RAVE-D-NA Quick Start Guide
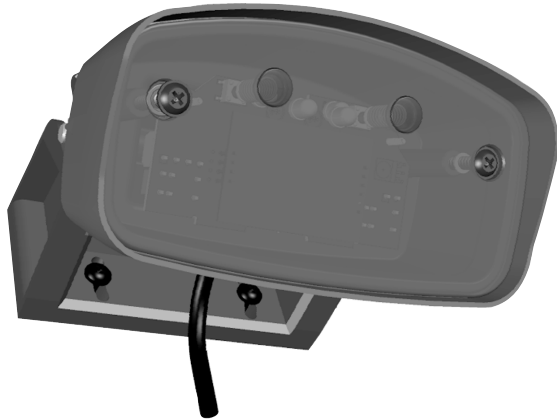
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Safety Information

- To meet the safety requirements of EN60950-1 and UL508, the sensor must be operated from a SELV supply that is reliably limited to an output of 100 W.
- The output can be limited using a T2.5 A fuse.
- This device must be installed and maintained only by qualified, trained personnel.
- The device must be operated and maintained in compliance with the most current version of the North American National Standards Institute document A156.10 or A156.19 (whichever is applicable).
- The device must be operated in compliance with any applicable building and/or fire codes.
- Pepperl+Fuchs recommends inspection, maintenance, and operation of the device and system in accordance with guidelines of the American Association of Automatic Door Manufacturers (AAADM).
- If the device is deemed unsafe or is not operating properly, repairs must be made immediately by qualified, trained personnel in accordance with the above stated standards and guidelines. If repairs cannot be made immediately, the device must be disabled and appropriate measures must be taken to secure the door in a safe position.

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Installation

Installing the Mounting Bracket

Pepperl+Fuchs recommends mounting the bracket without the sensor attached. It is also possible to mount the bracket with the sensor secured in place. To do this, swivel the sensor up or down by 90° before attaching the mounting bracket.

Wall/ceiling mounting:
1. Drill the holes as per the dimension drawing.
2. Attach the mounting bracket using the screws provided (typically #8).
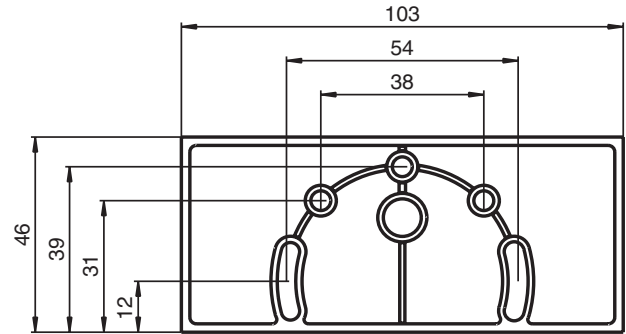
⚠ Use a Phillips-head screwdriver for mounting. Using other types of screwdrivers may damage the supplied screws.
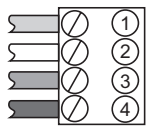
Securing the Sensor

1. Loosen the long screw on the sensor. It is not necessary to remove the long screw completely.
2. Insert the sensor.
3. Set the swivel angle.
4. Tighten the long screw.
5. Connect the cable.

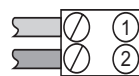To mount the device on a ceiling, position the mounting bracket at an angle of 180°.
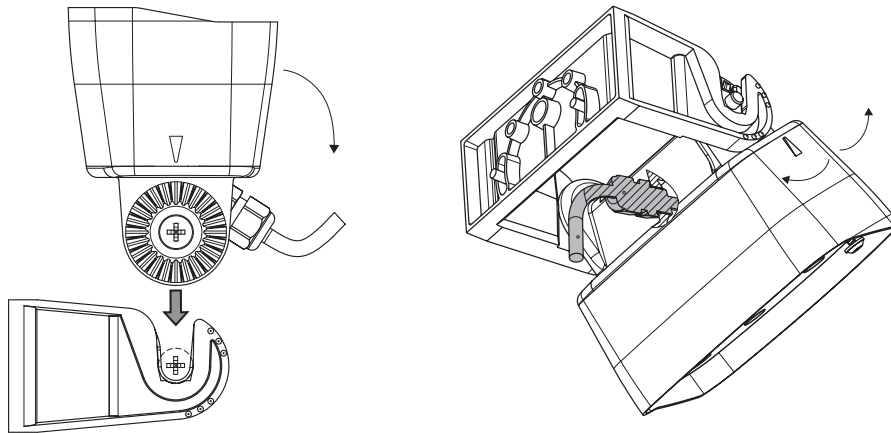
Connecting the Cable

Power Supply/Vehicle-Detection Relay

① AC/DC supply, red (+)
② AC/DC supply, black (-)
③ Vehicle-detection relay, white, common
④ Vehicle-detection relay, green, NO/NC

Person-Detection Relay

① Person-detection relay, brown, common
② Person-detection relay, blue, NO/NC

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

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Installation Information
- Avoid placing moving objects in the detection field (fans, plants, trees, flags, etc.)
- Do not cover the sensor.
- Mechanically operated drive components may affect the radar.
- Avoid fluorescent lights in the detection field.

Power Up

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

After applying the operating voltage, the hardware and software is initialized. This process takes approx. 10 seconds. The LED flashes red/green. Once this process is complete, configure the radar. Check the settings by walk-testing the sensor.

Operating and Display Elements

1 "MENU" control button
2 Green status indicator LED
3 Red status indicator LED
4 "VALUE" control button
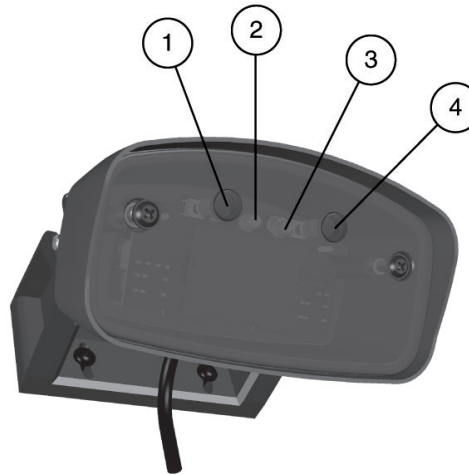
# Detection Field Settings

Swivel Angle

Snap-in positions are provided every 15 degrees to allow the sensor to be swiveled, depending on requirements.

To adjust the swivel angle, loosen the long screw, move the sensor into the required position (the sensor will snap into place) and tighten the long screw again.

15° 30° 45°

15 degrees

45 degrees

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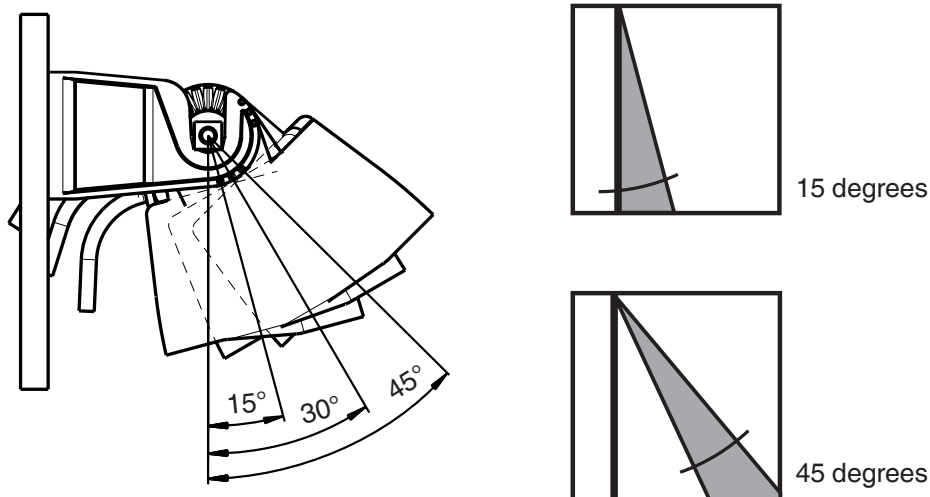
Tilt Angle

Installing the mounting bracket at a tilt has the following effects on the detection field:
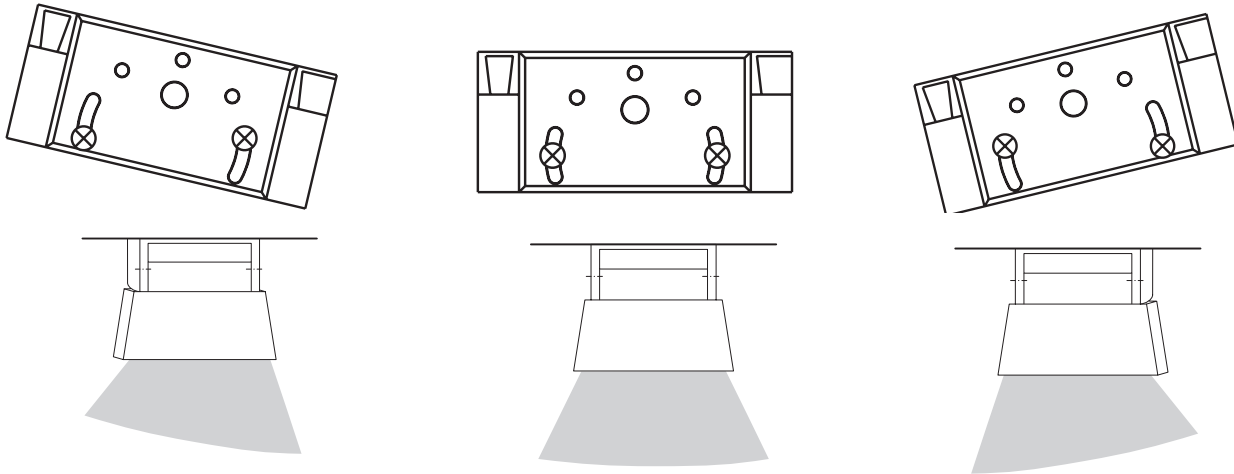
Operation

Vehicle Detection

The sensor distinguishes between vehicles and people. This distinction is dependent on the settings of the "vehicle detection," "person-detection," and "responsiveness" parameters.

Relay Function

The "vehicle-detection relay" parameter defines which function activates the vehicle-detection relay.
The vehicle-detection relay is factory set to activate whenever a vehicle moves toward the sensor.
The "person-detection relay" parameter defines which function activates the person-detection relay. The person-detection relay is set by default to activate whenever a person moves toward the sensor.

LED Status Display

LED	Status
Flashing red/green	Sensor initialization in progress
Green	Sensor ready for operation, no detection
Flashing green 3x	Command received from remote control
Flashing red rapidly	Vehicle-detection relay active
Flashing green rapidly	Person-detection relay active
Flashing red/green rapidly	Vehicle-detection relay and person-detection relay both active

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Application Examples

Example 1: Vehicle recognition at a door
Door control with one switching input.
Output function for "vehicle forward" vehicle-detection relay.
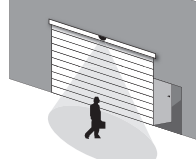

Vehicle approaches:
Vehicle-detection relay is activated.
Door opens.

Person approaches:
Vehicle-detection relay is not activated. Door remains closed.

Example 2: Door with vehicle recognition and separate entrance for people
Door control with two switching inputs (vehicle-detection relay and person-detection relay).
Output function for "vehicle forward" vehicle-detection relay.
Output function for "person forward" person-detection relay.
Relay configuration as per factory settings.*

Person approaches:
Vehicle-detection relay is not activated.
Door remains closed.
Person-detection relay is activated.
Entrance for people opens.

Vehicle approaches:
Vehicle-detection relay is activated.
Door opens.
Person-detection relay is not activated.
Entrance for people remains closed.

Example 3: Door with vehicle recognition without separate entrance for people
Door control with two switching inputs (vehicle-detection relay and person-detection relay).
Output function for "vehicle forward" vehicle-detection relay. Output function for "person forward" person-detection relay. Relay configuration as per factory settings.*
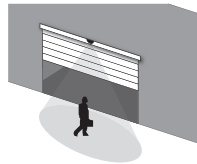
Person approaches:
Vehicle-detection relay is not activated.
No action.
Person-detection relay is activated.
Door opens halfway.

Vehicle approaches:
Vehicle-detection relay is activated.
Door opens fully.
Person-detection relay is not activated.
No action.

* Vehicles crossing the detection range of the sensor may cause the person-detection relay to be activated unexpectedly

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Sensor Settings

Program the sensor using the MENU and VALUE buttons. When one of these buttons is pressed, the flash code is interrupted. The set value is output in accordance with the below table. Once the final menu item has been reached, the next press of a button calls up the first menu item again. Each time a button is pressed, the setting is automatically stored.

Programming mode is exited automatically if no setting is made within ten minutes. The set values are stored.

Manual Programming

MENU	2 s	Press and hold the MENU button for approximately two seconds. Programming mode is activated.
R G		The LED indicates the settings by flashing: Red flashing indicates the function; Green flashing indicates the setting No flashing indicates that the function is switched off

Setting the Function and Value

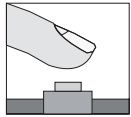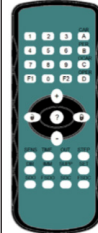|		
MENU	1x	Press the MENU button once. The next function is selected.
VALUE	1x	Press the VALUE button once. The value is increased by 1.

Ending Programming
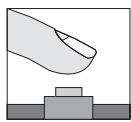
MENU	2 s	Press and hold the MENU button for approximately two seconds. Programming mode is exited. The settings are stored.

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Adjustable Parameters

Check the settings by walk-testing the sensor. For more information on settings, see the "Troubleshooting" section.

			Manual Setting		P+F Remote	Generic Remote
Description (Function)	**Adjustment Range (Value)**	**Factory Setting**	**Manual Setting**		**Key**	**Key**
Start parameterization mode—unlock			[Function]	[Value]	🔓	🔓
Exit parameterization mode exit—lock			🔴	🟢	🔒	🔒
Sensitivity—field size *)	0 = minimum sensitivity 9 = maximum sensitivity	5	[Function 1] red LED 1x	[Value] 1 … 10	SENS	⬛
Vehicle detection *)	1 = low 2 = medium 3 = high"	2	[Function 2] red LED 2x	1, 2, 3	CAR	A⬛
Human-presence detection *)	1 = min. ….. 7 = max.	1	[Function 3] red LED 3x	1 … 7	PER	B⬛
Vehicle-presence relay	4 = Vehicle forward 5 = Vehicle backward 6 = Veh. forward/backward 7 = Person/vehicle forward 8 = Person/vehicle backward 9 = Person/vehicle forward/backward	4	[Function 4] red LED 4x	1 … 6	OCAR	C⬛
Human-presence relay	1 = Person forward 2 = Person backward 3 = Pers. forward/backward 4 = Vehicle forward 5 = Vehicle backward 6 = Vehicle forward/backward	1	[Function 5] red LED 5x	1 … 6	OPER	D⬛
Hold time *)	0 = 0.5 s 1 = 1.0 s 2 = 2.0 s 3 = 3.0 s 4 = 5.0 s 5 = 10 s 6 = 20 s 7 = 30 s 8 = 60 s 9 = 300 s	1	[Function 6] red LED 6x	1 = 0.5 s 2 = 1.0 s 3 = 2.0 s 4 = 3.0 s 5 = 4.0 s 6 = 5.0 s 7 = 10 s 8 = 15 s 9 = 20 s 10=25 s 11=30 s 12=60 s 13= 300 s	TIME	⏱

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					P+F Remote	Generic Remote
Description (Function)	**Adjustment Range (Value)**	**Factory Setting**	**Manual Setting**		**Key**	**Key**
Switching output	1 = relay n.o. 2 = relay n.c.	1	[Function 7] red LED 7x	1, 2	OUT	
Responsiveness *)	1 = fast 2 = normal 3 = slow	2	[Function 8] red LED 8x	1, 2, 3	STEP	
Factory reset after pressing the key "9"	9		Push both buttons at the same time for 5 seconds		SET	
Sensor operation (permanent relay circuit to support commissioning)	1 = automatic 2 = vehicle and passenger relay permanently detected 3 = vehicle relay detected, person relay not detected 4 = vehicle relay not detected, person relay detected 5 = vehicle and person relay permanently not detected	1			F2	F2
Function value keys					0 … 9, + , -	0 … 9, + , -
Query the value of the previously pressed key					?	?
SW revision query	Red LED flashes as per main version. Green LED flashes as per sub-version.				F1	F1

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Troubleshooting

Fault	Corrective Action
Door is detected.	Reduce the sensitivity. Adjust the tilt angle. Increase the responsiveness. Step up the person-detection properties.
LED not lit up.	No power supply, device not functioning.
Remote control does not respond.	Device is locked. Switch the operating voltage off and on again. The sensor can now be configured without a code for 30 minutes. Check the remote control battery.
Person is mistaken for a vehicle.	Heighten the vehicle detection properties. Increase the responsiveness. If only vehicles are to be detected, reduce the sensitivity.
Vehicle is mistaken for a person.	Lower the vehicle detection properties. Increase the responsiveness.
Object is detected too late.	Reduce the responsiveness. Increase the sensitivity.
Object detection is too sensitive.	Increase the responsiveness. Reduce the sensitivity.
Transverse movement of people ignored.	Step up the person-detection properties.
False detections occurring due to interfering influences (rain, vibration, etc.).	Increase the responsiveness. Step up the person-detection properties. Reduce the sensitivity.

Approvals

This device complies with Part 15 of the FCC Rules and with RSS-310 of Industry Canada. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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Technical Specifications

Functional principle	Microwave module
Detection speed	Min. 0.1 m/s
Marking	FCC
Inclination angle	±90°, in 15° increments
Tilt angle	±18°
Detection range	21 x 29 ft (W x D) at installation height of 16 ft and inclination angle of 45°
	18 x 32 ft (W x D) at installation height of 23 ft and inclination angle of 45°
Operating frequency	24.150 GHz–24.250 GHz K band
Operating mode	Radar motion sensor
Function indicator	Red/green LED
Operating elements	2 programming buttons (left: MENU, right: VALUE)
Operating voltage	12 ... 36 VDC/12 ... 28 VAC
No-load current	< 50 mA at 24 VDC
Power consumption	< 1 W
Switching mode	Active/passive
Signal output	2 relay outputs, NO/NC
Switching voltage	Max. 48 VAC / 48 VDC
Nominal power	Max. 0.5 AAC/1 ADC
Max. switching current	1 A
Switching power	Max. 24 W/60 VA
Relay hold time	0.5 s ... 300 s, adjustable
Ambient temperature	-22 °F ... 140 °F (-30 °C ... 60 °C)
Relative humidity	Max. 90 %, not condensing
Mounting height	Max. 23 ft
Degree of protection	IP67
Connection	2-pin and 4-pin plug-in screw terminals,
	26 ft connection cable
Housing material	Polycarbonate (PC)
Weight	320 g (without cable)
	650 g (with cable)
Transmitting power	< 13 dBm
Dimensions excluding securing parts	Without mounting bracket:
	5.1 (W) x 2.8 (H) x 3.8 (D) inches (131 x 73 x 98 mm)
	With mounting bracket (180°):
	5.1 (W) x 2.8 (H) x 5.3 (D) inches (131 x 73 x 136 mm)

Accessories

Remote control: RADAR RC

Included with Delivery

1	RAVE-D-NA, incl. connection cable
2	Screws for installation
1	Mounting instructions