Installation and Instruction Manual

HYTRONIK ®

Multi-Directional PIR Sensor with 🅱 Bluetooth® 5.0 SIG Mesh
DALI Output

HBIR29/AA

1. Technical Specifications

Operation frequency	2.4 GHz – 2.483 GHz
Transmission power	4 dBm
Range (Typical indoor)	10~30m
Protocol	🅱 Bluetooth® 5.0 SIG Mesh
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
Sensor Model	PIR detection
Ceiling-mounted Detection Range	Installation Height : 3m Max. Detection Range (Ø) :12m Installation Height : 6m Max. Detection Range(Ø) :13m
Wall-mounted Detection Range	Installation Height : 2.5m Max. Detection Range(Ø) :16m
Detection angle	360°
Operation temperature	Ta: -15°C~+45°C
Storage temperature	-25°C ~ +70°C
Relative humidity	20~90%
IP rating	IP20

2. Download the App

Free App for set-up and commissioning

🅱 **Bluetooth® 5.0 SIG mesh**

HYTRONIK Koolmesh

iOS / Android
for iOS
for Android

Smartphone app for both iOS & Android platform
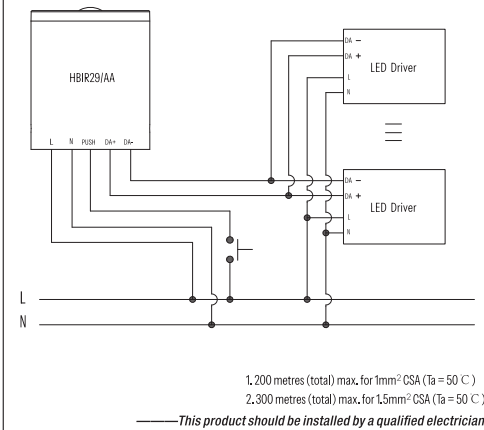
for iPad

Koolmesh Pro app for iPad

Web

for Web

Web app/platform: www.iot.koolmesh.com

3. Mechanical Structure & Dimensions

Ø94
Ø30
4.2
48.2
61.8
112.5
115
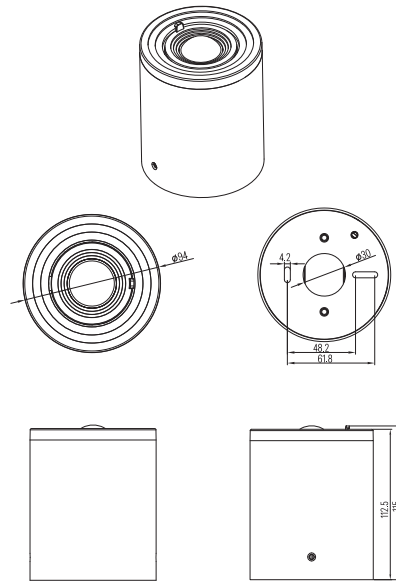
4. Wiring Diagram

Note: It is recommended that the wiring length be > 100mm for installation convenience.

HBIR29/AA

L   N   PUSH DA+ DA-

DA –
DA +
L
N
LED Driver

DA –
DA +
L
N
LED Driver

L
N

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

This product should be installed by a qualified electrician.

5. Installation Process

1

2 A.With junction box | B. Wall/Concrete Ceiling: | C1. Wooden Ceiling | C2. Metal Ceiling

3

4

5 A. | B. | C.

6 A. | B. | C.

7 360° | Around 70°
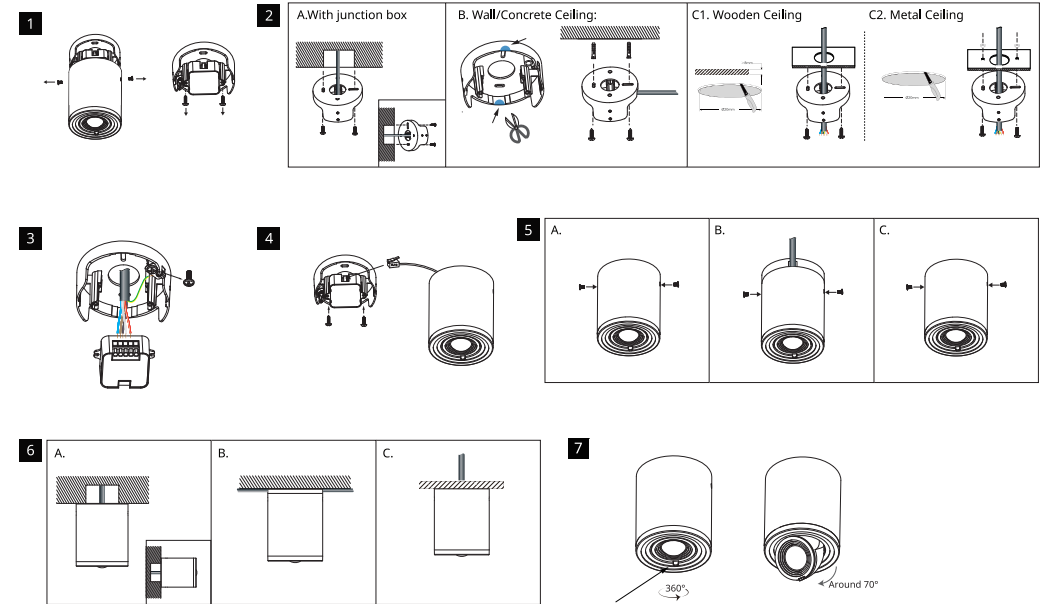
Detailed Installation Instructions :

1. Disassemble the Metal Box: To access the controller for wiring, remove the screws at both ends of the sleeve. Separate the base from the box body. Then also remove the screws securing the controller.

2. Fix the Base Before Installing the Control Unit: Temporarily set aside the control unit. Begin by securing the base according to the type of installation site:

A. Standard Junction Box Installation:

Feed the cable through the center hole of the base. Pull out the wires and use screws to secure the base to the junction box.

B. Wall/Concrete Ceiling:

To allow cable routing from either side, cut open the thin sections on both ends of the base (see the blue areas in the diagram for reference). We recommend using heavy-duty scissors or shears for this step. Then, use self-tapping screws to securely fix the base to the wall or concrete ceiling.

C. Wooden/Metal Ceiling:

Drill a Ø20mm hole. Feed the cable through the ceiling and backplate.

Wood: Use self-tapping screws to fix the base.

Metal: Use M4 machine screws with nuts for better stability.

Note: For both wooden and metal ceilings, ensure the structure can support a minimum weight of 350g.

3. Wire the Controller: After the base is secured, remove the grounding screw and attach the ground wire. Also, connect the corresponding control wires to the controller according to the wiring diagram.

4. Mount the Controller: Align it with the base and fix with screws. Connect the RJ12 cable to another control unit inside the box.

5. Reassemble the Sleeve: Align the screw holes on both sides and secure the box body to the base.
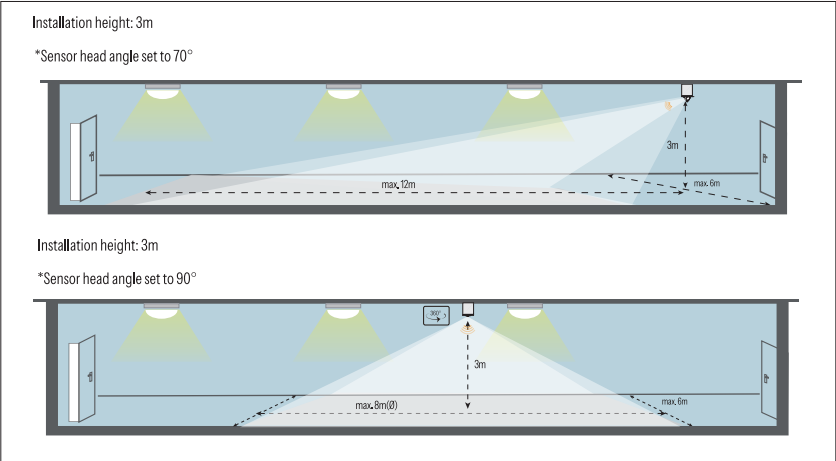
6. Reference Diagram of Final Installation: A visual reference is provided for clarity (for reference only).

7. Adjust Detection Angle: Use the small tab next to the lens to adjust the sensing angle as needed.
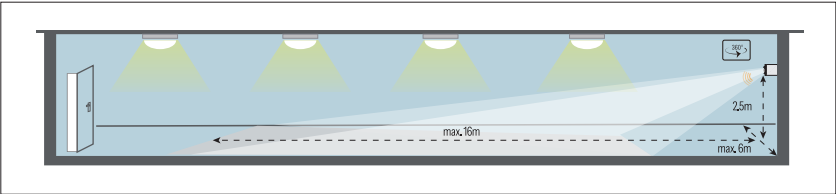
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6. Detection pattern

*Sensitivity set to maximum

Ceiling-mounted application

Installation height: 3m

*Sensor head angle set to 70°

max. 12m 3m max. 6m

Installation height: 3m

*Sensor head angle set to 90°

max. 8m(Ø) 3m max. 6m

### Wall-mounted application

max. 16m 2.5m max. 6m

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 soft-on period;
4. Testing temperature Ta = 29.6℃;
5. The testing is conducted in an open and spacious indoor field, without noticeable obstacles or infuences that may affect PIR performances.

Application	Angle	Height	Tangential/Radial	Detection Range
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.

Placement Guide and Typical Range

Smart Phone to Device Range

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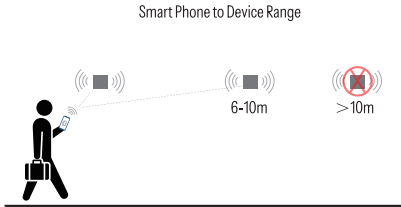
The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

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.

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

8. 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 Iinstallation 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）