DALI-2 DT6 LED Driver + Sensor Head with Bluetooth® 5.0 SIG Mesh

HEC7030/BF

Constant Current

Product Description

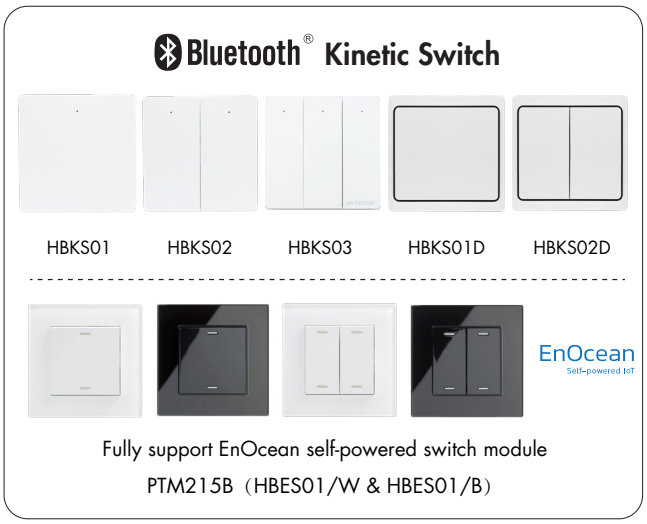
HEC7030/BF is DALI-2 DT6 dimmable LED driver + Bluetooth sensor head in detached design with maximum power output of 30W. Such detached design is flexible with optional motion detection for lighting manufacturers; with Bluetooth sensor head unattached, HEC7030/BF is solely a DALI-2 DT6 LED driver; with Bluetooth sensor head attached, it becomes a LED driver + sensor combo. 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 HBES01/W & HBES01/B
- Continuous development in progress…

Hardware Features

- DALI-2 with DALI feedback
- Switch-Dim (Push switch)
- PWM 1KHz (1-100%)
- Stand-by power<0.5W
- 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



Output Configuration

HEC7030/BF,30W

	1	2	3
900mA	●	●	●
750mA	○	●	●
700mA	●	●	○
550mA	○	●	○
500mA	●	○	○
350mA	○	○	○

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

Technical Specifications

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

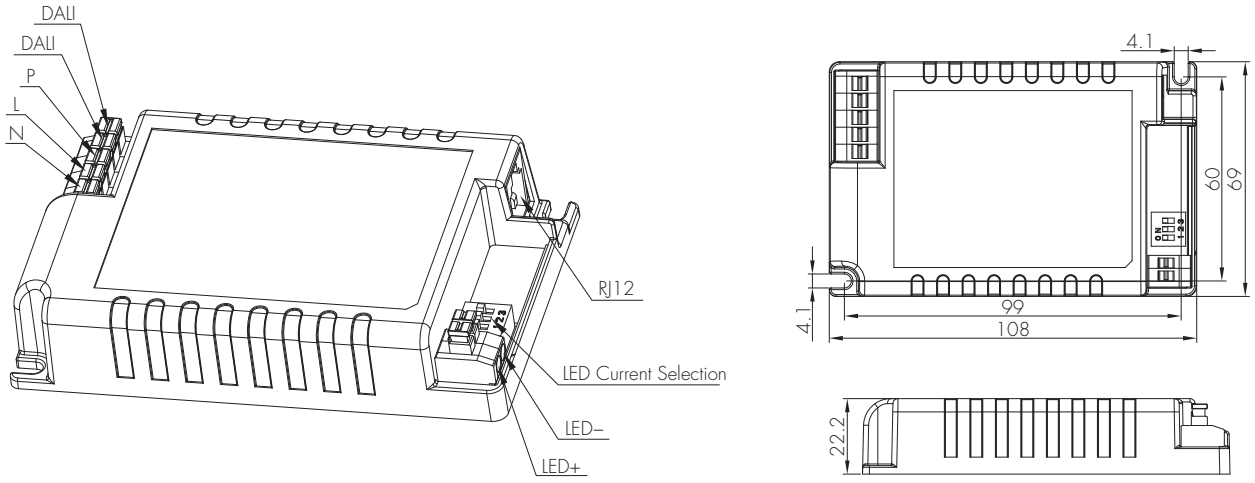
Output	
Output Current	350mA~900mA
Output Voltage	10-57V
Uout Max.	75V
Turn-on Time	<0.5s
Dimming Interface	Switch-Dim/DALI

Max. output power/current/voltage range	
HEC7030/BF	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

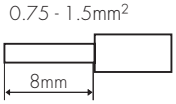
Environment	
Operation Temp.	-20 ~ +50℃
Case Temp. (Max.)	80℃
IP Rating	IP20

Safety and EMC	
EMC Standard	EN55015, EN61547, EN61000-3-2/-3-3, 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

Mechanical Structure & Dimensions



Wire Preparation



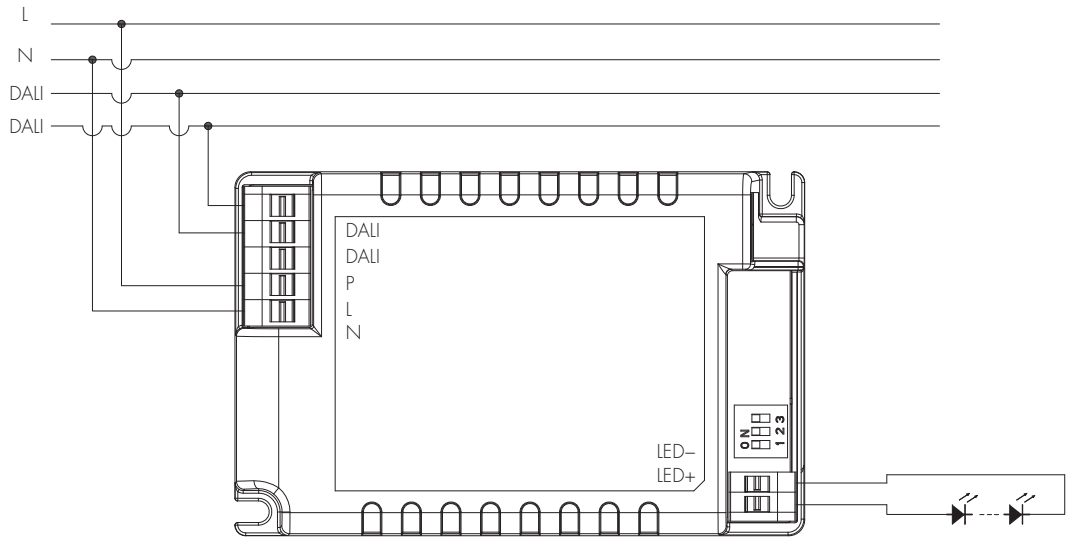
To make or release the wire from the terminal, use a screwdriver to push down the button.

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

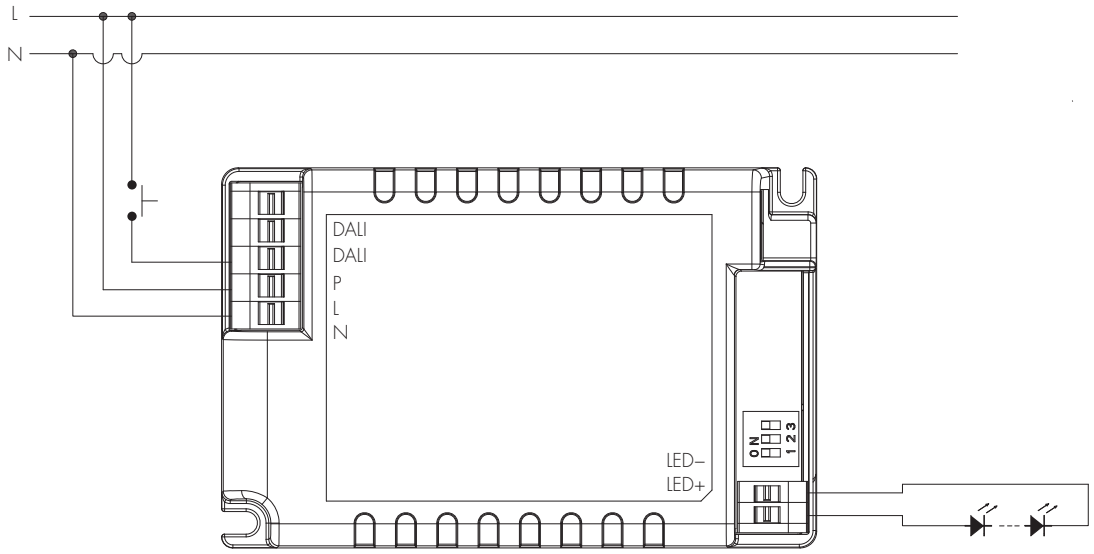
Wiring Diagram

Note: If connecting a Bluetooth sensor antenna, the DALI inputs are disabled.

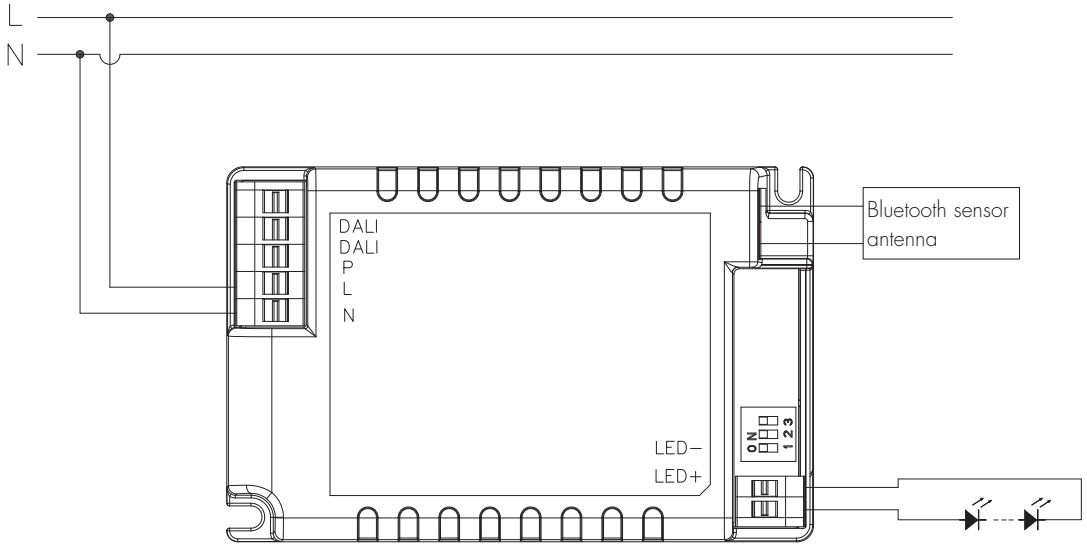
Wiring Diagram For DALI



Wiring Diagram For Switch-Dim



Wiring Diagram For Sensor Dim



Loading and In-rush Current

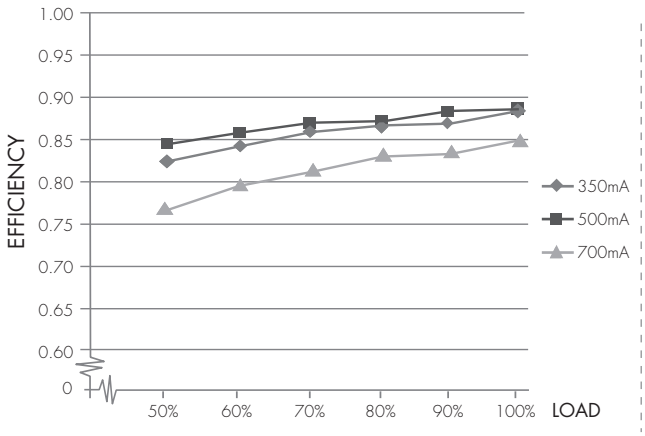
Model	HEC7030/BF
In-rush Current (Imax.)	38A
Pulse Time	35 μs

Circuit Breaker Information

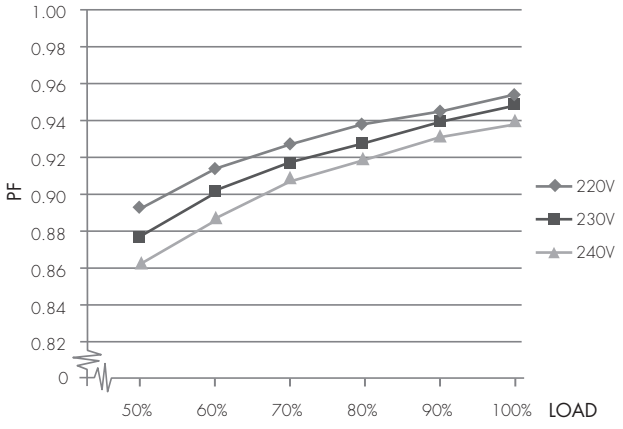
Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HEC7030/BF	54	34	43	67	84

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.

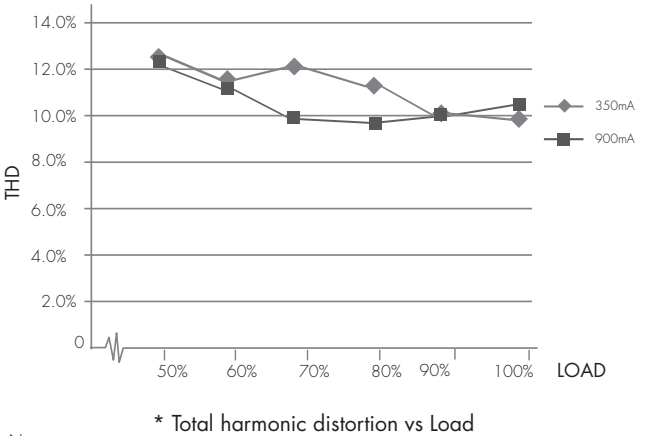
Performance Characteristics



* Typical Efficiency vs Load

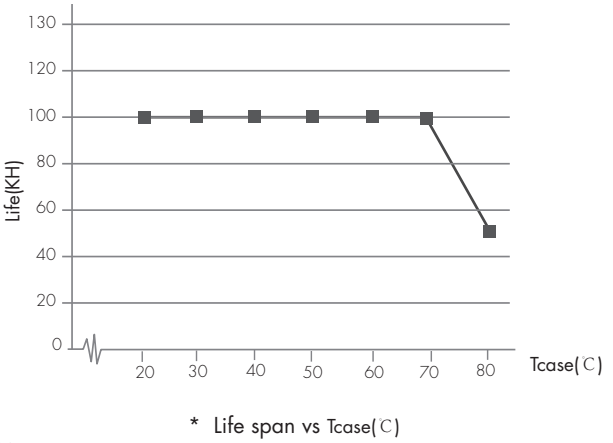


* Typical Power Factor vs Load



* Total harmonic distortion vs Load

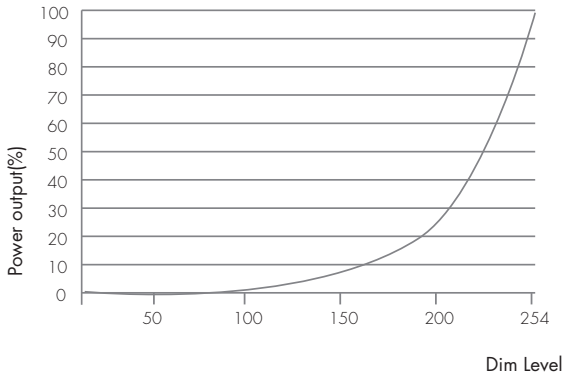
Note:
1. Input voltage: 230VAC.

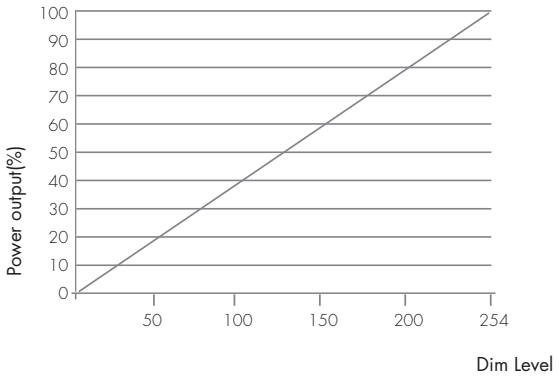


* Life span vs Tcase(℃)

Note:
1. LED driver's design lifespan is based on a 90% survival rate condition (depicted in the graph).
2. The relative relationship between the Tc temperature and Ta temperature depends on the luminaire's design.

Dimming Characteristics





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

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°

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

PIR Sensor Properties (HIR13 & HIR16 & HIR62 & HIR62/R)	
Sensor principle	PIR detection
Operation voltage	5VDC
Detection range *	HIR13 Max installation height: 15m (forklift) 12m (single person) Max detection range: 24m (diameter) HIR16 Max installation height: 15m (forklift) 12m (single person) Max detection range: 18m * 6m (L * W) HIR62 Max installation height: 3m (forklift) Max detection range: 12m (diameter) HIR62/R Max installation height: 12m (forklift) 8m (single person) Max detection range: 20m (forklift) 12m (single person) HIR17 Max installation height: 3m (single person) Max detection range (Ø): 12m HIR17/R Max installation height: 8m (single person) Max installation height: 12m (forklift)
Detection angle	360°

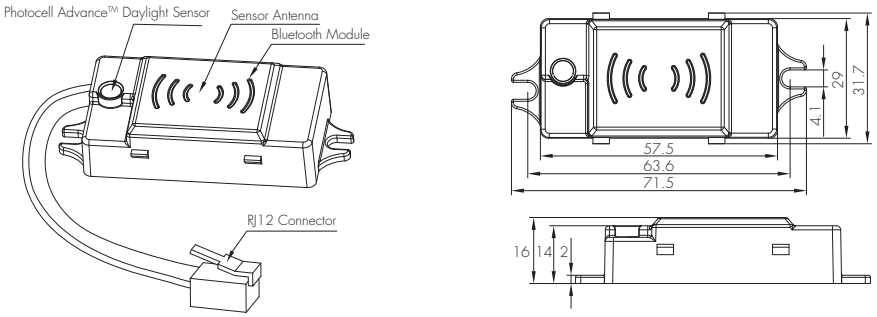
* The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

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 luminaires design. This approach to luminaire design reduces space requirements and component costs whilst simplifying production.

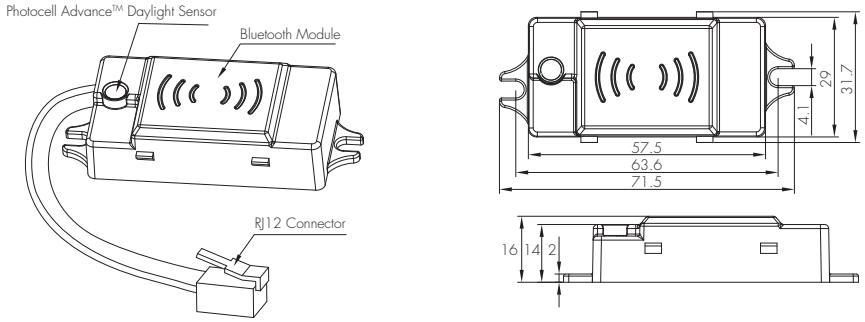
A. HBT01

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



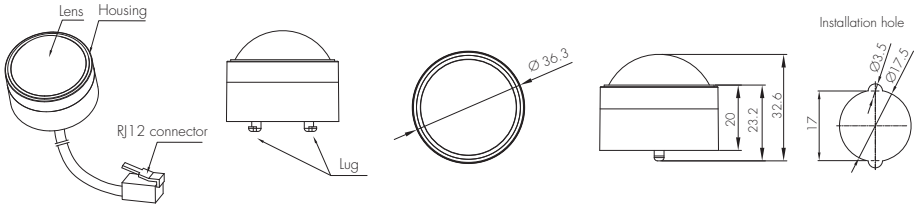
B. HBT02

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



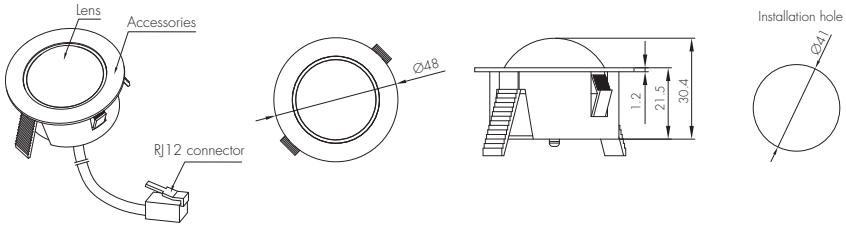
C. HIR13/S

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



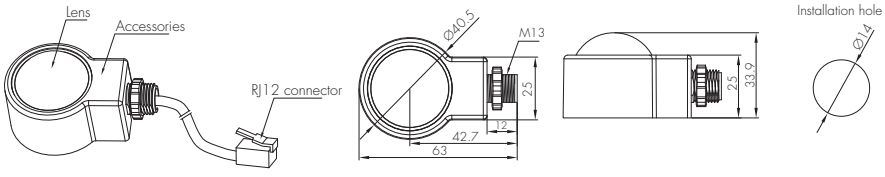
D. HIR13/F

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



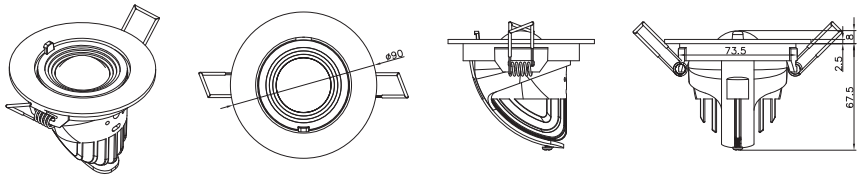
E.HIR13/C

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



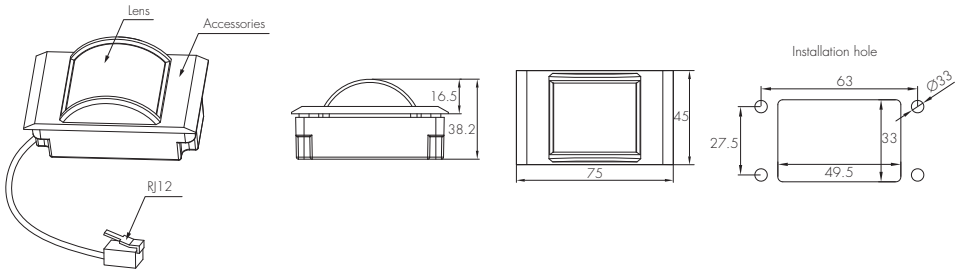
F. HIR13/AA

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



G.HIR16

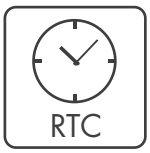
PIR sensor head
For highbay application
IP65 (facia / lens part)
The cable length is around 30cm.



*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

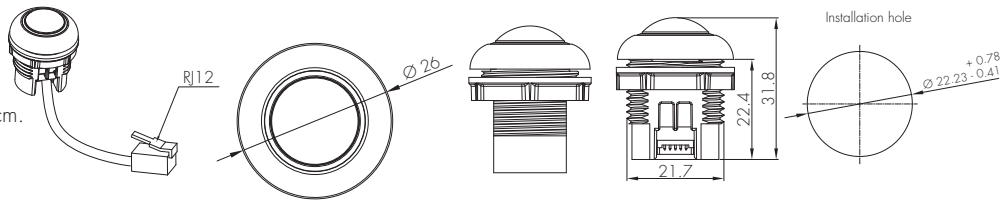


The Real-Time Clock (RTC) is a critical component in many of our BLE (Bluetooth Low Energy) products, particularly those designed to support circadian rhythm systems. The primary function of the RTC is to maintain accurate time and date information, even when the device is powered off or experiences 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.

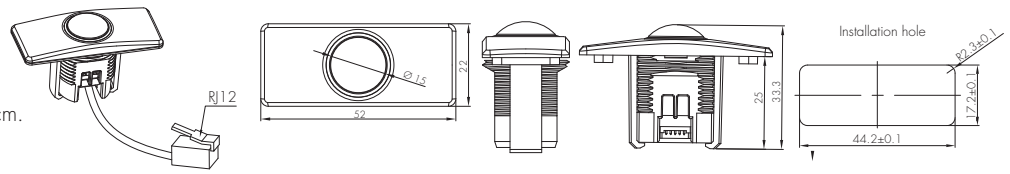
Installation for HIR16

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

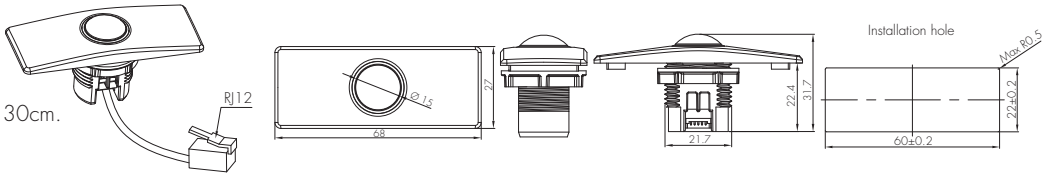
H. HIR62
PIR sensor head
The cable length is around 30cm.



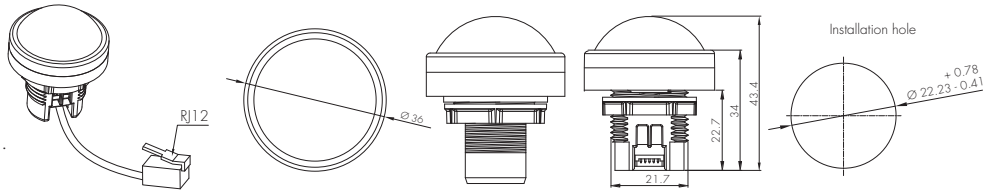
I. HIR62 with HA04
PIR sensor head
The cable length is around 30cm.



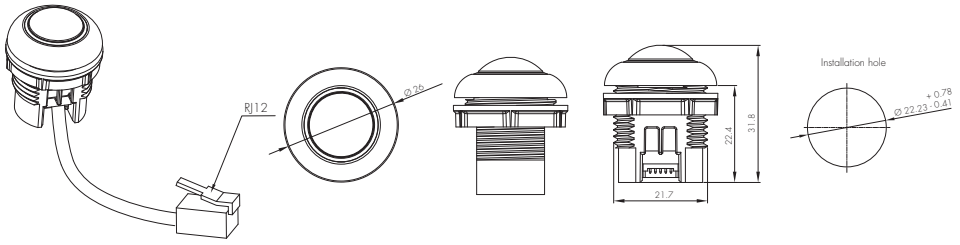
J. HIR62 with HA05
PIR sensor head
The cable length is around 30cm.



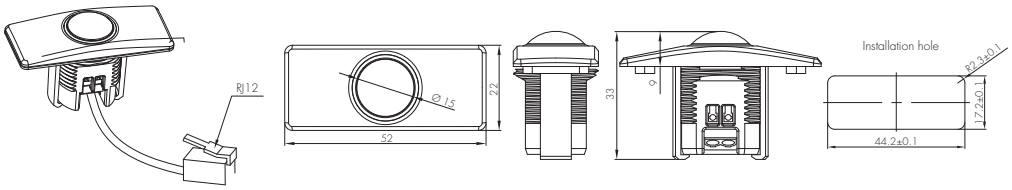
K. HIR62/R
PIR sensor head
IP65 (facia / lens part)
The cable length is around 30cm.



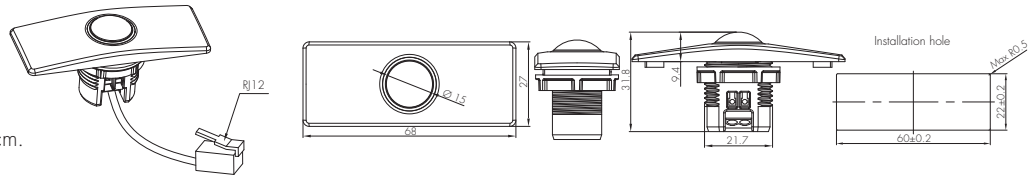
L. HIR17
PIR sensor head
The cable length is around 30cm.



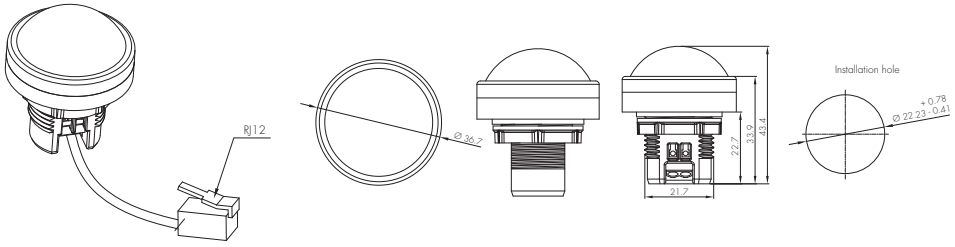
M. HIR17 with HA04
PIR sensor head
Optional accessory
The cable length is around 30cm.



N. HIR17with HA05
PIR sensor head
Optional accessory
The cable length is around 30cm.

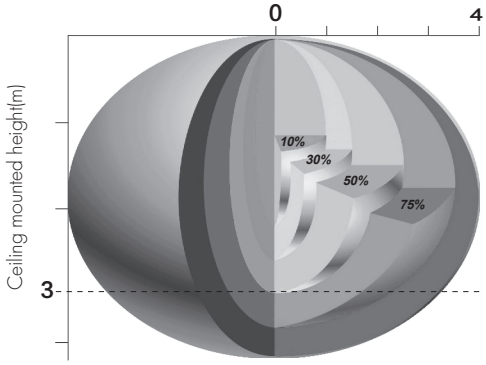


O. HIR17/R
PIR sensor head
IP65 (facia / lens part)
The cable length is around 30cm.



Detection Pattern

HBT01



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

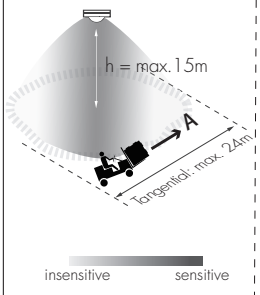
It may be reduced to 2m(diameter) & 3m(height) under certain conditions (walking across).

HIR13 (High-bay)

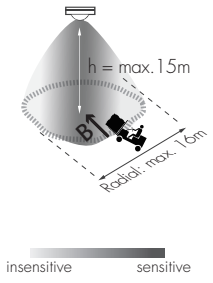
HIR13: High-bay lens detection pattern for **forklift** @ Ta = 20°C

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

A: Tangential movement



B: Radial movement

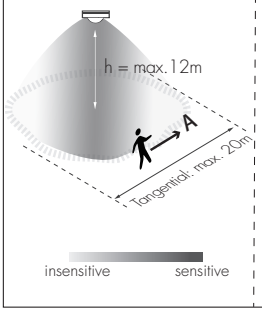


Mount height	Tangential (A)	Radial (B)
10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
14m	max 452m² (Ø = 24m)	max 133m² (Ø = 13m)
15m	max 452m² (Ø = 24m)	max 113m² (Ø = 12m)

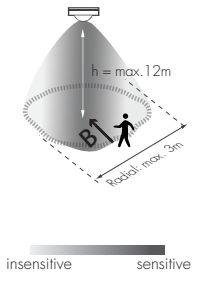
HIR13: High-bay lens detection pattern for **single person** @ Ta = 20°C

(Recommended installation height **2.5m-12m**)

A: Tangential movement

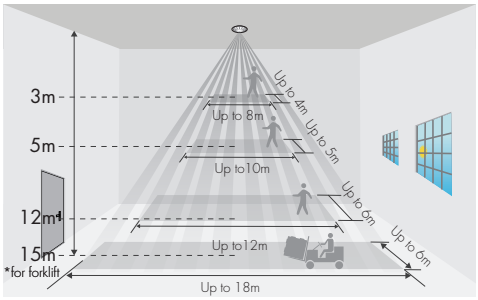


B: Radial movement

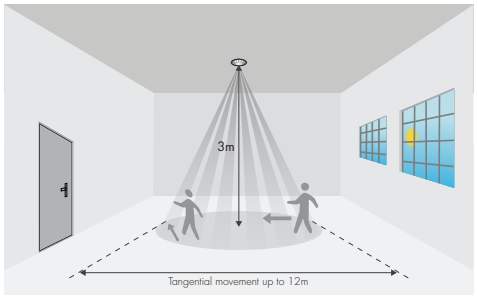


Mount height	Tangential (A)	Radial (B)
2.5m	max 50m² (Ø = 8m)	max 7m² (Ø = 3m)
6m	max 104m² (Ø = 11.5m)	max 7m² (Ø = 3m)
8m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
10m	max 227m² (Ø = 17m)	max 7m² (Ø = 3m)
11m	max 269m² (Ø = 18.5m)	max 7m² (Ø = 3m)
12m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)

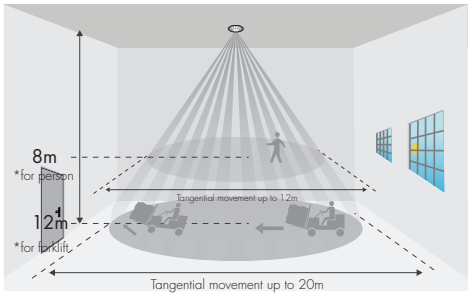
HIR16



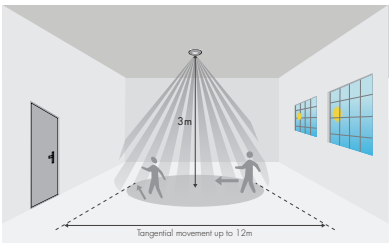
HIR62



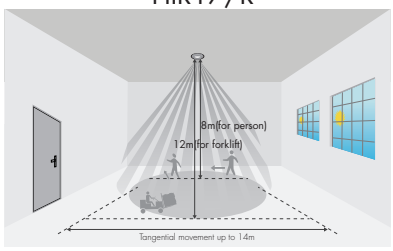
HIR62/R



HIR17



HIR17/R



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

Dimming Interface Operation Notes

DALI

This series of products are supplied as 'plug n'play DALI' or 'independent DALI' system ready.
These models are also fully DALI addressable and may be assigned to groups within the limits specified by the DALI protocol or supporting DALI controllers by using a DALI programming tool.

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.

Switch Action	Response
Short press (<0.4 second) Note: short press has to be longer than 0.1s, or it will be invalid.	Toggle light on / off
Long press (>0.4 second)	Toggle dim light / increase brightness

Synchronization

Switch Action	Response
Long press (>15 seconds)	All lights will dim down to minimum then return to 50% brightness

* We recommend the number of drivers connected to a switch does not exceed 25 pieces. The maximum length of the wires from push to driver should be no more than 20 meters.

Additional Information / Documents

1. To learn more about detailed product features/functions, please kindly refer to https://hytronik.com/product/hec7030-bf

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)