



**Model Number**

**RMS-D-FM**

Radar sensor  
for automatic doors

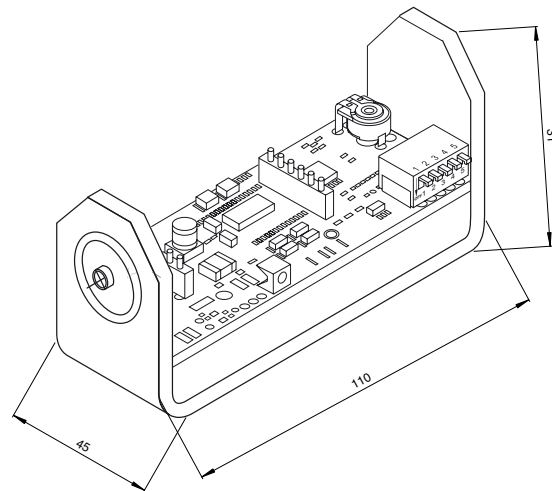
**Features**

- Door activation sensor
- Installation version
- Direction detection
- Cross traffic suppression
- "Slow motion" for extremely slow motions

**Product information**

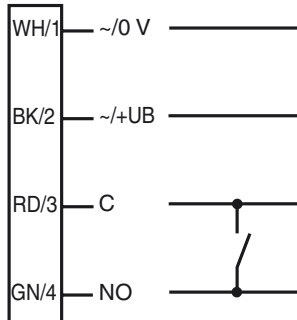
An effective opening of doors or industrial doors can be achieved very flexibly with the RMS microwave motion sensor series. The RC versions offer remote-controlled adjustment of parameters. Ultramodern microcontroller evaluation technology guarantees a variety of field sizes and universal use even in difficult conditions. The 24 GHz microwave technology enables a diverse range of operating modes such as direction detection. The cross-traffic suppression function only opens the door if people approach the door from the front, but not if they are walking past it. Thanks to the slow-motion mode, even extremely slow movements are detected, which increases convenience in senior citizens' residences, for example.

**Dimensions**

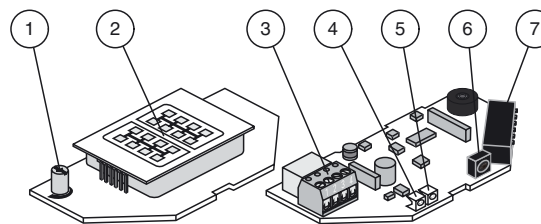


**Electrical connection**

Option:



**Indicators/operating means**



1	Potentiometer
2	Antenna
3	Terminal
4	IR transmitter (RC version only)
5	LED (red/green)
6	IR receiver (RC version only)
7	DIP switches

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Subject to modifications without notice

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**Technical data**

**General specifications**

Sensing range	3000x 2500 mm (DxW) at 2200 mm mounting height and 30° tilt angle
Function principle	Microwave module
Detection speed	min. 0.1 m/s
Marking	CE
Setting angle	0 ... 40 ° in 5 ° increments
Operating frequency	24.05 ... 24.25 GHz K-Band
Operating mode	Radar motion sensor
Transmitter radiated power (EIRP)	< 20 dBm

**Functional safety related parameters**

MTTF <sub>d</sub>	640 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Indicators/operating means**

Function display	LED red/green
Controls	DIP-switch for selection of operating modes : Direction detection , Cross traffic suppression , Slow-motion , Switching type
Controls	sensitivity adjustment
Controls	Adjustment for off delay

**Electrical specifications**

Operating voltage	U <sub>B</sub>	12 ... 36 V DC , 12 ... 28 V AC
No-load supply current	I <sub>0</sub>	≤ 50 mA at 24 V DC
Power consumption	P <sub>0</sub>	≤ 1 W

**Output**

Switching type	NO/NC	
Signal output	relay, 1 NO	
Switching voltage	max. 48 V AC / 48 V DC	
Switching current	max. 0.5 A AC / 1 A DC	
Switching power	max. 24 W / 60 VA	
De-energized delay	t <sub>off</sub>	0.2 ... 5 s adjustable (1 sec factory setting)

**Ambient conditions**

Operating temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Relative humidity	max. 90 % non-condensing

**Mechanical specifications**

Mounting height	max. 4000 mm
Protection degree	IP54
Connection	plug-in screw terminals 4-pin , 5 m connecting cable included with delivery
Material	
Housing	ABS, anthracite
Mass	120 g
Dimensions	110 mm x 31 mm x 45 mm

**Suitable series**

Series	RMS
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**Compliance with standards and directives**

Directive conformity	
R&TTE Directive 1995/5/EC	EN 300440-1 V1.3.1 (2001-09); EN 300440-2 V1.1.1 (2001-09); VDE 0848-1 (2000-08); VDE 0848-2 (1991-01); ICNIRP Guidelines (1998-04); designation CE0682!
Standard conformity	
Electromagnetic compatibility	EN 61000-6-1:2007; EN 61000-6-2:2005
Emitted interference	EN 61000-6-3:2001; EN 61000-6-4:2001
Standards	EN 60947-5-2:2007

**Functional principle**

Microwave sensors are microwave scanners that use the principle of the Doppler radar. The most important requirement for microwave detection is that the object to be detected is moving.

The microwave sensors emit microwaves of a defined frequency in order to detect people and large objects moving at speeds between 100 mm/sec and 5 m/sec.

The microwaves emitted by the emitter are reflected back from the ground or other surfaces to the receiver. If there is no motion in the monitored zone, the emitted and reflected frequencies are identical. Nothing is detected. If people, animals or objects are moving in the monitored zone, the reflected frequency changes and therefore triggers a detection.

Based on the latest 24 GHz technology with integrated microprocessor control, these sensors provide a high degree of reliability even in difficult operating conditions. The 24 GHz frequency, known as the 'K-band,' is reserved by CETECOM for this application area worldwide. The RMS-D series of sensors are equipped with intelligent functions to enable them to be used in a wide variety of applications. The cross-traffic suppression function is particularly effective in narrow shopping streets and shopping arcades. The system can be configured so that the door opens only when a person approaches it, while ignoring passing pedestrians.

**Typical applications**

- Opening impulse sensor for automatic and industrial doors
- Monitoring approach areas to automatic doors and elevators
- Motion sensor for people and objects
- Impulse sensor for escalators
- Opening impulse sensor for entry doors

**Detection area**



**Accessories**

**RMS Weather cap**

All-weather hood for RMS series microwave sensors, for ceiling and wall installation

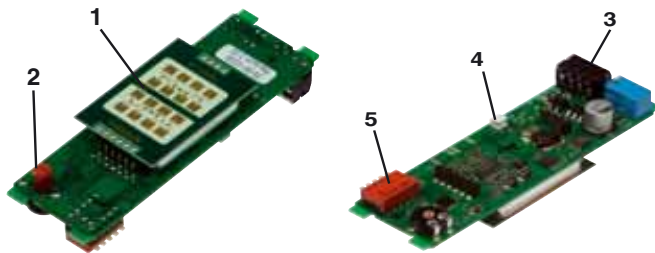
Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

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With direction detection, the opening impulse can be triggered based on the direction of motion. Depending on the setting, only movements towards or away from the sensor are detected. The "slow-motion mode" provides a tangible increase in comfort for senior citizens homes or hospitals. This mode allows detection of extremely slow movements in the direct vicinity of the closing area and can be selectively configured for an open door or a closed door. In the first case, the door is held open when there are slow movements. In the second case, the closed door opens even if a person is approaching so slowly that he would not be recognized by normal motion detection devices.

**Design of the Device**

No.	Description
1	Antenna
2	Potentiometer
3	Terminal
4	LED
5	DIP switch

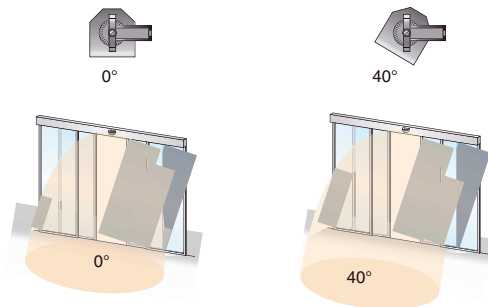


**Size of the sensing area / sensitivity**

The sensitivity potentiometer (2) adjusts the size of the sensing area.

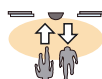
**Positioning the sensing area**

The sensor's position can be adjusted in 5° increments from 0° to 40°.



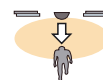
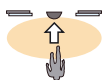
**Key to the „Programming the RMS-D“ table**

**1. Sensing characteristics without direction recognition**  
forwards / backwards



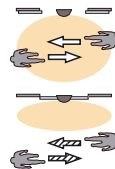
**2. Sensing characteristics with direction recognition**

- a) forwards
- b) backwards

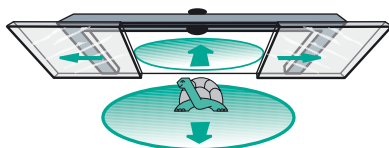


**3. Masking passing traffic**

- a) Door opens
- b) Door remains closed



**4. Turtle-Mode**



**Turtle mode door open**

If the door is open, the smallest movements are detected. The door only closes if no movement has been detected within the set observation time (1/3/5 seconds). In the case of setting 1 second and 3 seconds, the sensitivity slowly decreases over time (door closes). In the case of setting 5 seconds, the highest sensitivity is permanently used for detection.

**Turtle mode door close**

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If an object has approached so slowly that it was not recorded by the normal motion detection, the door opens even when it moves very close to the door.

**5. Relay output**

- Active active the relay output contact is closed when a target is detected
- Passive passive the relay output contact is opened when a target is detected

**LED status display**

- green sensor ready for operation
- red Recognition
- green flashing Command received
- red flashing Error
- green/red flashing Initialization (10 seconds after power-up)

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