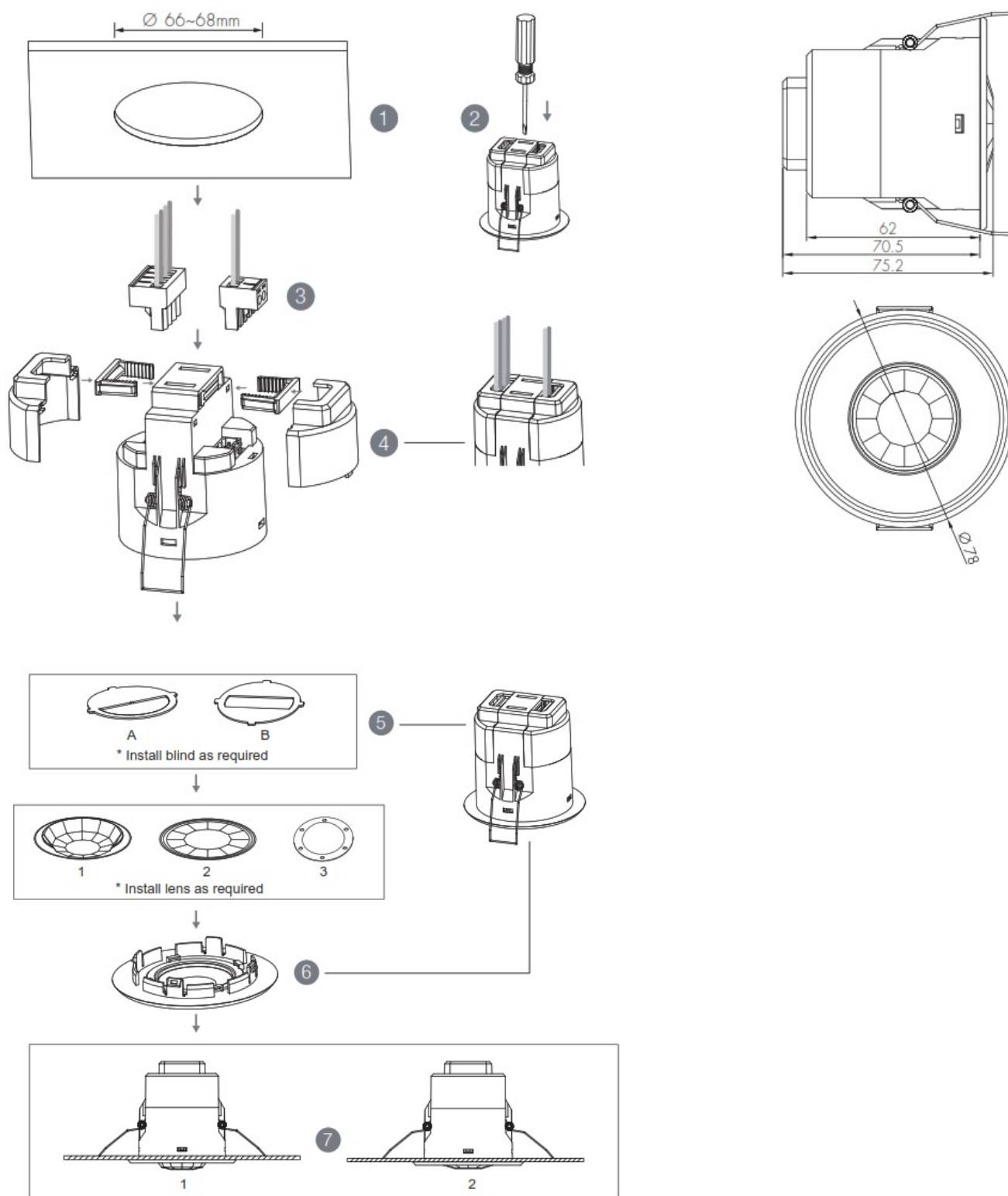
	<p>EnOcean Self-powered IoT Fully support EnOcean switch EWSSB/EWSDB</p>
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Technical Specifications

