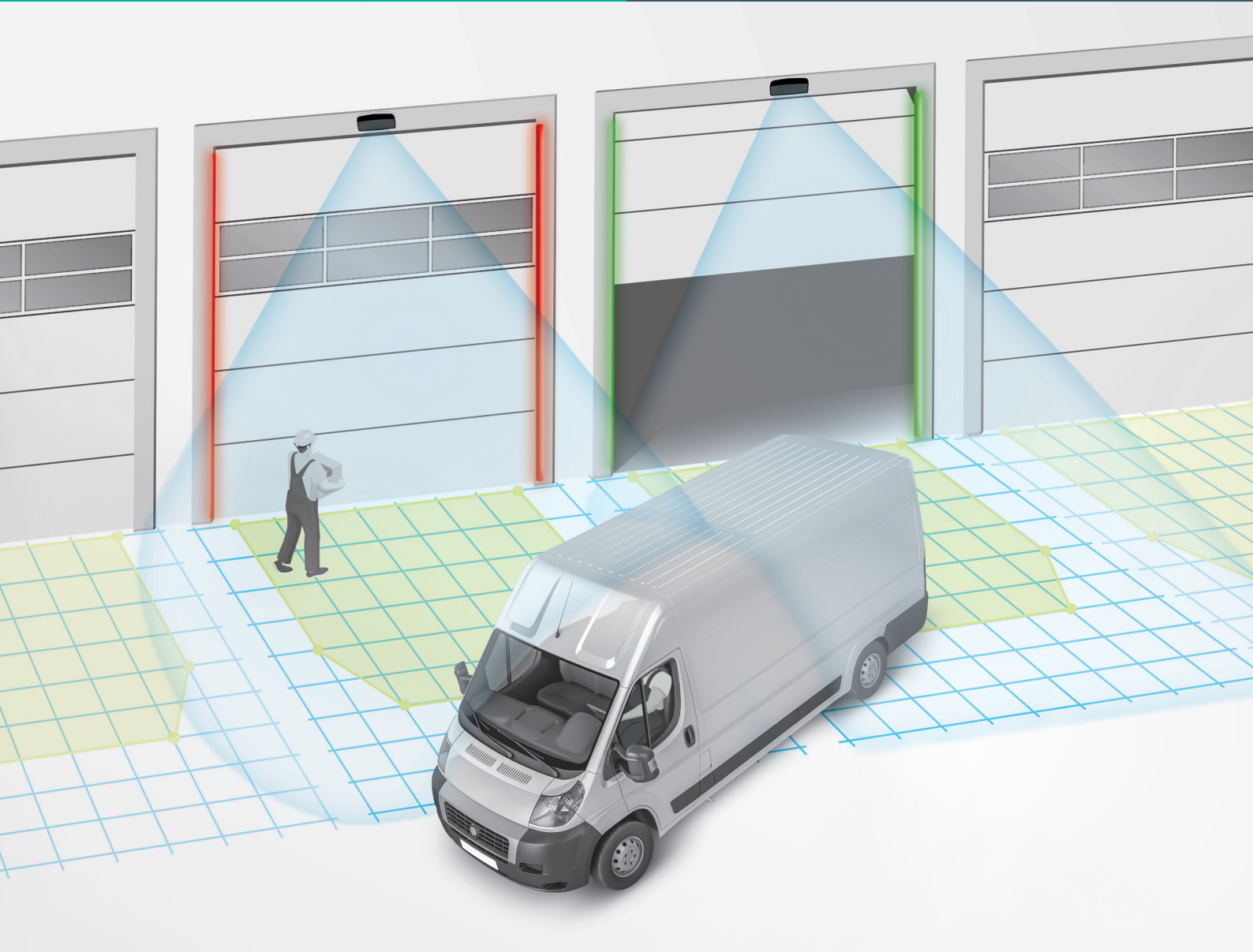


Radar MultiView RMV | RMV-G2

Operating and installation manual

EN Version 1.0

Measuring 2-D radar sensor
with adjustable activation areas
for industrial gates



Operating and installation manual

EN Version 1.0

Order designation: measuring 2-D radar sensor with adjustable activation areas for industrial gates.

Art.Nr. 10001337

Table of content

1. Safety instructions	3
2. Scope of delivery and device description	4
2.1 Scope of delivery	4
2.2 Device description	5
3. Installation	7
3.1 Installation	7
3.2 Wiring	7
3.2.1 Connectors	7
3.2.2 Wiring	8
4 Set-up	8
4.1 Function signaling	8
4.2 Radar function areas	9
4.3 Parameterization via the sensor's integrated web portal	9
4.4 Commissioning the radar	9
4.4.1 Connecting the radar and mobile device	9
4.4.2 Settings on the web browser interface	10
4.5 Angle settings	10
5. Operation	11
6. Maintenance	11
7. ESD safety	11
8. Decommissioning	11
9. Disposal	11

Sensotek GmbH

Sales Partner within the Pepperl+Fuchs Group

Stuttgarter Str. 119, 73061 Ebersbach (Fils), Germany

Tel.: +49 7163 93926-0, Fax: +49 7163 93926-10, info@uk.sensotek.com

1. Safety instructions

Personnel qualifications

The activities described in this document may only be carried out by qualified personnel.

Persons designated as "professionals" have appropriate technical training and experience with the technology and use. Professionals using their skills to identify and minimize risks to themselves and others when carrying out actions. The conditions specified by the manufacturer and applicable standards and regulations must be observed by the professional when carrying out actions.



Disconnect the electrical circuit before installing or servicing the device.

The device may only be operated with safety extra low voltage that complies with the Safety Extra Low Voltage (SELV) requirements in the safety standards based on IEC 60950.

EC Declaration of Conformity – Extract

Sensotek GmbH

Stuttgarter Str. 119

73061 Ebersbach (Fils), Germany

hereby declares that the product described is in accordance with the provisions of the listed EC directives and that the standards and/or technical specifications have been applied, referred to below.

Directives

2014/53/EU Radio equipment

2011/65/EU RoHS

The technical documentation is available at info@uk.sensotek.com

Harmonized European standard, national rule:

EN 300 440 V2.2.1:2018

EN 301 489-1 V 2.2.3:2019

EN 301 489-3 V 2.1.1:2019

EN 62368-1:2014+AC:2015

EN IEC 63000:2018

UKCA Declaration of Conformity – Extract

Sensotek GmbH

Stuttgarter Str. 119

73061 Ebersbach (Fils), Germany

hereby declares that the product described is in compliance with the provisions of the listed directive(s) and that the standards and/or technical specifications referred to below have been applied.

Directives:

Radio Equipment Regulations 2017

RoHS, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Regulation 2012

The technical documentation is available at info@uk.sensotek.com

Harmonized European standard, national rule:

EN 300 440 V2.2.1:2018

EN 301 489-1 V 2.2.3:2019

EN 301 489-3 V 2.1.1:2019

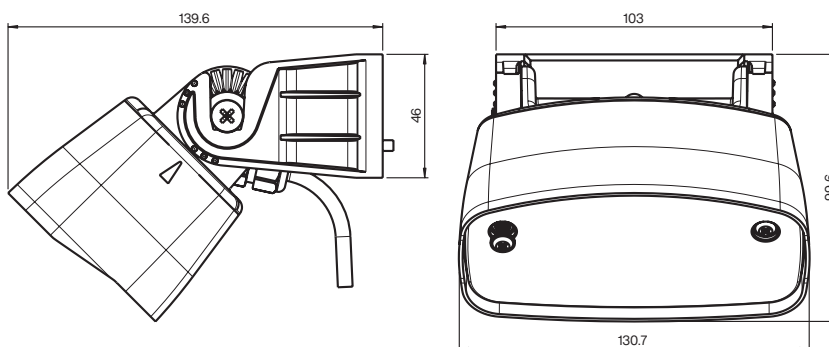
EN 62368-1:2014+AC:2015

EN IEC 63000:2018

2. Scope of delivery and device description

2.1 Scope of delivery

■ Radar MultiView RMV-G2



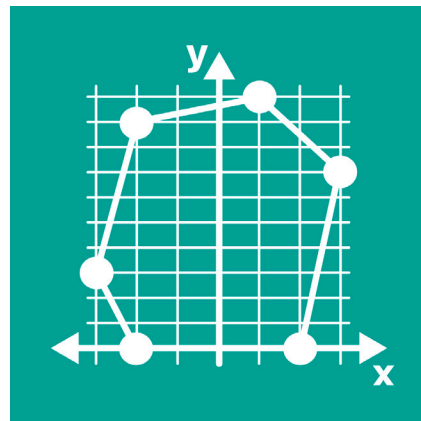
- 2 x screws (tapping screws)
- 1 x connection cable, 6 m length, 8-pin, open cable end
- QR code on the front of the Quick Start Guide (4.) (additionally on the mounting bracket), for establishing a connection to the web server; see Quick Start Guide chapter 4.4.1
- Password on the front of the Quick Start Guide (4.) (additionally on the mounting bracket), for initial login to the web server see Quick Start Guide chapter 4.4.2
- QR Code for downloading the operating manual

2.2 Device description

The intelligent measuring 2-D-Radar MultiView RMV-G2 enables energy efficient opening of automatic gates by precisely determined time and duration of opening based on five input parameters (movement, direction, speed, distance, angle), which are processed inside the intelligent radar unit.

According to customer requirements, an activation area can be defined individually, with a maximum of 8 points in the form of a polygon.

Activation areas are the key to perfectly functioning gates. On the one hand, only desired movement events in a defined activation area triggers the gate and, on the other hand, actions of moving objects outside the activation field are suppressed.

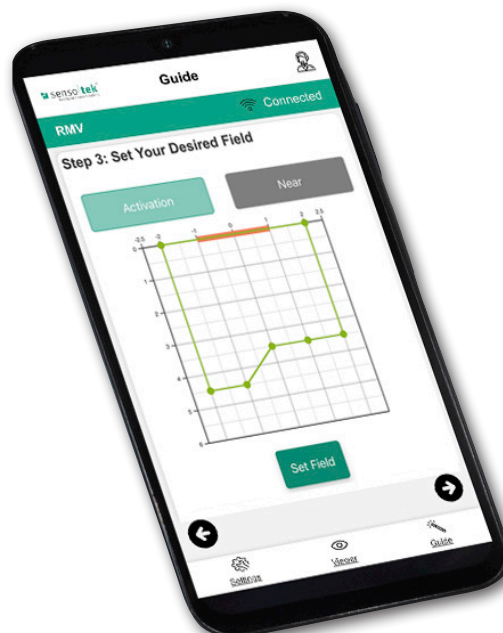


A near area directly in front of the gate can be used to force unconditional opening.

Sensors are **parameterized** using any smartphone or tablet connected to the integrated webserver.

Installation is performed by mounting the device above the gate. Utilizing the integrated web server, subsequent optimization can be carried out securely without requiring a ladder. This means that installation can be completed in just a few steps.

The **cloning function** enables quick set-up of several identical installation points.



The operating principle is based on radar technology. The Radar MultiView RMV-G2 can be operated in all European countries. Proper use also includes observing the mounting and operating instructions. Any other or additional use is considered improper.



Do not open the housing, as this will impair the IP67 protection and void the warranty.

Improper use or unauthorized modifications of the product can result in danger to life and limb or damage to the product and other property. Use only original spare parts. The manufacturer/supplier is not liable for any consequential damages. The user himself is responsible for any risk.

Technical Data

General Specifications

Function principle	Measuring 2-D-Radar with 3 operating areas: Detection area: determined by the mounting height and angle Activation area: adjustable to application via web interface Near area: adjustable to application via Web interface
Classification	Person and vehicle
Mounting position	Above the gate, in the middle, left or right; integrated mounting aid with IMU for all 3 spatial angles
Mounting height	Min. 2 m; max. 10 m
Detection speed	Min. 0.1 m/s, max. 8.0 m/s
Setting angle	Vertical: -90° ... +90°
Radar operating frequencies	24.150 GHz; can be switched to 24.050 GHz and 24.250 GHz; enables the operation of 3 radar units mounted close to each other
Radar aperture angle	34° x 80°
Minimum sensing area Width x depth	f (H, α) indication via Interface
Cross-traffic suppression	Adjustable: on (100%, no triggering), middle (50%), off (0%)
Opening speed of the gate	Adjustable in [m/s]
Transmitter radiated power (EIRP)	< 20 dBm
Parameter settings	WLAN (OTA)
Integrated temperature reading	°C / °F / °K, output via interface
Approvals and certificates	CE

