

## Brief Instructions: Radar Motion Sensor for Detecting People at Automatic Doors

**General Information for Your Safety**

This device must be installed and maintained only by qualified, trained personnel.

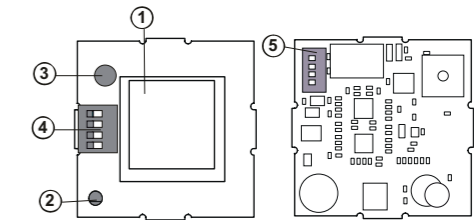
Observe the safety requirements of EN 60950-1. Operate the sensor only with an SELV supply with a limited output of up to 100 W. Use a T2.5 A fuse, for example, to reliably limit the power output.

**Product Information****Scope of Delivery**

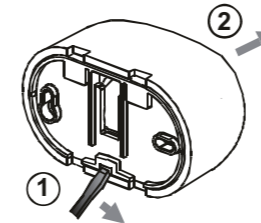
Quantity	Designation
1	Sensor RaDec-D...
1	Connection cable with plug
2	Locking discs for inclined position
1	Self-adhesive drilling template
2	Screws for mounting
1	Mounting instructions

**Operating Elements**

- ① Antenna
- ② LED (red)
- ③ Potentiometer
- ④ DIP switches
- ⑤ Connecting plug

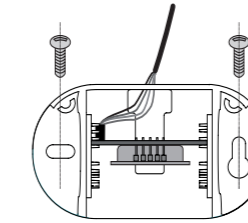


**Warning: Electrostatic-sensitive components!**  
Do not touch any electronic components. Do not use any metallic tools.

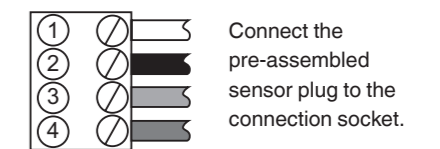
**Installation****Opening the Device**

1. Insert the screwdriver into the opening provided and carefully push open the cover.
2. Pull the cover forward and remove.

**Do not open the housing from the top.**

**Mounting the Device**

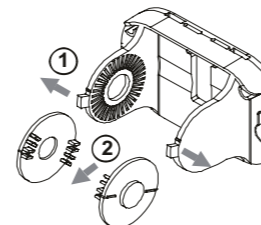
1. Attach the self-adhesive template and drill according to the markings on the template.
2. Pull the cable through the opening provided.
3. Fasten the base plate using the screws (screws are in the housing).
4. Insert and connect the cable.

**Connecting the Radar****Connector assignment for RaDec-D:**

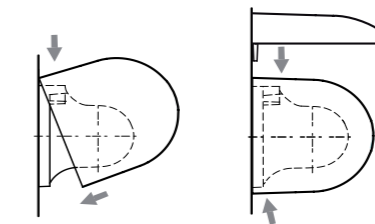
- ① AC/DC supply (white)
- ② AC/DC supply (black)
- ③ Relay contact 1 (red)
- ④ Relay contact 2 (green)

**Connector assignment for RaDec-D-NA:**

- ① AC/DC supply (red)
- ② AC/DC supply (black)
- ③ Relay contact 1 (white)
- ④ Relay contact 2 (green)

**Replacing or Turning the Antenna**  
to change the antenna characteristics

1. Push apart the tabs on the arms of the base plate.
2. Carefully remove the PCB and locking discs.
3. Move the locking discs to the new position on the PCB.
4. Push apart the tabs on the arms of the base plate.
5. Re-insert the PCB with locking discs. The locking discs must engage.

**Closing the Device**

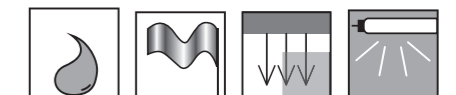
1. Attach the cover on the top and press down until it snaps into place.
2. If desired, attach RaDec Weather Cap (see accessories).

**\* Installation of the RaDec Weather Cap is recommended (see accessories).**

**Mounting options**

The detection field can be pivoted by 10° to 360° to enable **wall and ceiling mounting**.

**To meet UL508 requirements, a 2.5 A slow-blow fuse should be used between the device and the power supply.**

**Installation information**

- Protect the radar from rain\*.
- Avoid placing moving objects in the detection area (fans, plants, trees, flags).
- Do not cover the radar. Only install the radar behind appropriate covers. Mechanically operated drive components may affect the radar.
- Avoid fluorescent lights in the detection field.

## Detection Capabilities



The detection properties are adjusted using the DIP switch. Check the settings by walking within range of the sensor.

### Direction Detection

The direction detection can be used to set whether the radar should trigger only in the event of forward movements or in the event of forward and backward movements.



Without direction detection forward and backward



With direction detection forward (toward the radar)



### Cross-traffic Suppression

The cross-traffic suppression can be used to partially block out people passing by. The detection area becomes smaller when you turn on this option.



Little cross-traffic, door opens in the event of cross-traffic



A lot of cross-traffic, door remains closed



### Immunity

The immunity can be used to minimize various external influences, such as rain, vibrations, and reflections.



Low immunity



High immunity



### Relay contact switching mode

Relay contact is active during detection (N.O.)



Relay contact when detection is passive (N.C.)



### Use with swing doors:

The sensor can be used on swing doors. Install the sensor approx. 20 – 30 cm above the door edge on the door hinge side and activate the cross-traffic suppression. The closing door leaf is then not detected.



Some installation situations may limit the adjustment options and the functions of the sensor.

## Detection Field Settings

### Antenna Characteristics



Wide (Standard)  
Width: 4.50 m  
Depth: 2.00 m

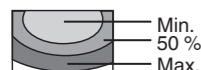
A wide or narrow detection area can be set by turning the PCB.



Narrow (optional)  
Width: 2.00 m  
Depth: 4.50 m

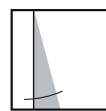
Mounting height 2.20 m  
Inclination angle 30°  
Detection area size max

### Detection Area Size

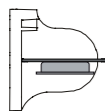


The size of the detection area can be changed using the potentiometer.

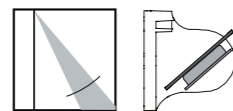
### Inclination Angle



0 degrees



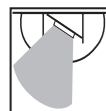
40 degrees



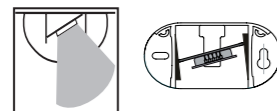
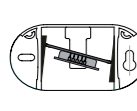
The standard locking discs (already installed in the device on delivery) can be used to adjust the position of the inclination angle in 10° steps from 0° to 90°.

Intermediate steps of 5° are possible by inserting the PCB in the standard locking discs in different positions. The default inclination angle of the PCB is 15°.

### Inclined Detection Area



15 degrees to the left



15 degrees to the right

By using the supplied locking discs for an inclined detection area (e.g., for swing doors), the detection area can be rotated by 15° to the left or to the right.

1. Remove standard locking discs.
2. Insert supplied locking discs for inclined detection area.
3. Set the required detection area.

## LED Status Indicator

Color indicator	Status
Red flashing	Initialization after switching on
Red	On: Detection active Off: No detection

## Factory Settings

Function	Setting
DIP switches	1 – 4 down (OFF) - With direction detection - Cross-traffic suppression off - Low immunity - Relay contact is active during detection (N.O.)

## Commissioning

Before switching on the device, remove all objects from the door area that do not normally belong there.

- Switch on the device and wait 10 s (LED flashes red).
- Check the settings by walking within range of the sensor. The red LED lights up when you are detected.

## Technical Data

Functional principle	Microwave module
Detection speed	min. 0.1 m/s (measured in sensor axis)
Marking	CE
Inclination angle	0° – 90° in 5° steps (10° steps in inclined position)
Detection range	at installation height of 2200 mm and 30° angle: Wide: 4500 x 2000 mm (WxD) Narrow: 2000 x 4500 mm (WxD)
Operating frequency	<b>RaDec-D:</b> 24.15 GHz – 24.25 GHz K band <b>RaDec-D-NA (FCC/IC):</b> 24.075 GHz – 24.175 GHz K band
Operating mode	Radar motion sensor
Function indicator	Red LED
Operating elements	Potentiometer for adjusting size of detection area DIP switch for operating mode selection
Operating voltage	12 – 36 VDC/12 – 28 VAC
No-load current	< 50 mA
Power consumption	< 1.7 W at 36 V DC < 1.2 W at 28 V AC
Switching mode	Active/passive
Signal output	Relay, 1 NO contact/NC contact
Switching voltage	Max. 48 VAC / 48 VDC
Switching current	Max. 0.5 AAC/1 ADC
Switching power	Max. 24 W/60 VA
Fall time	1 s
Ambient temperature	-20° C to 60° C/253 – 333 K
Relative humidity	Max. 90 %, not condensing
Mounting height	Max. 4000 mm
Degree of protection	IP 54
Connection	4-pin connecting plug (2.5 m connection cable with preassembled connecting plug included in scope of delivery)
Housing material	Polycarbonate (PC), ABS
Mass	130 g
Transmitting power	< 20 dBm EIRP
Dimensions without weather protective cover	101 mm (w) x 61 mm (h) x 59 mm (d)
Dimensions with weather protective cover	120 mm (w) x 73 mm (h) x 74 mm (d)

## Troubleshooting

Fault	Corrective action
Door is detected.	Decrease the size of the detection area. Change the inclination angle.
LED not lit up.	No power supply, device not functioning.
Sensor reacts to the slightest influences such as rain, vibrations, or reflections.	Switch on immunity.
Door opens for no apparent reason.	Decrease the size of the detection area.
Door opens too often when people pass by.	Switch on cross-traffic suppression.

## Contact

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## Conformity with Standards

### EU conformity:

Pepperl+Fuchs GmbH hereby declares that the radio system type RaDec-D complies with Directive 2014/53/EU.

The full declaration of conformity is available at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

### US conformity:

The product RaDec-D-NA is compliant with Part 15 of the FCC regulations.

### Canada conformity:

The product RaDec-D-NA contains an IC-approved component.

**IMPORTANT!** The EU-compliant devices must not be marketed in the United States/Canada and the US/Canada-compliant devices must not be marketed in Europe.

When placing on the market outside of the EU, US, or Canada, the locally applicable rules must be observed.



Pepperl+Fuchs GmbH is certified according to ISO 9001.



For RaDec-D

## Accessories

RaDec Weather Cap Weather protective cover

DOCT-2045E

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