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/H	Installation height 15m (forklift) 12m (person) Detection range (Ø) 24m
HBIR31/RH	Installation height 40m (forklift) 12m (person) Detection range (Ø) 40m
Detection angle	360°
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

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

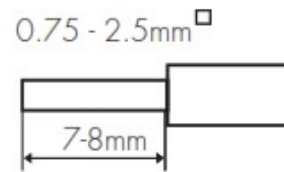
Mechanical Structure & Dimensions



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



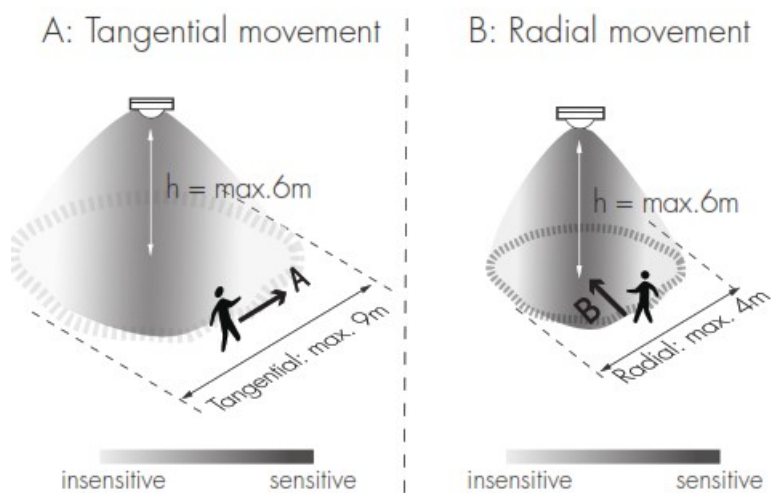
Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

Detection Pattern & Optional Accessories

1. HBIR31 (Low-bay)

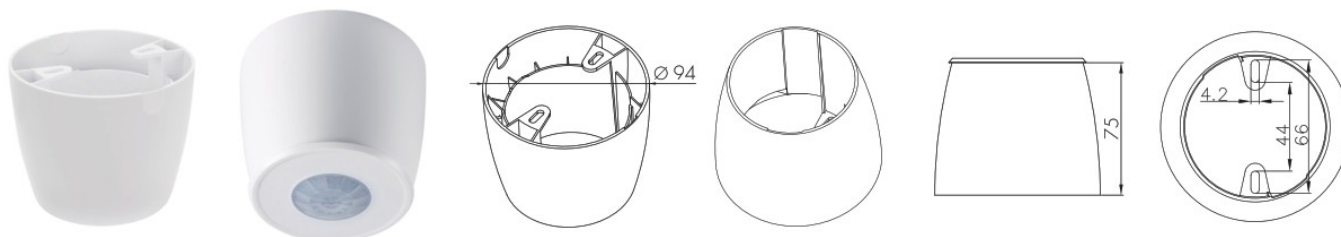


HBIR31: Low-bay flat lens detection pattern for **single person** @ $T_a = 20^\circ \text{C}$
(Recommended ceiling mount installation height **2.5m-6m**)



Mount height	Tangential (A)	Radial (B)
2.5m	max 50m ² (Ø = 8m)	max 13m ² (Ø = 4m)
3m	max 64m ² (Ø = 9m)	max 13m ² (Ø = 4m)
4m	max 38m ² (Ø = 7m)	max 13m ² (Ø = 4m)
5m	max 38m ² (Ø = 7m)	max 13m ² (Ø = 4m)
6m	max 38m ² (Ø = 7m)	max 13m ² (Ø = 4m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



