



## HYTRONIK HBIR31 Bluetooth PIR Standalone Motion Sensor Owner's Manual

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HYTRONIK HBIR31 Bluetooth PIR Standalone Motion Sensor Owner's Manual



PIR Standalone Motion Sensor with  **Bluetooth**® 5.0 SIG Mesh

















HBIR31 Low-bay	HBIR31/R Reinforced Low-bay	HBIR31/W Wide range Low-bay
HBIR31/H High-bay	HBIR31/UH Ultra high-bay	












## 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 hard wiring, which eventually saves costs for projects (especially for retrofit upgrade projects!). Meanwhile, simple device setup and commissioning can be done via **Koolmesh**<sup>®</sup> app

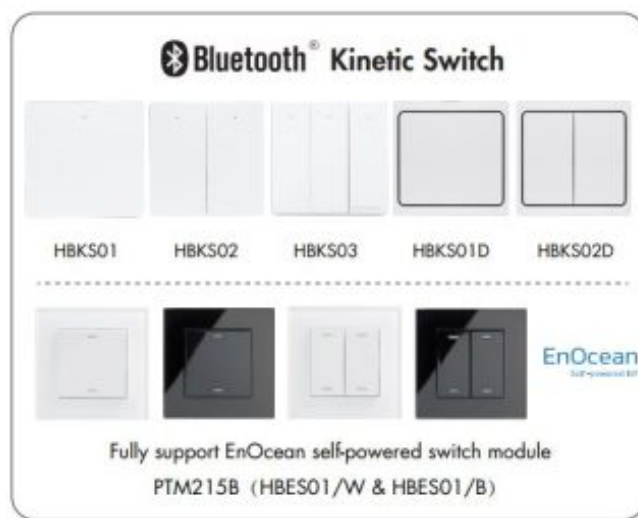
## App Features

-  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 (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

-  DALI broadcast output  
DALI bus power supply
-  Support to control DT8 LED drivers
-  2 Push inputs for flexible manual control
-  Black & White & Gray metal surface mount box options
-  Two types of blind inserts / blanking plates
-  User-friendly design for installation
-  High bay version available (up to 1.5m in height)
-  5-year warranty



## Technical Specifications

### Bluetooth Transceiver

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

### 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/UH	Installation Height : 21m Detection Range(Ø) : 28m
Detection angle	360°

