HED8045/BT

Tunable White Constant Current LED Driver

Bluetooth CE SELV RED RoHS UK CA

Product Description

HED8045/BT is Bluetooth dimming and tunable white LED driver, with maximum power output of 45W. It comes 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
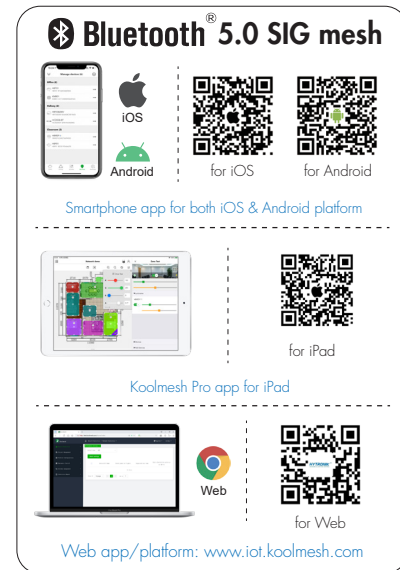- Grouping luminaires via mesh network
- Scenes
- Detailed motion sensor settings
- Push switch configuration
- Schedule to run scenes based on time and date
- Astro timer (sunrise and sunset)
- Staircase function (primary & secondary)
- Internet-of-Things (IoT) featured
- Device firmware update over-the-air (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 with two Push inputs
- PWM 1KHz (1-100%)
- Tunable white
- 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
- Short-circuit Protection
- Overload Protection
- Open-circuit Protection
- 5-year warranty

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

Bluetooth® Kinetic Switch

| HBKS01 | HBKS02 | HBKS03 | HBKS01D | HBKS02D |

Fully support EnOcean self-powered switch module
PTM215B (HBES01/W & HBES01/B)

EnOcean
Self-powered IoT

Bluetooth® 5.0 SIG mesh

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
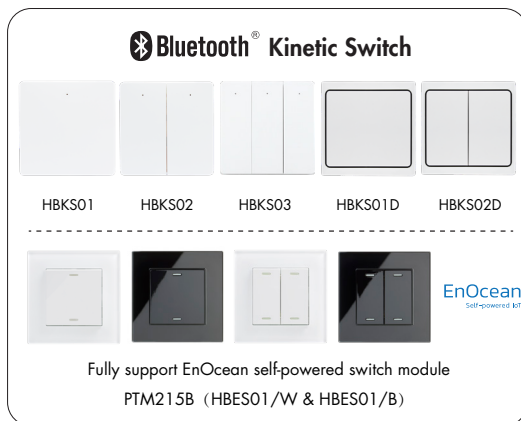
Output Configuration

HED8045/BT, 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!

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	0.24~0.22A
Power Factor	0.95
Max. Efficiency	88%

Output	
Output Current	500mA~1000mA
Output Voltage	15-48V
Uout Max.	63V
Turn-on Time	<0.5s
Dimming Interface	Switch-Dim

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

Safety and EMC	
EMC Standard	EN55015, EN61547, EN61000-3-2/-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 ,
RED	EN300328,EN301489-1/-17,EN50663

Max. output power/current/voltage range	
HED8045/BT	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

Mechanical Structure & Dimensions

P1
P2

N
L

P1
P2
N
L

Sensor Dim

CH2−
CH2+
CH1−
CH1+

CH2−
CH2+
CH1−
CH1+

ON
1 2 3 4 5
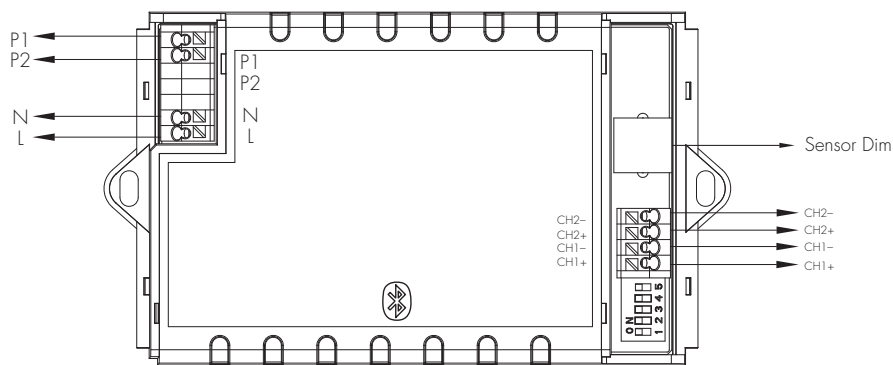
Built-in installation

4.1
79.2
3.9
126
129.4
140.6
23
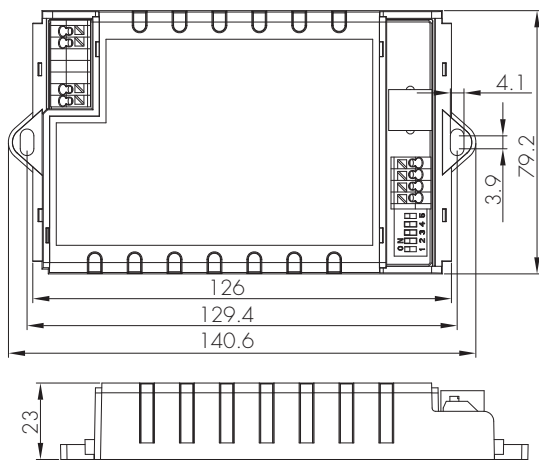
Stand-alone installation

79.2
185
23

Wire Preparation

0.5 - 1.5mm □
8mm
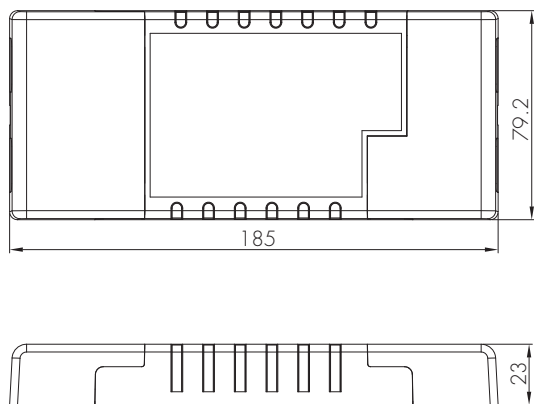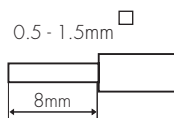
To make or release the wire from the terminal, use a screwdriver to push down the button.

Wiring Diagram

Note: CH1 & CH2 are working independently, meaning that they cannot be used with luminaires that share "+".
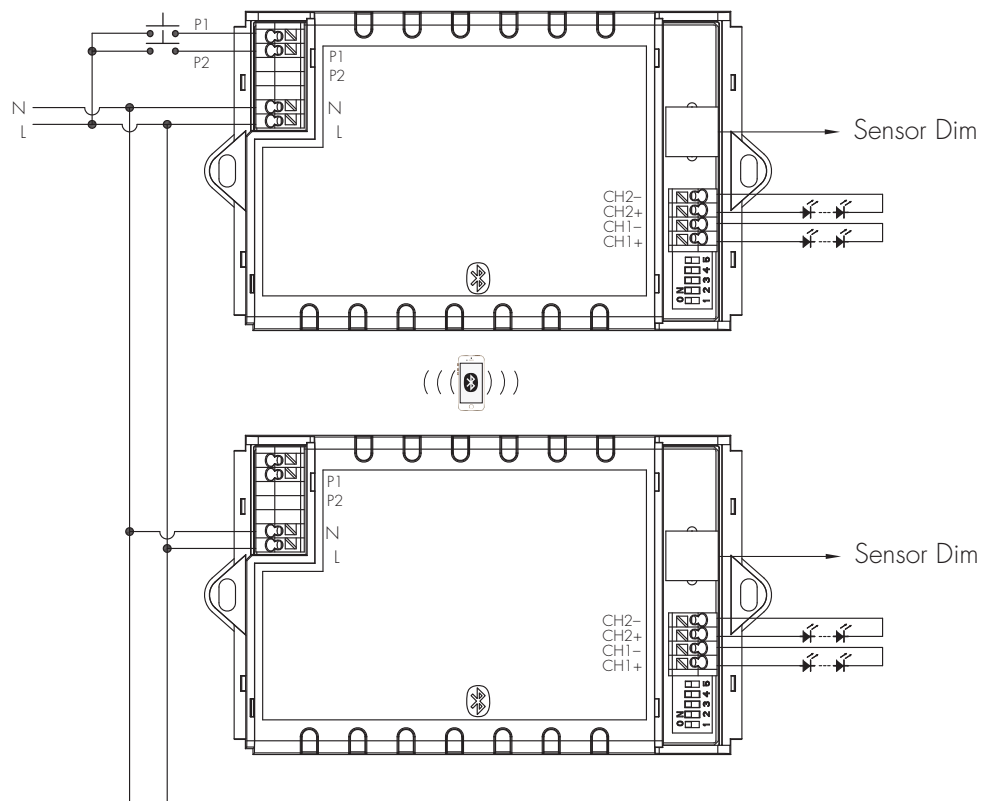*There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.*

Loading and In-rush Current

Model	HED8045/BT
In-rush Current (Imax.)	42A
Pulse Time	30 μs

Circuit Breaker Information

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

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
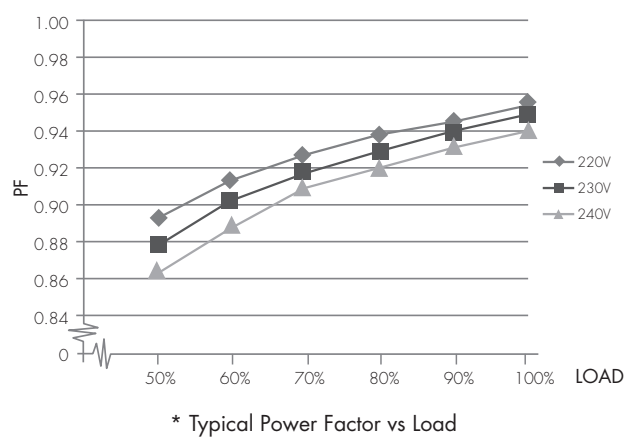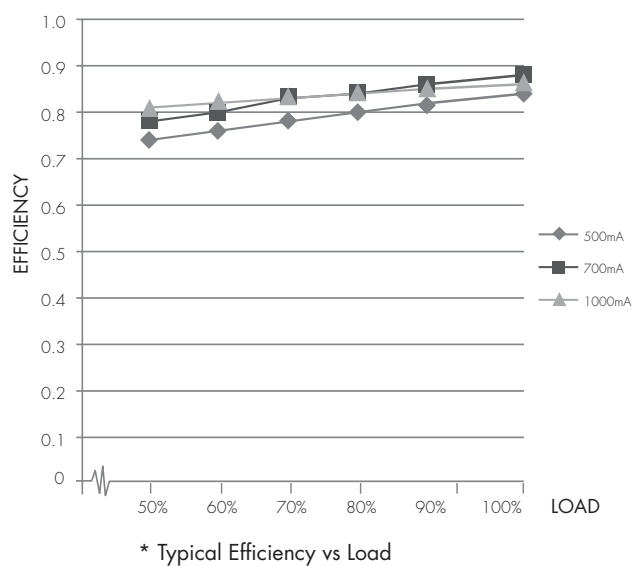
Dimming Characteristics
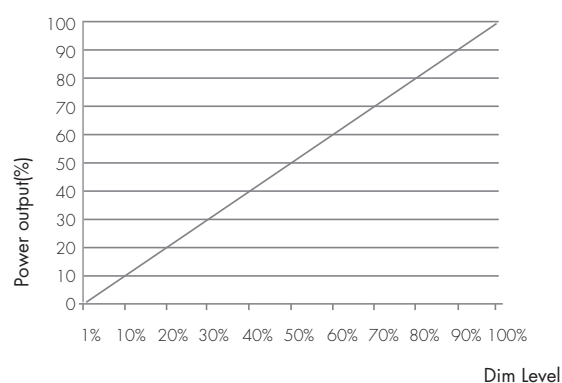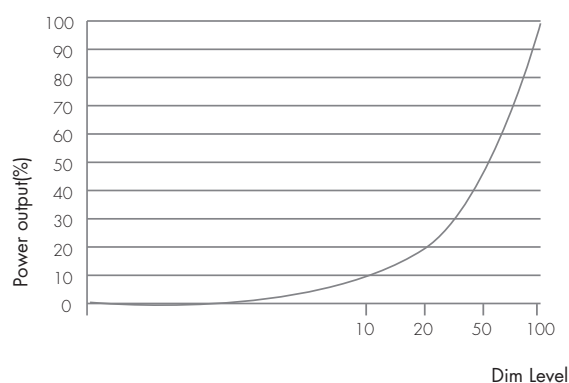
Technical Specifications for Sensor Heads

PIR Sensor Properties		
Sensor principle	PIR detection	
Operating voltage	5VDC	
Detection range *	HIR05 & HIR05/FM HIR05/AA & & 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)
	HIR63	Max installation height: 3m; Max detection range: 12m (diameter)
	HIR63/R	Max installation height: 12m (forklift); 8m (single person); Max detection range: 14m (diameter)

| 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 & SAM22/AA	Max installation height: 3m; Max detection range: 12m (diameter)
	SAM23	Max installation height: 15m (forklift); 12m (single person); Max detection range: 20m (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.
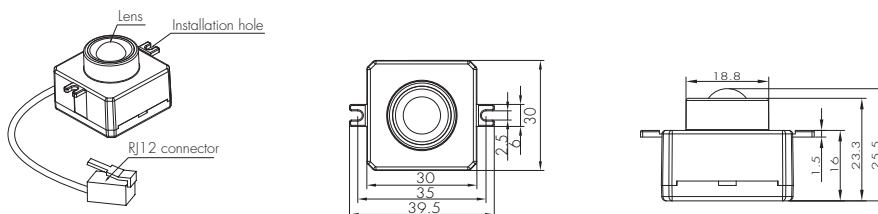
A. HIR05
PIR sensor head
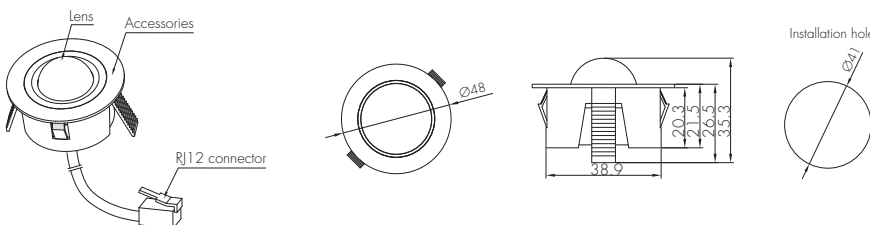The cable length is around 65cm.
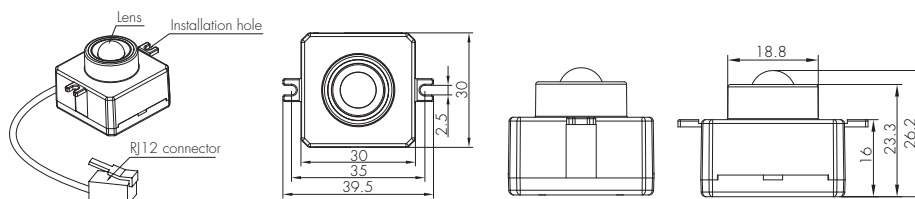
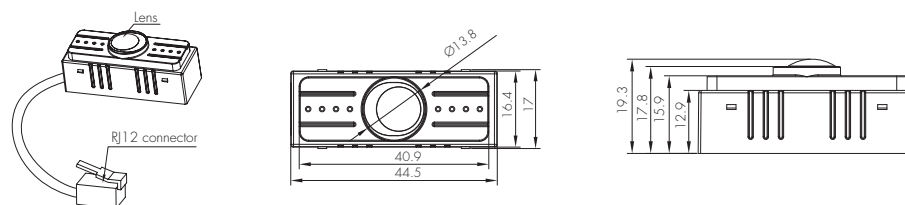

B. HIR05/E
PIR sensor head
The cable length is around 65cm.

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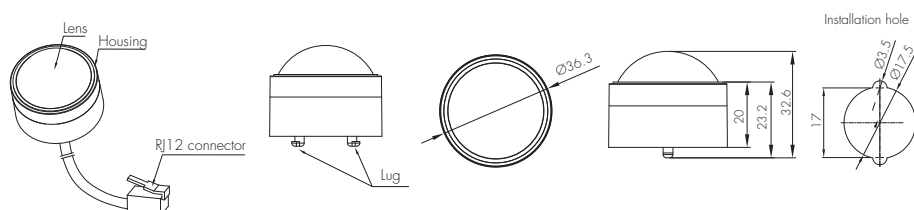PIR sensor head
The cable length is around 65cm.

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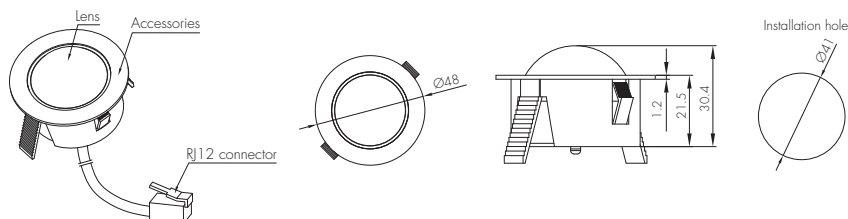PIR sensor head
Photocell Advance™
The cable length is around 30cm.

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

Lens Housing
RJ12 connector
Lug
Installation hole
Ø36.3
20 23.2 32.6 17
Ø3.5 Ø17.5

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

Lens Accessories
RJ12 connector
Ø48
1.2 21.5 30.4
Installation hole
Ø41

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.

Lens Accessories
RJ12 connector
Ø40.5 M13
25 25 33.9
42.7 63 12
Installation hole
Ø14
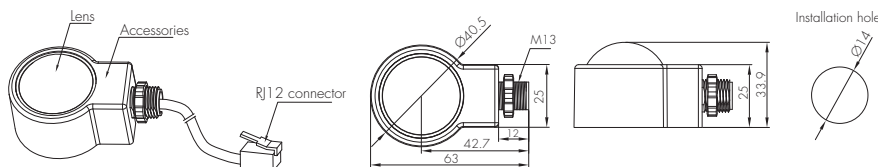
H. HIR63
PIR sensor head
The cable length is around 30cm.

RJ12
Ø36
22.4 31.8
21.7
Installation hole
Ø 22.23 - 0.41 + 0.78
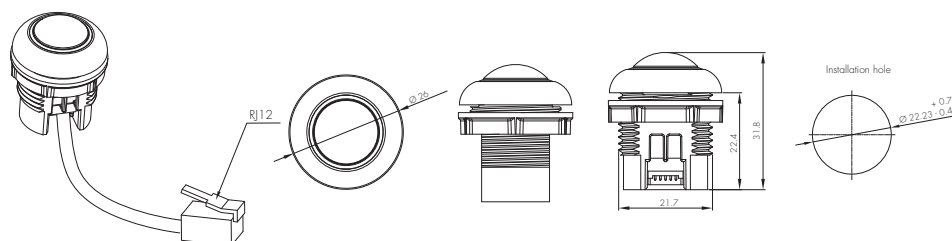
I. HIR63 with HA04
PIR sensor head
Optional accessory
The cable length is around 30cm.

RJ12
Ø15 22 52
25 33.3
21.7
Installation hole
R0.3±0.1 17.2±0.1 44.2±0.1
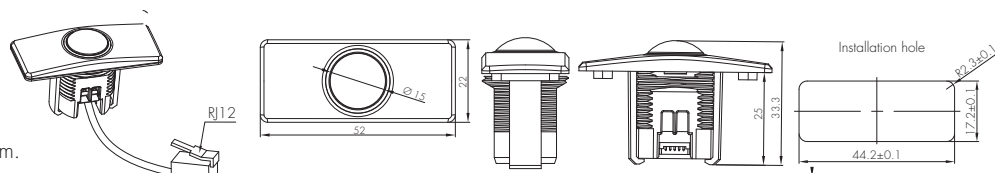
J. HIR63 with HA05
PIR sensor head
Optional accessory
The cable length is around 30cm.

RJ12
Ø15 27 68
22.4 31.7
21.7
Installation hole
Max R0.5 22±0.2 60±0.2
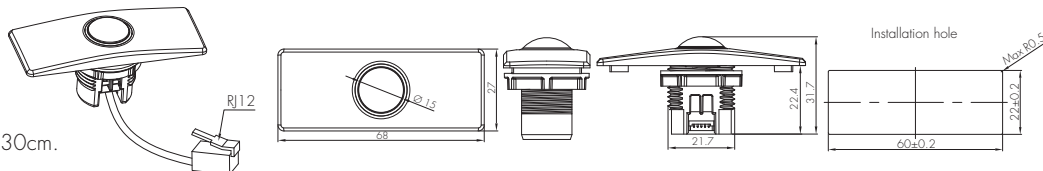
K. HIR63/R
PIR sensor head
IP65 (facia / lens part)
The cable length is around 30cm.

RJ12
Ø36
22.7 34 43.4
21.7
Installation hole
Ø 22.23 - 0.41 + 0.78
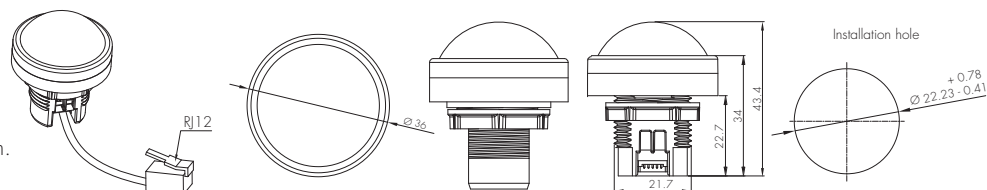
L. HIR12

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

Lens
Accessories
RJ12

16.5
38.2
75
45

Installation hole
63
Ø33
27.5
33
49.5
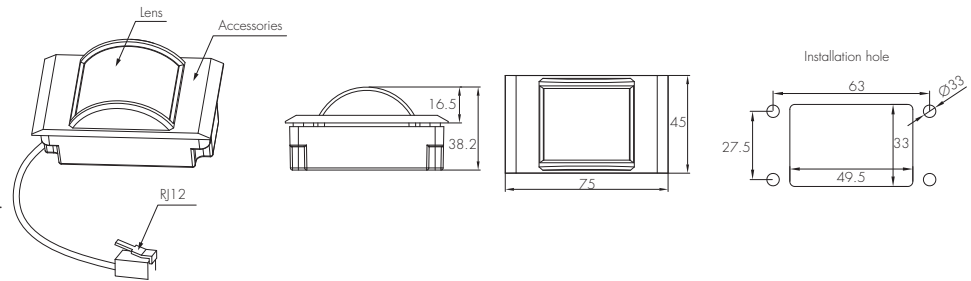
Installation for HIR12

Thickness: 0.8mm – 1.6mm

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

M. SAM20

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

Cable side entry
25.2
2.5
6.6
34.7
35.9
40.4
24.3
15.5
1.5
3
ØA
2.5
25
8.8
6.8
11.2
Ø4.5
Cable back entry
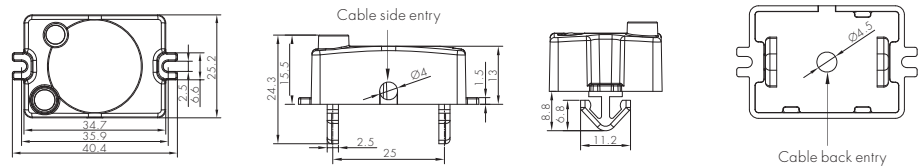
N. SAM21

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

HF antenna module
Ø41
3.9
40.3
M16
14.6
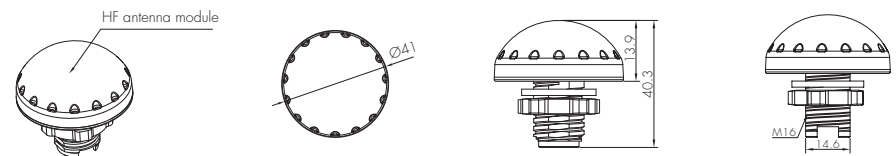
O. SAM22

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

Ø48
38.9
12
21.5
26.5
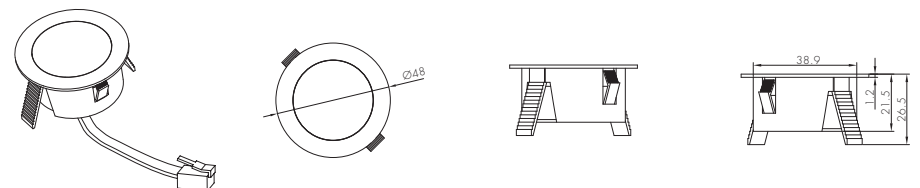
P. SAM23

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

Infrared remote receiver
Photocell advance™
Daylight sensor
Slots for T5 or T8 tube
45.2
32.2
Slots for T8 tube
2.5
33.5
15
12
50.2
26.5
9
2
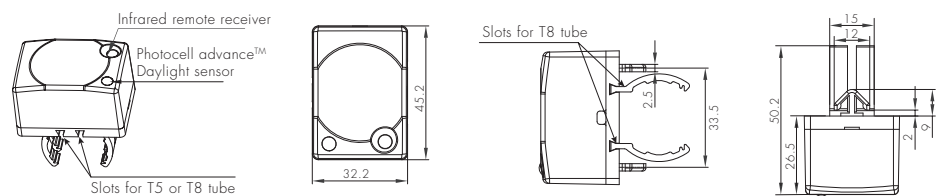
Detection Pattern

SAM20 / SAM21 / SAM22

SAM23

Ceiling mounted detection pattern (m)

Ceiling mounted detection pattern (m)
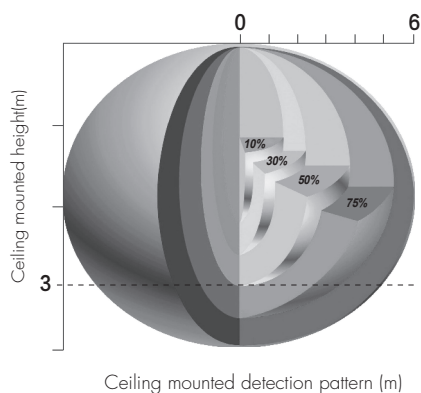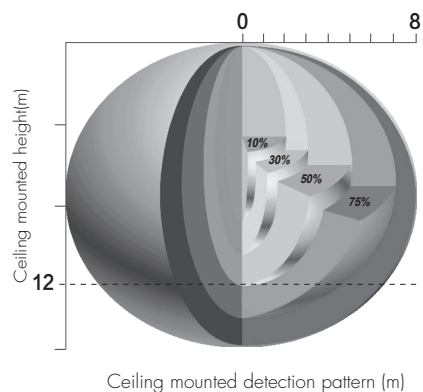
HIR11 (High-bay)			
HIR11: High-bay lens detection pattern for **forklift** @ Ta = 20°C (Recommended installation height **10m-15m**)			
A: Tangential movement B: Radial movement	Mount height	Tangential (A)	Radial (B)
h = max.15m Tangential: max. 24m	10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
	11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
h = max.15m Radial: max. 16m	12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
	13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
insensitive sensitive	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)
h = max.12m Tangential: max. 20m	2.5m	max 50m² (Ø = 8m)	max 7m² (Ø = 3m)
	6m	max 104m² (Ø = 11.5m)	max 7m² (Ø = 3m)
h = max.12m Radial: max. 3m	8m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
	10m	max 227m² (Ø = 17m)	max 7m² (Ø = 3m)
insensitive sensitive	11m	max 269m² (Ø = 18.5m)	max 7m² (Ø = 3m)
	12m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)

HIR05 & HIR05/FM & HIR05/E & HIR07

3m

Radial movement 4m

Tangential movement 6m

HIR12

3m — Up to 4m
Up to 8m
Up to 5m

5m —
Up to10m
Up to 6m

12m —
Up to 6m

15m — Up to12m
*for forklift

Up to 18m

HIR63

3m

Tangential movement up to 12m

HIR63/R

8m(for person)
12m(for forklift)

Tangential movement up to 14m
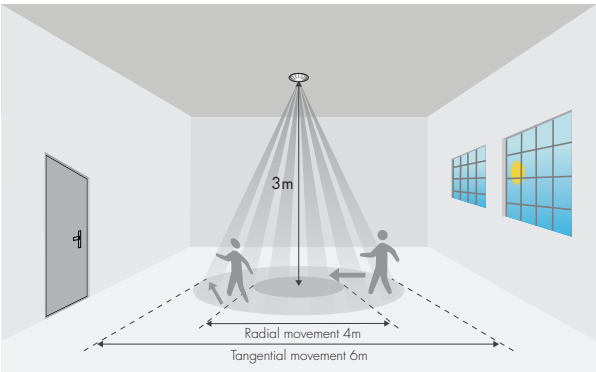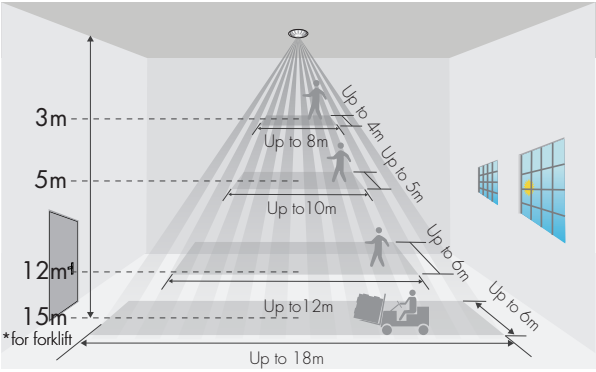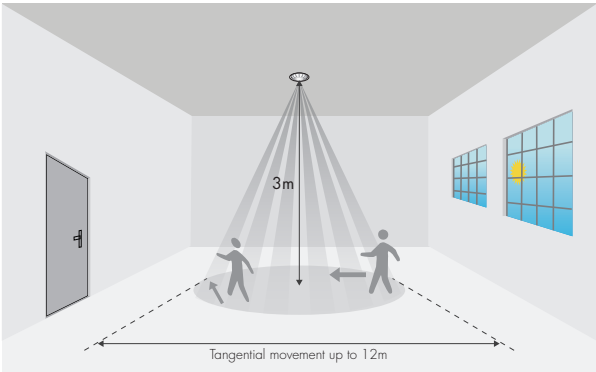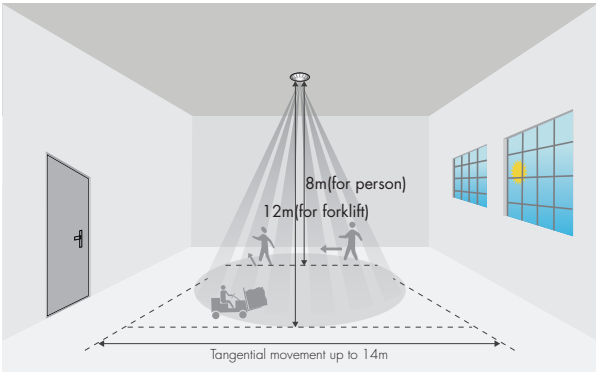
*The detection patterns are based upon 5km/h movement speed.

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 - Quit manual mode - Do nothing
	Double push	- Turn on only - Turn off only - Recall a scene	- Quit manual mode - Do nothing
	Long press (≥1 second)	- Dimming - Colour tuning - Do nothing	
Sensor-link	/	- 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) - Stop Self test	- Start Self test (Annually) - Invalid
	Long press (≥1 second)	- Start Self test (Monthly) - Stop Self test	- Start Self test (Annually) - 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.	

Additional Information / Documents

1. To learn more about detailed product features/functions, please kindly refer to
   https://hytronik.com/product/hed8045-bt

2. Regarding precautions for Bluetooth product installation and operation, please kindly refer to
   https://hytronik.com/service/downloads （Bluetooth Products Precautions for Product linstallation and Operation）

3. 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）

4. Data sheet is subject to change without notice. Please always refer to the most recent release on
   https://hytronik.com/products/led-drivers

5. Regarding Hytronik standard guarantee policy, please kindly refer to
   https://hytronik.com/service/downloads （Guarantee Conditions document）