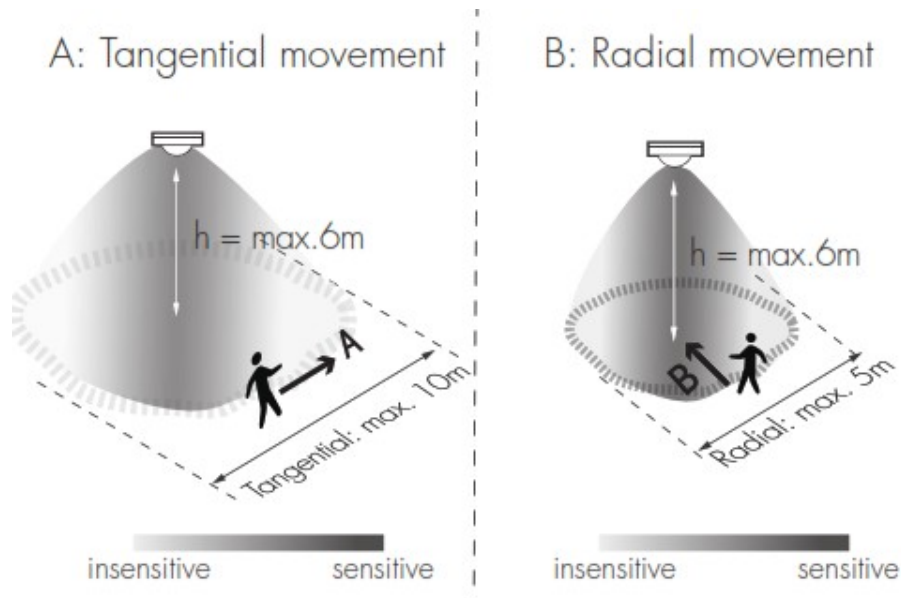
Optional Accessory — Blind Insert for Blocking Certain Detection Angles



2. HBIR31/R (Reinforced Low-bay)

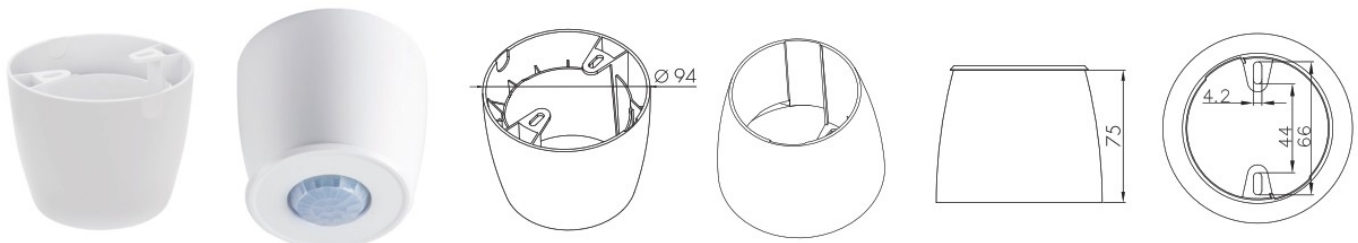


HBIR31/R: Low-bay convex lens detection pattern for **single person** @ Ta = 20° C
(Recommended ceiling mount installation height **2.5m-6m**)

