

DALI-2 DT8 LED Driver + Sensor Head

HED8045

Constant Current



Product Description

HED8045 is a 45 W DALI-2 DT8 dimmable and tunable white LED driver with a detachable Bluetooth sensor head, offering flexible configuration for luminaire manufacturers. It can be used as a standalone DALI-2 DT8 driver or combined with the Bluetooth sensor head to enable optional motion sensing. Bluetooth Mesh commissioning and control reduce wiring effort and project costs, with all settings configured wirelessly via the **Koolmesh®** app.

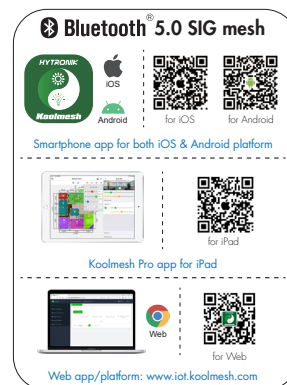
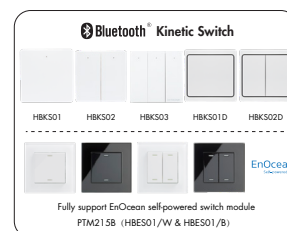


App Features

- 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

- DALI-2 with DALI feedback
- Support the control of DALI-2 and DT8 drivers
- Switch-Dim (Push switch)
- PWM 1KHz (1-100%)
- Insulated terminal cover with cord restraint
- Active PFC design
- Logarithmic Dimming
- Linear Dimming
- Configurable constant current (CC) output via DIP switches
- Permanent setting memory, protected against loss of power
- Short-circuit Protection
- Open-circuit Protection
- Overload Protection
- 5-year warranty



Technical Specifications

Input	
Mains Voltage	220~240VAC 50/60Hz
Mains Current	0.24~0.22A
Power Factor	0.95
Max. Efficiency	88%

Environment	
Operation Temp.	-20 ~ +45°C
Case Temp. (Max.)	75°C
IP Rating	IP20

Output	
Ripple Current	<3%
Uout Max.	63V
Turn-on Time	<0.5s
Dimming Interface	Switch-Dim/DALI
Stand-by power	<0.5W

Safety and EMC	
EMC Standard	EN55015, EN61547, EN6100-3-2/-3-3
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	
HED8045	7-24W/500mA /15-48V 9-29W/ 600mA /15-48V 10-34W/ 700mA /15-48V 12-38W/ 800mA /15-48V 13-43W/ 900mA /15-48V 15-43W/ 1000mA /15-43V

Output Configuration

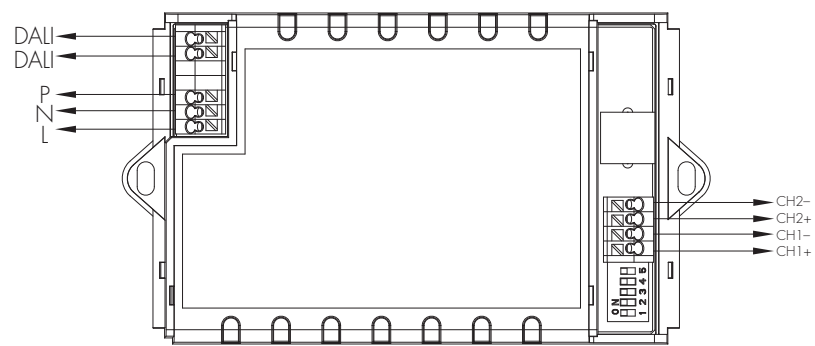
HED8045, 1x45W

1000mA	○○○○●
900mA	○○○●○
800mA	○○●○○
700mA	○●○○○
600mA	●○○○○
500mA	○○○○○
	1 2 3 4 5

