

SENSOTEC Sensor IPD

110088245	SENSOTEC Sensor HB PIR 3360 IPD Intra
110088246	SENSOTEC Sensor HB PIR 3360 IPD Wire
110088247	SENSOTEC Sensor HB PIR 3360 IPD Zhaga
110088249	SENSOTEC Sensor HB PIR 345 IPD Intra
110088250	SENSOTEC Sensor HB PIR 345 IPD Wire
110088251	SENSOTEC Sensor HB PIR 345 IPD Zhaga
110088252	SENSOTEC Sensor HF2 IPD
110088253	SENSOTEC Sensor PIR IPD

HB PIR 3360 IPD



HB PIR 345 IPD



Intra



Wire



Zhaga



HF2 IPD



PIR IPD



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Functional description

Besides having the same mechanical dimensions and look as our SENSOTEC NET sensors, the SENSOTEC IPD act as standardized DALI2 Input Devices, delivering sensor data to any wired classical DALI network. These are the features:

- Pure DALI2 certified input device
- Powered from the two DALI bus wires
- Compatible to DALI2 application controllers
- Integrates Occupancy sensor, DALI instance type 3
- Integrates Light sensor, DALI instance type 4
- Range and Sensitivity adjustable via memory bank 2
- Normally quiescent feedback LED for device identification purpose

HF2 IPD

The HF2 IPD is a high frequency sensor module designed for built-in applications. Capable of detecting movement through glass and non-metallic materials, these modules can be installed inside luminaires or other applications.

PIR IPD

Small. Slim. Compact. Inconspicuous presence detectors. 360° passive infrared sensor with a presence detection zone of 4 x 4 m (presence and radial movement detection) or 6 x 6 m (tangential movement detection). With patented multi-segment pyro lens.

Highbay versions

STEINEL sensor technology for mounting inside luminaires or for mounting on the surface of luminaires.

Applications for offices, commercial properties, public buildings, industry and logistics (room heights of 2.8 to 14 m).

Up to IP65 protection rating.

Luminaire surface-mounting versions with Zhaga base or strands for wiring.

HB PIR 3360 IPD

A head for heights. Powerful reach. Reliable. Ideal for high ceilings in industrial buildings or commercial properties. For mounting heights of up to 14 m. High-precision 360° infrared sensor. Maximum detection range diameter 36m. For monitoring up to 1000 m².

HB PIR 345 IPD

Surveillance at the highest level. Infrared motion detector for indoors. Ideal for a rectangular detection in large heights in depots, high-bay warehouses, machine shops, check-in areas and departure lounges, installation height from 4 m up to 14 m, detection zone 30 x 4 m (radial movements).

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Technical specifications

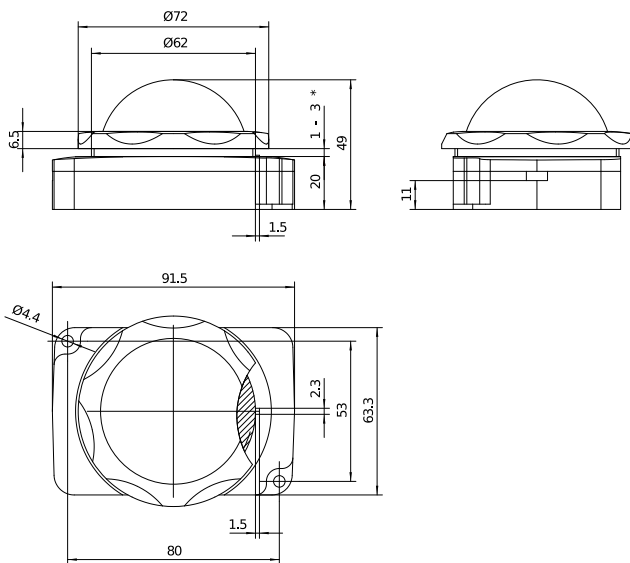
	HB PIR 3360 IPD Intra	HB PIR 3360 IPD Wire	HB PIR 3360 IPD Zhaga
GTIN	4007841085414	4007841085421	4007841085438
Type	9016	9022	9021
Dimensions	91.5 × 63.3 × 49 mm 3-D data available online	91.5 × 63.3 × 49 mm 3-D data available online	91.5 × 63.3 × 57 mm 3-D data available online
DALI instances	Occupancy sensor (type 3) Light sensor (type 4)	Occupancy sensor (type 3) Light sensor (type 4)	Occupancy sensor (type 3) Light sensor (type 4)
Sensor technology	Passive infrared technology	Passive infrared technology	Passive infrared technology
Light measurement range	4 - 1000 lx	4 - 1000 lx	4 - 1000 lx
Mounting height	2.8 - 14.0 m	2.8 - 14.0 m	2.8 - 14.0 m
Reach, radial	Ø 14 m (154 m ²)	Ø 14 m (154 m ²)	Ø 14 m (154 m ²)
Reach, tangential	Ø 36 m (1018 m ²)	Ø 36 m (1018 m ²)	Ø 36 m (1018 m ²)
Connection	0.34 - 0.75 mm ²	Connection strands (0.5 mm ² , L=250 mm, white)	Zhaga Book 18
Supply voltage / current consumption	12 - 22.5 VDC / max. 16 mA	12 - 22.5 VDC / max. 16 mA	12 - 22.5 VDC / max. 16 mA
IP rating:	IP20 / IP65* * with sealed lens	IP65	IP65
Temperature range	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
tc	50°C	50°C	50°C
Interfaces	DALI	DALI	DALI
Approval marks / Conformity	CE, DALI2	CE, DALI2	CE, DALI2
Standards	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304

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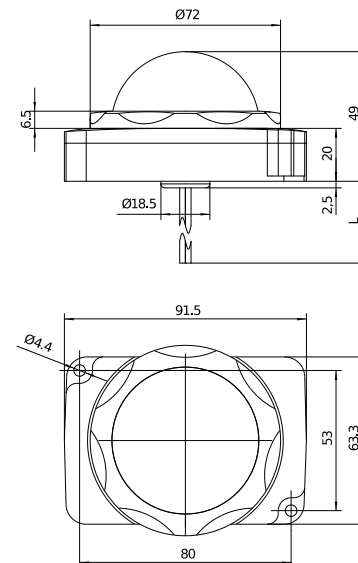
Dimensional drawings

HB PIR 3360 IPD Intra

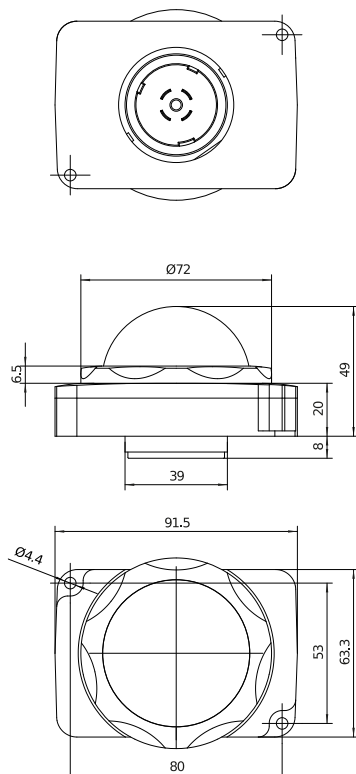


* wall thickness range

HB PIR 3360 IPD Wire



HB PIR 3360 IPD Zhaga



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Technical specifications

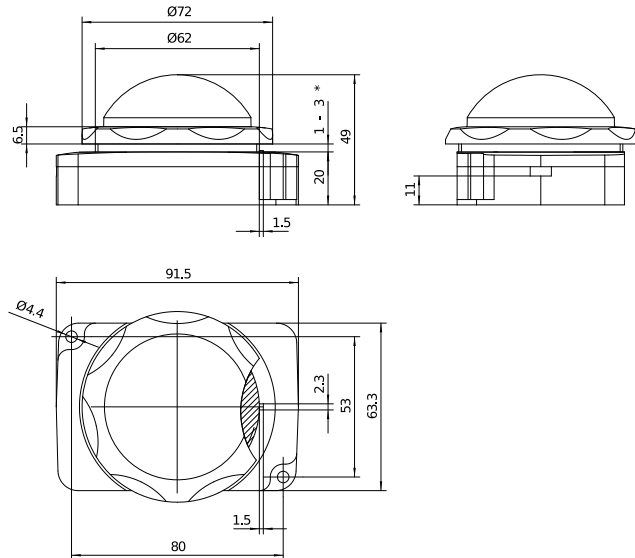
	HB PIR 345 IPD Intra	HB PIR 345 IPD Wire	HB PIR 345 IPD Zhaga
GTIN	4007841085445	4007841085452	4007841085469
Type	9015	9024	9023
Dimensions	91.5 × 63.3 × 49 mm 3-D data available online	91.5 × 63.3 × 49 mm 3-D data available online	91.5 × 63.3 × 57 mm 3-D data available online
DALI instances	Occupancy sensor (type 3) Light sensor (type 4)	Occupancy sensor (type 3) Light sensor (type 4)	Occupancy sensor (type 3) Light sensor (type 4)
Sensor technology	Passive infrared technology	Passive infrared technology	Passive infrared technology
Light measurement range	4 - 1000 lx	4 - 1000 lx	4 - 1000 lx
Mounting height	4.0 - 14.0 m	4.0 - 14.0 m	4.0 - 14.0 m
Reach, radial	30 x 4 m (120 m ²)	30 x 4 m (120 m ²)	30 x 4 m (120 m ²)
Reach, tangential	30 x 4 m (120 m ²)	30 x 4 m (120 m ²)	30 x 4 m (120 m ²)
Connection	0.34 - 0.75 mm ²	Connection strands (0.5 mm ² , L=250 mm, white)	Zhaga Book 18
Supply voltage / current consumption	12 - 22.5 VDC / max. 16 mA	12 - 22.5 VDC / max. 16 mA	12 - 22.5 VDC / max. 16 mA
IP rating:	IP20 / IP65* * with sealed lens	IP65	IP65
Temperature range	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
tc	50°C	50°C	50°C
Interfaces	DALI	DALI	DALI
Approval marks / Conformity	CE, DALI2	CE, DALI2	CE, DALI2
Standards	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304