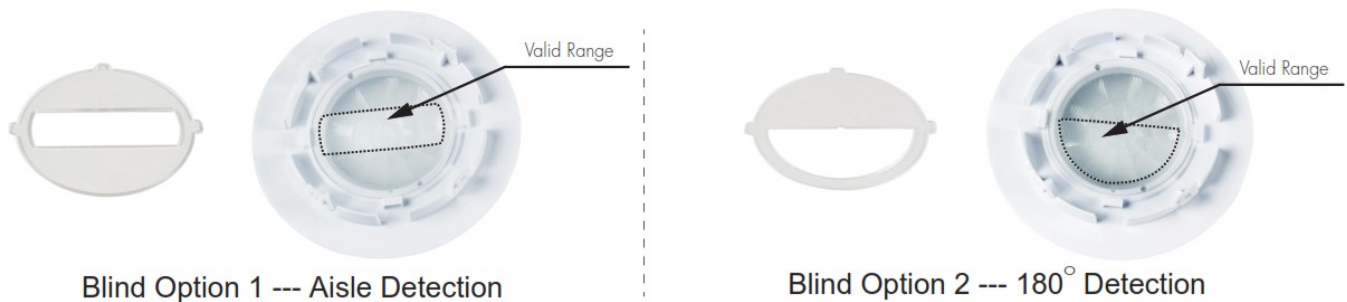


Mount height	Tangential (A)	Radial (B)
2.5m	max 79m ² (Ø = 10m)	max 20m ² (Ø = 5m)
3m	max 79m ² (Ø = 10m)	max 20m ² (Ø = 5m)
4m	max 64m ² (Ø = 9m)	max 20m ² (Ø = 5m)
5m	max 50m ² (Ø = 8m)	max 20m ² (Ø = 5m)
6m	max 50m ² (Ø = 8m)	max 20m ² (Ø = 5m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



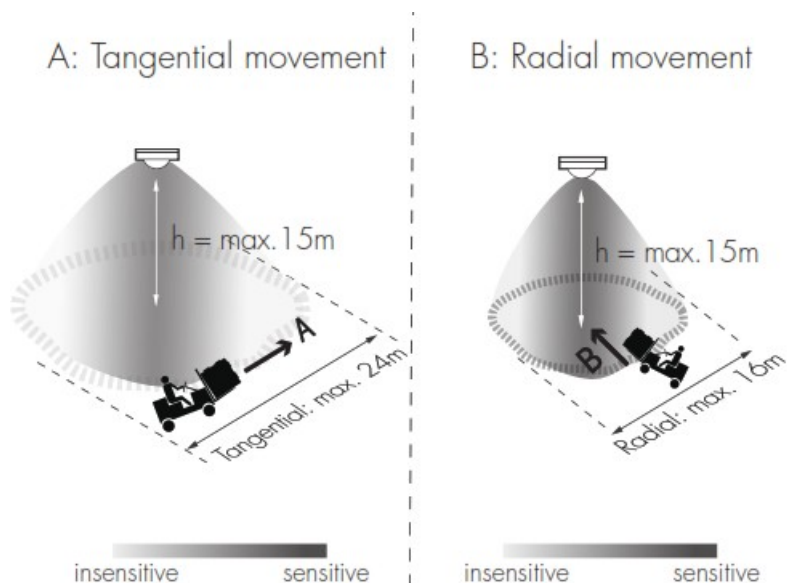
Optional Accessory — Blind Insert for Blocking Certain Detection Angles



3. HBIR31/H (High-bay)



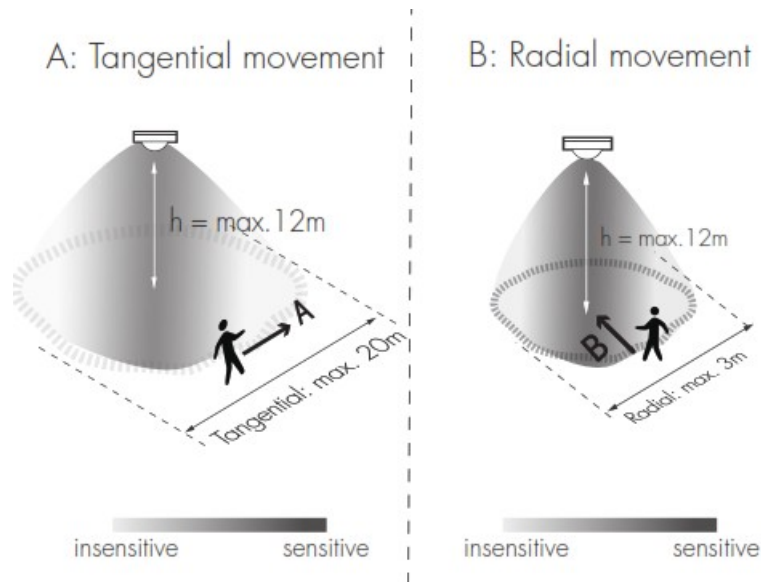
HBIR31/H: High-bay lens detection pattern for **forklift** @ Ta = 20° C
(Recommended ceiling mount installation height **10m-15m**)



