

HBT01

Bluetooth HF Lowbay | Photocell Advance | RJ12 connector to control body



Benefits

Compact: Standard rectangular Plug&Play sensor design

Versatile: Tri-level dimming + Daylight harvest + Circadian Rhythm

Easy configuration: Wireless Bluetooth

Applications

Support DTB driver with tunable white control

Master luminaire with sensor

Classrooms, Offices

Check Out the Complete System Solution on the Website:
<https://www.hytronik.com/product/HBT01>



Product Description

HBT01 is a HF sensor head and compatible with the Tri-level Dimming Daylight Harvest and Human Centric Lighting. It can work with the linear shaped control base such as HC038V HCD038HC438V HCD438 and HCD038/P. It offers powerful number of Plug'n'Play feature options to expand the flexibility of luminaires design.

Functions and Features

See additional details at the end of datasheet



Daylight Harvest



Photocell
Advance



Tri-level Dimming



nRF52840

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Specifications

Main Capabilities

Connector Type	RJ12
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Sensor Data

Detection angle	30° - 150°
Max. Detection range (Diameter)	8.0 m
Maximum Mounting Height	3.0 m
Detection area	50 m ²
Sensitivity	10% / 30% / 50% / 75% / 100%
HF operating frequency (Ghz)	5.8Ghz+/-75MHz
Detection Methods	Microwave (MW)

Electrical Data

Bluetooth Platform	Nordic nRF52840
Bluetooth frequency	2.4 GHz - 2.483 GHz
Bluetooth range (Phone to Device)	15-40m
Bluetooth transmit power	8 dBm
Bluetooth system	Koolmesh
Operating voltage range	5 VDC

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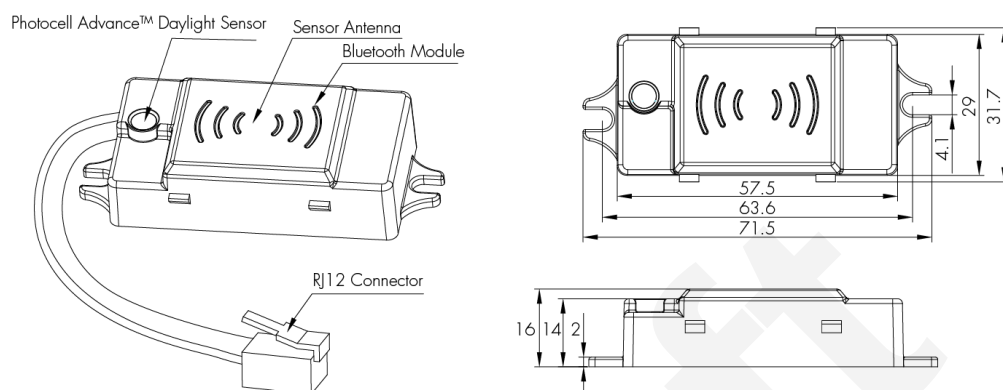
Specifications

Technical	
Product weight	30.0 g
Product height	16.0 mm
Product length	71.5 mm
Product width	31.7 mm
Ambient temperature	-20 ~ +55 °C
Storage temperature	-40 ~ +70 °C
Humidity max	10 ~ 90%
IP Rate	IP20

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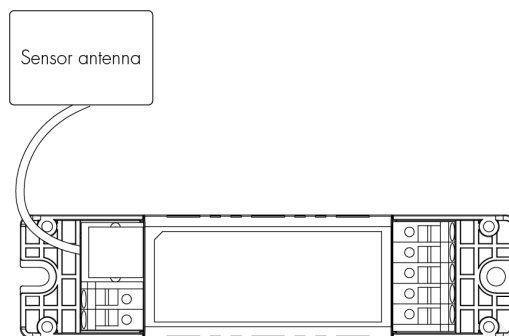
Technical Drawing



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Wiring Diagram



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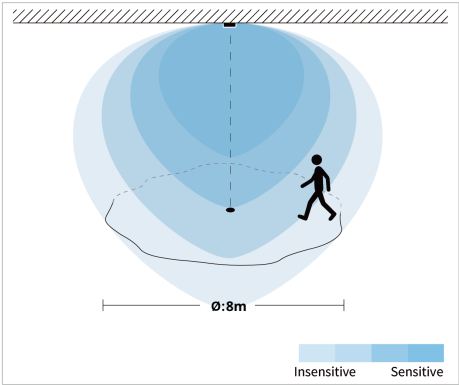
Detection Range

Single Person Walk (Ceiling mount)

The data above is tested under following conditions:

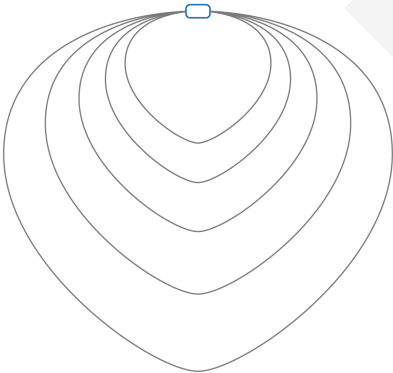
- Single person walking
 - Sensor not connected to any driver that may have soft-on period
 - Testing temperature Ta = 20°C
 - The detection range is heavily influenced by sensor placement (angle) and different walking paces.
- It may be reduced to 2m(diameter) & 3m(height) under certain conditions (walking across).

Detection example 3m mounting height:



Sensitivity	
H[m]	100%
	{Ø}
3	8

Detection schematic diagram



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Commissioning Instructions and Precautions

A. Installation Note

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

Warning: For additional important documents, including installation precautions, product guidelines, and guarantee conditions, please refer to the official downloads.

<https://hytronik.com/service/downloads>

Draft

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Options

Compatible products (for full functionality)



HC038V

Control unit | 1-10V | Attachable sensor heads
www.hytronik.com/product/HC038V



HC438V

Control unit | 1-10V Dimming | Attachable sensor heads |
US Certified
www.hytronik.com/product/HC438V



HCD038

Control unit | DALI with PSU | Attachable sensor heads
www.hytronik.com/product/HCD038



HCD038/P

Control unit | DALI with PSU | Attachable sensor heads
www.hytronik.com/product/HCD038-P



HCD438

Control body | DALI with PSU | Attachable sensor heads |
US Certified
www.hytronik.com/product/HCD438



HEC7030/BF

DALI DT6 LED Driver (CC) 30W | Dimmable | Built-in version
www.hytronik.com/product/HEC7030-BF



HED1025

DALI LED Driver 25W (CC) | Dimmable | Built-in version
www.hytronik.com/product/HED1025



HED8045

DALI-2 DT8 LED Driver 45W (CC) | Tunable white |
Built-in/Stand alone
www.hytronik.com/product/HED8045

Koolmesh - Operating guide

Bluetooth



Smartphone(ios)



Smartphone (Android)



iPad



Web

For additional information, including project and network, device, and scenes, please refer to: <http://faq.koolmesh.com/>

Shared Koolmesh App Features

- | | |
|--|---|
| Alert for excess lux / temperature / humidity via multi-meter HBLM01 | Koolmesh Pro iPad for on-site configuration |
| Astro timer (sunrise and sunset) | Network sharing via QR code or keycode |
| Bulk commissioning (copy and paste settings) | Offline commissioning |
| Compatible with Shelly energy metering | One-key device replacement |
| Continuous development in progress... | Quick setup mode & advanced setup mode |
| Device firmware update over-the-air (OTA) | Remote control via Hytronik gateway & touch screen HPAD-TSJASE1 |
| Device social relations check | Scenes |
| Different permission levels via authority management | Schedule |
| Floorplan feature to simplify project planning | Staircase function for quick setup |
| Grouping luminaires via mesh network | Test mesh network connection quality |
| Internet-of-Things (IoT) featured | Web platform for project deployment & data analysis |

Device-specific Koolmesh App features

- | | |
|--|----------------------------------|
| 4 push inputs supported | Motion sensor trigger diagnosis |
| Adjustable motion & static sensitivity & adjustable sensing distance | Partition control with HBT08200P |
| Detailed motion sensor settings | Push scene cycling |
| Dusk/Dawn photocell (twilight function) | Push switch configuration |
| Mesh OTA & remote commissioning (under development) | Tri-level luminaire control |
| Motion sensor range test | |

Bluetooth Mesh Network Installation & Device Access Range

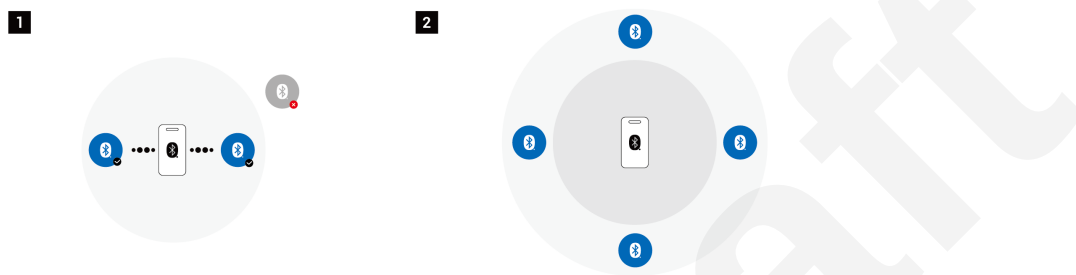
1. Phone/Pad to Device Range (Bluetooth Connection)

During installation and commissioning, the device is added via the App over Bluetooth. The installer must stay within the effective Bluetooth range of the target device to ensure successful addition. The Bluetooth transmission range varies by product — refer to the "Specification" section of this datasheet for details.

2. Device to Device Range (Mesh Network Communication)

Once devices have been successfully added via the App, they automatically communicate with each other through the wireless mesh network. After the mesh network is established, the user can access and control any device in the network as long as they are within the communication range of at least one mesh node.

Note: a. The Bluetooth transmission range for each product varies. Please proceed to the "Specification" section of this datasheet to view more details. b. Performance is based on testing with individual devices in open, unobstructed environments without wireless interference. Actual communication range may vary depending on product type, obstacles, environmental conditions, and luminaire structure.



Bluetooth Network Components



HBGW02

Bluetooth Mesh Gateway | Ethernet or Wi-Fi 2.4GHz | wall/flat surface mounting
www.hytronik.com/product/HBGW02



HBGW02/D

Bluetooth Mesh Gateway | Dual-band Wi-Fi | wall/flat surface mounting
www.hytronik.com/product/HBGW02-D



HBGW03/R

BACnet Gateway | Dual-band Wi-Fi or Ethernet | DIN rail/wall/flat surface mounting
www.hytronik.com/product/HBGW03-R



HBKS01/W

Bluetooth Kinetic Switch | One-gang | Wireless Control
www.hytronik.com/product/HBKS01-W



HBKS01D/W

Bluetooth Kinetic Switch | Single Rocker | White Color
www.hytronik.com/product/HBKS01D-W



HBKS02/W

Bluetooth Kinetic Switch | Two-gang | White Color
www.hytronik.com/product/HBKS02-W



HBKS02D/W

Bluetooth Kinetic Switch | Double Rocker | White Color
www.hytronik.com/product/HBKS02D-W



HBKS03/W

Bluetooth Kinetic Switch | Three-gang | White Color
www.hytronik.com/product/HBKS03-W



HBLM01

Multi-meter | Bluetooth & NFC | Lux Measurements
www.hytronik.com/product/HBLM01



HPAD-TSJASE1

Bluetooth Touch Tablet | Gateway Integrated | Switch Boxes
www.hytronik.com/product/HPAD-TSJASE1

Functions and Features



Daylight Harvest

Right time, right place and the right amount of light! Daylight harvest (Also known as daylight regulating or daylight interaction) is a must in the future lighting norms. It automatically measures available natural light and adjusts artificial lighting output to maintain the target illuminance level. Using daylight sensor feedback, control signals are transmitted to the LED drivers via DALI or 0–10V interfaces, ensuring the required light output is delivered only when needed, improving visual comfort and reducing energy consumption.



Photocell Advance

This advanced daylight sensing function accurately measures ambient light levels while minimising interference from the luminaire itself, ensuring reliable dusk-to-dawn control and daylight priority over motion detection. It automatically switches lighting on and off and dynamically adjusts brightness in response to available natural light, delivering visual comfort and improved energy efficiency.



Tri-level Dimming

Hytronik's tri-level dimming products offer 3 levels of light control: 100% dimmed light off, with settable time periods between each phase, as well dimming level and daylight threshold.

*All Hytronik's tri-level dimming products can also be configured as bi-level control (by setting the stand-by period to infinity), so that the light always remains in the dimmed mode in absence for areas where there are safety, security or enhanced comfort requirements.

Check out for further explanation of features

<https://hytronik.com/solutions/lighting-control-features>