



RAP200MT

USER'S AND INSTALLER'S MANUAL








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01. SAFETY INSTRUCTIONS

STANDARDS TO FOLLOW

	This product is certified in accordance with European Community (EC) safety standards.
	This product complies with Directive 2011/65/EU of the European Parliament and of the Council, of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
 	(Applicable in countries with recycling systems). This marking on the product or literature indicates that the product and electronic accessories (eg. Charger, USB cable, electronic material, controls, etc.) should not be disposed of as other household waste at the end of its useful life. To avoid possible harm to the environment or human health resulting from the uncontrolled disposal of waste, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Home users should contact the dealer where they purchased this product or the National Environment Agency for details on where and how they can take these items for environmentally safe recycling. Business users should contact their vendor and check the terms and conditions of the purchase agreement. This product and its electronic accessories should not be mixed with other commercial waste.
	This marking indicates that the product and electronic accessories (eg. charger, USB cable, electronic material, controls, etc.) are susceptible to electric shock by direct or indirect contact with electricity. Be cautious when handling the product and observe all safety procedures in this manual.

01. SAFETY INSTRUCTIONS

GENERAL WARNINGS

- This manual contains very important safety and usage information. very important. Read all instructions carefully before beginning the installation/usage procedures and keep this manual in a safe place that it can be consulted whenever necessary.
- This product is intended for use only as described in this manual. Any other enforcement or operation that is not mentioned is expressly prohibited, as it may damage the product and put people at risk causing serious injuries.
- This manual is intended firstly for specialized technicians, and does not invalidate the user's responsibility to read the "User Norms" section in order to ensure the correct functioning of the product.
- The installation and repair of this product may be done by qualified and specialized technicians, to assure every procedure are carried out in accordance with applicable rules and norms. Nonprofessional and inexperienced users are expressly prohibited of taking any action, unless explicitly requested by specialized technicians to do so.
- Installations must be frequently inspected for unbalance and the wear signals of the cables, springs, hinges, wheels, supports and other mechanical assembly parts.
- Do not use the product if it is necessary repair or adjustment is required.
- When performing maintenance, cleaning and replacement of parts, the product must be disconnected from power supply. Also including any operation that requires opening the product cover.
- The use, cleaning and maintenance of this product may be carried out by any persons aged eight years old and over and persons whose physical, sensorial or mental capacities are lower, or by persons without any knowledge of the product, provided that these are supervision and instructions given by persons with experienced in terms of usage of the product in a safe manner and who understands the risks and dangers involved.

- Children shouldn't play with the product or opening devices to avoid the motorized door or gate from being triggered involuntarily.

WARNINGS FOR TECHNICIANS

- Before beginning the installation procedures, make sure that you have all the devices and materials necessary to complete the installation of the product.
- You should note your Protection Index (IP) and operating temperature to ensure that is suitable for the installation site.
- Provide the manual of the product to the user and let them know how to handle it in an emergency.
- If the automatism is installed on a gate with a pedestrian door, a door locking mechanism must be installed while the gate is in motion.
- Do not install the product "upside down" or supported by elements do not support its weight. If necessary, add brackets at strategic points to ensure the safety of the automatism.
- Do not install the product in explosive site.
- Safety devices must protect the possible crushing, cutting, transport and danger areas of the motorized door or gate.
- Verify that the elements to be automated (gates, door, windows, blinds, etc.) are in perfect function, aligned and level. Also verify if the necessary mechanical stops are in the appropriate places.
- The central must be installed on a safe place of any fluid (rain, moisture, etc.), dust and pests.
- You must route the various electrical cables through protective tubes, to protect them against mechanical exertions, essentially on the power supply cable. Please note that all the cables must enter the central from the bottom.
- If the automatism is to be installed at a height of more than 2,5m from the ground or other level of access, the minimum safety and health requirements for the use of work equipment workers at the work of Directive 2009/104/CE of European Parliament and of the Council of 16

01. SAFETY INSTRUCTIONS

September 2009.

