

Multi-Directional PIR Sensor with Bluetooth® 5.0 SIG Mesh

HBIR29/AA

DALI Output

**HYTRONIK®**



### Product Description

HBIR29/AA is a Bluetooth PIR standalone motion sensor, with one DALI channel output (90mA DALI power supply builtin). It is designed with a metal surface mount box and the detection angle is adjustable by needs. It is ideal for typical indoor applications such as offices, classrooms, healthcare, and other commercial areas (corridors and warehouses). 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!). All simple device setup and commissioning can be done via **Koolmesh®** app.



### 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

- Staircase function (primary & secondary)

- Remote control via gateway support HBGW01

- Heat map

- Dynamic daylight harvest auto-adaptation

- Grouping luminaires via mesh network

- Scenes

- Dusk/Dawn photocell (Twilight function)

- Tri-level control

- Daylight harvest

- Circadian rhythm (Human centric lighting)

- 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

- DALI bus power supply

I guaranteed: 60mA

I max: 90mA

U rated: 15VDC

- Support the control of DALI-2 and DT8 drivers

- Support D4i driver and collect energy, fault & diagnostics data

- 1 Push inputs for flexible manual control

- Black & White options

- User-friendly design for installation

- 5-year warranty

**Bluetooth® Kinetic Switch**



HBKS01



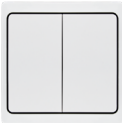
HBKS02



HBKS03



HBKS01D



HBKS02D

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**EnOcean**  
Self-powered IoT

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

**Bluetooth® 5.0 SIG mesh**



HYTRONIK  
Koolmesh



iOS



Android



for iOS



for Android

Smartphone app for both iOS & Android platform

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for iPad

Koolmesh Pro app for iPad

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Web



for Web

Web app/platform: [www.iot.koolmesh.com](http://www.iot.koolmesh.com)

## 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                                                |
| Ceiling-mounted<br>Detection Range | Installation Height : 3m<br>Max. Detection Range (Ø) : 12m   |
|                                    | Installation Height : 6m<br>Max. Detection Range (Ø) : 13m   |
| Wall-mounted<br>Detection Range    | Installation Height : 2.5m<br>Max. Detection Range (Ø) : 16m |
| Detection angle                    | 360°                                                         |

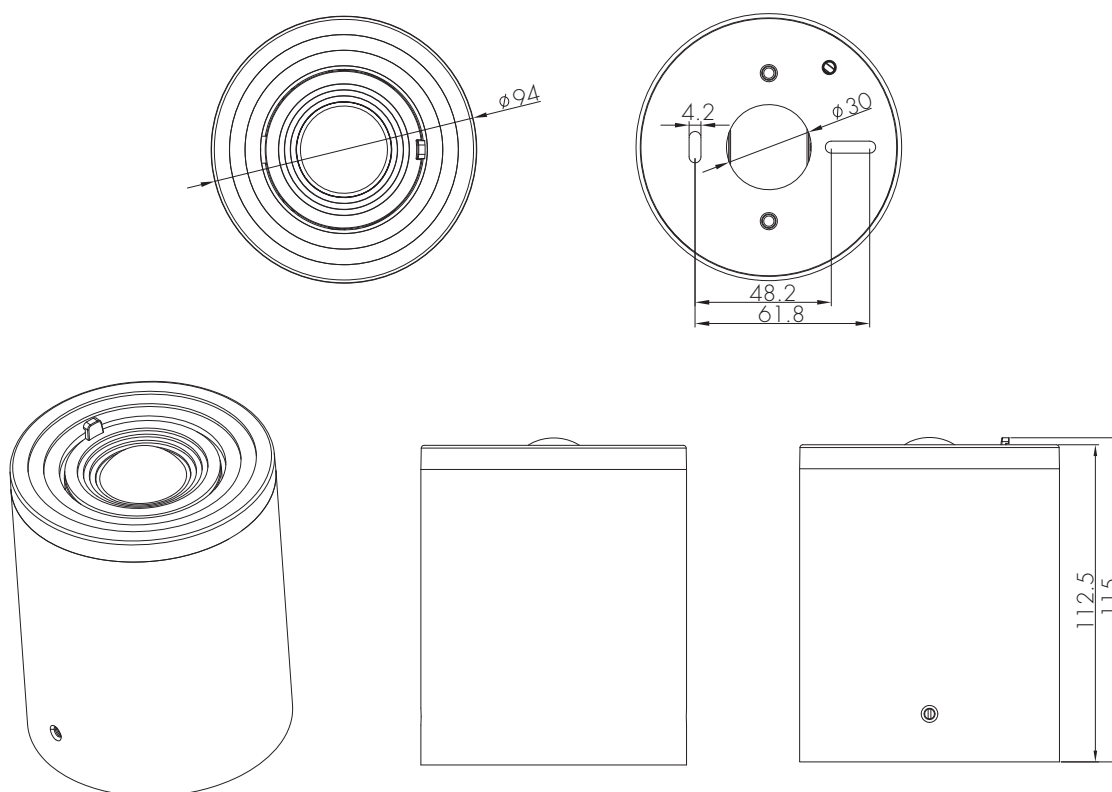
\* For more details of detection range, please refer to "detection pattern" section.

| Environment           |                   |
|-----------------------|-------------------|
| Operation temperature | Ta: -15°C ~ +45°C |
| Storage temperature   | -25°C ~ +70°C     |
| Relative humidity     | 20~90%            |
| IP rating             | IP20              |

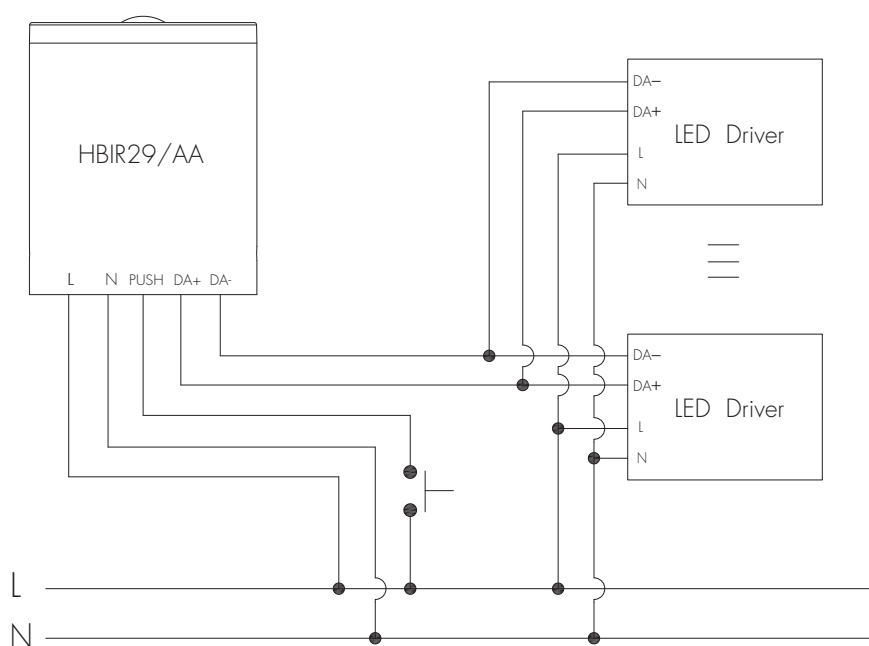
| Input & Output Characteristics |                     |
|--------------------------------|---------------------|
| Operating voltage              | 220~240VAC 50/60Hz  |
| Stand-by power                 | <1W                 |
| DALI Input voltage             | 9.5~22.5V           |
| DALI Bus Power Supply          | I guaranteed : 60mA |
|                                | I max: 90mA         |
|                                | U rated: 15VDC      |

| Safety & EMC          |                                    |
|-----------------------|------------------------------------|
| EMC standard (EMC)    | EN55015, EN61000-3-2/-3-3, EN61547 |
| Safety standard (LVD) | EN60669-1, EN60669-2-1             |
| RED                   | EN300328, EN301489-1/-17, EN50663  |
| Certification         | CE, UKCA, RED, RCM                 |

## Mechanical Structure & Dimensions



## Wiring Diagram



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)

## 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.

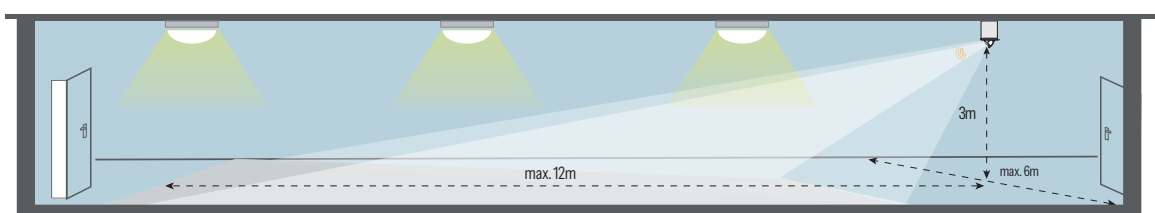
### Detection pattern

\*Sensitivity set to maximum

### Ceiling-mounted application

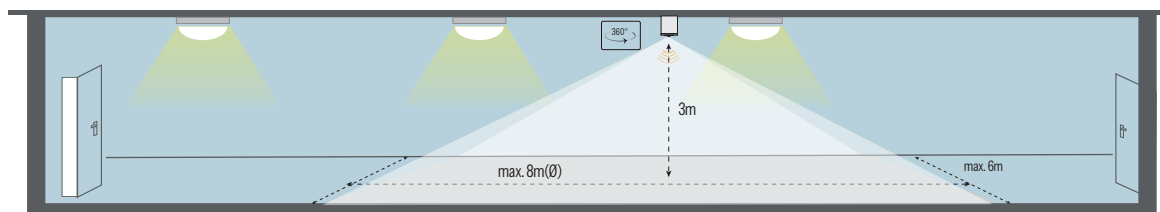
Installation height: 3m

\*Sensor head angle set to 70°

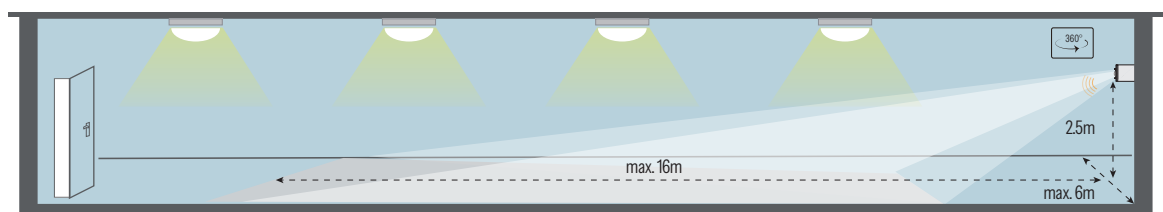


Installation height: 3m

\*Sensor head angle set to 90°



### Wall-mounted application



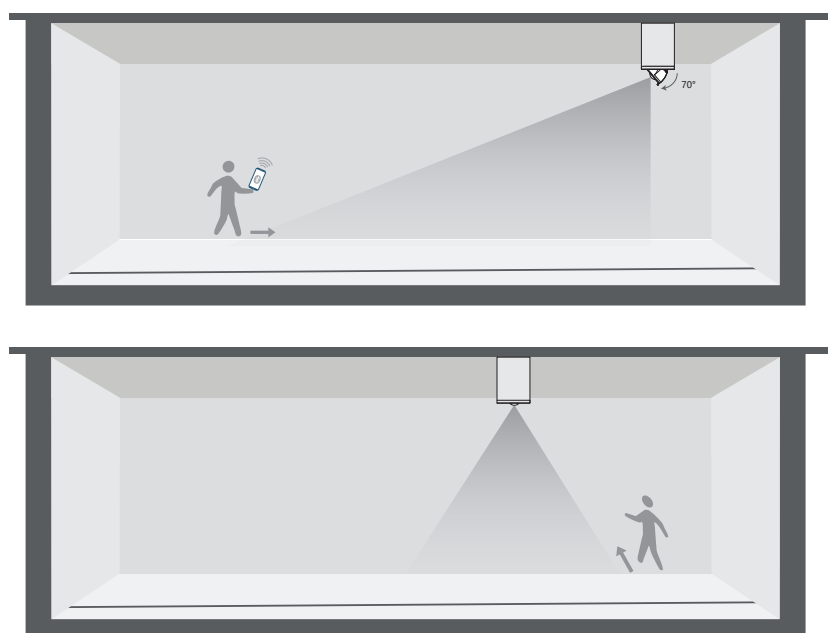
The installation data conduct by following testing conditions:

1. Environmental humidity: 88.5%;
2. Single person walking;
3. Sensor not connected to any driver that may have softon period;
4. Testing temperature  $T_a = 29.6^{\circ}\text{C}$ ;
5. The testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.

| <i>Application</i> | <i>Angle</i> | <i>Height</i> | <i>Tangential/Radial</i> | <i>Detection Range</i> |
|--------------------|--------------|---------------|--------------------------|------------------------|
| Ceiling-mounted    | 90°          | 3m            | Tangential               | 8m(Ø)                  |
|                    |              |               | Radial                   | 2m(Ø)                  |
|                    | 70°          |               | Tangential               | 12m                    |
|                    |              |               | Radial                   | 3m                     |
|                    | 90°          | 6m            | Tangential               | 14m(Ø)                 |
|                    |              |               | Radial                   | 5m(Ø)                  |
|                    | 70°          |               | Tangential               | 13m                    |
|                    |              |               | Radial                   | 5m                     |
| Wall-mounted       | 90°          | 2.5m          | Tangential               | 16m(Ø)                 |
|                    |              |               | Radial                   | 3m(Ø)                  |

Note: The unit of 90 degree detection data is diameter.

### Ceiling-mounted application



### Wall-mounted application



## 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)<br>* Short press has to be longer than 0.1s, or it will be invalid. | - Turn on/off<br>- Turn on only<br>- Turn off only<br>- Recall a scene<br>- Quit manual mode<br>- Do nothing                                                                                                                                                                                                                          |
|                              | Double push                                                                                 | - Turn on only<br>- Turn off only<br>- Recall a scene<br>- Quit manual mode<br>- Do nothing                                                                                                                                                                                                                                           |
|                              | Long press (≥1 second)                                                                      | - Dimming<br>- Colour tuning<br>- Do nothing                                                                                                                                                                                                                                                                                          |
| Sensorlink                   | /                                                                                           | - Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor                                                                                                                                                                                                                                                       |
| Emergency Self-Test Function | Short press (<1 second)<br>* Short press has to be longer than 0.1s, or it will be invalid. | - Start Self test (Monthly)<br>- Stop Self test<br>- Start Self test (Annually)<br>- Invalid                                                                                                                                                                                                                                          |
|                              | Long press (≥1 second)                                                                      | - Start Self test (Monthly)<br>- Stop Self test<br>- Start Self test (Annually)<br>- Invalid                                                                                                                                                                                                                                          |
| Fire Alarm (VFC signal only) | Refer to <b>Koolmesh</b> ® App User Manual V2.1                                             | - Able to connect the Fire Alarm system<br>- 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. |

## Additional Information / Documents

1. To learn more about detailed product features/functions, please kindly refer to <https://hytronik.com/product/hbir29-aa>
2. Regarding precautions for Bluetooth product installation and operation, please kindly refer to <https://hytronik.com/service/downloads> (Bluetooth Products Precautions for Product Installation and Operation)
3. Regarding precautions for PIR Sensors installation and operation, please kindly refer to <https://hytronik.com/service/downloads> (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 <https://hytronik.com/products/motion-daylight-sensors>
5. Regarding Hytronik standard guarantee policy, please kindly refer to <https://hytronik.com/service/downloads> (Guarantee Conditions document)