FLUSH MOUNT PIR MOTION SENSOR
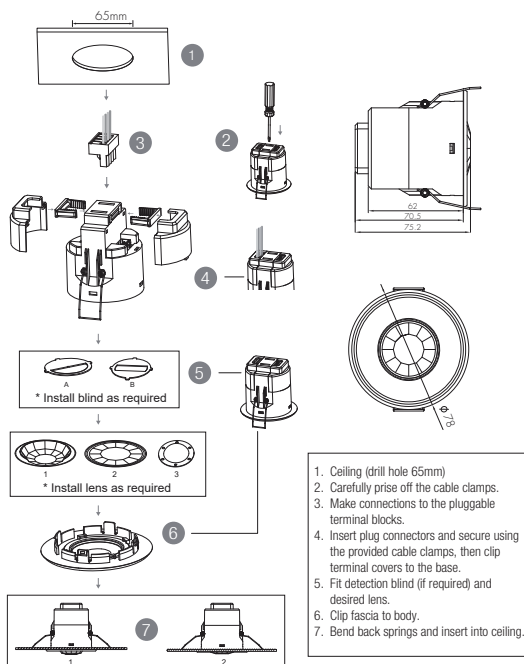One DALI Channel Output

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.)* HIR27/H	Installation height：15m (forklift) 12m (person)
	Detection range (Ø)： 24m
Detection range (Max.)* HIR27/RH	Installation height：20m (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, EN61547
Safety standard (LVD)	EN60669-1, EN60669-2-1, AS/NES60669-1/-2-1
Certification	CB, CE , EMC, LVD, RCM, ROHS compliance

2. Installation

* Install blind as required
* Install lens as required

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 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.
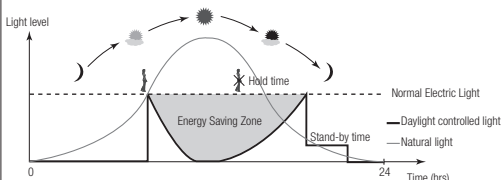
3.2 Manual Override

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 setection), 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.
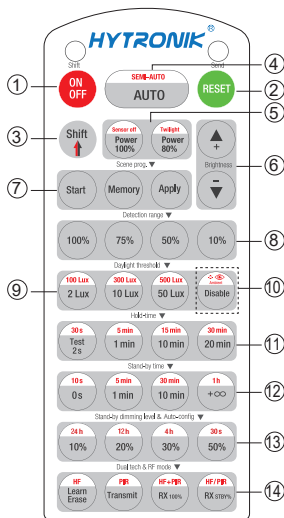
Wire Preparation

0.75 - 2.5mm

8mm

(min 6mm, max 11mm)
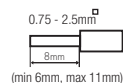
Pluggable screw terminal. It is recommended to make connections to the terminal before fitting to the sensor.

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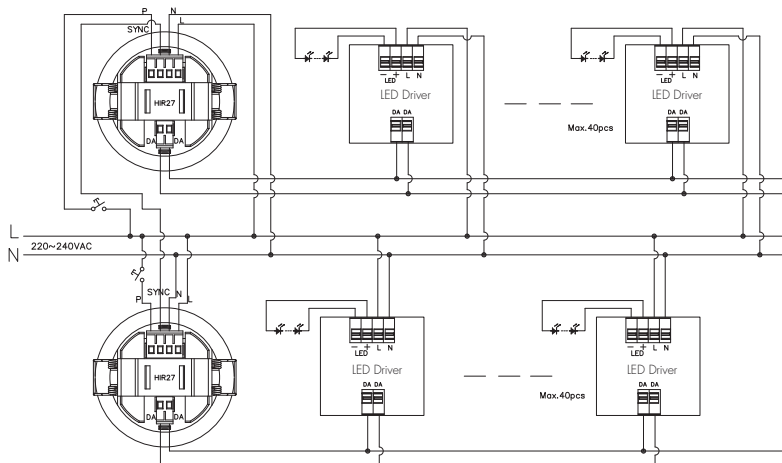
5. Description of the Button Functions (remote control HRC-11)

HRC-11

Permanent ON/OFF [button①]
Press button ①, to select permanent ON or permanent OFF mode.
* Press button ②/④ to to quit this mode.
The mode will change to AUTO Mode after power failure.

RESET[button②]
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 [button③]
Press button ③, the LED on the top left corner is on to indicate mode selection. All values / settings in RED are valid for 20 seconds.

Auto Mode [button④]
Press button④ to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF.

Semi-auto Mode [button③&④]
1. Press button③ Shift (the red LED is on for indication).
2. Press button④ to initiate semi-auto mode. The fixture is manually on by push-switch and automatically off in semi-auto mode.

Power output [button⑤] (Daylight harvest without occupancy)
1. Press button③, 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 +/- [button⑥]
Press button ⑥ to adjust the light brightness between 10%~100%.

Scene prog. [zone⑦] (One-key-commissioning)
1. Press button "Start" to program.
2. Select the buttons in ⑧ "Detection range", ⑨/⑩ "Daylight threshold", ⑪ "Hold time", ⑫ "Stand-by time", ⑬ "Stand-by dimming level" to set all parameters.
3. Press button ⑦ "Memory" to save all the settings programmed in the remote control.
4. Press button ⑦ "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 button⑦Start, button⑧100%, ⑩Disable, ③Shift, ⑪5min, ③ Shift,⑫+∞ , ⑬ 30%,⑦ Memory. By pointing to the sensor unit(s) and pressing⑦Apply, all settings are passed on the sensor(s).

Detection range [zone⑧]
These two buttons are disabled.

Daylight threshold [zone⑨]
Press buttons in zone⑨to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux / 300Lux / 500Lux / Disable.
Note: To set daylight sensor at 100Lux / 300Lux / 500Lux, press ③Shift button first.

Ambient daylight threshold [button⑩]
1. Press button③Shift, the red LED starts to flash.
2. Press button⑩, the ambient lux level is sampled and set as the new daylight threshold / target Lux level.

Hold time [zone⑪]
Press buttons in zone⑪to 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 ③Shift 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 button②or any button in zone⑪.

Stand-by time [zone⑫]
Press buttons in zone⑫to 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.
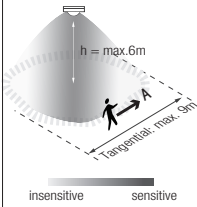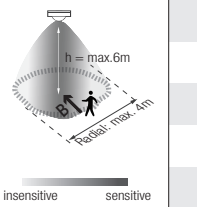
Stand-by dimming level [zone⑬]
Press buttons in zone⑬to set the stand-by dimming level at 10% / 20% / 30% / 50%.
Note: the function of 24h/12h/4h/30s are disabled.
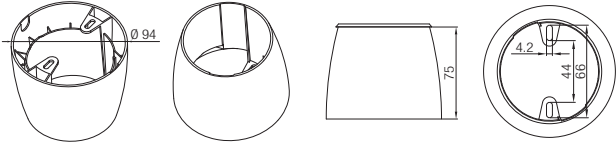
Button "Dual-tech & RF mode" is disabled.

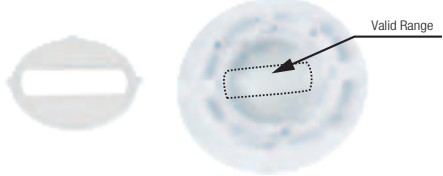## 6. Detection Pattern & Optional Accessories

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

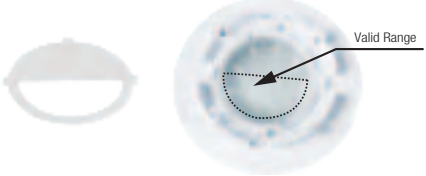| A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
h = max.6m Tangential: max. 9m	h = max.6m Radial: max. 4m	2.5m	max 50m^2 (Ø = 8m)	max 13m^2 (Ø = 4m)
		3m	max 64m^2 (Ø = 9m)	max 13m^2 (Ø = 4m)
		4m	max 38m^2 (Ø = 7m)	max 13m^2 (Ø = 4m)
insensitive sensitive	insensitive sensitive	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

Ø 94

75

4.2

44

66

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

Valid Range

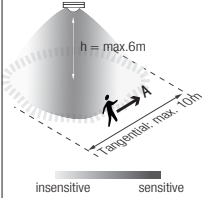Valid Range

Blind Option 1 --- Aisle Detection

Blind Option 2 --- 180º Detection

2. HIR27/R (Reinforced Low-bay)

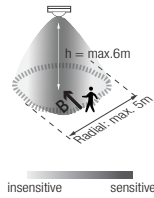 **HIR27/R**: Low-bay convex lens detection pattern for **single person** @ Ta = 20ºC
(Recommended ceiling mount installation height **2.5m-6m**)

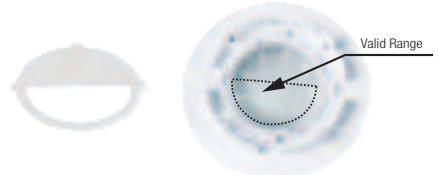| A: Tangential movement	B: Radial movement	Mount height	Tangential (A)	Radial (B)
h = max.6m Tangential: max. 10m insensitive sensitive	h = max.6m Radial: max. 5m insensitive sensitive	2.5m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
		3m	max 79m² (Ø = 10m)	max 20m² (Ø = 5m)
		4m	max 64m² (Ø = 9m)	max 20m² (Ø = 5m)
		5m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)
		6m	max 50m² (Ø = 8m)	max 20m² (Ø = 5m)

Optional Accessory --- Ceiling/Surface Mount Box: HA03
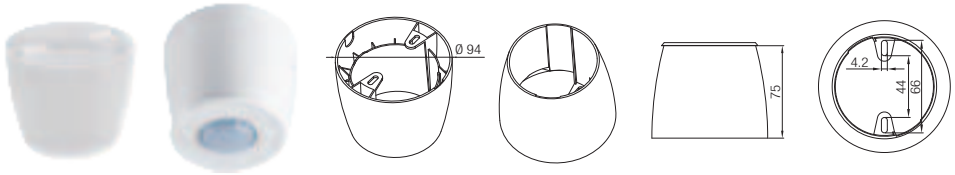
Ø 94   75   4.2   44   66

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

Valid Range

Blind Option 1 --- Aisle Detection

Valid Range

Blind Option 2 --- 180º Detection

3. HIR27/H (High-bay)

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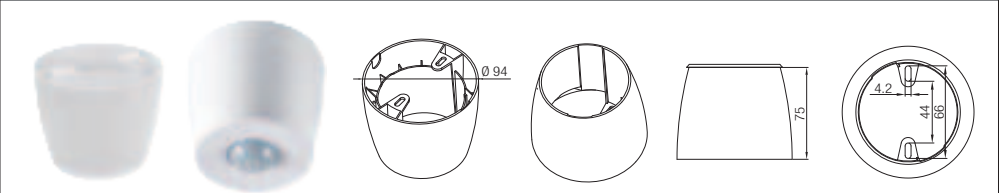(Recommended ceiling mount installation height **10m-15m**)

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)

A: Tangential movement | B: Radial movement

insensitive sensitive | insensitive sensitive

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

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)

A: Tangential movement | B: Radial movement

insensitive sensitive | insensitive sensitive

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

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

Valid Range

Valid Range

Blind Option 1 --- Aisle Detection | Blind Option 2 --- 180º Detection
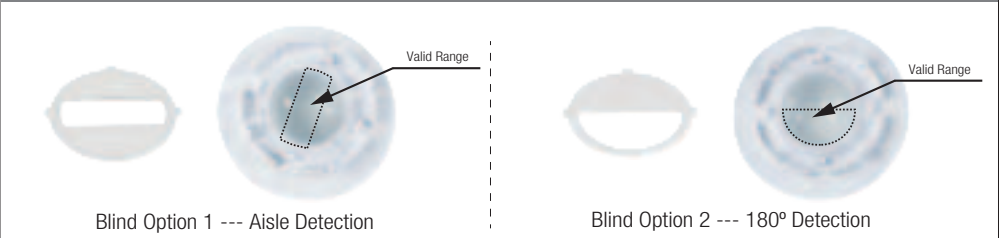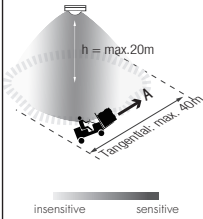
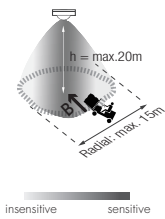## 4. HIR27/RH (Reinforced High-bay with 3-Pyro)

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

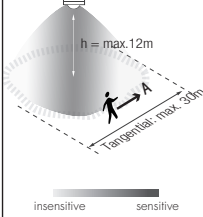A: Tangential movement

B: Radial movement

h = max.20m

Tangential: max. 40m

h = max.20m

Radial: max. 15m

insensitive   sensitive

insensitive   sensitive

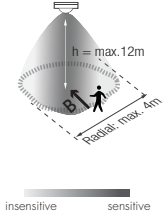| Mount height	Tangential (A)	Radial (B)
10m	max 346m² (Ø = 21m)	max 177m² (Ø = 15m)
11m	max 660m² (Ø = 29m)	max 177m² (Ø = 15m)
12m	max 907m² (Ø = 34m)	max 154m² (Ø = 14m)
13m	max 962m² (Ø = 35m)	max 154m² (Ø = 14m)
14m	max 1075m² (Ø = 37m)	max 113m² (Ø = 12m)
15m	max 1256m² (Ø = 40m)	max 113m² (Ø = 12m)
20m	max 707m2 (Ø = 30m)	max 113m2 (Ø = 12m)

HIR27/RH: Reinforced high-bay lens detection pattern for **single person** @ Ta = 20OC
(Recommended ceiling mount installation height **2.5m-12m**)

A: Tangential movement

B: Radial movement

h = max.12m

Tangential: max. 30m

h = max.12m

Radial: max. 4m

insensitive   sensitive

insensitive   sensitive

Mount height	Tangential (A)	Radial (B)
2.5m	max 38m² (Ø = 7m)	max 7m² (Ø = 3m)
6m	max 154m² (Ø = 14m)	max 7m² (Ø = 3m)
8m	max 314m² (Ø = 20m)	max 7m² (Ø = 3m)
10m	max 531m² (Ø = 26m)	max 13m² (Ø = 4m)
11m	max 615m² (Ø = 28m)	max 13m² (Ø = 4m)
12m	max 707m² (Ø = 30m)	max 13m² (Ø = 4m)

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

Ø 94

75

4.2

44

66
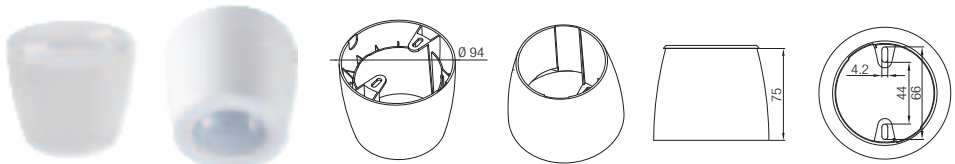
7. Additional Information / Documents

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