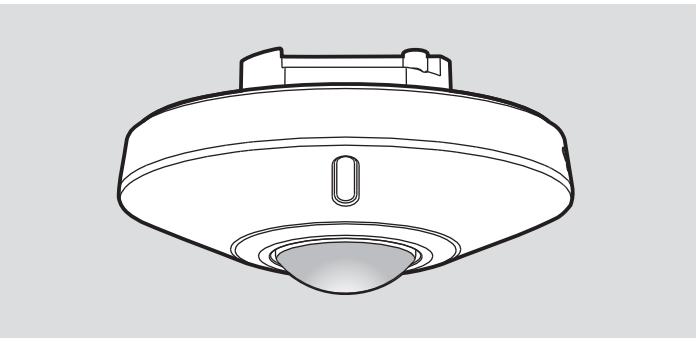


DAYLIGHT DIMMING OCCUPANCY
DETECTOR for Lighting (1-10V Dim.)
PMSCDD



INSTRUCTION MANUAL

TECHNICAL SPECIFICATIONS

Rated voltage 230V~±10% 50 / 60Hz

Load

Incandescent Lamp : max. 2000W
AC Halogen Lamp : max. 1000W
LV Halogen Lamp : max. 1000VA / 600W (traditional)
max. 1000VA / 900W (electronic)
Fluorescent Lamp : max. 1000VA / 600W (uncompensated)
max. 900VA / 100μF
25 x (1 x 18W); 15 x (1 x 36W); 10 x (1 x 58W)
12 x (2 x 18W); 7 x (2 x 36W); 5 x (2 x 58W)
LED Lamp : max. 500VA / 400W
Energy Saving Lamp: max. 600VA / 400W (include CFL & PL lamp)
Control Output Interface: 1-10V DC, Max. 100mA (e.g. 50pcs electronic ballasts at 2mA)

Auto Off Time Adjustment : Time (for lighting): Adjustable from approx. 10sec to 30min, Test & √sL

Lux Adjustment : Adjustable from approx. 10Lux to 2000Lux

Load On Time In Standby Mode : 3 precise adjustments : 5min, 10min, 15min and ∞

Load On Illumination In Standby Mode : 4 precise adjustments: 10%, 20%, 30%, OFF (Load is off in stand by mode)

Detection Range : 360°circular, up to Φ8m at height of 2.5m

Operating Temperature : -0°C to +45°C (Indoor usage)
-20°C to +45°C (Outdoor usage)

Environmental Protection Class II
: IP40 (Flush mount with power box cap SP-96 and European standard junction box)
IP54 (Surface mount with junction box JB-41)

Installation and assembly of electrical equipment must be carried out by skilled qualified electricians. Contact a qualified electrician in the event of fault or break down.

- CAUTION!**
- A circuit breaker (250VAC, 10A) type C according to EN60898-1 of load I (CH1) shall be installed in the fixed wiring for protection.
 - Do not mount on conductive surface.
 - Do not open the enclosure frequently.
 - Turn off power when change the light sources.
 - High in-rush current would be caused when bulbs of certain brands burned which might damage the unit permanently.

1 PACKAGE CONTENTS

● PMSCDD

Pattern				
Item	Detector	Screw Φ3 x 16mm	Lens shield	Manual
Quantity	1	2	2	1

Pattern			
Item	Junction box JB-41	Non-dropping screw Φ3 x 15mm	Wood screw Φ4 x 25.4mm
Quantity	1	4	2

Pattern		
Item	Power box cap SP-96	IR remote controller
Quantity	1	1

2 PRODUCT DESCRIPTION

PMSCDD is a ceiling flush mount presence detector mainly for lighting control. It provides the 1-10V interface for connecting with the dimmable electronic ballast and LED driver which is able to dim the artificial light automatically or manually. User can pre-set the desired Lux, Time, STBY and STBY% values by VR or IR setting for automatic control light on / off or light value with low initial cost and great energy saving potential. They can be widely used in home, warehouse, open office, conference room, classroom, library, corridor, etc.

2.1 Features

- Available in various mounting ways, e.g. surface mount and flush mount both applicable, and can be fitted into the European standard junction box.
- A constant light control is enabled with the auto / manual dim function to provide an easy and cost effective solution for energy saving.
- Light fades off function – Before 30sec of the pre-set delay off time, the illumination level will be reduced to 50%, then fades off in 20sec to the pre-set illumination level of standby mode.
- Automatic sensitivity adjustment function – The sensitivity of detector will be raised after the load is switched on to reduce false-off problem, and after the load is switched off, sensitivity returns to the normal condition for standby mode.

- To enlarge the detection range by connecting the slave detector to master detector, max. 10pcs slave detectors can be connected.
- A red LED is equipped as an indicator for test triggering and IR setting.
- IR remote controller for easy and quick settings.
- The ambient Lux value can be learned as the threshold for switching on / off the loads by IR if the pre-set Lux value does not match user's requirement.

