

**HIR23/D2**  
Low-bay

**HIR23/D2/R**  
Reinforced Low-bay

**HIR23/D2/W**  
Wide range Low-bay

**HIR23/D2/H**  
High-bay





**HIR23/D2/UH**  
Ultra high-bay

### Product Description

HIR23/D2 stand-alone PIR & daylight sensors have been certified as DALI-2 input device with main purpose to incorporate into DALI-2 application controller/master. It is ideal for typical indoor applications such as office, classroom, healthcare and other commercial areas.



### Hardware Features

-  2-in-1: PIR motion sensor + Daylight sensor
-  IP20/IP54 Ceiling/Surface mount box available as accessory
-  Various PIR lens and blind inserts options
-  User-friendly design for installation
-  High bay version available (up to 21m in height)
-  5-year warranty

 Compliant to standard IEC62386\_101,103,303,304

### Technical Specifications

Sensor Data	
Sensor Model	PIR detection
HIR23/D2	Installation Height : 6m Detection Range(Ø) : 9m
HIR23/D2/R	Installation Height : 6m Detection Range(Ø) : 10m
HIR23/D2/W	Installation Height : 6m Detection Range(Ø) : 18m
HIR23/D2/H	Installation height: 15m (forklift) 12m (person) Detection range (Ø): 24m
HIR23/D2/UH	Installation height: 21m Detection range (Ø): 28m
Lux reading range	< 1000 lux
Detection angle	360°

\* For more details of detection range, please refer to "detection pattern" section.

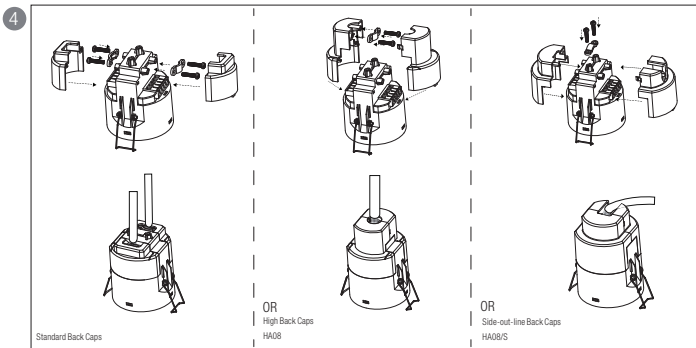
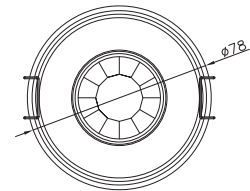
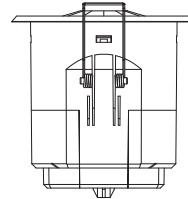
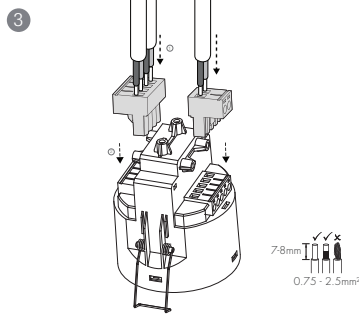
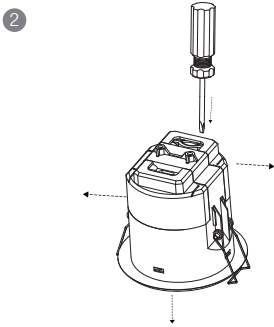
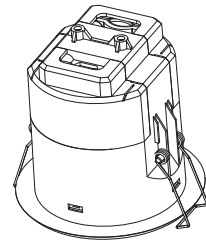
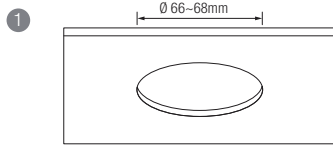
Input & Output Characteristics	
Operating voltage	9.5~22.5VDC
Consumption DALI BUS current	Max. 10 mA(no LED) Max. 12 mA(with LED)
Identify device	Red LED flashes 15S
Warming-up	5s

Safety & EMC	
EMC standard (EMC)	EN55015, EN61547
Safety standard (LVD)	EN61347-1/-2-11
DALI	IEC60386-101, 103, 303, 304
Certification	CE, REACH, UKCA, RCM, ROHS compliance

Environment	
Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20
IP rating (facial part)	IP54

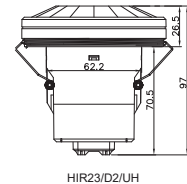
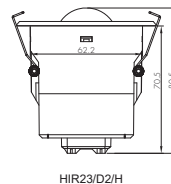
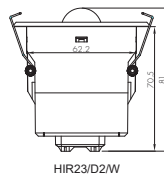
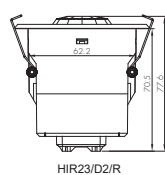
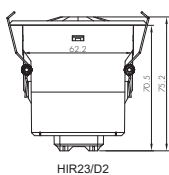
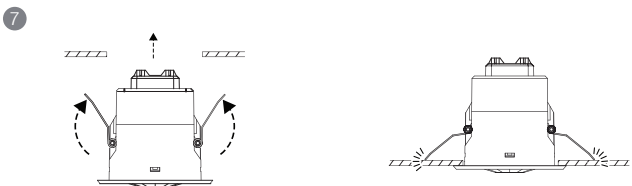
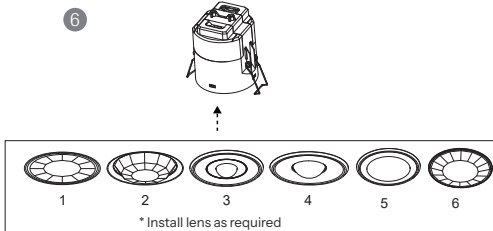
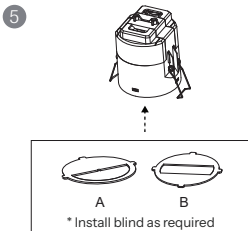
\*IP54 (facial part) only for lens of standard, /R, /H

# Mechanical Structure & Dimensions

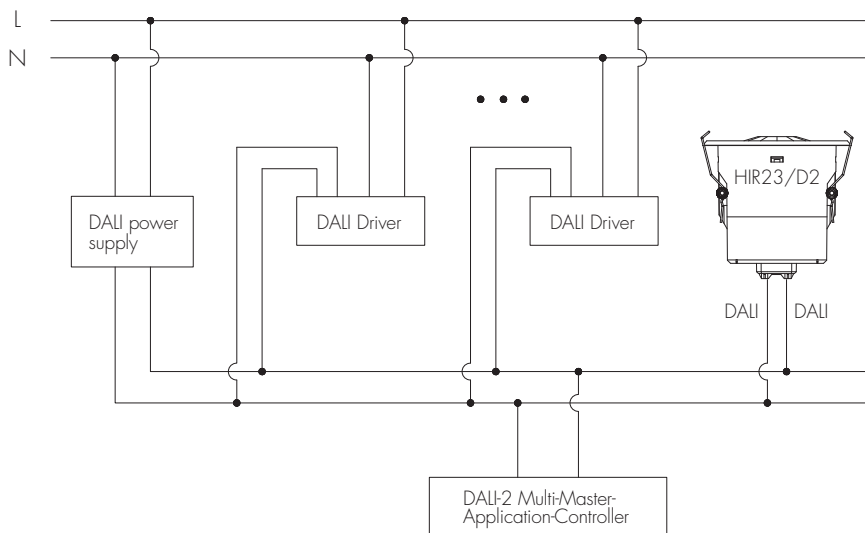


1. Ceiling (drill hole  $\varnothing$  66~68mm).
2. Carefully prise off the Back Caps.
3. Make connections to the pluggable terminal blocks.
4. Secure the cables with screws for better stability. Three types of Back Caps are available (Standard, HA08, and HA08/S).
5. Fit detection blind (if required).
6. Fit desired lens, clip fascia to body (this step is not applicable for /UH).
7. Bend back springs and Insert into ceiling.

\*The standard back cap is designed for the installation of two cables.  
 HA08 is a high back cap, allows cables to exit upwards.  
 HA08/S is designed for sideways cable exits.



## Wiring Diagram

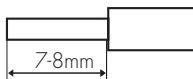


Note: HIR23/D2 has been used as DALI-2 input device to only report DALI instance(light sensor instance and motion sensor instance) to DALI-2 application controller, who is the “main brain” to process the data communication between input devices and the control gear and assign different function.

## Wire Preparation



0.75 - 2.5mm<sup>2</sup>



Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

1. 200 metres (total) max. for 1mm<sup>2</sup> CSA (Ta = 50°C)
2. 300 metres (total) max. for 1.5mm<sup>2</sup> CSA (Ta = 50°C)

# 1. HIR23/D2 (Low-bay)

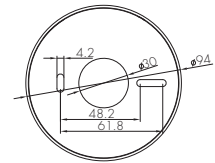
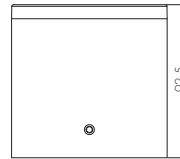
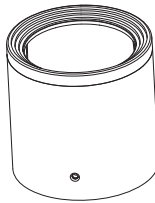


**HIR23/D2** : Low-bay flat lens detection pattern for **single person** @ Ta = 20°C

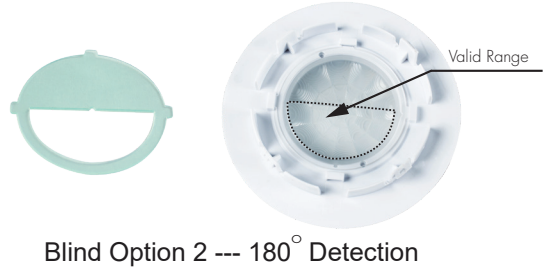
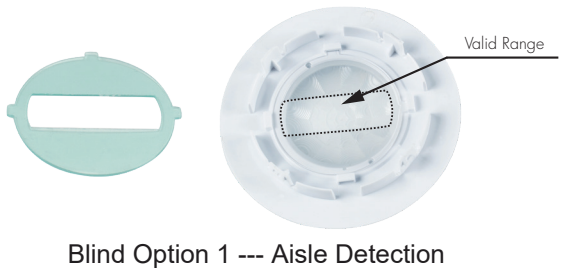
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 50m <sup>2</sup> (Ø = 8m)	max 13m <sup>2</sup> (Ø = 4m)
		3m	max 64m <sup>2</sup> (Ø = 9m)	max 13m <sup>2</sup> (Ø = 4m)
		4m	max 38m <sup>2</sup> (Ø = 7m)	max 13m <sup>2</sup> (Ø = 4m)
		5m	max 38m <sup>2</sup> (Ø = 7m)	max 13m <sup>2</sup> (Ø = 4m)
		6m	max 38m <sup>2</sup> (Ø = 7m)	max 13m <sup>2</sup> (Ø = 4m)

Optional Accessory --- Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G



Optional Accessory --- Blind Insert for Blocking Certain Detection Angles



## 2. HIR23/D2/R (Reinforced Low-bay)

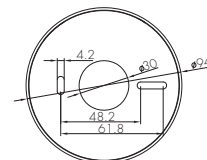
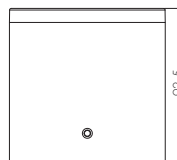
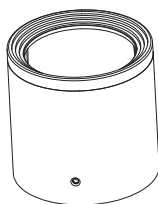


**HIR23/D2/R:** Low-bay convex lens detection pattern for **single person** @  $T_a = 20^\circ\text{C}$

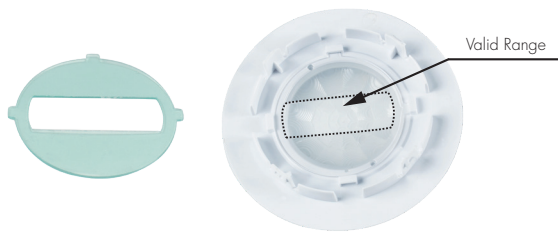
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 79m <sup>2</sup> (Ø = 10m)	max 20m <sup>2</sup> (Ø = 5m)
		3m	max 79m <sup>2</sup> (Ø = 10m)	max 20m <sup>2</sup> (Ø = 5m)
		4m	max 64m <sup>2</sup> (Ø = 9m)	max 20m <sup>2</sup> (Ø = 5m)
		5m	max 50m <sup>2</sup> (Ø = 8m)	max 20m <sup>2</sup> (Ø = 5m)
		6m	max 50m <sup>2</sup> (Ø = 8m)	max 20m <sup>2</sup> (Ø = 5m)

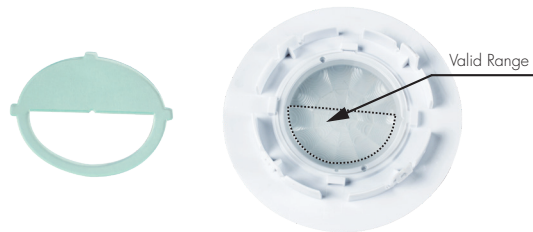
Optional Accessory --- Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G



Optional Accessory --- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection



Blind Option 2 --- 180° Detection

### 3. HIR23/D2/W (Wide range Low-bay)

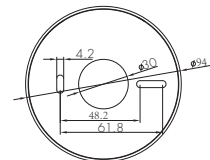
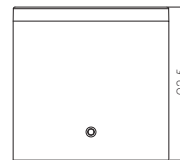
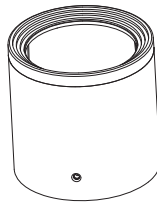


**HIR23/D2/W:** Low-bay convex lens detection pattern for **single person** @  $T_a = 20^\circ\text{C}$

(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 254m <sup>2</sup> (Ø = 18m)	max 28m <sup>2</sup> (Ø = 6m)
		3m	max 254m <sup>2</sup> (Ø = 18m)	max 28m <sup>2</sup> (Ø = 6m)
		4m	max 154m <sup>2</sup> (Ø = 14m)	max 28m <sup>2</sup> (Ø = 6m)
		5m	max 113m <sup>2</sup> (Ø = 12m)	max 28m <sup>2</sup> (Ø = 6m)
		6m	max 79m <sup>2</sup> (Ø = 10m)	max 13m <sup>2</sup> (Ø = 4m)

Optional Accessory -- Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G

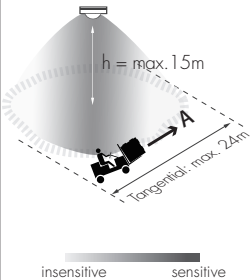
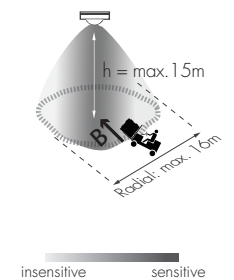


## 4. HIR23/D2/H (High-bay)



**HIR23/D2/H: High-bay lens detection pattern for forklift @ Ta = 20°C**

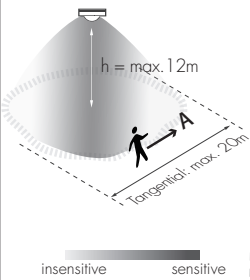
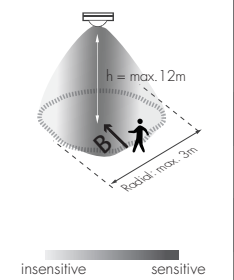
(Recommended ceiling mount installation height **10m-15m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 380m <sup>2</sup> (Ø = 22m)	max 201m <sup>2</sup> (Ø = 16m)
		11m	max 452m <sup>2</sup> (Ø = 24m)	max 201m <sup>2</sup> (Ø = 16m)
		12m	max 452m <sup>2</sup> (Ø = 24m)	max 201m <sup>2</sup> (Ø = 16m)
		13m	max 452m <sup>2</sup> (Ø = 24m)	max 177m <sup>2</sup> (Ø = 15m)
		14m	max 452m <sup>2</sup> (Ø = 24m)	max 133m <sup>2</sup> (Ø = 13m)
		15m	max 452m <sup>2</sup> (Ø = 24m)	max 113m <sup>2</sup> (Ø = 12m)

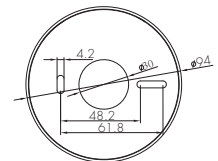
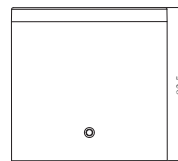


**HIR23/D2/H: High-bay lens detection pattern for single person @ Ta = 20°C**

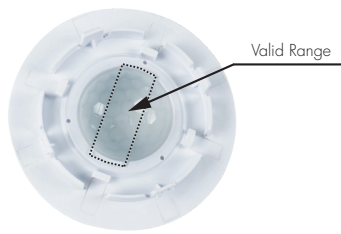
(Recommended ceiling mount installation height **2.5m-12m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 50m <sup>2</sup> (Ø = 8m)	max 7m <sup>2</sup> (Ø = 3m)
		6m	max 104m <sup>2</sup> (Ø = 11.5m)	max 7m <sup>2</sup> (Ø = 3m)
		8m	max 154m <sup>2</sup> (Ø = 14m)	max 7m <sup>2</sup> (Ø = 3m)
		10m	max 227m <sup>2</sup> (Ø = 17m)	max 7m <sup>2</sup> (Ø = 3m)
		11m	max 269m <sup>2</sup> (Ø = 18.5m)	max 7m <sup>2</sup> (Ø = 3m)
		12m	max 314m <sup>2</sup> (Ø = 20m)	max 7m <sup>2</sup> (Ø = 3m)

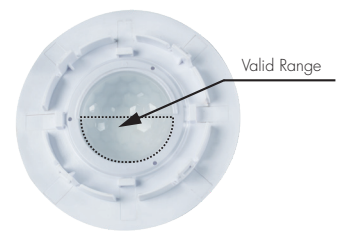
Optional Accessory --- Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G



Optional Accessory --- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection



Blind Option 2 --- 180° Detection

## 5. HIR23/D2/UH (Ultra High-bay)

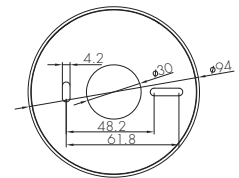
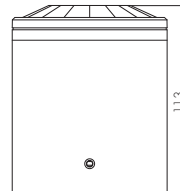
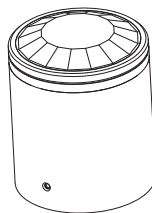


**HIR23/D2/UH:** Ultra High-bay convex lens detection pattern for single person @ Ta = 20°C  
(Recommended ceiling mount installation height 3m-21m)

*Noted: The different humidity levels in the environment can affect the sensor detection range.*

Mount height	Tangential (A)	Radial (B)
3m	max 12.5m <sup>2</sup> (Ø = 4m)	max 12.5m <sup>2</sup> (Ø = 4m)
6m	max 50m <sup>2</sup> (Ø = 8m)	max 28m <sup>2</sup> (Ø = 6m)
9m	max 113m <sup>2</sup> (Ø = 12m)	max 50m <sup>2</sup> (Ø = 8m)
12m	max 201m <sup>2</sup> (Ø = 16m)	max 79m <sup>2</sup> (Ø = 10m)
15m	max 314m <sup>2</sup> (Ø = 20m)	max 113m <sup>2</sup> (Ø = 12m)
18m	max 452m <sup>2</sup> (Ø = 24m)	max 113m <sup>2</sup> (Ø = 12m)
21m	max 615m <sup>2</sup> (Ø = 28m)	max 113m <sup>2</sup> (Ø = 12m)

Optional Accessory --- Ceiling/Surface Metal Mount Box: HA09/W, HA09/B, HA09/G

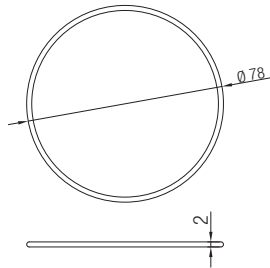




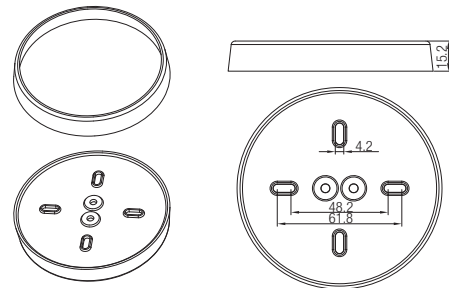
## Optional Accessories For Water-Proof

Big and small silicon gasket used to make IP54 degree protection (mounted into HA09 housing for ceiling mount)

### Small silicon water-proof gasket dimension(size:mm)



### Big silicon water-proof gasket dimension(size:mm)



Note: The small silicon water-proof gasket is not suitable for HIR23/D2/W and HIR23/D2/UH  
The Big silicon water-proof gasket is not suitable for HIR23/D2/W

## Additional Information / Documents

1. Regarding precautions for PIR Sensors installation and operation, please kindly refer to [www.hytronik.com/download ->knowledge ->PIR Sensors - Precautions for Product Installation and Operation](http://www.hytronik.com/download->knowledge->PIR%20Sensors%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
2. Data sheet is subject to change without notice. Please always refer to the most recent release on [www.hytronik.com/products/Motion Sensors ->Stand-alone Sensors](http://www.hytronik.com/products/Motion%20Sensors->Stand-alone%20Sensors)
3. Regarding Hytronik standard guarantee policy, please refer to [www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy](http://www.hytronik.com/download->knowledge->Hytronik%20Standard%20Guarantee%20Policy)