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)

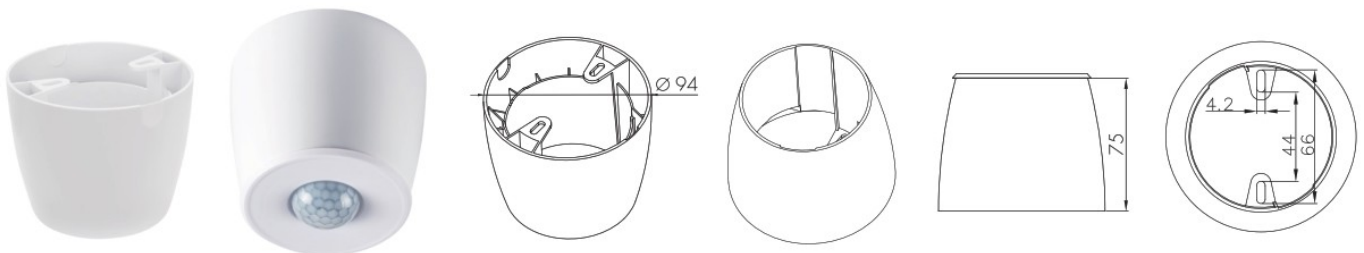


HBIR31/H: High-bay lens detection pattern for **single person** @ Ta = 20° C
(Recommended ceiling mount installation height **2.5m-12m**)

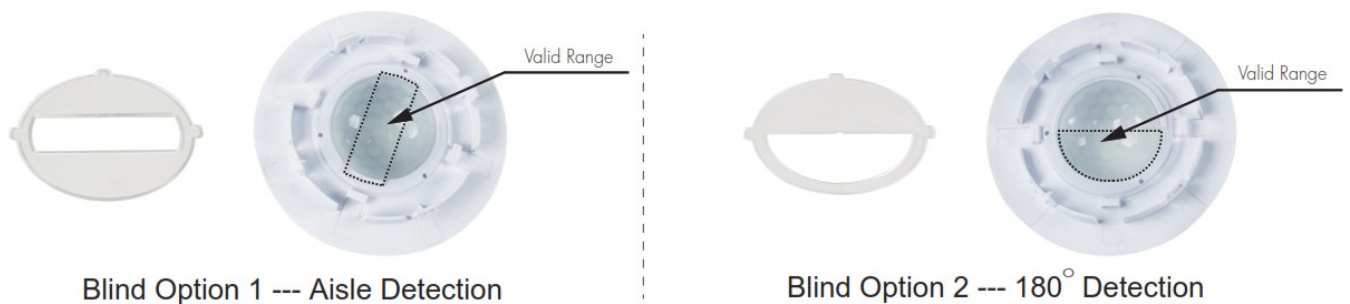


Mount height	Tangential (A)	Radial (B)
2.5m	max 50m ² (Ø = 8m)	max 7m ² (Ø = 3m)
6m	max 104m ² (Ø = 11.5m)	max 7m ² (Ø = 3m)
8m	max 154m ² (Ø = 14m)	max 7m ² (Ø = 3m)
10m	max 227m ² (Ø = 17m)	max 7m ² (Ø = 3m)
11m	max 269m ² (Ø = 18.5m)	max 7m ² (Ø = 3m)
12m	max 314m ² (Ø = 20m)	max 7m ² (Ø = 3m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



