HYTRONIK HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensors Owner's Manual

Contents

HYTRONIK HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensors

Product Information

The HIR60 and HIR60/R are Bluetooth 5.0 SIG mesh PIR motion sensors designed for low bay and mid bay lighting applications.
They are equipped with a Zhaga D4i (Book 20 connection) that allows easy connection to Zhaga Book 20 LED Drivers via plug'n'play. These sensors feature a Bluetooth module, PIR sensor, and daylight sensor in a super-mini size. The Bluetooth wireless mesh networking enables seamless communication between luminaires without the need for hardwiring, making it ideal for smart lighting applications.
The devices can be easily set up and commissioned using a smartphone app.
The HIR60/R variant has an IP65 rating, making it suitable for outdoor installations. It also supports DALI (Digital Addressable Lighting Interface) for advanced control options.

Hardware Features:

- Bluetooth 5.0 + Zhaga + D4i + PIR motion sensor + Daylight sensor
- Super compact mini size
- Plug'n'Play via Zhaga Book 20 connection
- 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: Bluetooth 5.0 SIG Mesh
- Environment:
  - Operation temperature: 10 ~ 90%
  - Storage temperature: IP20
  - Relative humidity: 10 ~ 90%
- PIR Sensor Properties (HIR60 & HIR60/R):
  - Sensor principle: PIR detection
  - Operation voltage: 9.5~22.5VDC
  - Input current: Approx. 30mA
  - Detection angle: Varies based on sensor placement and walking paces

Product Usage Instruction

1. Mounting the Sensor:
   - Choose a suitable location for mounting the sensor, ensuring it has a clear view of the area to be monitored.
   - Use the provided optional accessories (HA04 or HA05) for different mounting styles, if required.
   - Follow the mechanical structure and dimensions diagram in the user manual for proper installation.
2. Wiring the Sensor:
   - Ensure power supply is disconnected before wiring.
   - Refer to the wiring diagram in the user manual for connecting the sensor to a DALI driver and power supply.

- Follow the wire preparation guidelines mentioned in the manual for proper wire installation.

3. Device Setup and Commissioning:
    - Download the Koolmesh Pro app from the App Store or Google Play Store.
    - Open the app and follow the on-screen instructions to create an account and log in.
    - Ensure your smartphone’s Bluetooth is enabled.
    - Follow the in-app instructions to pair and configure the motion sensor using Bluetooth wireless mesh networking.

Note: For detailed troubleshooting and additional guidelines, refer to the complete user manual.

5.0 PIR Motion Sensor with

HIR60 HIR60/R
Low bay Mid bay with IP65

HIR60

HIR60/R

Product Description

HIR60 & HIR60/R are Bluetooth 5.0 SIG mesh PIR motion sensors,designed with Zhaga D4i (Book 20 connection) that enables lighting designers/manufactures to freely connect to Zhaga Book 20 LED Drivers via plug’n’play. It’s embedded with Bluetooth module, PIR sensor and also a daylight sensor, and yet comes with a surprisingly super-mini size! With Bluetooth wireless mesh networking, it makes communication between luminaires much easier without time-consuming hardwiring, which is always a headache especially for old buildings – you do not need any extra wirings to upgrade old buildings with smart lighting! 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


Circadian rhythm (Human centric lighting)


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)


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)


Ofline 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

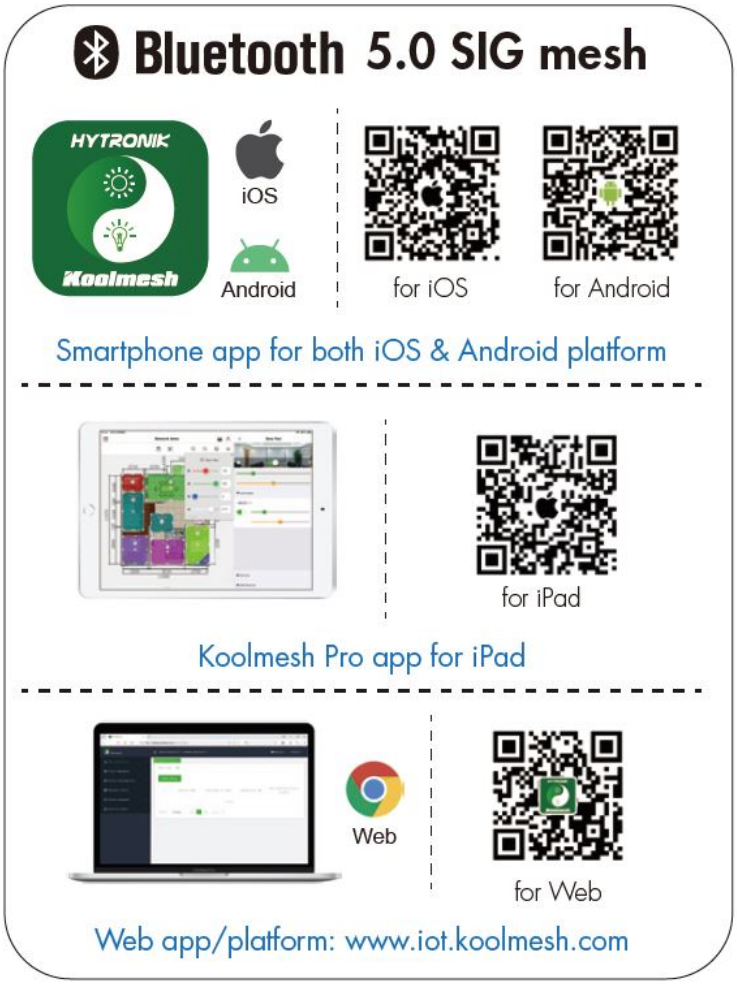
Continuous development in progress…

Hardware Features

- 5-in-1: Bluetooth 5.0 + Zhaga + D4i + PIR motion sensor + Daylight sensor
- Optional accessories for different mounting style
- Super compact mini size
- Plug’n’Play via Zhaga Book 20 connection
- 5-year warranty
- IP65-rated design for HIR60/R

coming soon…

coming soon…



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

Environment

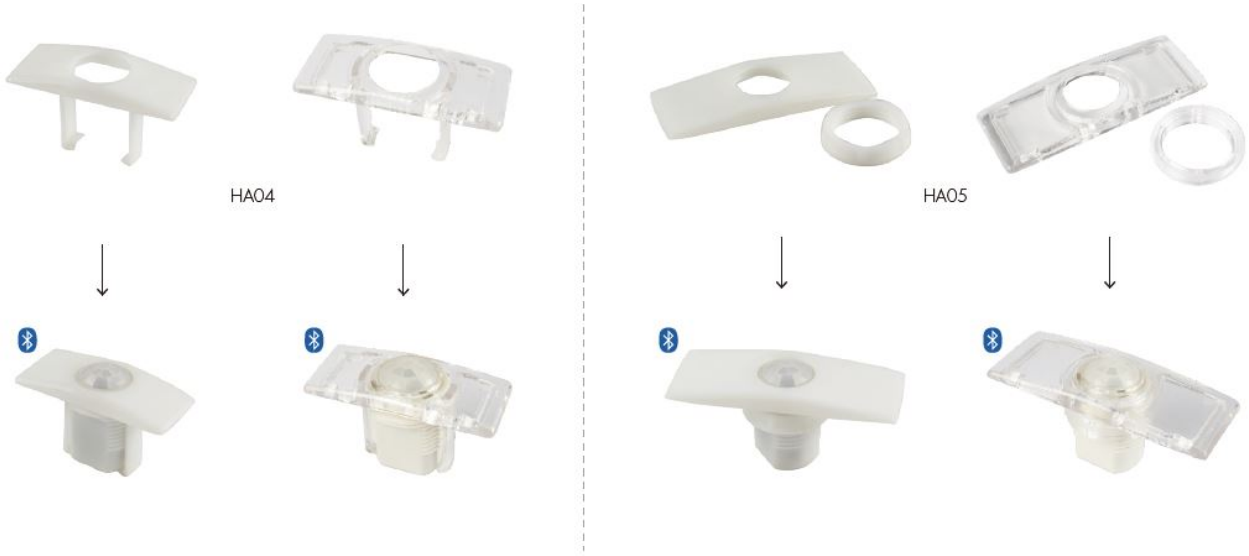
Operation temperature	Ta: -20°C ~ 50°C
Storage temperature	-40°C ~ +70°C
Relative humidity	10 ~ 90%
IP rating	IP20

PIR Sensor Properties (HIR60 & HIR60/R)

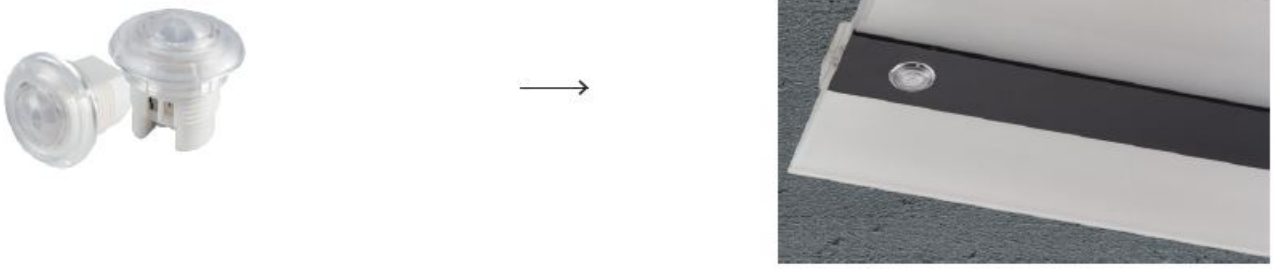
Sensor principle	PIR detection
Operation voltage	9.5~22.5VDC
Input current	Approx. 30mA
Detection range *	HIR60 Max installation height 3m Max detection range (Ø) 12m HIR60/R Max installation height 8m (for person) Max installation height 12m (for forklift) Max detection range (Ø) 20m
Detection angle	360°

The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

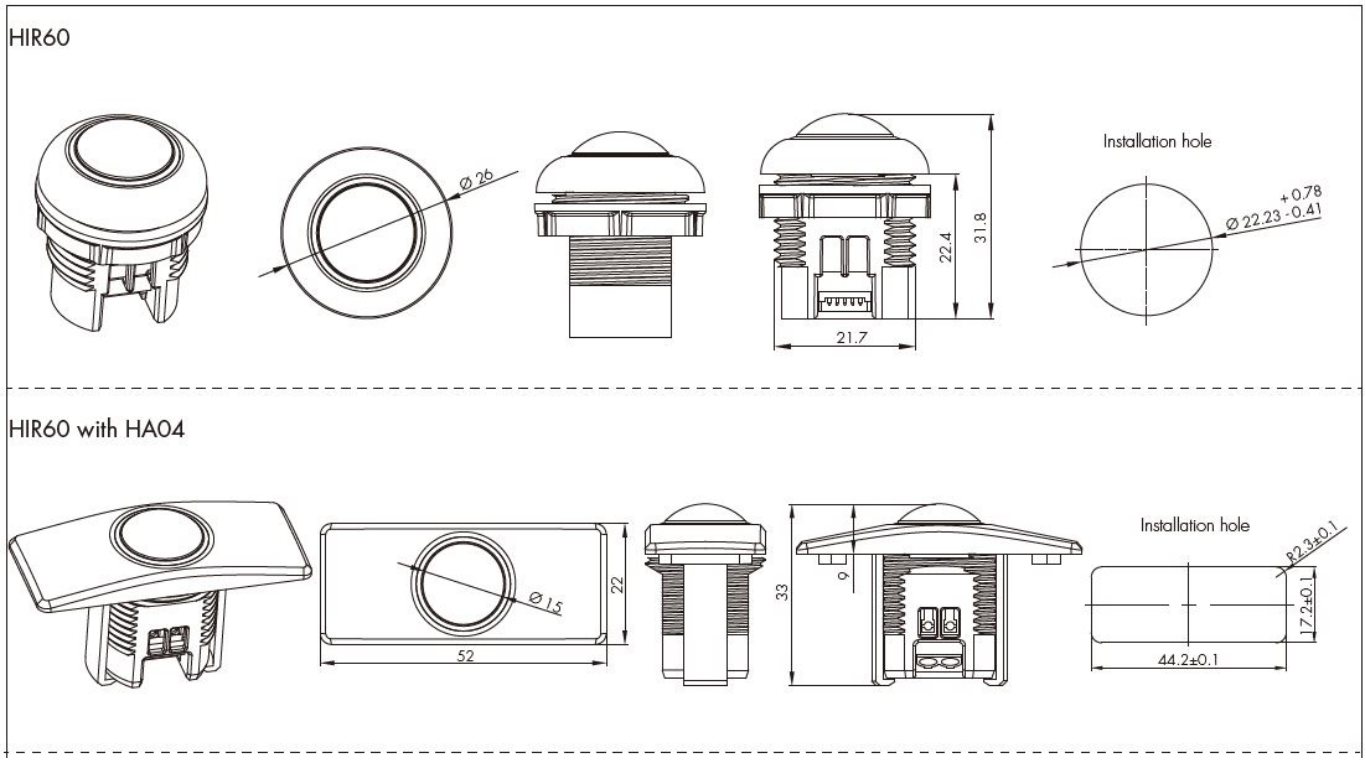
Optional Accessories



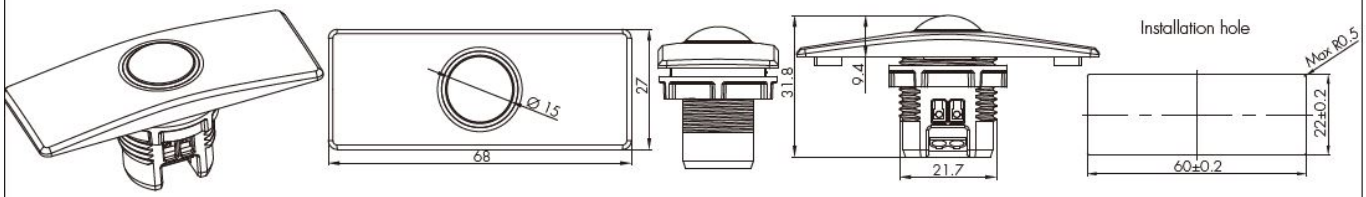
Demonstration of installation for transparent version



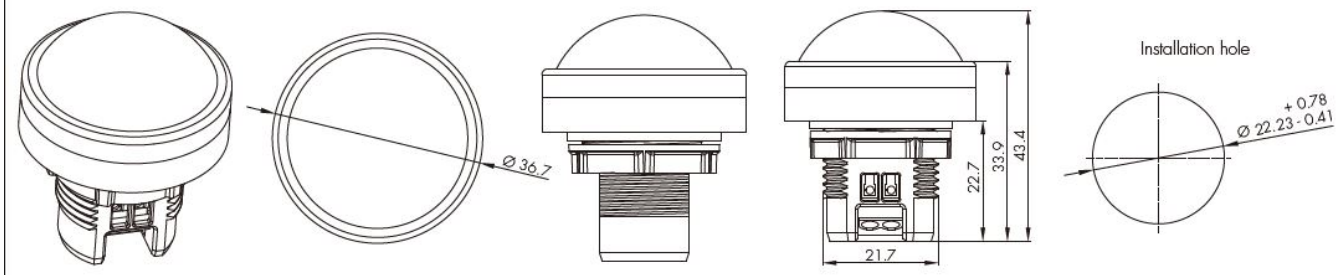
Mechanical Structure & Dimensions



HIR60 with HA05

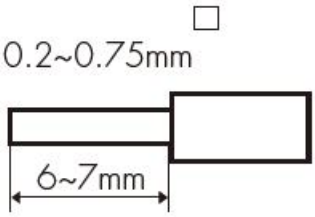


HIR60/R (IP65)



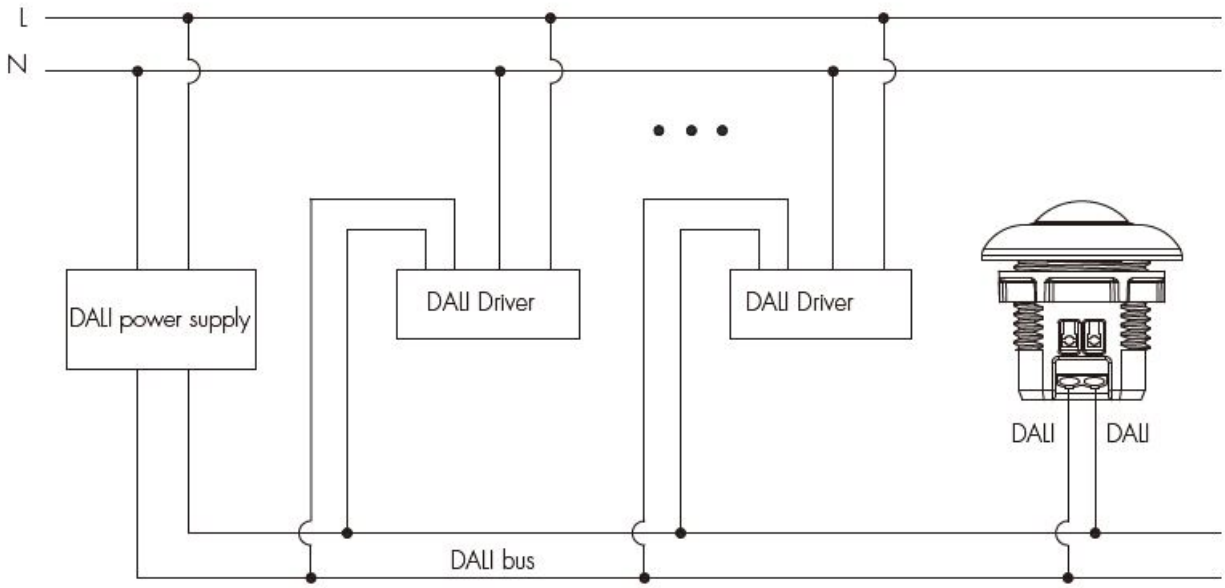
Wire Preparation

To make or release the wire from the terminal,use a screwdriver to push down the button.



Wiring Diagram

DALI Driver



Detection Pattern

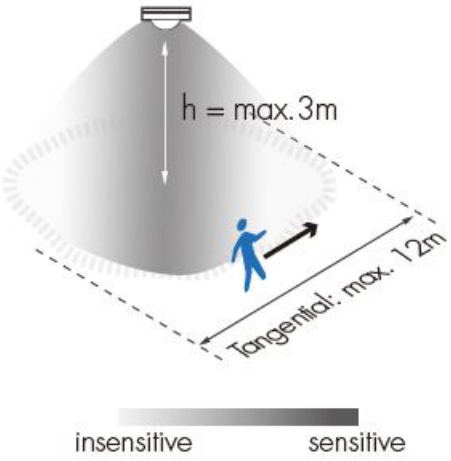
Diagram 1

The data below is tested under following conditions:

- Single person walking;
- Sensor not connected to any driver that may have soft-on period;
- Testing temperature Ta = 20°C;
- The testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.

HIR60

Tangential movement



Mount height	Tangential Movement
3m	max 113m² (∅ = 12m)

Diagram 2

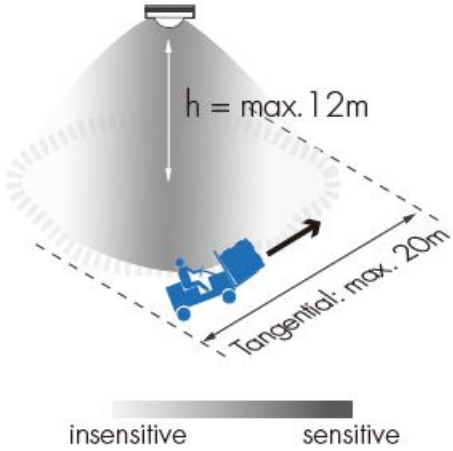
The data below is tested under following conditions:

- Forklift driving;

- Sensor not connected to any driver that may have soft-on period;
- Testing temperature Ta = 20°C;
- The testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.

HIR60/R

Tangential movement



Mount height	Tangential Movement
8m	max 201m² (Ø = 16m)
9m	max 227m² (Ø = 17m)
10m	max 254m² (Ø = 18m)
11m	max 314m² (Ø = 20m)
12m	max 314m² (Ø = 20m)

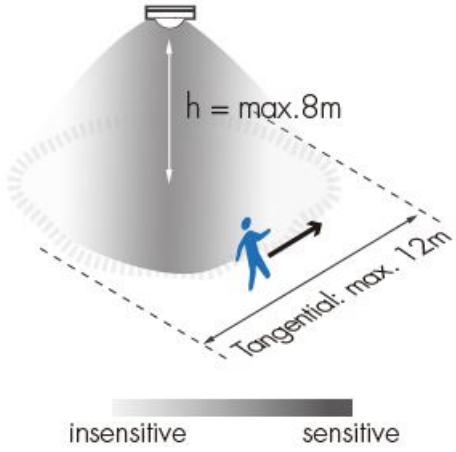
Diagram 3

The data below is tested under following conditions:

- Single person walking;
- Sensor not connected to any driver that may have soft-on period;
- Testing temperature Ta = 20°C;
- The testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.

HIR60/R

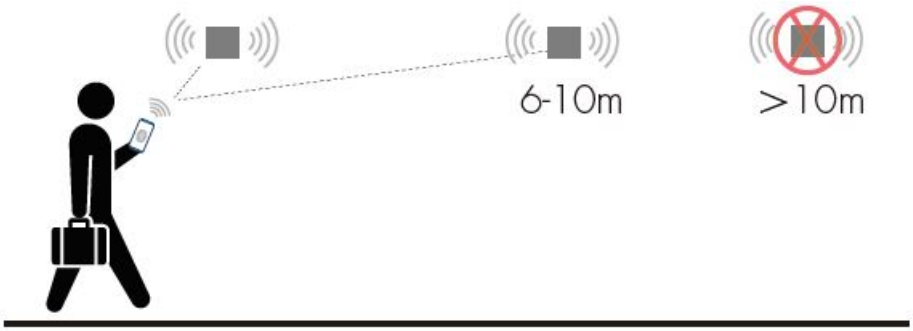
Tangential movement



Mount height	Tangential Movement
3m	max 38m² (Ø = 7m)
4m	max 50m² (Ø = 8m)
5m	max 50m² (Ø =8m)
6m	max 64m² (Ø = 9m)
7m	max 95m² (Ø = 11m)
8m	max 113m² (Ø = 12m)

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.

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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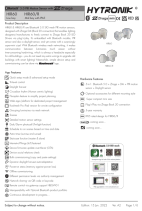
Documents / Resources

	HYTRONIK HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensors [pdf] Owner's Manual HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensors, HIR60, Bluetooth 5.0 SIG Mesh PIR Motion Sensors, PIR Motion Sensors, Motion Sensors, Sensors
	HYTRONIK HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensor [pdf] Owner's Manual HIR60, HIR60-R, HIR60 Bluetooth 5.0 SIG Mesh PIR Motion Sensor, Bluetooth 5.0 SIG Mesh PIR Motion Sensor, 5.0 SIG Mesh PIR Motion Sensor, SIG Mesh PIR Motion Sensor, Mesh PIR Motion Sensor, PIR Motion Sensor, Motion Sensor, Sensor

References

- Catalogue_Hytronik
- iot.koolmesh.com