2.2 Dimension

- PMSCDD: Φ110 x 55mm (See FIG.1-A)

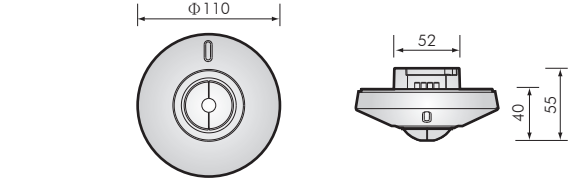


FIG.1-A

- Detector with power box cap SP-96(See FIG.1-B)

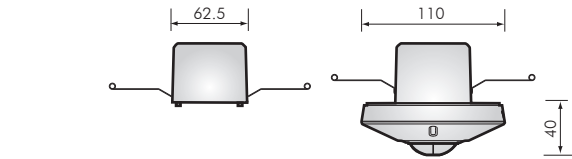


FIG.1-B

- Detector with junction box JB-41 (See FIG.1-C)

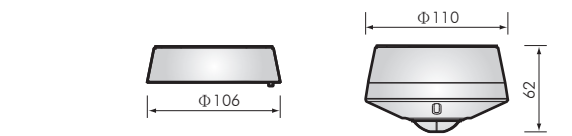


FIG.1-C

3 INSTALLATION AND WIRING

Please disconnect power completely and read the entire instruction manual carefully before installation.

3.1 Select a proper location

- 3.1.1 PMSCDD can be installed at the height of 2 - 3m, it's recommended to install it at the height of 2.5m to gain the optimal detection pattern, the detection range can reach up to the diameter of 8m and 360° detection angle (See FIG.2).

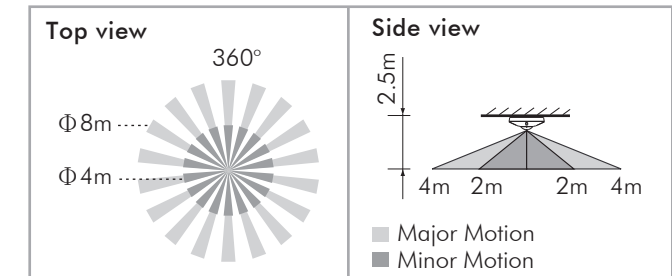


FIG.2

- 3.1.2 Pay attention to the walking direction in the test proceeding. It is more sensitive to movement across the detector and less sensitive to movement directly toward to detector which will reduce the detection coverage (See FIG.3).

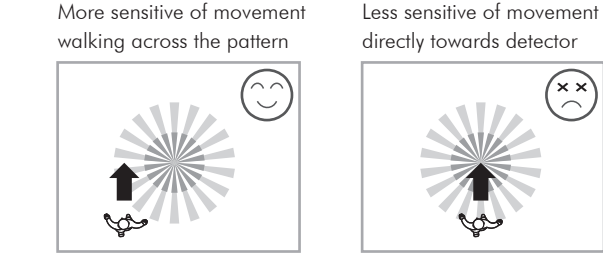


FIG.3

3.1.3 Helpful tips for installation

Since the detector is in response to temperature change, please avoid the following conditions (See FIG.4-A & FIG.4-B):

- Avoid aiming the detector toward the objects which may be swayed in the wind, such as curtain, tall plants, miniature garden, etc.
- Avoid aiming the detector toward the objects whose surfaces are highly reflective, such as mirror, monitor, etc.
- Avoid mounting the detector near heat sources, such as heating vents, air conditioning, vents as dryers, lights, etc.

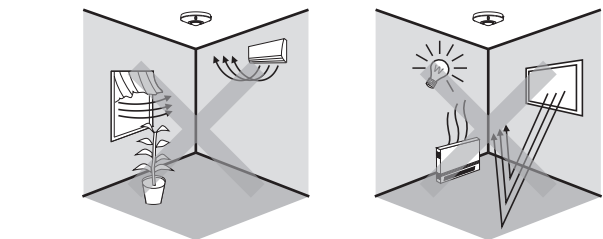


FIG.4-A

FIG.4-B

3.2 Function

3.2.1 The function of R/S terminal

- 3.2.1.1 Terminal of R/S and push button (N.O.) can be series connected to control load's on / off manually. (case 1: on → off; case 2: off → on). While pressing push button (≤1sec):

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 detector 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 detector 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 detector is triggered constantly, and it turns off when no movement detected and the switch off delay time elapsed, and the detector 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.

- 3.2.1.2 Max. 10pcs slave detectors can be connected in parallel to the "R/S" terminal of the master detector PMSCDD to expand detection range if detection range of one PMSCDD does not match the user's desire. Slave detector can only be used to transfer detecting signal to master detector for expanding the detection range, the connected loads will only act according to the pre-set values of master detector.

3.2.2 Dimmer function

3.2.2.1 Auto Dimming

According to the changeable ambient light level, the load can dim to bright or dark automatically to match the Lux setting value (Lux setting value by IR or knob is measured the mixed light level of artificial light and the ambient light).

3.2.2.2 Manual dimming via external push button

Detector can dim the light level of lighting manually via operating the push button connected to S terminal. Press (≥2sec) the push button, the light level of the load will change as 50%=>100%=>50%=>10%=>50%.....repeatedly, then release the push button while the light level of the load matches the desired value.
Remark: It will lead to opposite dimming direction if next dimming is carried out.

3.2.2.3 Remote dimming via IR-11D remote controller

- IR-11D is locked: Press "⏻" button to start dimming, then pressing "👁" button to stop dimming while the ambient light level matches user's desire, but the value will not be saved in detector, and it will be dimmed automatically according to last Lux setting value while the lighting is switched on next time.

- IR-11D is unlocked: Press "⏻" button to start dimming, then pressing "👁" button to stop dimming while the ambient light level matches user's desire and the value will be saved in detector for pre-set Lux value, and it will be dimmed to this light level automatically while the lighting is switched on next time.

3.2.2.4 Dimming off function

30sec before switching off time, load's light level will be dimmed to 50% illumination automatically, and then dim to the illumination of standby mode (refer to STBY% setting value) in 20sec. If the detector is triggered during this period, load's light level will be dimmed to the Lux setting value, and time accounting will renovate.
Remark: The valid time setting value is more than 1min. If the time setting value is less than 1min, the load's light level will decrease to illumination of standby mode 5sec before switching off time.

3.2.3 ON / OFF delay function

According to the changeable ambient light level, detector can postpone load's delay time of turning on and off to avoid load's unnecessarily turning on or off 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.

3.2.4 Absence mode

- Detector enters into absence mode by pressing "👁" button on IR-11D.
- Under Absence mode, load can only be manually switched on by operating external push button.
- When the load is switched on, it will keep on if the movements are detected constantly. Load will turn off if no movement is detected and the delay time has expired.
- Load can also be manually switched off by operating external push button.

3.2.5 Auto sensitivity adjustment function

To raise the sensitivity of detector after load is switched on can reduce the possibility of false-off problem. When the load is on, the sensitivity of detector will be raised automatically. When the load is off, the sensitivity of detector will return to normal standby condition.

3.3 Wiring

3.3.1 PMSCDD

- 3.3.1.1 Normal operation (See FIG.5)

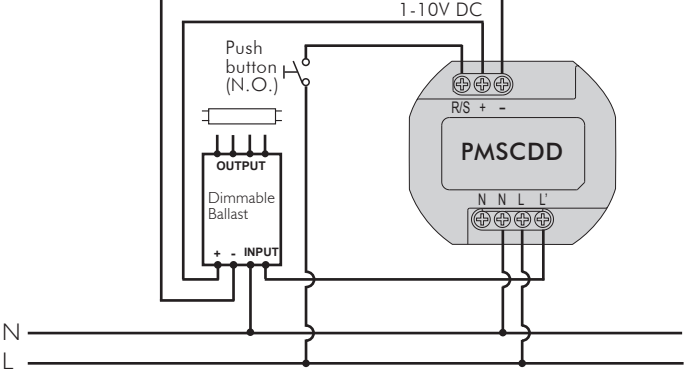


FIG.5

- 3.3.1.2 Staircase timer switch controlled by one detector (Time should be set to √sL, see FIG.6)

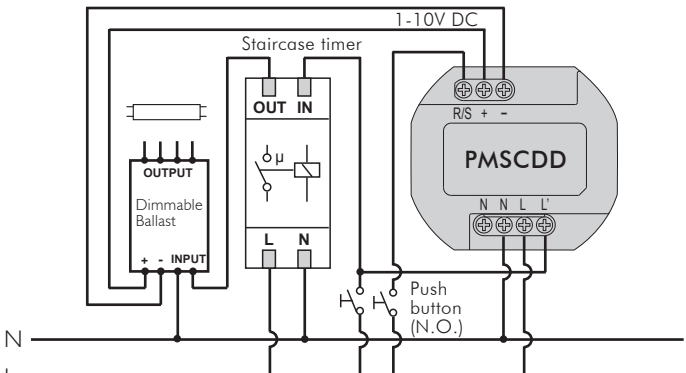


FIG.6

- 3.3.1.3 Master / Slave operation (Max. 10pcs slave detectors can be connected to R/S terminal of the master detector) (See FIG.7).

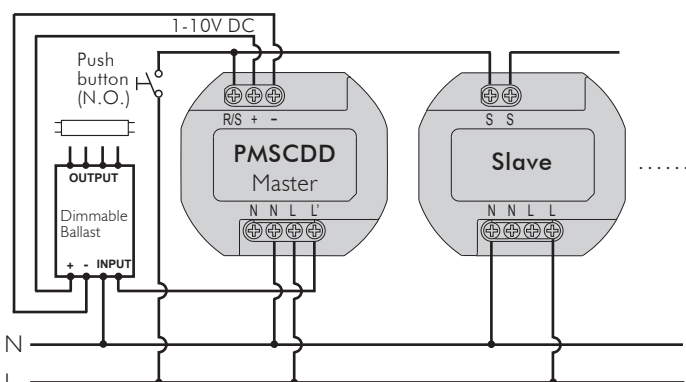


FIG.7

3.4 Installation procedure

3.4.1 Flush mount with European standard junction box

- 3.4.1.1 Take off decorative frame of PMSCDD, then take the detector head apart from power box by unscrew its 4pcs non-dropping screws (See FIG.8).

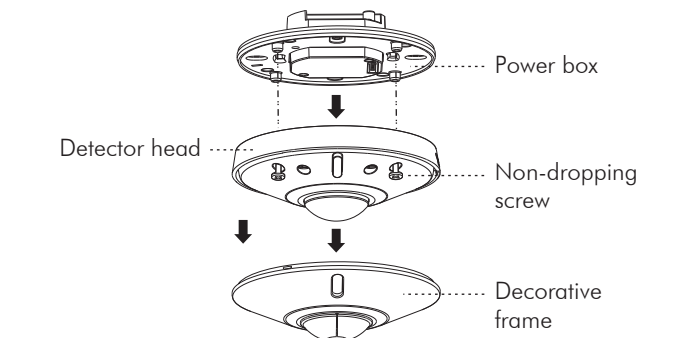


FIG.8

- 3.4.1.2 Pull out AC power cables from European standard junction box (See FIG.9), then strip off 6 - 8mm of cable sheathing for wiring (See FIG.5 - FIG.7).

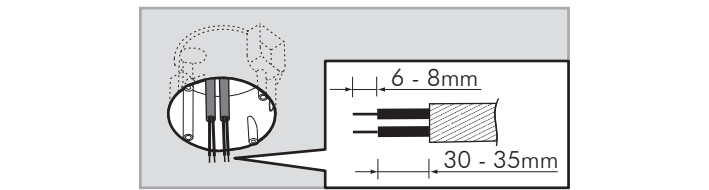


FIG.9

- 3.4.1.3 Fix the power box into European standard junction box with 2pcs screws (See FIG.10).

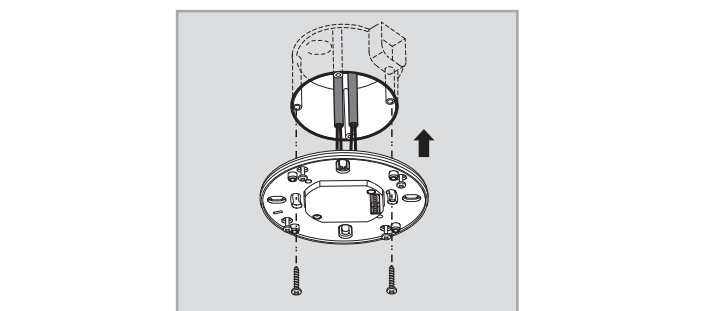


FIG.10

- 3.4.1.4 Fix the detector head on power box by inserting its four non-dropping screws into the corresponding screw holes, then cover up the decorative frame (See FIG.8).

- 3.4.1.5 Restore the power supply.

3.4.2 Flush mount with power box cap SP-96.

- 3.4.2.1 To install detector, 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.11).

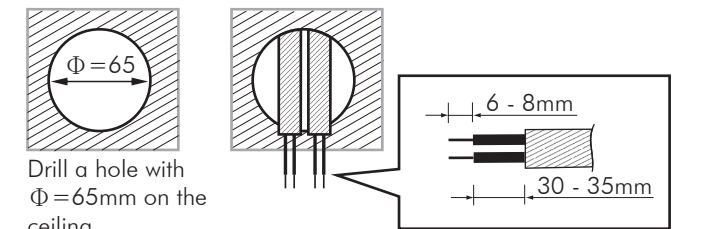


FIG.11

- 3.4.2.2 Use screwdriver to break the rubber gasket on SP-96, then feed cables through it (See FIG.12).
- 3.4.2.3 Please refer to illustration of FIG.5 - FIG.7 for correct wiring and then screw the SP-96 tightly.

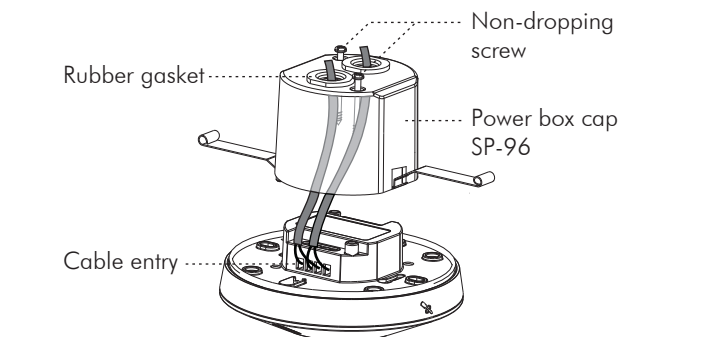


FIG.12

- 3.4.2.4 Close up detector's two spring clips and insert detector into the drilled hole on ceiling (See FIG.13).

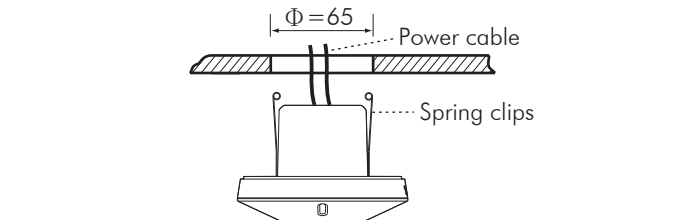


FIG.13

- 3.4.2.5 Restore the power supply.

3.4.3 Surface mount with junction box JB-41

- 3.4.3.1 There are 4 pairs of knockouts with various distances from 41mm to 85mm on the junction box JB-41 can be selected for different mounting applications (See FIG.14-A). Select two same figures on both ends for the corresponding distance for fixing (See FIG.14-B).

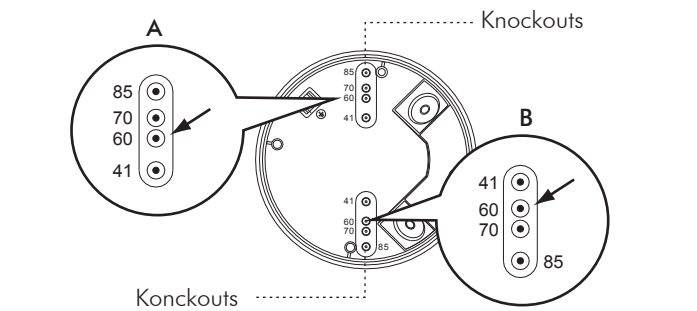


FIG.14-A

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.14-B

- 3.4.3.2 To feed AC power cables through the side of junction box, please use the cutting pliers to break the cable entry knockouts on the side of junction box, then insert cables into junction box and feed through it. Strip off 6 - 8mm of cable sheathing for wiring (See FIG.15).

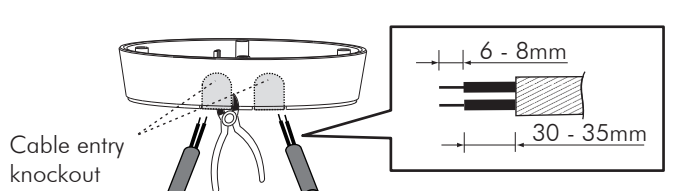


FIG.15

- 3.4.3.3 Choose proper knockouts to fix the junction box JB-41 on the surface of ceiling board with 2pcs wood screws attached with rubber washer (See FIG.16).

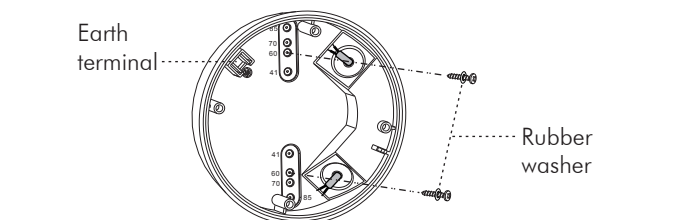


FIG.16

3.4.3.4 Insert 4pcs non-dropping screws to the corresponding screw holes on detector's fixing plate, and those 4pcs screws will not drop off to provide convenience to the subsequent installations (See FIG.17).

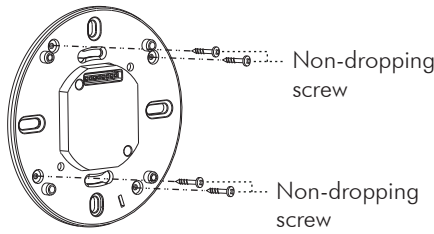


FIG.17

3.4.3.5 Refer to wiring diagrams for correct wiring connection (See FIG.5 - FIG.7). There is a square hole in the fixing plate, when you put the fixing plate into the junction box, please fit the fillister to the junction box's protrusion (See FIG.18), then fix the detector head on the power box following FIG.5 and assemble them with the attached 4pcs non-dropping screws.

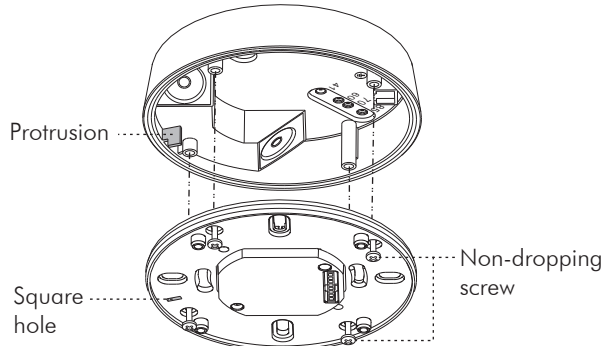


FIG.18

3.4.3.6 Cover up the detector's decorative frame and restore the power supply.

4 OPERATION AND FUNCTION

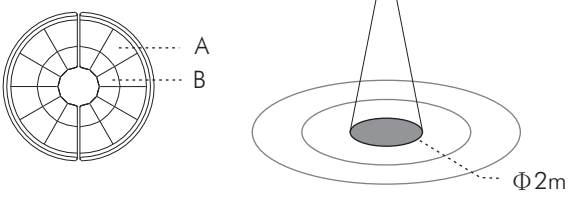
4.1 Lux, Time, STBY, STBY% knobs

Knob	Function	Knob setting
	Set the light value for switching on load	Range: Approx. 10 to 2000Lux User can set the knob according to their requirement for application. The marked values are for reference only.
	Set delay off time for lighting	Range: Approx. 10sec to 30min Test : Test mode (Load and red LED will be 2sec on, 2sec off) Test : Short impulse mode for staircase timer switch control (Load will be 1sec on, 9sec off)
	Set load on time in standby mode	3 precise adjustments: 5min, 10min, 15min, and ∞.
	Set load's illumination in standby mode	4 precise adjustments: 10%, 20%, 30%, OFF (Load is off in standby mode).

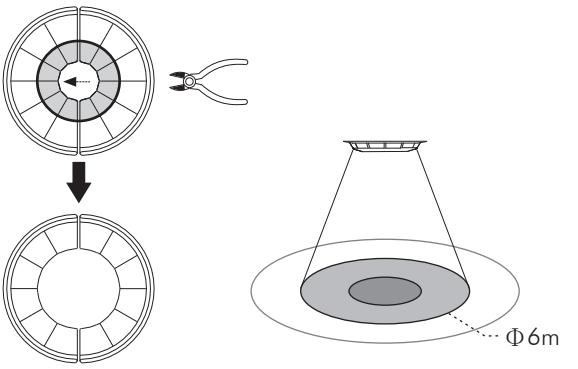
4.2 Usage of lens shield

4.2.1 PMSCDD has provided 2 lens shields for masking the undesired detection area. Each lens shield has 2 layers, each layer includes 6 small pieces of shield and each small piece of shield can cover 30° detection area. For example, to install the detector at the height of 2.5m, the detection range can reach up to 2m diameter if the complete lens shields have been used, and up to 6m diameter if only the A layer of lens shield has been used (See FIG.19).

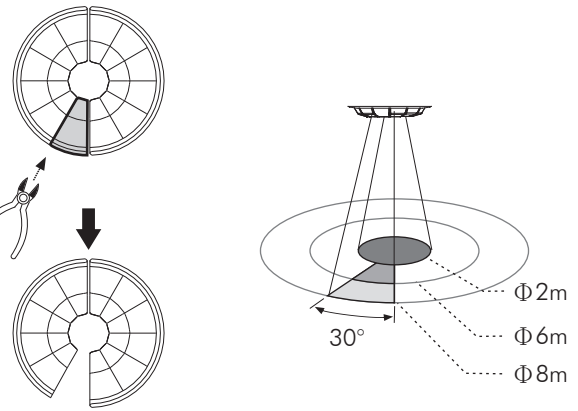
The whole lens shield is used.



A layer of the lens shield is used.



Part of the lens shield is used.



Part of the lens shield is used.

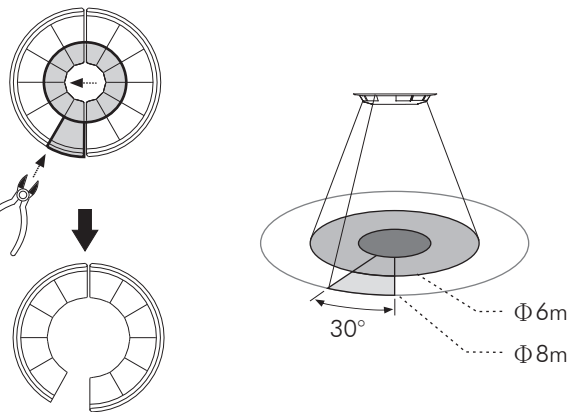


FIG.19

- The shadow part of the lens shield in the FIG.19 is needed to be cut off.

4.2.2 Fixing lens shield: There is circular hook on the back of the decorative frame and the lens shield is designed with a circular groove. The lens shield can be fitted by joining the groove of lens shield with its corresponding hook on the decorative frame (See FIG.20-A & FIG.20-B).

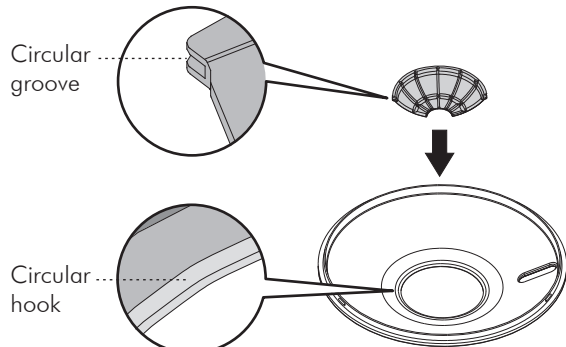


FIG.20-A

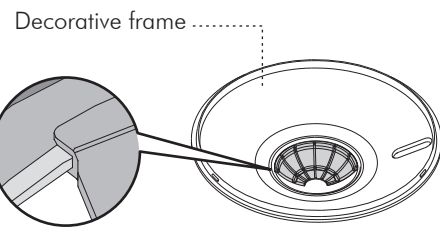


FIG.20-B

4.3 Walk test

The purpose of conducting the walk test is to check and adjust the detection coverage. Set Time knob to "Test", then conducting a walk test, Lux is invalid.

NOTE

It takes approx. 60sec for detector to warm up after power is supplied, then enters into normal operation to carry out a walk test.

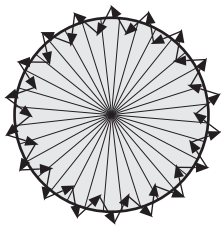


FIG.21

Test procedure

- 4.3.1 Tester must be within the detection coverage.
- 4.3.2 Switch power on.
- 4.3.3 PMSCDD takes approx. 60sec to warm up with load and LED on, then turns off after warming up time.
- 4.3.4 Walk from outside across to the detection pattern until LED turns on for approx. 2sec then off, the next trigger should be 2sec interval (See FIG.21).
- 4.3.5 Adjusting lens shield for desired detection range.
- 4.3.6 Repeat step 4.3.4 and 4.3.5 until it meets user's demands.

5 TROUBLE SHOOTING

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

Problem	Possible cause	Suggested solution
Lighting device does not turn on	1. Power does not turn on. 2. Wired incorrectly. 3. Lux knob adjusted incorrectly. 4. Malfunctioned load.	1. Switch on the power. 2. Refer to wiring diagrams for correct connection. 3. Check if Lux knob are set to the correct position. 4. Replace the disabled load with a new one.
Lighting device does not turn off	1. Auto off time is set too long. 2. Detector is nuisance triggered. 3. Wired incorrectly.	1. Set auto off time to a shorter time and check the load is switched off or not according to the pre-set off time. 2. Keep away from detection coverage to avoid activating detector while doing the test. 3. Make sure load and wires are connected correctly.
LED does not turn on	1. Time knob is not set to Test. 2. Exceeding the detection range.	1. Time knob must be located to Test position. 2. Walk in the effective detection range of 8m diameter.
Dimmer function is invalid	1. Incorrect wiring. 2. Malfunctioned electronic dimmable ballast or LED driver. 3. Revised phase connection of "+", "-", (1-10VDC).	1. Connect cables referring to the wiring diagrams (See FIG.5 - FIG.7). 2. Replace with a new electronic ballast or LED driver. 3. Connect "+", "-", referring to the wiring diagrams (See FIG.5 - FIG.7).
Nuisance triggered	There are heat sources, highly reflective objects or any objects which may be swayed in the wind within the detection coverage.	Avoid aiming the detector towards any heat sources, such as air conditionings, electric fans, heaters or any highly reflective surfaces. Make sure there are no swaying objects within the detection coverage.

6.2 IR-11D push button function

Button	Function
	To set load I (CH1) on for 8hrs ● By pressing "ON" button, the load of detector will be turned on for 8hrs. ● Load will be turned off after 8hrs and return to auto mode. Or press "ON" button again to exit this "8hrs on mode" during this period, detector will return to auto mode. ● Or switching off power supply of presence detector for 5sec and re-supply it again to lead detector to auto mode. ● Load I (CH1) can be lead to off mode by pressing "OFF" button under on mode.
	To set load I (CH1) off for 8hrs ● By pressing "OFF" button, the load connected to detector will be turned off for 8hrs. ● Detector will return to auto mode after 8hrs. ● Or press "OFF" button again to exit this "8hrs off mode" during this period, detector will return to auto mode. ● Or switching off power supply of presence detector for 5sec and re-supply it again to lead detector to auto mode. ● Load I (CH1) can be lead to on mode by pressing "ON" button under off mode.
	Unlock IR-11D buttons ● By pressing "UN" button, IR-11D buttons will be unlocked. Thereafter, IR remote controller can be used to set presence detector. ● The default channel is CH1 (Load I) after unlocking IR-11D. ● When operating IR-11D to detector under unlock mode, detector will lock automatically 5min later if "UN" button is not pressed.
	To lock IR-11D buttons By pressing "LN" button, IR-11D buttons will be locked and no key function is workable (except for 6 buttons of "UN" & "ON" & "OFF" & "AM" & "DIM" & "EYE").
	To dim the brightness of light ● IR-11D is locked: Press "DIM" button to start dimming, then pressing "EYE" button to stop dimming while the ambient light level matches user's desire, but the value will not be saved in detector, and it will be dimmed automatically according to last Lux setting value while the lighting is switched on next time. ● IR-11D is unlocked: Press "DIM" button to start dimming, then pressing "EYE" button to stop dimming while the ambient light level matches user's desire and the value will be saved in detector for pre-set Lux value, and it will be dimmed to this light level automatically while the lighting is switched on next time.
	Alternative of auto / absence mode By pressing "AM" firstly, detector enters into auto mode with detector's red LED flashing quickly for 2sec no matter it is locked or not. Then, press it again, detector enters into absence mode with detector's red LED keeps on for 2sec.
	To reset settings on Presence Detector By pressing "MEMO" button, all settings on presence detector will go back to potentiometers' settings, and all MEMO data will be deleted.

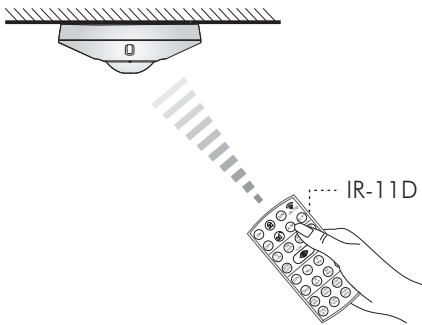


FIG.22

Button	Function
	The previous setting values can be stored and duplicated to other detector 1. Set the desired Lux, time, STBY and STBY% values on one detector by using IR remote controller. 2. Then by pressing "MEMO" button for approx. 3sec aiming to above detector, the Lux, time, STBY and STBY% settings of this detector will be saved into this IR remote controller by detector's LED flashing. 3. By pressing "MEMO" button again for approx. 1sec aiming to a new detector, the saved settings can be duplicated to the new detector. 4. Transfer the settings to detectors desired by repeating above last step. If no data is saved in IR remote controller, detector has no reaction after press "MEMO" button. 5. Battery removed for more than 5sec or RESET button is pressed, all the data in IR remote controller will be deleted.
	To adjust Lux value By pressing corresponding button, the selected light level threshold will be set to presence detector for switching on the connected load.
	To read-in the actual ambient light level Actual ambient light level can be read-in as threshold for switching the connected load, if the provided Lux values do not match user's requirement. The steps are as below: Press "EYE" button till detector's red LED flashing to enter into learning mode, learning time is 10sec. Then the actual ambient light level is read-in confirmed by both load and LED turn on for 5sec to indicate IR-11D learning successfully and then turn off. Afterwards, it returns to Auto mode. Note: If the ambient light level is out of the range of 10 - 2000Lux, detector will learn for 10sec, then LED flashes quickly for 5sec to indicate IR-11D learning is failed, and the alternative of 10Lux or 2000Lux value will be stored depends on it under 10Lux or above 2000Lux value.
	Load I (CH1) or load II (CH2) selection ● By pressing "CH1" under unlock mode to select load I (CH1) for time value setting. ● "CH2" button is invalid.
	Set delay off time of load I (CH1) / load II (CH2) Under unlock mode, press "CH1" or "CH2" firstly to select desired channel for value setting. Then, press corresponding button to set the exactly delay off time of load I (CH1) or load II (CH2).
	Short impulse mode ● Under unlock mode, press "CH1" and "FL" in turns to make load I (CH1) enters into short impulse mode. During which, once the detector is triggered, load will be 1sec on, 9sec off. Detector is controlled by Lux value. ● Under unlock mode, press "CH2" and "FL" in turns to make load II (CH2) enters into short impulse mode. During which, once the detector is triggered, load will be 5sec on, 5sec off and Lux is disabled.

Button	Function
	Test mode ● By pressing "TEST" button to enter into Test mode, it is confirmed by flashing of detector's LED for 2sec. Walking through the detection coverage, both load I (CH1) and detector's LED turn on 2sec once detector is triggered (Detector is regardless of Lux value). ● Load II (CH2) has no reaction in test mode.
	Set load on time in standby mode ● By pressing corresponding button under unlock mode, the desired load on time can be exactly set. ● The set value is valid only for load I (CH1).
	Switch off load I (CH1) in stanby mode ● By pressing "STBY" button under unlock mode, load is off in standby mode. ● The set value is valid only for load I (CH1).
	Set load's illumination in standby mode ● By pressing corresponding button under unlock mode, the desired load on illumination for standby mode can be exactly set. ● The set value is valid only for load I (CH1).

6.3 Trouble shooting of IR-11D

When remote controller IR-11D works abnormally, please check assumptive problems and suggested solutions in following chart that hopefully solve your problem.

Problem	Possible cause	Suggested solution
Detector fails to receive signal	1. Exceed the transmission range. 2. Low battery power. 3. Detector works abnormally.	1. Operate within valid transmission range, and ensure IR-11D aims directly to the detector. 2. Replace a new battery. 3. Check the trouble of detector, then refer the TROUBLE SHOOTING of detector manual for repairing.
No signal	1. Low battery power. 2. Press two or more buttons once.	1. Replace a new battery. 2. Press one button once.
Fail to transmit signal	In locked mode.	Unlock IR-11D.



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