- Attach the permanent label for the manual release as close as possible to the release mechanism.
- Disconnect means, such as a switch or circuit breaker on the electrical panel, must be provided on the product's fixed power supply leads in accordance with the installation rules.
- If the product to be installed requires power supply of 230Vac or 110Vac, ensure that connection is to an electrical panel with ground connection.
- The product is only powered by low voltage safety with central (only at 24V motors)

WARNINGS FOR USERS

- Keep this manual in a safe place to be consulted whenever necessary.
- If the product has contact with fluids without being prepared, it must immediately disconnect from the power supply to avoid short circuits, and consult a specialized technician.
- Ensure that technician has provided you the product manual and informed you how to handle the product in an emergency.
- If the system requires any repair or modification, unlock the automatism, turn off the power and do not use it until all safety conditions have been met.
- In the event of tripping of circuits breakers or fuse failure, locate the malfunction and solve it before resetting the circuit breaker or replacing the fuse. If the malfunction is not repairable by consult this manual, contact a technician.
- Keep the operation area of the motorized gate free while the gate in in motion, and do not create strength to the gate movement.
- Do not perform any operation on mechanical elements or hinges if the product is in motion.

RESPONSABILITY

- Supplier disclaims any liability if:
 - Product failure or deformation result from improper installation use or maintenance!
 - Safety norms are not followed in the installation, use and maintenance of the product.
 - Instructions in this manual are not followed.
 - Damaged is caused by unauthorized modifications
 - In these cases, the warranty is voided.

SYMBOLS LEGEND:



• Important safety notices



• Useful information



• Programming information



• Potentiometer information



• Connectors information



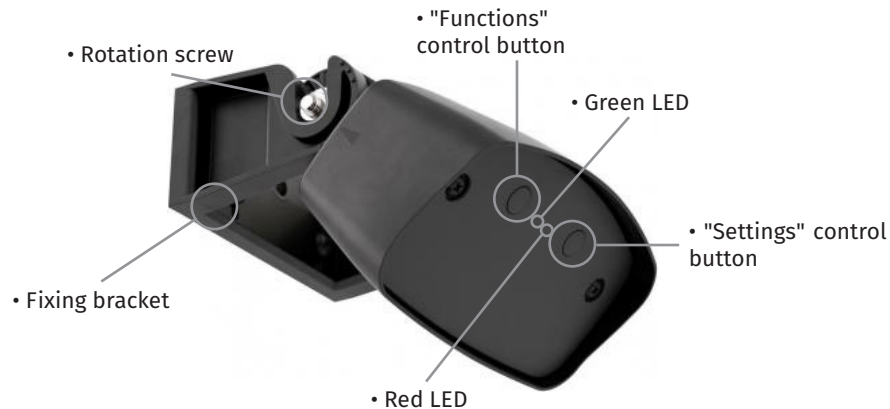
• Buttons information

02. THE PRODUCT

TECHNICAL SPECIFICATIONS

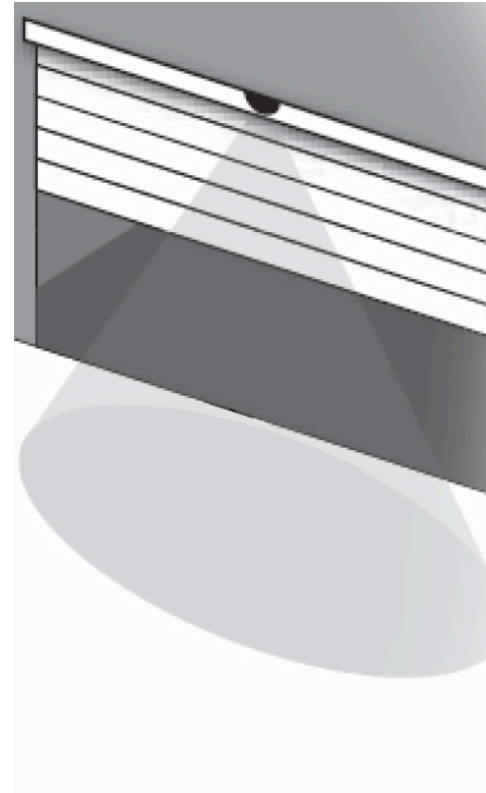
The RAP200MT is a sensor capable of distinguishing people and vehicles.