Indicators / Operating elements

Function indicator	1 x LED (rgb)
Control elements	None

Electrical specifications

Operating voltage	AC: 8 ... 35 V AC +/- 10% DC: 8 ... 45 V DC +/- 10%
Power consumption	< 2.5 W

Connection cable

Cable, 8 pin open ends	6 m (included in delivery)
------------------------	----------------------------

Outputs

	Short circuit protected, normally open/closed (NO/NC) and event (see below) configureable via Web interface
Signal output relay 1	Solid-state relay
Switching voltage relay 1	Up to 60 VAC/VDC
Switching current relay 1	Max. 0.5 A
Holding time relay 1	Adjustable in [s]
Signal output relay 2	Solid-state relay
Switching voltage relay 2	Up to 60 VAC/VDC
Switching current relay 2	Max. 0.5 A
Holding time relay 2	Adjustable in [s]

Events

	Events can be assigned to the outputs via parameter settings. Triggering on people; triggering for vehicles; triggering in combination; partial gate opening; fast opening; slow opening; counting of persons and/or vehicles; temperature control
--	--

Digital interface

ESP-NOW	Short range wireless protocol, max. 25 m
---------	--

Ambient conditions

Special features	Resistance against weather and vibrations
Operating temperature	-40 ... 80° C (-40 ... 176° F)
Storage temperature	-40 ... 80° C (-40 ... 176° F)
Relative humidity	Max. 90% non condensing

Technical Data

Mechanical specifications

Degree of protection	IP67
Connection	Fixed cable, 8-pin, open cable ends
Housing	Polycarbonat (PC), anthrazit
Mass	650 g
Dimensions	131 mm x 73 mm x 136 mm

Parameter setting

Method	All parameters can be set up via Web-Interface
Operating ranges	Detection area of up to 10 x 10m, depending on mounting height and setting angle Activation area: configurable inside the detection area as a polygon with max. 8 points. Near area: configurable inside the detection area as a polygon with max. 8 points.

3. Installation

3.1 Installation

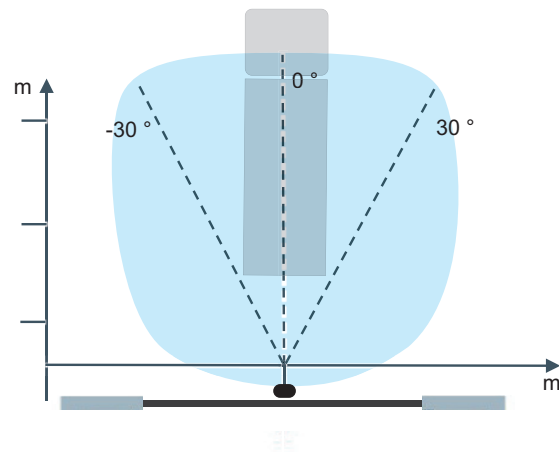
The product is preferably mounted above the automatic gates on the in- or outside.

Installation of the Radar MultiView RMV-G2:

The Radar MultiView RMV-G2 can be installed at a height of approx. 300 mm above the automatic gate.



Note: The maximum installation height H is measured from the floor and may not be exceeded.



3.2 Wiring

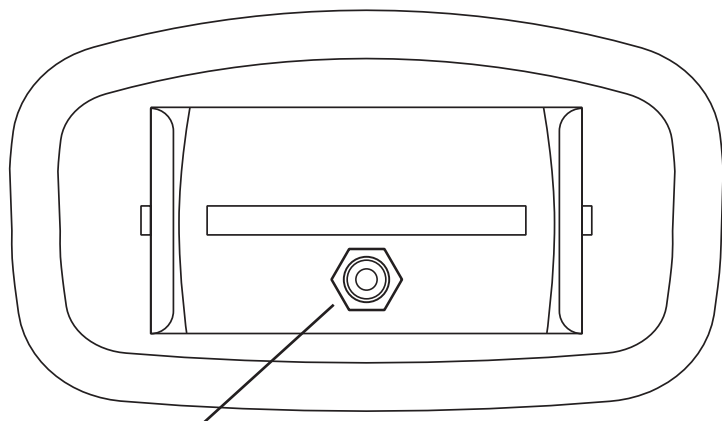
3.2.1 Connectors

Fixed cable connection, 8-pin:

AC/DC *	BN (brown)
AC/DC *	GN (green)
Relay 1 **	GY (grey)
Relay 1	PK (pink)
Relay 2 **	YE (yellow)
Relay 2	WH (white)
Do not connect	RD (red)
Do not connect	BU (blue)

* = Polarity is not relevant

** = NO or NC contact function and activation for "Person" or "Vehicle" is configurable

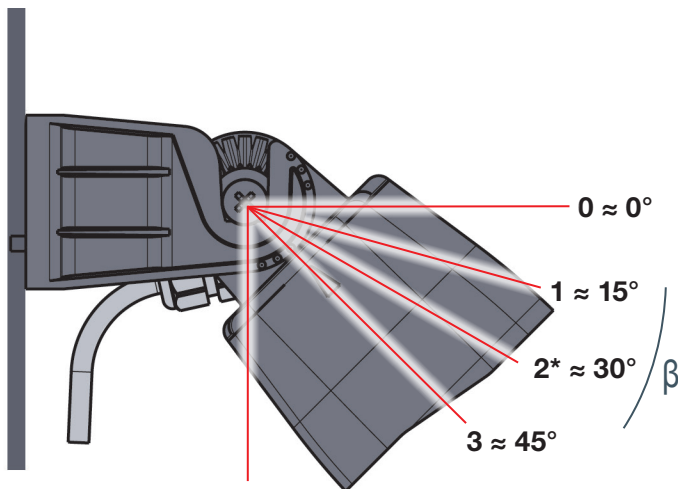


Fixed cable connection

Illustration is not to scale.

3.2.2 Wiring

Angle definition



Typical angle settings

4. Set-up

4.1 Function signaling

LED – RGB	Description
LED flashes green (10 seconds after Power-Up)	Start process
LED is off, does not light up	The sensor is ready for operation
LED flashes yellow	Motion detected (any direction)
LED lights up red	Output "person" set
LED lights up orange	Output "vehicle" set
LED flashes purple	Activation of the WLAN (ready for connection)
LED flashes blue	Parameterization via web active: Data connection is established
LED flashes white	Error detected



4.2 Radar function areas

- **Detection area:** It is the possible field of view of the radar.



Note: The maximum detection range is mainly determined by the installation height and the inclination angle.

- **Activation area:** Depending on the selected application there is an activation area within the detection area, in which **only** the opening function for the gate opening is generated.
- **Near area:** depending on the application there is also a near area within the activation area, in which a movement will lead to opening of the gate **in any case**.

4.3 Parameterization via the sensor's integrated web portal

The radar is parameterized using the configuration tool of the web server integrated in the radar in conjunction with a mobile device. The connection between the web server and the mobile device is established by scanning the QR Code shown on the label affixed to the housing or the Quick Start Guide.



Note: The RMV-G2 does not work without parameterization via the web server, because the installation height must be set to allow the sensor to determine the activation area and some other parameters.

The configuration tool explains how to carry out the parameterization step by step.

4.4 Commissioning the radar

- The Radar RMV-G2 must be mechanically mounted above the gate. (see chapter 3)
- All cabling must be completed as per chapter 3.2. Check: After connecting voltage wires, the green RGB LED flashes up for 10 seconds.

4.4.1 Connecting the radar and mobile device

1. Automatically:

Scan the QR code on the "Quick Start Guide - Basic settings" included in the package with the camera of the mobile device. Confirm the wifi connection request. The mobile device immediately connects to the RMV-G2. The first menu is displayed: "Language selection".

2. Alternative WLAN connection setup:

A. Smartphone: Deactivate **mobile data**

Laptop: Disconnect **LAN/Internet connection**

B. **Switch off the voltage**, wait 10 seconds → Switch the voltage back on, wait until the green LED stops flashing

C. Scan **QR code** (see point 4) → **first menu: "Language selection"**

If the language selection does not appear:

D. Open web browser → Enter and confirm the address: **<https://rmv.local>** → **first menu: "Language selection"**



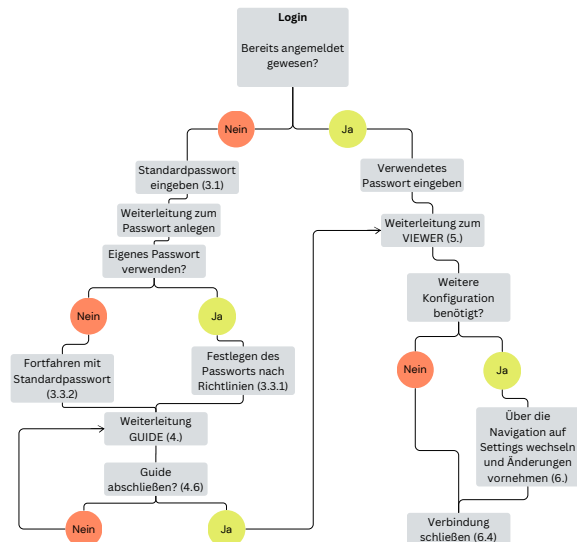
Attention: If there is no interaction for a **maximum of 5 minutes**, the WLAN connection is interrupted for data protection legal reasons. → **Retrieve alternative WLAN connection setup (A. – D.)** → first menu: "Language selection" appears

4.4.2 Settings on the web browser interface

1. Select language
2. Enter the password specified in the "Quick start Guide – Basic settings"
3. Assign a new password
4. Follow the device's instructions



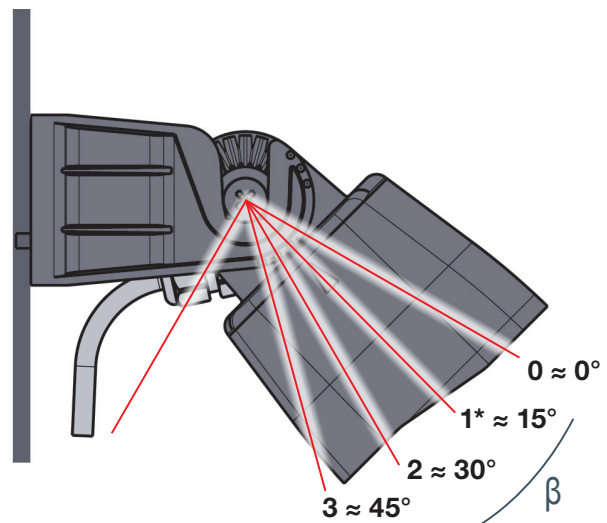
Note: If you no longer have the login password, click on "Forgot password". You will be guided from there.



4.5 Angle setting

The angle setting has a significant impact on the detection range. The standard value should be an angle of inclination of approx. 15° when installing. The exact value can be set in conjunction with the user interface.

If the detection range shown in the configuration tool does not suit the application situation, the angle must be corrected accordingly using the locking lugs on the sensor holder.



Note: After any modification of the angle setting, verify activation and near area, as they will adjust automatically.

5. Operation

Once the configuration is complete, the Radar MultiView RMV-G2 is set up and ready for operation without any further adjustments. If during the final test after set-up the gate opens a little too early or too late, a fine adjustment for optimization with the potentiometer can be performed via the configuration tool.



Warning: do not change the mounting angle (see 4.5).

6. Maintenance

If the housing is heavily soiled, the radar housing shall be cleaned.

7. ESD safety



Device contains sensitive electronic components that are sensitive to electrostatic discharge (ESD). Do not open the housing. The device does not contain any user-servicable parts.

8. Decommissioning



Device may be decommissioned only by trained personnel. Before dismantling, ensure that the supply voltage has been turned off.

9. Disposal



Device must be disposed in accordance with local regulations.
Electronic components must be recycled according to local regulations.