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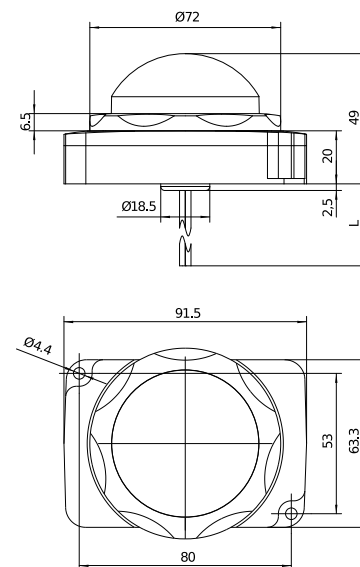
Dimensional drawings

DA HB PIR 345 IPD Intra

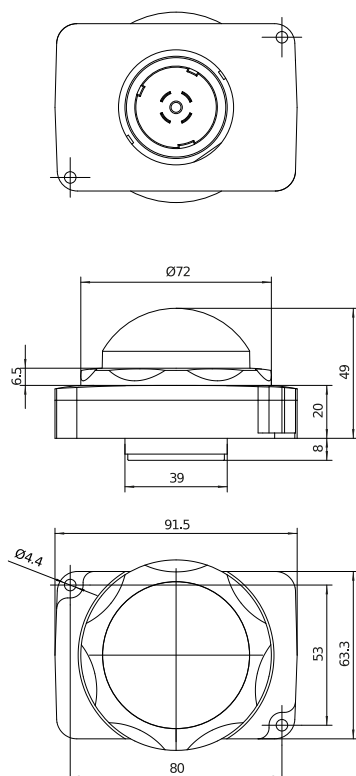


* wall thickness range

DA HB PIR 345 IPD Wire



HB PIR 345 IPD Zhaga



SENSOTEC Sensor IPD

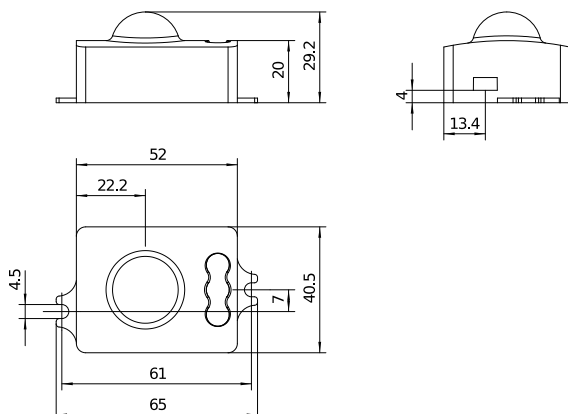
110088245	SENSOTEC Sensor HB PIR 3360 IPD Intra
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Technical specifications

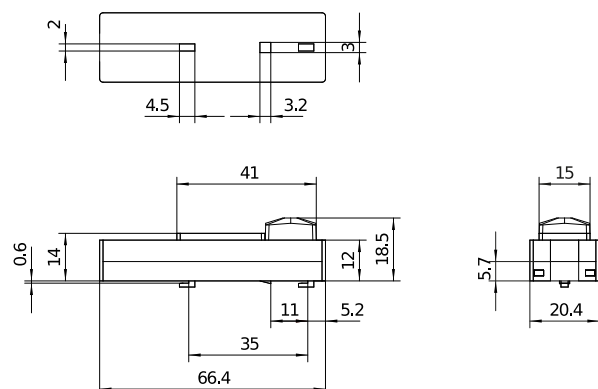
	HF2 IPD	PIR IPD
GTIN	4007841085476	4007841085483
Type	9025	9026
Dimensions	52 × 40.5 × 29.2 mm Hole spacing 61 mm 3-D data available online	66.4 × 20.4 × 18.5 mm Fixing spacing 35 mm 3-D data available online
DALI instances	Occupancy sensor (type 3) Light sensor (type 4)	Occupancy sensor (type 3) Light sensor (type 4)
Sensor technology	High-frequency technology	Passive infrared technology
Transmitter power	1 - 2 mW	-
Transmission frequency	5.8 GHz	-
Light measurement range	4 - 1000 lx	4 - 1000 lx
Angle of coverage	360° with 160° aperture angle	-
Mounting height	2.5 - 3.5 m	2.0 - 5.0 m
Optimum mounting height	2.8 m	2.8 m
Reach, radial	Ø 8 m (50 m ²)	4 x 4 m (16 m ²)
Reach, tangential	Ø 8 m (50 m ²)	6 x 6 m (36 m ²)
Connection	0.34 - 0.75 mm ²	0.34 - 0.75 mm ²
Supply voltage / current consumption	12 - 22.5 VDC / max. 36 mA	12 - 22.5 VDC / max. 16 mA
IP rating:	IP20	IP20
Temperature range	-20°C to +60°C	-25°C to +55°C
tc	60°C	55°C
Interfaces	DALI	DALI
Approval marks / Conformity	CE, DALI2	CE, DALI2
Standards	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304	EN 61347-1 EN 61347-2-11 EN 55015 EN 61547 EN 62386-101 EN 62386-103 EN 62386-303 EN 62386-304

Dimensional drawings

HF2 IPD



PIR IPD

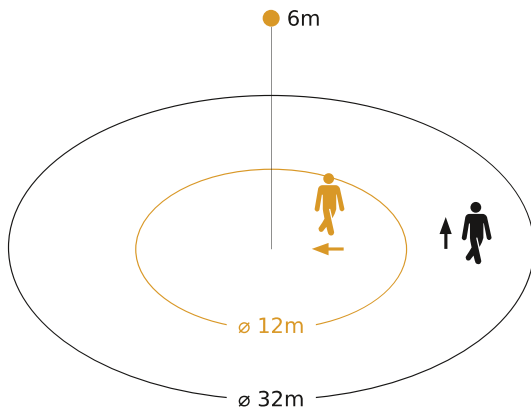


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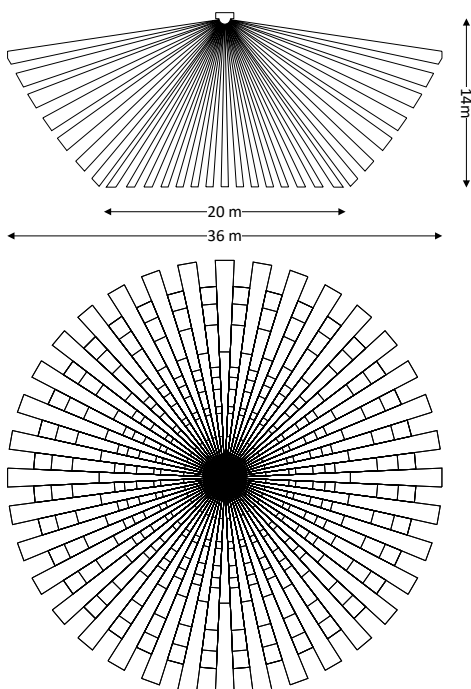
Detection zones

HB PIR 3360 IPD

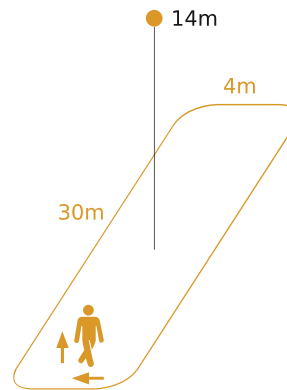


Possible mounting height: 2.8 m - 14 m
Orange: radial / Black: tangential

Mounting height	Detection Area (tangential)
14 m	∅ 20 m
9 m	∅ 28 m
6 m	∅ 32 m
2.8 m	∅ 36 m

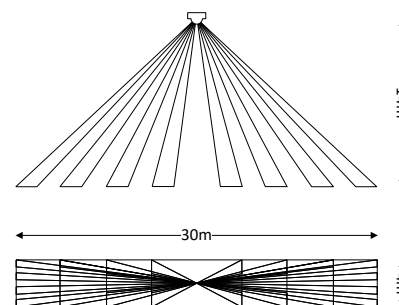


HB PIR 345 IPD



Possible mounting height: 4 m - 14 m
Orange: radial and tangential

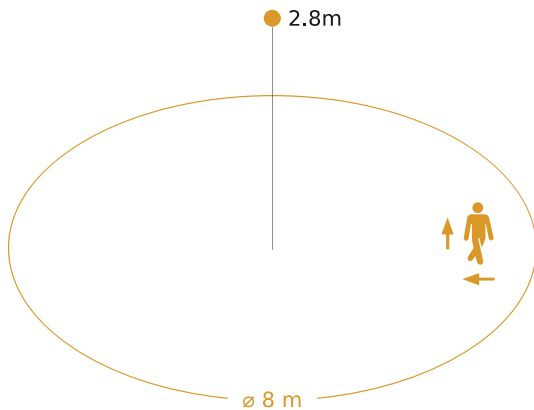
Mounting height	Detection Area
14 m	30 m x 4 m
10 m	25 m x 4 m
8 m	20 m x 4 m
6 m	15 m x 4 m
4 m	10 m x 4 m



SENSOTEC Sensor IPD

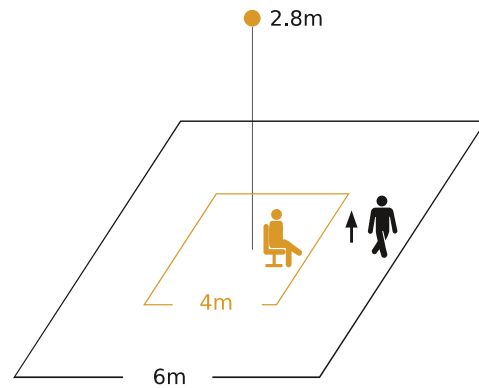
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HF2 IPD



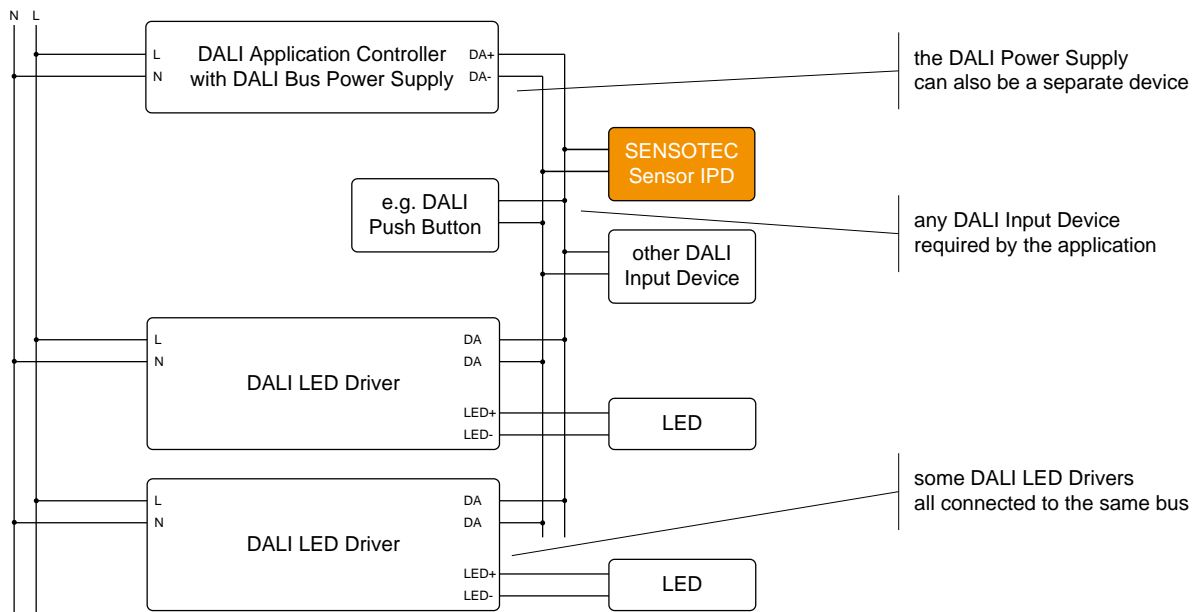
Possible mounting height 2.5 m - 3.5 m
Orange: radial and tangential

PIR IPD



Possible mounting height 2 m - 5 m
Orange: presence / Black: tangential

Circuit diagram

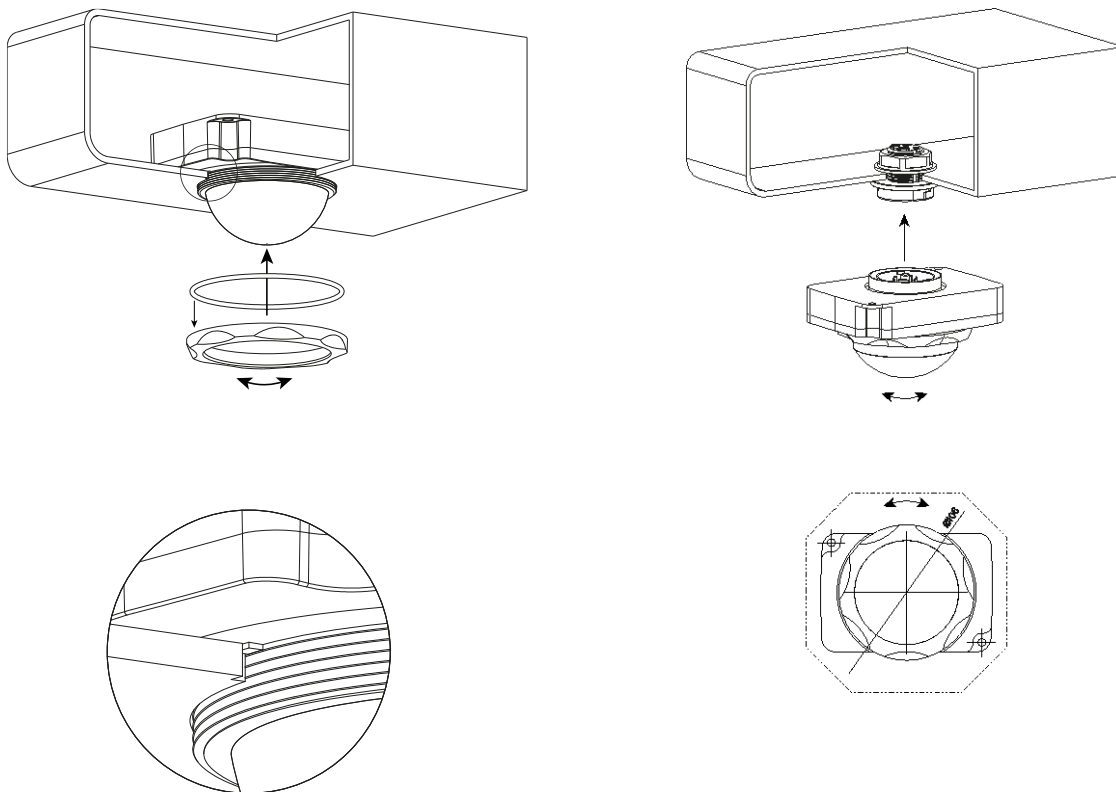


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Installation advice - HB PIR 3360 / 345 IPD

- Suitable for a material thickness of 1 to 3 mm
- Hole diameter for lens 62.5 to 63mm
- Alignment is done by mechanical positioning (see dimensional drawings)
- 106mm Ø clearance required for screwing the HB PIR 3360 IPD onto the Zhaga base.



Installation advice - HF2 IPD

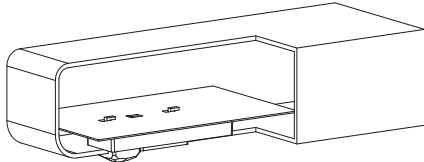
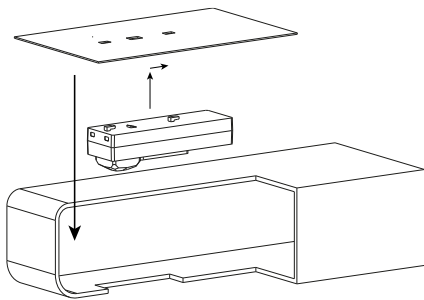
- The sensor is intended to be used indoors only.
- Design-in support from STEINEL specialists.
- It is highly recommended not to place the sensor in immediate proximity of radio transmitting devices (i.e. WLAN Routers).
- Ensure a clean routing of the DALI wires, route the wires directly towards the connector and not above, around, or besides the sensor.

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110088253	SENSOTEC Sensor PIR IPD

Installation advice - PIR IPD

- Provide an aperture 15 mm wide x 41 mm long.
- Suitable for a material thickness of 0.5 - 2 mm.
- The sensor must have an unobstructed line of vision to the detection area.



Installation advantages

- Easily clips onto the enclosure (PIR IPD). Contact us if plastic holders are required.
- Easy to install by means of Zhaga connector system (Zhaga Book 18).
- Easily screws into enclosure.
- Connection via a 2-core terminal (except HB Zhaga and Wire).
- Extremely compact size.
- The sensor is supplied with power via the two-core DALI bus line.
- No plug polarity to be observed.

Safety precautions

- Electrical devices must only be assembled and installed by qualified electricians.
- Fire hazard. The maximum permissible load must not be exceeded.
- Risk of electric shock. Disconnect before attempting work on the unit or load. Take into account all circuit breakers supplying dangerous voltages to the unit or load.
- Risk of electric shock. Before installing the sensor, check the enclosure to make sure it is not damaged. Never open the enclosure.
- The sensor is not suitable for use in burglar alarm systems or other alarm equipment.

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Operating manual

The SENSOTEC IPD implement the behavior described in the publicly available DALI standard parts DIN EN 62386-101, -103, -303 and -304. The following sections therefore only deliver a raw overview over the main features but discuss all the vendor specific device properties in detail.

Sensor Instances 3 & 4

	Instance number	Instance type	Input value resolution
Light sensor	number 0	type 4	11 bits
Occupancy sensor	number 1	type 3	2 bits

Light sensor (Type 4)

	Factory / reset value	Valid range
Event filter	1 (= enabled)	[0,1]
Dead time	30 (= 1.5 s)	[0,255]
Report time	30 (= 30 s)	[0,255]
Hysteresis %	5 (= 5 %)	[0,25]

The illuminance value is a relative value and is not representing an absolute lux value. See DALI specification IEC 62386-304 / 9.3

Occupancy sensor (Type 3)

	Factory / reset value	Valid range
Event filter	3 (= occupied & vacant)	[0,31]
Dead time	2 (= 100 ms)	[0,255]
Report time	20 (= 20 s)	[0,255]
Hold time	90 (= 900 s)	[0,254]

Further documentation about DALI instance / device variables and commands: See DALI specification parts -103, -303, -304

Memory bank 2

Address	Description	Factory / reset value	Lockable	Memory type
0x00	Address of last accessible memory location	0x05	n/a	ROM
0x01	Reserved - not implemented	answer NO	n/a	n/a
0x02	Memory bank lock byte ¹	0xFF	NO	RAM
0x03	Sensor type ²	Sensor specific	n/a	ROM
0x04	Sensor sensitivity	0xFF	YES	NVM
0x05	Detection range ³	0xFF	YES	NVM

Memory bank 0 is standardized and implemented according to the DALI specification. For memory bank read access, use READ MEMORY LOCATION. For memory bank write access, make sure that the memory write of the target device is enabled with ENABLE WRITE MEMORY and the desired memory bank is unlocked prior to a write using WRITE MEMORY LOCATION or DIRECT WRITE MEMORY according to spec.

Sensor sensitivity (Address 0x04)

This parameter is used to change the sensor sensitivity. If "high" sensitivity is selected, the sensor will respond to any movement immediately. If "low" sensitivity is selected, the sensor will respond after detecting several movements. The default value is "0xFF" (highest sensitivity).

0x00	→	0%	lowest possible sensitivity
...	→	...	
0xFF	→	100%	highest sensitivity

Detection range (Address 0x05)

This parameter is used to adjust how strong a motion signal must be in order to recognize it as motion. This setting is only applicable for HF sensor technology.

0x00	→	0%	only very large movements are detected
...	→	...	
0xFF	→	100%	minor movements are detected

¹ Lockable bytes in the memory are read only while the lock byte has a value different from 0x55.

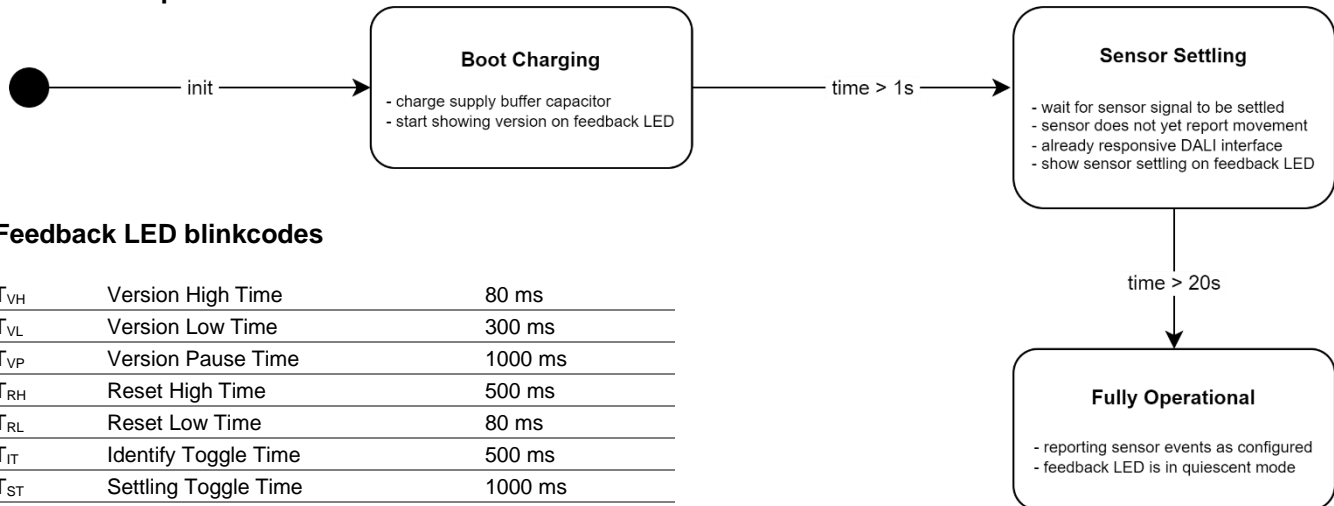
² The Sensor type is used internally at Steinel.

³ Only available at SENSOTEC Sensor HF2 IPD.

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Device startup behavior

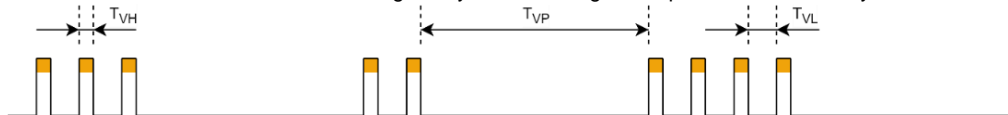


Feedback LED blinkcodes

T_{VH}	Version High Time	80 ms
T_{VL}	Version Low Time	300 ms
T_{VP}	Version Pause Time	1000 ms
T_{RH}	Reset High Time	500 ms
T_{RL}	Reset Low Time	80 ms
T_{IT}	Identify Toggle Time	500 ms
T_{ST}	Settling Toggle Time	1000 ms

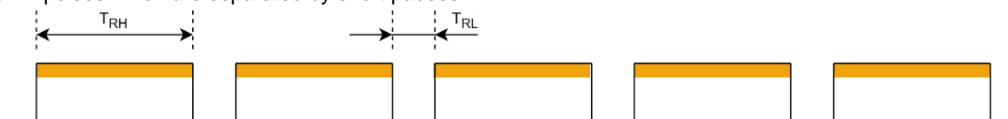
Firmware version report

The firmware version is displayed on device startup in three blink groups which report each single number (major/minor/patch) of the semantic version number. Zeroes are indicated using a very short flashing with a pulse duration of only 10ms.



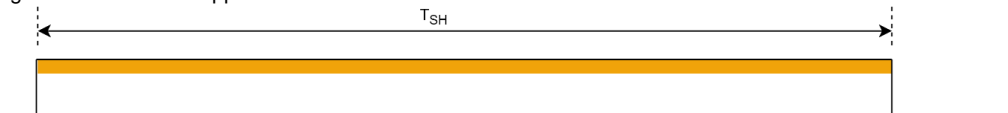
Reset command confirmation

When receiving a valid RESET MEMORY BANK or a RESET command for resetting the device, processing of the command is shown with 5 long blink pulses which are separated by short pauses.



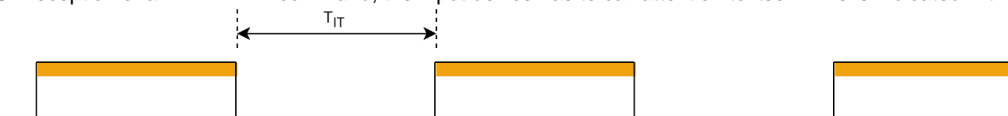
Scanning state indication

During DALI device discovery started with the INITIALISE command, devices which are not uncovered yet are being scanned. This state is indicated with the feedback led switched ON continuously. The period T_{SH} is unknown, as it depends on the random address and the discovery algorithm of the DALI application controller.



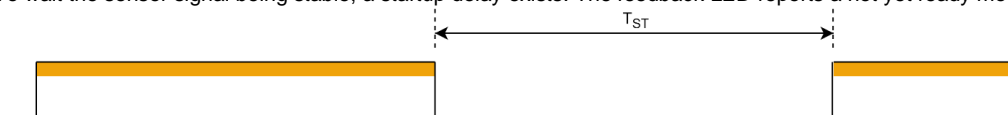
Device identification blinking

On reception of an IDENTIFY command, the input device has to call attention to itself. This is indicated with the feedback LED toggling with 1Hz.



Sensor settling notification

To wait the sensor signal being stable, a startup delay exists. The feedback LED reports a not yet ready motion sensor by toggling with 0.5 Hz.



SENSOTEC Sensor IPD

110088245	SENSOTEC Sensor HB PIR 3360 IPD Intra
110088246	SENSOTEC Sensor HB PIR 3360 IPD Wire
110088247	SENSOTEC Sensor HB PIR 3360 IPD Zhaga
110088249	SENSOTEC Sensor HB PIR 345 IPD Intra
110088250	SENSOTEC Sensor HB PIR 345 IPD Wire
110088251	SENSOTEC Sensor HB PIR 345 IPD Zhaga
110088252	SENSOTEC Sensor HF2 IPD
110088253	SENSOTEC Sensor PIR IPD

Conformity / marks of conformity



Note

As attenuation and reflections can cause a high-frequency sensor to behave differently in any luminaire, we cannot accept any liability for the sensor not working as expected in the particular luminaire it is being used in. Accreditation can be provided by STEINEL. Please contact your contact person find out what assistance we can give you in designing the sensor module into a luminaire. The customer must also guarantee and take responsibility for the way in which the other components behave in the luminaire (lamp, ECG etc.). The product is sold under the brand name STEINEL Solutions AG.

This product data sheet provides no guarantee of qualities within the meaning of the statutory warranty provisions for the product described.