Motion Sensor
RAD

RAD-01

- **K-Band radar sensor compatible with all types of automatic doors.**
- **3-D adjustable sensor position offers precise orientation of the activation pattern.**
- **Microprocessor technology filters out possible weather condition interferences**
- **IR remote controller can be added for easy adjustment**

Product Description

Motion Sensor Radar is a digital uni or bidirectional motion sensor for trouble-free opening of all types of automatic doors (sliding, swinging, folding, revolving, speed-doors, overhead doors, etc...), for pedestrian and civil applications.
It can be adapted to every application without further accessories and can be controlled by an infrared remote controller. Mounting height up to 4m also available in uni- or bidirectional mode to detect motion towards or away from the device. Like most of other microwave detectors, equipped with planar flat antenna, Carlo Gavazzi Radar activates automatic doors utilizing doppler shift effect for detecting movements.

Ordering Key

RAD-01

Type
Detection mode

Approvals

CE 0682

RoHS Compliant

Type Selection

Detection Mode	
Bidirectional*	**01**
Uni&Bi-directional*	**02**

* Bidirectional: to detect motion towards and away from the sensor
Uni&Bidirectional: to detect motion towards and/or away from the sensor.

Electrical Data

Frequency emitted	(K-Band) 24.125GHz
Radiated power	< 16dBm EIRP
Rated supply voltage	12 – 24VAC ±10%
	12 – 24VDC +30% / -10%
Mains frequency	50 to 60HZ
Power consumption	< 0.5W (VA)
Output Relay SPDT	
Rated Voltage	24VDC - 120VAC
Maximum switching current	1A (resistive load)
Maximum switching power	30W (DC) / 120VA (AC) (resistive load)
Hold time	0.5 – 9s (adjustable)

Environmental Data

Temperature range	-20°C to +70°C
Humidity	from 0% to 90%RH
Immunity	R&TTE 1999/5/EC
	EMC 89/336/EEC
Max. mounting height	4m
Protection degree	IP53

Mechanical Data

Housing Material	Polycarbonate
Dimensions WxHxD	118 x 80 x 53mm
Weight	150g
Cable lenght	2.5m
Colour	Glossy/Translucid Black

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General Data

Sensing field orientation	dual mechanical adjustment, lateral and vertical
Detection angle	
Vertical	0° to 90° in 15° increments
Lateral	+/- 30° in 7.5° increments
Sensing field shape	
Uni & Bidirectional model	- By means of tie clip
Bidirectional model	- Sensor module orientation
Detecting area	
(mounting height 2.2m)	
Wide sensing field	4m (W) x 2m (D)
Narrow sensing field	2m (W) x 2.5m (D)
Detection mode	
Only bidirectional	to detect motions towards and away from sensor
Uni & bidirectional	to detect motions towards or/and away from sensor
Motion detecting speed	0.05 - 1m/s (measured in the sensor axis)

Adjustments and Settings

Manual Setting Device	By two buttons on main PCB board.
Remote Setting Device	IR remote controller (optional).
Reset to factory set Value (only by PCB buttons)	1 - Restore PIN security code 2 - Restore all factory values
Sensitivity	10 levels (1 to 10) It allows increment or decrement of detection field.
Relay hold time	10 levels (0.5 to 9s) It fixes the maintenance's time of the relay status.
Uni-bidirectional mode	It sets direction mode detection only for uni-bidirectional device.
Immunity detection	"Quasi-presence", Normal mode, Increased Immunity (Implemented by a digital filter) It prevents some external noise as objects carried by wind, strong rain, etc.
Relay status	
Active, Passive,	(only by PCB buttons) It permits to fix the relay status: normally open or close.
Automatic mode/ Permanently Open/Close.	(only by IR remote controller) It permits to enable or disable normal sensor detection and set ON or OFF permanently relay output. (OPEN / CLOSE / AUTO)
Security code (only by IR remote controller)	4-digit PIN access code It permits to lock or unlock optional remote controller keyboard setting.

Factory Default Value

The device is set up in factory at the following default values:

1. Sensitivity:	10 (max level)
2. Relay hold time:	1 (min: 0.5 sec)
3. Uni-Bidirectional Detection Mode	Bi-directional (available only for RAD-02)
4. Immunity detection:	Immunity: OFF ; Quasi-Presence: OFF
5. Relay Status:	Passive
6. PIN security:	0000 - block disabled (only for remote controller)

At the first start up, the device loads the default values.

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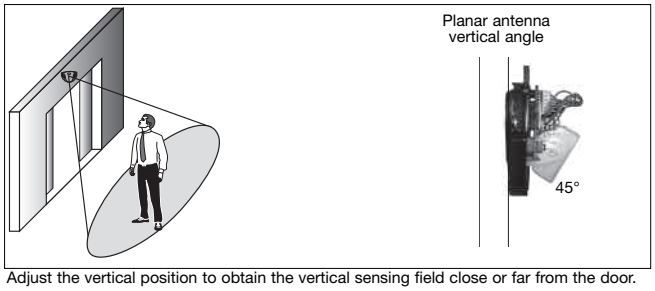
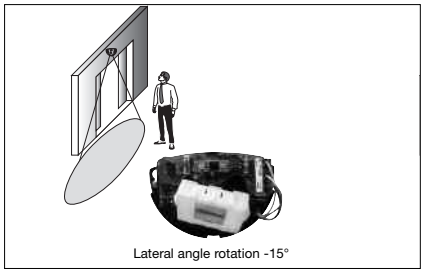
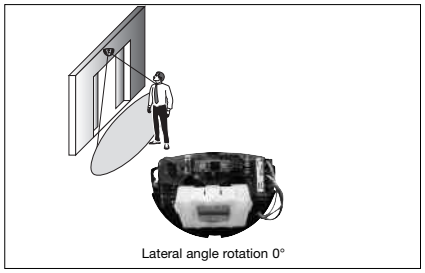
Sensing fields

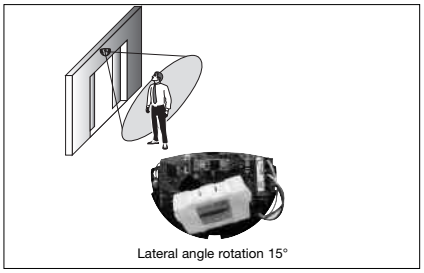
Mechanical sensor orientation



Adjust the vertical position to obtain the vertical sensing field close or far from the door.


Lateral angle rotation -15°

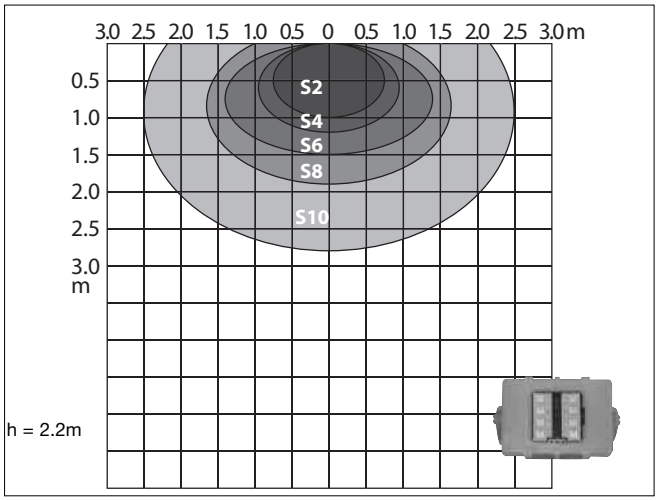

Lateral angle rotation 0°


Lateral angle rotation 15°

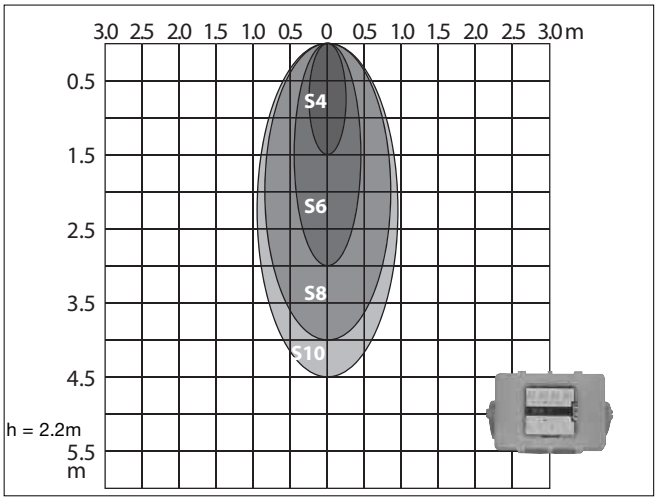
Adjust the lateral position to obtain the desired lateral angle sensing field.

Sensing field adjustment according to the sensitivity setting and mounting height:

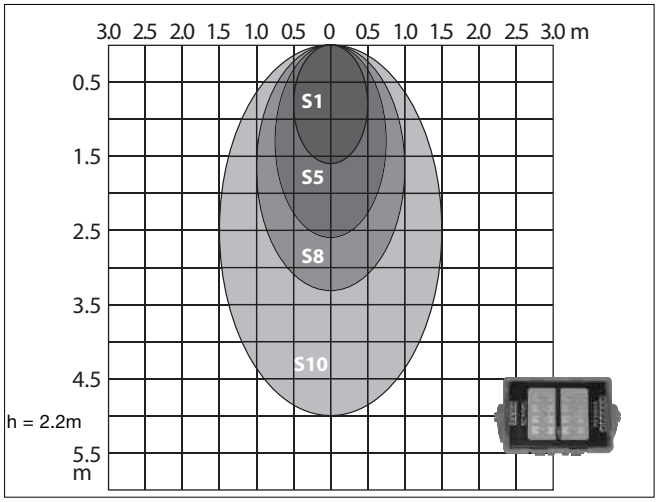
Detection area (mxm) vs Sensivity value (vertical angle 45°); vertical mount mode.



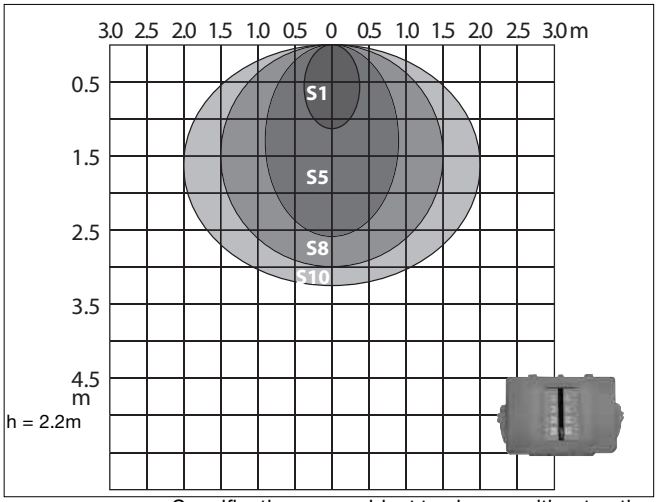
Detection area (mxm) vs Sensivity value (vertical angle 45°); horizontal mount mode.



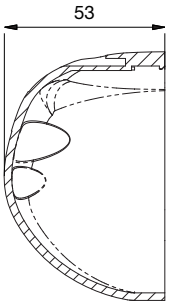
Detection area (mxm) vs Sensivity value (vertical angle 45°).



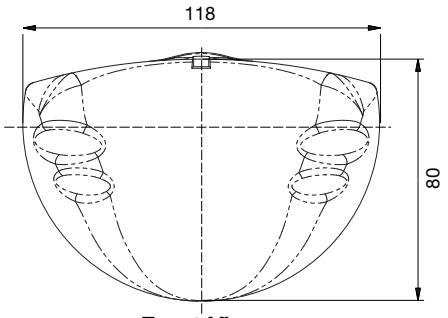
Detection area (mxm) vs Sensivity value with leg clip (vertical angle 45°).



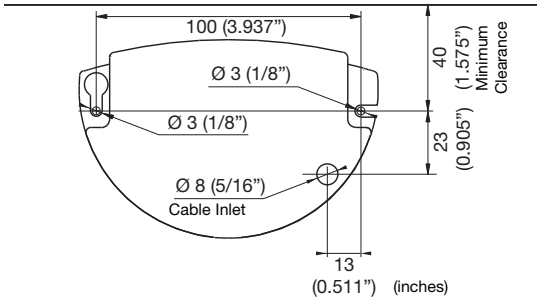
Dimensions (mm)



Lateral View

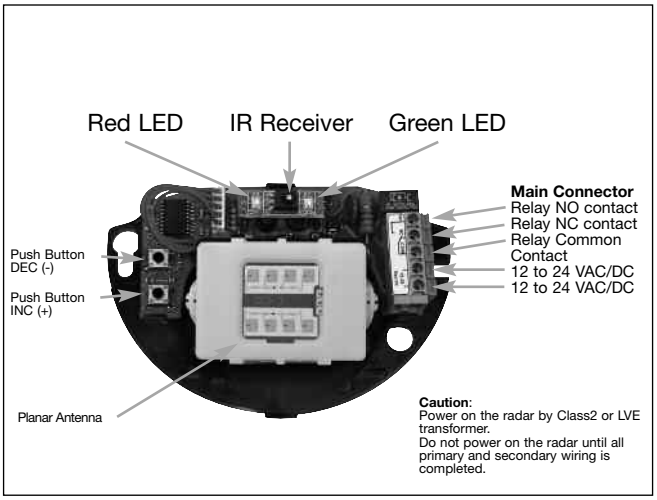


Front View



Installation Mask

Electrical Connections



RAD-00-RC: IR Remote Controller