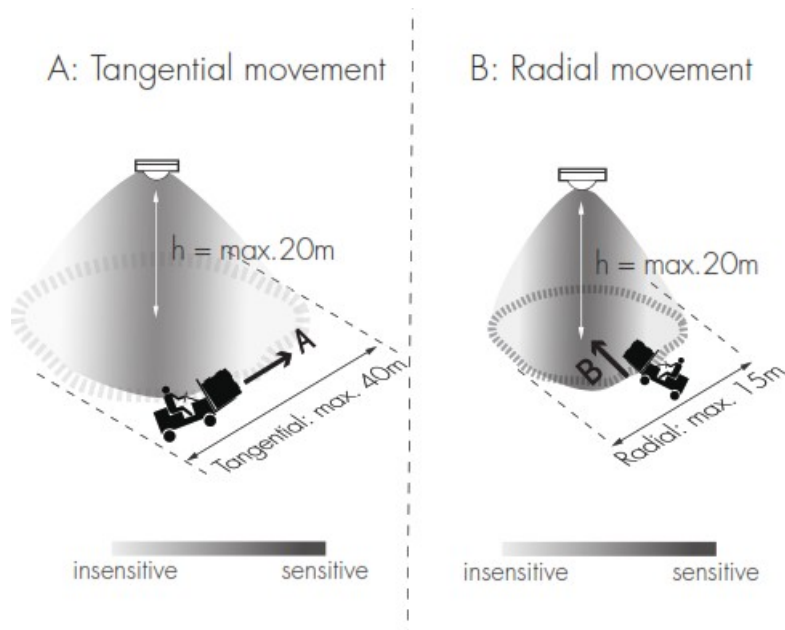
Optional Accessory — Blind Insert for Blocking Certain Detection Angles



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



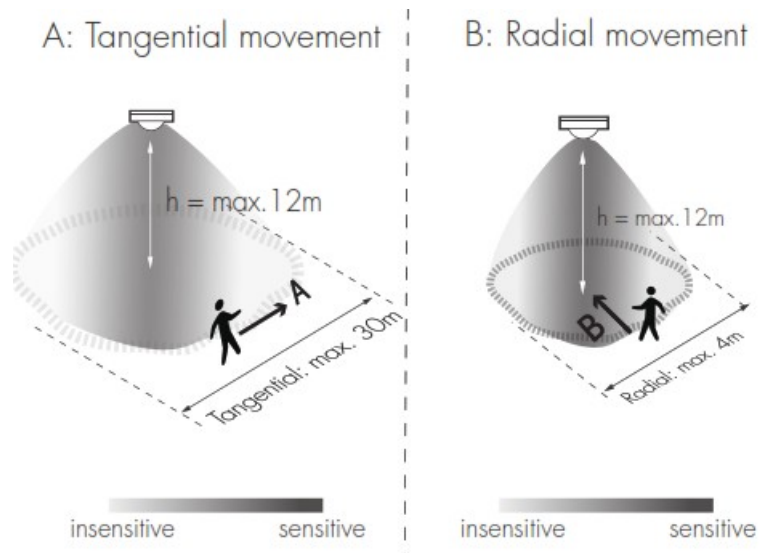
HBIR31/RH: Reinforced high-bay lens detection pattern for **forklift** @ Ta = 20° C
(Recommended ceiling mount installation height **10m-20m**)



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

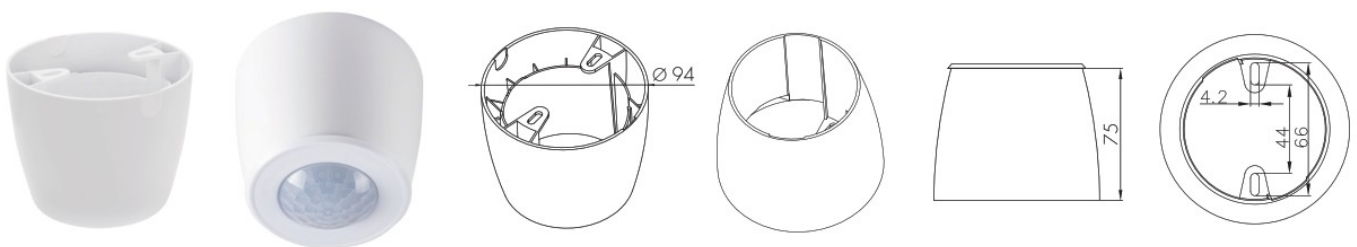


HBIR31/RH: Reinforced high-bay lens detection pattern for **single person** @ Ta = 20° C
(Recommended ceiling mount installation height **2.5m-12m**)

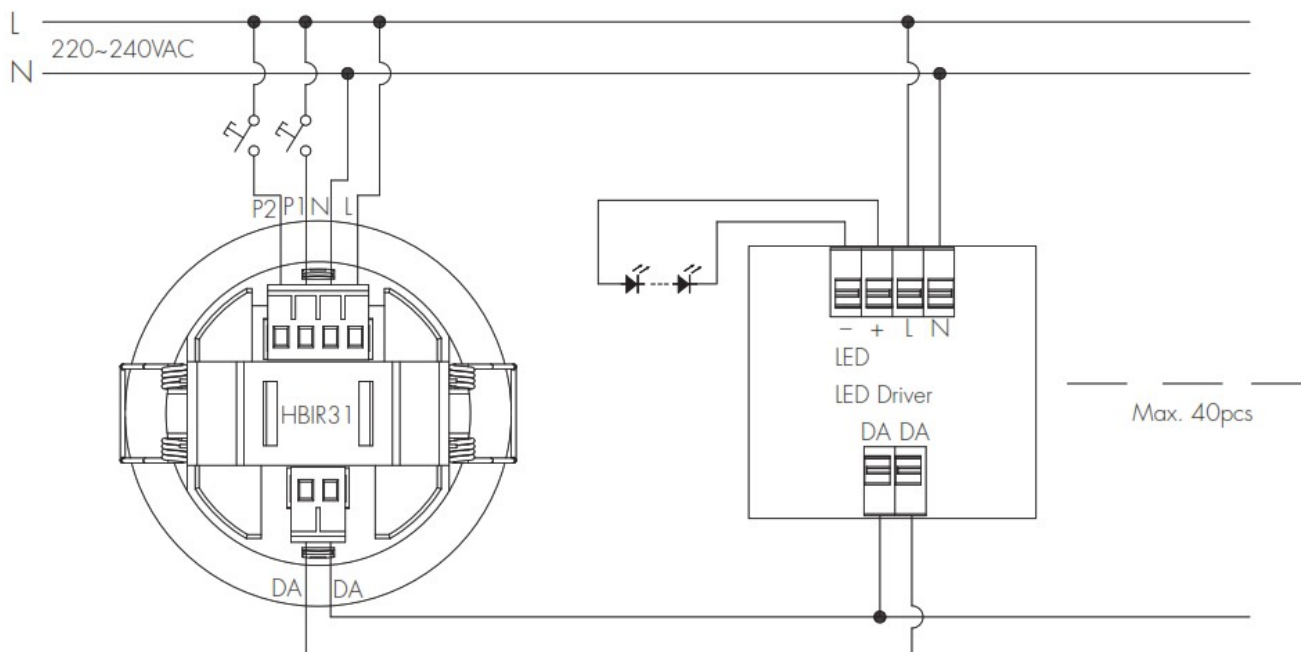


Mount height	Tangential (A)	Radial (B)
2.5m	max 38m ² (Ø = 7m)	max 7m ² (Ø = 3m)
6m	max 154m ² (Ø = 14m)	max 7m ² (Ø = 3m)
8m	max 314m ² (Ø = 20m)	max 7m ² (Ø = 3m)
10m	max 531m ² (Ø = 26m)	max 13m ² (Ø = 4m)
11m	max 615m ² (Ø = 28m)	max 13m ² (Ø = 4m)
12m	max 707m ² (Ø = 30m)	max 13m ² (Ø = 4m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



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 0.1s, 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

Subject to change without notice.
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Documents / Resources

	<p>mesh PIR Standalone Motion Sensor with Bluetooth [pdf] User Guide PIR Standalone Motion Sensor with Bluetooth, PIR Standalone, Motion Sensor with Bluetooth, Sensor with Bluetooth, HBIR31, HBIR31R, HBIR31H, HBIR31RH</p>
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References

- [Catalogue_Hytronik](#)
- iot.koolmesh.com