

Smart Radar Sensor

Radar sensor for non-invasive traffic applications

DESCRIPTION

uRAD Smart Radar Sensor is a specialized radar solution designed for the deployment of non-invasive traffic applications in both urban and interurban environments. This sensor incorporates the latest and most advanced **60 GHz mmWave uRAD radar** specifically tailored for Smart Cities applications.

The system is affordable, easy to install, very versatile, since it can be installed on any road, and can be easily configured for a **multitude of use cases** or applications.

USE CASES



Velocity measurement up to 180 Km/h.



Activation of light signals: educational radar, warnings, cyclists, traffic jams, etc.



Intelligent pedestrian detection at crosswalks.



Dense or light traffic scenarios.



Detecting vehicles with positive (go away) and negative (approach) velocity simultaneously.



Multiple lanes at the same time.



TECHNICAL FEATURES

RF Parameters

Frequency	60 - 64 GHz
Modulation	FMCW
Emitting power	15 dBm
Field of view	160 °

Power supply

Voltage	8 - 42V DC (5V DC also available)
Consumption	0.5 - 2.5 W (depending on the application)

Mechanical parameters

PCB dimensions	85 x 76 x 20 mm
PCB weight	50 g
Dimensions with box	115 x 90 x 65 mm
Weight with box and anchorage	560 g
Box protection	Polycarbonate. IP66, NEMA 4X,12,13, UL-508
Connector	Cable gland
Installation	Box, anchorage and clamps are optional

Other parameters

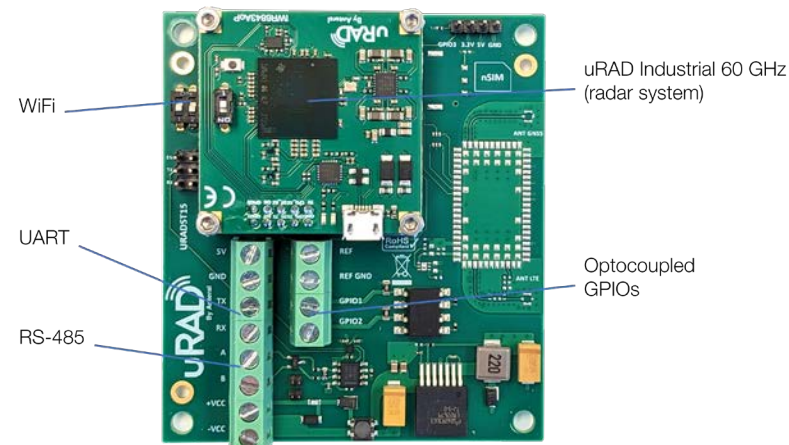
Communication interface	RS-485, UART, 2 x optocoupled GPIO (32 V max) Wi-Fi (installation and configuration)
Protocol	Customized (depending on the application)
Core processor	Xtensa dual-core 32-bit, 240 MHz, 8MB Flash
Operating temperature	-20°C to +80°C

Performance

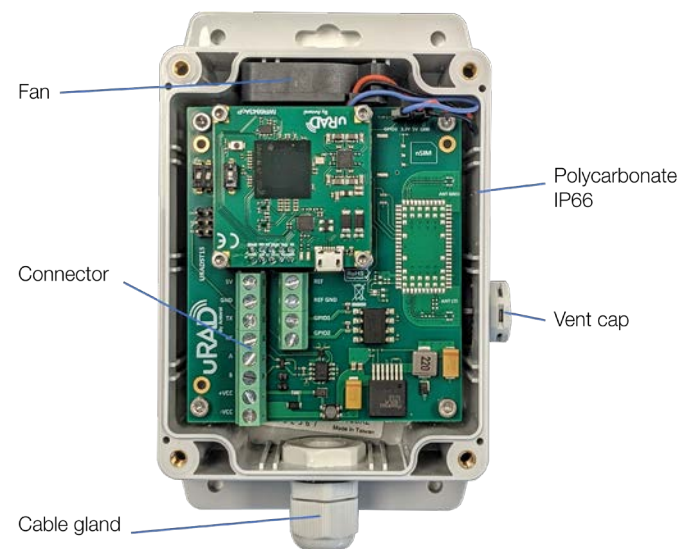
Maximum velocity	180 Km/h
Maximum distance	100 m
Side distance	±15 m

*Performance depends on the application: vehicles detection, pedestrians, sensor placement, etc.

PCB



PCB WITH BOX INCLUDED



The device can be purchased with or without box

CLAMPING STRUCTURE

The equipment optionally includes a support structure for placing the radar outdoors on cylindrical columns. The central joint allows the necessary tilt angle to be set during installation. Clamps are also included.



APPLICATIONS

The Smart Radar Sensor has **three specific applications** within the framework of Smart Cities that can be easily installed via WiFi.

REAL-TIME VELOCITY AND DISTANCE DETECTION

- The device detects vehicles from a configurable distance of up to 100 meters and sends the detected speed and distance in real-time.
- Multiple lanes are detected simultaneously in both directions of traffic.
- Each vehicle is identified with a unique ID throughout its journey.

BICYCLE DETECTION

- This application is specifically designed to detect bicycles. It only sends the speed and ID information for bicycle.
- The bicycle lane of circulation can be configured to limit false positives.
- A warning signal is sent via GPIO when a bicycle is detected to activate warning lights.

PEDESTRIAN DETECTION AT CROSSWALKS

- The device is configured to detect people approaching a crosswalk.
- The detection area and the device's sensitivity can be configured.
- A warning signal is sent via GPIO when a person is detected to activate warning lights.

In all applications, the device can be **configured easily via WiFi**. Upon powering on, the device creates a WiFi network, and a web application can be used to configure and start the detection. Real-time detections can also be viewed, which greatly simplifies the device installation.

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