• Power Supply	12-36 Vdc, 12-28Vac
• Detection type	Microwave Technology
• Maximum installation height	7.0[m] (23[ft])
• Consumption	< 1W
• No-load current	< 50mA at 24V [DC]
• Adjustability	Up/Down: $\pm 90^\circ$ in 15° increments
	Right/Left: $\pm 18^\circ$
• Detection zone	7 m (W) x 7 m (D) at installation height of 5 m and housing angle of 45°
	5 m (W) x 8 m (D) at installation height of 7 m and housing angle of 45°
• Frequency	24,150 – 24,250 GHz
• Relay output	2 relay outputs, NO/NC: Voltage: Max 48 Vac/ 48 Vdc
• Relay wait time	0,5 – 300s, ajustável
• Operating temperature	-20 oC to +60 oC (-4 oF to 140 oF)
• Operating humidity	Abaixo de 90%
• IP	IP67
• Construction	Policarbonato (PC)
• Weight	320g (sem cabo), 650g (com cabo)
• Dimensions	With fixing bracket (180°) = 131mm (width) x 73mm (height) x 136mm (depth)



03. INSTALLATION

INSTALLATION AND CONNECTIONS



01 • Define the location where you want to install the product and position it (level).

02 • Make the markings and drill the wall.

03 • Loosen the rotation screw and separate the fixing bracket from the sensor housing (it is not necessary to remove the rotation screw completely).

04 • Fix the fixing bracket with the screws provided in the kit.

05 • Put the sensor back on the fixing bracket, set the angle you want and tighten the rotation screw.

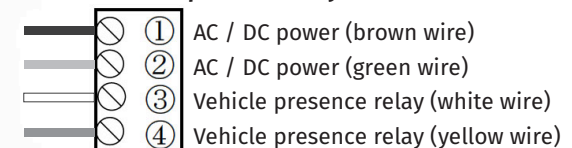
06 • Screw and connect the cable to the port controller.

07 • Check that there are no moving objects or lights in the detection zone.

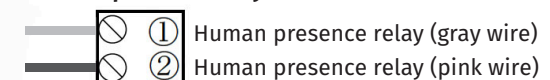
08 • Connect the device to the mains. The sensor LEDs will flash red / green for 10 seconds, indicating that the hardware and software have been initialized. When it stops flashing, the sensor settings can be changed as desired.

CONNECTIONS:

Power/vehicle presence relay



Human presence relay



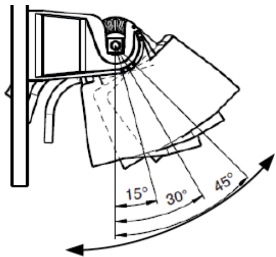
03. INSTALLATION

LED INDICATION

LED	Behavior
Flashes alternating red and green	Sensor to start
Green	Standby
Flashes green (fast)	Human presence relay activated
Flashes red (fast)	Vehicle presence relay activated
Flashes alternating red and green (fast)	Human presence and vehicle activated relay

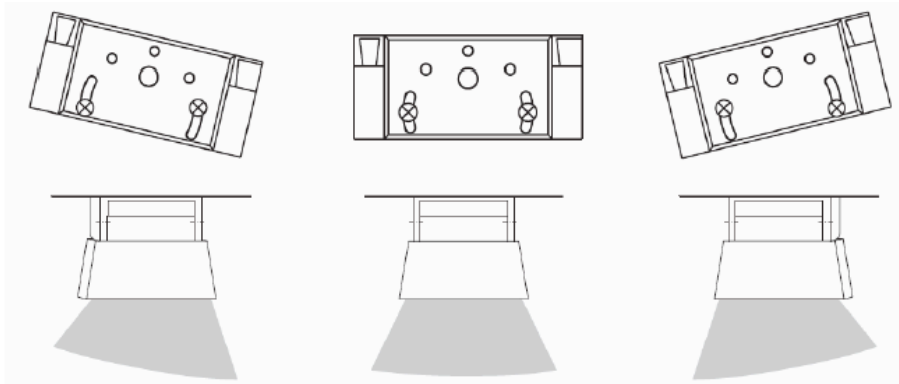
When using the sensor programming buttons (located on the front of the sensor), the number of flashes in red (slow) followed by a number of flashes in green (slow) indicates the function of the sensor and the configuration of that same function, during sensor programming, using the buttons on the sensor body.

DETECTION AREA ADJUSTMENT



When the adjustment screw is loosened, the sensor can be moved up/down in 15 ° increments to determine the area you want to detect. Retighten the adjustment screw as soon as you reach the desired angle.

The fixing bracket can be installed with an inclination focused on an area detection to the right or left, as needed.



04. PROGRAMMING

SENSOR PROGRAMMING

To program, use the function button and the settings button, which are in front of the sensor. Press and hold the function button for at least 2 seconds to enter programming mode. After entering the programming mode, the number of times the red LED flashes (slow) indicates the function to be set, as you can see in the table below.

The number of times the green LED flashes (slow) indicates the current setting for this function. *For example, a red LED flashes 1 time (slow) indicates the Sensitivity function followed by six times flashing green LED (slow) indicates a sensitivity value of 6 on a scale of 1 to 10.*

Use the function button to switch between the nine functions until you reach the one you want to configure.

Then use the settings button to set the desired value for each function, which will be indicated by the number of times the green LED flashes.

When you press the settings button again, the configuration is automatically saved.

To end the programming mode, press the function button for 2 seconds.

EXAMPLE

Change the relay timeout from 1 to 5 seconds:

- 1 • Press and hold the function button for 2 seconds to enter the programming mode
- 2 • The current function (red LED) and settings (green LED) will be indicated by the number of times the red and green LEDs flash (see page 7).
- 3 • Press the function button 5 times to switch to the "Relay timeout" function.
- 4 • The red LED will blink 6 times and the green LED will blink the times corresponding to the current configuration (see page 7).
- 5 • To change the relay timeout from 1s to 5s, press the SETTING button four times.
- 6 • The RED LED will flash 6 times, followed by the GREEN LED, which will also flash 6 times. This indicates that the relay has a waiting time of 5 seconds.
- 7 • Press and hold the FUNCTION button for two seconds to exit programming mode and save sensor settings.

04. PROGRAMMING

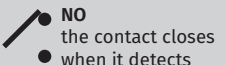
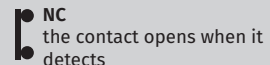
PROGRAMMABLE PARAMETERS

To enter and exit the programming mode, press and hold the "functions" button for approximately 2 seconds. Whenever you change any configuration, it is advisable to test the sensor. In the table below, the underlined value indicates the factory value.

Function		Definition	Description	Recommended settings					Possible to set by command	
Number of times the red LED flashes indicates the function (1 to 9)		Number of times the green LED flashes indicates the set value								
1	Sensitivity	(1 to 9) 1 Minimum <u>6 Factory value</u> 9 Maximum	Increase or decrease the size of the detection area	INSTALLATION HEIGHT	SENSOR BODY ANGLE					Yes
						15°	30°	45°	>45°	
					7m	8	4	2	1	
					5m	6	6	3	1	
					3.5m	6	5	4	1	
2.5m	4	4	4	1						
2	Vehicle detection	1 Low <u>2 Average</u> 3 High		INSTALLATION HEIGHT	SENSOR BODY ANGLE					Yes
						15°	30°	45°	>45°	
					7m	1	2	2	1	
					5m	1	2	2	2	
					3.5m	1	2	2	3	
2.5m	1	2	2	3						
3	Human presence detection	(1 a 7) <u>1 Minimum</u> 7 Maximum	When 1 is chosen, cross-traffic suppression is disabled. Values between 2 and 7 activate cross-traffic suppression.	INSTALLATION HEIGHT	SENSOR BODY ANGLE (detection without suppression of traffic) For all heights and angles, the value will always be 1.					Yes
					SENSOR BODY ANGLE (detection without suppression of traffic)					
						15°	30°	45°	>45°	
					7m	4-7	2-7	2-7	2-7	
					5m	4-7	4-7	4-7	4-7	
3.5m	4-7	4-7	6-7	6-7						
2.5m	4-7	6-7	6-7	3						
4	Vehicle relay	1 <u>Vehicle (front)</u> 2 Vehicle (rear) 3 Vehicle (front / rear) 4 Person/vehicle (front) 5 Person/vehicle (rear) 6 Person/vehicle (front/rear)							Yes	
5	Human presence relay	1 <u>Person (front)</u> 2 Person (back) 3 Person (front/back) 4 Vehicle (front) 5 Vehicle (rear) 6 Vehicle forward/reverse							Yes	

04. PROGRAMMING

PROGRAMMABLE PARAMETERS

Function		Definition	Description		Recommended settings	Possible to set by command	
Number of times the red LED flashes indicates the function (1 to 9)		Number of times the green LED flashes indicates the set value					
6	Relay wait time	1 0.5 seconds (minimum) 2 1 second (Factory value) 3 2 seconds 4 3 seconds 5 4 seconds 6 5 seconds 7 10 seconds 8 15 seconds 9 20 seconds 10 25 seconds 11 30 seconds 12 60 seconds 13 300 seconds (maximum)	Amount of time the relay remains active after being activated.			Yes	
7	Relay contact type	1 NO Contact 2 NC contact	 NO the contact closes when it detects	 NC the contact opens when it detects		Yes	
8	Reaction to presence	1 Quick 2 Normal 3 Slow			BEHAVIOR	DEFINITION	Yes
					Suitable for detecting human presence	1 Quick	
					Suitable for vehicle detection	2 Normal	
			Suitable in differentiation of vehicles and people	3 Slow			
9	Device address	(1 to 15) 1 Factory value	If there are several sensors nearby, you must define different addresses for each one, in order to avoid possible conflicts when pressing the command.			No	
RESET		Press the Functions and Settings button simultaneously for about 5 seconds Reset factory settings (LEDs flash green / red for about 10 seconds.				Yes	

04. PROGRAMMING

PRESENCE DETECTION

The sensor has the ability to distinguish between human and vehicle traffic detection. This distinction depends on the connection and configuration of the vehicle and human presence relays. The vehicle detection, human presence detection and response capabilities should also be adjusted as explained in the table on page 6, in order to ensure the accuracy of the detection.

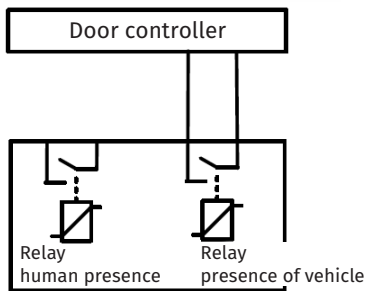
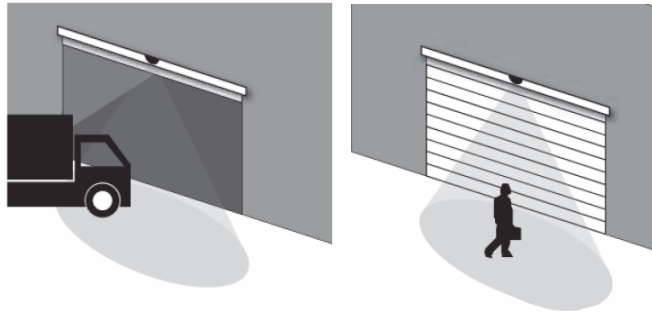
The sensor has two relay outputs:

Vehicle presence relay: can be configured to detect only vehicles or vehicles and people.

Human presence relay: can be configured to detect vehicles or people.

