

# FLUSH MOUNT MICROWAVE MOTION SENSOR HMW21

## Installation and Instruction Manual

### 1. Technical Specifications

|                        |  |
|------------------------|--|
| Product type           | Tri-level control microwave motion sensor              |
| Operating voltage      | 220-240VAC 50/60Hz                                     |
| Rated load             | 1600W (resistive); 800W (capacitive)                   |
| Power consumption      | < 0.5W   |
| Detection angle        | 360°   |
| Detection area (DxH)   | 12 x 6m (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     | 2 – 500Lux, Disable                                    |
| Warming up time        | 20s  |
| Operating temperature  | -20°C – +60°C  |

### 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%                    | 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.

### 4. 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

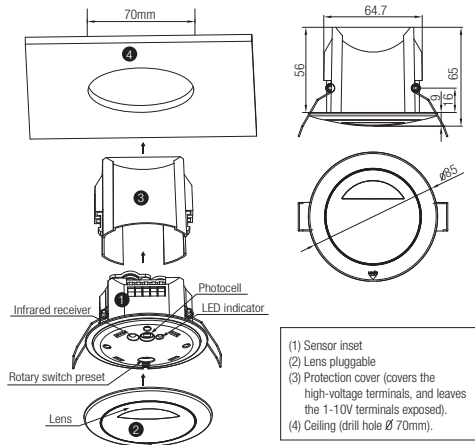
The built-in daylight sensor can read ambient natural light and switch off the fixture automatically whenever artificial light is unneeded (natural light lux level exceeds daylight threshold).

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

### 2. Installation

#### ⚠️ Warnings:

1. Installation of the sensor involves connecting it to the mains supply. This work must be carried out by a specialist in accordance with electrotechnical regulations.
2. Disconnect 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  $\varnothing$  70mm).

#### 4.3 Semi-auto Function (Absence Detection)

The motion sensor is employed, but only activated on the manual press of the push switch, light keeps on in the presence, and dims down in the absence, and eventually switches off automatically in the long absence.

#### 4.4 Manual Override

With the help of 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;

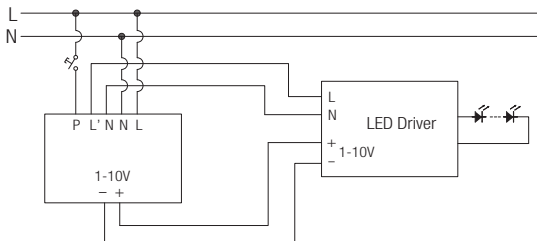
ON → OFF: the light turns off immediately and cannot be lightened for a certain time (equals to hold time preset) even there is movement is detected. After this period, the sensor goes back to auto sensor mode.

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 maximum brightness (between 10% and 100%) during hold-time. Both the settings on DIP switch and manual override can overwrite each other, the last adjustment remains in memory.

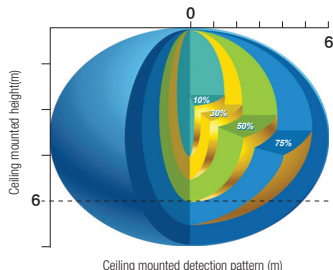
Note: end-user can choose either function 4.3 or 4.4 for application. Default function is 4.4.

## 5. Wiring Diagram

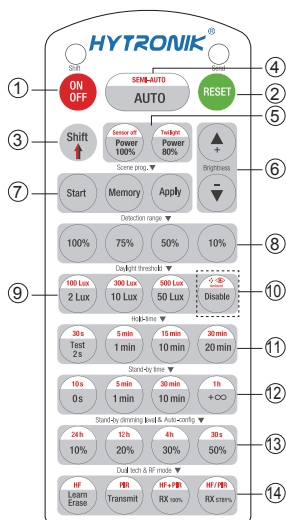


Note: if neither function 4.3 nor 4.4 is desired, simply leave the "push" terminal disconnected.

## 6. Detection Pattern



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



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 ⑩]

Press button ⑩, the light output shifts between 80% and 100%.  
Note: the function of "Sensor off" and "Twilight" are disabled.

### Brightness +/- [button ⑪]

Press button ⑪ to adjust the light brightness between 10%~100% .

### Scene prog. [zone ⑬] (One-key-commissioning)

1. Press button "Start" to program.  
2. Select the buttons in ⑬ "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 ⑦ Start, button ⑩ 100%, ⑫ Disable, ⑬ Shift, ⑪ 5min, ⑫ Shift, ⑩ +∞, ⑬ 30%, ⑭ Memory. 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 ⑩]

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

### Ambient daylight threshold [button ⑩]

1. Press button ③ Shift, the red LED is on for indication.  
2. Press button ⑩, 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 / 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 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 ④.

### 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%.  
Note: the function of 24h/12h/4h/30s are disabled.

### 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 |