

FLUSH MOUNT PIR MOTION SENSOR

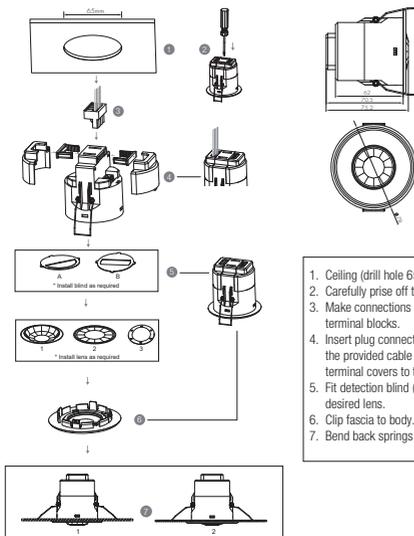
**HIR28 HIR28/R
HIR28/H HIR28/RH**

On/off relay control

1. Technical Specifications

Mains voltage	220–240VAC 50/60Hz
Stand-by power	<1W
Load ratings:	
Capacitive	400VA
Resistive	800W
Warming-up	20s
Sensor principle	PIR detection
Detection range (Max.)*	Installation Height : 5m Detection Range (Ø) : 9m
Detection range (Max.)* HIR28/R	Installation Height : 6m Detection Range(Ø) : 10m
Detection range (Max.)* HIR28/H	Installation height : 15m (forklift) 12m (person) Detection range (Ø) : 24m
Detection range (Max.)* HIR28/RH	Installation height : 15m (forklift) 12m (person) Detection range (Ø) : 40m
Detection angle	360°
Operation Temperature	Ta: -20°C – +50°C
IP rating	IP20
EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669-1, EN60669-2-1
Certification	Semko, CB, CE, EMC, LVD, RCM

2. Installation



1. Ceiling (drill hole 65mm)
2. Carefully prise off the cable clamps.
3. Make connections to the pluggable terminal blocks.
4. Insert plug connectors and secure using the provided cable clamps, then clip terminal covers to the base.
5. Fit detection blind (if required) and desired lens.
6. Clip fascia to body.
7. Bend back springs and insert into ceiling.

3. Functions

3.1 On/ off Control

This sensor is a motion switch, which turns on the light upon detection of motion, and turns off after a pre-selected hold-time when there is no movement. A daylight sensor is also built in to prevent the light from switching on when there is sufficient natural light.

3.2 Lux Off Function

The built-in daylight sensor can measure ambient natural light and switch off the fixture automatically whenever artificial light is not required (natural light lux level exceeds daylight threshold).

3.3 Manual Override

With the help of push-switch, this sensor can be over-riden by the end-user to manually switch on/off the light, which makes the product more user-friendly and offers more options to fit some extra-ordinary demands.

* Short Push (<1s): on/off function;

On → Off: the light turns off immediately and cannot be triggered ON by motion until the expiration of pre-set hold-time. After this period, the sensor goes back to normal sensor mode.

Off → On: the light turns on and goes to sensor mode, no matter if ambient Lux level exceeds the daylight threshold or not.

Note: if end-user do not want this manual override function, just leave the "push" terminal unconnected to any wire.

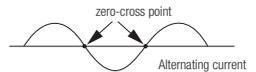
3.4 Semi-auto Mode (Absence Detection)

It is easy to forget to switch off the light, in office, corridor, even at home. And in many other cases, people do not want to have a sensor to switch on the light automatically, for example, when people just quickly pass-by, there is no need to have the light on. The solution is to apply this "absence detector": motion sensor is employed, but only activated on the manual press of the push-switch, the light keeps being ON in the presence, and switches off in the long absence.

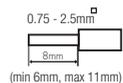
Note: end-user can choose either function 3.3 or function 3.4 for application. Default function is manual override.

3.5 Zero-cross Relay Operation

Designed in the software, sensor switches on/off the load right at the zero-cross point, to ensure that the in-rush current is minimised, enabling the maximum lifetime of the relay.

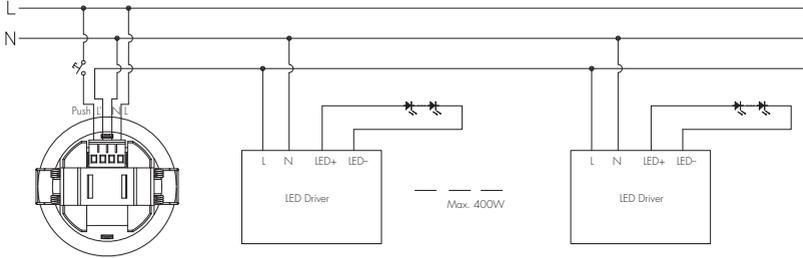


Wire Preparation

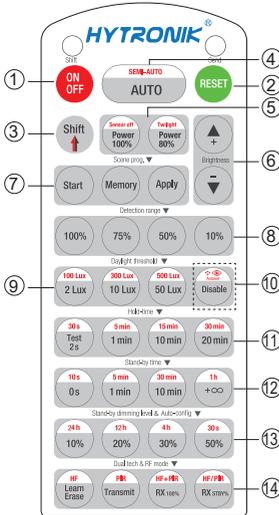


Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

4. Wiring Diagram



5. Description of the Button Functions (remote control HRC-11)



HRC-11

Permanent ON/OFF [button ①]

Press button ①, to select permanent ON or permanent OFF mode.
* Press button ②/③ to quit this mode.
The mode will change to AUTO Mode after power failure.

RESET [button ②]

Press button ②, all settings go back to default values as below:
Hold-time 5min, daylight threshold Disabled

Shift [button ③]

Press button ③, to indicate mode to the LED on the top left corner is on selection. All values / settings in RED are in valid for 20 seconds.

Auto Mode [button ④]

Press button ④ to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF.

Semi-auto Mode [button ⑤ & ⑥]

- Press button ⑤ Shift (the red LED is on for indication).
- Press button ⑥ to initiate semi-auto mode. The fixture is manually on by push-switch and automatically off in semi-auto mode.

Power output [button ⑦]

These two buttons are disabled.

Brightness +/- [button ⑧]

These two buttons are disabled.

Scene prog. [zone ⑨] (One-key-commissioning)

- Press button "Start" to program.
- Select the buttons in ⑨ "Detection range", ⑩/⑪ "Daylight threshold", ⑫ "Hold time" to set all parameters.
- Press button ⑭ "Memory" to save all the settings programmed in the remote control.

- Press button ⑯ "Apply" to set the settings to each sensor unit(s). For example, to set detection range 100%, daylight threshold Disable, hold time 5min, the steps should be: Press button ③ Start, button ⑩ 100%, ⑪ Disable, ⑫ Shift, ⑬ 5min, ⑭ Memory. By pointing to the sensor unit(s) and pressing ⑯ Apply, all settings are passed on the sensor(s).

Detection range [zone ⑧]

These two buttons are disabled.

Daylight threshold [zone ⑩]

Press buttons in zone ⑩ to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux / 300Lux / 500Lux / Disable.

Note: To set daylight sensor at 100Lux / 300Lux / 500Lux, press ⑫ Shift button first.

Ambient daylight threshold [button ⑪]

- Press button ⑫ Shift, the red LED starts to flash.
- Press button ⑬, the ambient lux level is sampled and set as the new daylight threshold / target Lux level.

Hold time [zone ⑫]

Press buttons in zone ⑫ to set the hold time at 2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min.

Note: 1. To set hold-time at 30s / 5min / 15min / 30min, press button ⑫ Shift at first.

2. 2s is for test purpose only, stand-by period and daylight sensor settings are disabled in this mode.

*To exit from Test mode, press button ⑯ or any button in zone ⑯.

All buttons in zone "Stand-by time", "Stand-by dimming level & Auto-config", "Dual-tech & RF mode" are disabled.

6. Detection Pattern & Optional Accessories

1. HIR28 (Low-bay)

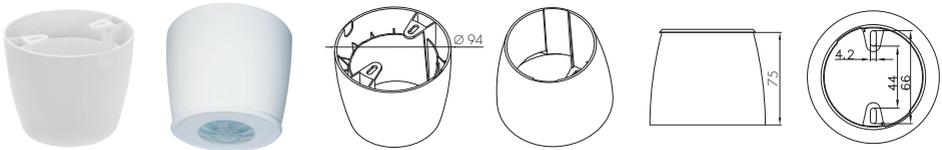


HIR28: Low-bay flat lens detection pattern for **single person** @ $T_a = 20^\circ\text{C}$

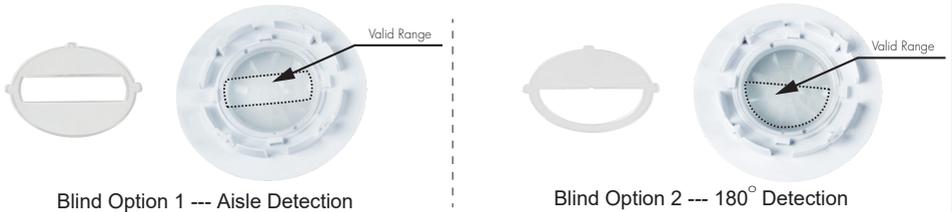
(Recommended ceiling mount installation height **2.5m-6m**)

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

Optional Accessory --- Ceiling/Surface Mount Box: HA03



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



Blind Option 1 --- Aisle Detection

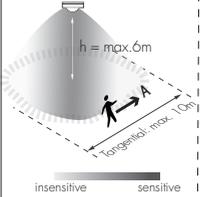
Blind Option 2 --- 180° Detection

2. HIR28/R (Reinforced Low-bay)



HIR28/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 79m² (∅ = 10m)

max 20m² (∅ = 5m)

3m

max 79m² (∅ = 10m)

max 20m² (∅ = 5m)

4m

max 64m² (∅ = 9m)

max 20m² (∅ = 5m)

5m

max 50m² (∅ = 8m)

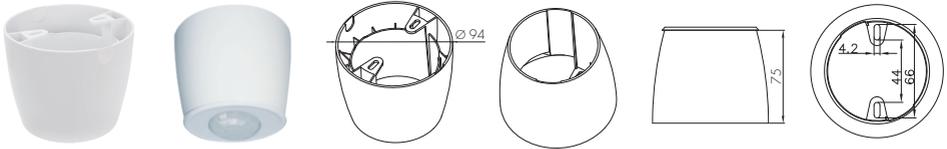
max 20m² (∅ = 5m)

6m

max 50m² (∅ = 8m)

max 20m² (∅ = 5m)

Optional Accessory -- Ceiling/Surface Mount Box: HA03



Optional Accessory -- Blind Insert for Blocking Certain Detection Angles



Blind Option 1 --- Aisle Detection



Blind Option 2 --- 180° Detection

3. HIR28/H (High-bay)



HIR28/H: High-bay lens detection pattern for **forklift** @ Ta = 20°C
 (Recommended ceiling mount installation height **10m-15m**)

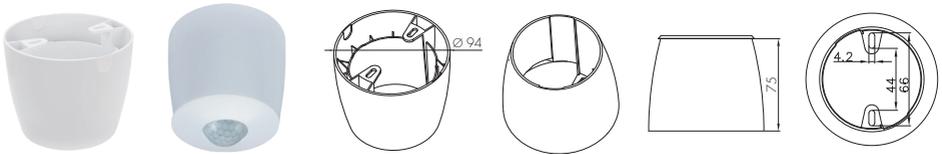
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 380m² (Ø = 22m)	max 201m² (Ø = 16m)
		11m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		12m	max 452m² (Ø = 24m)	max 201m² (Ø = 16m)
		13m	max 452m² (Ø = 24m)	max 177m² (Ø = 15m)
		14m	max 452m² (Ø = 24m)	max 133m² (Ø = 13m)
		15m	max 452m² (Ø = 24m)	max 113m² (Ø = 12m)



HIR28/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 50m² (Ø = 8m)	max 7m² (Ø = 3m)
		6m	max 104m² (Ø = 11.5m)	max 7m² (Ø = 3m)
		8m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
		10m	max 227m² (Ø = 17m)	max 7m² (Ø = 3m)
		11m	max 269m² (Ø = 18.5m)	max 7m² (Ø = 3m)
		12m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)

Optional Accessory -- Ceiling/Surface Mount Box: HA03



Optional Accessory -- Blind Insert for Blocking Certain Detection Angles



4. HIR28/RH (Reinforced High-bay with 3-Pyro)



HIR28/RH: Reinforced high-bay lens detection pattern for **forklift** @ $T_a = 20^\circ\text{C}$
(Recommended ceiling mount installation height **10m-15m**)

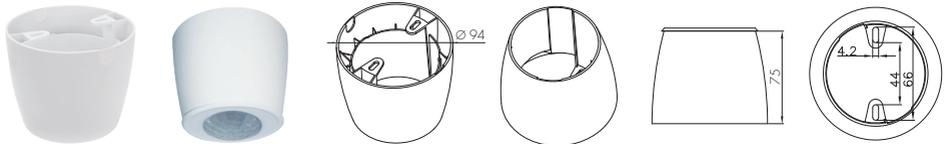
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 346m ² (Ø = 21m)	max 177m ² (Ø = 15m)
		11m	max 660m ² (Ø = 29m)	max 177m ² (Ø = 15m)
		12m	max 907m ² (Ø = 34m)	max 154m ² (Ø = 14m)
		13m	max 962m ² (Ø = 35m)	max 154m ² (Ø = 14m)
		14m	max 1075m ² (Ø = 37m)	max 113m ² (Ø = 12m)
		15m	max 1256m ² (Ø = 40m)	max 113m ² (Ø = 12m)



HIR28/RH: Reinforced high-bay lens detection pattern for **single person** @ $T_a = 20^\circ\text{C}$
(Recommended ceiling mount installation height **2.5m-12m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 38m ² (Ø = 7m)	max 7m ² (Ø = 3m)
		6m	max 154m ² (Ø = 14m)	max 7m ² (Ø = 3m)
		8m	max 314m ² (Ø = 20m)	max 7m ² (Ø = 3m)
		10m	max 531m ² (Ø = 26m)	max 13m ² (Ø = 4m)
		11m	max 615m ² (Ø = 28m)	max 13m ² (Ø = 4m)
		12m	max 707m ² (Ø = 30m)	max 13m ² (Ø = 4m)

Optional Accessory -- Ceiling/Surface Mount Box: HA03



7. Additional Information / Documents

1. Regarding precautions for PIR sensor installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->PIR Sensors - Precautions for Product Installation and Operation
2. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy