

HIR66

PIR Lowbay | Bluetooth/DALI-2 | Mini Design

HYTRONIK®
SENSORS & LIGHTING CONTROL



Benefits

Mini-sized: Perfect for luminaire integration

3 in 1: Daylight harvest + Tri-level + Tunable white control / HCL

Wireless: Enabling fast Bluetooth Mesh commissioning

Applications

Master luminaire with sensor

Classrooms

Offices

Check Out the Complete System Solution on the Website:
<https://www.hytronik.com/product/HIR66>



Product Description

HIR66 is a compact, luminaire-integrated PIR motion and daylight sensor that brings smart Bluetooth Mesh commissioning and control to DALI / DALI-2 luminaires via the Koolmesh system. Designed for discreet integration in low-bay luminaires up to 3 m, it supports modern DALI-2 drivers including DT6, DT8 and D4i. The sensor enables presence-based control, daylight harvesting and tunable white including Human Centric Lighting (HCL), with Photocell Advance ensuring stable and accurate daylight regulation.

Functions and Features

See additional details at the end of datasheet



D4i Data Access
Via App



DALI-2 Certified



DT6/DT8 Lighting
Control



Daylight Harvest



Human Centric
Lighting (HCL)



Koolmesh - See
bluetooth control
below



Lux Off



Magnetic Reset
switch



Photocell
Advance



Semi-Automatic
Mode (Absence
Detection)



Tri-level Dimming



Tunable White
Control

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Specifications

Main Capabilities

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

Detection angle	360°
Max. Detection range (Diameter)	8.0 m
Maximum Mounting Height	3.0 m
Detection area	50 m ²

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	9.5-22.5 VDC
Stand-by power (Psb)	<0.5W
Warming-up	20 s

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Specifications

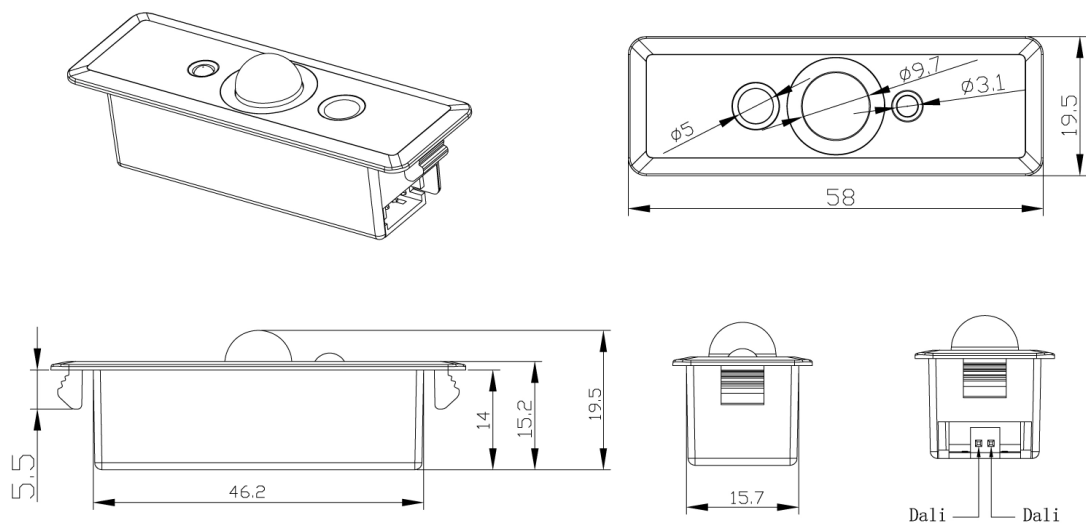
Technical	
Product weight	10.0 g
Product height	19.5 mm
Product length	58.0 mm
Product width	19.5 mm
Cable length	3.5 cm
Ambient temperature	-20 ~ +50 °C
Storage temperature	-25 ~ +70 °C
Humidity max	10 ~ 90%
IP Rate	IP20

Standard	
EMC	EN 55015, EN 61547
LVD	EN 61347-1/-2-11
RED	EN 300328, EN 301489-1/-17, EN 50663

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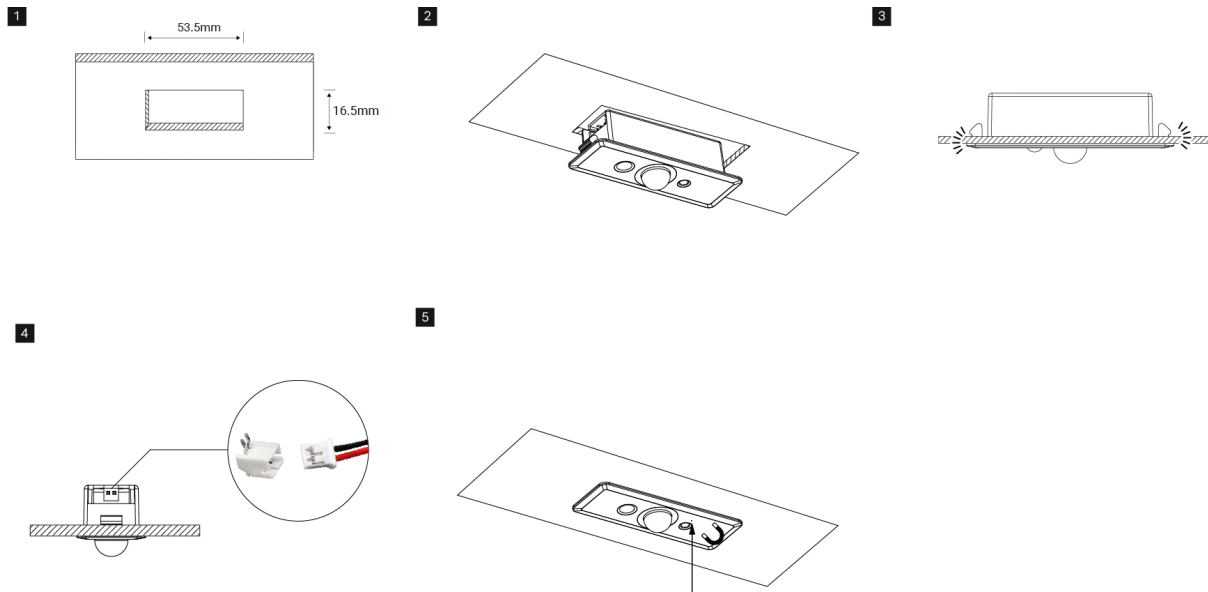
Technical Drawing



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Installation Process



Detailed Installation Instructions

Installation Instructions

1. Prepare the Fixture: Drill an opening on the lamp fixture (Length: 53.6 mm, Width: 16.5 mm).
2. Install the Sensor: Insert the HIR66 into the opening.
3. Press firmly until you hear a clear “click” sound, indicating it is securely in place.
4. Connect the Wiring: Plug the wire connector into the HIR66.

Reset Instructions

If you need to restore the sensor to its default settings:

1. Use a magnet with a magnetic field strength greater than 40Gs.
2. Align the magnet with the sensor's reset area.
3. Keep the distance within 10 mm.
4. Hold for 5 seconds until the reset is complete.

For more details about the Magnetic Reset Function, please refer to the latest pages.

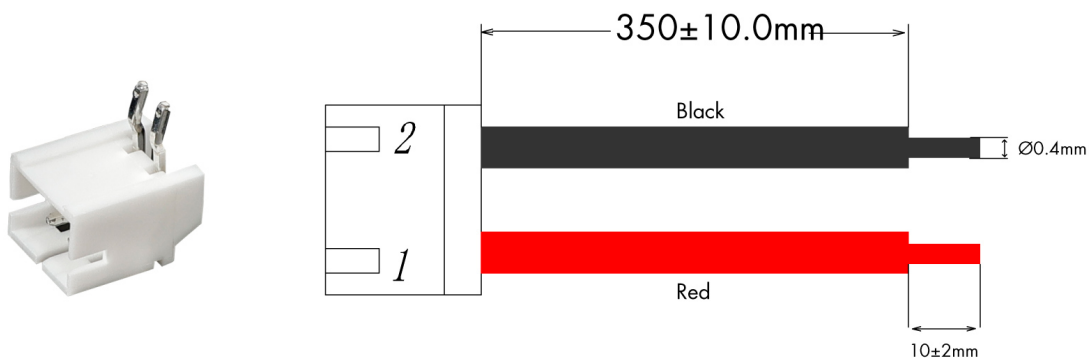
Default Settings:

Mode: Auto; Detection range: 100%; Hold time: 20 minutes; Dimming level: 100%; Standby time: 5 seconds; Standby dimming level: 10%

HIR66

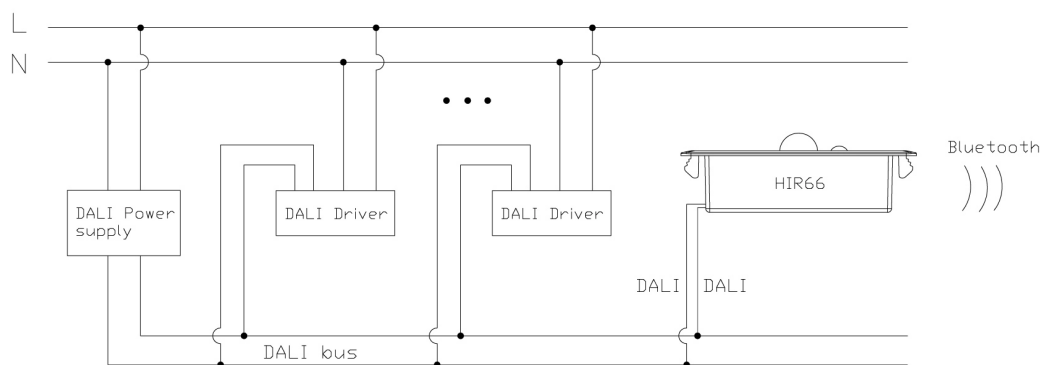
PIR Lowbay | Bluetooth/DALI-2 | Mini Design

Wire Preparation



2.0mm * 2p plug, UL1007, 80°C, 26AWG, wire length: 350mm

Wiring Diagram



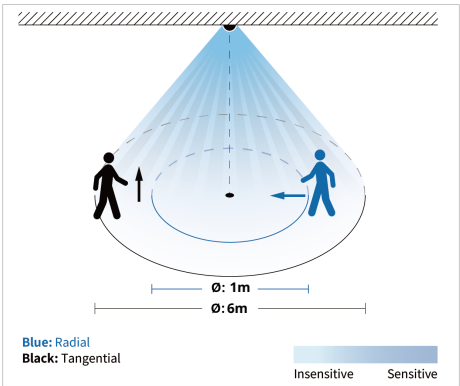
Detection Range

Single Person Walk (Ceiling mount)

The data below is tested under following conditions:

- Single person walking
- 1.7 m (height)
- Sensor not connected to any driver that may have soft-on period
- Testing temperature Ta = 20°C The testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.

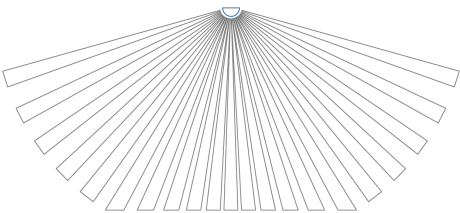
Detection example 2.5m mounting height:



Tangential movement	
H[m]	2.5
Ø[m]	6

Radial movement	
H[m]	2.5
Ø[m]	1

Detection schematic diagram



Commissioning Instructions and Precautions

1. This product should be installed by a qualified electrician.
2. To ensure better Bluetooth transmission, install the sensor head outside the surface of the light fixture.
3. Avoid direct light exposure of the sensor head by the light fixture to ensure the accuracy of the daylight sensor.
4. 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 2.6.0.0), covering the applicable IEC 62386 parts (e.g. Part 101, Part 103, Part 303, Part 304). 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>

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

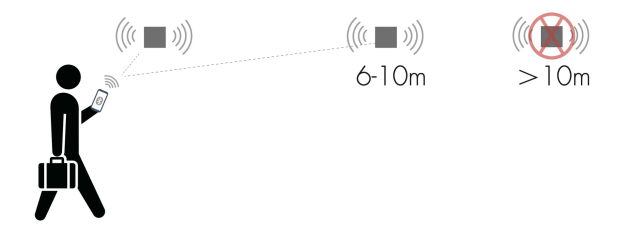
- | | |
|--|---|
|  Alert for excess lux / temperature / humidity via multi-meter HBLM01 |  Koolmesh Pro iPad for on-site configuration |
|  Astro timer (sunrise and sunset) |  Network sharing via QR code or keycode |
|  Bulk commissioning (copy and paste settings) |  Offline commissioning |
|  Compatible 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 |
|  Displays Luminaire Status & Energy Consumption Data |  Push switch configuration |
|  Dynamic daylight harvest auto-configuration | |

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



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



Switch (EnOcean) - HBES01/B

Wireless Bluetooth switch | 2 push or 4 push | Black Color
www.hytronik.com/product/Switch--EnOcean----HBES01-B



Switch (EnOcean) - HBES01/W

Wireless Bluetooth switch | 2 push or 4 push | White Color
www.hytronik.com/product/Switch--EnOcean----HBES01-W

Functions and Features



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.



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.



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.



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.



Human Centric Lighting (HCL)

Human Centric Lighting (HCL) helps reduce energy consumption while supporting human wellbeing and productivity in artificially lit environments. Through Hytronik's decentralised tunable white control with integrated time-based operation, HCL enables cost-effective circadian rhythm lighting without the complexity of centralised lighting systems. Designed as a simple and flexible solution, it is ideal for offices, schools, and healthcare applications requiring dynamic white light adjustment throughout the day.



Lux Off

Lux Off disables lighting output when the measured ambient light level exceeds the preset lux threshold. In this condition, lighting remains off regardless of occupancy detection, ensuring artificial lighting is not activated when sufficient daylight is available, thereby reducing unnecessary energy consumption.



Magnetic Reset Switch

The product features a magnetic reset function that restores factory default settings by applying a magnet (40 Gs) to the designated reset area within 10 mm for approximately 5 seconds. The omnipolar magnetic detection supports both north and south poles, enabling quick and convenient on-site reset and reconfiguration without physical access to switches or buttons.



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.



Semi-Automatic Mode (Absence Detection)

In semi-automatic mode, the sensor operates as an absence detector, where lighting is switched on manually via a push switch and remains on while occupancy is detected. The lighting automatically switches off after a defined period of vacancy, providing controlled operation and improved energy efficiency.

Functions and Features



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.



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.

Check out for further explanation of features

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