PIR Standalone Motion Sensor with Bluetooth® Mesh

HYTRONIK ®

HBIR29/SV HBIR29/SV/R HBIR29/SV/H HBIR29/SV/RH

| Low-bay | Reinforced Low-bay | High-bay | Reinforced High-bay |

Bluetooth® CB IP20 RED emc CE

Product Description

HBIR29/SV is a Bluetooth PIR standalone motion sensor with 80mA DALI power supply built in. It is ideal for typical indoor applications such as office, classroom, healthcare and other commercial areas. Meanwhile, all commissioning and settings can be done via SILVAIR app.

HBIR29/SV   HBIR29/SV/R

HBIR29/SV/H   HBIR29/SV/RH (3-pyro)

Functions and Features

- Bluetooth® mesh compliant

- Surface mount kit available as accessory

- PIR occupancy detection with 2 types of blind inserts / blanking plates

- Daylight harvesting

  (Note: The component may not be suitable for daylight harvesting usage due to not being precise in lux measurements. Please only use daylight harvesting feature if user conducted field tests and accepts the the tolerance level.)

- Scene control, Task tuning (0-100%)

- Compact form factor

- Works with DALI LED drivers

- Autonomous sensor-based control

- OTA firmware upgrade

- Continuous dimming

- Individual/group addressing

- Decentralized control (no single point of failure)

- User-friendly design for installation

- High bay version available (up to 15m in height)

- 5-years warranty

Bluetooth® EnOcean
Self-powered IoT

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

 Download on the APP Store

The access to Silvair apps

mobile app: Silvair on the App Store

web app: platform.silvair.com

Technical Specifications

Bluetooth Transceiver	
Operation frequency	2.4 GHz - 2.483 GHz
Transmission power	4 dBm
Range (Typical indoor)	10~30m
Protocol	Bluetooth® Mesh

Input & Output Characteristics	
Operating voltage	220~240VAC 50/60Hz
Max input current	10mA
Stand-by power	<0.65W (Empty load)
Switched power	I guaranteed: 44mA I max: 80mA
Warming-up	5s
Tc max	60°C
Lux range	1-1,000lux Tolerance +/− 20%

| Sensor Data	
Sensor Model	PIR detection
HBIR29/SV	Installation Height : 6m Detection Range(∅) :9m
HBIR29/SV/R	Installation Height : 6m Detection Range(∅) :10m
HBIR29/SV/H	Installation height：15m (forklift) 12m (person) Detection range (∅)：24m
HBIR29/SV/RH	Installation height：20m (forklift) 12m (person) Detection range (∅)：40m
Detection angle	360°
Standard compliance	EN300328, EN301489-1, EN301489-17, EN62479, EN55015, EN61547, EN60669-1, EN60669-2-1, EN62493

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

| Environment	
Operation temperature	Ta: −20°C ~ +50°C
Operation humidity (RH%)	10%~90% (Non-condensing)
Storage temperature (°C)	−40°C~+70°C
Storage humidity (RH%)	10%~90% (Non-condensing)
IP rating	IP20

