LED Drivers with Bluetooth® 5.0 SIG Mesh

HED7030/BT

Dimmable Drivers & Constant Current

HYTRONIK ®

Product Description

HED7030/BT is a Bluetooth dimmable LED driver, with maximum power output of 30W. It come with Switch-Dim interface by using Push switch (retractive switch) and of course Bluetooth dimming interface. The driver comes with an RJ12 terminal, ready to plug in a wide selection of motion sensors, ranging from HF to PIR, from low bay to high bay etc. It is ideal for direct projects or new luminaires design for lighting manufacturers. With Bluetooth wireless mesh networking, it makes communication between luminaires much easier without time-consuming hardwiring, which eventually saves costs for projects. Meanwhile, simple device setup and commissioning can be done via Koolmesh™ app.

App Features

- Quick setup mode & advanced setup mode
- 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
- Push switch configuration
- Schedule to run scenes based on time and date
- Astro timer (sunrise and sunset)
- Staircase function (primary & secondary)
- Internet-of-Things (IoT) featured
- Device firmware update over-the-air (OTA)
- Device social relations check
- Bulk commissioning (copy and paste settings)
- Power-on status (memory against power loss)
- Offline 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
- Compatible with EnOcean switch EWSSB/EWSDB
- Continuous development in progress…

Hardware Features

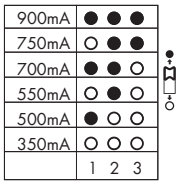
- Switch-Dim
- PWM 1KHz (1-100%)
- Bluetooth dimmable control
- Insulated terminal cover with cord restraint
- Standby power <0.5W
- Active PFC design
- Logarithmic Dimming
- Linear Dimming
- Configurable constant current (CC) output via DIP switch
- Loop-in and loop-out terminals for efficient installation
- Open-circuit Protection
- Short-circuit Protection
- Overload Protection
- 5-year warranty, designed for long lifetime up to 50,000 hours

* Certain scenes which require external photocell can be achieved by using together with Hytronik Bluetooth sensors,such as HBIR29, HCD038/BT + sensor head etc.

EnOcean
Self-powered IoT

Fully support
EnOcean switch
EWSSB/EWSDB

Output Configuration



⚠ Warning: Please make sure the correct current is selected before starting the driver!

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

Input	
Mains Voltage	220~240VAC 50/60Hz
Mains Current	0.17~0.16A
Power Factor	0.9
Max. Efficiency	86%

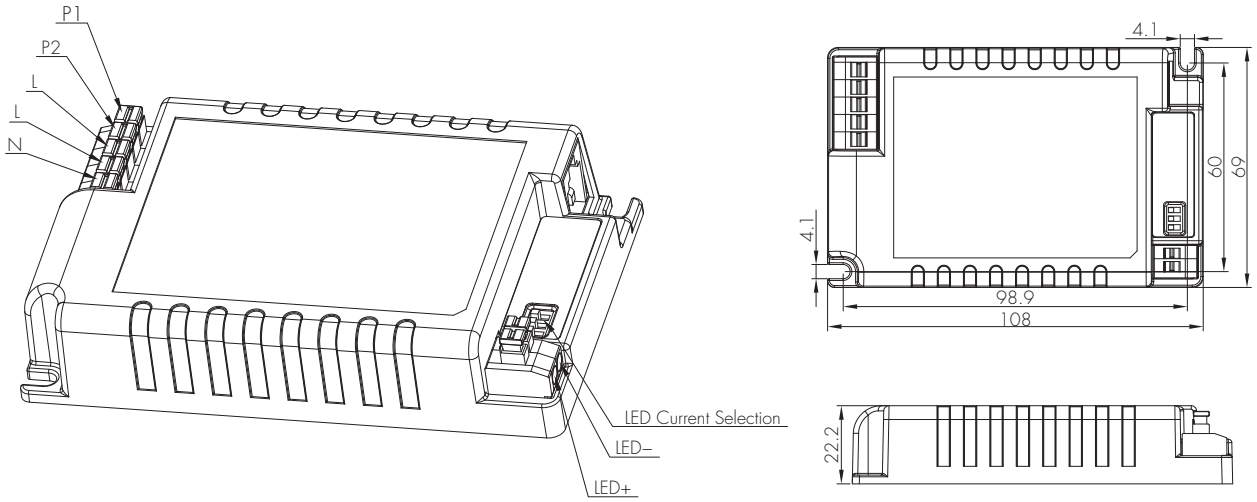
Output	
Output Current	350mA~900mA
Output Voltage	10-57V
Uout Max.	75V
Turn-on Time	<0.5s
Dimming Interface	Switch-Dim

Environment	
Operation Temp.	-20 ~ +50℃
Case Temp. (Max.)	80℃
IP Rating	IP20

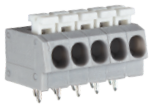
Safety and EMC	
EMC Standard	EN55015, EN61547, EN6100-2/3, EN300328,EN301489-1/-17, EN62479
Safety Standard	EN61347-1, EN61347-2-13
Dielectric strength	Input→output: 3000VAC / 5mA / 1min
Abnormal protection	Output short-circuit protection Overload Protection Open-circuit Protection

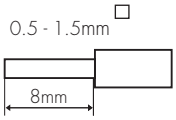
Max. output power/current/voltage range	
HED7030/BT	3.5-20W/350mA /10-57V 5-29W/500mA /10-57V 5.5-30W/550mA /10-55V 7-30W/700mA /10-43V 7.5-30W/750mA /10-40V 9-23W/900mA /10-25V

Mechanical Structure & Dimensions



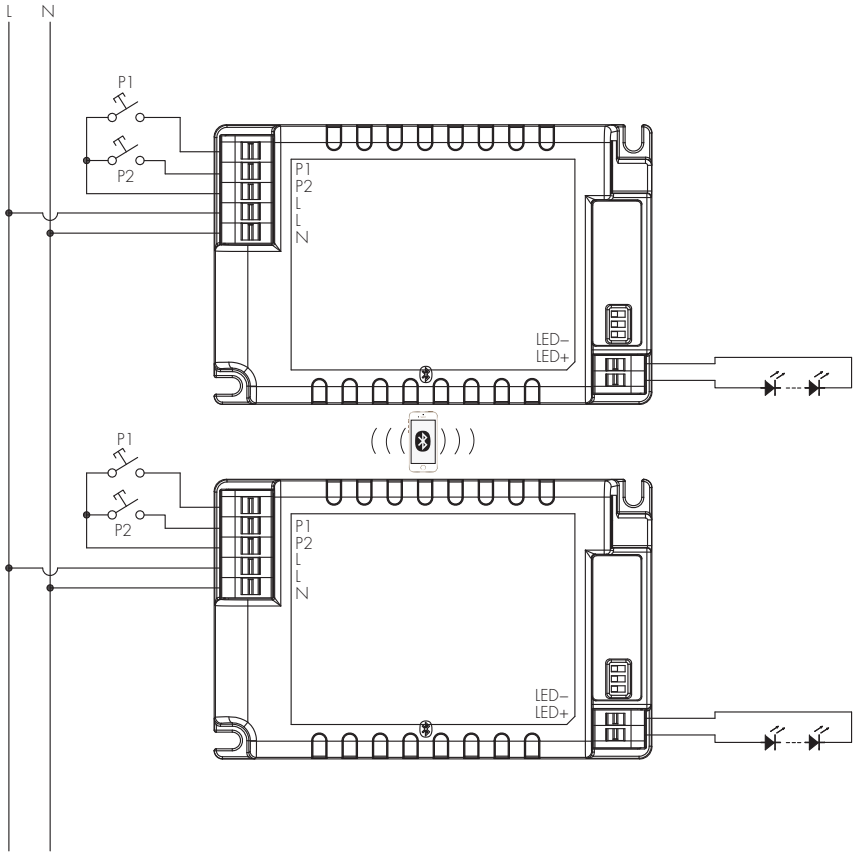
Wire Preparation





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

Wiring Diagram



Note: There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.

Loading and In-rush Current

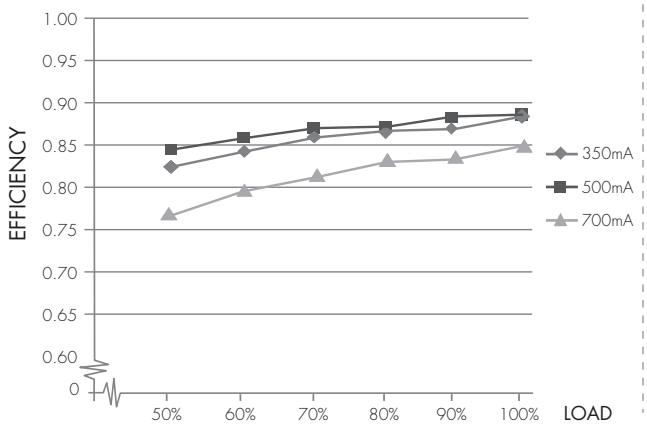
Model	HEC7030/BF
In-rush Current (Imax.)	38A
Pulse Time	35 μs

Circuit Breaker Information

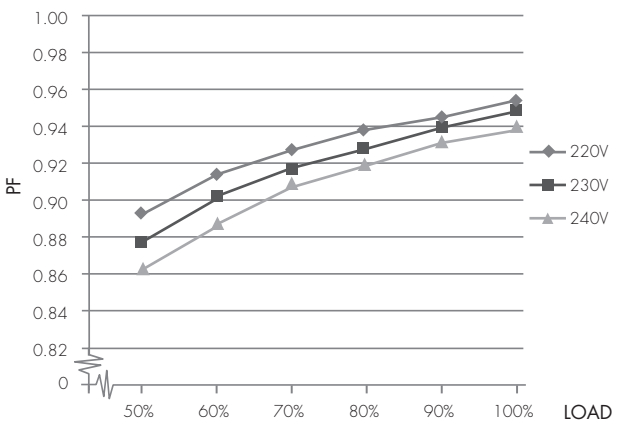
Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HED7030/BT	54	34	43	67	84

The data above is calculated according to the formula: Maximum Amount = 16/(Pn/230). In order to provide a more reliable reference in real application, the data have been revised to take 60% of the number calculated, i.e. 16/(Pn/230) x 60%. Please kindly take note that the calculation is based on ABB circuit breaker series S200. Actual values may differ due to different types of circuit breaker used and installation environment.

Performance Characteristics

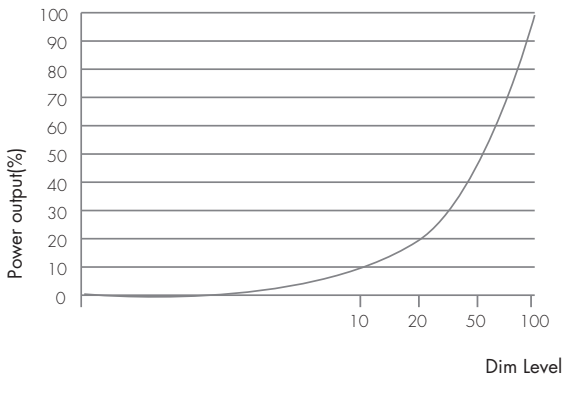


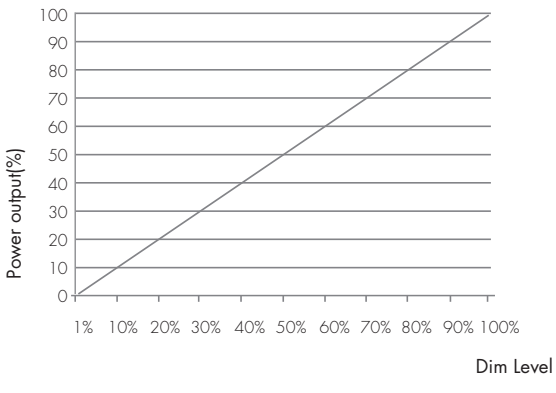
* Typical Efficiency vs Load



* Typical Power Factor vs Load

Dimming Characteristics





Technical Specifications for Sensor Heads

PIR Sensor Properties	
Sensor principle	PIR detection
Operating voltage	5VDC
Detection range *	HIR05 & HIR05/FM & HIR05/E & HIR07 Max installation height: 3m Max detection range: 6m (diameter) HIR11 Max installation height: 15m (forklift) 12m (single person) Max detection range: 24m (diameter) HIR12 Max installation height: 15m (forklift) 12m (single person) Max detection range: 18m * 6m (L * W)

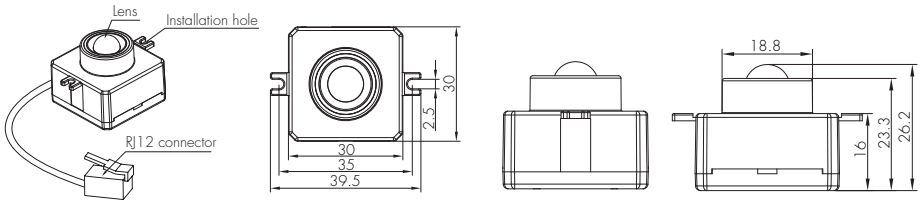
HF Sensor Properties	
Sensor principle	High Frequency (microwave)
Operating voltage	5VDC
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range *	SAM20 / SAM21 / SAM22 Max installation height: 3m Max detection range: 12m (diameter) SAM23 Max installation height: 12m Max detection range: 16m (diameter)

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

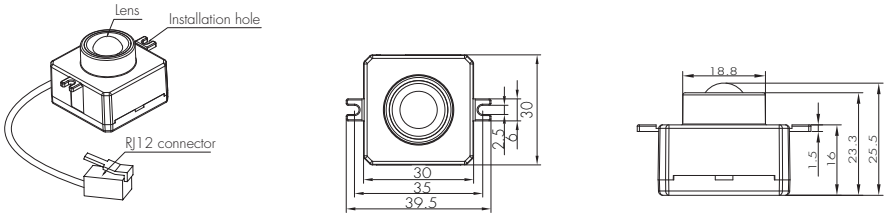
PIR & microwave sensor heads

The range of PIR and microwave sensor heads below offers powerful number of Plug'n'Play feature options to expand the flexibility of luminaires design. This approach to luminaire design reduces space requirements and component costs whilst simplifying production.

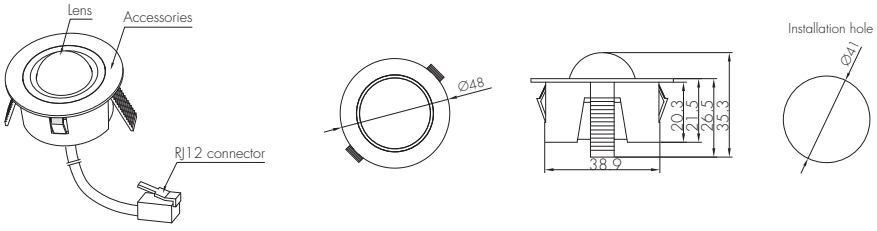
A. HIR05
PIR sensor head
The cable length is around 65cm.



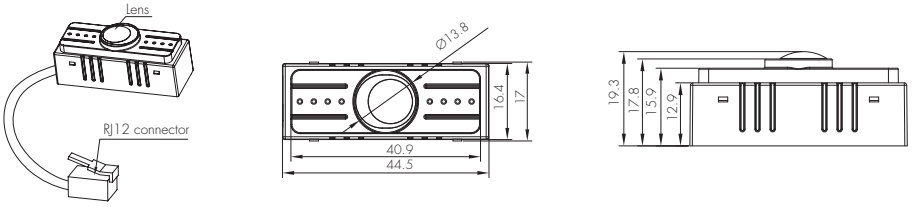
B. HIR05/E
PIR sensor head
The cable length is around 65cm.



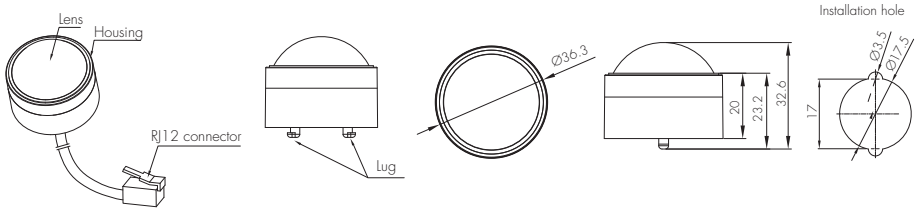
C. HIR05/FM
PIR sensor head
The cable length is around 65cm.



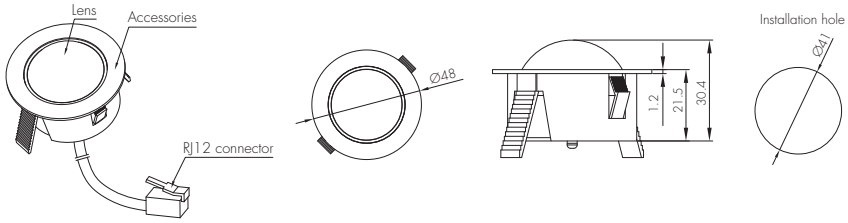
D. HIR07
PIR sensor head
Photocell Advance™
The cable length is around 30cm.



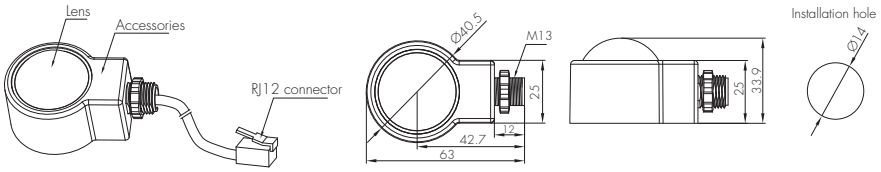
E. HIR11/S
PIR sensor head
Surface mounting
For highbay application
IP65 (facia / lens part)
The cable length is around 65cm.



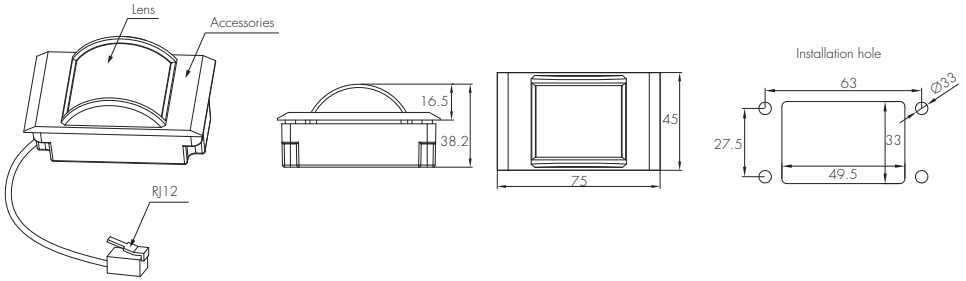
F. HIR11/F
PIR sensor head
Flush mounting
For highbay application
IP65 (facia / lens part)
The cable length is around 65cm.



G. HIR11/C
PIR sensor head
Screw to the luminaire by conduit
For highbay application
IP65 (facia / lens part)
The cable length is around 65cm.



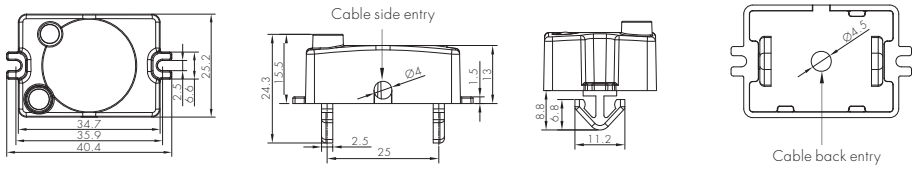
F. HIR12
PIR sensor head
For highbay application
IP65 (facia / lens part)
The cable length is around 65cm.



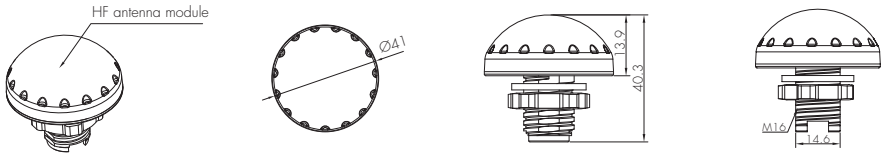
Installation for HIR12

We suggest that the metal plate thickness to be 0.8mm – 1.6mm to ensure perfect focal length for the PIR lens.

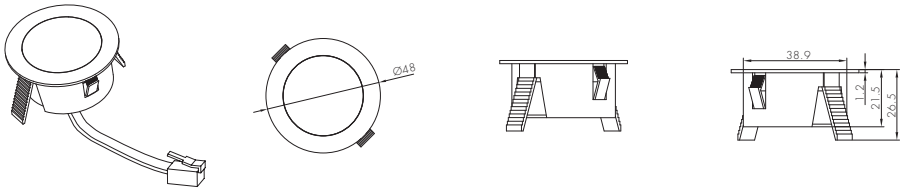
I. SAM20
HF sensor head
Photocell Advance™
The cable length is around 30cm.



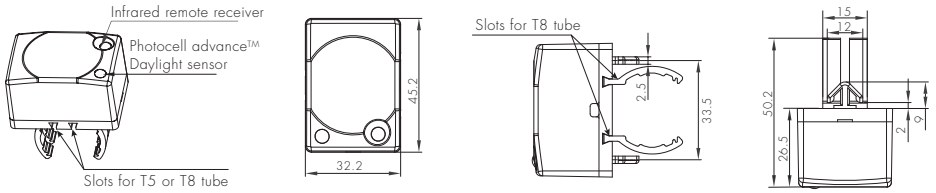
J. SAM21
HF sensor head
IP65
The cable length is around 65cm.