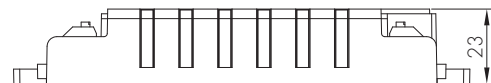
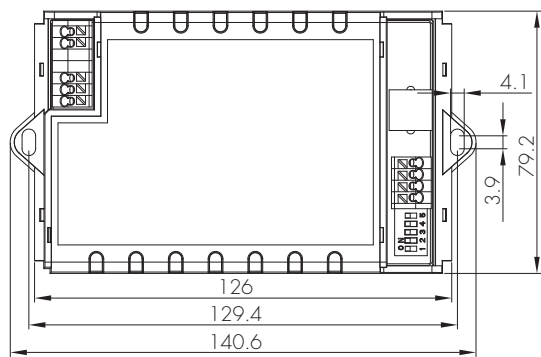


 Warning: Please make sure the correct current is selected before starting the driver!

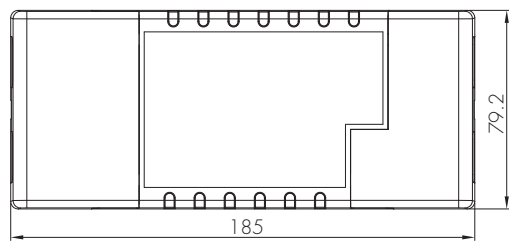
Mechanical Structure & Dimensions



Built-in installation



Stand-alone installation



Wire Preparation

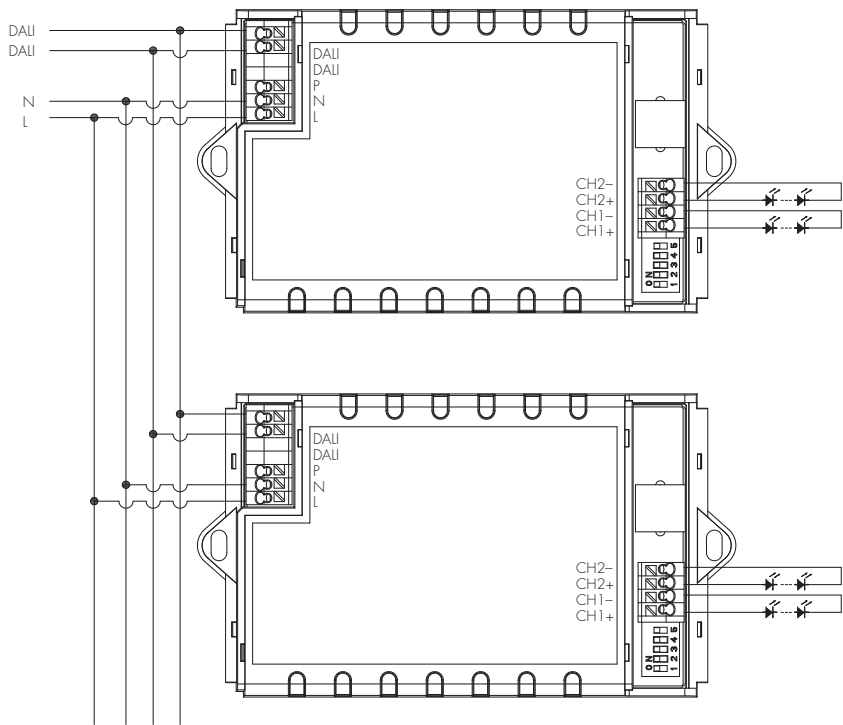


To make or release the wire from the terminal, use a screwdriver to push down the button.