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



## Input & Output Characteristics

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

## Safety & EMC

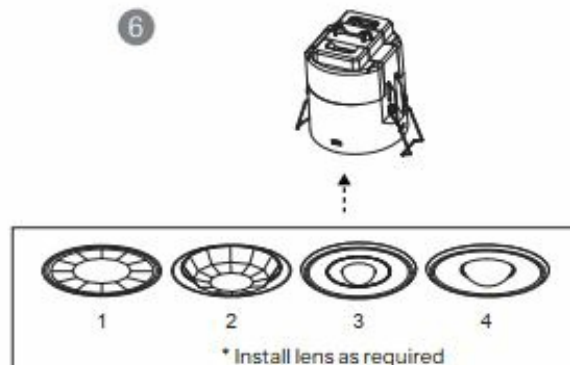
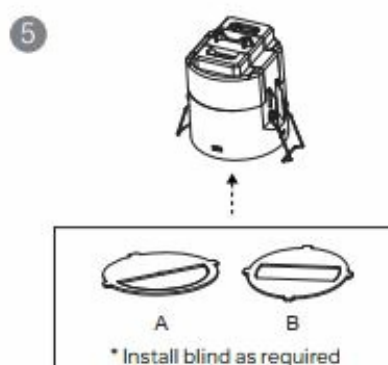
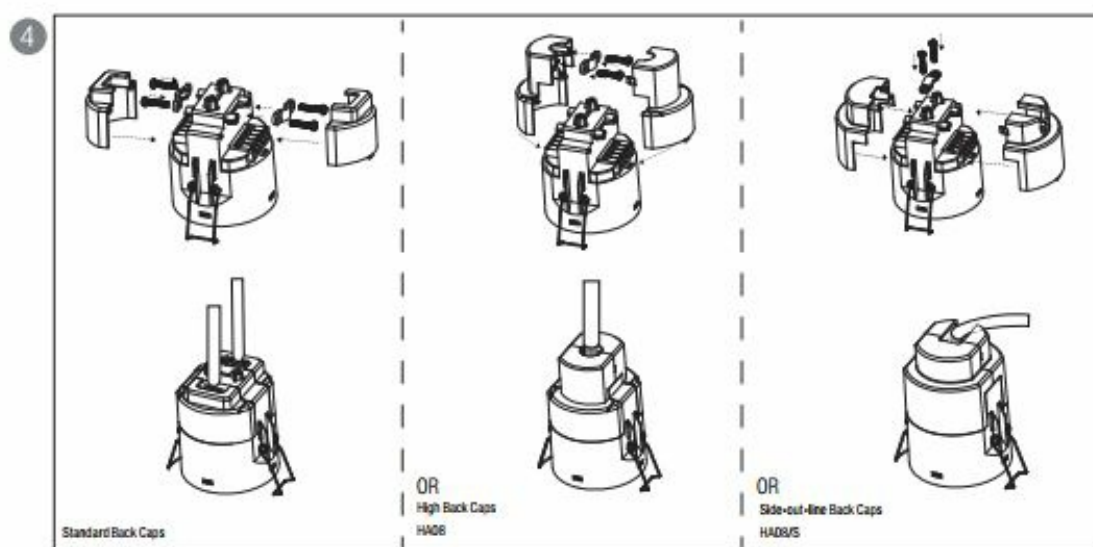
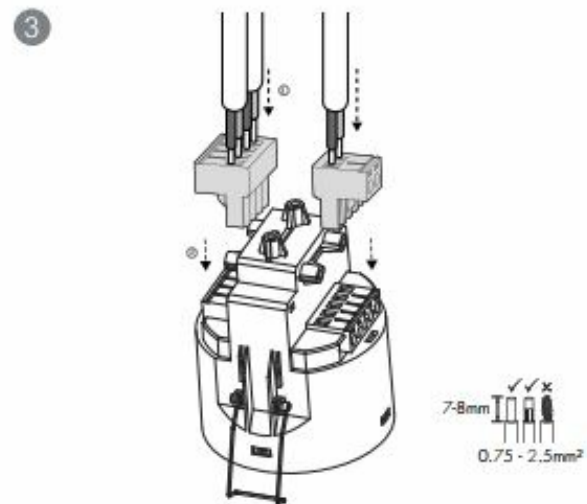
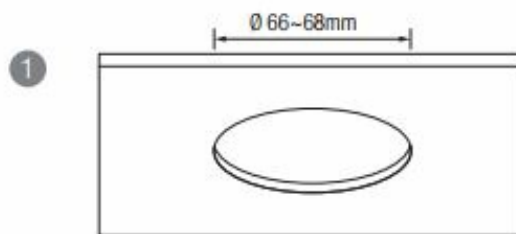
EMC standard (EMC)	EN55015, EN61000, EN61547
Safety standard (LVD)	EN60669-1, EN60669-2-1 AS/NZS60669-1/-2-1
RED	EN300328, EN301489-1/-17
Certification	CB, CE , EMC, RED, RCM

## Environment

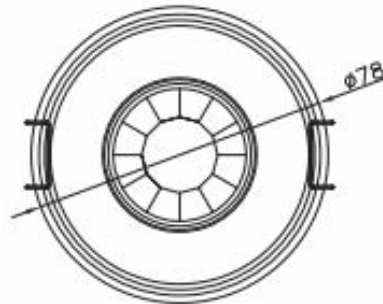
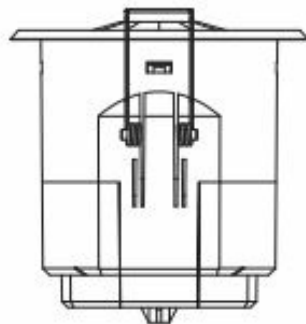
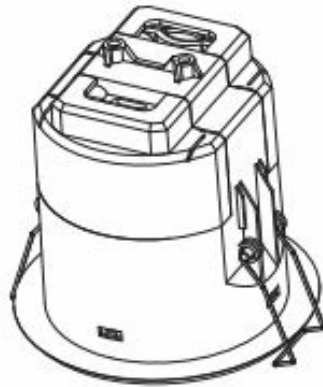
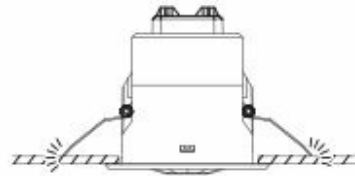
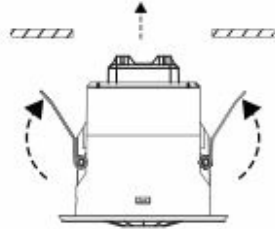
Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20
IP rating (facial part)	IP54

\*IP54 (facial part) only for lens of standard,/R,/H

## Mechanical Structure & Dimensions



7



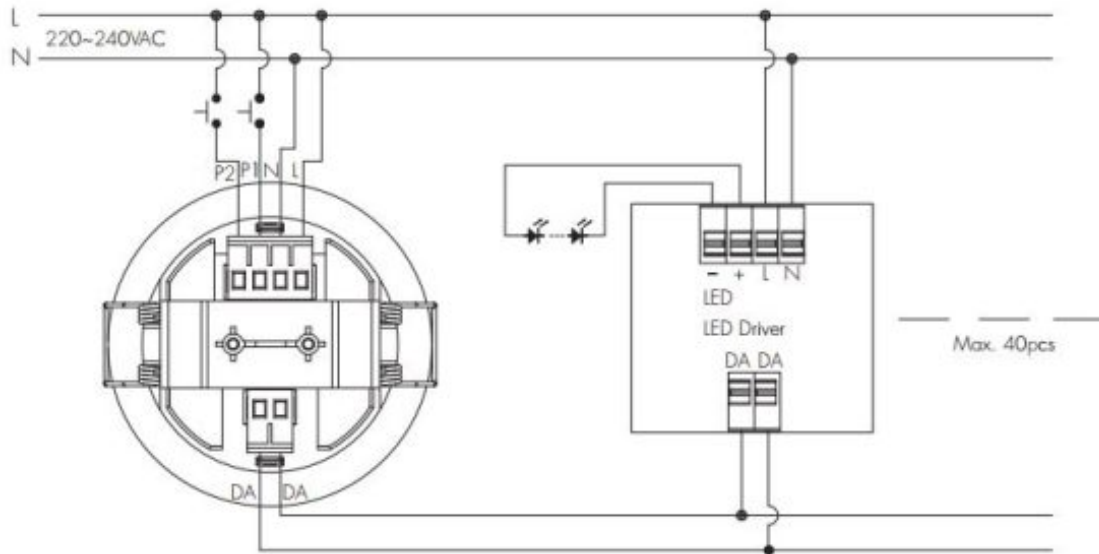
1. Ceiling (drill hole  $\varnothing$  66~68mm).
2. Carefully prise off the Back Caps.
3. Make connections to the pluggable terminal blocks.
4. Secure the cables with screws for better stability. Three types of Back Caps are available (Standard, HA08 , and HA08/S).
5. Fit detection blind (if required).
6. Fit desired lens, clip fascia to body (this step is not applicable for /UH).
7. Bend back springs and Insert into ceiling.

\*The standard back cap is designed for the installation of two cables. HA08 is a high back cap, allows cables to exit upwards. HA08/S is designed for sideways cable exits.

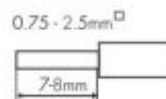




## Wiring Diagram



## Wire Preparation

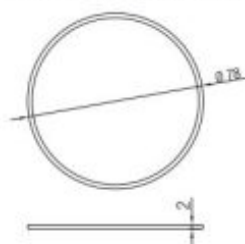


Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

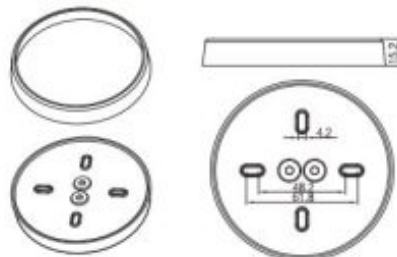
1. 200 metres (total) max. for 1mm<sup>2</sup> CSA (Ta = 50°C)
2. 300 metres (total) max. for 1.5mm<sup>2</sup> CSA (Ta = 50°C)

Big and small silicon gasket used to make IP54 degree protection when HBR31 series device mounted into HA09 housing for ceiling mount

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



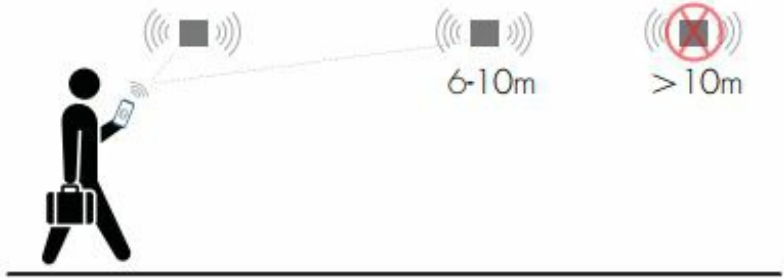
Big silicon water-proof gasket dimension(size:mm)



**Note:** The small silicon water-proof gasket is not suitable for HBIR29/W and HBIR29/UH The Big silicon water-proof gasket is not suitable for HBIR29/W

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.

Detection Pattern & Optional Accessories

1. HBIR31 (Low-bay)				
	<b>HBIR31: Low-bay flat lens detection pattern for <u>single person</u> @ Ta = 20°C</b>			
	<b>(Recommended ceiling mount installation height <u>2.5m-6m</u>)</b>			
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)

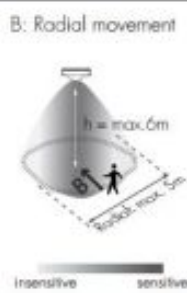
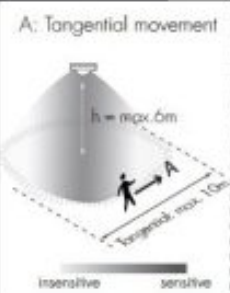


Optional Accessory → Blind Insert for Blocking Certain Detection Angles



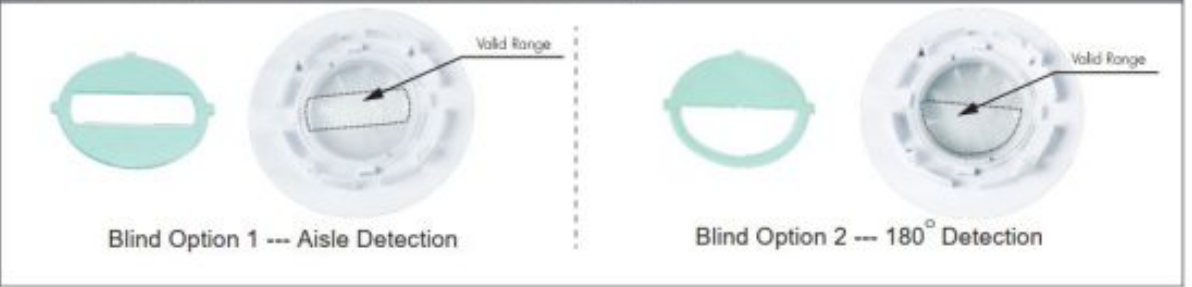
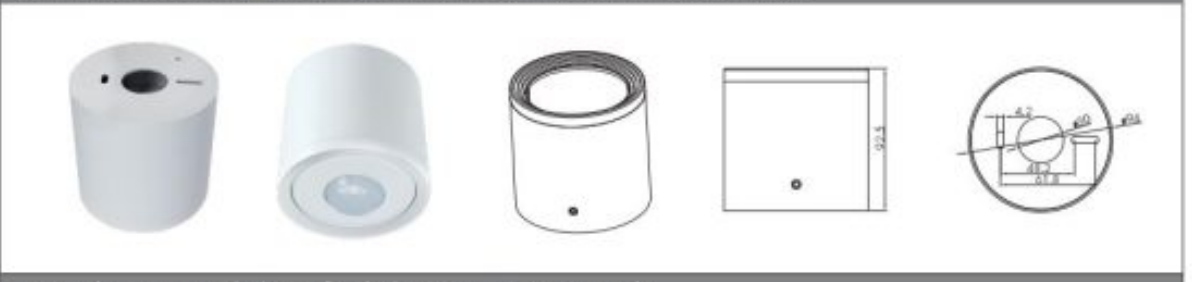
**HBR31/R:** Low-bay convex lens detection pattern for **single person** @ Ta = 20°C

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



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

Optional Accessory — Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G



### 3. HBIR31/W (Wide range Low-bay)

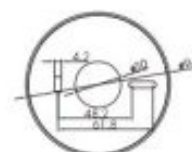


**HBIR31/W:** Low-bay convex lens detection pattern for **single person** @ Ta = 20°C

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

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 Metal Mount Box: HA09/W, HA09/B, HA09/G



### 4. HBIR31/H (High-bay)



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

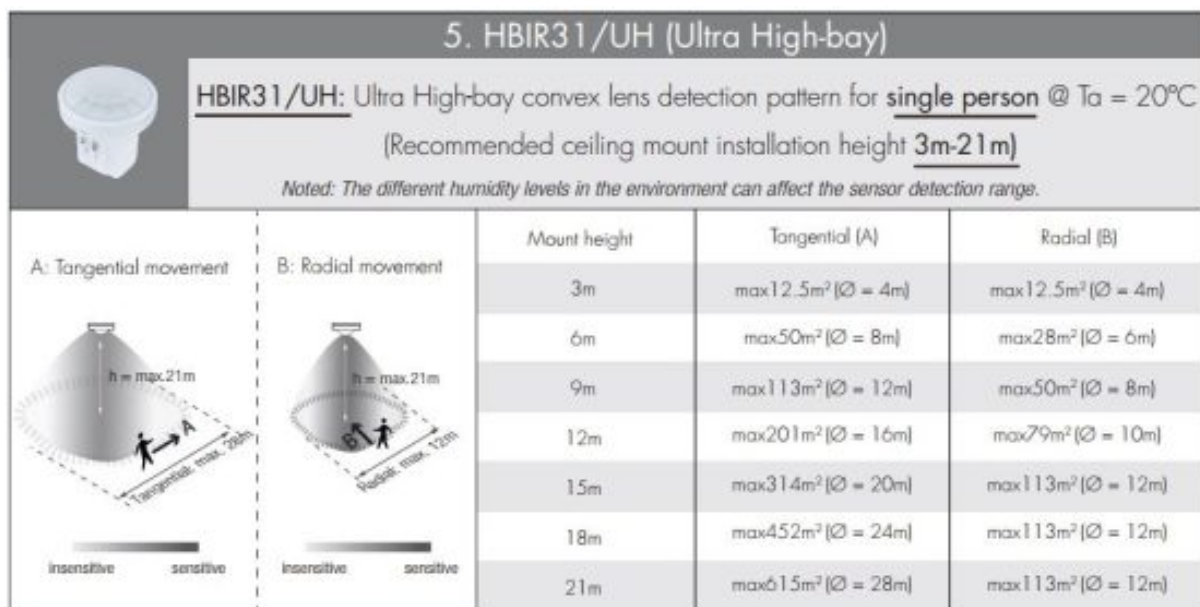
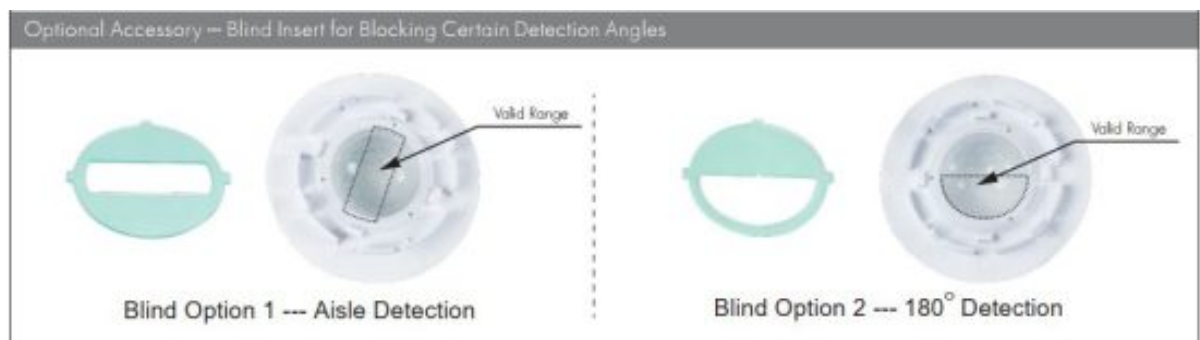
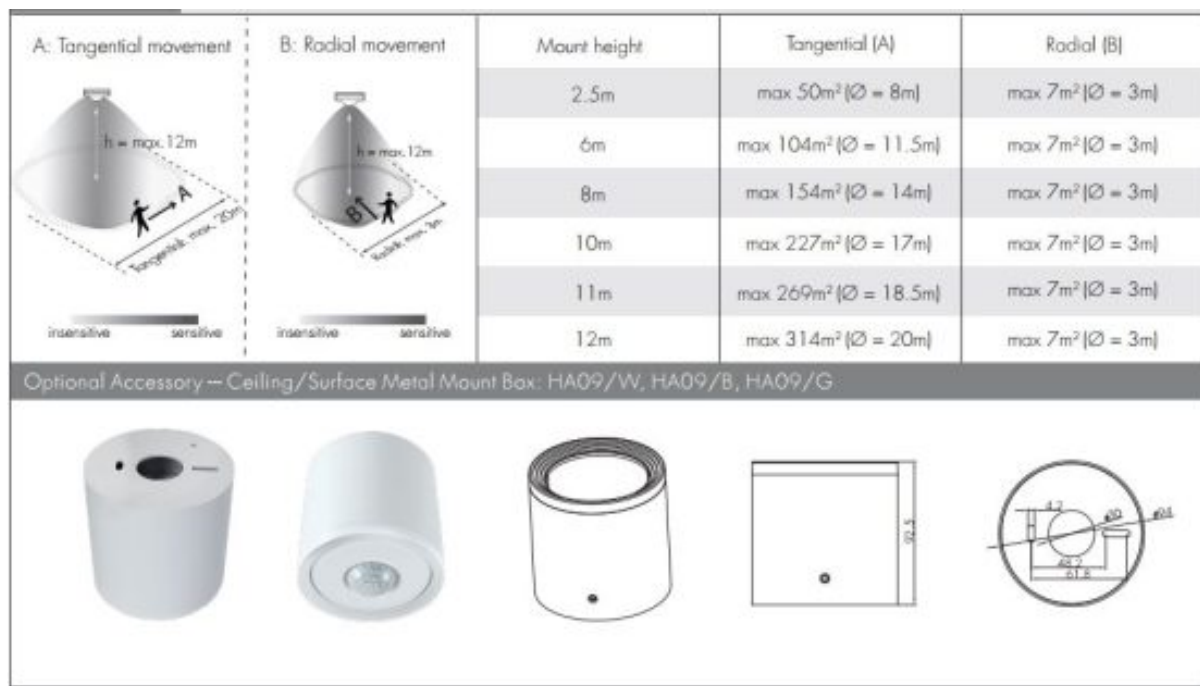
(Recommended ceiling mount installation height **10m-15m**)

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)



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

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







## 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"> <li>- Turn on/off</li> <li>- Recall a scene</li> <li>- Turn on only</li> <li>- Quit manual mode</li> <li>- Turn off only</li> <li>- Do nothing</li> </ul>
	Double push	<ul style="list-style-type: none"> <li>- Turn on only</li> <li>- Quit manual mode</li> <li>- Turn off only</li> <li>- Do nothing</li> <li>- Recall a scene</li> </ul>
	Long press (≥1 second)	<ul style="list-style-type: none"> <li>- Dimming</li> <li>- Colour tuning</li> <li>- Do nothing</li> </ul>
Sensor-link	/	<ul style="list-style-type: none"> <li>- Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor</li> </ul>
Emergency Self-Test Function	Short press (<1 second) * Short press has to be longer than 0.1s, or it will be invalid.	<ul style="list-style-type: none"> <li>- Start Self test (Monthly)</li> <li>- Start Self test (Annually)</li> <li>- Stop Self test</li> <li>- Invalid</li> </ul>
	Long press (≥1 second)	<ul style="list-style-type: none"> <li>- Start Self test (Monthly)</li> <li>- Start Self test (Annually)</li> <li>- Stop Self test</li> <li>- Invalid</li> </ul>
Fire Alarm (VFC signal only)	Refer to <b>Koolmesh</b> ® App User Manual V2.1	<ul style="list-style-type: none"> <li>- Able to connect the Fire Alarm system</li> <li>- 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.</li> </ul>

## Additional Information / Documents


1. To learn more about detailed product features/functions, please refer to  
[www.hytronik.com/download](http://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](http://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](http://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](http://www.hytronik.com/products/bluetooth) technology ->Bluetooth Sensors
5. Regarding Hytronik standard guarantee policy, please refer to [www.hytronik.com/download](http://www.hytronik.com/download) ->knowledge ->Hytronik Standard Guarantee Policy

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## Documents / Resources

	<p><b><a href="#">HYTRONIK HBIR31 Bluetooth PIR Standalone Motion Sensor</a></b> [pdf] Owner's Manual HBIR31, HBIR31 Bluetooth PIR Standalone Motion Sensor, Bluetooth PIR Standalone Motion Sensor, PIR Standalone Motion Sensor, Standalone Motion Sensor, Motion Sensor, Sensor</p>
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## References

- [iot.koolmesh.com](http://iot.koolmesh.com)
- [User Manual](#)

[Manuals+.](#) [Privacy Policy](#)

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