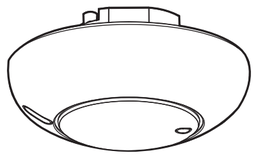
CLIPSAL by Schneider Electric

Microwave Sensor, dual channel, Remote control option

Art. no.
752HF2RC



INSTRUCTION MANUAL

TECHNICAL SPECIFICATIONS

Rated voltage	220 - 240V~ 50/60Hz
Load	Load Ⅰ (L') for Lighting: μ Incandescent Lamp: Max. 2000W HV Halogen Lamp: Max. 1000W LV Halogen Lamp: Max. 1000VA Fluorescent Lamp: Max. 900VA LED Lamp: Max. 100W Energy Saving Lamp (CFL): Max. 100W Load Ⅱ (D1-D2) for HVAC (Lux is invalid): Relay rating: Max. 5A (cosφ=1), 250V AC Motor load: Max. 100W
Frequency	5.8GHz
Detection Angle	360°
Detection Range	Adjustable up to Φ14m (H=2.5 - 5m) Adjustable up to Φ10m (H=5.5 - 10m)
Auto Off Time Adjustment	Time 1 (for lighting): Adjustable from approx. 10sec to 30min, Test & 1s Time 2 (for HVAC): Adjustable from approx. 10sec to 60min
Lux Adjustment	Adjustable from approx. 10Lux to ☼ (∞) and " 👁 " (learning range: 10Lux - 2000Lux)
Environmental Protection	Class Ⅱ IP40 (Flush mount with flush-mount encloure IP52 (Surface mount with surface-mount enclosure)

Safety Warning

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

It is illegal for persons other than an appropriately licensed electrical contractors or other persons authorised by legislation to work on the fixed wiring of any electrical installation.
- To comply with all safety standards, the product must be used only for the purpose described in this instruction and must be installed in accordance with the wiring rules and regulation in the location where it is installed.
- There are no user serviceable parts inside the product.

Failure to follow these instructions will result in death or serious injury.

1 PACKAGE CONTENT

Drawing			
Item	Sensor	Screw Φ3 x 16mm	Manual
Quantity	1	2	1

Drawing				
Item	Enclosure, surface-mount	Non-dropping screw Φ3×15mm	Rubber washer, Wood screw Φ4 × 25.4mm	Enclosure, flush-mount, spring clips
Quantity	1	4	2	1

● **Accessories for optional purchase**

Drawing	
Item	IR remote controller 752RC/HF
Quantity	1

2 PRODUCT DESCRIPTION

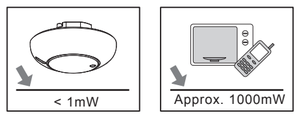
2.1 Features

- Can be mounted at height up to 10m, it is ideal building with high ceiling, such as warehouse, gymnasium, etc.
- High sensitivity for detecting the slightest 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 expense.
- 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 loads for more flexible application.
- An additional function of manually switching on / off the controlled load is feasible by connecting to a push button switch.
- IR remote control is available for easy and quick settings

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 can not 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, wind, 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 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 <1mW; approximately just 0.1% of the transmission power of a mobile telephone or the output of a microwave oven.



3 DIMENSION

● Sensor : Φ107 x 50mm

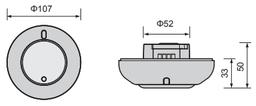


FIG.1-A

● Sensor with flush-mount encloure

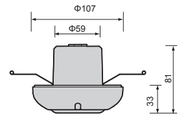


FIG.1-B

● Sensor with surface-mount enclosure

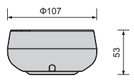


FIG.1-C

4 INSTALLATION AND WIRING

4.1 Select a proper location

4.1.1 Detection coverage

Installation height	Detection range	
	Meter knob set "+"	Meter knob set "-"
H=2.5 - 3.5m	Φ14m	Φ2m
H=4 - 5m	Φ14m	／
H=5.5 - 10m	Φ10m	／

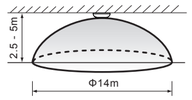


FIG.2-A

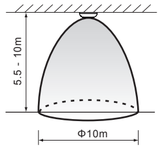


FIG.2-B

4.1.2 Helpful tips for installation

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

Material	Penetration	Attenuation
PVC & plastic	Yes	5% - 10%
Wood	Yes	10% - 20%
Glass	Yes, the different thicknesses of glass can result in different attenuation	15% - 30%
Brick	Yes, the brick wall with thickness less than 30cm	60% - 70%
	No, the brick wall with thickness over 30cm	100%
Reinforced concrete	No	100%
Metal	No	100%

4.1.3 When mounting the sensor on ceiling

Please keep the sensor at least 4m (B) away from the wall of wooden, glass or brick material which thickness is less than 30cm (A) or 1m (B) away from the wall which thickness is over 30cm (A). Also, users can adjust Meter knob to decrease the sensitivity and coverage, which can avoid false triggering when people passing through outside the wall.