Mechanical Structure & Dimensions
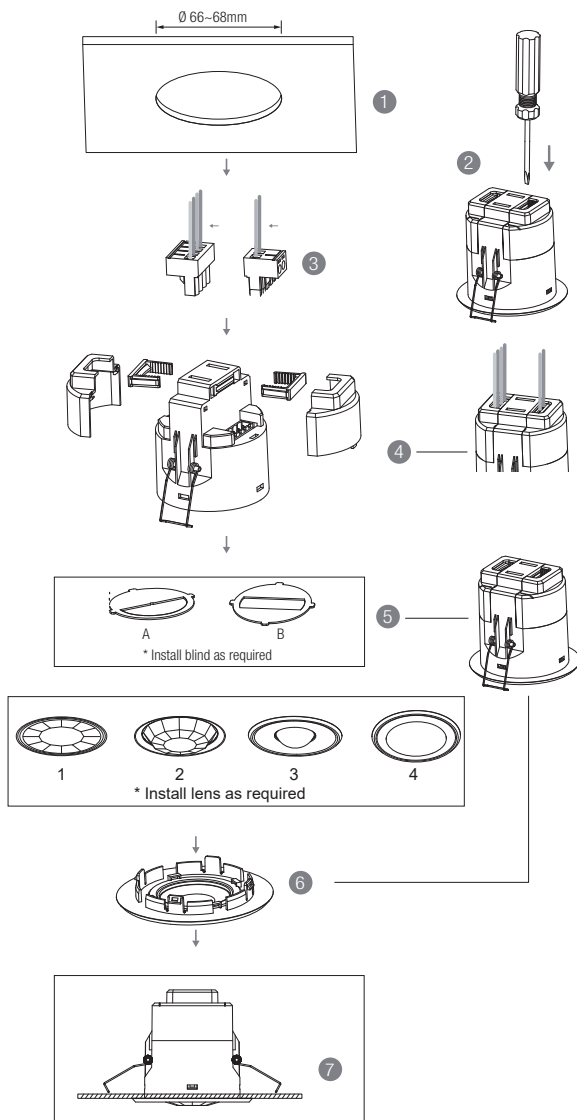
1. Ceiling (drill hole ∅ 66~68mm)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip fascia to body.
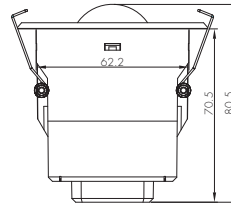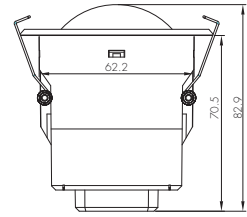7. Bend back springs and insert into ceiling.
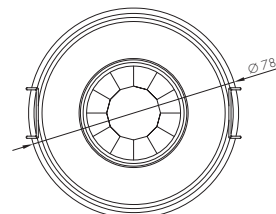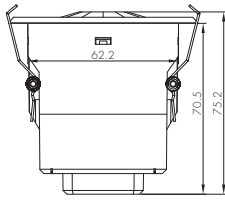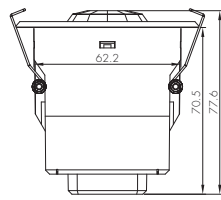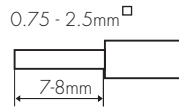
HBIR29/SV   HBIR29/SV/R   HBIR29/SV/H   HBIR29/SV/RH

Wire Preparation

0.75 - 2.5mm²

7-8mm

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

1. 200 metres (total) max. for 1mm² CSA (Ta = 50℃)
2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50℃)

Detection Pattern & Optional Accessories
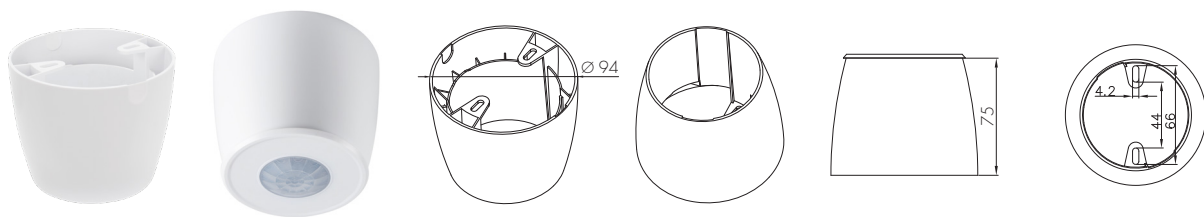
1. HBIR29/SV (Low-bay)			

HBIR29/SV: Low-bay flat lens detection pattern for **single person** @ Ta = 20℃

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

A: Tangential movement   B: Radial movement

h = max.6m

Tangential: max. 9m

Radial: max. 4m

insensitive   sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 50m² (∅ = 8m)	max 13m² (∅ = 4m)
3m	max 64m² (∅ = 9m)	max 13m² (∅ = 4m)
4m	max 38m² (∅ = 7m)	max 13m² (∅ = 4m)
5m	max 38m² (∅ = 7m)	max 13m² (∅ = 4m)
6m	max 38m² (∅ = 7m)	max 13m² (∅ = 4m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03

