DALI Dual Sense Sensor with Bluetooth® 5.0 SIG Mesh

HIM450VDS/BT (High-bay)

DALI/DALI-2 & 0/1-10Vdimming control& Tri-level dimming & Daylight harvest & Circadian Rhythm

HYTRONIK®

DUAL sense™ Bluetooth® CE UKCA RoHS IP65

Product Description

HIM450VDS/BT is a Bluetooth high-bay Dual-sense™ (Microwave + PIR) motion sensor with an installation height of up to 20 m. It supports DALI/DALI-2 output, 0/1-10V dimming, and relay output, as well as 2-channel on/off control (Switched L + VFC). With a built-in daylight sensor, it enables tri-level dimming, daylight harvesting, and Human Centric Lighting/Circadian Rhythm applications. Designed for large spaces such as warehouses and storage facilities, it allows fast and simple setup via the Koolmesh® app.

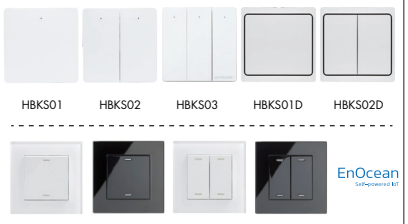
App Features

- Quick setup mode & advanced setup mode
- Web app/platform for project deployment & data analysis
- Koolmesh Pro app on iPad for on-site configuration
- Floorplan feature to simplify project planning
- One-key device replacement
- Device social relations check
- Staircase function (primary & secondary)
- Remote control via gateway support HBGW01
- Heat map
- Dynamic daylight harvest auto-adaptation
- Grouping luminaires via mesh network
- Scenes
- Dusk/Dawn photocell (Twilight function)
- Tri-level control
- Daylight harvest
- Circadian rhythm (Human centric lighting)
- Detailed motion sensor settings
- Schedule
- Astro timer (sunrise and sunset)
- Power-on status (memory against power loss)
- Offline commissioning
- Bulk commissioning (copy and paste settings)
- Different permission levels via authority management
- Network sharing via QR code or keycode
- Interoperability with Hytronik Bluetooth product portfolio
- Compatible with EnOcean BLE switches
- Internet-of-Things (IoT) featured
- Device firmware update over-the-air (OTA)
- Continuous development in progress…

Hardware Features

- DALI2：50mA DALI broadcast output
- 0/1-10V dimming
- On/Off Control
- IP65 design
- 5-year warranty

Bluetooth® Kinetic Switch



Fully support EnOcean self-powered switch module PTM215B（HBES01/W & HBES01/B）

Bluetooth® 5.0 SIG mesh

Smartphone app for both iOS & Android platform

for iPad

Koolmesh Pro app for iPad

for Web

Web app/platform: www.iot.koolmesh.com

Technical Specifications

Bluetooth Transceiver	
Operation frequency	2.4 GHz - 2.483 GHz
Transmission power	4 dBm
Range (Typical indoor)	10~30m
Protocol	Bluetooth® 5.0 SIG Mesh

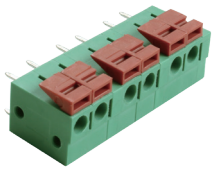
Input & Output Characteristics	
Operating voltage	220~240VAC 50/60Hz
Load ratings Max. Load1/Load2	800VA(capacitive) 1000W(resistive)
Load ratings Max. Load3	≤48VDC(≤2A) ≤240VAC(≤4A)
0/1-10V	Sink Current ≤ 100mA Source Current ≤ 2mA
DALI bus power supply	I guaranteed： 30mA I max： 50mA U rated： 15VDC
Max withstandable in-rush current	120A@160μs
Current Consumption	≤ 2mA
Warming-up	20s
Stand-by power	<2W

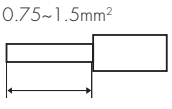
Safety & EMC	
EMC standard (EMC)	EN55015, EN61547 EN61000-3-2/-3-3
Safety standard (LVD)	EN60669-1/-2-1
RED	EN300440, EN300328, EN301489-1/3-17, EN50663
Certification	CE , EMC, LVD, RCM,UKCA

Model No.	
Sensor principle	High Frequency (microwave), PIR
Operation frequency	10.525GHz +/- 75MHz (HF)
Transmission power	<0.2mW (HF)
Sensor mode	4 modes: PIR, HF, PIR+HF, PIR/HF
Detection range	Max installation height： HF: 25m (forklift)/20m (human) PIR: 20m (forklift)/20m (human) Max detection range： HF: Ø = 15m (forklift)/14m (human) PIR: Ø = 18m (forklift)/12m (human)
Detection angle	360°
Sensitivity	10%/ 30% /50% /75%/ 100%

Environment	
Operation temperature	Ta: -20°C ~ +50°C
Case temperature (Max.)	Tc: +60°C
Storage temperature	-40°C ~ +70°C
Relative humidity	10 ~ 90%
IP rating	IP65
Insulation	Class II

Wire Preparation

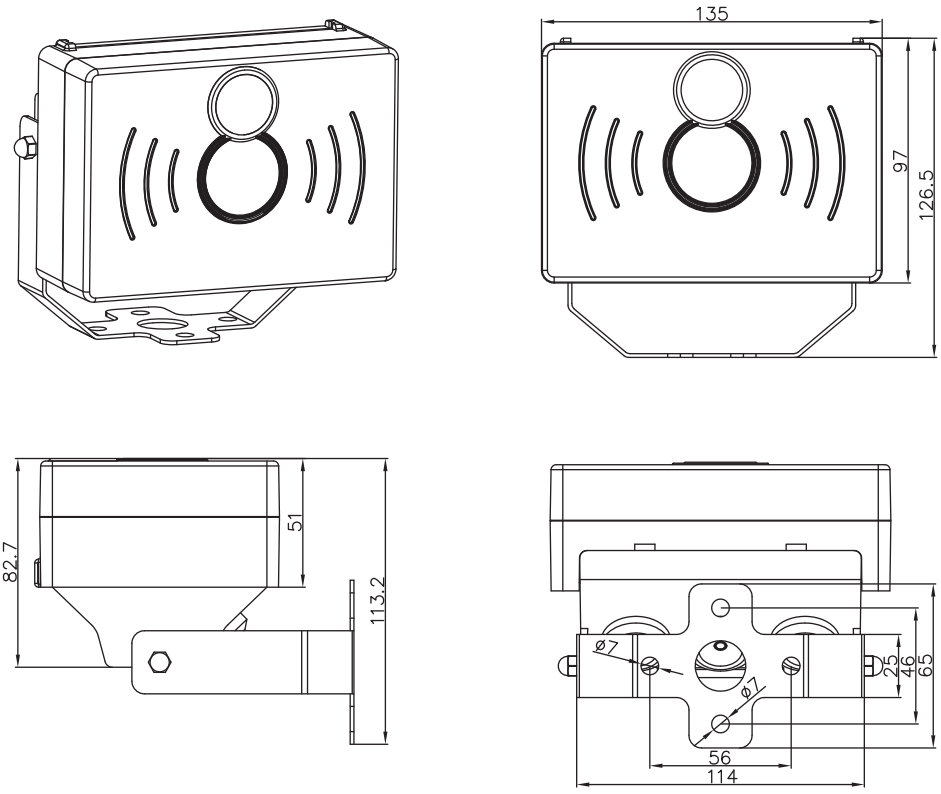




To make or release the wire from the terminal, use a screwdriver to push down the button.

1. 200 metres (total) max. for 1mm² CSA (Ta = 50℃)
2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50℃)

Mechanical Structure & Dimensions

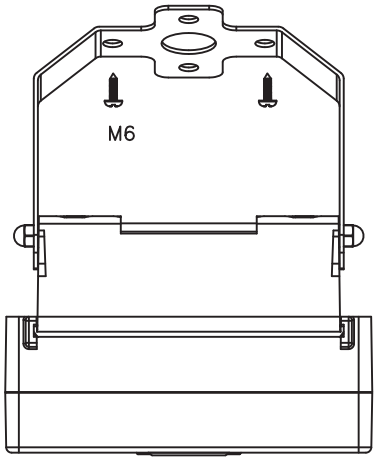


*Note:We recommend the mounting distance between sensor to sensor should be more than 2m to prevent sensors from false-triggering.