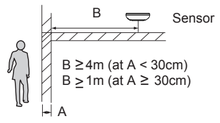


FIG.3

4.1.4 The water-flow in waterpipe would be possible to trigger the HF sensor. It is recommended to keep the sensor away from the waterpipe as the following guidelines to avoid nuisance triggering.

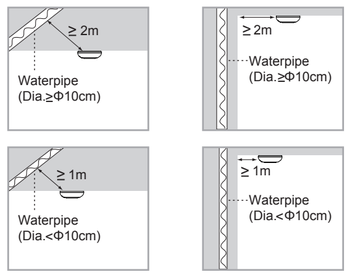


FIG.4

4.2 Function

4.2.1 The function of R terminal

4.2.1.1 Terminal of R and push button (N.O.) can be series connected to enable nianucolly on/off control on load. (case 1: on → off; case 2: off → on). While pressing push button (≤1sec):
Please note, this function is invalid when the lighting (sensor) is in the On 8hrs & Off 8hrs conditions set 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 off manually by pressing (≤ 1sec) the push button (activate the manual off mode), it keeps off even the sensor is triggered.
If the room is vacant for a longer period (switch off delay time elapsed), the manual off status (= manual off mode) is deactivated, then the sensor backs to the last setting mode before entering into manual off mode.
If the device is in the manual off mode, the second press on the push button activates the manual on 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 (≤1sec) the push button (activate the manual on mode), it keeps on while the sensor is triggered constantly, and it turns off when no movement detected and the switch off delay time elapsed, and the sensor backs to the last setting mode before entering into manual on mode.
If the device is in the manual on mode, the second press on the push button activates the manual off mode.

4.2.2 Ambient light appraisal

According to the changeable ambient light level, sensor can postpone load's delay time of turning on and off to avoid load's unnecessarily switching due to rapid ambient light change:Ambient light level changes from bright to dark: If the ambient light level keeps be lower than the preset Lux value for 10sec, the light will be automatically switched on after 10sec.
(LED will be on 10sec for indication)
Ambient light level changes from dark to bright: If the ambient light level continuously exceeds the switch off Lux value for 5min, there are different reactions according to the time setting value.Time setting ≥ 5min, the light will be automatically switched off after 5min.
Time setting < 5min, the light will be automatically switched off when the set time reached if no movement is detected during the 5min. But if there is movement detected within the 5min, the time will be reset upon detection and until 5min later, the light is switched off.

4.3 Wiring

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK

Dangerous voltage is present at the wiring terminals.
- To avoid injury, lock out and tag the supply circuit before installation.
- A circuit breaker (250 V AC, 10 A) Type C must be installed according to AS/NZS 60898-1.

Failure to follow these instructions will result in death or serious injury.

4.3.1 Standard application (See. FIG.5)

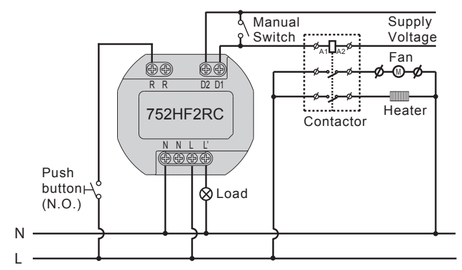


FIG.5

4.3.2 Sensor controls staircase timer switch (Time1 should be set to 1s) (See. FIG.6)

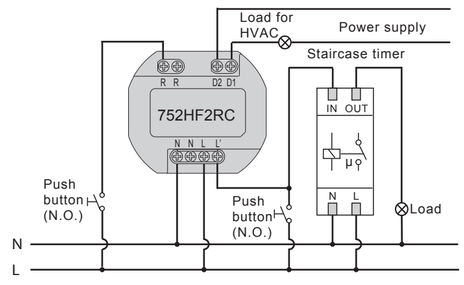


FIG.6

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 head apart from power box by unscrew its 4pcs non-dropping screws (See FIG.7).

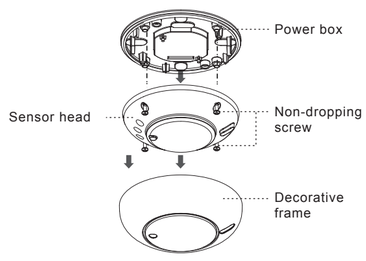


FIG.7

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

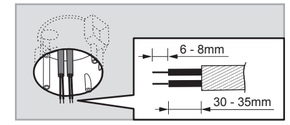


FIG.8

4.4.1.3 Fix the power box into junction box with 2pcs screws (See FIG.9).

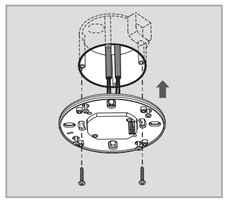


FIG.9

4.4.1.4 Fix the sensor head on power box by inserting its four non-dropping screws into the corresponding screw holes, then cover up the decorative frame (See FIG.7).
4.4.1.5 Restore the power supply.

4.4.2 Flush mount with flush-mount encloure

4.4.2.1 To install sensor, please drill a hole with diameter of 65mm on ceiling board and keep the power cable out- side. Please strip off 6 - 8mm of cable sheathing for wiring (See FIG.10).

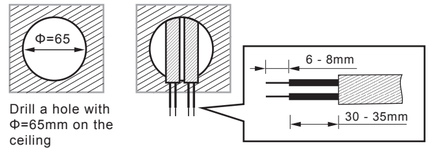


FIG.10

4.4.2.2 Use screwdriver to break the rubber gasket on flush-mount encloure, then feed cables through it (See FIG.11).
4.4.2.3 Please refer to illustration of FIG.5 - FIG.6 for correct wiring and then screw the flush-mount encloure tightly.

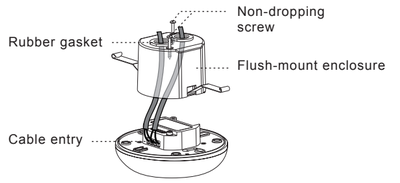


FIG.11

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

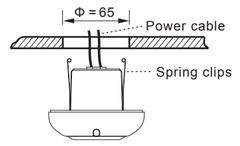


FIG.12

4.4.2.5 Restore the power supply.

4.4.3 Surface mount with enclosure

4.4.3.1 There are 4 pairs of knockouts with various distances from 41mm to 85mm on the enclosure can be selected 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).

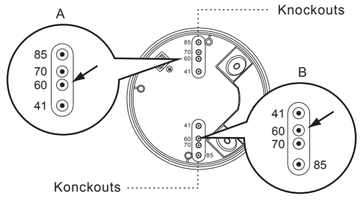


FIG.13-A

NO.	A	B	The distance between A and B
1	41	41	41mm
2	60	60	60mm
3	70	70	70mm
4	85	85	85mm

FIG.13-B

4.4.3.2 To feed AC power cables through the side of enclosure, please use the cutting pliers to break the cable entry knockouts on the side of enclosure, then insert cables into enclosure and feed through it. Strip off 6 - 8mm of cable sheathing for wiring (See FIG.14).

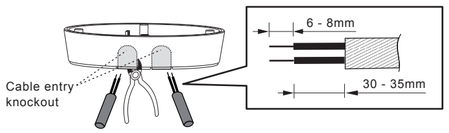


FIG.14

4.4.3.3 Choose proper knockouts to fix the enclosure on the surface of ceiling board with 2pcs wood screws attached with rubber washer (See FIG.15).

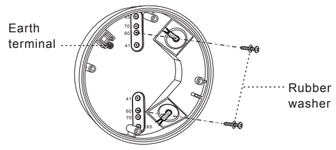


FIG.15

4.4.3.4 Insert 4pcs non-dropping screws to the corresponding screw holes on sensor's fixing plate, and those 4pcs screws will not drop off to provide convenience to the subsequent installations (See FIG.16).

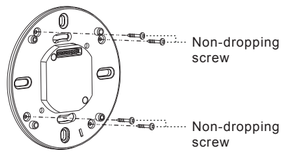


FIG.16

4.4.3.5 Refer to wiring diagrams for correct wiring connection (See FIG.5 - FIG.6). There is a square hole in the fixing plate, when you put the fixing plate into the enclosure, please fit the fillister to the enclosure's protrusion (See FIG.17), then fix the sensor head on the power box following FIG.9 and assemble them with the attached 4pcs non-dropping screws.

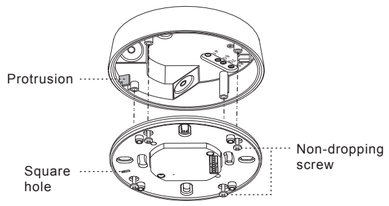


FIG.17

4.4.3.6 Cover up the sensor's decorative frame and restore the power supply.

5 OPERATION AND FUNCTION

5.1 Setting of Meter, Lux and Time knobs

Knob (Ex-factory setting)	Function	Knob setting
Meter 	Set the sensitivity of sensor	Range: Adjustable from "-" (approx. Φ4m) to "+" (approx. Φ14m). Refer to 4.1.1.
Lux 	Set the light value for switching on load	Range : Adjustable from approx. 10Lux to " ☼ " (∞). 👁 (learn): The actual ambient light level (10Lux - 2000Lux) can be read in.
Time / Time1 	Delay off time for lighting	Range: Adjustable from approx. 10sec to 30min Test : Test mode (Load and red LED will be 2sec on, 2sec off) ⎍1s⎍ : Short impulse mode for staircase timer switch control (Load will be 1sec on, 9sec off)
Time2 	Set delay off time for HVAC	Range : Adjustable from approx. 10sec to 60min

5.2 Lux learining function with knob

Learning procedure:

5.2.1 Adjust the knob to " 👁 " when the ambient light level matches with the desired value (See FIG.18-A).
5.2.2 When the knob is set to " 👁 " originally, it should be adjusted to other position more than 1sec, then goes back to "👁" (See FIG.18-B).
5.2.3 Then the load is off. LED starts to flash slowly indicating entering into learning mode. Learning will be completed within 25 seconds. Afterwards, the LED and load will keep on 5sec or LED flash quickly for 5sec and load is off 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.

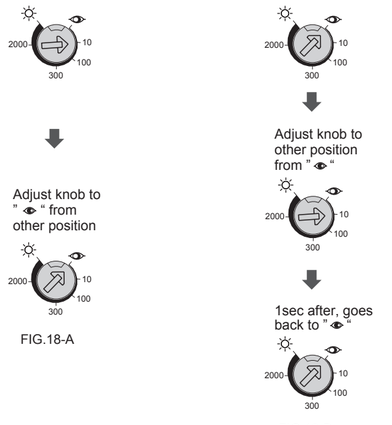


FIG.18-A

FIG.18-B

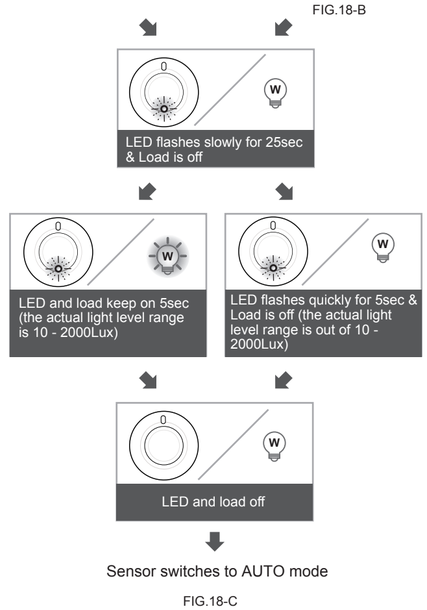


FIG.18-C

5.3. Walk test (Lux is invalid)

The purpose of conducting the walk test is to check and adjust the detection coverage.

Test procedures:

5.3.1 Tester must be within the detection coverage.
5.3.2 Switch the power on.
5.3.3 The sensor takes approx. 30sec to warm up with load and LED keeps on, then turn off after warming up time.
5.3.4 Walk from outside across or toward to the detection coverage until LED and load turn on for 2sec (See FIG.19).
5.3.5 Adjusting Meter knob for desired detection range.

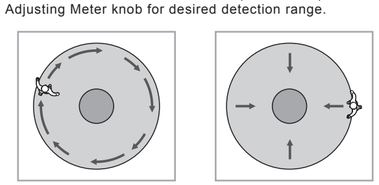


FIG.19

6 TROUBLE SHOOTING

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

Problem	Possible cause	Suggested solution
LED does not turn on	1. No power is supplied. 2. Incorrect wiring.	1. Switch on the power. 2. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6).
Lighting device does not turn on	1. Incorrect wiring. 2. Malfunctioned load.	1. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6). 2. Replace the disabled load with a new one.
Lighting device does not turn off	1. sensor is nuisance triggered. 2. Incorrect wiring.	1. Keep away from detection coverage to avoid activating sensor while doing the test. 2. Connect the load referring to the wiring diagrams (See FIG.5 - FIG.6).
Nuisance triggered	1. Reflective metallic materials. 2. Vibration of installation surface.	1. Check if the sensor is aimed toward to any reflective metallic materials. 2. Check if the sensor is mounted on the vibrational surface.

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.

FIG.22

9 WARRANTY

Schneider Electric (Australia) Pty Ltd, (Clipsal by Schneider Electric), warrants this product to be free from defects in materials and workmanship for a period of three years from the date of installation. The benefits conferred herein are in addition to any other rights and remedies you may have at law in respect to this product. Australian and New Zealand customers please see the notes below.
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How to make a claim: Contact your electrical wholesaler or local supplier of Schneider Electric, PDL or Clipsal branded products and provide the details of the date of purchase, description of load or connections and the circumstances of the failure.
Please provide adequate particulars of the defect within 28 days of the fault occurring.

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