2 PRODUCT DESCRIPTION

2.1 Features

- The sensor is mounted at height up to 10m. It is ideal building with high ceiling such as warehouse, gymnasium, etc.
- It can also be used for detecting the invisible movement
- Sensitivity will not be changed whether movement is across or towards to the sensor.
- Powerful circuit design to control all kinds of lamps.
- A light detecting sensor is built-in for setting the desired light level to switch on the controlled lighting automatically at the right timing to maximize energy savings and save more of your electricity.
- Various mounting methods, including ceiling flush mounted with spring clips enclosure directly or combined with the existing junction box and ceiling surface mounted with the enclosure.
- Except the provided Lux values, the ambient light level can be read-in either by IR or knob as the threshold for switching on/off the lighting.
- An additional function of manually switching on/off the controlled light is feasible by connecting to a push button switch.

2.2 Characteristic of Microwave sensor

2.2.1 Microwave sensor is able to penetrate non-metallic materials such as the wood board, brick wall, glass, etc., but it cannot penetrate the water and metal.

2.2.2 Microwave sensor has high reliability and its detection range is less affected by temperature (0°C to +45°C), airflow, rain, etc.

2.2.3 The humidity, vibration as well as measurement of moving object can weaken the performance of the sensor.

2.2.4 The sensor is more sensitive for moving in different speed which lead to larger detection range and it is less sensitive for moving in the same speed; therefore, the detection range could be reduced.

2.2.5 It is easy to be false triggered because of its strong penetrability of non-metallic materials and high sensitivity. It should be more careful while choosing the location of sensor.

The high-frequency output of radar module is ±1m/s, approximately 0.1% of the transmission power of a mobile telephone or the output of a microwave oven.

3 DIMENSION

3.1 Sensor

- Sensor: Ø107 x 50mm

3.2 Sensor with flush-mount enclosure

3.3 Sensor with surface-mount enclosure

4 INSTALLATION AND WIRING

4.1 Select a proper location

4.1.1 Detection coverage

<table>
<thead>
<tr>
<th>Installation height</th>
<th>Detection range</th>
</tr>
</thead>
<tbody>
<tr>
<td>H&lt;2.5 - 3.5m</td>
<td>0.1m</td>
</tr>
<tr>
<td>H=4 - 5m</td>
<td>0.1m</td>
</tr>
<tr>
<td>H=5.5 - 10m</td>
<td>0.1m</td>
</tr>
</tbody>
</table>

4.1.2 Helpful tips for installation

The penetration of sensor for different materials, please see table below.

<table>
<thead>
<tr>
<th>Material</th>
<th>Penetration</th>
<th>Attenuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC &amp; plastic</td>
<td>5% - 10%</td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td>10% - 20%</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>15% - 20%</td>
<td></td>
</tr>
<tr>
<td>Brick</td>
<td>65% - 70%</td>
<td></td>
</tr>
<tr>
<td>Reinforced</td>
<td>No</td>
<td>100%</td>
</tr>
<tr>
<td>Metal</td>
<td>No</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.1.3 When mounting the sensor on ceiling

Please keep the sensor striated (5) from the wall of wooden, glass to non-metallic materials which thickness is less than 30cm (A) or 1m (B) away from the wall which thickness is over 30cm. Also, users can adjust Meter knobs to decrease the sensitivity and coverage, which can avoid false triggering when people passing through outside the wall.

4.1.4 Water-flow in waterpipes would be possible to trigger the IR sensor. It is recommended to keep the sensor away from the waterpiple as the following guidelines to avoid unnecessary triggering.

4.2 Function

4.2.1 The function of IR terminal

4.2.1.1 Terminal of IR and push button (N.O.) can be series connected to enable easily or remote control on load (case I: on/off; case II: on/off or on). While pressing push button (N.O. + 1sec) please note: the function is invalid when the lighting (sensor) is in the On & Off HRB. It is controlled by IR remote control.

Case 1: Manual off switching (Lux settings is invalid).
If the lighting is under on mode, it can be manually switched off. If the lighting is switched on manually by pressing (+) (which the push button on activate the manual off mode), it keeps off even after sensor is triggered. If the room is vacan for a longer period (switch off delay time elapsed), the sensor remains in the last setting mode before entering into manual mode.
If the device is in the manual mode, the second press on the push button activates the manual off mode.

Case 2: Manual on switching (Lux settings is invalid).
If the lighting is under off mode, it can be manually switched on. If the lighting is switched on manually by pressing (+) (which the push button on activate the manual on mode), it keeps on even after sensor is triggered. If the room is vacan for a longer period (switch off delay time elapsed), the sensor remains in the last setting mode before entering into manual mode.
If the device is in the manual mode, the second press on the push button activates the manual on mode.

4.2.2 Ambient light approach

According to the changeable ambient light level, sensor can postpone load's delay-time of turning on and off to avoid switch unnecessarily turning due to rapid ambient light change.Ambient light level changes from bright to dark. If the ambient light levels between lower than the preset Lux value for 10sec, the light is automatically switched off after 10sec. If the ambient light levels between higher than the preset Lux value for 10sec and lower than 10Lux, the light will be automatically switched off after 10sec.

4.2.3 Membrane

If the lighting is under off mode, it can be manually switched on. If the lighting is switched on manually by pressing (+) (which the push button on activate the manual on mode), it keeps on even after sensor is triggered. If the room is vacan for a longer period (switch off delay time elapsed), the sensor remains in the last setting mode before entering into manual mode.
If the device is in the manual mode, the second press on the push button activates the manual off mode.

4.3 Wiring

4.3.1 Standard application (See Fig. 5)

4.3.2 Sensor controls staircase timer switch (Time should be set in table, See Fig. 6)

4.4 Installation procedure

4.4.1 Flush mount with junction box

4.4.1.1 Take off decorative frame of sensor, then take the sensor enter into manual on mode.

4.4.1.2 Pull out AC power cables from junction box then strip off 6 - 8mm of cable sheathing for wiring (See Fig. B).

4.4.1.3 Fix the power box into junction box with screw (See Fig. C).

4.4.2 Flush mount with flush-mount enclosure

4.4.2.1 To install sensor, please drill a hole with diameter of 55mm on ceiling board and keep the cable exitable. Please strip off 6 - 8mm of cable sheathing for wiring (See Fig. 10).

4.4.2.2 Use screwdriver to break the rubber gasket on flush-mount enclosure, then feed cables through it (See Fig. 11).

4.4.2.3 Please refer to Illustration of Fig. 5 - Fig. 4 for correct wiring and twist the flush-mount screw flush with enclosure surface.

4.4.3 Surface mount with enclosure

4.4.3.1 There are 4 pairs of knockouts with various distances from ceiling (between A and B)

4.4.3.2 There are 4 pairs of knockouts with various distances from ceiling (between A and B)

4.4.3.3 Non-dropping screws should be used. Please strip off 6 - 8mm of cable sheathing for wiring (See Fig. 12).

4.4.4 Close up sensor's two spring clips and insert sensor into the drilled hole on ceiling (See Fig. 12).

4.4.5 Restore the power supply.

4.4.6 Surface mount with enclosure

4.4.7 There are 4 pairs of knockouts with various distances from frame to wall 80mm which is necessary to be considered for different mounting applications (See Fig. 13-A). Select two same figures on both ends for the corresponding distance for fixing (See Fig. 13-B).
4.4.3.4 Insert 4pcs non-dropping screws to the corresponding screw holes on the enclosure’s protrusion (See FIG.17), then when you put the fixing plate into the enclosure, please fit the fixing plate to the enclosure and feed through it. Strip off 6 - 8mm of cable & Load is off

5.2 Lux learning function with knob

Learning procedure:

5.2.1 Adjust the knob to “≠” (See FIG.18-A). The ambient light level must match the desired value (See FIG.20-B). When the knob is set to “≠” (See FIG.18-B), it should be adjusted to other position more than 1sec, then goes back to “≠” (See FIG.18-B).

5.2.2 Then the load is off. LED starts to flash slowly indicating learning is being done. LED will stop flashing when learning is successful (See FIG.18-C). When LED flash quickly for Secs and load is off is to confirm successful learning (See FIG.18-C).

5.2.4 After learning procedure, the sensor returns to AUTO mode with LED and load being off.

5.3 Walk test (Lux is invalid)

5.3.1 Tester must be within the detection coverage. Switch the power on.

5.3.2 Walk towards the detection coverage and trigger the sensor (See FIG.5 - FIG.6 ).

5.3.3 Switch the power off. LED and load keep on 5sec or 25 seconds. Afterwards, the LED and load will keep on 5sec or enter into learning mode. Learning will be completed within 30 sec.

5.3.4 After learning procedure, the sensor returns to AUTO mode (See FIG.18-C).

5.3.5 Adjusting lower knob for desired detection range (See FIG.19).

6 TROUBLE SHOOTING

When sensor works abnormally, please check assumptive problems and suggested solutions in below table that will hopefully to solve your problems.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause</th>
<th>Suggested solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED does not turn off</td>
<td>1. No power is supplied.</td>
<td>1. Switch on the power.</td>
</tr>
<tr>
<td></td>
<td>2. Incorrect wiring.</td>
<td>2. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6 ).</td>
</tr>
<tr>
<td></td>
<td>3. LED flash quickly for Secs and load is off</td>
<td>3. Replace the disabled load with a new one.</td>
</tr>
<tr>
<td></td>
<td>4. Lighting device does not turn on</td>
<td>4. Keep away from detection surface.</td>
</tr>
<tr>
<td></td>
<td>5. Sensor is nuisance triggered</td>
<td>5. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6 ).</td>
</tr>
<tr>
<td></td>
<td>6. Incorrect wiring.</td>
<td>6. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6 ).</td>
</tr>
<tr>
<td></td>
<td>7. Nuinance triggered</td>
<td>7. Check if the sensor is aimed toward to any reflectable surfaces.</td>
</tr>
<tr>
<td></td>
<td>8. Vibration of installation surface</td>
<td>8. Check if the sensor is fitted to the vibration surface.</td>
</tr>
</tbody>
</table>

7 OPTIONAL ACCESSORY

7.1 It is strongly recommended to purchase the corresponding IR remote controller 752RC/HF for easy and safe setting operations on the sensor (See FIG.22).

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Remote Controller

IR remote controller 752RC/HF

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