

HBTD15

Bluetooth DALI Dimmer | Zhaga Book 18 | Wireless Lighting Control

HYTRONIK[®]
POWERED BY **Koolmesh**[®]



Benefits

Accurate: Dual photocells provide more stable daylight control

Reliable: RTC backup ensures stable timing during power loss

Wireless: External antenna enabling extended Bluetooth range

Applications

Street Lighting

Warehouses & Sport arenas

Parkings & Industrial

Check Out the Complete System Solution on the Website:

<https://www.hytronik.com/product/HBTD15>



RED RoHS

UK
CA

Product Description

HBTD15 is a Zhaga Book 18 Bluetooth-to-DALI broadcast dimmer for DALI-2 and D4i systems, supporting DT6 dimming, DT8 tunable white and daylight-based control. Photocell Advance enables open-loop daylight regulation and reliable dusk-to-dawn operation. Powered by a 12–36 VDC auxiliary supply, it features IP65 protection, an external Bluetooth antenna and built-in RTC for outdoor and industrial applications. All parameters can be configured via the Koolmesh App.

Functions and Features

See additional details at the end of datasheet



Bluetooth Range
Extender



D4i Driver
Compatibility



DALI-2 Certified



DALI Broadcast
Output



DT6/DT8 Lighting
Control

IP65

IP65 Protection



Koolmesh - See
bluetooth control
below



Live Energy &
Diagnostic Data
Part 252 / 253



Luminaire Asset
Data Part 251



Photocell
Advance



Power-Loss Time
keeping (RTC)



Tunable White
Control



Zhaga Book 18
Standard

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Specifications

Main Capabilities

Dimming (Output) Interface	DALI/DALI-2
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Electrical Data

Bluetooth Platform	Nordic nRF52832
Bluetooth frequency	2.4 GHz - 2.483 GHz
Bluetooth range (Phone to Device)	10-30m
Bluetooth range (Device to Device)	100m
Bluetooth transmit power	4 dBm
Bluetooth system	Koolmesh
Input Voltage	9.5-22.5V
DALI Bus Current Consumption	2.0 mA

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Specifications

Technical	
Product weight	42.0 g
Product height	90.0 mm
Product length	50.8 mm
Product width	50.8 mm
Ambient temperature	-20 ~ +50 °C
Storage temperature	-35 ~ +55 °C
Humidity max	20 ~ 90%
IP Rate	IP65

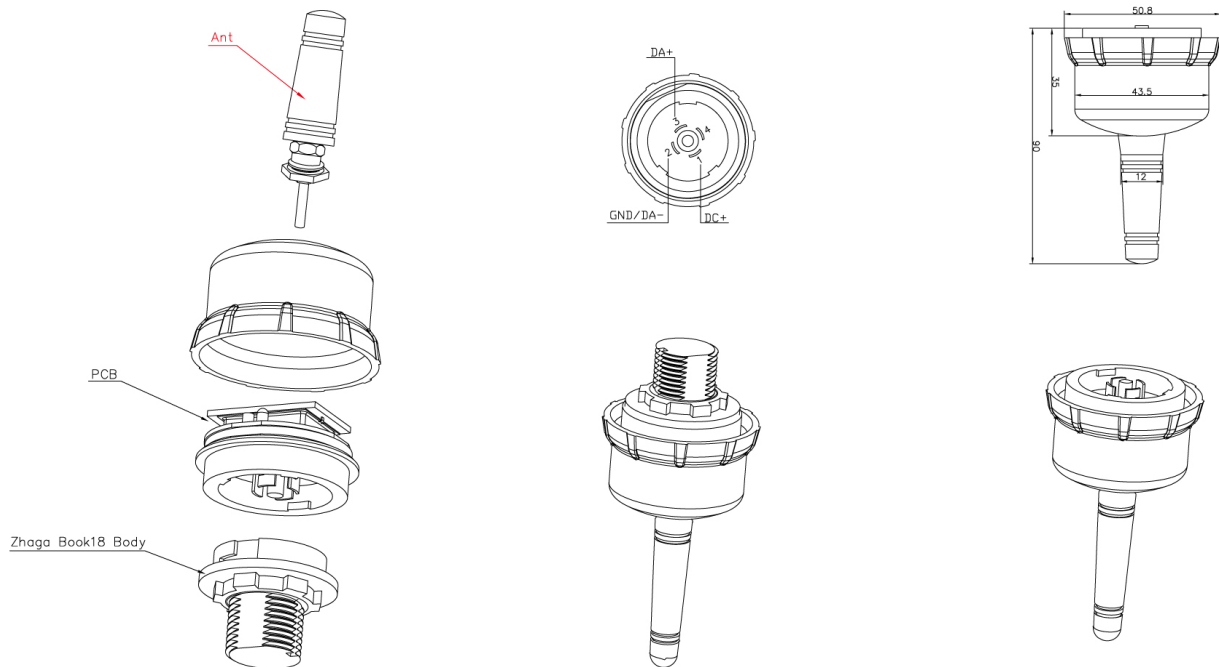
Standard	
EMC	EN 55015, EN 61547
LVD	EN 61347-1, EN 61347-2-11, EN 62493
RED	EN 300328, EN 301489-1/-17, EN 50663
DALI-2 Standard	IEC62386-101, 103, 351

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Technical Drawing



The Bluetooth antenna is located at the marked end of the device.

- Keep the antenna area clear of metal or conductive materials.
- Maintain at least 10 mm clearance around the antenna whenever possible for optimal wireless performance.
- Avoid installing the antenna section inside a metal enclosure or behind large metal structures.

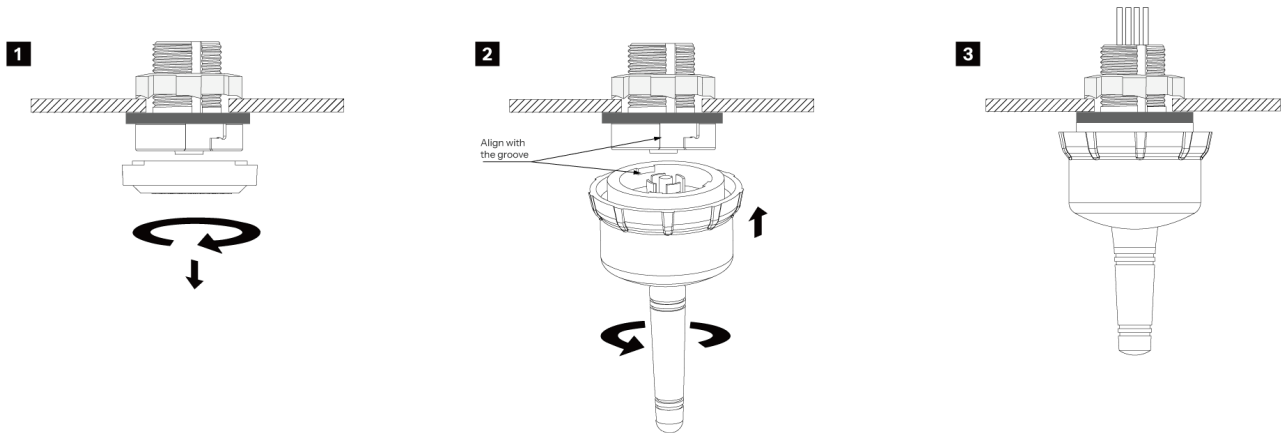
Application Example



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Installation Process



Detailed Installation Instructions

1. Remove the receptacle cap

Unscrew and remove the protective cap from the receptacle before installation.

2. Install the sensor

Align the large groove on the receptacle with the corresponding large protrusion on the sensor. Push the sensor upward firmly until fully seated, then rotate counterclockwise until a clear click is heard. Ensure the sensor cannot be pulled out to confirm it is securely locked.

3. Installation complete

Note:

- Any luminaire that complies with the Zhaga Book 18 standard allows plug-and-play connection by simply mating the pins with the base.
- Socket not included, it must be supplied by the customer or purchased separately.

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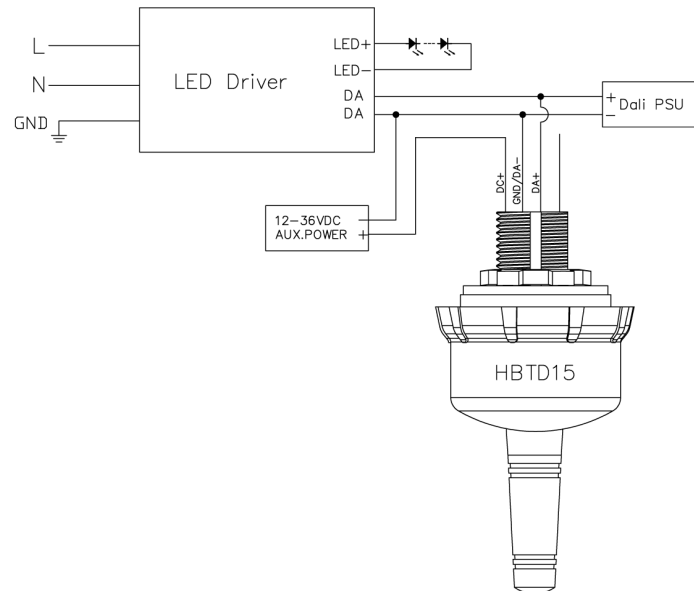
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⚠ Wiring Guidelines

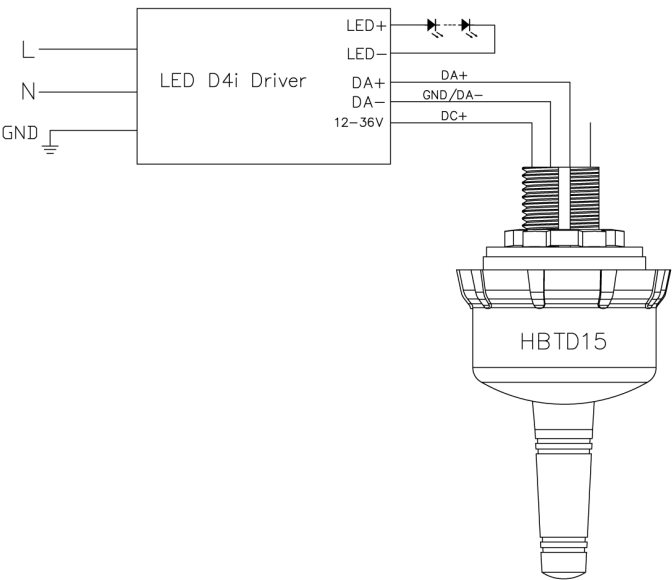
1. Installation by a qualified electrician only and in accordance with local electrical regulations.
2. Disconnect mains power before installation, wiring, maintenance or replacement.
3. Failure to follow the wiring diagram may result in product damage and malfunction.
4. Do not connect mains voltage (L/N) to the DALI terminals.
5. For polarity-marked DALI terminals (DA+/DA-), observe correct DALI polarity.
6. For non-polarity-marked DALI terminals (DA/DA), DALI wiring is polarity-free.
7. Terminal block 4 is left unpopulated by default. No wiring required.

Wiring Diagram

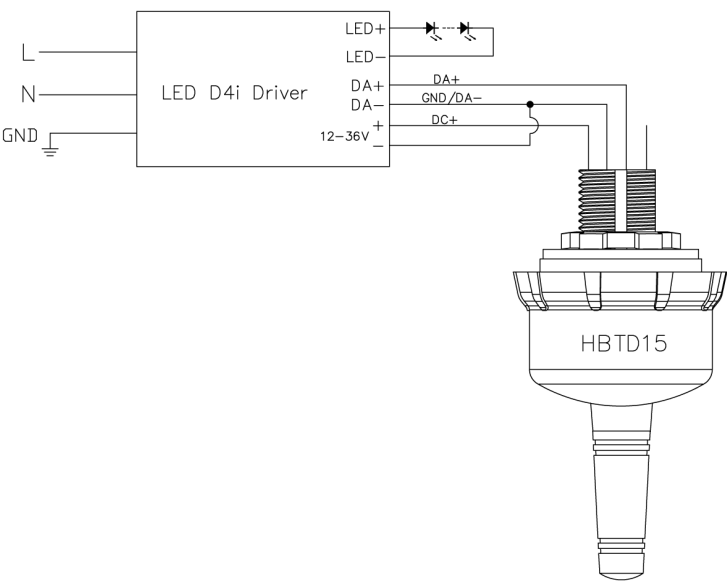
Standard Driver with External AUX & PSU



D4i Driver with Common Negative



D4i Driver with Isolated Negative



Commissioning Instructions and Precautions

A. Installation Notes

1. To ensure optimal performance and long-term stability, we recommend installing the product in a downward-facing orientation within the fixture. This setup minimizes direct exposure to sunlight and helps maintain ideal operating conditions for reliable and lasting use.
2. When connected to a compatible driver without D4i data support, the product's normal functions remain available, but D4i data such as energy, diagnostics and driver information cannot be read. Access to D4i data requires a D4i-certified driver and correct system configuration.

B. Bluetooth Range Notes

1. Device-to-device communication can extend up to 100m under indoor test conditions. In open outdoor environments, the transmission distance may be reduced due to fewer surrounding structures and signal reflections. Actual performance may vary depending on the installation environment.

C. RTC Notes

1. The RTC (Real-Time Clock) retains timekeeping for up to 10 days during power loss. For optimal performance, it is recommended to install the device facing down and in an environment around 25°C. Prolonged exposure to direct outdoor sunlight may reduce RTC time retention to 2 days.

D. DALI Bus Current Notes

1. Typical DALI bus current consumption per driver is approximately 2 mA. Before installation, calculate the total bus current consumption of all devices connected to the same DALI bus. Ensure that the total current consumption does not exceed the guaranteed supply current of the DALI bus power supply, and allow sufficient system margin.

E. DALI-2 Compliance

1. This product has been tested in accordance with IEC 62386 and complies with the relevant DALI-2 application parts. DALI-2 testing was performed using the official DALI test sequence software (version 2.5.0.0), covering the applicable IEC 62386 parts (e.g. Part 101, Part 103, Part 351). DALI-2 certification verifies compliance within the defined test scope.

However, certification does not eliminate the possibility of system-level compatibility issues arising from differences in device implementation or system design among manufacturers. Therefore, functional verification and on-site testing are required as part of the final system commissioning to ensure proper operation and compliance with project requirements.

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

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

Switch Input Function Configuration

The Virtual Push interface provides a software-based dimming control method without the need for a physical wall switch. Push functions are simulated via the Koolmesh app, where detailed push behaviors and parameters can be flexibly configured. For detailed information on connection, configuration and operation with Bluetooth sensors, dimmers and other compatible devices, please refer to the Bluetooth Device & Push Switch Application Guide.

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. A single action cannot activate multiple functions.

Switch function	Action	Description
Virtual-Normal PUSH (Retractive Switch)	Single press (>0.1s) Double press Press and hold (>=1s)	• ON/OFF • ON only • OFF only • Recall this scene • Sensor take over • Not in use

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Options

Compatible products (for full functionality)



HA18SKT

Receptacle | Zhaga Book 18 Standard | Black Color

www.hytronik.com/product/HA18SKT

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

- | | |
|--|---|
|  Compatible with EnOcean kinetic switches |  Push switch configuration |
|  Dusk/Dawn photocell (twilight function) | |

Bluetooth Mesh Network Installation & Device Access Range

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

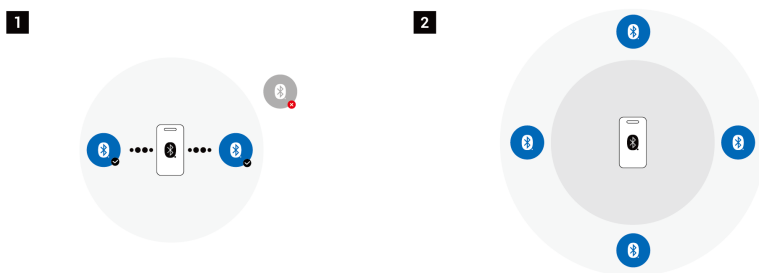
During commissioning, the installer must remain within Bluetooth range of the target device when adding it via the App.

