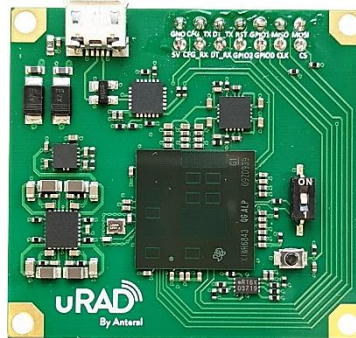


uRAD INDUSTRIAL v1.0



Product Overview

uRAD INDUSTRIAL v1.0 is a millimeter wave radar sensor which presents outstanding measurement capabilities in a very compact size. Based on the IWR6843AoP chip of Texas Instruments, uRAD detects range, velocity and angle of objects with unprecedented accuracy and robustness. Working at the 60-64 GHz frequency band, uRAD exhibits up to three times higher spatial and velocity resolution than others solutions in the market. uRAD opens you the door of next generation of industrial and smart cities applications.

Applications

uRAD is conceived as an evaluation platform to develop new and innovative applications. Leverage the open and free software of Texas Instruments to develop your own projects. You will have access to many laboratories to test different applications from the beginning:

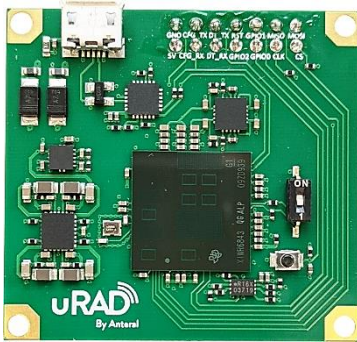
- Points cloud visualizer
- Area scanner
- Automated doors
- Gesture recognition
- Level sensing
- People counting
- Robotics
- Traffic monitoring
- Vital signs



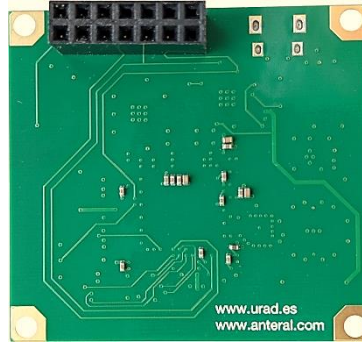
We also support our clients in their developments with additional proprietary software and open libraries to ease the integration of our sensors in their projects.

Technical Specifications

Finish



Top view

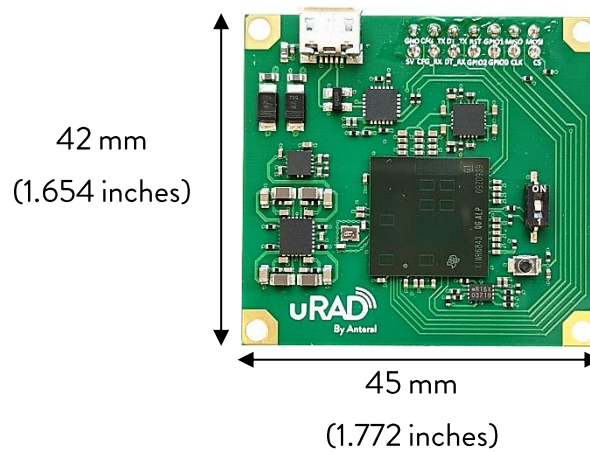


Bottom view



Side view

Size and Weight



Thickness: 10 mm (0.394 inches)

Weight: 5 grams (0.176 ounces)

Characteristics

Parameter	Min.	Typ.	Max.	Unit	Notes
Operating conditions					
Supply voltage	4.5	5	5.5	V	By USB or 14-pin connector
Supply current		340		mA	Depend on the application
Operating temperature	-20		+85	°C	
RF Parameters					
Frequency bandwidth	60		64	GHz	
Output power		18		dBm	EIRP (including antenna gain)
Number of transmitter antennas		3			Antenna on package
Number of receiver antennas		4			Antenna on package
Azimuthal field of view		160		deg	
Elevation field of view		160		deg	

Performance

Parameter	Value
Mode of operation	Frequency Modulated Continuous Wave
Output data	Distance, velocity, angle and SNR (signal to noise ratio)
Distance range	70 m (car), 40 m (people)
Distance accuracy	±1 mm
Distance resolution	5 cm
Velocity range	45 m/s
Velocity accuracy	± 0.15 m/s
Velocity resolution	0.06 m/s
Angle accuracy	1 deg
Azimuthal angle resolution	30 deg
Elevation angle resolution	30 deg

Distance and velocity range, accuracy and resolution values depend on the configuration parameters of the transmitted waveform.

Resolution indicates the minimum distance, velocity or angle that two targets with similar reflectivity must be separated to be discerned as a single target each one.

Communication

The board has two different connections:

- Micro USB connector: power, upload firmware, send configuration, receive data.
- Female 14-Pin header connector: power, send configuration, receive data, reset, GPIOs and SPI.



1: GND 3: UART TX config 5: UART TX data 7: Reset 9: GPIO1 11: MISO 13: MOSI
 2: 5V 4: UART RX config 6: UART RX data 8: GPIO2 10: GPIO0 12: CLK 14: CS

Software and Firmware

uRAD core is the IWR6843AoP chip of Texas Instruments. Therefore, you have access to all software and documentation available about it:

- Flash any firmware, including the mmWave SDK by the USB connector.
- Or create your own firmware with Code Composer Studio and upload it.
- Test any already programmed application laboratory in your computer by the USB or 14-pin connector.
- Use (configure and get data) with the USB or 14-pin connector.

Moreover, with the purchase it is also included:

- Standard firmware for point cloud detection.
- Open libraries in Python for configuring and getting results.
- Examples of use.
- Support by our radar experts regarding any doubt you have about radar configuration.

Other

uRAD team, as experts in radar technology, also develops custom software and firmware to exploit the most out of capabilities of our radars. Contact us at contact@urad.es if you want to know more about these additional services.

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- (iii) unauthorized modifications or repairs which have been soldered or altered in the assembly and are not capable of being tested by Anteral S.L. under its normal test conditions, or
- (iv) improper installation, storage, handling, warehousing, or transportation, or
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