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HYTRONIK HMW21 HF Sensor with Tri-level Control Instruction Manual

FLUSH MOUNT MICROWAVE MOTION SENSOR HMW21
HMW21 HF Sensor with Tri-level Control
Instruction Manual

Contents

## Technical Specifications

Product Type	Tri-level control microwave motion sensor
Operating voltage	220~240VAC 50/60Hz
Rated load	1600W (resistive); 800VA (capacitive)
Power consumption	< 0.5W
Detection angle 360	360
Detection area (Max.)*	Installation Height: 6m Detection Range (Ø) :12m
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 / +8
Stand-by dimming level	10% / 20% / 30% / 50%
Daylight threshold	2 ~ 500Lux, Disable
Warming up time	The 20s
Operating temperature	-20ºC ~ +50ºC

Installation

⚠ **Warnings:**

1. Installation of the sensor involves connecting it to the main supply. This work must be carried out by a specialist in accordance with electrotechnical regulations.
2. Disconnect the supply before installing.
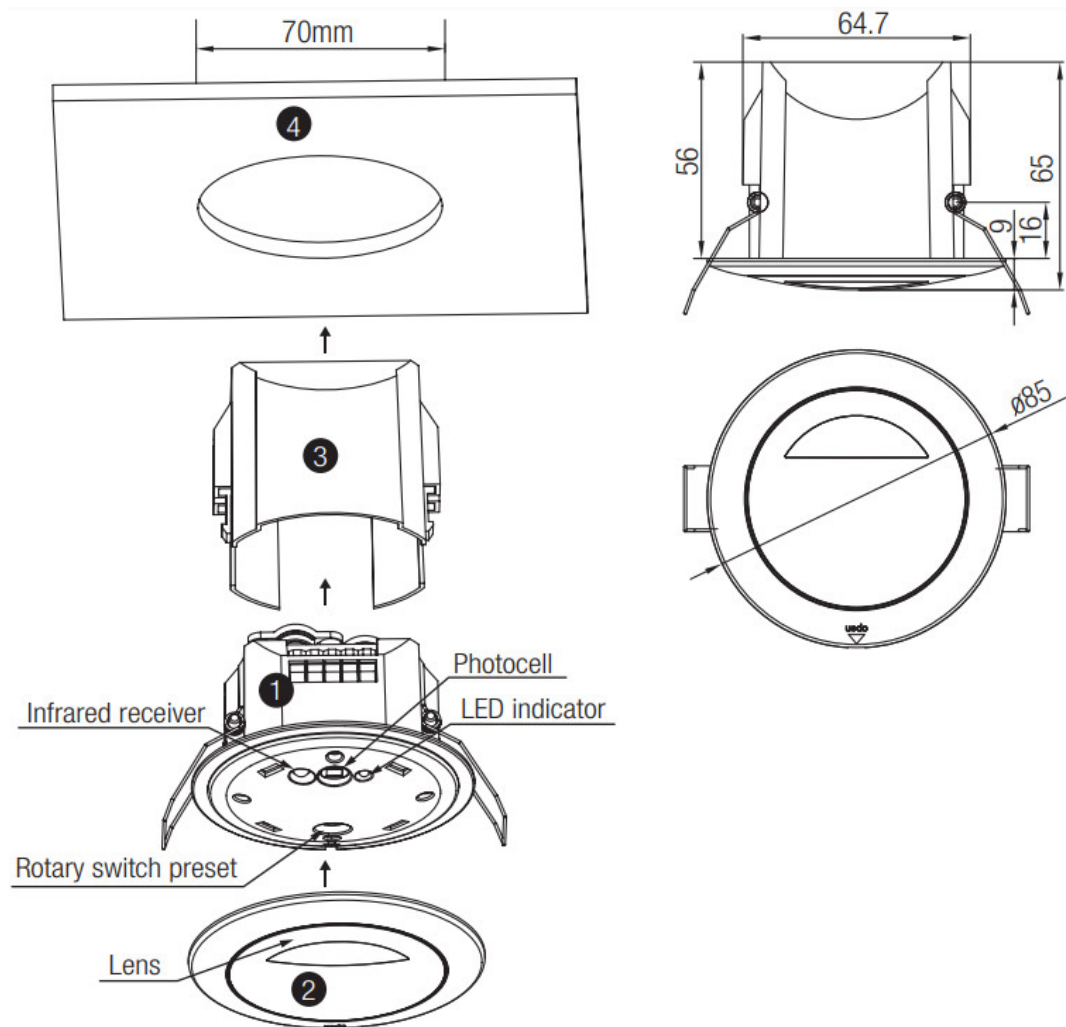
(1) Sensor inset
(2) Lens pluggable
(3) Protection cover (covers the high-voltage terminals, and leaves the 1-10V terminals exposed).
(4) Ceiling (drill hole O 70mm)
Note: We recommend the mounting distance between sensor to sensor should be more than 2m to prevent sensors from false-triggering.

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%	2Lux
2	100%	5min	10min	10%	10Lux
3	100%	5min	30min	10%	30Lux
4	100%	5min	0s	Disable	10Lux
5	100%	5min	＋∞	10%	30Lux
6	100%	5min	＋∞	30%	Disable
7	100%	10min	10min	10%	2Lux
8	100%	10min	30min	10%	10Lux
9	100%	10min	＋∞	10%	30Lux
A	100%	10min	＋∞	30%	Disable
B	75%	10min	＋∞	10%	30Lux
C	50%	10min	＋∞	10%	10Lux
D	100%	30min	＋∞	10%	50Lux
E	100%	30min	＋∞	30%	Disable
F	100%	5s	10s	10%	2Lux

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

Functions

4.1 Tri-level Control (Corridor Function)
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas require a light change notice before switch-off. It offers 3 levels of light: 100%–>dimmed light–>off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable daylight threshold and freedom of detection area.

4.2 Lux Off Function
The built-in daylight sensor can read ambient natural light and switch off the fixture automatically whenever artificial light is unneeded (natural light lux level exceeds daylight threshold).
Note: if the stand-by time is preset at "+∞", the fixture never switches off even when natural light is sufficient.

4.3 Semi-auto Function (Absence Detection)
The motion sensor is employed, but only activated on the manual press of the push switch, the light keeps on in the presence, dims down in the absence, and eventually switches off automatically in the long absence.

4.4 Manual Override
With the help of a push switch, this sensor may be over-ridden 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 (equal to the 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 the ambient Lux level exceeds the daylight threshold.
* Long push (>1s): adjust the maximum brightness (between 10% and 100%) during hold-time. Both the settings on the DIP switch and manual override can overwrite each other, the last adjustment remains in memory.
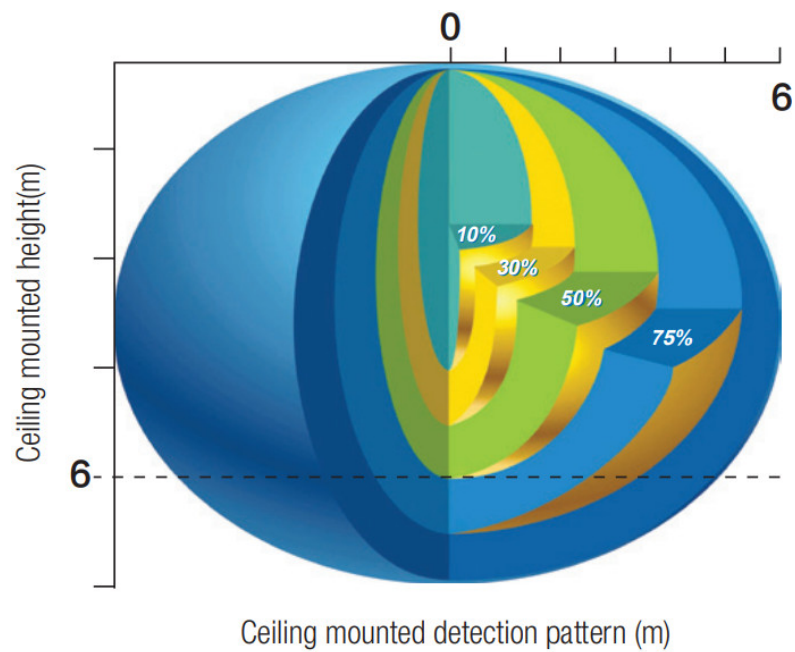
Note: end-user can choose either function 4.3 or 4.4 for the application. The default function is 4.4.
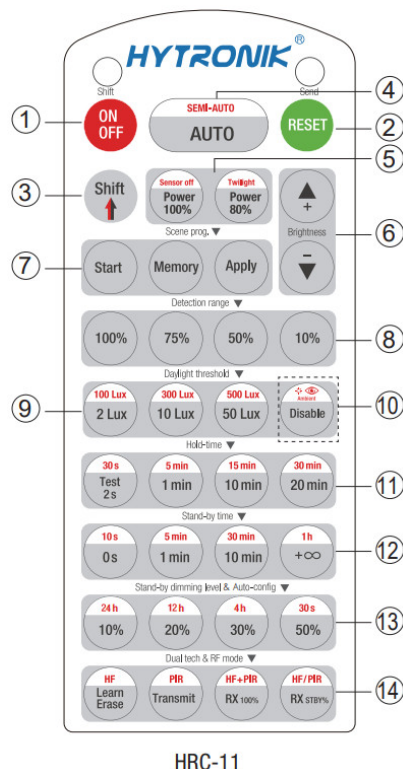
Wiring Diagram
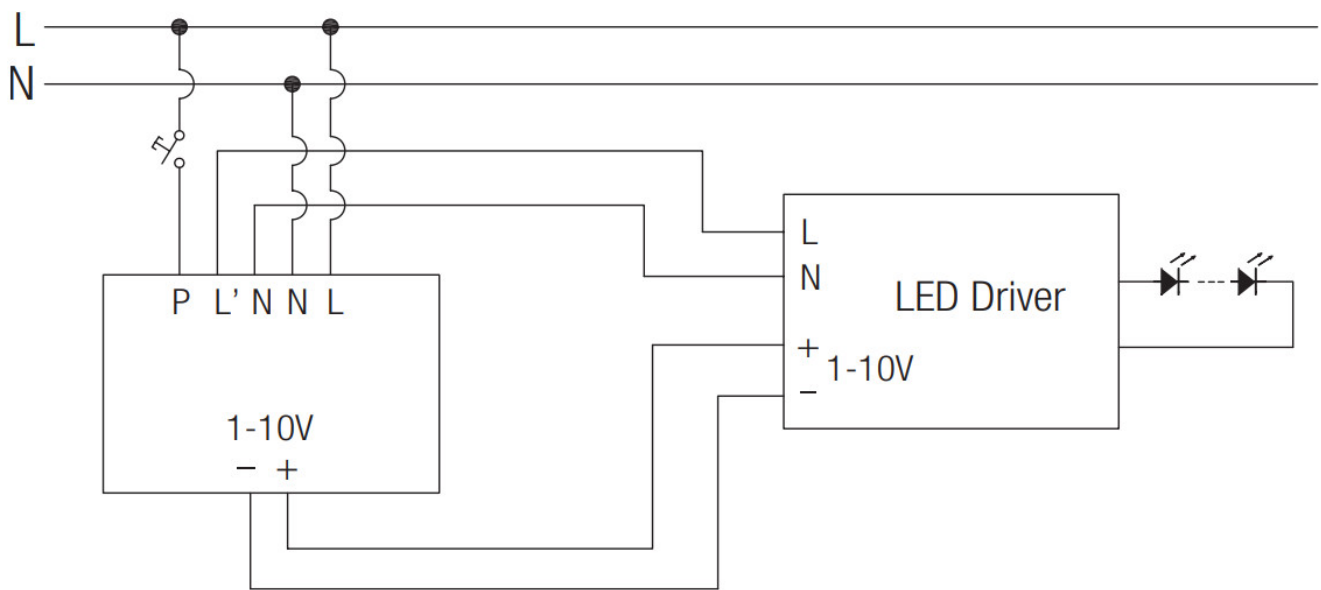
Note: if neither function 4.3 nor 4.4 is desired, simply leave the "push" terminal disconnected.

Detection Pattern

Ceiling mounted detection pattern (m)

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 / 4 to resume automatic operation.
The mode will change to AUTO Mode after power failure.

RESET [button 2]
Press button 2 and all settings go back to the rotary switch settings.

Shift [button 3]
Press button 3, and the LED on the top left corner is on for indication.
All values/settings in RED are invalid 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 3 & 4]

1. Press button 3 to Shift (the red LED is on for indication),

2. and press button 4 to initiate semi-auto mode. The fixture is manually on by push-switch and automatically off in the semi-auto mode

Power output [button 5]
Press button 5, and the light output shifts between 80% and 100%.
Note: the function of "Sensor off" and "Twilight" are disabled.
Brightness +/- [button 6]
Press button 6 to adjust the light brightness between 10%~100%.

Scene prog. [zone 7] (One-key-commissioning)
1. Press the button "Start" to program.
2. Select the buttons in 8 "Detection range", 9/10 "Daylight threshold", 11 "Hold time", 12 "Stand-by time", and 13"Stand-by dimming level" to set all parameters.
3. Press the button "Memory" to save all the settings programmed in the remote control.
4. Press the button "Apply" to set the settings for each sensor unit(s). For example, to pre-set the detection range of 100%, the daylight threshold Disable, hold time 5min, stand-by time +∞, stand-by dimming level 30%, steps should be: Press the button 7 Start, button 8 100%, 10 Disable, 3 Shift, 11 5min, 3 Shift, 12 +∞ , 13 30%, Memory. 7 By pointing to the sensor unit(s) and pressing 7 Apply, all settings are passed on the sensor(s).

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

Daylight threshold [zone 9]
Press buttons in the zone 9 to set the daylight sensor at 2Lux / 10Lux / 50Lux / 100Lux / 300Lux / 500Lux or Disable.
Note: To set the daylight sensor at 100Lux / 300 Lux / 500Lux, press the button 3 Shift at first.
Ambient daylight threshold [button 10]

1. Press the button 3 Shift, the red LED is on for indication.

2. Press button 10, and the ambient lux level is sampled and set as the new daylight threshold.

Hold time [zone 11]
Press buttons in zone 11 to set the hold time at 2s / the 30s / 1min /5min / 10min / 15min / 20min / 30min.
Note: 1.To set hold-time at 30s / 5min / 15min / 30min, press button 3 Shift at first.
2. 2s is for test purposes only, stand-by period and daylight sensor settings are disabled in this mode.
*To exit from Test mode, press the button or any button in the zone.
Stand-by time [zone 12]
Press buttons in zone 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 is 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 to set the stand-by dimming level at 10% / 20% / 30% / 50%.
Note: the function of 24h/12h/4h/the 30s is disabled.
Dual tech & RF mode [zone 14]
All buttons in zone 14 are disabled.

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 the 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
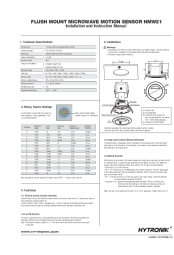
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Documents / Resources

HYTRONIK HMW21 HF Sensor with Tri-level Control [pdf] Instruction Manual
HMW21, HF Sensor with Tri-level Control, HMW21 HF Sensor with Tri-level Control

References

- Ⓦ **Microwave sensor_Microwave motion sensor_Hytronik Electronics Co., Ltd.**