∅ 94

75

4.2   44   66

Optional Accessory --- Blind Insert for Blocking Certain Detection Angles

Valid Range

Valid Range

Blind Option 1 --- Aisle Detection

Blind Option 2 --- 180° Detection

2. HBIR29/SV/R (Reinforced Low-bay)

HBIR29/SV/R: Low-bay convex lens detection pattern for **single person** @ Ta = 20°C
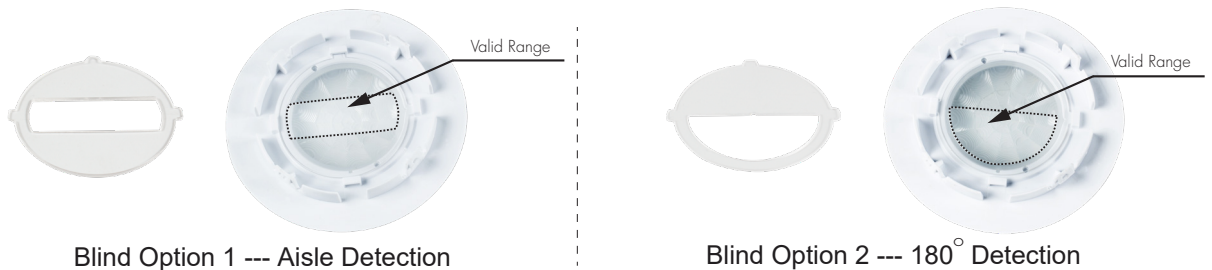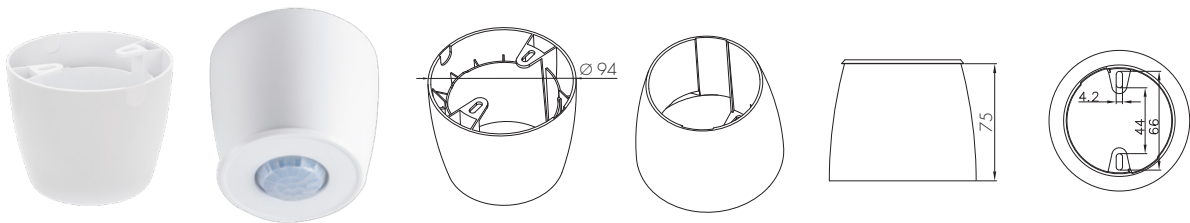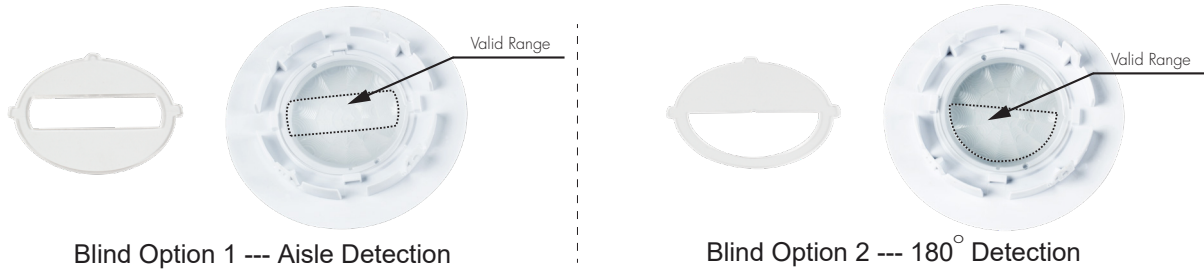
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement

Mount height	Tangential (A)	Radial (B)
2.5m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
3m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
4m	max 64m² (Ø = 9m)	max 20m² (Ø = 5m)
5m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)
6m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)

h = max.6m

insensitive   sensitive

Tangential: max. 10m

Radial: max. 5m

Optional Accessory --- Ceiling/Surface Mount Box: HA03

Ø 94

75

4.2

44

66

Optional Accessory --- Blind Insert for Blocking Certain Detection Angles

Valid Range

Valid Range

Blind Option 1 --- Aisle Detection

Blind Option 2 --- 180° Detection

3. HBIR29/SV/H (High-bay)

HBIR29/SV/H: High-bay lens detection pattern for **forklift** @ Ta = 20°C

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

A: Tangential movement

B: Radial movement

h = max.15m

Tangential: max. 24m

h = max.15m

Radial: max. 16m

insensitive — sensitive

insensitive — sensitive

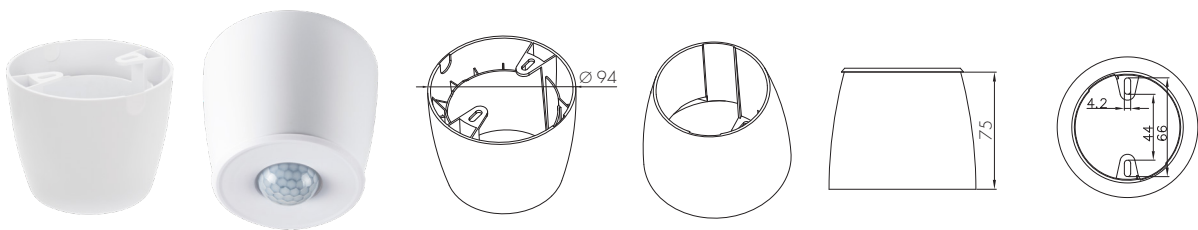| Mount height	Tangential (A)	Radial (B)
10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
14m	max 452m² (Ø = 24m)	max 133m² (Ø = 13m)
15m	max 452m² (Ø = 24m)	max 113m² (Ø = 12m)

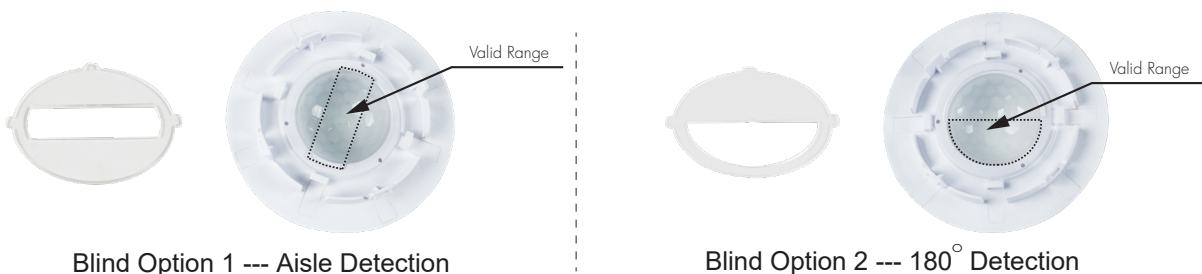## HBIR29/SV/H: High-bay lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

B: Radial movement

h = max.12m

Tangential: max. 20m

h = max.12m

Radial: max. 3m

insensitive — sensitive

insensitive — sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 50m² (Ø = 8m)	max 7m² (Ø = 3m)
6m	max 104m² (Ø = 11.5m)	max 7m² (Ø = 3m)
8m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
10m	max 227m² (Ø = 17m)	max 7m² (Ø = 3m)
11m	max 269m² (Ø = 18.5m)	max 7m² (Ø = 3m)
12m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03

Ø 94

75

4.2

44

66

Optional Accessory --- Blind Insert for Blocking Certain Detection Angles

Valid Range

Valid Range

Blind Option 1 --- Aisle Detection

Blind Option 2 --- 180° Detection

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4. HBIR29/SV/RH (Reinforced High-bay with 3-Pyro)

HBIR29/SV/RH: Reinforced high-bay lens detection pattern for **forklift** @ Ta = 20°C

(Recommended ceiling mount installation height **10m-20m**)

A: Tangential movement

B: Radial movement

h = max.20m

Tangential: max. 40m

insensitive — sensitive

h = max.20m

Radial: max. 15m

insensitive — sensitive

Mount height	Tangential (A)	Radial (B)
10m	max 346m² (Ø = 21m)	max 177m² (Ø = 15m)
11m	max 660m² (Ø = 29m)	max 177m² (Ø = 15m)
12m	max 907m² (Ø = 34m)	max 154m² (Ø = 14m)
13m	max 962m² (Ø = 35m)	max 154m² (Ø = 14m)
14m	max 1075m² (Ø = 37m)	max 113m² (Ø = 12m)
15m	max 1256m² (Ø = 40m)	max 113m² (Ø = 12m)
20m	max 707m² (Ø = 30m)	max 113m² (Ø = 12m)

**HBIR29/SV/RH**: Reinforced high-bay lens detection pattern for **single person** @ Ta = 20°C

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

A: Tangential movement

B: Radial movement

h = max.12m

Tangential: max. 30m

insensitive — sensitive

h = max.12m

Radial: max. 4m

insensitive — sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 38m² (Ø = 7m)	max 7m² (Ø = 3m)
6m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
8m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)
10m	max 531m² (Ø = 26m)	max 13m² (Ø = 4m)
11m	max 615m² (Ø = 28m)	max 13m² (Ø = 4m)
12m	max 707m² (Ø = 30m)	max 13m² (Ø = 4m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03

Ø 94

75

4.2
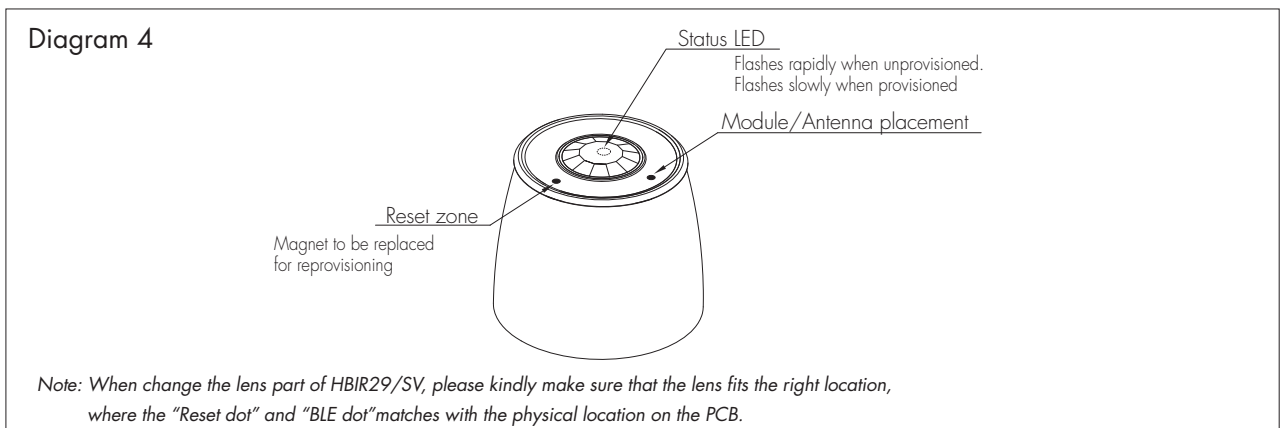
44

66
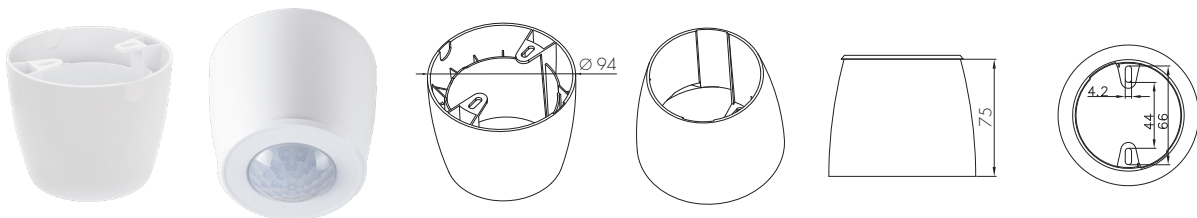
Wiring Diagram
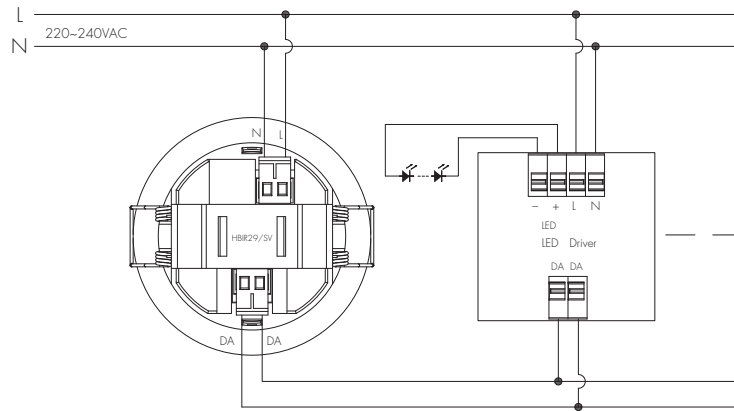
Mesh Factory Reset

The device HBIR29/SV can be reset by placing a strong magnet (e.g. N38 neodymium magnet, d=10mm*h=4mm) near the sensor lens for 5 seconds. Once the factory reset is done successfully, the luminaire flashes and then permanent on, then the device is being able to be re-commissioned by SILVAIR app.

To Reprovision

Place a strong magnet on the site of the Reset/Hall effect sensor (see diagram 4 below). To trigger the reset the magnet must be held in position for 5 seconds.


Diagram 4

Status LED
Flashes rapidly when unprovisioned.
Flashes slowly when provisioned

Module/Antenna placement

Reset zone

Magnet to be replaced
for reprovisioning

Note: When change the lens part of HBIR29/SV, please kindly make sure that the lens fits the right location, where the "Reset dot" and "BLE dot" matches with the physical location on the PCB.

Status LED blinking Sequence		
HBIR29/SV Unprovisioned	30ms ON	300ms OFF
HBIR29/SV Provisioned	15ms ON	2,000ms OFF
Factory reset	500ms ON	1,000ms OFF
Factory reset (initial burst)	100ms ON	1,000ms OFF
MESH package received	30ms ON	50ms OFF
Attention (from network)	500ms ON	500ms OFF

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

Ø 62
Ø 76.5
1.5
4
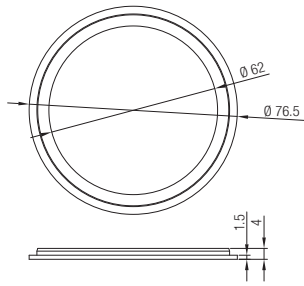
Big silicon water-proof gasket dimension(size:mm)

15.2
4.2
48.2
61.8
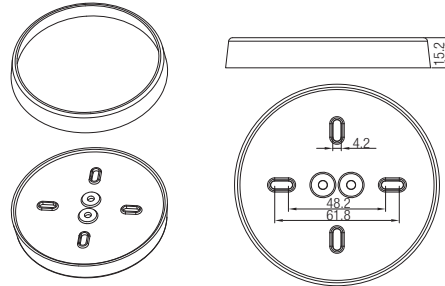
Supported Bluetooth Mesh Models

Bluetooth mesh models servers	
Mesh model generic default transition time server	Mesh model sensor server
Mesh model generic level server	Mesh model sensor setup server
Mesh model generic onoff server	
Mesh model generic power on off server	
Mesh model generic power on off setup server	
Mesh model light LC server	
Mesh model light LC setup server	
Mesh model light lightness server	
Mesh model light lightness setup server	

Placement Guide and Typical Range

Smart Phone to Device Range

6-10m   >10m
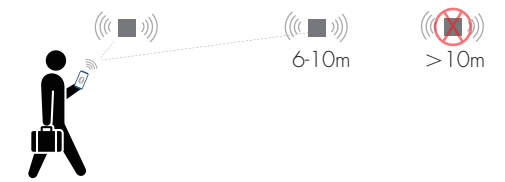
The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

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.

Additional Information / Documents

1. 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

2. Data sheet is subject to change without notice. Please always refer to the most recent release on
   www.hytronik.com/products/bluetooth technology ->Partnership

3. Regarding Hytronik standard guarantee policy, please refer to
   www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy