

DALI-2 DT8 LED Driver + Sensor Head with Bluetooth® 5.0 SIG Mesh

HED8045

Constant Current

HYTRONIK®



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




EnOcean
Self-powered IoT

Fully support
EnOcean switch
EWSSB/EWSDB

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%

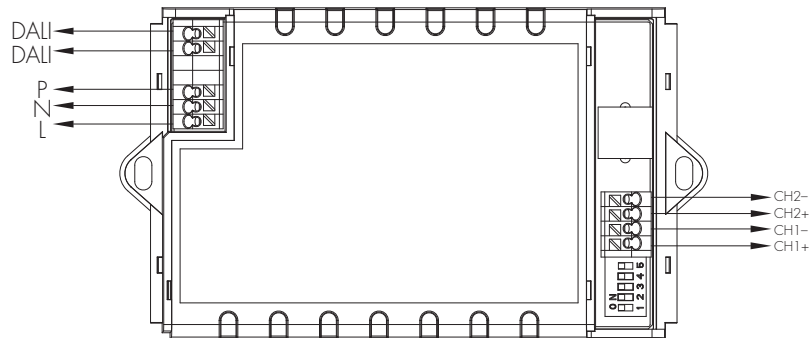
Output	
Ripple Current	<3%
Uout Max.	63V
Turn-on Time	<0.5s
Dimming Interface	Switch-Dim/DALI
Stand-by power	<0.5W

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

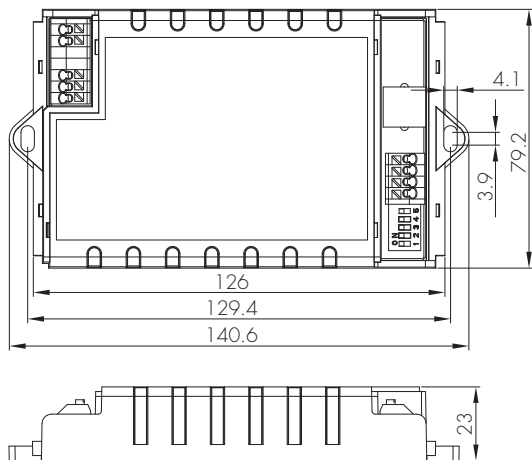
Environment	
Operation Temp.	-20 ~ +45°C
Case Temp. (Max.)	75°C
IP Rating	IP20

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

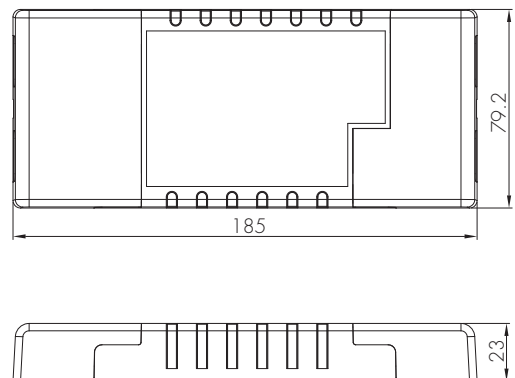
Mechanical Structure & Dimensions



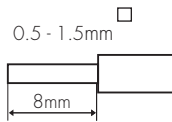
Built-in installation



Stand-alone installation



Wire Preparation

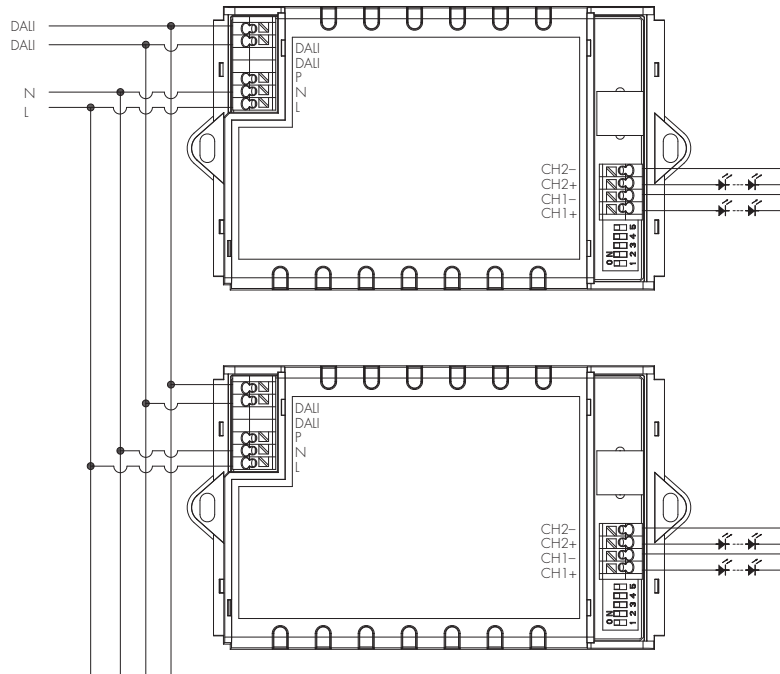


To make or release the wire from the terminal, use a screwdriver to push down the button.

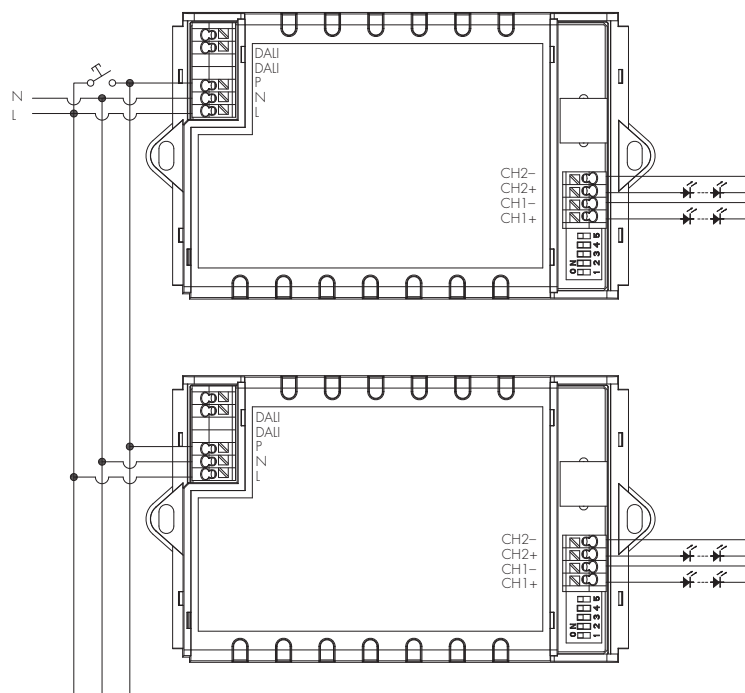
1. 200 metres (total) max. for 1mm² CSA (Ta = 50°C)
2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50°C)

Wiring Diagram

Wiring Diagram For DALI



Wiring Diagram For Switch-Dim



Loading and In-rush Current

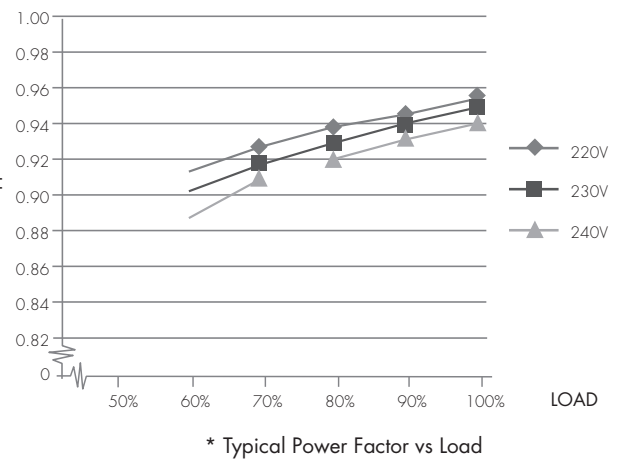
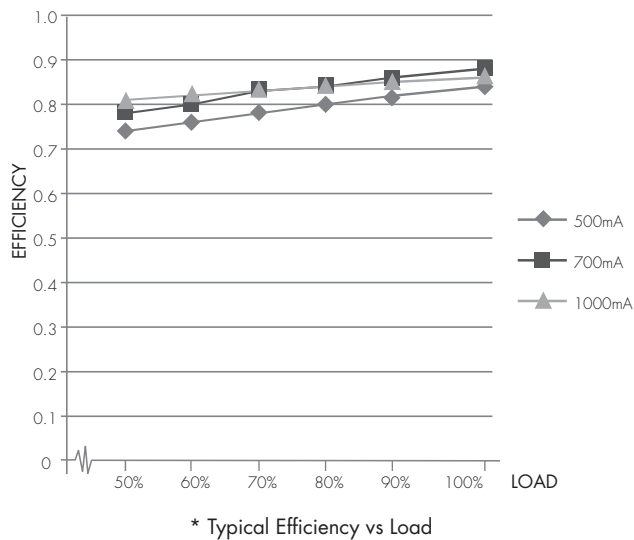
Model	HED8045
In-rush Current (I _{max.})	42A
Pulse Time	30 μs

Circuit Breaker Information

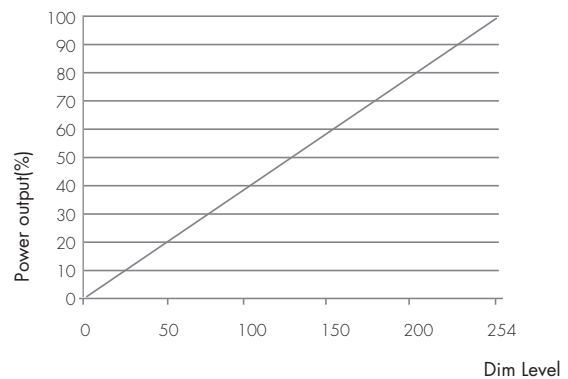
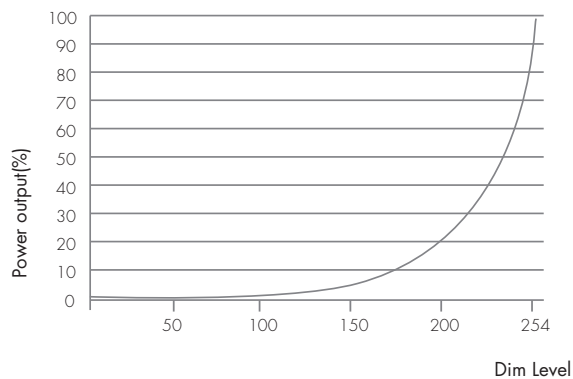
Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HED8045	43	27	35	54	67

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°

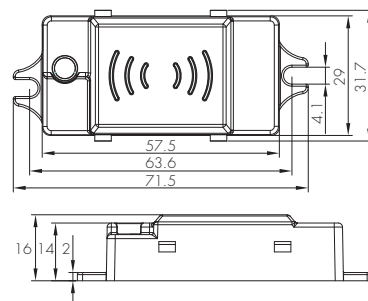
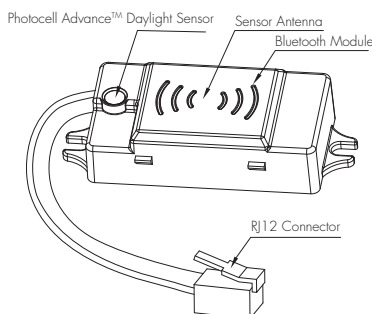
* The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

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.

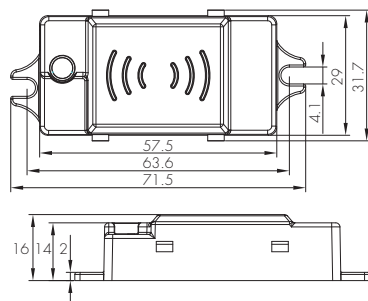
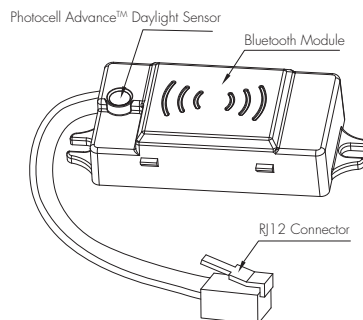
A. HBT01

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



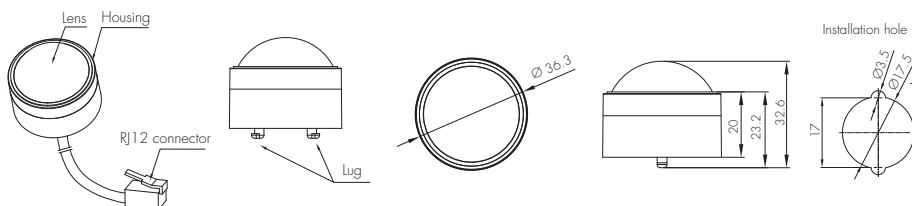
B. HBT02

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



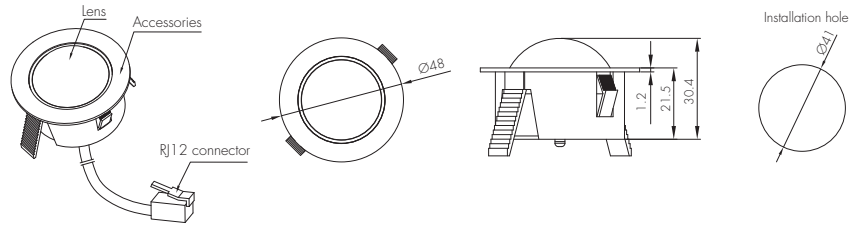
C. HIR13/S

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



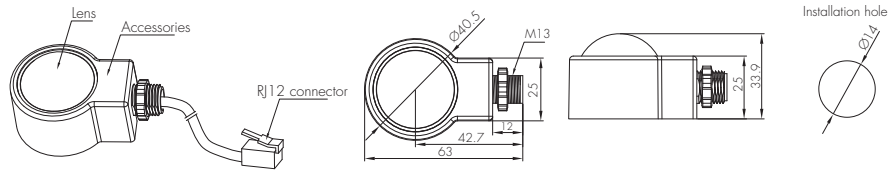
D. HIR13/F

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



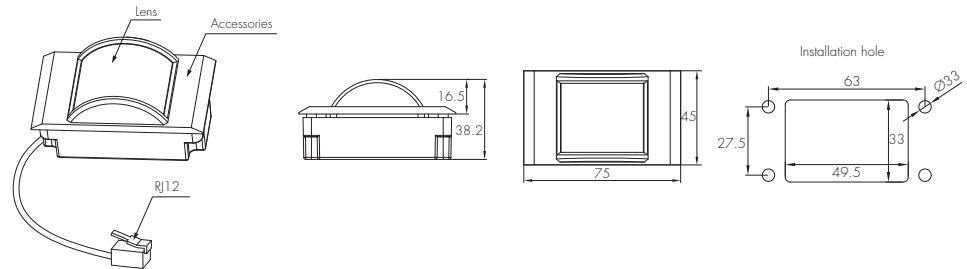
E. HIR13/C

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.



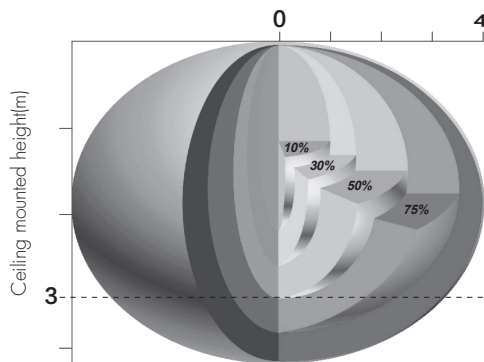
Installation for HIR16



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)

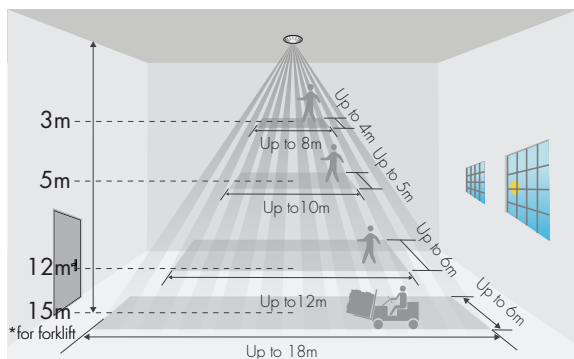
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
		11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
		14m	max 452m² (Ø = 24m)	max 133m²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