EXAMPLE 1

Door controller with only 1 relay input.
Vehicle detection only required.

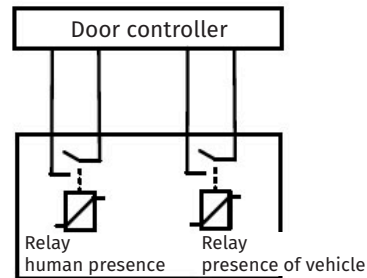
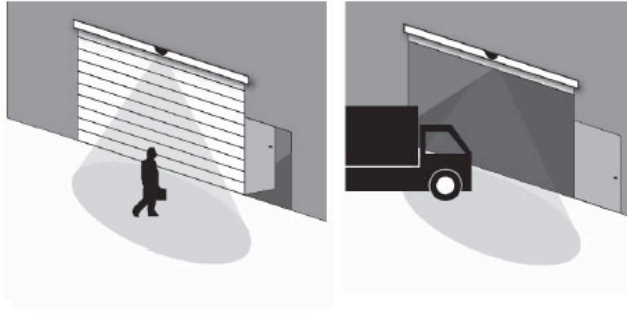


Connect the Vehicle Presence Relay to the door controller and set the Vehicle Presence Relay setting to 1.

The "Reaction to presence" must be changed to 2. The remaining functions (pages 6 and 7) must be adjusted based on the height of the sensor installation.

EXAMPLE 2

Door controller with 2 relay inputs.
One to activate the industrial door and the other to activate a pedestrian access door.

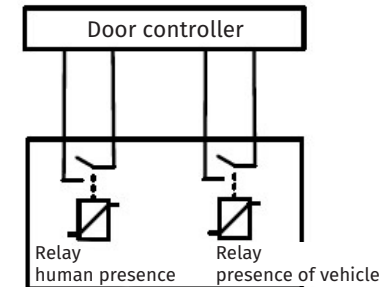


Connect the Vehicle Presence Relay to the door controller and set the Vehicle Presence Relay setting to 1.

The "Reaction to presence" must be changed to 2. The remaining functions (pages 6 and 7) must be adjusted based on the height of the sensor installation.

EXAMPLE 3

Door controller with 2 relay inputs.
A set to fully open of the door when a vehicle get closer and halfway when a person get closer.



Connect the Vehicle Presence Relay and the Human Presence Relay to the door controller. Change the Vehicle Presence Relay setting to 1.

Change the Human Presence Relay setting to 1.

The "Reaction to presence" must be changed to 2. The remaining functions (pages 6 and 7) must be adjusted based on the height of the sensor installation.

05. TROUBLESHOOTING

INSTRUCTIONS FOR CONSUMERS AND SPECIALIZED TECHNICIANS

FAILURE	CAUSE / RESOLUTION
No LED on	<ul style="list-style-type: none">• There is no current supplying the device;• The device is defective (send to technical services).
The port is detected	<ul style="list-style-type: none">• Tilt the sensor housing out of the door;• Reduce the sensitivity setting;• Increase responsiveness;• Increase detection of human presence.
The device does not respond to command commands	<ul style="list-style-type: none">• The device may be blocked;• Turn the sensor off and on so that it can be configured without a code, for 30 minutes;• The batteries in the remote are empty.
The person is mistaken for a vehicle	<ul style="list-style-type: none">• Increase the vehicle's detection properties;• Increase responsiveness;• If only vehicles are detected, reduce the sensitivity setting.
Vehicle mistaken for a person	<ul style="list-style-type: none">• Download the vehicle's detection properties;• Increase responsiveness.
The object is detected too late	<ul style="list-style-type: none">• Reduce responsiveness;• Increase sensitivity.
Vehicle mistaken for a person	<ul style="list-style-type: none">• Increase responsiveness;• Reduce sensitivity.
Vehicle mistaken for a person	<ul style="list-style-type: none">• Increase detection of human presence.
Vehicle mistaken for a human presence.	<ul style="list-style-type: none">• Increase responsiveness;• Increase detection of human presence;• Reduce sensitivity.