

Motion Radar Sensor Type RAD01 and RAD02

CARLO GAVAZZI



- 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
- UL325 approved



Product Description

Motion Radar Sensor 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 (13.12ft) 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 _____

Type Selection

Detection mode	Ordering no.
Bidirectional*	RAD01
Uni & Bi-directional*	RAD02

* 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%
Main frequency	50 to 60HZ
Power consumption	< 1W (VA)
Output Relay SPDT	
Rated Voltage	30VAC/DC
Max switching current	1A (resistive load)
Max switching power	30W (resistive load)
Hold time	0.5 – 9s (adjustable)

Environmental Data

Temperature range	-20°C to +70°C (-4°F to +158°F)
Humidity	from 0% to 90%RH
Immunity	R&TTE 1999/5/EC EMC 89/336/EEC
Max. mounting height	4m (13.12ft)
Protection degree	IP54

Mechanical Data

Housing Material	Polycarbonate
Dimensions WxHxD	118 x 80 x 53mm (4.645 x 3.149 x 2.086inch.)
Weight	150g (5.29oz)
Cable length	2.5m (8.20ft)
Colour	Glossy/Translucid Black



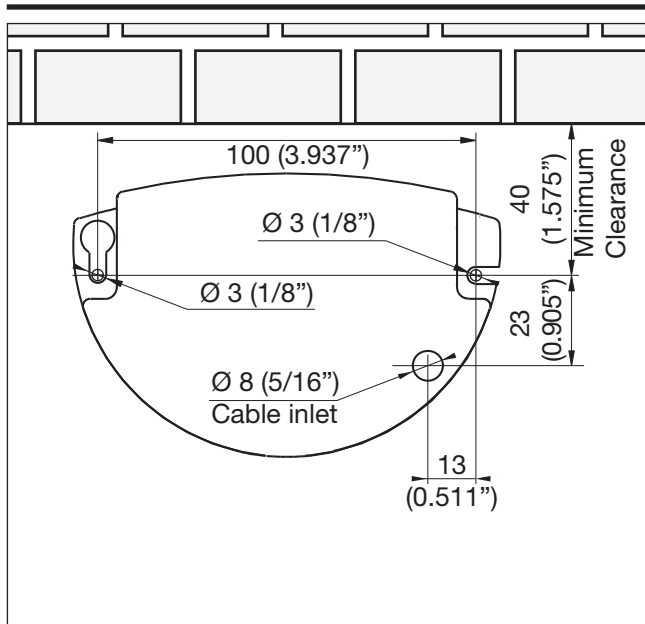
Adjustments and Settings

Manual Setting Device	By two buttons on main PCB board.		by a digital filter) It prevents some external noise as objects carried by wind, strong rain, etc.
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	Relay status Active, Passive, Automatic mode/ Permanently Open/Close.	(only by PCB buttons) It permits to fix the relay status: normally open or close. (only by IR remote controller) It permits to enable or disable normal sensor detection and set ON or OFF permanently relay output. AUTO / OPEN / CLOSE
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).	Security code (only by IR remote controller)	4-digit PIN access code It permits to lock or unlock optional remote controller keyboard setting.
Immunity detection	"Quasi-presence", Normal mode, Increased Immunity (Implemented)		

General Data

Sensing field orientation	double mechanical adjustment, lateral and vertical
Detection angle Vertical Lateral	0° to 90° in 15° increments +/- 30° in 7.5° increments
Sensing field shape bidirectional model	By Sensor module orientation
Detecting area Wide sensing field Narrow sensing field	(mounting height 2.2m (h = 7.22ft)) 4m (W) x 2m (D) (13.12ft (W) x 6.56ft (D)) 2m (W) x 2.5m (D) (6.56ft (W) x 8.20ft (D))
Detection mode Only bidirectional Uni & bidirectional	to detect motions towards and away from sensor to detect motions towards or/and away from sensor
Motion detecting speed	0.05 - 1m/s (0.164 - 3.28fps) (measured in the sensor axis)

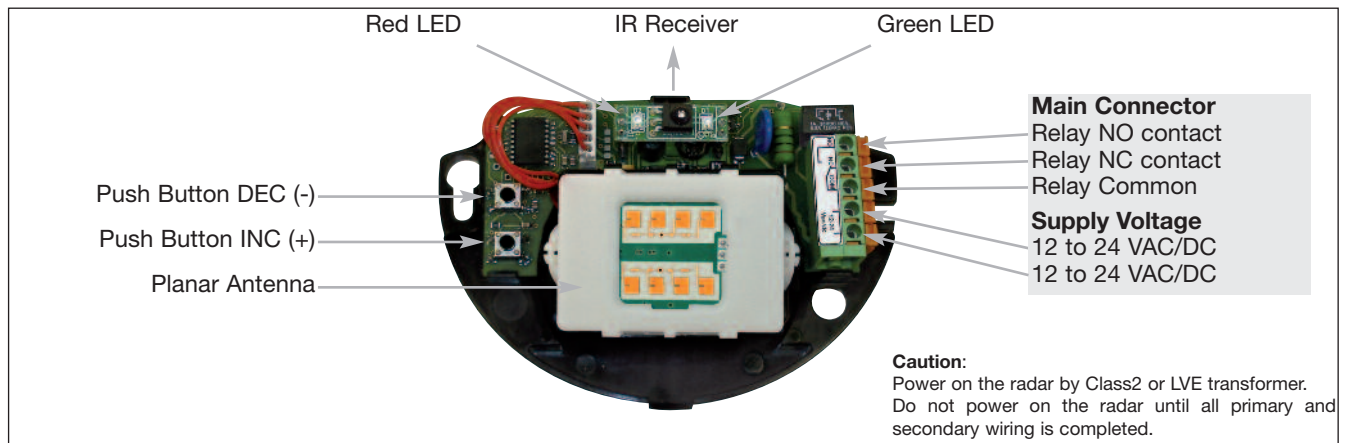
Drilling Plan mm (inches)



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 (Uni-directional mode is available only for RAD 02)
4. Immunity detection	Immunity: 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.	

Electrical Connections



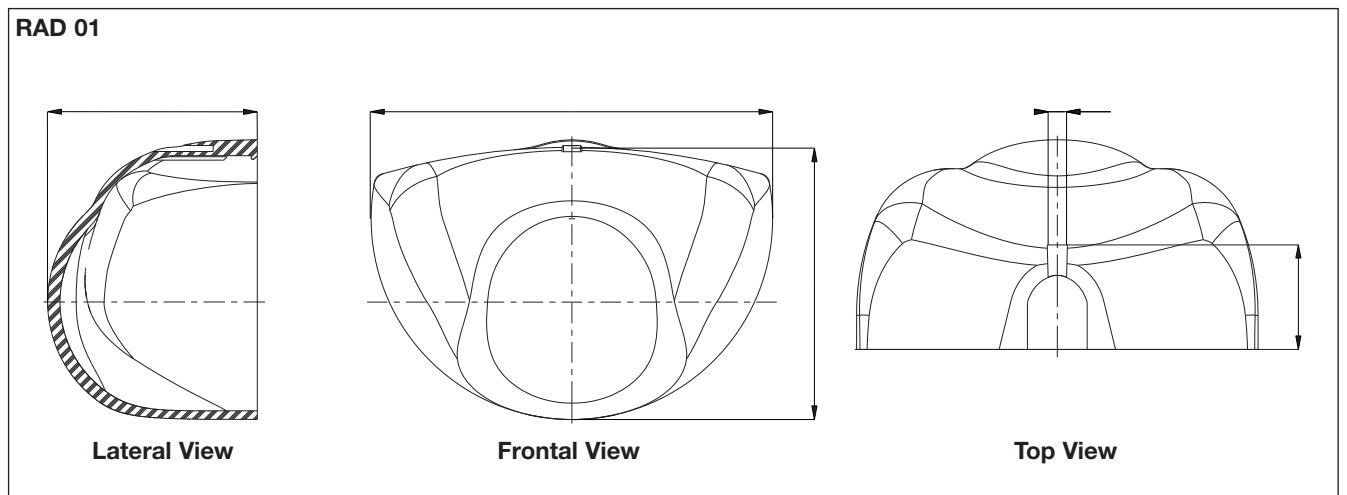
Main Connector
 Relay NO contact
 Relay NC contact
 Relay Common

Supply Voltage
 12 to 24 VAC/DC
 12 to 24 VAC/DC

Caution:
 Power on the radar by Class2 or LVE transformer.
 Do not power on the radar until all primary and secondary wiring is completed.

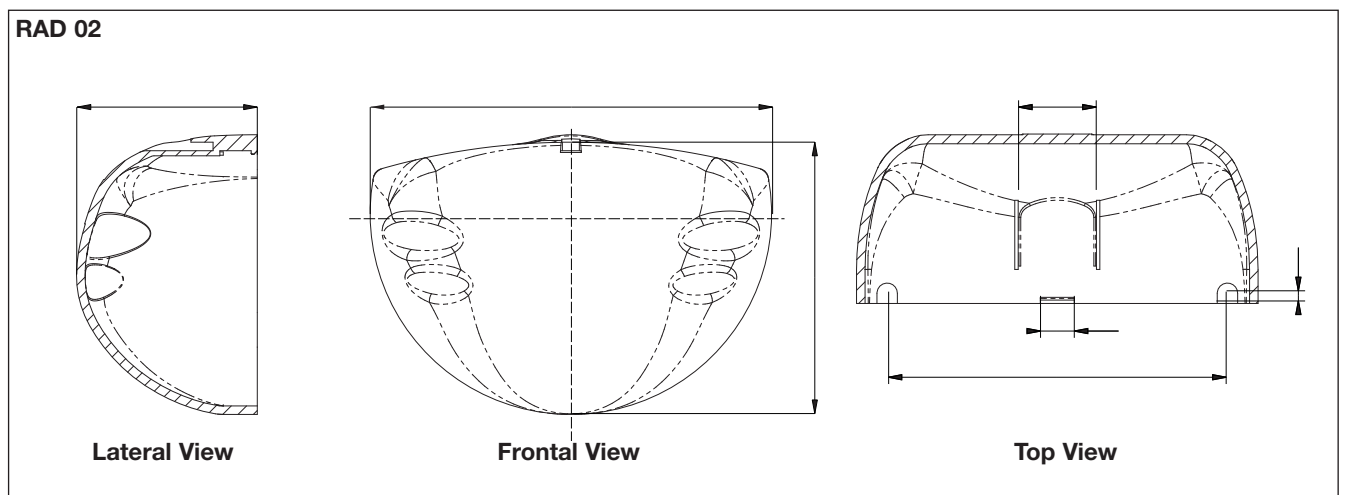
Dimensions mm (inches)

RAD 01



Lateral View **Frontal View** **Top View**

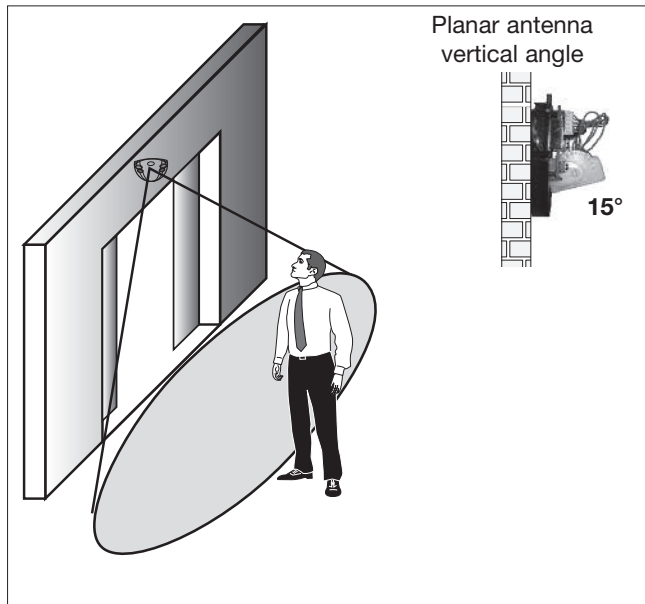
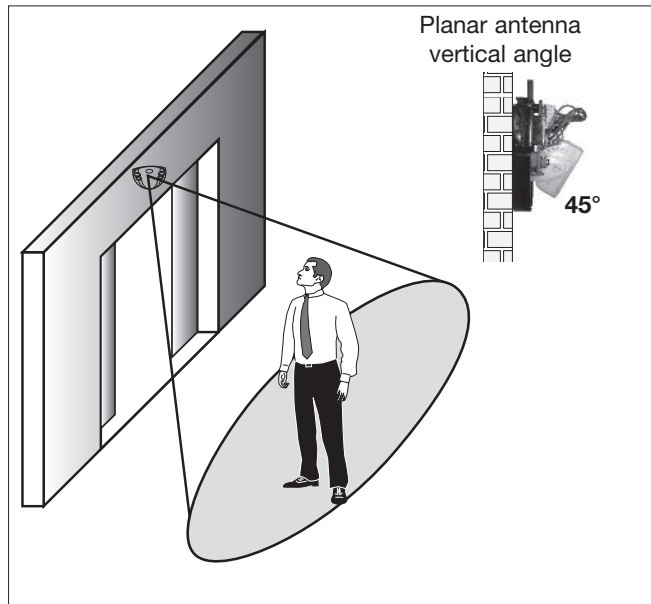
RAD 02



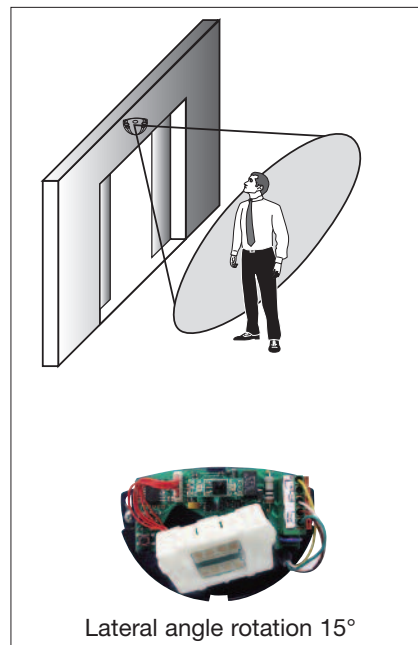
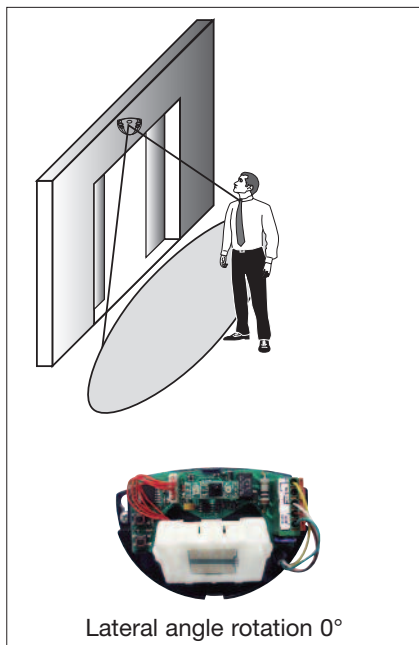
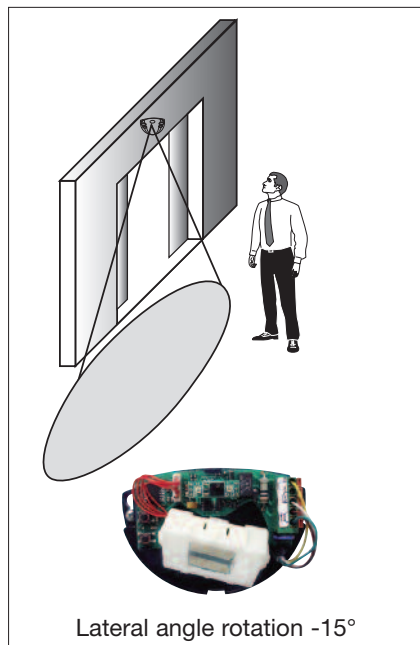
Lateral View **Frontal View** **Top View**

Sensing field adjustments

Mechanical sensor orientation



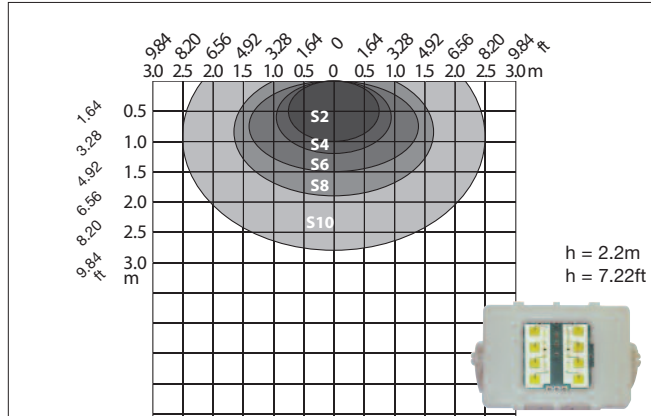
Adjust the vertical position to obtain the vertical sensing field close or far from the door.



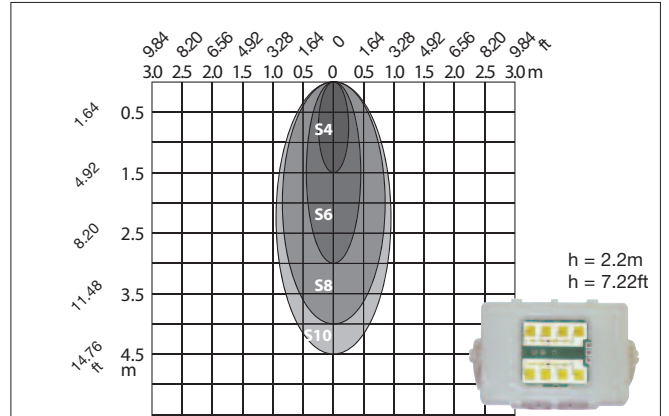
Adjust the lateral position to obtain the desired lateral angle sensing field.

RAD 01 Bidirectional Model

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

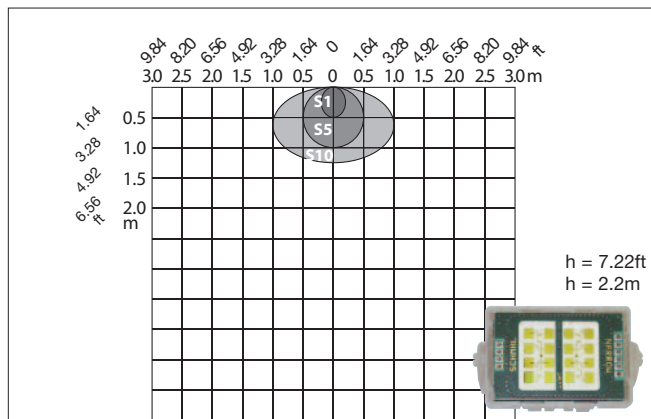


Detection area vs Sensitivity value (vertical angle 45°); horizontal mount mode.

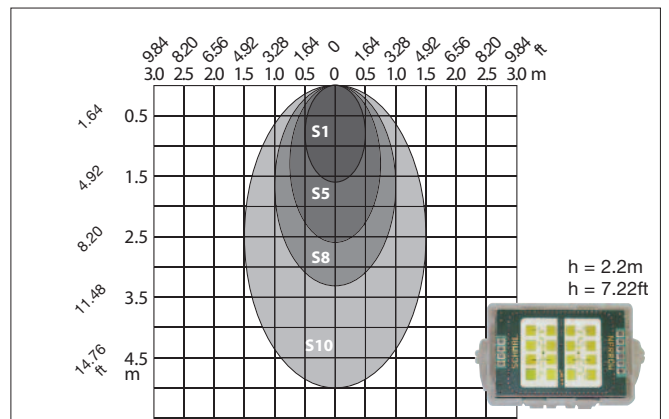


RAD 02 Uni & Bidirectional Model

Detection area vs Sensitivity value (vertical angle 15°).



Detection area vs Sensitivity value (vertical angle 45°).



Note: S1...S10 sensitivity levels setting.

Sensing field adjustment according to Sensitivity setting and mounting Height

The sensing field area size (lobo) depends on the sensitivity parameter setting and the radar mounting height.

Accessory

RAD 00 RC

Type IR remote controller