2. Device to Device Range (Mesh Network Communication)

Once commissioned, devices communicate through the wireless mesh network. Users can access and control all devices within the network when connected to any active mesh node.

Note:

- Bluetooth range varies by product. Refer to the Specification section for details.
- Actual communication range may vary depending on product type, obstacles, environmental conditions, and luminaire construction.



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



Bluetooth Range Extender

The product supports the use of an external Bluetooth antenna to extend wireless communication range and improve signal stability. This option enhances connectivity in installations where distance, obstacles or enclosure materials may reduce Bluetooth performance, providing greater flexibility in system design and device placement.



D4i Driver Compatibility

Designed to operate with D4i-certified drivers within D4i luminaires, supporting standard DT6 / DT8 control behaviour in D4i systems.



DALI-2 Certified

The product is DALI-2 certified, ensuring compatibility with DALI-2 control devices and compliance with relevant international lighting control standards. Certified product details can be verified via the DALI Alliance product database.



DALI Broadcast Output

This product supports DALI broadcast output, allowing control commands to be sent simultaneously to all devices on the DALI bus without individual addressing.

This enables simple group control, synchronized operation, and fast commissioning within a DALI lighting system.



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.



IP65 Protection

This product features an IP65-rated enclosure, providing complete protection against dust ingress and low-pressure water jets to ensure reliable operation in demanding indoor and outdoor environments. The robust environmental sealing supports long-term stability and consistent performance in applications such as warehouses, parking areas and industrial facilities.



Live Energy & Diagnostic Data Part 252 / 253

Koolmesh can wirelessly read live operating data from D4i drivers, or compatible DALI drivers with Part 252 / 253 implemented.

Readable data may include real-time power (W), energy consumption (kWh), voltage (V), current (mA), power factor, operating hours (burn hours), driver temperature, start counters and LED failure flags (open/short circuit).

For standard DALI-2 DT6/DT8 drivers, Koolmesh can read the data points made available by the driver, with the actual retrievable data depending on the driver's supported functions.



Luminaire Asset Data Part 251

Koolmesh can read Part 251 luminaire asset data where available, such as GTIN, serial number, manufacturing date, luminous flux, colour temperature and manufacturer ID. The information must be pre-written into Memory Bank 1 by the luminaire OEM or driver manufacturer. If left unconfigured, related fields may be blank or unavailable.



Photocell Advance

This advanced daylight-sensing function accurately measures ambient light while minimising interference from the luminaire itself and distinguishing natural light from artificial light. It automatically switches lighting on or off and adjusts brightness according to the available daylight, providing reliable dusk-to-dawn control, improved visual comfort and greater energy efficiency.

Functions and Features



Power-Loss Time keeping (RTC)

The Real-Time Clock (RTC) is an essential component in Hytronik BLE devices, particularly those used in circadian-rhythm lighting systems. It preserves accurate time and date information during power interruptions, ensuring schedules, astro timer, circadian rhythm profiles, time-triggered scenes and other time-based functions continue to operate correctly and automatically recover when power is restored. This helps maintain uninterrupted operation and overall system reliability. RTC retention duration varies by product and installation conditions; prolonged exposure to high ambient temperatures or direct sunlight may reduce the available backup time.



Tunable White Control

Tunable White Control allows smooth adjustment of light colour temperature to create comfortable and adaptable lighting environments. By enabling dynamic white light changes throughout the day, it supports visual comfort and user wellbeing while helping improve energy efficiency in artificially lit spaces. With a simple and decentralised control approach, it provides a flexible solution for applications such as offices, schools, and healthcare environments where adjustable white light is required.



Zhaga Book 18 Standard

This product complies with the Zhaga Book 18 standard, providing a standardised mechanical, electrical and digital interface for indoor and outdoor luminaires, including high-bay and exterior applications. It enables plug-and-play interchangeability of sensor and connectivity modules, ensuring interoperability, future-ready upgrades and reliable operation in demanding installation environments.

Check out for further explanation of features

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