

## FLUSH MOUNT PIR MOTION SENSOR

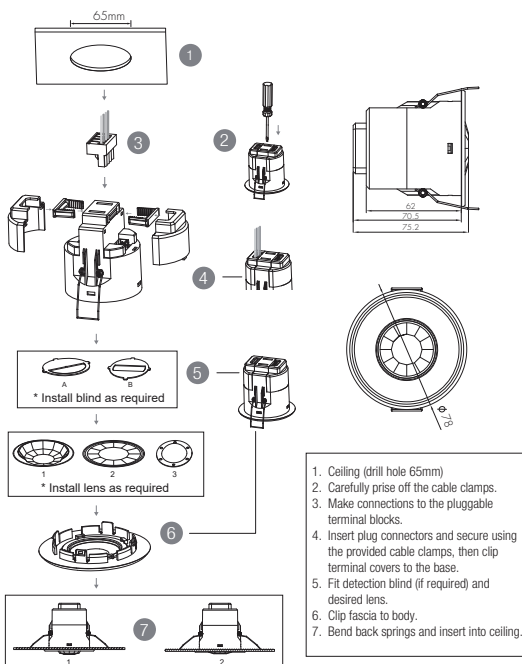
One DALI Channel Output

HIR27 HIR27/R  
HIR27/H HIR27/RH

### 1. Technical Specifications

Mains voltage	220–240VAC 50/60Hz
Stand-by power	<0.5W
Switched power	Max. 40pcs devices, 80mA
Warming-up	Appr. 20s
Sensor principle	PIR detection
Detection range (Max.)*	Installation Height : 6m
HIR27	Detection Range (Ø) : 9m
Detection range (Max.)*	Installation Height : 6m
HIR27/R	Detection Range(Ø) : 10m
Detection range (Max.)*	Installation height : 15m (forklift)
HIR27/H	12m (person)
Detection range (Ø) :	24m
Detection range (Max.)*	Installation height : 20m (forklift)
HIR27/RH	12m (person)
Detection range (Ø) :	40m
Detection angle	360°
Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20
EMC standard (EMC)	EN55015, EN61000, EN61547
Safety standard (LVD)	EN60669-1, EN60669-2-1, AS/NES60669-1/-2-1
Certification	CB, CE, EMC, LVD, RCM, ROHS compliance

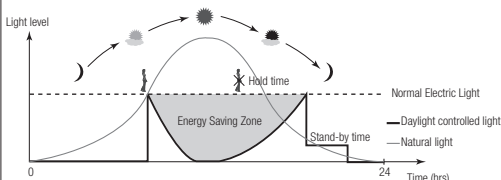
### 2. Installation



### 3. Functions

#### 3.1 Daylight Harvest (Daylight Regulating)

Daylight sensor measures the available surrounding natural light, calculates how much electrical light is needed to reach the total lux expected. The demand is given to the LED driver by DALI signal, so as to deliver the needed amount of electric light.



#### 3.2 Manual Override

With the help of push-switch, this sensor can be over-ridden 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.

\* Long Push (>1s): adjust the target lux level by turning the light up or down. Both the adjustment on remote control and push switch can overwrite each other. The last adjustment remains in memory.

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

#### 3.3 Semi-auto Mode (Absence Detection)

Selecting this mode will activate the following logic:

Manual on - The lights will not switch on until they have manually been switched on at the wall switch. The occupancy sensor is inactive whilst the lights are off.

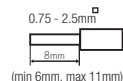
Auto off - When the lights are on, the sensor becomes active and monitors the space for activity. Once the area is vacated (absence detection), the sensor will automatically switch off the lights if the last person out forgets to switch off the light manually.

Note: The wall switch can be assigned to function 3.2 or 3.3, but not both. The default function is manual override.

#### 3.4 Synchronisation Function

By connecting the "SYNC" terminals in parallel (see wiring diagram), no matter which sensor detects motion, all HIR27 in the group will turn on the lights when surrounding natural light is below the daylight threshold. The detection area could be widely enlarged in this way.

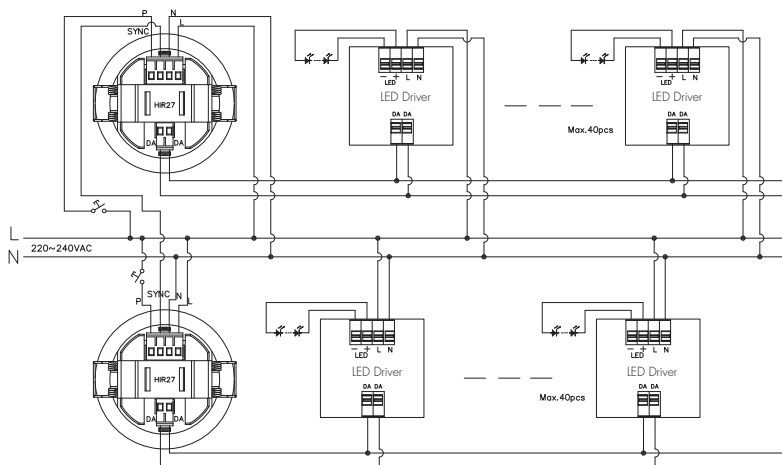
#### Wire Preparation



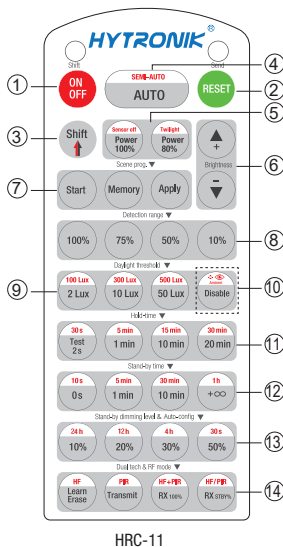
Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

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

## 4. Wiring Diagram



## 5. Description of the Button Functions (remote control 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 sensor 100Lux, Stand-by time: 10min, Stand-by dimming level: 20%

### Shift [button ③]

Press button ③, the LED on the top left corner is on to indicate mode 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]

1. Press button ⑤ Shift (the red LED is on for indication).  
2. 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] (Daylight harvest without occupancy)

1. Press button ⑦, the red LED is on for indication.  
2. Press button "Twilight", the function of movement detection is disabled.

Note: the function of "Sensor off" is disabled.

### Brightness +/- [button ⑧]

Press button ⑧ to adjust the light brightness between 10%~100%.

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

1. Press button "Start" to program.  
2. Select the buttons in ⑨ "Detection range", ⑩ "Daylight threshold", ⑪ "Hold time", ⑫ "Stand-by time", ⑬ "Stand-by dimming level" to set all parameters.  
3. Press button ⑭ "Memory" to save all the settings programmed in the remote control.  
4. Press button ⑮ "Apply" to set the settings to each sensor unit(s).  
For example, to set detection range 100%, daylight threshold Disable, hold time 5min, stand-by time +∞, stand-by dimming level 30%, steps should be:  
Press button ⑮ Start, button ⑩ 100%, ⑪ Disable, ⑫ Shift, ⑬ 5min, ⑭ Shift, ⑮ +∞, ⑯ 30%, ⑰ Memory. By pointing to the sensor unit(s) and pressing ⑰ Apply, all settings are passed on the sensor(s).

### Detection range [zone ⑩]

These two buttons are disabled.

### Daylight threshold [zone ⑪]

Press buttons in zone ⑪ 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 ⑫]

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

### Hold time [zone ⑬]

Press buttons in zone ⑬ 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 ⑭ or any button in zone ⑯.

### Stand-by time [zone ⑭]


Press buttons in zone ⑭ to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞.  
Note: "0s" means on/off control; "+∞" means bi-level control, 100% on when motion detected, and remains at the stand-by dimming level when no presence after hold-time.

### Stand-by dimming level [zone ⑮]

Press buttons in zone ⑮ to set the stand-by dimming level at 10% / 20% / 30% / 50%.  
Note: the function of 24h/12h/4h/30s are disabled.

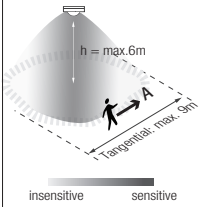
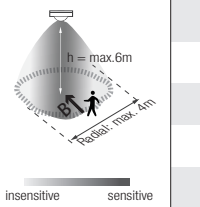
Button "Dual-tech & RF mode" is disabled.

6. Detection Pattern & Optional Accessories

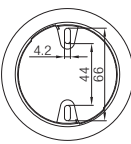
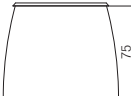
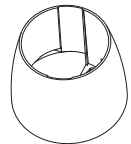
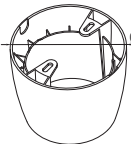




### 1. HIR27 (Low-bay)

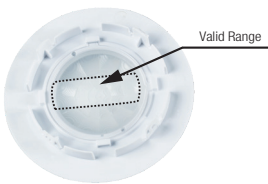

**HIR27:** Low-bay flat lens detection pattern for **single person** @ Ta = 20°C  
(Recommended ceiling mount installation height **2.5m-6m**)

A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		2.5m	max 50m² (Ø = 8m)	max 13m² (Ø = 4m)
		3m	max 64m² (Ø = 9m)	max 13m² (Ø = 4m)
		4m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)
		5m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)
		6m	max 38m² (Ø = 7m)	max 13m² (Ø = 4m)

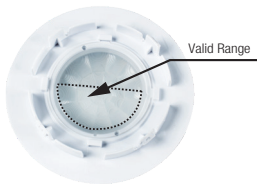

Optional Accessory --- Ceiling/Surface Mount Box: HA03



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



Blind Option 1 --- Aisle Detection



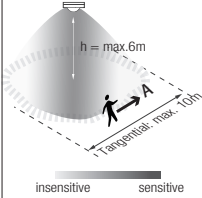
Blind Option 2 --- 180° Detection

## 2. HIR27/R (Reinforced Low-bay)

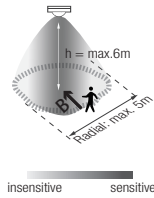


**HIR27/R:** Low-bay convex lens detection pattern for **single person** @  $T_a = 20^\circ\text{C}$   
(Recommended ceiling mount installation height **2.5m-6m**)

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)

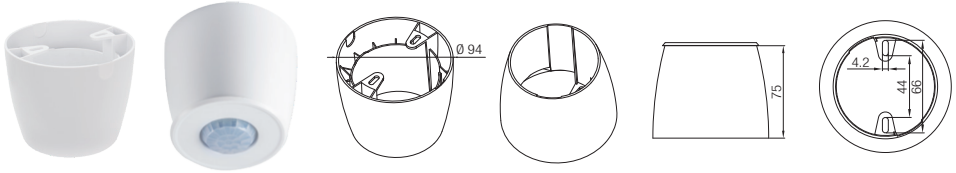
max 20m<sup>2</sup> (Ø = 5m)

6m

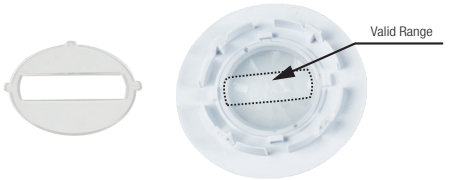
max 50m<sup>2</sup> (Ø = 8m)

max 20m<sup>2</sup> (Ø = 5m)

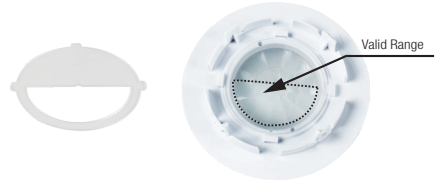
Optional Accessory --- Ceiling/Surface Mount Box: HA03



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



Blind Option 1 --- Aisle Detection



Blind Option 2 --- 180° Detection

### 3. HIR27/H (High-bay)



**HIR27/H:** High-bay lens detection pattern for **forklift** @ Ta = 20°C  
(Recommended ceiling mount installation height **10m-15m**)

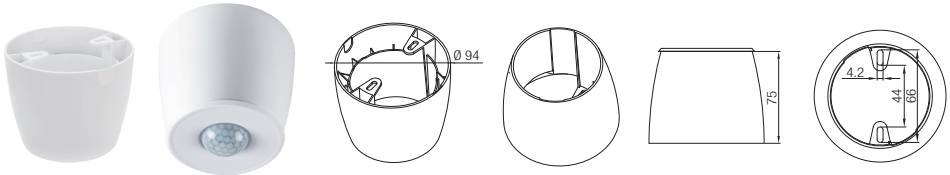
A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
		10m	max 380m <sup>2</sup> (Ø = 22m)	max 201m <sup>2</sup> (Ø = 16m)
		11m	max 452m <sup>2</sup> (Ø = 24m)	max 201m <sup>2</sup> (Ø = 16m)
		12m	max 452m <sup>2</sup> (Ø = 24m)	max 201m <sup>2</sup> (Ø = 16m)
		13m	max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



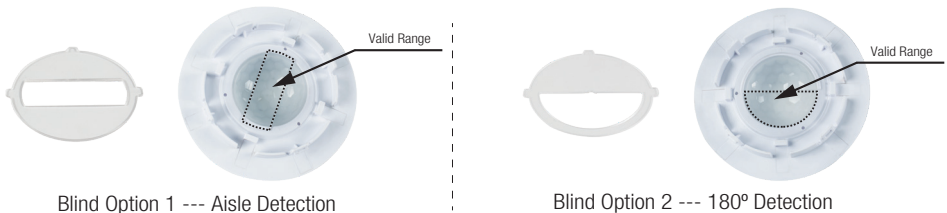
**HIR27/H:** High-bay lens detection pattern for **single person** @ Ta = 20°C  
(Recommended ceiling mount installation height **2.5m-12m**)

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 Mount Box: HA03



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



#### 4. HIR27/RH (Reinforced High-bay with 3-Pyro)



**HIR27/RH:** Reinforced high-bay lens detection pattern for **forklift** @ Ta = 20°C  
(Recommended ceiling mount installation height **10m-15m**)

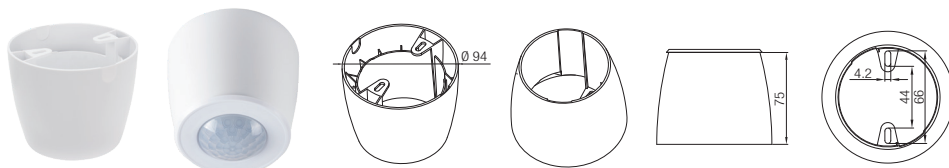
		Mount height	Tangential (A)	Radial (B)
<p>A: Tangential movement</p>	<p>B: Radial movement</p>	10m	max 346m <sup>2</sup> (Ø = 21m)	max 177m <sup>2</sup> (Ø = 15m)
		11m	max 660m <sup>2</sup> (Ø = 29m)	max 177m <sup>2</sup> (Ø = 15m)
		12m	max 907m <sup>2</sup> (Ø = 34m)	max 154m <sup>2</sup> (Ø = 14m)
		13m	max 962m <sup>2</sup> (Ø = 35m)	max 154m <sup>2</sup> (Ø = 14m)
		14m	max 1075m <sup>2</sup> (Ø = 37m)	max 113m <sup>2</sup> (Ø = 12m)
		15m	max 1256m <sup>2</sup> (Ø = 40m)	max 113m <sup>2</sup> (Ø = 12m)
		20m	max 707m <sup>2</sup> (Ø = 30m)	max 113m <sup>2</sup> (Ø = 12m)



**HIR27/RH:** Reinforced high-bay lens detection pattern for **single person** @ Ta = 200C  
(Recommended ceiling mount installation height **2.5m-12m**)

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

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



#### 7. Additional Information / Documents

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