

HIR15V/BLE

PIR Highbay | Bluetooth to 0-10V | Zhaga Book 18 Standard

HYTRONIK[®]
SENSORS & LIGHTING CONTROL



Benefits

Standardized: Zhaga Book 18 interface with IP65 for reliable integration

Adjustable: Shielding cap for flexible detection area control

Wireless: App based commissioning for fast setup

Applications

For highbay luminaire up to 15m height

Warehouse/ Logistic

Outdoor/Street lights

Check Out the Complete System Solution on the Website:

<https://www.hytronik.com/product/HIR15V-BLE>



RED



Product Description

HIR15V/BLE is a PIR motion and daylight sensor ready for Zhaga Book 18 receptacles, featuring 0–10V output and Bluetooth Mesh connectivity for luminaire-level lighting control. Designed for high-bay and area lighting applications with mounting heights up to 15 m, it offers IP65 protection for reliable operation in demanding installations. The sensor supports wireless commissioning via the Koolmesh system and provides accurate daylight-dependent regulation using Photocell Advance. Optional shielding accessories allow flexible adjustment of the detection area to suit different installation requirements.

Functions and Features

See additional details at the end of datasheet



0-10V Dimming



Daylight Harvest



Human Centric
Lighting (HCL)

IP65

IP65 Protection



Koolmesh - See
bluetooth control
below



Photocell
Advance



Tri-level Dimming



Zhaga Book 18
Standard

HIR15V/BLE

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Specifications

Main Capabilities

Dimming (Output) Interface	0-10V
Connector Type	Zhaga book 18

Sensor Data

Detection angle	360°
Lux range	0~1000 lux
Max. Detection range (Diameter)	24.0 m
Maximum Mounting Height	15.0 m
Detection area	452 m ²
Sensitivity	10% / 30% / 50% / 75% / 100%
Detection Methods	Passive Infrared (PIR)

Electrical Data

Bluetooth Platform	Nordic nRF52832
Bluetooth frequency	2.4 GHz
Bluetooth range (Phone to Device)	10-30m
Bluetooth transmit power	4 dBm
Bluetooth system	Koolmesh
Operating voltage range	12-36 VDC
Input current range	Max.20mA
Output Voltage	0~10 V
Sink Current	0-10V: Max.100mA
Source Current	0-10V: Max. 2mA
Stand-by power (Psb)	<0.5W

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Specifications

Technical	
Product weight	44.7 g
Product height	43.8 mm
Product length	50.4 mm
Product width	50.4 mm
Ambient temperature	-20 ~ +50 °C
Storage temperature	-25 ~ +70 °C
Humidity max	10 ~ 90%
IP Rate	IP65

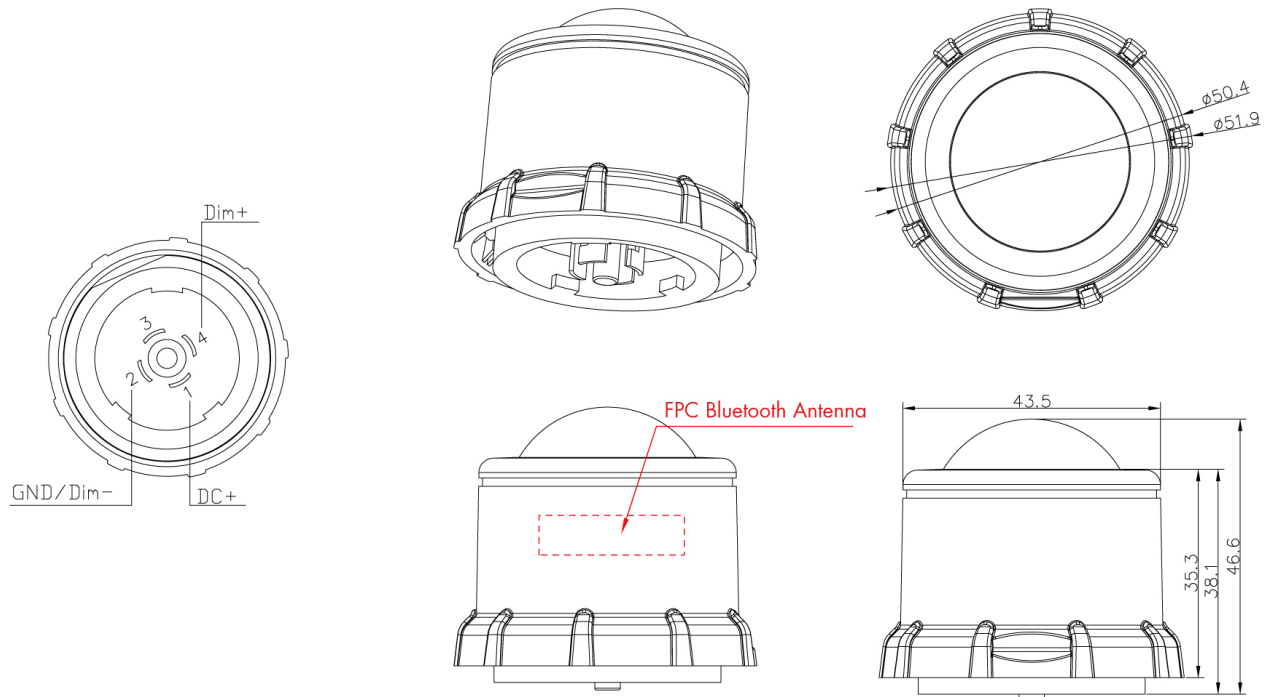
Standard	
EMC	EN 61547
LVD	EN 61347-1, EN 61347-2-11
RED	EN 300328, EN 300440, EN301489-1, EN 301489-3-17, EN 50663

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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.
- This product contains an internal FPC antenna. The antenna is attached to the inside of the housing. When opening the housing, separate the housing halves carefully to avoid pulling the antenna or damaging the antenna to PCB connection.

Application Example

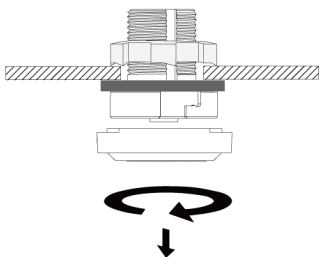


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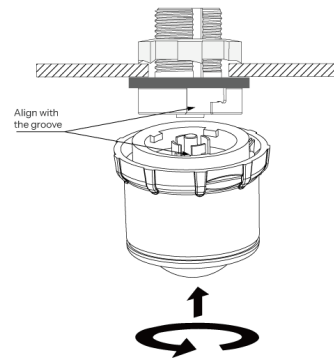
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Installation Process

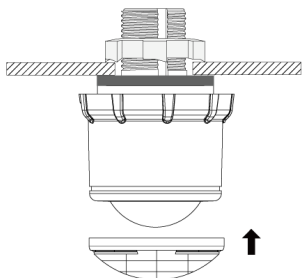
1



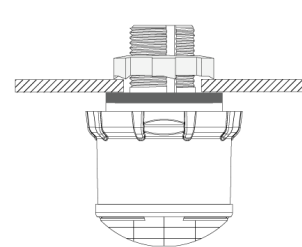
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3



4



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. Install the HAS15 cover

Cut the cover to the required shape before installation. Refer to the last page for cutting examples.

Align the HAS15 cover with the HIR15 series sensor. Press down evenly until a clear sound is heard, indicating the cover is securely fitted.

*If you want to remove the cover, locate the release notch on the edge of the cover. Lift gently from the notch to detach the cover.

4. 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.

HIR15V/BLE

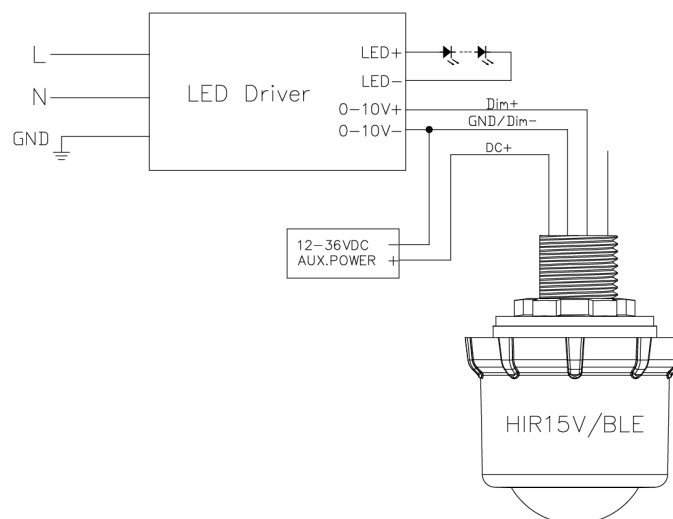
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Wiring Guidelines

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.

Wiring Diagram

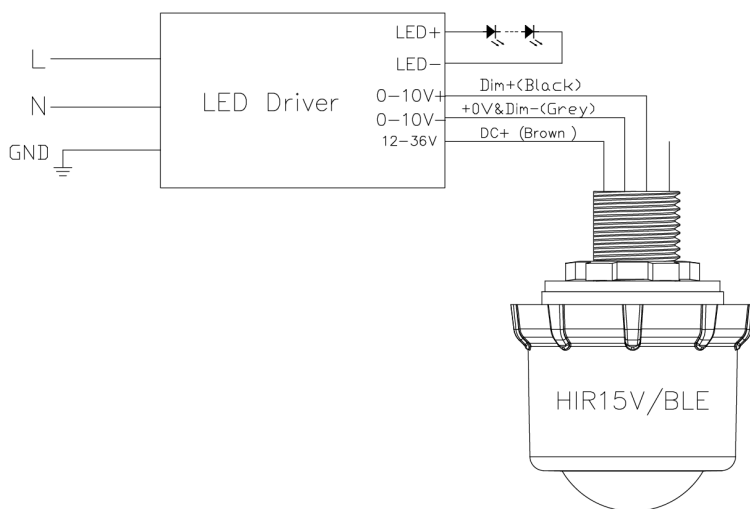
Standard Driver with External AUX Power



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Standard Driver with Common Negative

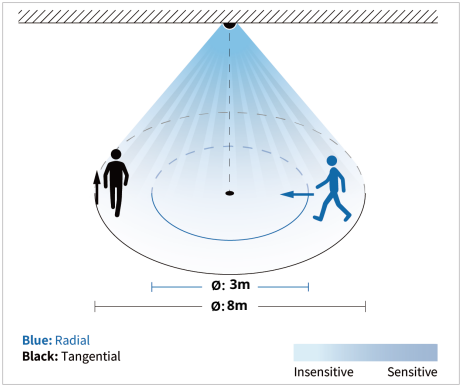


Detection Range

Single Person Walk (Ceiling mount)

- The data 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 testing is conducted in an open and spacious indoor field, without noticeable obstacles or influences that may affect PIR performances.
- The sensor detection area shown in this table is based on an open space. In environments with hard surfaces such as metal racking or glass corridors, the detection range may be extended by up to 30% due to reections or signal penetration.

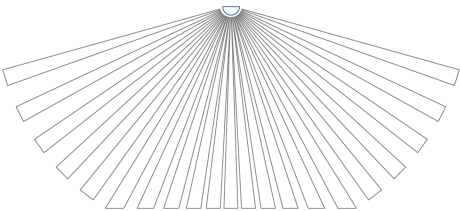
Detection example 3m mounting height:



Tangential Movement				
H[m]	3	5	8	12
Ø[m]	8	10	14	20

Radial Movement				
H[m]	3	5	8	12
Ø[m]	3	3	4	4

Detection schematic diagram

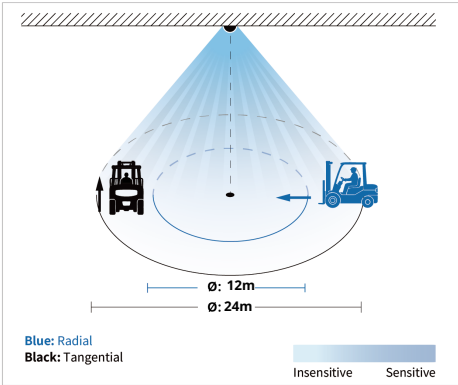


Detection Range

Forklift (Ceiling mount)

- The data is tested under following conditions:
- Forklift driving at a speed of 5km/h
 - 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 15m mounting height:



Tangential Movement

H[m]	10	11	12	13	14	15
Ø[m]	22	24	24	24	24	24

Radial Movement

H[m]	10	11	12	13	14	15
Ø[m]	16	16	16	15	13	12

Commissioning Instructions and Precautions

A. Wiring Diagram Notes

1. Terminal block 3 is left unpopulated by default. No wiring required.

B. PIR Application Note

1. PIR sensors operate based on infrared detection and are sensitive to ambient temperature and surrounding heat sources. In outdoor or high-temperature environments (above 50°C), elevated ambient temperature and thermal interference may reduce detection sensitivity and accuracy. For applications exposed to strong sunlight or significant heat sources, it is recommended to evaluate the installation environment carefully and consider selecting a more suitable sensing technology, such as microwave sensors, to ensure stable and reliable operation.

C. Factory settings Notes

1. Sensor setting: Control object: Zone, Sensor status: Sensor ON, Detection range: 100%, Hold time: 20min, Hold time scene: ALL ON, Stand-by time: 5s, Stand-by time scene1: 10%, Sensor mode: Auto, Mode in priority: Manual prior to sensor.
2. Push switch setting: Push switch function: Normal PUSH (Retractive switch), Control object: Zone, Single press: ON/OFF, Double press: disable, Press and hold: Brightness dimming.

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.

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
Virtual-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

Included Accessories



Shielding Accessory-HAS15

Compatible products (for full functionality)



HA18SKT

Receptacle | Zhaga Book 18 Standard | Black Color
www.hytronik.com/product/HA18SKT

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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

- | | |
|--|---|
|  Adjustable motion & static sensitivity & adjustable sensing distance |  Dynamic daylight harvest auto-configuration |
|  Compatible with EnOcean kinetic switches |  Motion sensor range test |
|  Detailed motion sensor settings |  Motion sensor trigger diagnosis |
|  Dusk/Dawn photocell (twilight function) | |

Bluetooth Mesh Network Installation & Device Access Range

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

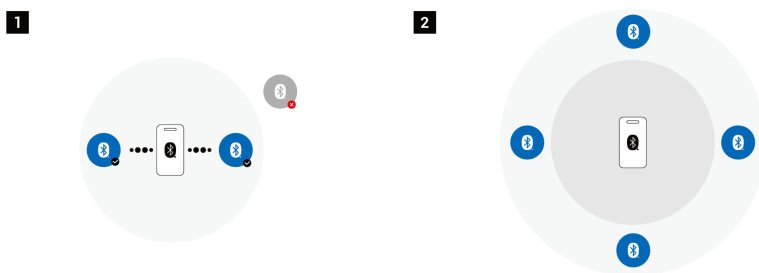
During commissioning, the installer must remain within Bluetooth range of the target device when adding it via the App.

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



0-10V Dimming

0-10V dimming provides an analog control interface that allows luminaires to dim smoothly down to their minimum rated light level. At 0 V, the luminaire remains on at its lowest brightness, as the 0-10V interface does not support switching off via the control signal and requires mains power switching for on/off control. This widely adopted standard ensures stable and consistent dimming performance when used with compatible LED drivers.



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.

IP65

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.



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.



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>

Additional Notes

Shielding accessory (HAS15) detail expiation

Achieve precise adjustment of the detection range, block interference sources (such as moving machines and elevators) to prevent triggering the sensor. the line pattern of the shielding accessory can be freely removed by cutting to achieve a different range of shielding induction, for example, rectangular detection and semi-sphere detection. The portable design also provides an easy installation, which only needs to buckle the shielding accessory onto the lens.

For reference, the next page includes detection pattern and dimensional drawings to support actual installation and application. The detection diagram is based on the following test conditions:

Detection Range Test Conditions:

Single person walking or forklift driving at 5 km/h

Sensor not connected to a driver with soft-on period

Ambient temperature (Ta): 20 °C

Test conducted in a large open indoor area without obstacles affecting PIR performance

Note: Detection range may vary depending on installation angle, temperature, and humidity conditions.

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Additional Diagram