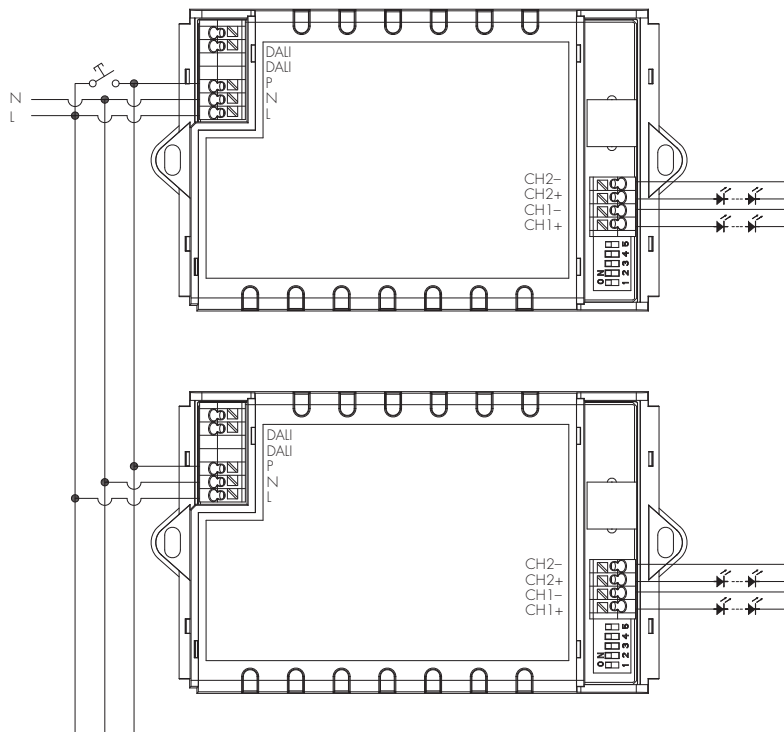
- 1. 200 metres (total) max. for 1mm² CSA (Ta = 50°C)
- 2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50°C)

Wiring Diagram

Wiring Diagram For DALI



Wiring Diagram For Switch-Dim



Loading and In-rush Current

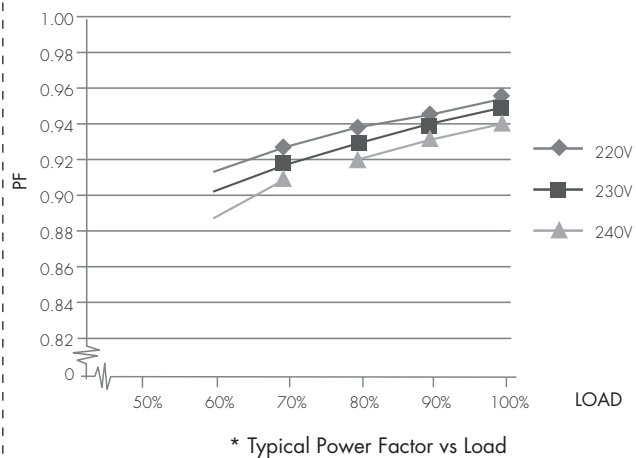
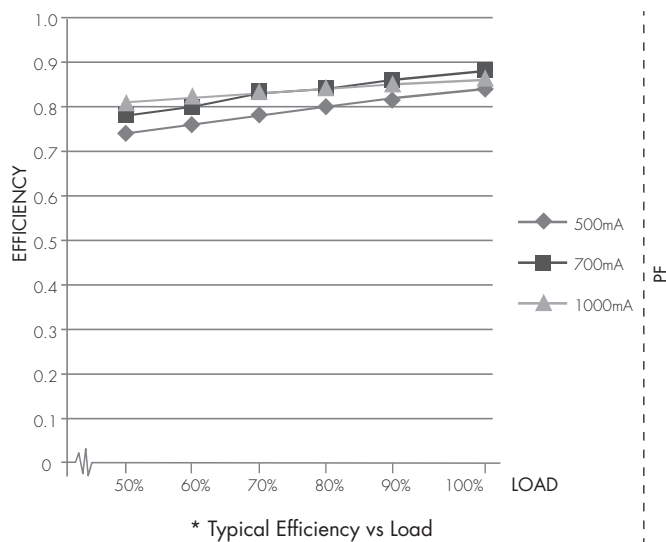
Model	HED8045
In-rush Current (I _{max.})	42A
Pulse Time	30 μs

