



RADARXENSE

RXS-DRT-514

Speed & Range
Measurement
& Trigger
Radar



- Narrow antenna beam for high sensitivity
- Range and speed information of approaching and receding targets
- Suitable for stationary and mobile speed measurements

The RXS-DRT-514 radar measures the velocity and range of an approaching or receding target. A trigger bit is also set which is presented in the telegram sent over the serial line output. This allows easy integration for speed enforcement systems.

General Description

The RXS-DRT-514 radar module measures the velocity and range of a moving target. The radar should be installed with an installation angle of 25 degrees. The RXS-DRT-514 can also be used on a moving installation, for example a car. The system works in the license free 24 GHz ISM-band.

Application

The radar requires no serial input or settings to be uploaded. The moment the radar is powered up, it starts measuring. When a target enters the antenna beam, the radar supplies a continuous update on the speed and distance information of a target in the beam. Besides the speed and distance details, the RXS-DRT-514 determines also the optimum trigger position. The trigger position is supplied by means of a trigger bit. This trigger bit can be used for smart triggering of a photo camera or for reliable target counting. Therefore the RXS-DRT-514 allows easy integration in a speed trigger system. The narrow beam ensures that the trigger moment is well defined.

Besides a non-moving roadside installation, this radar can also be used on a moving installation, for example while driving. The radar measures the speed of a receding or approaching target.

General Technical Data

Supply voltage: 9 to 30V (secured against false polarity)
Supply current: 140mA

Transmit frequency: 24.000 – 24.250GHz
Maximum transmit power: 20dBm (EIRP)
FCC and ETSI 300 / 440 compliant with 50MHz bandwidth

Antenna beam:
horizontal: 14° (+/-7°) (typical)
vertical: 5° (+/-2,5°) (typical)
Readout period: 5ms
Sensitive distance range: 0.2...78m
Relative Speed Range: -126m/s...+126m/s
Minimum speed: 10cm/s
Accuracy: 0.5%

Output resistance (RS422): 1360hm
Output voltage (RS422): 5V (diff.)

Dimensions (l x w x h): 188 x 110 x 42 (mm)
Mounting possibilities:
• 4x M4 holes at the back side
• 92 x 170 mm in rectangle

Environmental:

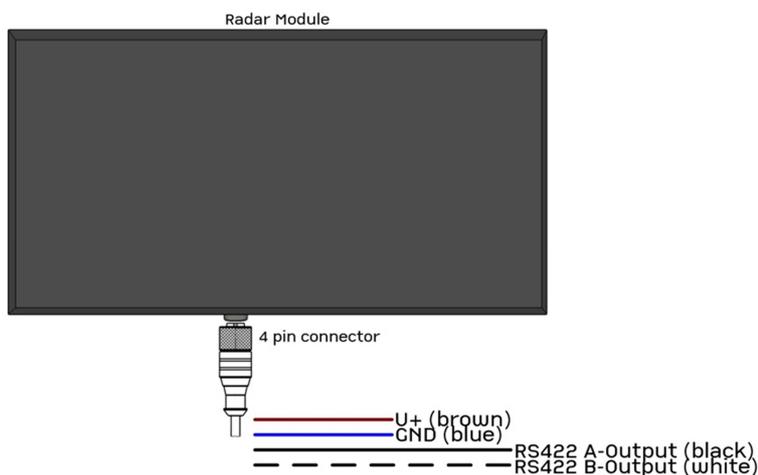
Housing: Rated IP67, waterproof and vibration proof
Operating temperature: -20° to +60°
Storage temperature: -30° to +80°C



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Module Interface

The circular connectors used are industrial standard, rated IP67. The connector type on the radar module is a four pole M12 male.



The radar system has the following interfaces:

- Power supply +9 to 30V (brown wire) and GND (ground, blue wire)
- RS422 serial interface; A-output (black wire) and B-output (white wire)

Readout Description

The RS422 communication interface output has the following specification:

- Interface specification: 19200, 8, N, 1

The readout telegram consists of 16 bytes:

- Byte 1: 0x7e (hex) constant
- Byte 2: 0x7e (hex) constant
- Byte 3: speed lower byte in cm/s (Signed integer, negative value is receding)
- Byte 4: speed higher byte in cm/s (Signed integer, negative value is receding)
- Byte 5: distance lower byte in cm
- Byte 6: distance higher byte in cm
- Byte 7: signal level lower byte in dB
- Byte 8: signal level higher byte in dB

The measured speed is the real driven speed of the car; no cosine correction is needed to compensate for measuring the radial speed if installed with a 25 degree yaw angle in relation to the direction of movement of the targets.

The signal level in case of no moving targets in the beam is noise with a value around 38 dB. When a vehicle moves in the antenna beam, this signal level increases.

The RXS-DRT-514CW calculates the trigger for an optional camera; then the signal level found in the telegram is set to 2000 dB. The speed value presented in this telegram should be used for law enforcement purposes. The other telegrams containing the speed values are good for example for traffic monitoring.



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Road side Installation

The M12 connector should point downwards, in order to have the 5 degree antenna beam in the azimuth or horizontal plane.

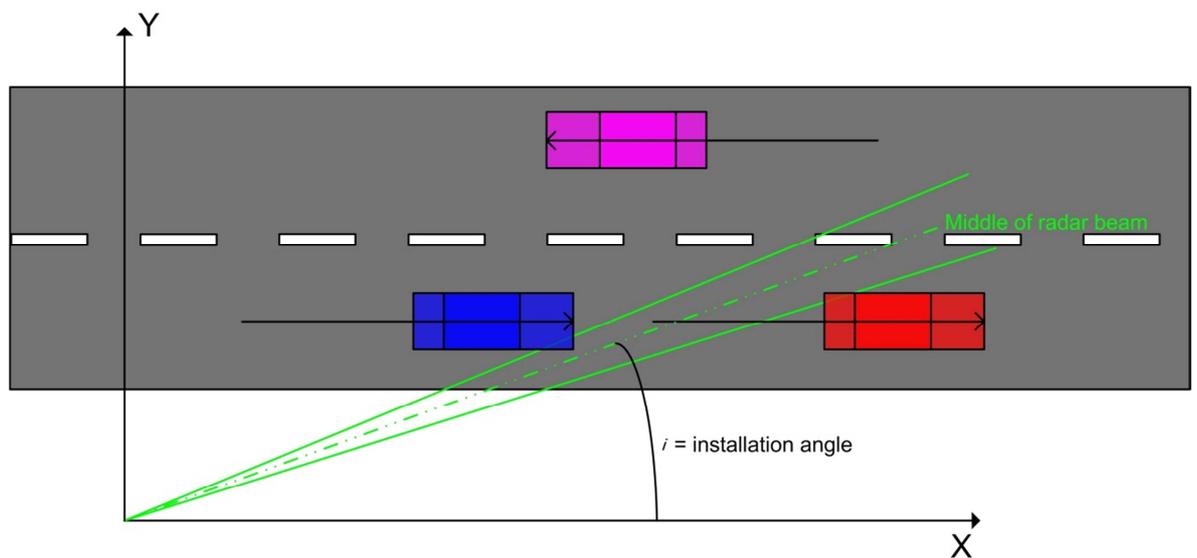


Figure 1. Top view on the installation

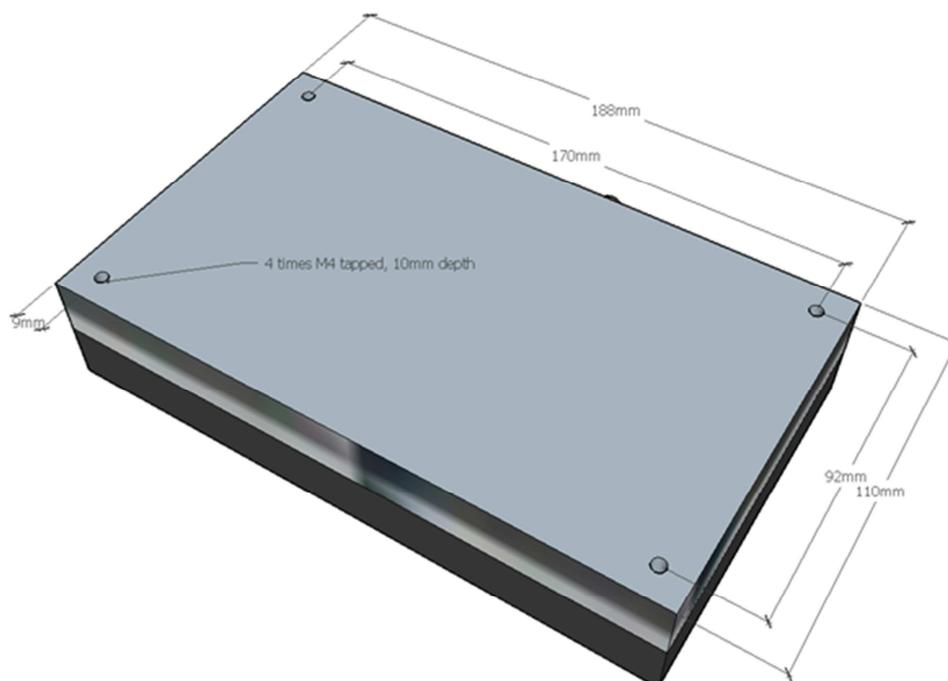
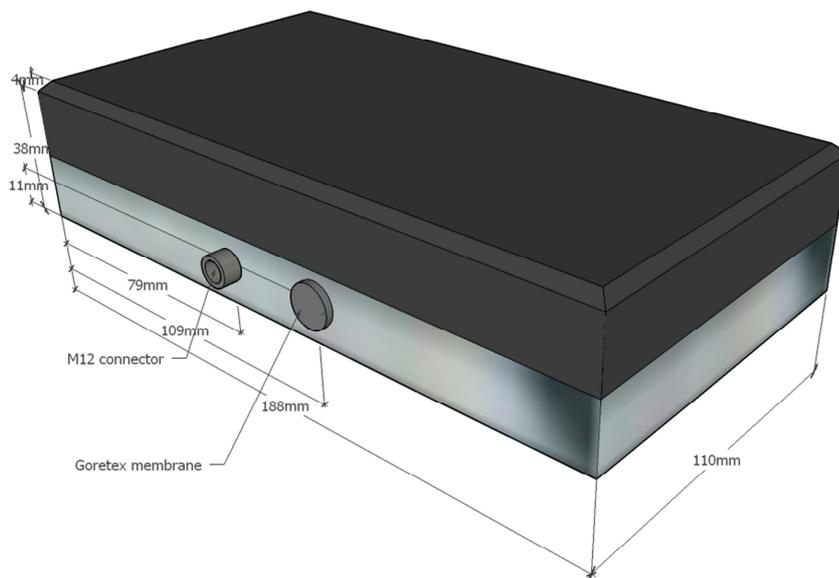
- X: along driving direction
- Y: width of the road
- i : installation angle. This is the angle between the middle of the radar beam towards the driving direction.

The installation angle is 25°.



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Drawing and dimensions of the housing in mm



Kwaliteit
ISO 9001

WWW.RADARXENSE.COM

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