

Installation and Instruction Manual

HYTRONIK®

PIR Standalone Motion Sensor with Bluetooth® 5.0 SIG Mesh HBHC25 HBHC25/R HBHC25/W HBHC25/H HBHC25/RH

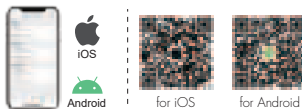
1. Technical Specifications

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 Channel 1	50mA, Max. 25 LED drivers
DALI Channel 2	30mA, Max. 15 LED drivers
Sensor principle	PIR detection
Detection range (Max.)* HBHC25	Installation Height : 6m Detection Range (Ø) : 9m
Detection range (Max.)* HBHC25/R	Installation Height : 6m Detection Range (Ø) : 10m
Detection range (Max.)* HBHC25/W	Installation Height : 6m Detection Range (Ø) : 18m
Detection range (Max.)* HBHC25/H	Installation height : 15m (forklift) 12m (person)
Detection range (Max.)* HBHC25/RH	Installation height : 20m (forklift) 12m (person)
Detection angle	360°
Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20
EMC standard (EMC)	EN55015, EN61000, EN61547
Safety standard (LVD)	EN60669-1/-2-1 AS/NZS60669-1/-2-1
RED	EN300328, EN301489-1/-17
Certification	CB, CE, EMC, RED, RCM

2. Download the App

Free App for set-up and commissioning

Bluetooth 5.0 SIG mesh



Smartphone app for both iOS & Android platform



Koolmesh Pro app for iPad

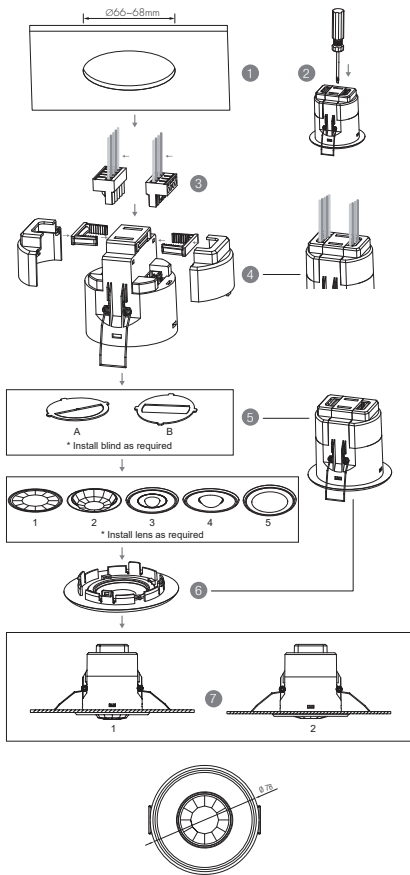


Web app/platform: www.iot.koolmesh.com

WWW.HYTRONIK.COM

3. Installation

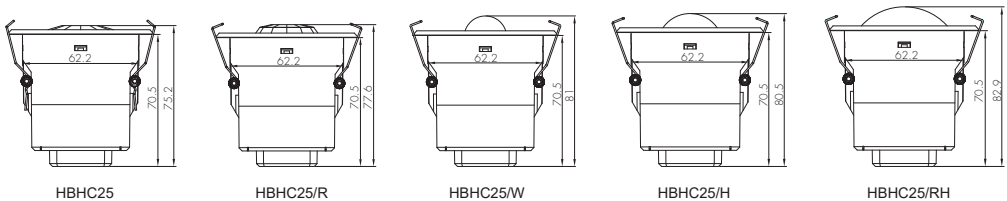
Mechanical Structure & Dimensions



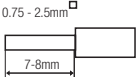
1. Ceiling (drill hole $\phi 66\sim 68\text{mm}$)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip fascia to body.
7. Bend back springs and insert into ceiling.

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HBHC25-20200302-A0



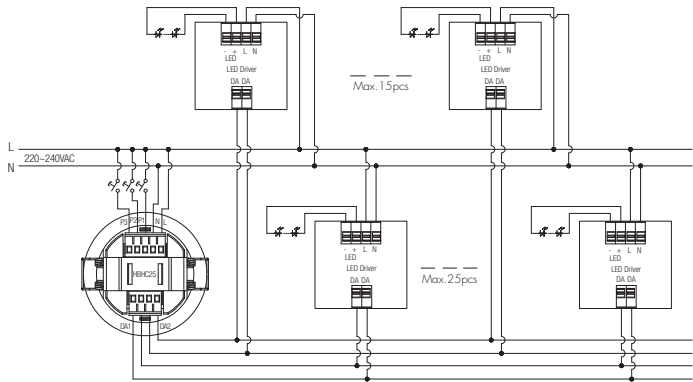
Wire Preparation



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

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

Wiring Diagram




4. 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.

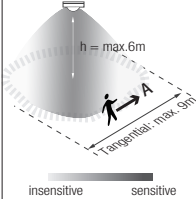
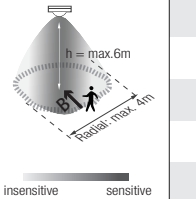
Switch Function	Action	Descriptions	
Push switch	Short press (<1 second) * Short press has to be longer than 0.1s, or it will be invalid.	- Turn on/off - Turn on only - Turn off only	- Recall a scene - Exit manual mode - Do nothing
	Double push	- Turn on only - Turn off only - Recall a scene	- Exit manual mode - Do nothing
	Long press (≥1 second)	- Dimming - Colour tuning - Do nothing	
Simulate sensor	/	- Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor	

5. Detection Pattern & Optional Accessories

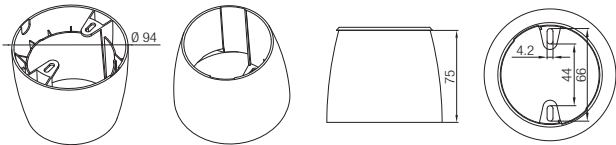



1. HBHC25 (Low-bay)

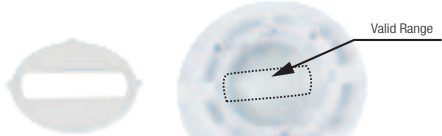
HBHC25: Low-bay flat lens detection pattern for **single person** @ Ta = 20°C
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 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)

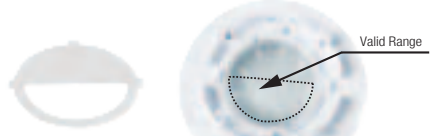
Optional Accessory --- Ceiling/Surface Mount Box: HA03



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



Blind Option 1 --- Aisle Detection

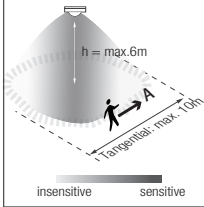
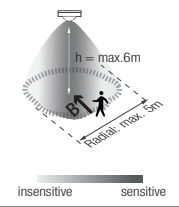


Blind Option 2 --- 180° Detection

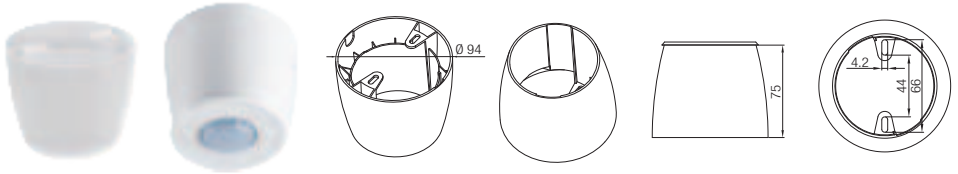
2. HBHC25/R (Reinforced Low-bay)



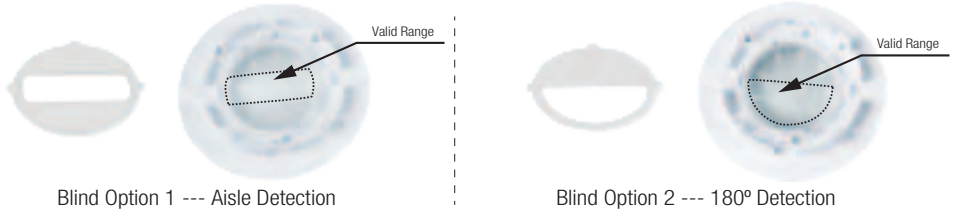
HBHC25/R: Low-bay convex lens detection pattern for **single person** @ $T_a = 20^\circ\text{C}$
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 79m ² ($\varnothing = 10\text{m}$)	max 20m ² ($\varnothing = 5\text{m}$)
		3m	max 79m ² ($\varnothing = 10\text{m}$)	max 20m ² ($\varnothing = 5\text{m}$)
		4m	max 64m ² ($\varnothing = 9\text{m}$)	max 20m ² ($\varnothing = 5\text{m}$)
		5m	max 50m ² ($\varnothing = 8\text{m}$)	max 20m ² ($\varnothing = 5\text{m}$)
		6m	max 50m ² ($\varnothing = 8\text{m}$)	max 20m ² ($\varnothing = 5\text{m}$)

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



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



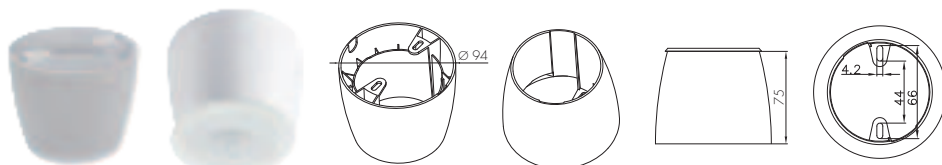
3. HBHC25/W (Wide range Low-bay)



HBHC25/W: Low-bay convex lens detection pattern for single person @ $T_a = 20^\circ\text{C}$
(Recommended ceiling mount installation height 2.5m-6m)

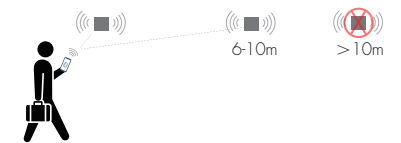
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 254m ² ($\varnothing = 18\text{m}$)	max 28m ² ($\varnothing = 6\text{m}$)
		3m	max 254m ² ($\varnothing = 18\text{m}$)	max 28m ² ($\varnothing = 6\text{m}$)
		4m	max 154m ² ($\varnothing = 14\text{m}$)	max 28m ² ($\varnothing = 6\text{m}$)
		5m	max 113m ² ($\varnothing = 12\text{m}$)	max 28m ² ($\varnothing = 6\text{m}$)
		6m	max 79m ² ($\varnothing = 10\text{m}$)	max 13m ² ($\varnothing = 4\text{m}$)

Ceiling/Surface Mount Accessory HA03: Default IP20, IP65 can be request with extra big & small water-proof gaskets



Placement Guide and Typical Range

Smart Phone to Device Range

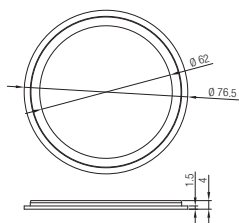


The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

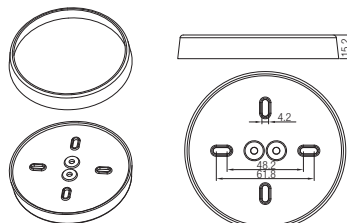
Once the devices have been added to the network via the App, the devices will start communicating within the wireless mesh. This means that once the network is complete, all devices are accessible from the smart device when in a 20m range of a single point.

Big and small silicon gasket used to make IP54 degree protection when HBHC25 series device mounted into HA03 housing for ceiling mount

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



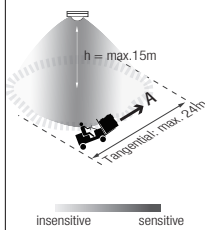
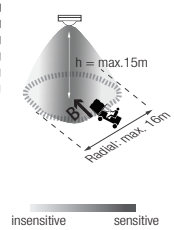
Big silicon water-proof gasket dimension(size:mm)



4. HBHC25/H (High-bay)

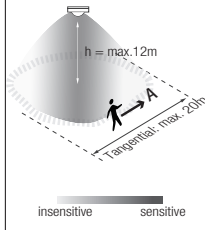
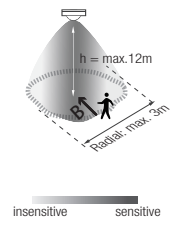


HBHC25/H: High-bay lens detection pattern for **forklift** @ Ta = 20°C
(Recommended ceiling mount installation height **10m-15m**)

