

MOTION DETECTOR FOR LARGE AREAS

DM TEC 300



INSTRUCTION MANUAL

Technical Specifications

- **Rated voltage:** 230V ~ ±10% 50/60Hz
- **Power consumption:** <1W
- **Switching power:**
 - Incandescent Lamp: 2000W
 - 230V Halogen Lamp: 1000W
 - LV Halogen Lamp with Ferromagnetic Transformer: 600W
 - LV Halogen Lamp with Electronic Transformer: 900W
 - Fluorescent Lamp: 900VA (100μF)
 - Max. Electronic Ballasts: 25x(1x18W), 12x(2x18W), 15x(1x36W), 7x(2x36W), 10x(1x58W), 5x(2x58W)
 - Fluorescent Lamp (uncompensated): 600W
 - LED Lamp: 400W
 - Energy Saving Lamp (CFL & PL): 400W
- **Range:** 360°, max. ø30m at height of 2,5m & 20° ~ 25°C
- **Light adjustment:** 10 ~ 2000Lux
- **Time setting:** 10sec ~ 30min & Impulse (ON: 1s / OFF: 9s)
- **Mounting:** flush ceiling, in European Standard junction box or Surface mounting
- **Environmental Protection:** Class II
 - IP40: flush mount
 - IP44: surface mount with the accessory
- **Ambient Temperature:** -20°C ~ +45°C
- **Dimensions:** ø110 x h70mm (without the surface accessory)

CAUTION

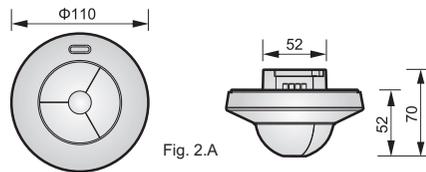
- A circuit breaker (250V_{AC}/10A, type C) according to UNE EN60898-1 shall be installed in the fixed wiring for protection.
- Installation and assembly of electrical equipments me be carried out by qualified electricians.
- Do not mount on conductive surface.
- Turn off power when change the light sources.
- High in-rush current would be caused when bulbs are burned which might damage the detector permanently.

1 DESCRIPTION

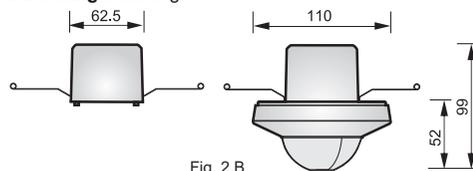
- Available in various mounting methods: flush or surface mount and can be fitted into the European standard junction box.
- A red LED is equipped as an indicator for test triggering.
- IR remote controller for easy and quick settings (optional).
- Automatic sensitivity adjustment function: the sensitivity 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.

2 DIMENSIONS

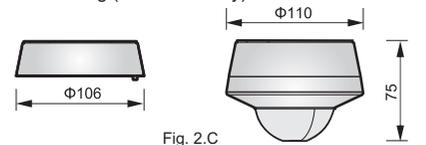
• Mount into the European standard junction box:



• Flush ceiling mounting:



• Surface mounting (with accessory):



3 INSTALLATION AND WIRING

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

A. Select a proper location

A.1 - DM TEC 300 can be installed at the height of 2 - 3m, it is recommended to install it at the height of 2.5m to gain the optimal detection pattern. The detection range can reach up to ø30m and 360° detection angle.

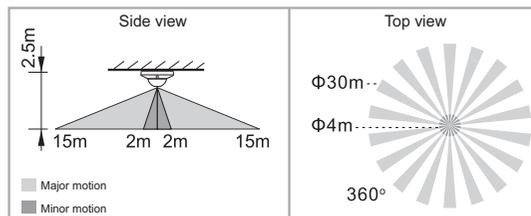


Fig. 3.A.1

A.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.

In the event that movement is directly toward to detector the detection coverage will be reduced.



Fig. 3.A.2

Below is shown a table with approximate detection ranges taking into account the mounting height as well as the motion direction and the type of movement.

Take account of these values when selecting the location:

Height	Detection Range (approx.)		
	Seated activity (low motion)	Walking across (high motion)	Walking towards (high motion)
2m	Ø4m	Ø28m	Ø5m
2,5m	Ø4m	Ø30m	Ø6m
3m	Ø5m	Ø30m	Ø6m
3,5m	Ø5m	Ø28m	Ø6m
4m	Ø5m	Ø20m	Ø4m
5m	Ø5m	Ø10m	Ø3m

A.3 - Since the detector is in response to temperature change, please avoid the following conditions:

- Avoid aiming the detector toward the objects which may be swayed in the wind, such as curtain, tall plants, 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.

B. Function

B.1 - R terminal: a push button (non-lighted) can be connected to control load's on/off manually:

B.1.A - Case 1: "Manual off switching" (Lux setting 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.

B.1.B - Case 2: "Manual on switching" (Lux setting 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.

B.2 - 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 daylight change:

- Daylight level changes from bright to dark: If the daylight 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).
- Daylight level changes from dark to bright: If the daylight 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 off after 5min.
 - Time setting < 5min: the light will be off when the set time reached if no movement is detected. But if there is movement within the 5min, the time will be reset upon detection and until 5min later, the light is off.

B.3 - 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.

C. Wiring diagrams

C.1 - Normal operation

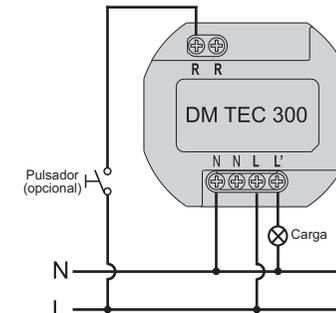


Fig. 3.C.1

C.2 - Staircase timer switch controlled by one detector (time: Impulse)

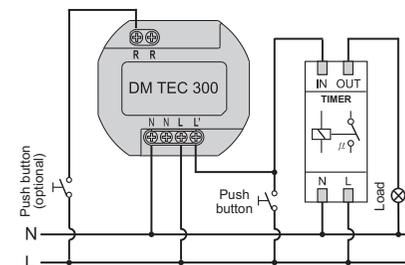


Fig. 3.C.2

D. Installation procedure

D.1 - Flush mount with European standard junction box.

D.1.a - Take off decorative frame of DM TEC 300. Then take the detector head apart from power box by unscrew its 4pcs non-dropping screws.

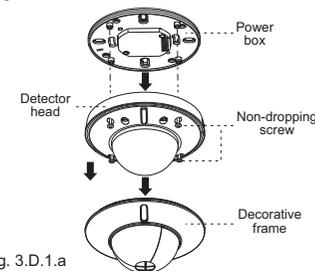


Fig. 3.D.1.a

D.1.b - Pull out AC power cables from junction box. Then strip off 6 - 8mm of cable sheathing for wiring.

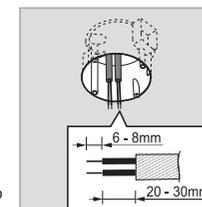


Fig. 3.D.1.b

D.1.c - Fix the power box into junction box with 2 pcs screws.

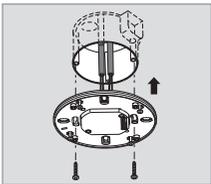


Fig. 3.D.1.c

D.1.d - 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.

D.1.e - Restore the power supply.

D.2 - Flush mounting.

D.2.a - Drill a hole with $\phi 65$ mm on ceiling board and keep the power cable outside. Strip off 6 - 8mm of cable sheathing.

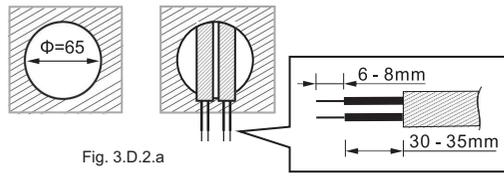


Fig. 3.D.2.a

D.2.b - Use screwdriver to break the rubber gasket. Then feed cables through it.

D.2.c - Do the wiring and screw the power box cap tightly.

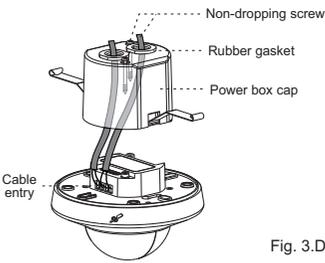


Fig. 3.D.2.c

D.2.d - Close up detector's two spring clips and insert detector into the drilled hole on ceiling.

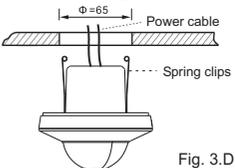


Fig. 3.D.2.d

D.2.e - Restore the power supply.

D.3 - Surface mounting (with junction box - included).

D.3.a - There are 4 pairs of knockouts with various distances from 41mm to 85mm on the bottom cover of combined junction box. Select two same figures on both ends for the corresponding distance for fixing.

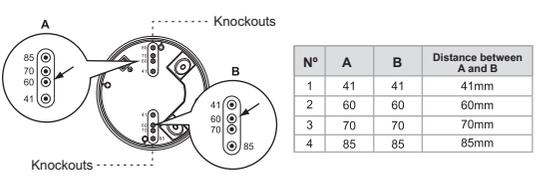


Fig. 3.D.3.a

D.3.b - 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.

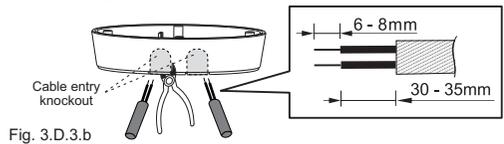


Fig. 3.D.3.b

D.3.c - Choose proper knockouts to fix the junction box on the surface of ceiling board with 2 pcs wood screws attached with rubber washer.

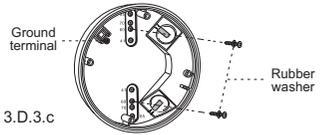


Fig. 3.D.3.c

D.3.d - Insert 4 pcs non-dropping screws to the corresponding screw holes on detector's fixing plate.

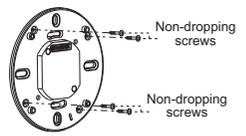


Fig. 3.D.3.d

D.3.e - Refer to wiring diagrams for correct wiring connection. There is a square hole in the fixing plate, when you put the fixing plate into the junction box, please fit the filister to the junction box's protusion, then fix the detector head on the power box and assemble them with the attached 4 pcs non-dropping screws.

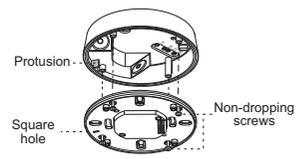


Fig. 3.D.3.e

D.3.f - Cover up the detector's decorative frame and restore the power supply.

4 OPERATION AND SETTING

A. Lux and Time settings: can be set by its own control knobs or with the remote controller (EM MAN DM1).

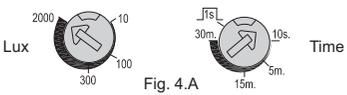


Fig. 4.A

A.1 - Lux knob

Its function is to set the maximum light level. Below this value the sensor will switch the load on as soon as movement is detected. User can set the knob according to their requirement for application. The marked values are for reference only.

If Lux function is not desired just set this knob at 2000Lux and it will work independently of the daylight.

If the detector have to work only at night just set the Lux knob at 10Lux and it will work only when the daylight is practically null.

A.2 - Time knob

Set delay off time for lighting. Range: approx. 10sec ~ 30min. Impulse (1sec): short impulse mode for staircase timer switch control (load will be 1sec on and 9sec off). In this mode, the LED is disabled.

A.3 - Setting by remote control EM MAN DM1 (optional)

It is possible to set the Time and Lux level by an optional remote control.

A.3.a - Behaviour of LED using the remote control:

- Upon supplying the detector the LED is switched on for 60sec. After that it is switched off if there is not any setting fixed from the remote control.
- If there is a setting fixed from the remote control the LED will flash (f=3Hz) for 60sec. After that it will switch off.
- When the detector receives a command from the remote control its LED will flash twice (f=3Hz).
- If the detector receives a "permanent ON or OFF" from the remote control the LED will be on for 1sec and 5sec off.

B. Usage of lens shield

B.1 - DM TEC 300 has supplied 3 pcs lens shields to allow elimination of coverage in unwanted areas.

Each lens shield has 3 layers. Each layer 4 small units and each small unit can cover 30° detection area. For example, to install the detector at the height of 2.5m, the detection range can reach up to $\phi 1$ m if the complete lens shields has been used, and up to $\phi 6$ m if layer C has been cut, as well, up to $\phi 12$ m if layer B also has been cut, the detection range can reach up to $\phi 30$ m when no lens shield is used.

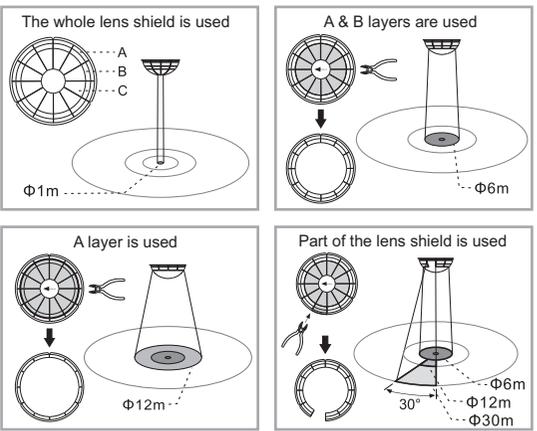


Fig. 4.B.1

B.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.

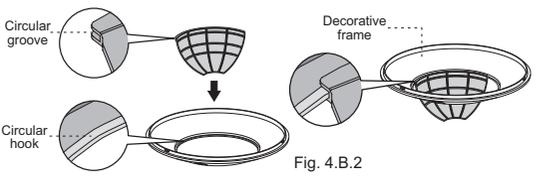


Fig. 4.B.2

C. Walk test

The purpose of conducting the walk test is to check and adjust the detection coverage. Set the Time knob to "10s" and Lux knob to "2000".

NOTE: It takes approx. ~60sec for detector warm up after power is supplied, then enters into normal operation.

Test procedure:

- Switch power on and remove the lens shield if it is not necessary.
- DM TEC 300 takes approx. ~60sec to warm up with load and LED on, then turns off after warning up time.
- Walk from outside across to the detection pattern until LED and load turn on.
- Repeat the two last steps until it meets user's demands.

5 TROUBLE SHOOTING

Problem	Possible cause	Suggested solution
Lighting device does not turn on	1. Power does not turn on	1. Switch on the power
	2. Wired incorrectly	2. Refer to wiring diagrams for correct connection
	3. Lux knob adjusted incorrectly	3. Check if Lux knob is set to the correct position
	4. Malfunctioned load	4. Replace the load
	5. Permanent OFF adjusted by remote control (in case of using)	5. Press again OFF key in the remote control
Lighting device does not turn off	1. Auto off time is set too long	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. Detector is nuisance triggered	2. Keep away from detection coverage to avoid activating detector while doing the test
	3. Wired incorrectly	3. Refer to wiring diagrams for correct connection
	4. Permanent ON adjusted by remote control (in case of using)	4. Press again ON key in the remote control
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