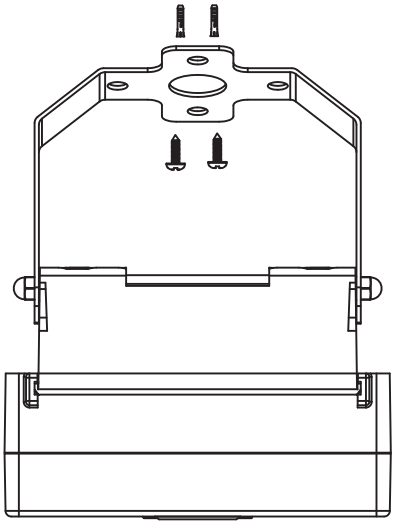
Installation

This product offers three installation options:

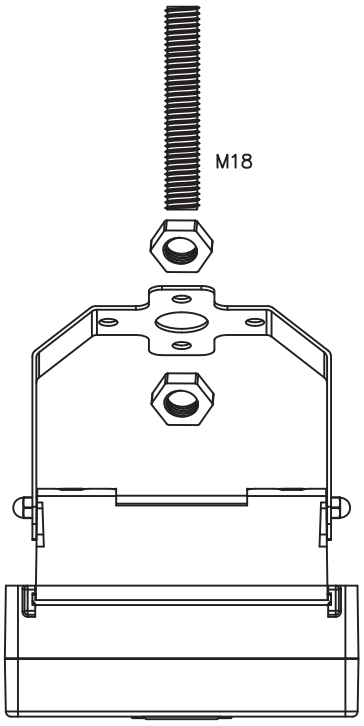
- Wood or other soft materials: Fix directly with two M6 screws.



- Concrete wall: Drill holes, insert two plastic anchors, then secure with two M6 screws for reliable mounting.

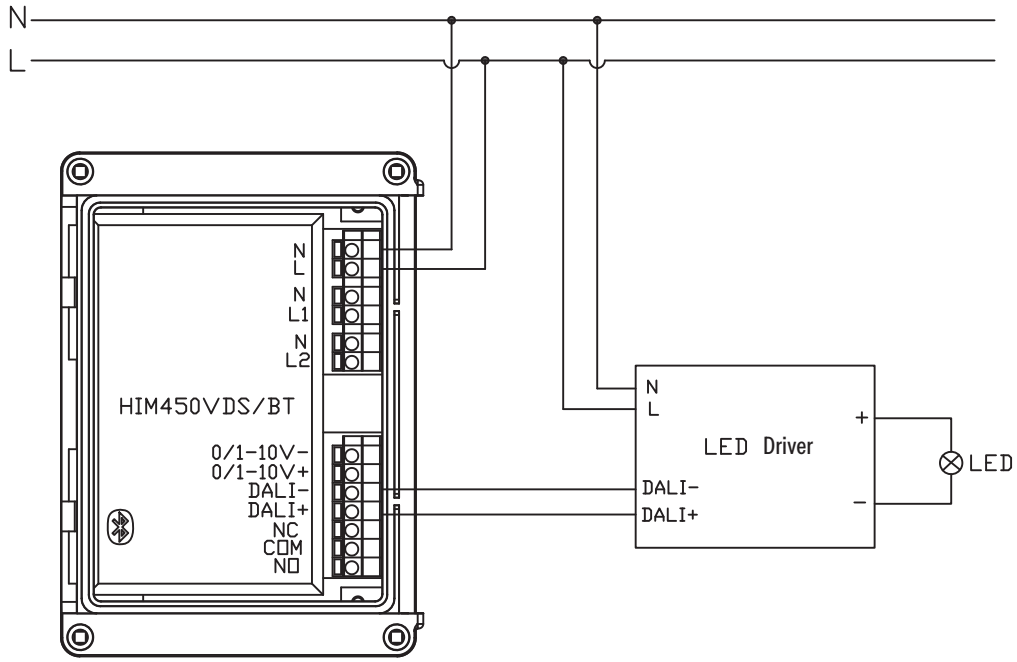


- Threaded rod: Use the central M18 hole with a threaded rod and two nuts, suitable for suspended or special mounting applications.

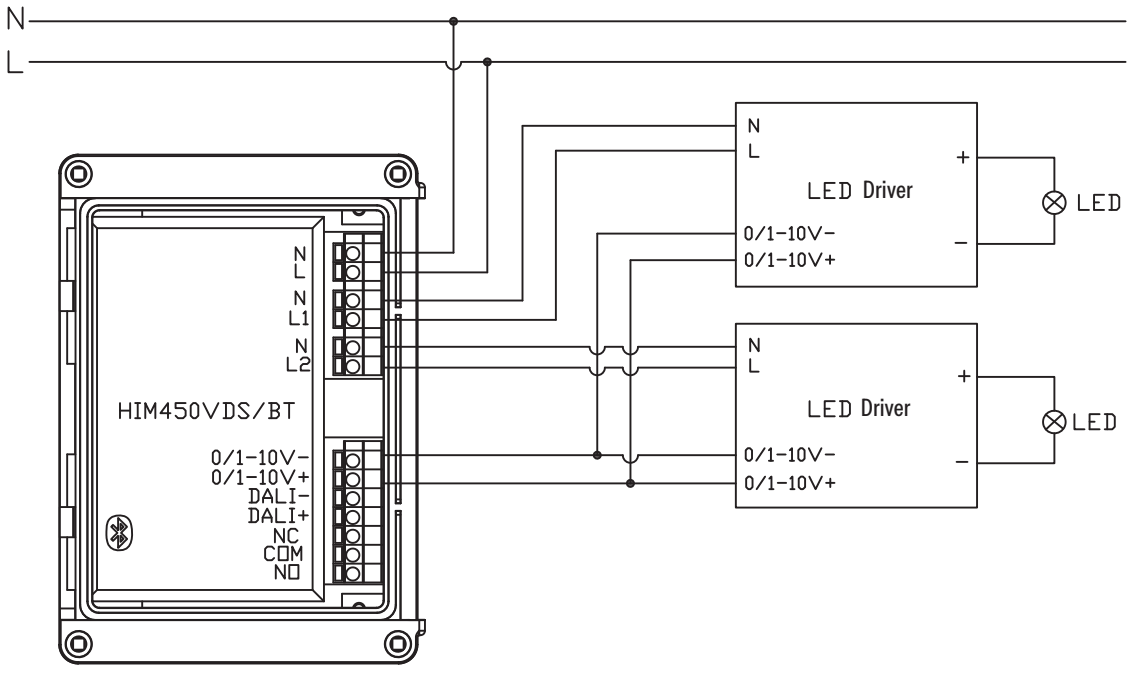


Wiring Diagram

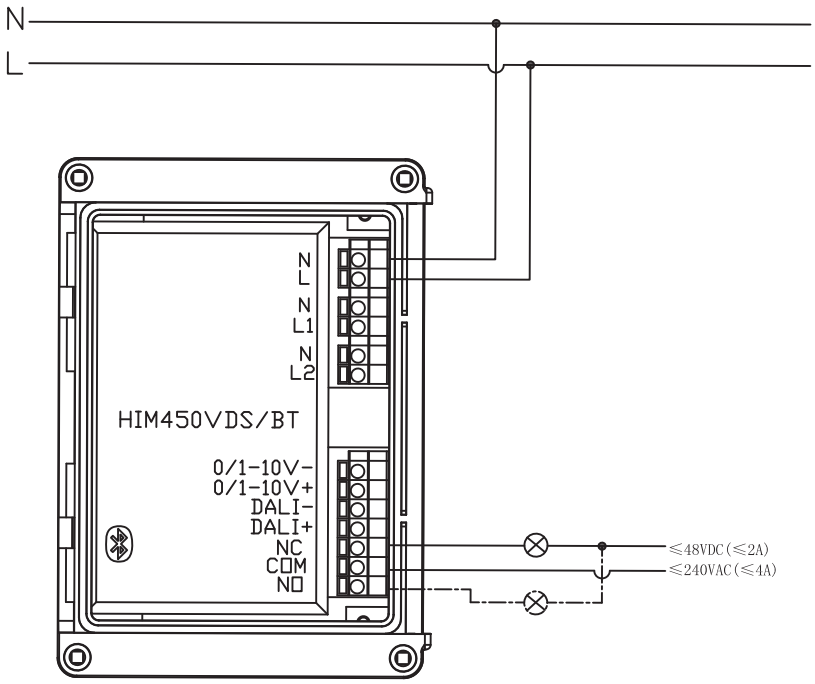
Connection with DALI Driver



Connection with 0/1–10V Driver

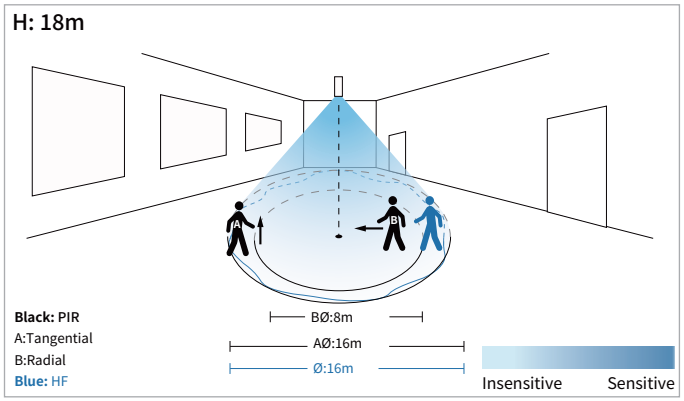


Dry Contact Connection

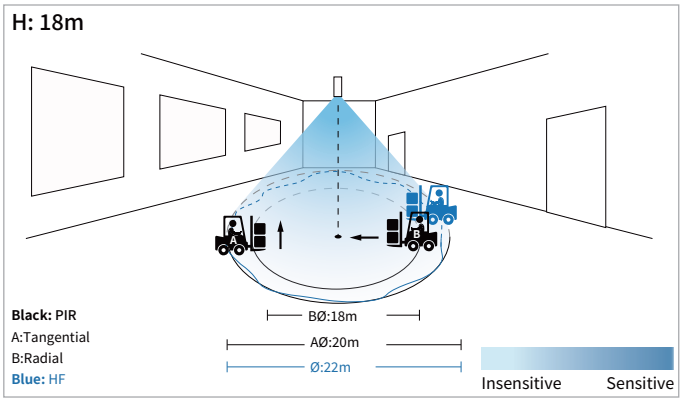


Detection Range

Single Person Walk (Ceiling mount & Sensor head angle: 90°)



Forklift (Ceiling mount & Sensor head angle: 90°)



Dual Sense Introduction

It's commonly known Microwave and Infrared are main detecting technologies in lighting controls. Both have the advantage and disadvantage for industrial applications.

Advantage

* sensitive to minor motion.
* sensitive to radial movement.
* can be reflected by objects hence covering big detection area
* resilient to heat source, smoke and and air conditioner.

Disadvantage

* penetrates walls, picks up motions outside of the office area;
* back wave detection, false trigger by motions at the back.
* can be false triggered by ventilation fans, water pipe, elevators etc. in industrial application.

Advantage

* no penetration, confined detection area.
* sensitive to tangential movement.
* resilient to motion object which has no heat radiation.

Disadvantage

* can be false triggered by air conditioner, smoke and other heat sources.

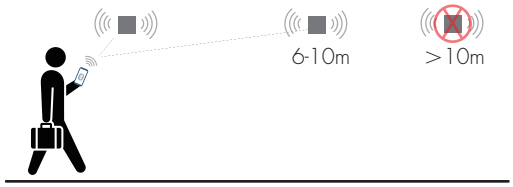
The remedy is to create Dual Sense by combining both technologies to make use of the advantage and bypass the disadvantage.

4 optional detection modes selectable:

* HF: Microwave only
* PIR: PIR mode only
* HF+PIR: both PIR and microwave mode, to decrease the detection capability and detection area. Only when both detections are activated, the motion is considered valid. This is to prevent the sensor from false trigger by heat source, air conditioner, ventilation fans, water pipe and elevators etc…
* HF/PIR: either PIR or microwave mode, to increase the detection capability and detection area;

Placement Guide and Typical Range

Smart Phone to Device Range



The smart device with the App installed will have a typical range of 10m, but varies from device to device. During commissioning, the installer will need to be in range of the devices when searching for devices to add to the network.

Once the devices have been added to the network via the App, the devices will start communicating within the wireless mesh. This means that once the network is complete, all devices are accessible from the smart device when in a 20m range of a single point.

Additional Information / Documents

1. To learn more about detailed product features/functions, please kindly refer to
   https://hytronik.com/product/him450vds-bt

2. Regarding precautions for Bluetooth product installation and operation, please kindly refer to
   https://hytronik.com/service/downloads (Bluetooth Products Precautions for Product Iinstallation and Operation)

3. Regarding precautions for Microwave sensor installation and operation, please kindly refer to
   https://hytronik.com/service/downloads (Microwave Sensors Precautions for Product Installation and Operation)

4. Regarding precautions for PIR Sensors installation and operation, please kindly refer to
   https://hytronik.com/service/downloads (PIR Sensors Precautions for Product Installation and Operation)

5. Data sheet is subject to change without notice. Please always refer to the most recent release on
   https://hytronik.com/products/motion-daylight-sensors

6. Regarding Hytronik standard guarantee policy, please kindly refer to
   https://hytronik.com/service/downloads (Guarantee Conditions document)