

SURFACE MOUNT HIGH BAY MOTION SENSOR HMW12

Installation and Instruction Manual

1. Technical Specifications

Product type	High bay microwave motion sensor (Daylight harvest)
Operating voltage	120–277VAC 50/60Hz
Rated load	Resistive: 700W@120V; 1600W@220-277V; Capacitive: 400VA@120V; 800VA@220-277V;
Power consumption	< 1W
Detection angle	360°
Detection area (DxH)	12 x 12m (Maximum)
Mounting height	15M(Maximum)
Detection range	10% / 50% / 75% / 100%
Hold time	2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min
Stand-by time	0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞
Stand-by dimming level	10% / 20% / 30% / 50%
Daylight threshold	50 – 500Lux, Disable
Warming up time	20s
Operating temperature	-20°C – +50°C
IP rating	IP42

3. Rotary Switch Settings

A rotary switch is built inside the sensor for scene selection / fast programming. Total 16 channels available:



Rotary switch preset (Please see the location in 2. Installation)

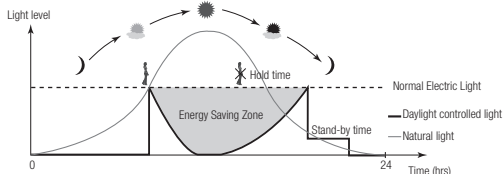
Channel	Detection range	Hold time	Stand-by time	Stand-by dimming level	Daylight threshold
0	100%	5s	10s	10%	Disable
1	100%	1min	5min	10%	50Lux
2	100%	5min	10min	10%	50Lux
3	100%	5min	+∞	10%	75Lux
4	100%	5min	+∞	10%	100Lux
5	100%	5min	+∞	30%	200Lux
6	100%	10min	30min	10%	50Lux
7	100%	10min	+∞	10%	75Lux
8	100%	10min	+∞	10%	100Lux
9	100%	10min	+∞	30%	200Lux
A	100%	20min	1h	10%	100Lux
B	100%	20min	+∞	30%	200Lux
C	100%	30min	+∞	10%	100Lux
D	100%	30min	+∞	30%	200Lux
E	100%	30min	+∞	50%	400Lux
F	100%	5s	10s	10%	100Lux

Note: settings can also be changed by remote control HRC-11. The last action controls.

4. Functions

4.1 Daylight Harvest (Daylight Regulating)

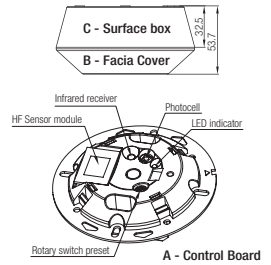
Daylight sensor measures the available surrounding natural light, calculates how much electrical light is needed to reach the total lux expected. The demand is given to the LED driver by 1-10V signal, so as to deliver the needed amount of electric light.



2. Installation

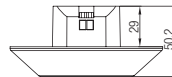
⚠ Warnings:

- Installation must be carried out by a qualified engineer in accordance with local regulations.
- Disconnect supply before installing.
- Install to a solid surface - vibrations may cause mis-triggering.
- Ensure environmental conditions are suitable for electronic equipment



Direct junction "J" box mounting

- Separate control board (A) from facia (B) & Surface box (C). C is not required.
- Make electrical connections to control board (A). See detailed wiring diagram on next page.
- Secure control board (A) to junction box.
- Set-up sensor modes as per sections 3 & 4 of this manual.
- Clip facial plate (B) to control board (A).



Surface mount assembly

- Separate control board (A) from facia (B) & Surface box (C).
- Securely mount surface box (C) to a flat and solid surface.
- Make electrical connections to control board (A). See detailed wiring diagram on next page.
- Set-up sensor modes as per sections 3 & 4 of this manual.
- Secure control board (A) to surface box (C).
- Clip facial plate (B) to control board (A).



4.2 Lux Off Function

The light dims to minimum level even switches off completely if ambient daylight is sufficient (natural light level exceeds target lux level), no matter it is during hold-time or stand-by time, with or without motion.

Note: if the stand-by time is preset at "+∞", the light never turns off even when natural light is sufficient.

4.3 Manual Override

With the help of push-switch, this sensor maybe over-riden by the end-users to switch on/off the lights manually, or adjust the light brightness during motion hold-time. This makes the product more user-friendly and offers more options to fit for extra-ordinary demands.

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

ON → OFF: the light turns off immediately and cannot be lightened for a certain time (equals to hold time preset) even there is movement is detected. After this period, the sensor goes back to auto sensor mode.

OFF → ON: the light turns on 100% and goes to auto sensor mode, even when ambient Lux level exceeds the daylight threshold.

* 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.

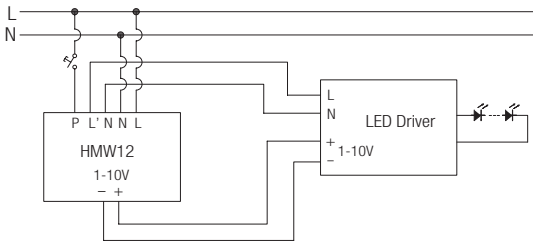
4.4 Semi-auto Function (Absence Detection)

The motion sensor is employed, but only activated on the manual press of the push switch, The light remains on during presence and dims down in absence, eventually switching off automatically after the stand-by time has expired.

Note: in this mode, the push terminal used for the 'manual on' switch input.

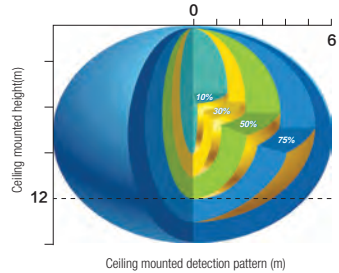
End-user can choose either function 4.3 or 4.4 for application. Default function is 4.3.

5. Wiring Diagram

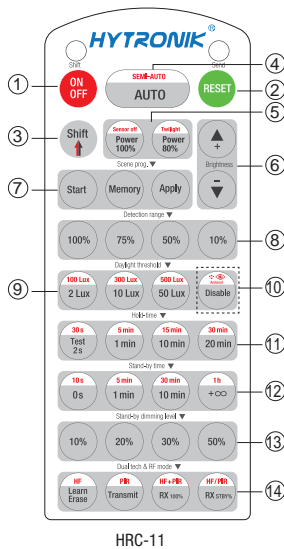


Note: if neither function 4.3 nor 4.4 is desired, simply leave the "push" terminal disconnected.

6. Detection Pattern



7. 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 ②/④ to resume automatic operation.

RESET [button ②]

Press button ②, all settings go back to the rotary switch settings.

Shift [button ③]

Press button ③, the LED on the top left corner is on for indication. 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 was 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]

Press button ⑦, the light output shifts between 80% and 100%.
Note: the function of "Sensor off" and "Twilight" are disabled.

Brightness +/- [button ⑧]

Press button ⑧ to adjust the light brightness to reset the target lux level.

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 "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 pre-set detection range 100%, daylight threshold Disable, hold time 5min, stand-by time +∞, stand-by dimming level 30%, steps should be:

Press button ⑨ 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 to the sensor(s).

Detection range [zone ⑧]

Press buttons in zone ⑧ to set detection range at 100% / 75% / 50% / 10%.

Daylight threshold [zone ⑩]

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

Note: 2Lux / 10Lux are disabled.

To set daylight sensor at 100Lux / 300 Lux / 500Lux, press button ⑩ Shift at first.

Ambient daylight threshold [button ⑪]

1. Press button ⑩ Shift, the red LED is on for indication.
2. Press button ⑪, the ambient lux level is sampled and set as the new daylight threshold / target Lux level.

Hold time [zone ⑪]

Press buttons in zone ⑪ 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 ⑩ 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 ② or any button in zone ⑩.

Stand-by time [zone ⑫]

Press buttons in zone ⑫ 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 ⑬]

Press buttons in zone ⑬ to set the stand-by dimming level at 10% / 20% / 30% / 50%.

Dual tech & RF mode [zone ⑭]

All buttons in zone ⑭ are disabled.

8. Trouble Shooting

MALFUNCTION CAUSE REMEDY	CAUSE	REMEDY
The fixture does not light up	Incorrect daylight threshold setting	Adjust daylight threshold setting
	Faulty fixture	Replace fixture
	No power supply	Check power to sensor
	Detection zone not targeted	Check detection area setting
The fixture is always on	Continued movement in the detection zone	Check detection area setting
The fixture is on when it should not	Sudden change in temperature due to weather (wind, rain, snow) or air expelled from fans, open windows	Adjust zone, change installation site