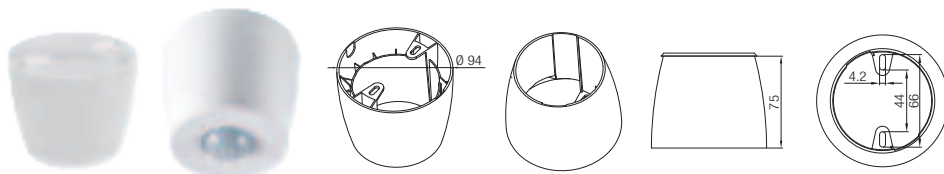
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
		11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
		14m	max 452m² (Ø = 24m)	max 133m²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



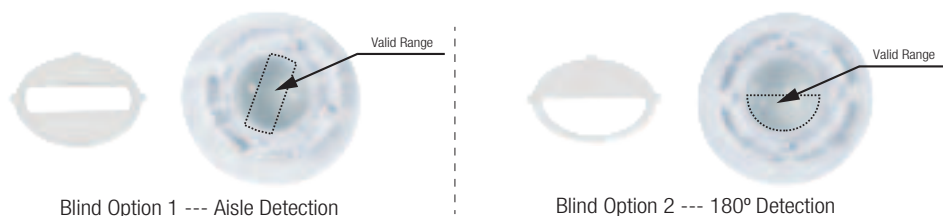
HBHC25/H: High-bay lens detection pattern for **single person** @ Ta = 20°C
(Recommended ceiling mount installation height **2.5m-12m**)

A: Tangential movement	B: Radial movement	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



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



Blind Option 1 --- Aisle Detection

Blind Option 2 --- 180° Detection

5. HBHC25/RH (Reinforced High-bay with 3-Pyro)



HBHC25/RH: Reinforced high-bay lens detection pattern for **forklift** @ Ta = 20°C
(Recommended ceiling mount installation height **10m-15m**)

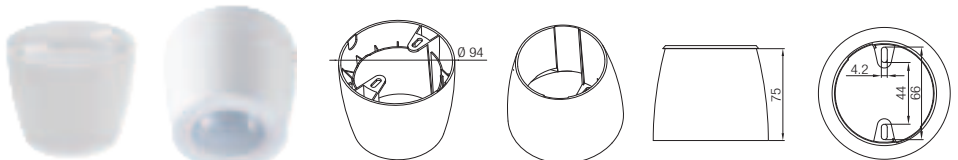
		Mount height	Tangential (A)	Radial (B)
<p>A: Tangential movement</p>	<p>B: Radial movement</p>	10m	max 346m ² (Ø = 21m)	max 177m ² (Ø = 15m)
		11m	max 660m ² (Ø = 29m)	max 177m ² (Ø = 15m)
		12m	max 907m ² (Ø = 34m)	max 154m ² (Ø = 14m)
		13m	max 962m ² (Ø = 35m)	max 154m ² (Ø = 14m)
		14m	max 1075m ² (Ø = 37m)	max 113m ² (Ø = 12m)
		15m	max 1256m ² (Ø = 40m)	max 113m ² (Ø = 12m)
		20m	max 707m ² (Ø = 30m)	max 113m ² (Ø = 12m)



HBHC25/RH: Reinforced high-bay lens detection pattern for **single person** @ Ta = 200C
(Recommended ceiling mount installation height **2.5m-12m**)

		Mount height	Tangential (A)	Radial (B)
<p>A: Tangential movement</p>	<p>B: Radial movement</p>	2.5m	max 38m ² (Ø = 7m)	max 7m ² (Ø = 3m)
		6m	max 154m ² (Ø = 14m)	max 7m ² (Ø = 3m)
		8m	max 314m ² (Ø = 20m)	max 7m ² (Ø = 3m)
		10m	max 531m ² (Ø = 26m)	max 13m ² (Ø = 4m)
		11m	max 615m ² (Ø = 28m)	max 13m ² (Ø = 4m)
		12m	max 707m ² (Ø = 30m)	max 13m ² (Ø = 4m)

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



6. Additional Information / Documents

- To learn more about detailed product features/functions, please refer to www.hytronik.com/download ->knowledge ->Introduction of App Scenes and Product Functions
- 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
- Data sheet is subject to change without notice. Please always refer to the most recent release on [www.hytronik.com/products/bluetooth technology](http://www.hytronik.com/products/bluetooth%20technology) ->Bluetooth Sensors
- Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy