

Radar sensor

RMS-D-RC



- Microwave motion sensor with intelligent functions
- Reliable detection of people and vehicles
- Direction detection
- Cross traffic suppression
- "Slow motion" for extremely slow motions
- Simplest adjustment of the sensing range
- Programmable by remote control

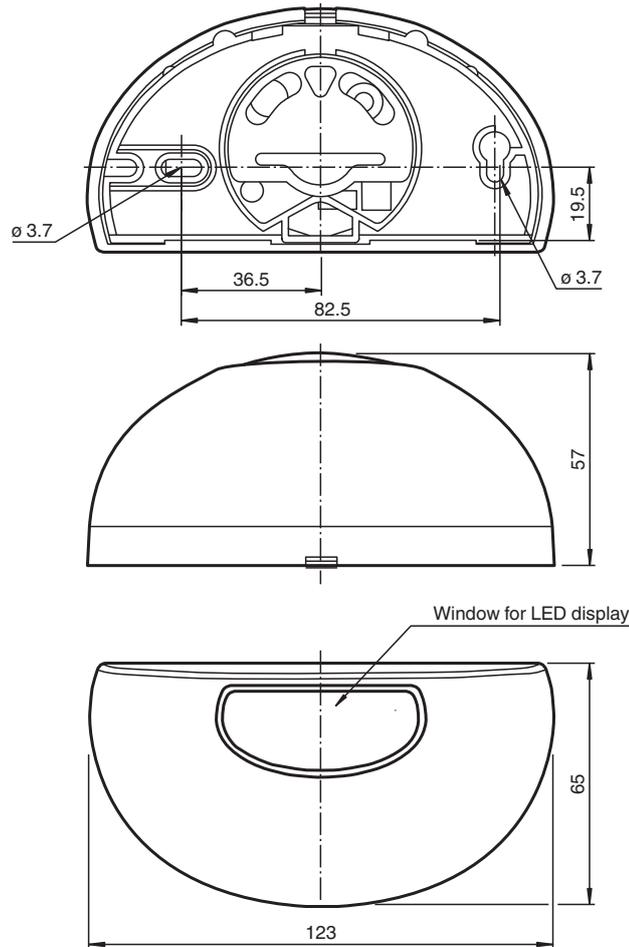
Premium radar motion sensor offering additional functions, dynamic version offering direction detection, can be operated remotely, 2 m x 4.5 m detection range, max. installation height: 4 m, black housing, relay contact output, cable connection



Function

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



Technical Data

General specifications	
Sensing range	Wide: 2000 x 4500 mm (DxW) at 2200 mm mounting height and 30° inclination angle narrow: 4500x 2000 mm (DxW) at 2200 mm mounting height and 30° inclination angle
Function principle	Microwave module
Detection speed	min. 0.1 m/s
Setting angle	Horizontal: -30° ... +30° in 5° increments Vertical: 0° ... 90° in 10° increments
Operating frequency	24.15 ... 24.25 GHz K-Band
Operating mode	Radar motion sensor
Transmitter radiated power (EIRP)	< 20 dBm
Functional safety related parameters	
MTTF _d	640 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %
Indicators/operating means	
Function indicator	LED red/green
Control elements	DIP switch for selection of operating modes : direction detection , cross-traffic suppression , Slow-motion , Switching type
Control elements	sensitivity adjustment
Control elements	Adjustment for off delay
Electrical specifications	
Operating voltage	U _B 12 ... 36 V DC , 12 ... 28 V AC
No-load supply current	I ₀ ≤ 50 mA at 24 V DC

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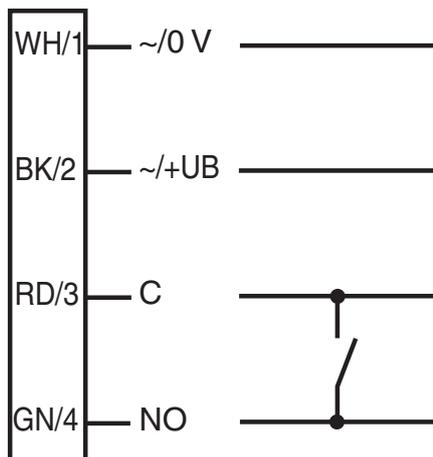
Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Technical Data

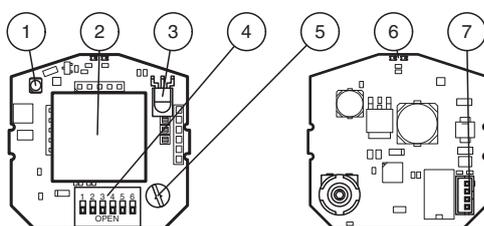
Power consumption	P_0	$\leq 1.2 \text{ W at } 24 \text{ V DC}$ $\leq 1.7 \text{ W at } 36 \text{ V DC}$
Output		
Switching type		NO/NC
Signal output		Relay, 1 NO contact/NC contact
Switching voltage		max. 48 V AC / 48 V DC
Switching current		max. 0.5 A AC / 1 A DC
Switching power		max. 24 W / 60 VA
De-energized delay	t_{off}	0.2 ... 5 s adjustable (1 sec factory setting)
Approvals and certificates		
CE conformity		2014/53/EU This device can be used in all countries within the European Union. In other countries, all applicable national regulations must be observed.
FCC approval		No - Use in North America is not permitted.
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
Degree of protection		IP54
Connection		plug 4-pin , 5 m connecting cable included with delivery
Material		
Housing		ABS, anthracite
Mass		120 g
Dimensions		123 mm x 65 mm x 57 mm
Suitable series		
Series		RMS

Connection Assignment

Option:



Assembly



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

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Application



Accessories

	RMS Weather Cap	All-weather hood for RMS series microwave sensors, for ceiling and wall installation
	RMS/RaDec Ceiling Kit wh	Ceiling mount kit for radar sensors in the RMS and RaDec Series
	RADAR RC	Infrared remote control for radar sensors

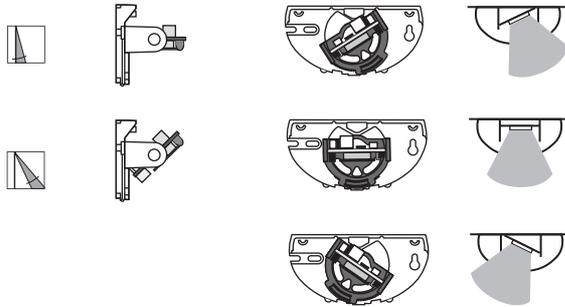
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Size of detection area

Change the size of the detection area using the potentiometer.

Position of the detection area

You can change its position in 10° increments from 0° to 40°.
The default setting is 15°.



Settings

The following features can be adjusted using the DIP switch:

1. Detection without direction detection

Forward/backward

2. Detection with direction detection

Forward (toward the sensor)

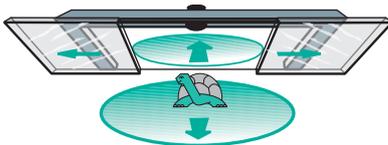
Backward (away from the sensor)

3. Cross-traffic suppression

Without suppression: door opens even in the event of cross-traffic

With suppression: door remains closed in the event of cross-traffic

4. Slow motion mode



Slow motion mode door open

If the door is open, the smallest movements are detected. The door closes if no movement is detected within the set monitoring time (1/3/5 seconds). If the time is set to 1 second or 3 seconds, the sensitivity gradually reduces over the set time (door closes). If the time is set to 5 seconds, movements are continuously detected at maximum sensitivity.

Slow motion mode door closed

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If an object has approached so slowly that it has not been detected by normal motion detection, the door opens anyway when the object approaches the door.

5. Relay contacts

Active	Relay contact is closed when movement is detected
Passive	Relay contact is opened when movement is detected

Function indicator

Green LED	Device ready for operation
Red LED	Detection
LED flashes green	Command received
LED flashes red	Fault
LED flashes green/red	Initialization (for approximately 10 seconds after activation)

Function 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.

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.

Application

- 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