Circuit Breaker Information

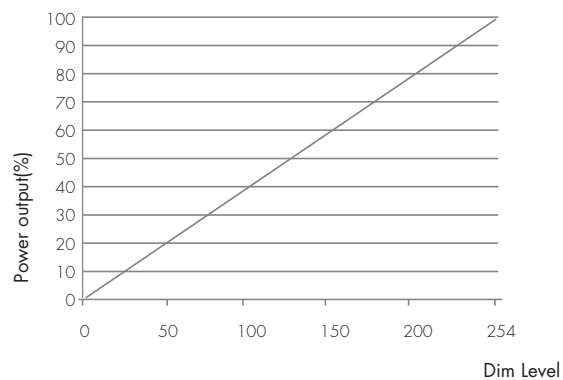
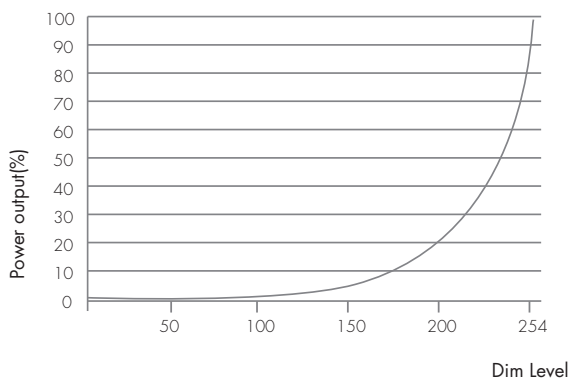
Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HED8045	43	27	35	54	67

The data above is calculated according to the formula: Maximum Amount = $16 / (P_n / 230)$. 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. $16 / (P_n / 230) \times 60\%$. 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

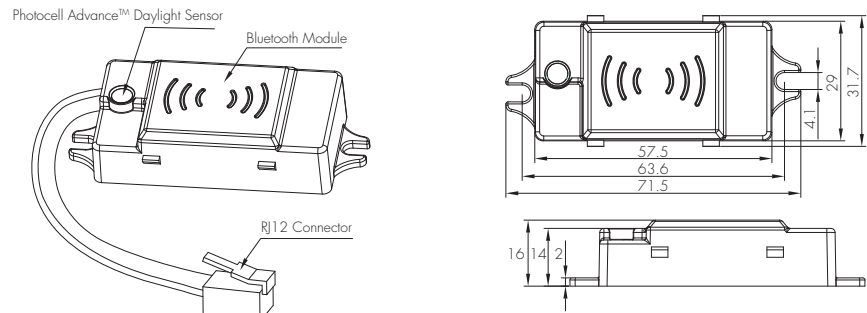


Dimming Characteristics



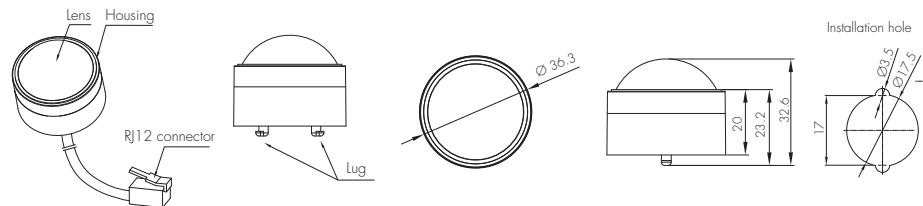
B. HBT02

Surface mounting
Without motion sensor
Photocell Advance™
The cable length is around 30cm.



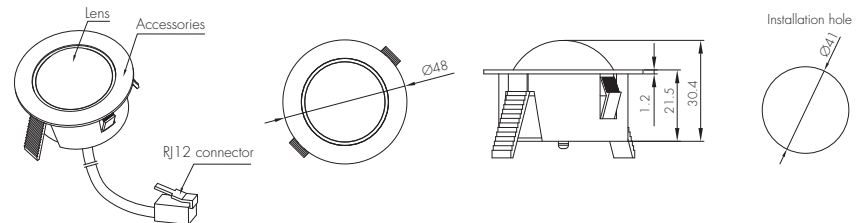
C. HIR13/S

Surface mounting
For highbay application
IP65 (facia / lens part)
The cable length is around 30cm.



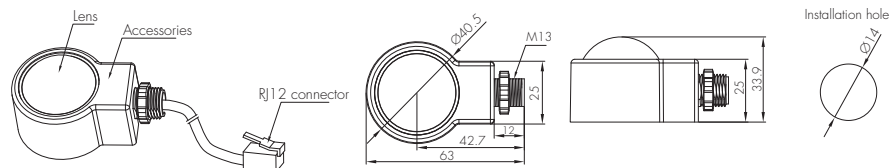
D. HIR13/F

Flush mounting
For highbay application
IP65 (facia / lens part)
The cable length is around 30cm.



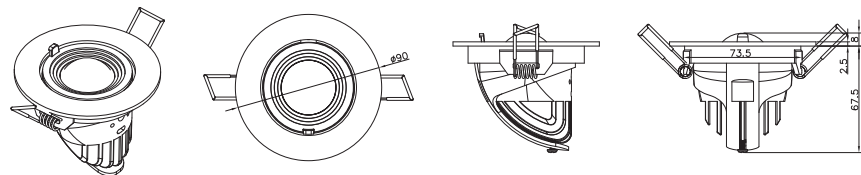
E. HIR13/C

Screw to the luminaire by conduit
For highbay application
IP65 (facia / lens part)
The cable length is around 30cm.



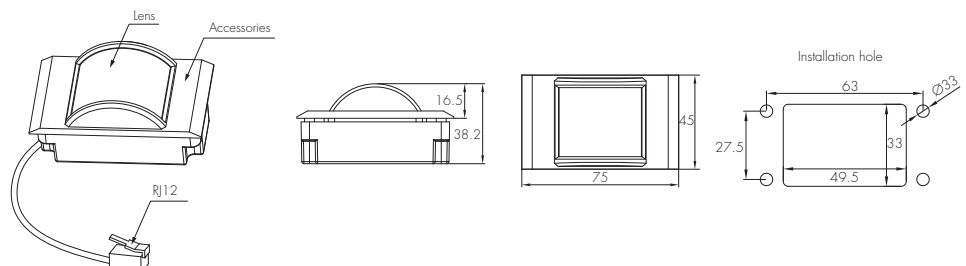
F. HIR13/AA

PIR sensor head
Adjustable angle
The cable length is around 30cm.



G. HIR16

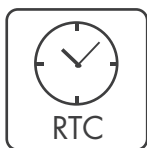
PIR sensor head
For highbay application
IP65 (facia / lens part)
The cable length is around 30cm.



*HIR16 has RTC function:

RTC retains timekeeping for about 10 days during power loss (For optimal performance, install the device facing down and at around 25°C. Prolonged exposure to direct outdoor sunlight may reduce RTC time to 2 days.)

Functions and Features



The Real-Time Clock (RTC) is a critical component in many of our BLE (Bluetooth Low Energy) products, particularly those designed to support circadian rhythm systems. The primary function of the RTC is to maintain accurate time and date information, even when the device is powered off or experiences a power failure. This is crucial for ensuring that the device can resume its correct operation and provide timely data or functionality once power is restored.

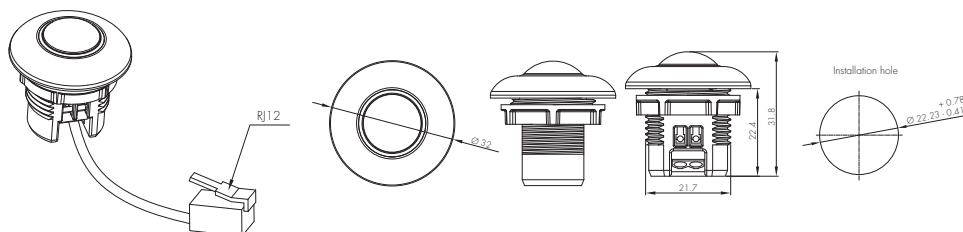
Installation for HIR16



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

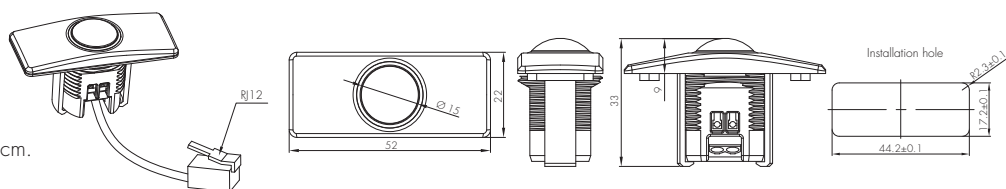
H. HIR62

Zhaga connection
The cable length is around 35cm.



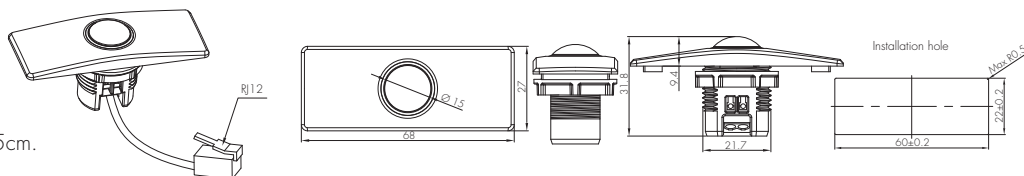
I. HIR62 with HA04

Zhaga connection
Optional accessory
The cable length is around 35cm.



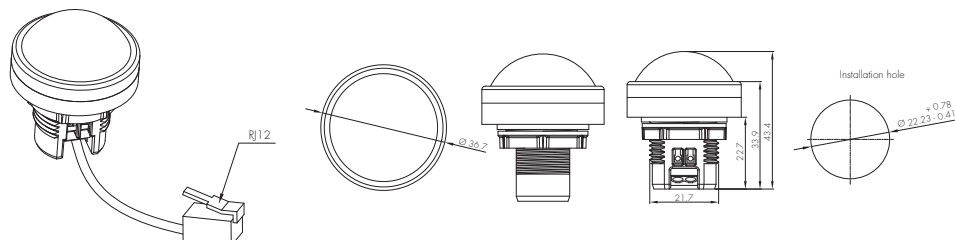
J. HIR62 with HA05

Zhaga connection
Optional accessory
The cable length is around 35cm.



K. HIR62/R

Zhaga connection
The cable length is around 35cm.



Note: When HIR62 or HIR62/R plug with HCD038/P, only one push terminal can be activated for configuration.

Technical Specifications for Sensor Heads

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	-20°C ~ 55°C
Storage temperature	Ta: -20°C ~ +70°C
Relative humidity	0 ~ 90%
IP rating	IP20

HF Sensor Properties (HBT01)	
Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range *	Max installation height: 3m Max detection range: 8m (diameter)
Detection angle	30° ~ 150°

PIR Sensor Properties (HIR13 / HIR16)	
Sensor principle	PIR detection
Operation voltage	5VDC
Detection range *	HIR13
	Max installation height: 15m (forklift)
	12m (single person)
	Max detection range: 24m (diameter)
Detection range *	HIR16
	Max installation height: 15m (forklift)
	12m (single person)
	Max detection range: 18m * 6m (L * W)
Detection angle	360°

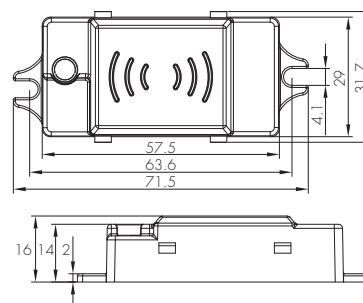
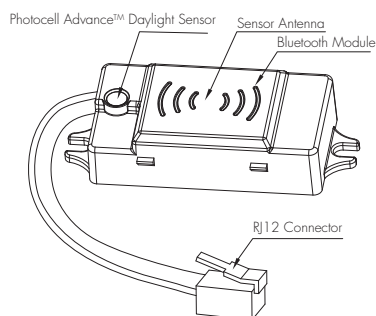
* The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

PIR & microwave sensor heads

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

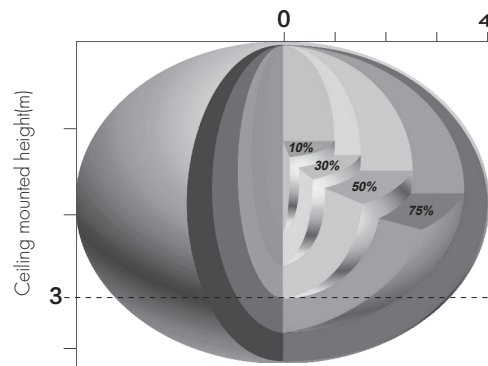
A. HBT01

Surface mounting
 Photocell Advance™
 The cable length is around 30cm.



Detection Pattern

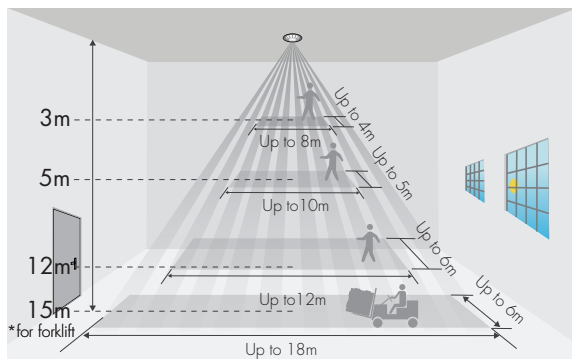
HBT01



The detection range is heavily influenced by sensor placement (angle) and different walking paces.

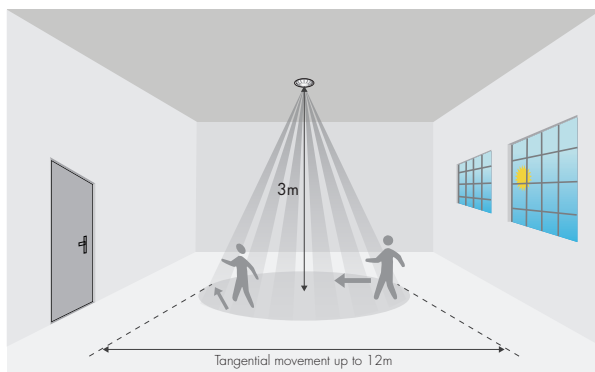
It may be reduced to 2m(diameter) & 3m(height) under certain conditions (walking across).

HIR16

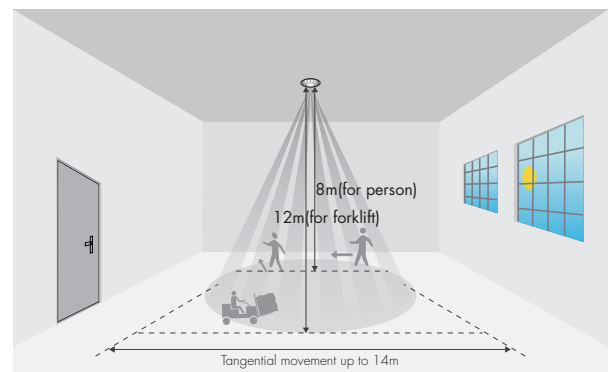


*The detection patterns are based upon 5km/h movement speed.

HIR62



HIR62/R

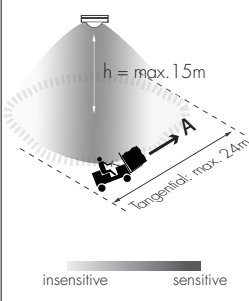
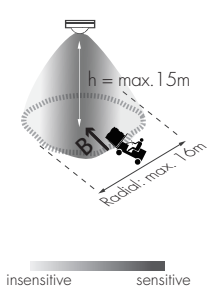


*The detection patterns are based upon 5km/h movement speed.

