

HED8045

Constant Current



Product Description

HED8045 is DALI-2 DT8 dimmable & color tunable LED driver + Bluetooth sensor head in detached design with maximum power output of 45W. Such detached design is flexible with optional motion detection for lighting manufacturers; with Bluetooth sensor head unattached, HED8045 is solely a DALI-2 DT8 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.

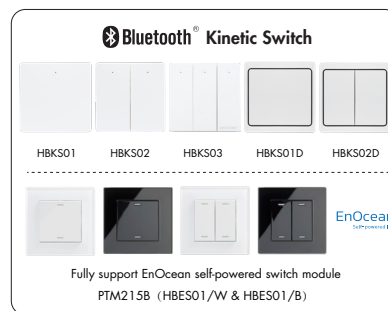


App Features

- 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 EWSSB/EWSDB
- Continuous development in progress...

Hardware Features

- DALI-2 with DALI feedback
- 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, designed for long lifetime up to 50,000 hours



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!

Technical Specifications

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

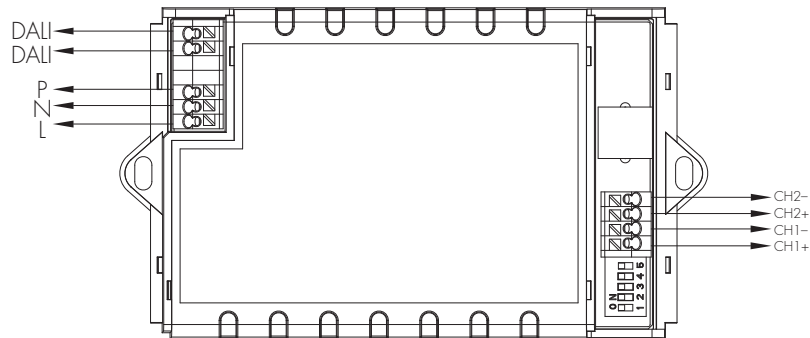
| Output | |
|-------------------|-----------------|
| Ripple Current | <3% |
| Uout Max. | 63V |
| Turn-on Time | <0.5s |
| Dimming Interface | Switch-Dim/DALI |
| Stand-by power | <0.5W |

| 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 |

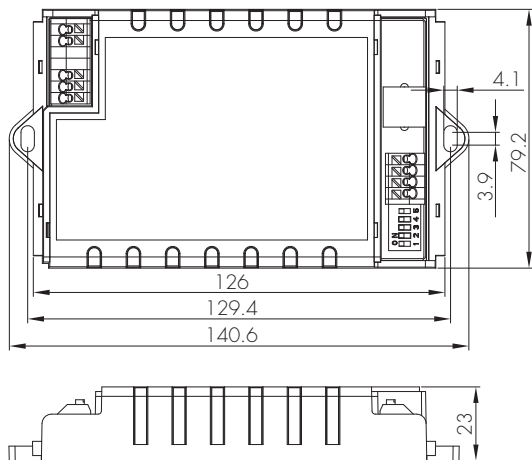
| Environment | |
|-------------------|-------------|
| Operation Temp. | -20 ~ +45°C |
| Case Temp. (Max.) | 75°C |
| IP Rating | IP20 |

| 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 |

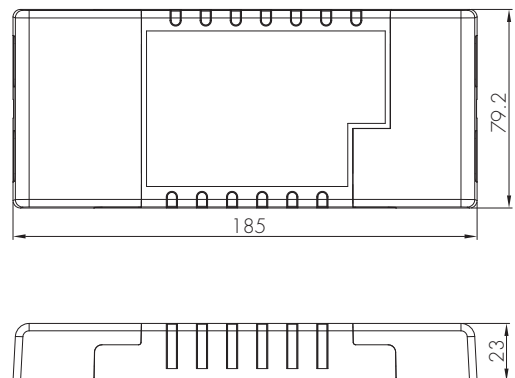
Mechanical Structure & Dimensions



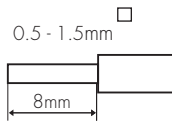
Built-in installation



Stand-alone installation



Wire Preparation

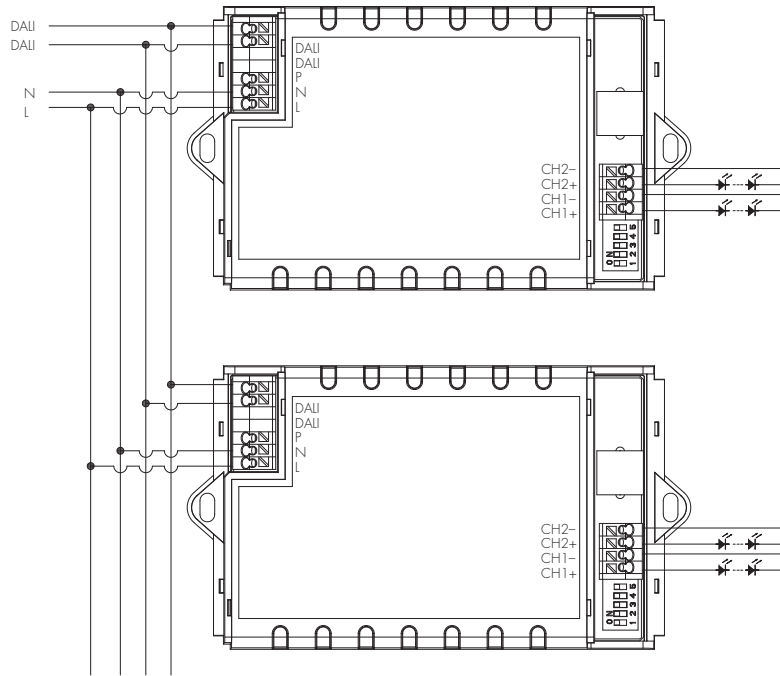


To make or release the wire from the terminal, use a screwdriver to push down the button.

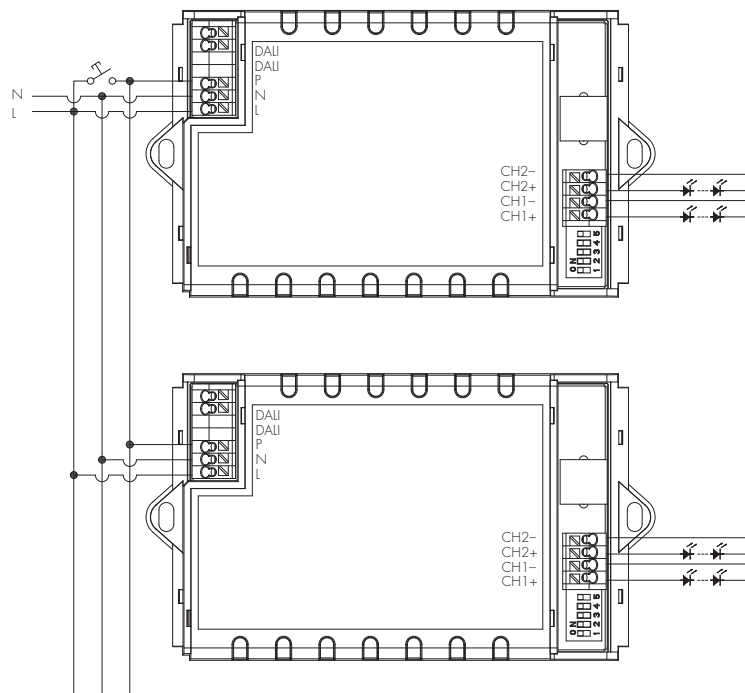
1. 200 metres (total) max. for 1mm² CSA (Ta = 50°C)
2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50°C)

Wiring Diagram

Wiring Diagram For DALI



Wiring Diagram For Switch-Dim



Loading and In-rush Current

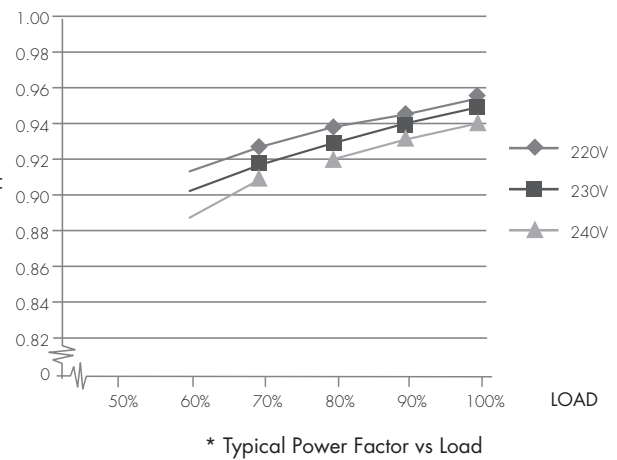
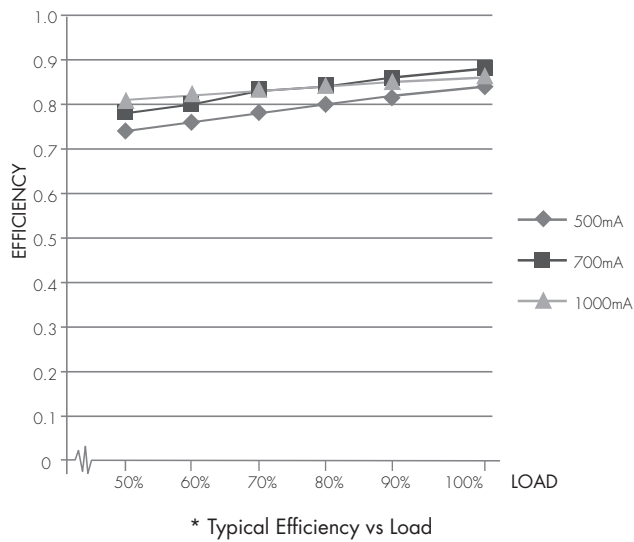
| | |
|--------------------------------------|---------|
| Model | HED8045 |
| In-rush Current (I _{max.}) | 42A |
| Pulse Time | 30 μs |

Circuit Breaker Information

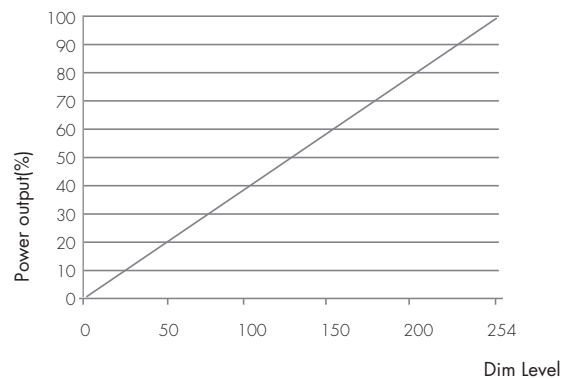
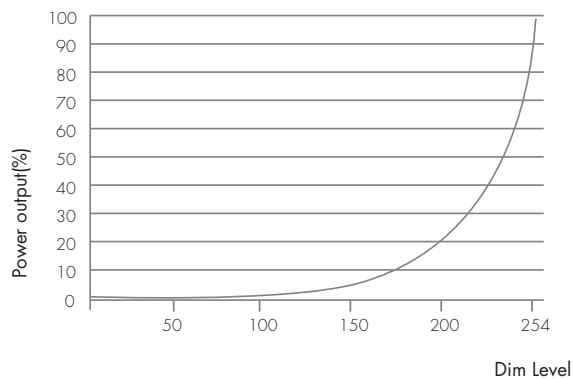
| Automatic circuit breaker type | B16A | B10A | B13A | B20A | B25A |
|--------------------------------|------|------|------|------|------|
| HED8045 | 43 | 27 | 35 | 54 | 67 |

The data above is calculated according to the formula: $\text{Maximum Amount} = 16 / (P_n / 230)$. 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



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) |
| | HIR16 Max installation height: 15m (forklift) 12m (single person) Max detection range: 18m * 6m (L * W) |
| | Detection angle 360° |

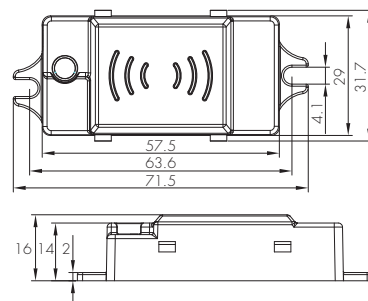
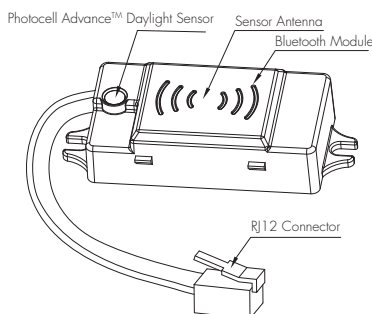
* The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

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.

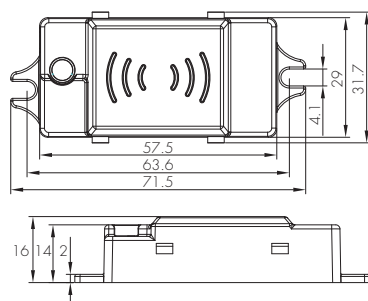
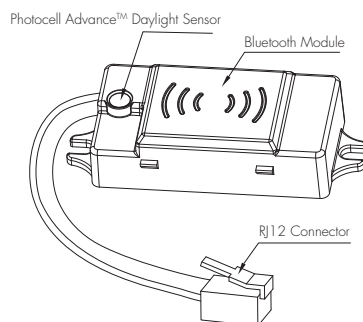
A. HBT01

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



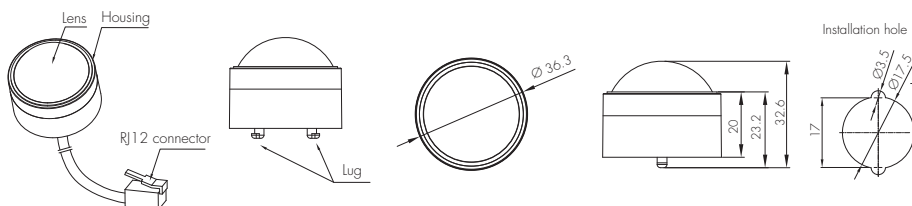
B. HBT02

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



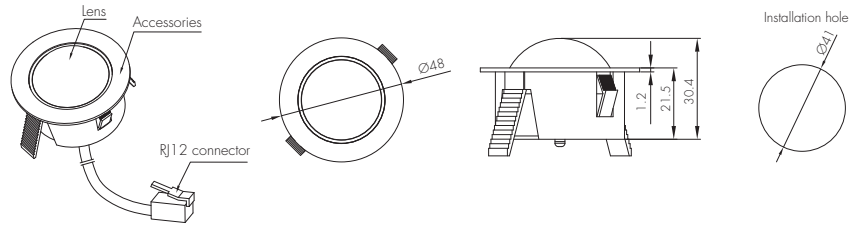
C. HIR13/S

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



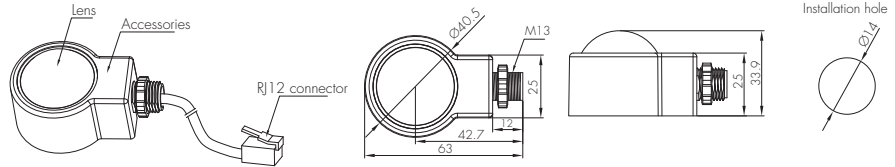
D. HIR13/F

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



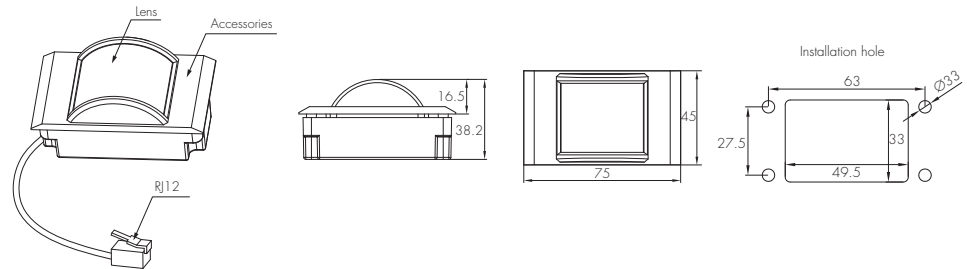
E. HIR13/C

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



F. HIR16

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



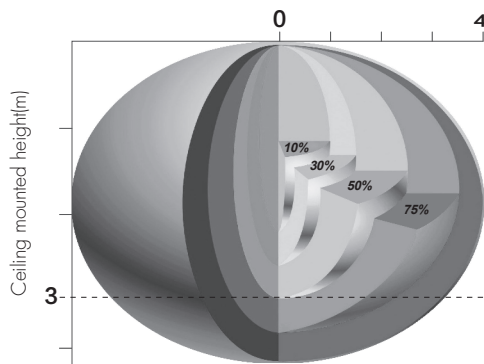
Installation for HIR16



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

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)

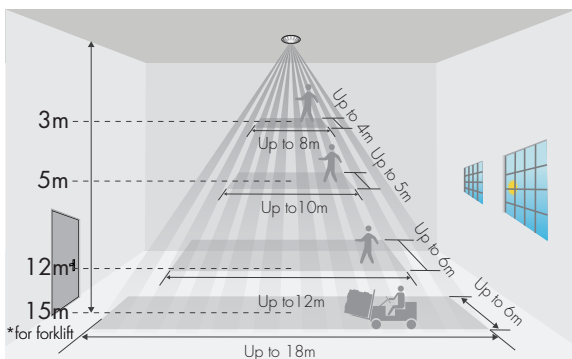
| A: Tangential movement | B: Radial movement | Mount height | Tangential (A) | Radial (B) |
|------------------------|--------------------|--------------|---------------------|---------------------|
| | | 10m | max 380m² (Ø = 22m) | max 201m² (Ø = 16m) |
| | | 11m | max 452m² (Ø = 24m) | max 201m² (Ø = 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



*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 - 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. For full explanation of Hytronik Photocell Advance™ technology, please kindly refer to [www.hytronik.com/download ->knowledge ->Introduction of Photocell Advance](http://www.hytronik.com/download->knowledge->Introduction%20of%20Photocell%20Advance)
2. To learn more about detailed product features/functions, please refer to [www.hytronik.com/download ->knowledge ->Introduction of App Scenes and Product Functions](http://www.hytronik.com/download->knowledge->Introduction%20of%20App%20Scenes%20and%20Product%20Functions)
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](http://www.hytronik.com/download->knowledge->Bluetooth%20Products%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
4. Regarding precautions for microwave sensor installation and operation, please kindly refer to [www.hytronik.com/download ->knowledge ->Microwave Sensors - Precautions for Product Installation and Operation](http://www.hytronik.com/download->knowledge->Microwave%20Sensors%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
5. Regarding precautions for PIR Sensors installation and operation, please kindly refer to [www.hytronik.com/download ->knowledge ->PIR Sensors - Precautions for Product Installation and Operation](http://www.hytronik.com/download->knowledge->PIR%20Sensors%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
6. 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](http://www.hytronik.com/download->knowledge->LED%20Drivers%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
7. 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](http://www.hytronik.com/products/bluetooth%20technology->Bluetooth%20Drivers)
8. Regarding Hytronik standard guarantee policy, please refer to [www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy](http://www.hytronik.com/download->knowledge->Hytronik%20Standard%20Guarantee%20Policy)