Installation and Instruction Manual

HYTRONIK ®

FLUSH MOUNT PIR MOTION SENSOR   HIR28
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 : 6m
HIR28	Detection Range (Ø) :9m
Detection angle	360°
Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20/IP54

2. Installation

Ø 66~68mm

A   B
* Install blind as required

* Install lens as required

70.5
75.2
Ø78

1. Ceiling (drill hole φ66~68mm)
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-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.

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.
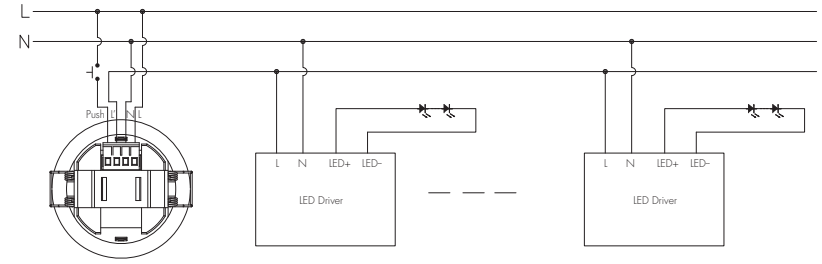

zero-cross point
Alternating current
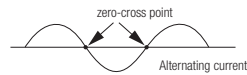
4. Wiring Diagram
Wire Preparation

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.

L
N

Push L N L

LED Driver   L N LED+ LED-

LED Driver   L N LED+ LED-

————This product should be installed by a qualified electrician.

5. Detection Pattern & Optional Accessories

HIR28 (Low-bay)			
HIR28: 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)
	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 Metal Mount Box: HA09/W, HA09/B, HA09/G

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

Valid Range

Valid Range

Blind Option 1 --- Aisle Detection   Blind Option 2 --- 180º Detection

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Subject to change without notice.   HIR28-20230616-A1

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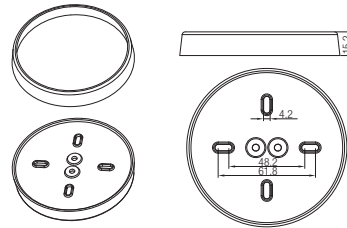
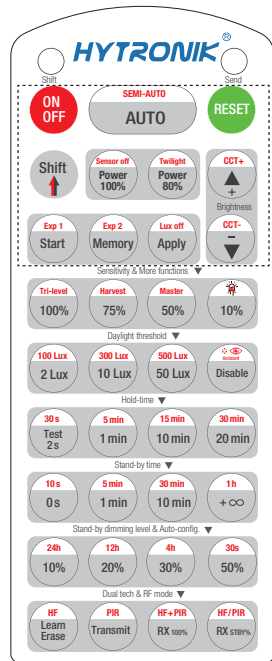Big and small silicon gasket used to make IP54 degree protection (mounted into HA09 housing for ceiling mount)

Small silicon water-proof gasket dimension(size:mm)   Big silicon water-proof gasket dimension(size:mm)
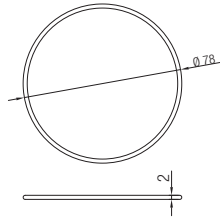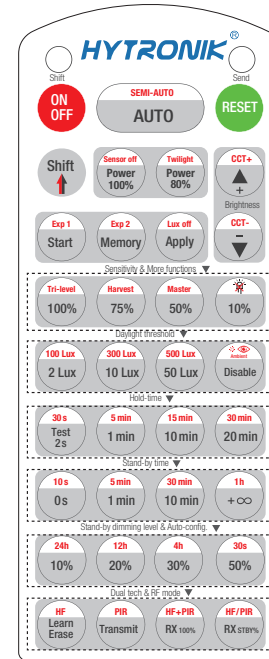
ø78   2   15.2   4.2   48   61.8

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

HYTRONIK ®
Shift — Send
ON OFF | SEMI-AUTO AUTO | RESET
Shift ↑ | Sensor off / Power 100% | Twilight / Power 80% | CCT+ ▲ + / Brightness
Exp 1 / Start | Exp 2 / Memory | Lux off / Apply | CCT− ▼ −
Sensitivity & More functions
Tri-level / 100% | Harvest / 75% | Master / 50% | 10% ☀
Daylight threshold ▼
100 Lux / 2 Lux | 300 Lux / 10 Lux | 500 Lux / 50 Lux | Ambient / Disable
Hold-time ▼
30 s / Test 2s | 5 min / 1 min | 15 min / 10 min | 30 min / 20 min
Stand-by time ▼
10 s / 0 s | 5 min / 1 min | 30 min / 10 min | 1h / +∞
Stand-by dimming level & Auto-config. ▼
24h / 10% | 12h / 20% | 4h / 30% | 30s / 50%
Dual tech & RF mode ▼
HF / Learn Erase | PIR / Transmit | HF+PIR / RX 100% | HF/PIR / RX STBY%

HRC-11

Button	Description
ON OFF	Press button "ON/OFF" to select permanent ON or permanent OFF mode. * Press button "AUTO"/ "RESET" to exit this mode.
RESET	Press button "RESET", all settings go back to default. The default settings are: Hold-time 5min; Daylight threshold disable.
Shift	Press button "Shift", the LED on the top left corner is on to indicate mode selection. All values / settings in RED are valid for 20 seconds.
AUTO	Press button "AUTO" to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF;
SEMI-AUTO	1. Press button "Shift", the red LED on. 2. Press button "SEMI-AUTO" to initiate Semi-auto mode. The sensor is only activated with the manual press of push switch. To exit this mode, simply press button "SEMI-AUTO" again. *For Sensor LED indicator references: Remains on 2s, initiate "Semi-auto" mode from "Auto" mode.*
Power 100% 80%	This key is not appliable on this product.
Sensor off Twilight	This key is not appliable on this product.
▲ ▼	This key is not appliable on this product.
CCT+ CCT−	This key is not appliable on this product.
Start Memory Apply	1. Press button "Start" to program. 2. Select the buttons in "Detection range", "Daylight threshold", "Hold-time", "Stand-by time", "Stand-by dimming level" to set all parameters. 3. Press button "Memory" to save all the settings programmed in the remote control. 4. Press button "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%, the steps should be: Press button "Start", button "100%", "Disable", "Shift", "5min", "Shift", "+∞", "30%", "Memory". By pointing to the sensor unit(s) and pressing "Apply", all settings are passed on the sensor(s).*
Lux off	This key is not appliable on this product.
Exp 1 Exp 2	"Exp" refer to Expansion, these two buttons are reserved functions and pending future development.

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Shift ↑ | Sensor off / Power 100% | Twilight / Power 80% | CCT+ ▲ + / Brightness
Exp 1 / Start | Exp 2 / Memory | Lux off / Apply | CCT− ▼
Sensitivity & More functions ▼
Tri-level / 100% | Harvest / 75% | Master / 50% | 10% ☀
Daylight threshold ▼
100 Lux / 2 Lux | 300 Lux / 10 Lux | 500 Lux / 50 Lux | Ambient / Disable
Hold-time ▼
30 s / Test 2s | 5 min / 1 min | 15 min / 10 min | 30 min / 20 min
Stand-by time ▼
10 s / 0 s | 5 min / 1 min | 30 min / 10 min | 1h / +∞
Stand-by dimming level & Auto-config. ▼
24h / 10% | 12h / 20% | 4h / 30% | 30s / 50%
Dual tech & RF mode ▼
HF / Learn Erase | PIR / Transmit | HF+PIR / RX 100% | HF/PIR / RX STBY%

HRC-11

Zone / Button	Description
Sensitivity & More functions	
100% 75% 50% 10%	This key is not appliable on this product.
Tri-level Harvest	This key is not appliable on this product.
Master	This key is not appliable on this product.
Daylight threshold	
2 Lux 100 Lux / 10 Lux 300 Lux / 50 Lux 500 Lux / Disable	Press buttons in zone "Daylight threshold" to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux / 300Lux/500Lux / Disable. *Note: To set daylight sensor at 100Lux / 300Lux/500Lux, press "Shift" button first.*
Ambient	1. Press button "Shift", the red LED on. 2. Press button "Ambient", the surrounding lux level is sampled and set as daylight threshold / target Lux level.
Hold-time mode	
Test 2s 30s / 1 min 5min / 10min 15min / 20 min 30 min	In AUTO /SEMI-AUTO modes, press buttons in zone "hold-time" 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 "Shift" button first. 2. 2s is for testing purpose only, stand-by period and daylight sensor settings are disabled in this mode.* *To exit from Test mode, press button "RESET" or any button in "Hold-time".
Stand-by time mode	
0s 10s / 1 min 5min / 10min 30min / +∞ 1h	Press buttons in zone "stand-by time" to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞. Note: 1. To set stand-by-time at 10s/ 5min / 30min / 1h, press "Shift" button first. 2. "0s" means on/off control; 3. "+∞" means bi-level control, the fixture is 100% on when there is motion detected, and remains at the stand-by dimming level when no presence after motion hold-time. Only when the stand-by time is set in "+∞" and the ambient lux level is below the target lux level, the lux will auto-on.
Stand-by dimming level & Auto-config.	
10% 20% 30% 50%	This key is not appliable on this product.
24h 30s 4h 12h	This key is not appliable on this product.
Dual tech & RF mode	
Learn Erase	This key is not appliable on this product.
Transmit	This key is not appliable on this product.
HF PIR HF+PIR HF/PIR	This key is not appliable on this product.

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