www.urad.es

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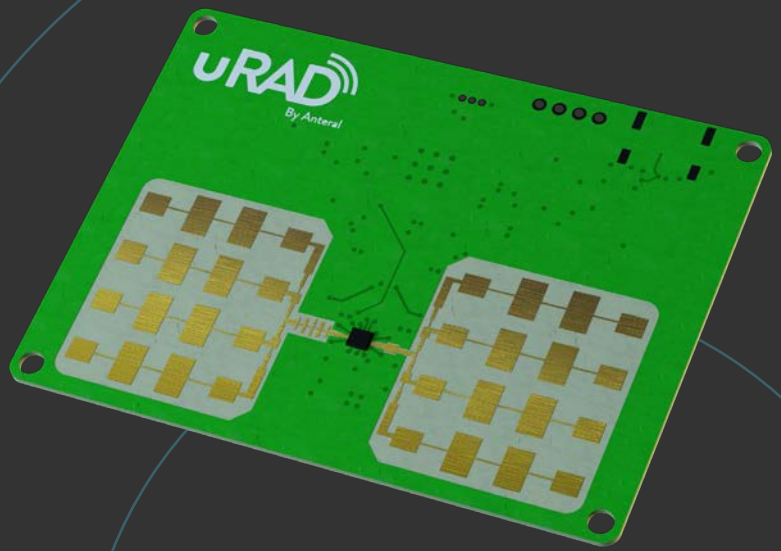

uRAD DOPPLER v1.0

24 GHz CW radar for velocity measurements

DESCRIPTION

uRAD, in its version uRADDOPPLER10, is a printed circuit board that functions as a complet **microwave radar sensor**. uRAD Doppler transmits in a Continuous Wave (CW) mode, operating in the **24 GHz ISM free-emission frequency band**. You'll be able to simultaneously measure the velocity of targets moving away from and approaching the radar with great accuracy.

The uRAD Doppler connects to any device with **UART communication** and is easily configurable via commands. The radar comes with **open-source libraries**, which facilitates integration with other devices to create more complete and complex projects. A **graphical interface** is also provided, making its operation completely **plug & play**. Connect uRAD and discover the potential of radar technology!

APPLICATIONS

uRAD Doppler is a fully validated radar sensor for the development of **applications** in the industrial, traffic, and Smart Cities sectors, among others.

Thanks to uRAD, you will be able to develop and create applications as:

- VEHICLE SPEED CONTROL
- EDUCATIONAL DISPLAYS
- SPEEDOMETER FOR SPORTS
- MOVEMENT & PRESENCE DETECTOR
- VIBRATION SENSOR

...and much more!

CE

CERTIFIED
PRODUCT

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Huarte, (Navarra), SPAIN

OPERATING CONDITIONS

Parameter	Typical value	Notes
Supply voltage	3.5 - 6 V	5 V recommended
Supply current	137 mA	
Operating temperature	-20 to +85 ºC	

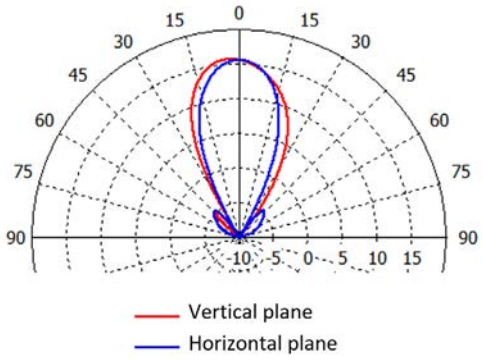
DIMENSIONS

Parameter	Typical value
Dimensions	76 x 55 x 10 mm
Weight	8 gr

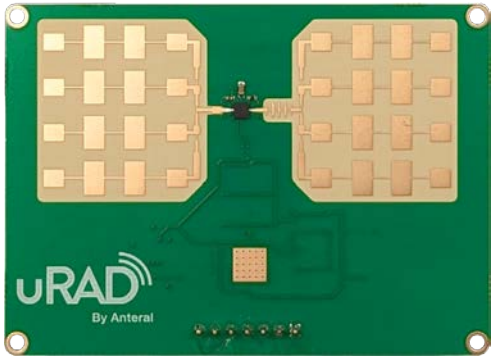
RF PARAMETERS

Parameter	Typical value	Notes
Frequency bandwidth	Between 24.005 - 24.245 GHz	ISM frequency band
Output power	19 dBm	EIRP (including antenna gain)
Antenna Gain	16.6 dB	4 x 4 array
Field of view	30 x 30 deg	

Antenna Radiation Pattern



OUTLINE



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GENERAL

Parameter	Typical Value
Maximum velocity	±90 m/s (322 km/h)
Velocity accuracy	±0.18 m/s (0.66 km/h)
Update rate	3 modes: 20, 10 and 4 measurements/s
Modes of operation	Doppler Continuous Wave (CW)
Number of targets	Simultaneous detection of targets approaching and moving away from the radar
Output data	Positive and negative velocity RAW data IQ* 2 x GPIOs that activate when setting a speed threshold
Range	170 meters (car)
Sensitiviy	10 configurable sensitivity levels
Connector	B7B-XH-A by JST (1x7P 2.5 mm)
Communication	UART

** Further information available in the White Paper and the User Manual*

OTHER

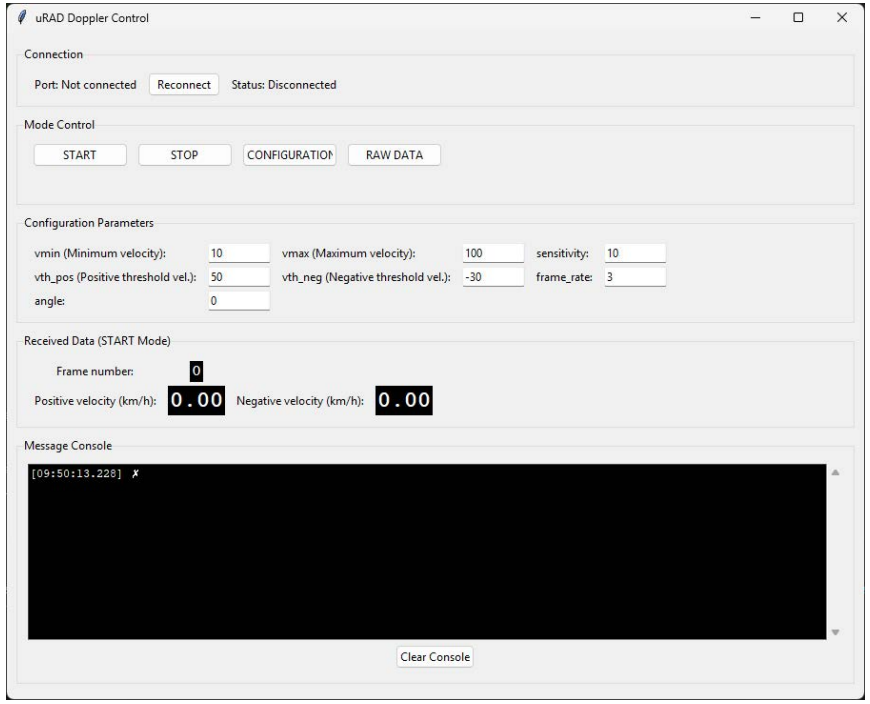
uRAD offers ad-hoc designs with different antenna patterns and making use of powerful microcontrollers or digital signal processors to comply with more demanding applications covering this way all the client/user requirements.

Contact us at **contact@urad.es** if you want to know more about these additional services.

LIBRARIES AND GRAPHICAL USER INTERFACE

uRAD Doppler is easily controlled and configured using commands via the UART port. Along with the uRAD hardware, open-source usage examples in the Python programming language are distributed, which facilitate both configuration and obtaining results. Users can create their own more complex applications based on these programs.

Furthermore, the uRAD Doppler comes with a graphical interface that allows the user to configure the radar, visualize speed detections in real-time, and also save the received RAW signal in phase and quadrature.



Last version: 01/10/2025

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