

HCD438/BT

Control body | Bluetooth & DALI | Attachable sensor heads | US Certified

HYTRONIK[®]
SENSORS & LIGHTING CONTROL



Benefits

Adaptable: Small control unit with strain relief

Versatile: Suitable for various sensor head options via Plug'n'Play

Easy configuration: Wireless Bluetooth 5.0 SIG-Mesh

Applications

Master luminaire with sensor

School/Classrooms

Office/Commercial Lighting

Check Out the Complete System Solution on the Website:
<https://www.hytronik.com/product/HCD438-BT>

Product Description

HCD438/BT is a Bluetooth DALI control base with 30mA DALI power supply built in. It work with a wide range of microwave and PIR sensor heads. It is ideal for plastic luminaires as compared to metal luminaires because Bluetooth signal can transmit through plastic. It is suitable for any typical indoor applications such as office, classroom, car park, warehouse and other commercial/industrial areas. With Bluetooth wireless mesh networking, it makes communication much easier without any hardwiring.

Functions and Features

See additional details at the end of datasheet



Built-in DALI PSU



D4i Data Access
Via App



DT6/DT8 Lighting
Control



Push-Button
Input

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Specifications

Main Capabilities

Dimming (Output) Interface	DALI/DALI-2
Connector Type	Standard 2 cables

Electrical Data

Bluetooth frequency	2.4 GHz - 2.483 GHz
Bluetooth range	10-30m
Bluetooth transmit power	4 dBm
Bluetooth system	Koolmesh
Operating voltage range	120-277 VAC
Stand-by power (Psb)	<1W
Warming-up	20 s
DALI bus maximum rated current (I _{n max})	30 mA

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Specifications

Technical	
Product weight	50.0 g
Product height	21.0 mm
Product length	120.0 mm
Product width	30.0 mm
Mounting hole	4.5 mm
Ambient temperature	-20 ~ +50 °C
Storage temperature	-40 ~ +70 °C
Humidity max	10 ~ 90%
Case Temp.max	75.0 °C
IP Rate	IP20

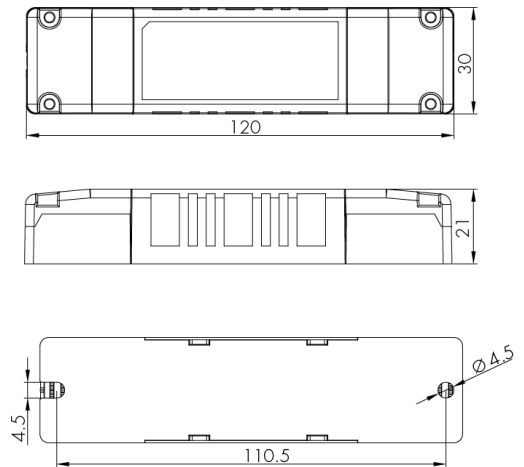
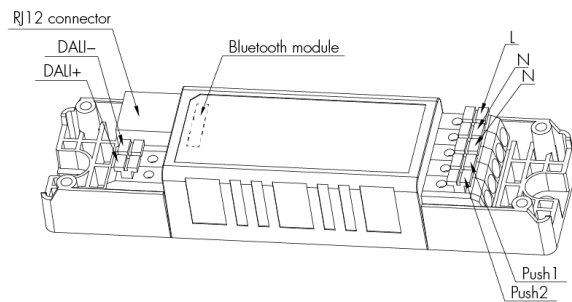
Standard	
LVD	CSA-C22.2 No. 284, UL773A

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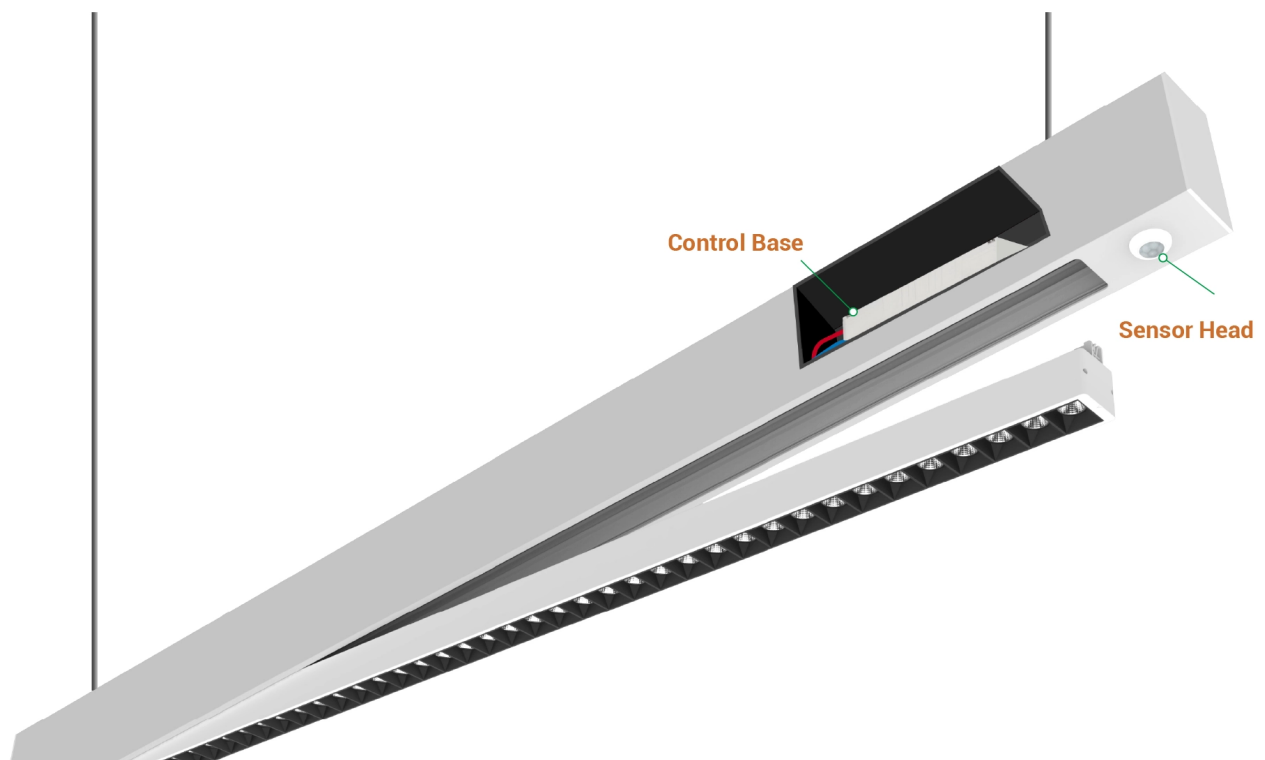
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Technical Drawing



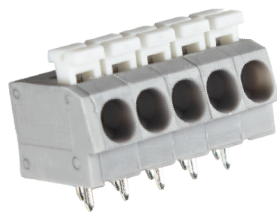
Application Example



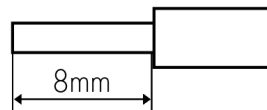
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Wire Preparation

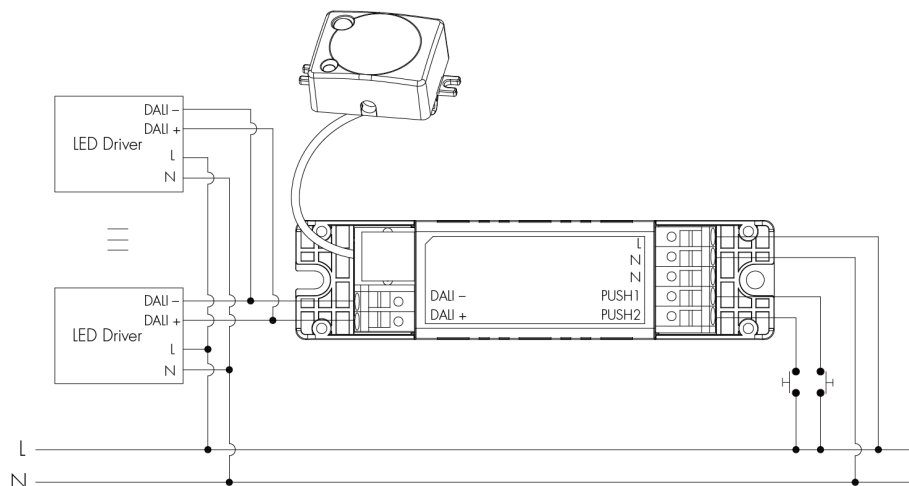


0.75~1.5mm²



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



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Commissioning Instructions and Precautions

A. Installation Preparations

1. This product should be installed by a qualified electrician.
2. To ensure better detection, keep the sensor lens part beyond the surface of the light fixture.
3. We recommend the mounting distance between sensor to sensor should be more than 2m to prevent sensors from false-triggering.

B. Sensor head Precautions

1. The control base can be used only after it is connected to the sensor head via RJ12 connection.
2. The push function and commission type are determined by the included sensor head.

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

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

Dimming Interface Operation Notes

The provided Switch-Dim interface allows for a simple dimming method using commercially available non-latching (momentary) wall switches. Detailed Push switch configurations can be set on Koolmesh app.

Note: Single press, double press, and press-and-hold actions can each be independently assigned to one function via the app. Once configured, each action triggers only its assigned function. Multiple functions cannot be activated by a single press action.

Switch function	Action	Descriptions
Simulate sensor	/	Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor
Normal PUSH (Retractive Switch)	Single press (> 0.1s) Double press Press and hold (>= 1s)	• ON/OFF • OFF only • Recall this scene • Sensor take over • Not in use

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Options

Accessories



Reinforced Bluetooth Antenna | Easy installation | Black color

HA01/B

www.hytronik.com/product/HA01-B



Reinforced Bluetooth Antenna | Easy installation | White color

HA01/W

www.hytronik.com/product/HA01-W

Compatible products (for full functionality)



HIR05

PIR Lowbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR05



HIR05/AA

PIR Lowbay | Daylight Harvest | RJ12 connector to control body

www.hytronik.com/product/HIR05-AA



HIR05/FM

PIR Lowbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR05-FM



HIR07

PIR Lowbay | Photocell Advance | RJ12 connector to control unit

www.hytronik.com/product/HIR07



HIR11/AA

PIR Highbay | Adjustable Angle | RJ12 connector to control body

www.hytronik.com/product/HIR11-AA



HIR11/C

PIR Highbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR11-C



HIR11/F

PIR Highbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR11-F



HIR11/S

PIR Highbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR11-S



HIR12

PIR Highbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/HIR12



HIR63

PIR Lowbay | Circadian Rhythm | RJ12 connector | Bluetooth in control body

www.hytronik.com/product/HIR63



HIR63/R

PIR Midbay Sensor Head | RJ12 connector | Conduit Screws

www.hytronik.com/product/HIR63-R



SAM20

HF Lowbay | Daylight Harvest | RJ12 connector to control body

www.hytronik.com/product/SAM20



SAM21

HF Lowbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/SAM21



SAM22

HF Lowbay | Circadian Rhythm | RJ12 connector to control body

www.hytronik.com/product/SAM22

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Options

Compatible products (for full functionality)



SAM22/AA

HF Lowbay | Ciradian Rhythm | RJ12 connector to control body

www.hytronik.com/product/SAM22-AA



SAM23

HF Highbay | Photocell Advance | RJ12 connector to control body

www.hytronik.com/product/SAM23

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Koolmesh - Operating guide

Bluetooth 5.0 SIG Mesh



Smartphone(ios)



Smartphone (Android)



iPad



Web

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

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

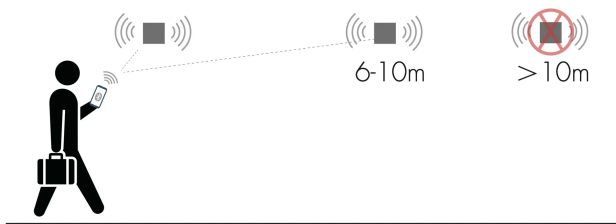
- | | |
|---|---|
|  Compatible with EnOcean kinetic switches |  Motion sensor range test |
|  Detailed motion sensor settings |  Motion sensor trigger diagnosis |
|  Dusk/Dawn photocell (Twilight function) |  Push switch configuration |
|  Dynamic daylight harvest auto-configuration | |

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Smart Phone to Device Range

1. The smart device with the installed App typically has a range of 10m, which may vary between devices.
2. During the commissioning process, the installer must be within range of the devices while searching for them to add to the network.
3. Once the devices are added to the network via the App, they will begin communicating within the wireless mesh.
4. After the network is complete, all devices can be accessed from the smart device within a 20m range of a single point.



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

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Functions and Features



Built-in DALI PSU

Built-in DALI PSU means the DALI bus power supply is integrated into the product, eliminating the need for an external DALI power unit.

This reduces wiring complexity, saves installation space, and simplifies commissioning, making the system more compact and efficient.



D4i Data Access Via App

When the system is used together with the Koolmesh app, it can access D4i driver data such as luminaire information, energy consumption, and diagnostic data via the Bluetooth network. Access to D4i data is enabled by the software platform and depends on the Bluetooth-to-DALI interface of the connected device, not on the standalone hardware functionality of the sensor or module.



DT6 / DT8 Lighting Control

Supports DT6 (single-channel dimming) and/or DT8 (tunable white / colour) lighting control via DALI, enabling brightness and colour temperature adjustment based on control logic such as occupancy or daylight.



Push Button Input

This product integrates push-button (momentary switch) inputs, allowing external potential-free switches to trigger basic lighting control functions. Each input can be configured for actions such as on/off switching, dimming or scene recall, providing flexible manual control and user interaction within the lighting system. The push-button inputs operate independently of the sensor's automatic functions, enabling seamless coexistence of manual and sensor-based lighting control.

Check out for further explanation of features

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