HIR13 (High-bay)

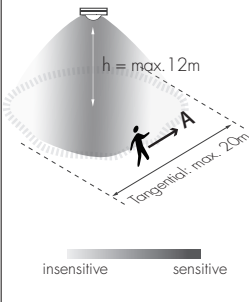
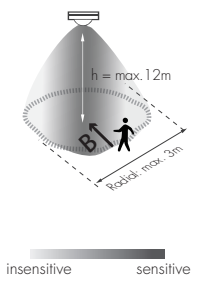


HIR13: High-bay lens detection pattern for forklift @ Ta = 20°C
(Recommended installation height **10m-15m**)

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)



HIR13: 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

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.

Note: Single press, double press, and press-and-hold actions can each be independently assigned to one function via the app. Once configured, each action triggers only its assigned function. Multiple functions cannot be activated by a single press action.

Switch Function	Action	Descriptions
Normal PUSH (Retractive Switch)	Single press (> 0.1s) Double press Press and hold (≥ 1s)	• ON/OFF • OFF only • Recall this scene • Sensor take over • Not in use
Sensor-Link	/	• Hold time/scene • Stand-by time/scene • Upgrade a normal on/off motion sensor to a Bluetooth-controlled motion sensor
ON OFF Switch (Latching Switch)	/	• Upgrade a standard on/off control to Bluetooth control, enabling one latching switch to control multiple luminaires or zones, reducing wiring and switch count.
Emergency Self-Test Function	Single press (> 0.1s) Double press Press and hold (≥ 1s)	• Disable • Function test • Duration test • Terminated test
Fire Alarm Function	Refer to http://faq.koolmesh.com/docu/en/	• Able to connect the Fire Alarm system • Once the fire alarm system is triggered, all the luminaires 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 luminaires controlled by this Push Switch will revert back to normal status.

Commissioning Instructions and Precautions

A. Installation Preparations

1. This product should be installed by a qualified electrician.

B. Additional Considerations

2. This product can operate with Bluetooth functions only when paired with a compatible Bluetooth sensor head.

C. DALI-2 Compliance

3. This product has been tested in accordance with IEC 62386 and complies with the relevant DALI-2 application parts. DALI-2 testing was performed using the official DALI test sequence software (version 2.1.1.0), covering the applicable IEC 62386 parts (e.g. Part 101, Part 102, Part 207, Part 209). DALI-2 certification verifies compliance within the defined test scope. However, certification does not eliminate the possibility of system-level compatibility issues arising from differences in device implementation or system design among manufacturers. Therefore, functional verification and on-site testing are required as part of the final system commissioning to ensure proper operation and compliance with project requirements.

Warning: For additional important documents, including installation precautions, product guidelines, and guarantee conditions, please refer to <https://hytronik.com/service/downloads>

Additional Information / Documents

1. To learn more about detailed product features/functions, please kindly refer to <https://hytronik.com/product/hed8045>
2. Regarding precautions for Bluetooth product installation and operation, please kindly refer to: <https://hytronik.com/service/downloads> (Bluetooth Products Precautions for Product Installation and Operation)
3. Regarding precautions for Microwave sensor installation and operation, please kindly refer to: <https://hytronik.com/service/downloads> (Microwave Sensors Precautions for Product Installation and Operation)
4. 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)
5. Regarding precautions for LED Drivers installation and operation, please kindly refer to: <https://hytronik.com/service/downloads> (LED Drivers Precautions for Product Installation and Operation)
6. Data sheet is subject to change without notice. Please always refer to the most recent release on <https://hytronik.com/products/led-drivers>
7. Regarding Hytronik standard guarantee policy, please kindly refer to <https://hytronik.com/service/downloads> (Guarantee Conditions document)