K. SAM22
HF sensor head
Flush mount
The cable length is around 65cm.

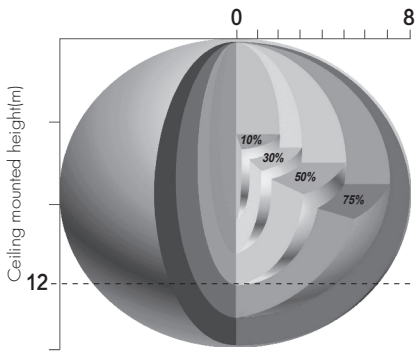


L. SAM23
HF sensor head
Photocell advance™
For highbay application
The cable length is around 30cm.



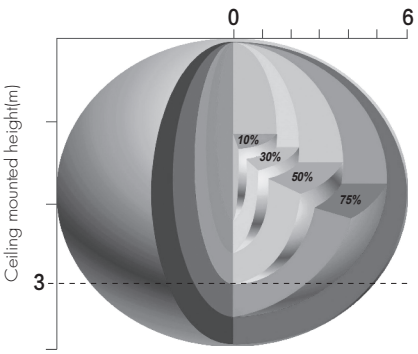
Detection Pattern

SAM23



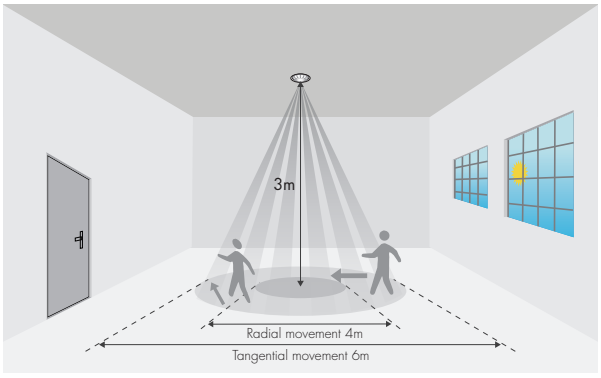
Ceiling mounted detection pattern (m)

SAM20 / SAM21 / SAM22

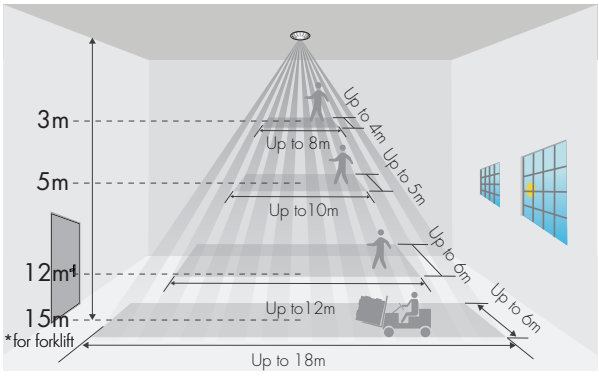


Ceiling mounted detection pattern (m)

HIR05 & HIR05/FM & HIR05/E & HIR07



HIR12

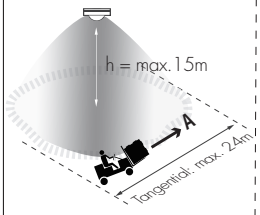


HIR11 (High-bay)

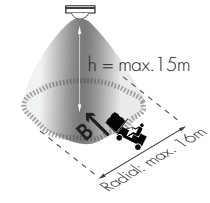
HIR11: High-bay lens detection pattern for **forklift** @ Ta = 20°C

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

A: Tangential movement



B: Radial movement

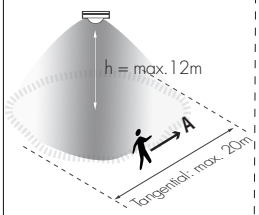


Mount height	Tangential (A)	Radial (B)
10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
14m	max 452m² (Ø = 24m)	max 133m² (Ø = 13m)
15m	max 452m² (Ø = 24m)	max 113m² (Ø = 12m)

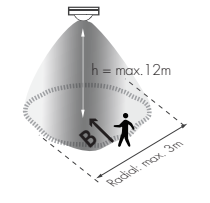
HIR11: High-bay lens detection pattern for **single person** @ Ta = 20°C

(Recommended 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)

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. Up to 64 LED drivers maybe connected to one switch. 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

Additional Information / Documents

1. Regarding precautions for LED driver installation and operation, please kindly refer to
   www.hytronik.com/download ->knowledge ->LED Drivers - Precautions for Product Installation and Operation

2. To learn more about detailed product features/functions, please refer to
   www.hytronik.com/download->knowledge ->Introduction of App Scenes and Product Functions

3. 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

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 Drivers

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