



HYTRONIK HBIR28/2CH Bluetooth PIR Standalone Motion Sensor User Manual

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HYTRONIK®
HBIR28/2CH Bluetooth PIR Standalone Motion Sensor
User Manual



   RED  **CB IP65** 

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HBIR28/2CH Bluetooth PIR Standalone Motion Sensor

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



HBIR28/2CH/R



HBIR28/2CH/W



HBIR28/2CH/H







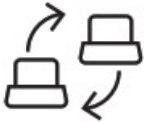








HBIR28/2CH/RH
(3-pyro)













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 app.

App Features

	Quick setup mode & advanced setup mode
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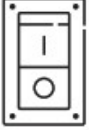
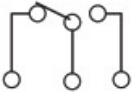







	Web app/platform for project deployment & data analysis
	Koolmesh Pro app on iPad for on-site conguration
	Floorplan feature to simplify project planning
	One-key device replacement
	Device social relations check
	Remote control via gateway support HBGW01
	Heat map
	Dynamic daylight harvest auto-adaptation
	Grouping luminaires via mesh network
	Scenes
	Dusk/Dawn photocell (Twilight function)
	Push switch conguration

	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: <ul style="list-style-type: none">– 24VDC@2A– 250VDC@2A
	Freely select NO or NC contact
	Two relays built-in
	2 Push inputs for exible 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

 **Bluetooth®** 5.0 SIG mesh



 <p>for iOS</p>	 <p>for Android</p>
https://apps.apple.com/cn/app/koolmesh/id1483721878	https://play.google.com/store/apps/details?id=com.koolmesh.sig

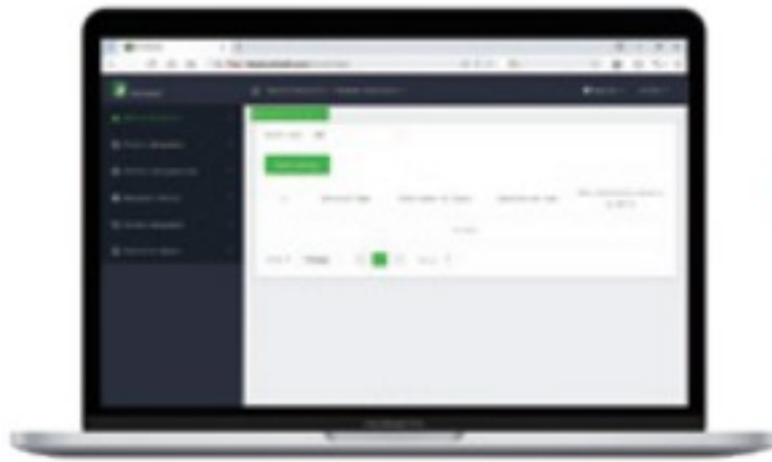
Smartphone app for both iOS & Android platform



for iPad

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

Koolmesh Pro app for iPad



for Web

<http://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	 Bluetooth® 5.0 SIG Mesh

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

Input & Output Characteristics

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

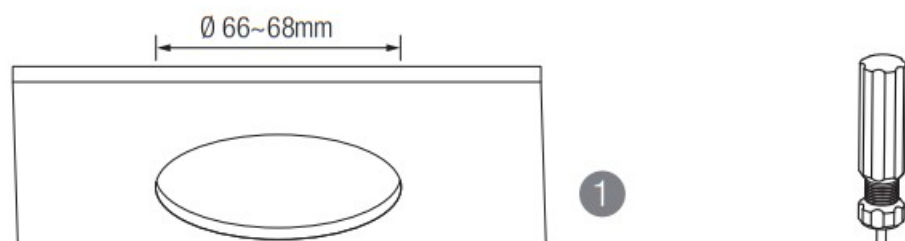
Safety & EMC

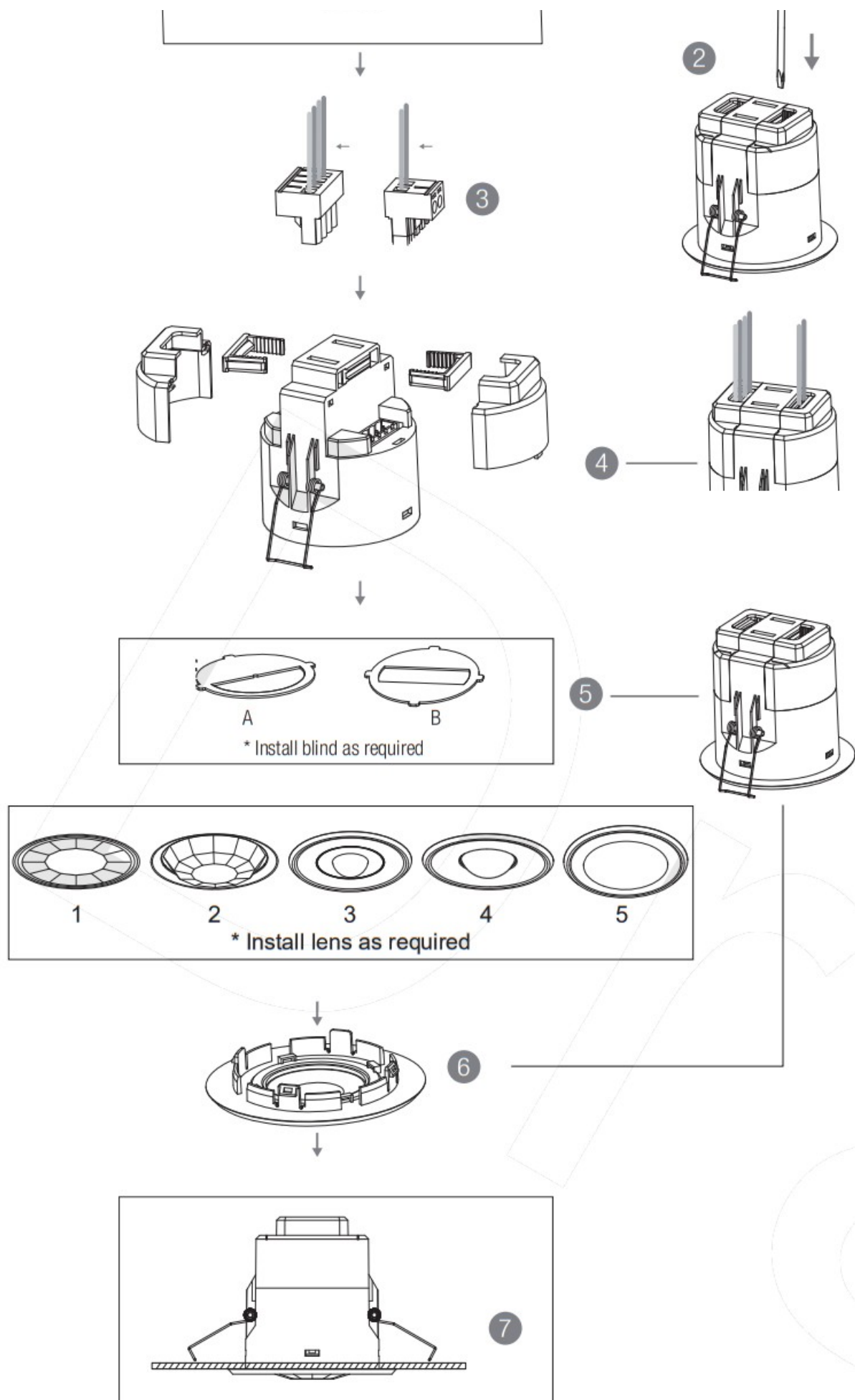
EMC standard (EMC)	EN55015, EN61000, EN61547
Safety standard (LVD)	EN60669-1, EN60669-2-1AS/NZS60669-1/-2-1
RED	EN300328, EN301489-1/-17
Certification	CB, CE , EMC, RED, RCM, UKCA

Environment

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

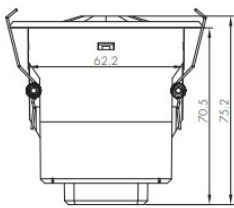
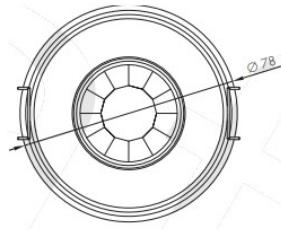
Mechanical Structure & Dimensions



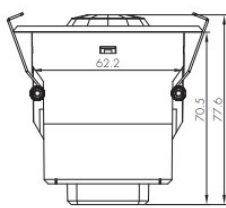


1. Ceiling (drill hole Ø 66~68mm)
2. Carefully prise off the cable clamps.

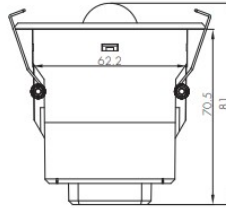
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip fascia to body.
7. Bend back springs and insert into ceiling.



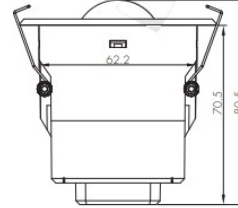
HBIR28/2CH



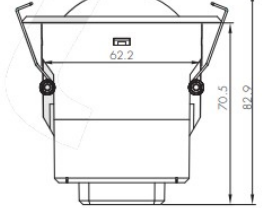
HBIR28/2CH/R



HBIR28/2CH/W

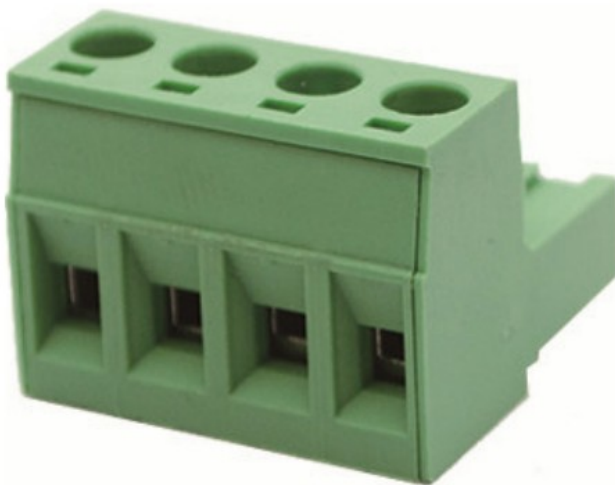


HBIR28/2CH/H

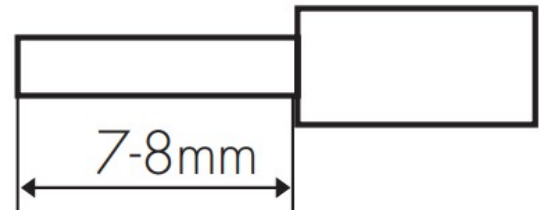


HBIR28/2CH/RH

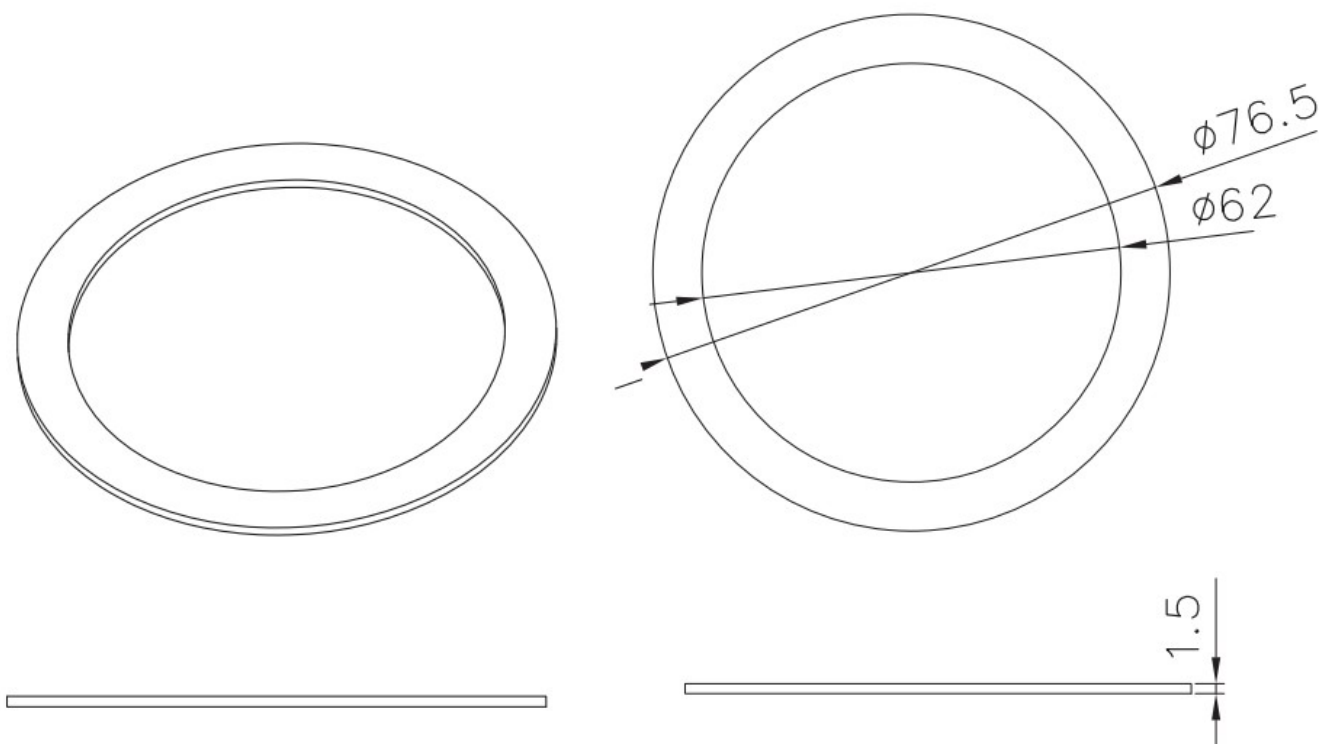
Wire Preparation



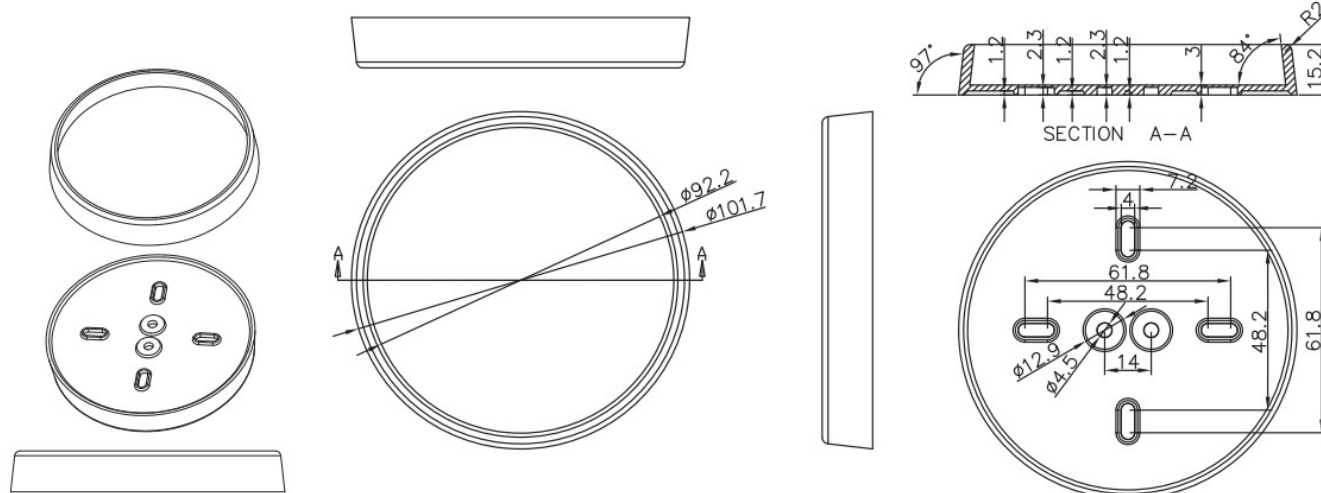
0.75 - 2.5mm²



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)

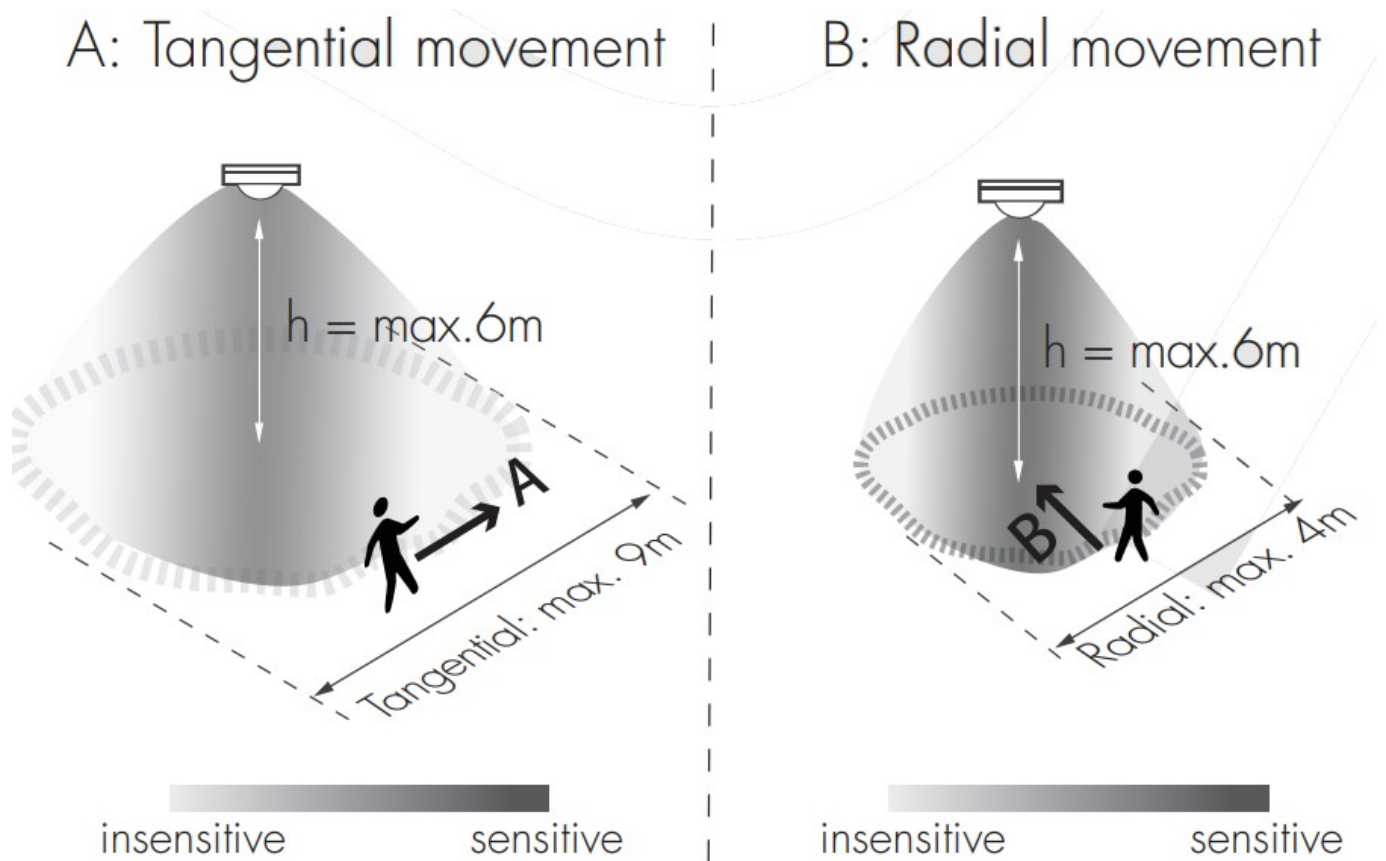


Detection Pattern & Optional Accessories

1. HBIR28/2CH (Low-bay)

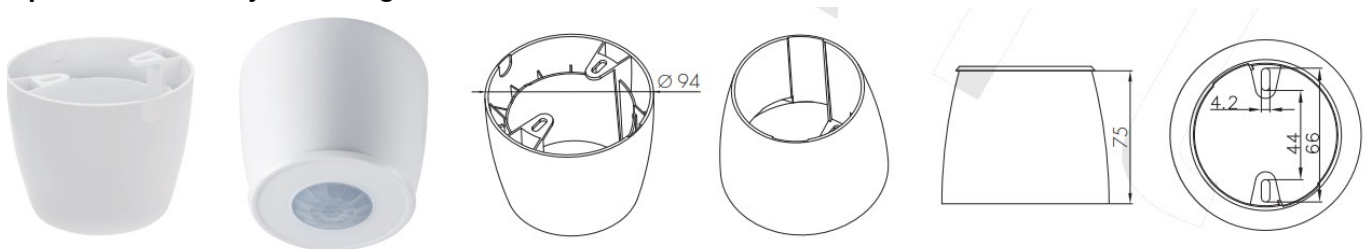


HBIR28/2CH: Low-bay flat lens detection pattern for single person @ $T_a = 20^{\circ}\text{C}$
(Recommended ceiling mount installation height 2.5m-6m)

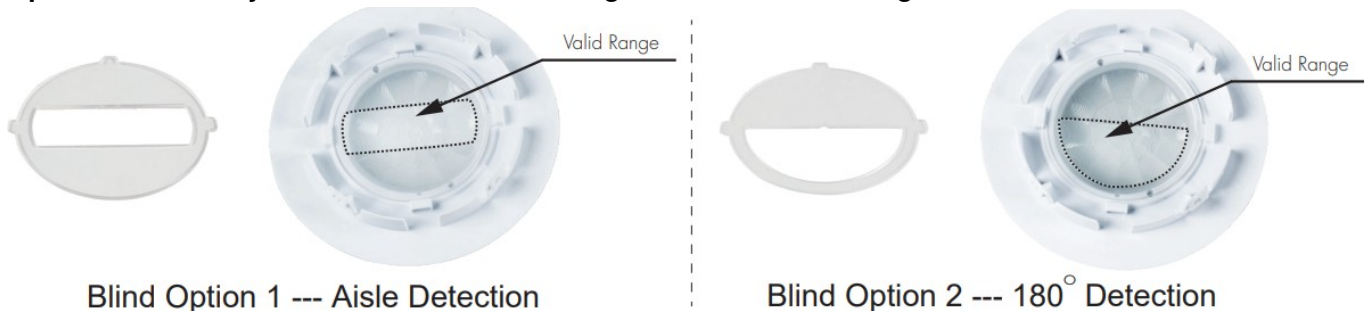


Mount height	Tangential (A)	Radial (B)
2.5m	max 50m ² (0 = 8m)	max 13m ² (0 = 4m)
3m	max 64m ² (0 = 9m)	max 13m ² (0 = 4m)
4m	max 38m ² (0 = 7m)	max 13m ² (0 = 4m)
5m	max 38m ² (0 = 7m)	max 13m ² (0 = 4m)
6m	max 38m ² (0 = 7m)	max 13m ² (0 = 4m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



Optional Accessory — Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection

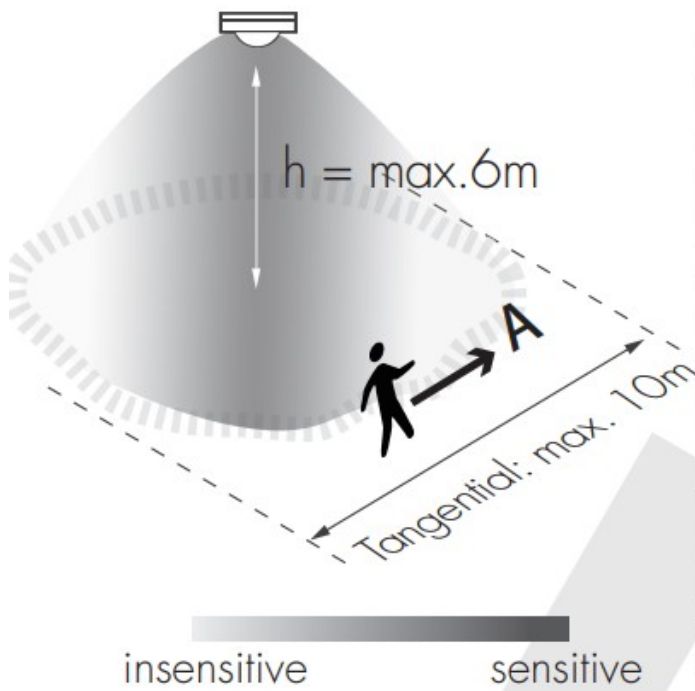
Blind Option 2 --- 180° Detection

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

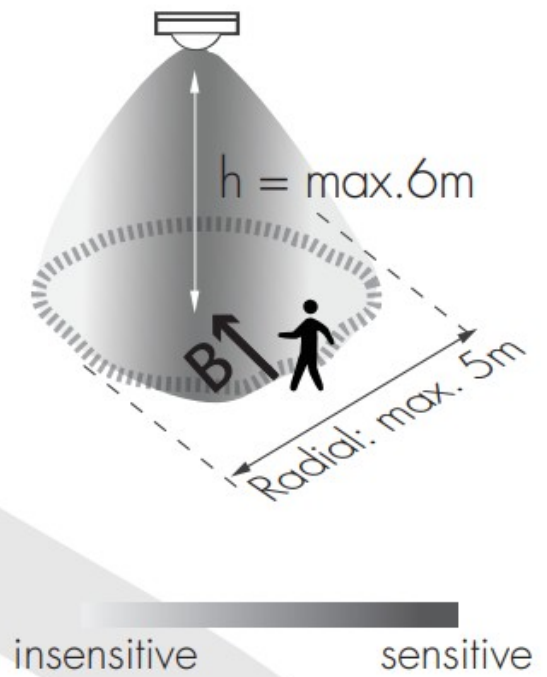


HBIR28/2CH/R: Low-bay convex lens detection pattern for single person @ Ta = 20OC
(Recommended ceiling mount installation height 2.5m-6m)

A: Tangential movement

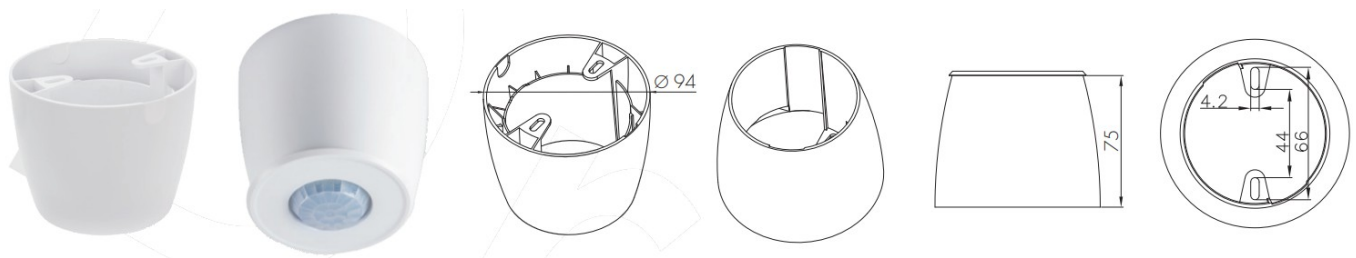


B: Radial movement

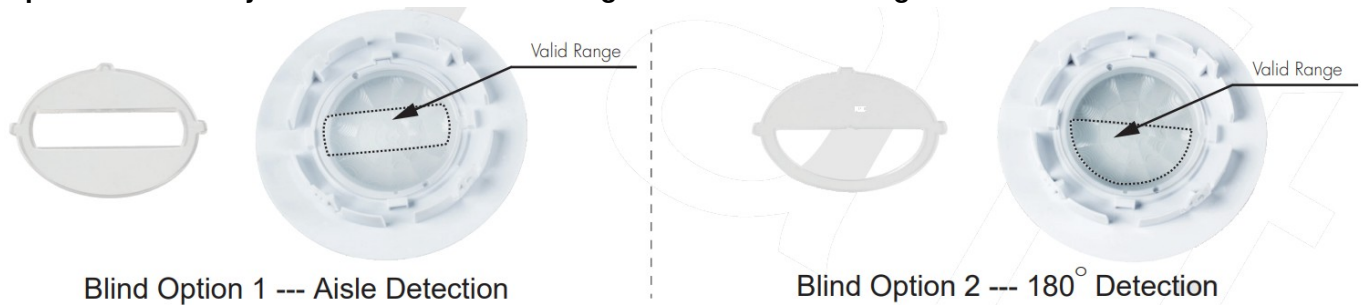


Mount height	Tangential (A)	Radial (B)
2.5m	max 79m ² (Ø = 10m)	max 20m ² (Ø = 5m)
3m	max 79m ² (Ø = 10m)	max 20m ² (Ø = 5m)
4m	max 64m ² (Ø = 9m)	max 20m ² (Ø = 5m)
5m	max 50m ² (Ø = 8m)	max 20m ² (Ø = 5m)
6m	max 50m ² (Ø = 8m)	max 20m ² (Ø = 5m)

Optional Accessory — Ceiling/Surface Mount Box: HA03



Optional Accessory — Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection

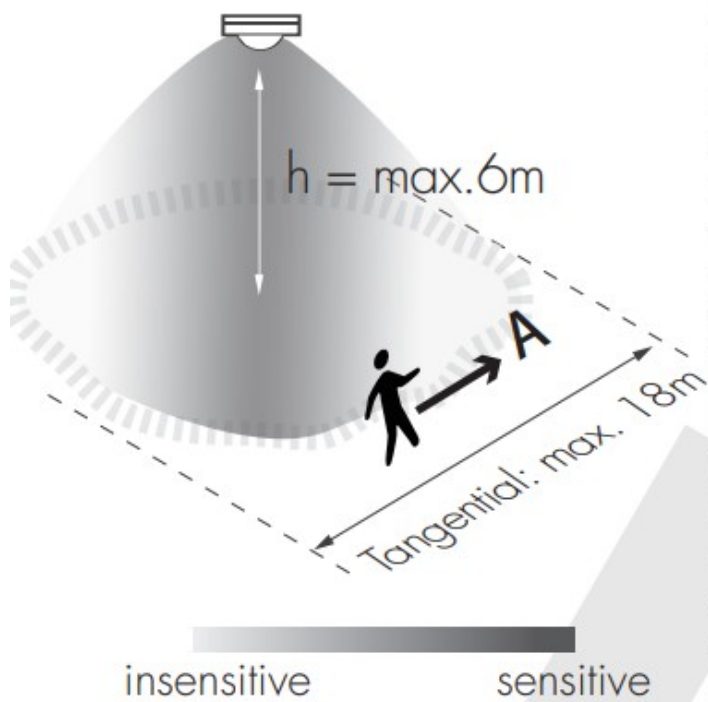
Blind Option 2 --- 180° Detection

3. HBR28/2CH/W (Wide range Low-bay)

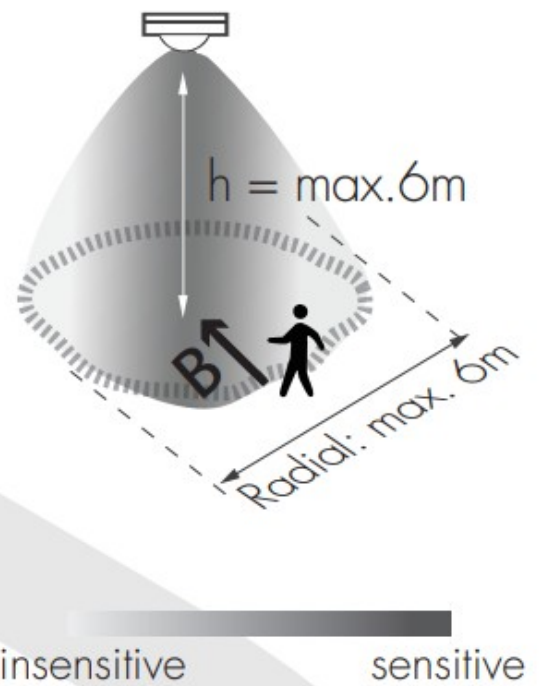


HBR28/2CH/W: Low-bay convex lens detection pattern for single person @ $T_a = 20^{\circ}\text{C}$
(Recommended ceiling mount installation height 2.5m-6m)

A: Tangential movement

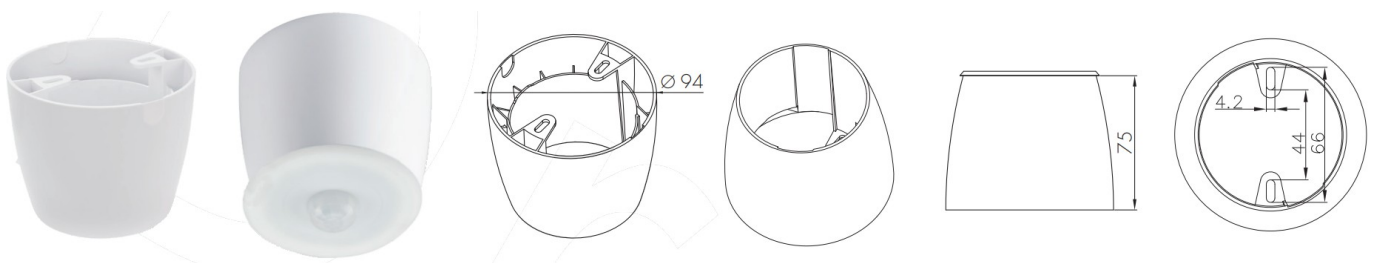


B: Radial movement



Mount height	Tangential (A)	Radial (B)
2.5m	max 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

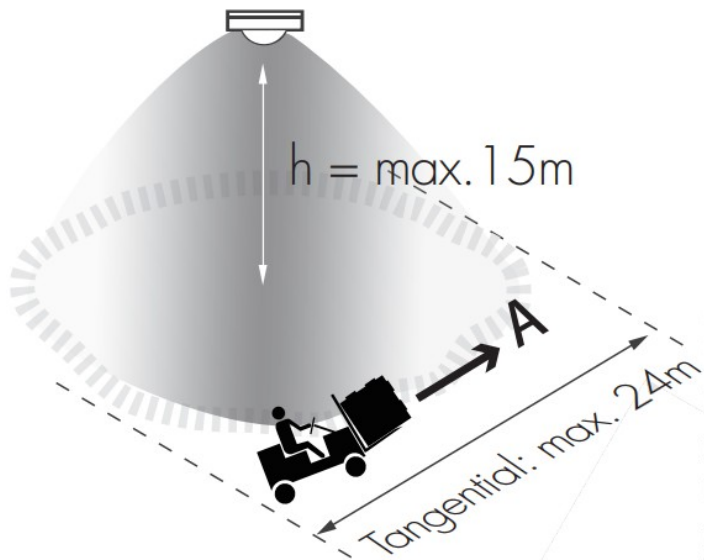


4. HBIR28/2CH/H (High-bay)

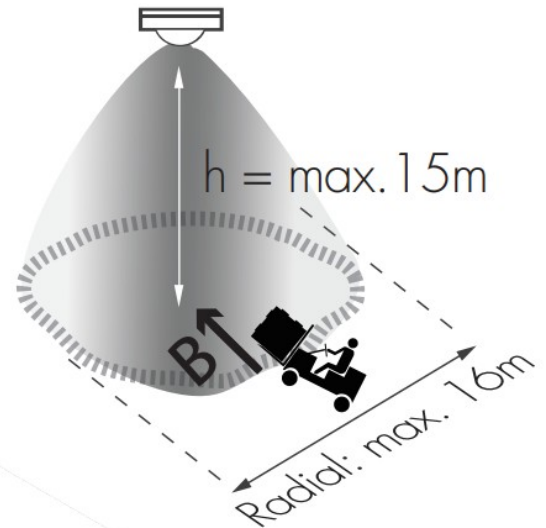


HBIR28/2CH/H: High-bay lens detection pattern for forklift @ Ta = 20OC
(Recommended ceiling mount installation height 10m-15m)

A: Tangential movement



B: Radial movement



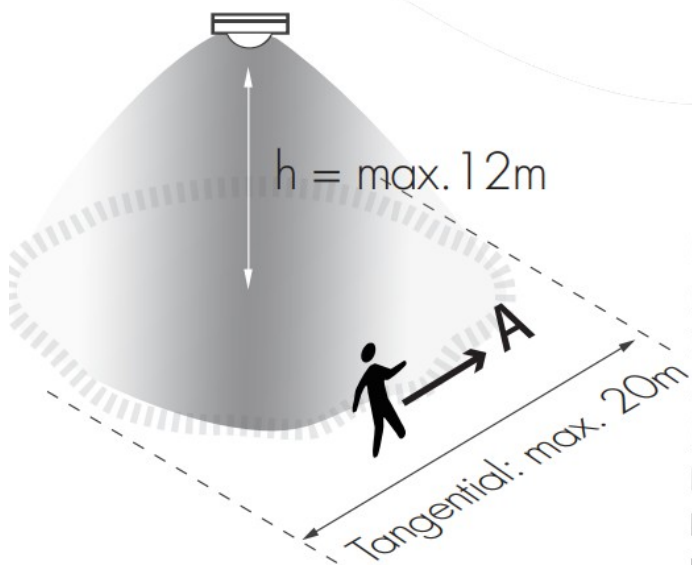
Mount height	Tangential (A)	Radial (B)
10m	max 380m ² (Ø = 22m)	max 201m ² (Ø = 16m)
11m	max 452m ² (Ø = 24m)	max 201m ² (Ø = 16m)
12m	max 452m ² (Ø = 24m)	max 201m ² (Ø = 16m)
13m	max 452m ² (Ø = 24m)	max 177m ² (Ø = 15m)
14m	max 452m ² (Ø = 24m)	max 133m ² (Ø = 13m)
15m	max 452m ² (Ø = 24m)	max 113m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

HBIR28/2CH/H: High-bay lens detection pattern for single person @ Ta = 200 C



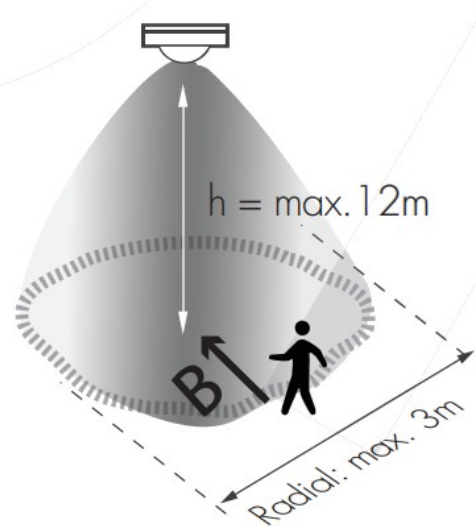
(Recommended ceiling mount installation height 2.5m-12m)

A: Tangential movement



insensitive sensitive

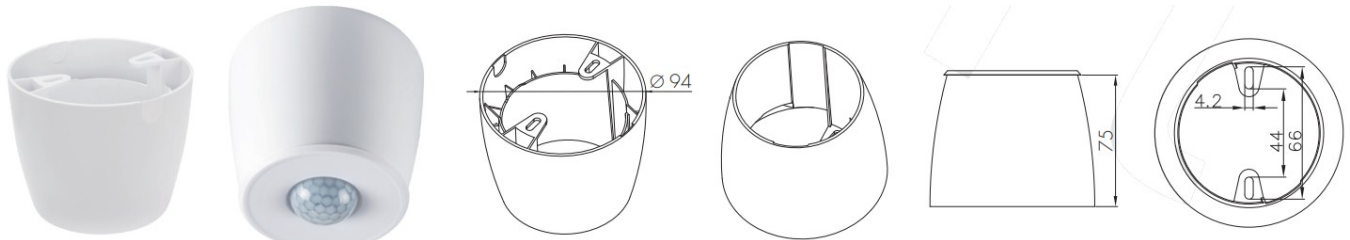
B: Radial movement



insensitive sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 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



Blind Option 1 --- Aisle Detection

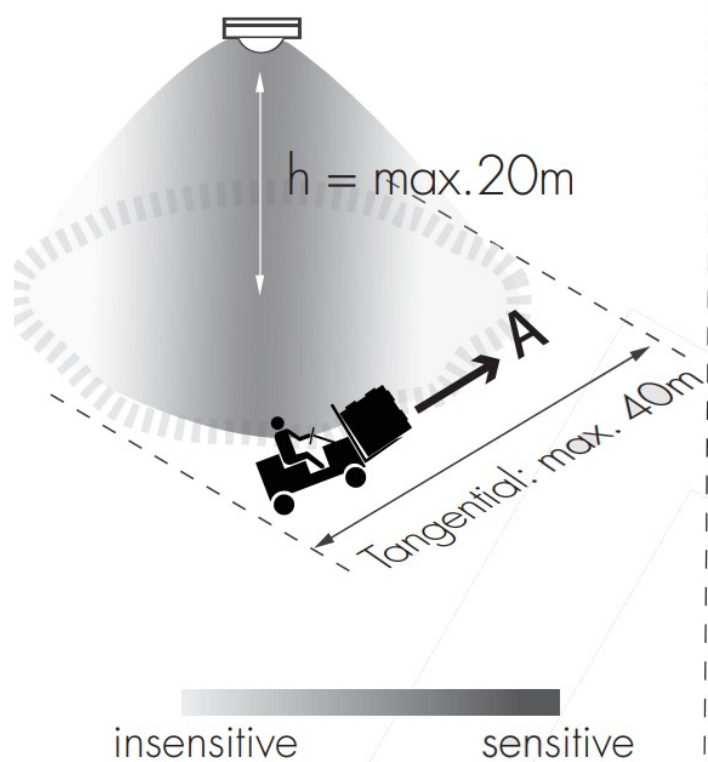
Blind Option 2 --- 180° Detection

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

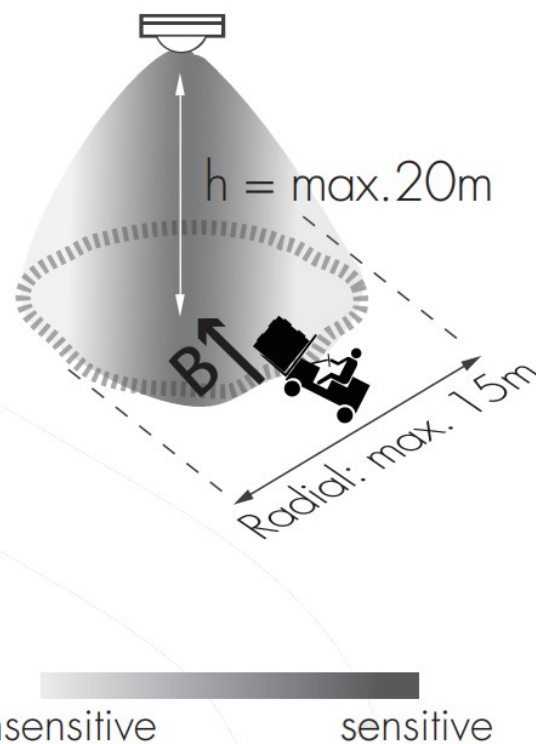


HBIR28/RH/2CH: Reinforced high-bay lens detection pattern for forklift @ Ta = 20OC
(Recommended ceiling mount installation height 10m-20m)

A: Tangential movement



B: Radial movement

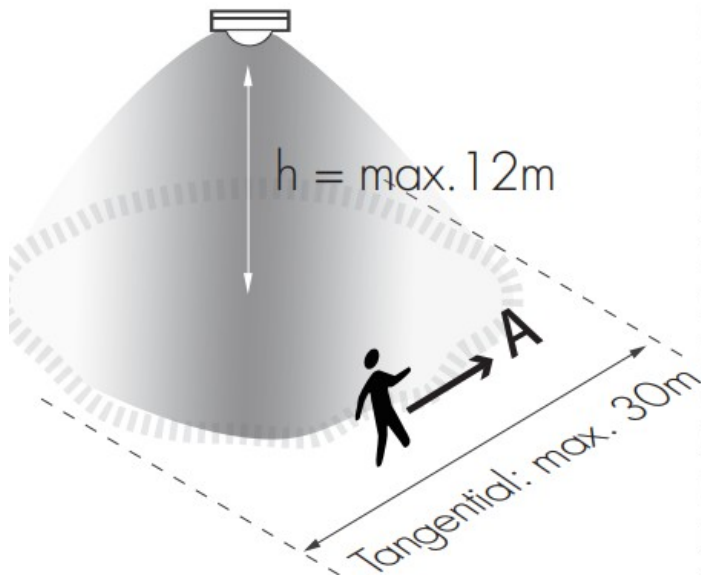


Mount height	Tangential (A)	Radial (B)
10m	max 346m ² ($\varnothing = 21\text{m}$)	max 177m ² ($\varnothing = 15\text{m}$)
11m	max 660m ² ($\varnothing = 29\text{m}$)	max 177m ² ($\varnothing = 15\text{m}$)
12m	max 907m ² ($\varnothing = 34\text{m}$)	max 154m ² ($\varnothing = 14\text{m}$)
13m	max 962m 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 ($\varnothing = 12\text{m}$)



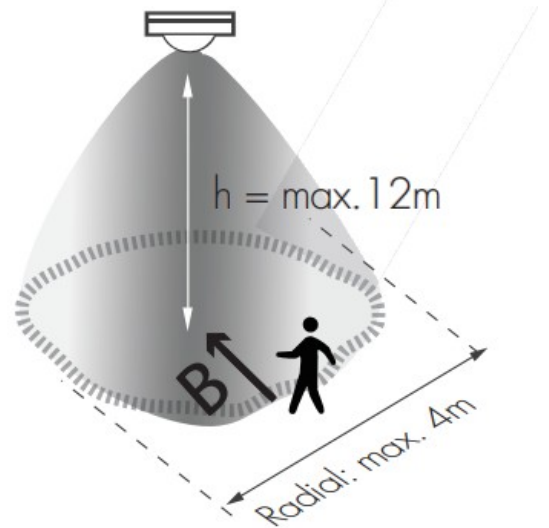
HBIR28/2CH/RH: Reinforced high-bay lens detection pattern for single person @ Ta = 20 OC
(Recommended ceiling mount installation height 2.5m-12m)

A: Tangential movement



insensitive sensitive

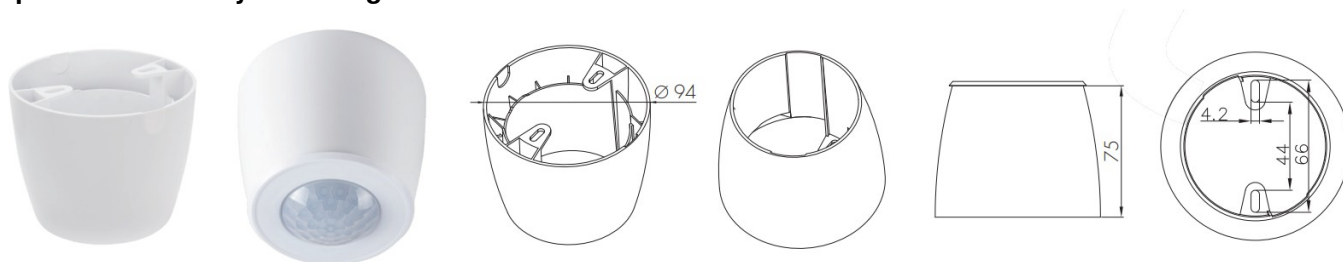
B: Radial movement



insensitive sensitive

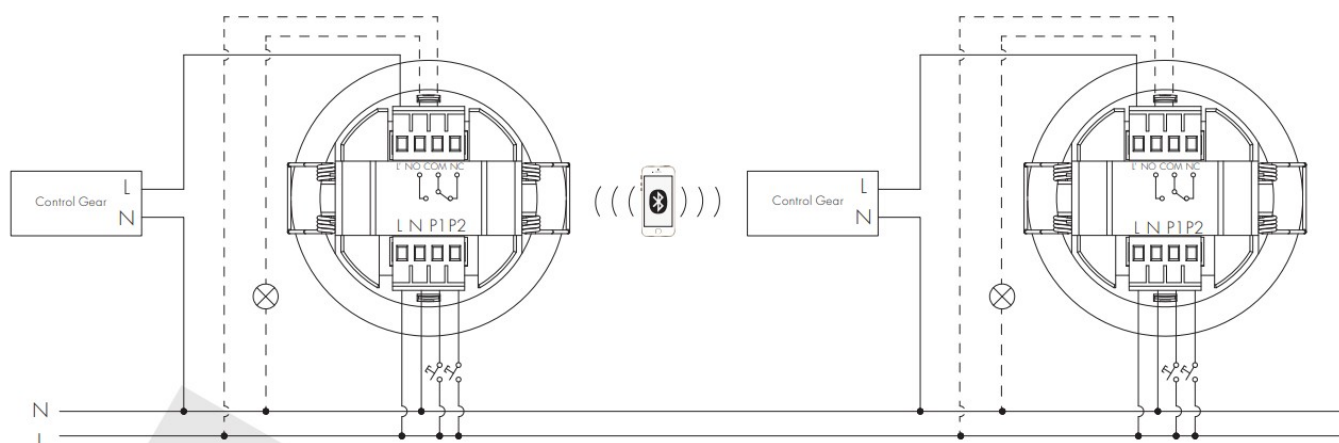
Mount height	Radial (B)	Tangential (A)
2.5m	max 7m 2 (Ø = 3m)	max 38m 2 (Ø = 7m)
6m	max 7m 2 (Ø = 3m)	max 154m 2 (Ø = 14m)
8m	max 7m 2 (Ø = 3m)	max 314m 2 (Ø = 20m)
10m	max 13m 2 (Ø = 4m)	max 531m 2 (Ø = 26m)
11m	max 13m 2 (Ø = 4m)	max 615m 2 (Ø = 28m)
12m	max 13m 2 (Ø = 4m)	max 707m 2 (Ø = 30m)

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.	<ul style="list-style-type: none"> – Turn on/off – Recall a scene – Turn on only – Quit manual mode – Turn off only – Do nothing
	Double push	<ul style="list-style-type: none"> – Turn on only – Quit manual mode – Turn off only – Do nothing – Recall a scene
	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/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->PIRSensors-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/bluetoothtechnology->Bluetooth Sensors
5. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download->knowledge->Hytronik Standard Guarantee Policy Draft

Subject to change without notice.
Edition: 15 Jun. 2021 Ver. Draft

Documents / Resources

	HYTRONIK HBR28/2CH Bluetooth PIR Standalone Motion Sensor [pdf] User Manual HBR28 2CH Bluetooth PIR Standalone Motion Sensor, HBR28 2CH, Bluetooth PIR Standalone Motion Sensor, PIR Standalone Motion Sensor, Standalone Motion Sensor, Motion Sensor, Sensor
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References

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