

FCC ID : 2ADTG-TWARAD
IC : 12594A-TWARAD

TWA-RAD

(RADAR)



2019.07

Inzinious, Inc.

1. Device Overview

- 1) 24GHz-based K-band radar.
- 2) Integrated antenna and MCU. Small size and low cost.
- 3) Low power operation.
- 4) Provide GPIO interface.
- 5) Object movement recognition.

2. Basic Specifications

- 1) Power supply : DC 5V
- 2) Current consumption : 80mA
- 3) Operating temperature : -30 ~ 75 °C
- 4) Output power (EIRP) : 15 dBm
- 5) Antenna gain : 9.23 dBi
- 6) Detection distance : 5m
- 7) IF output : single-ended
- 8) Output frequency : 24.14 GHz
- 9) Interface : 1Port GPIO Output
- 10) Modulation method : FMCW

Date : 2019.07.02	TWA-RAD	document number: INZ-190702-001
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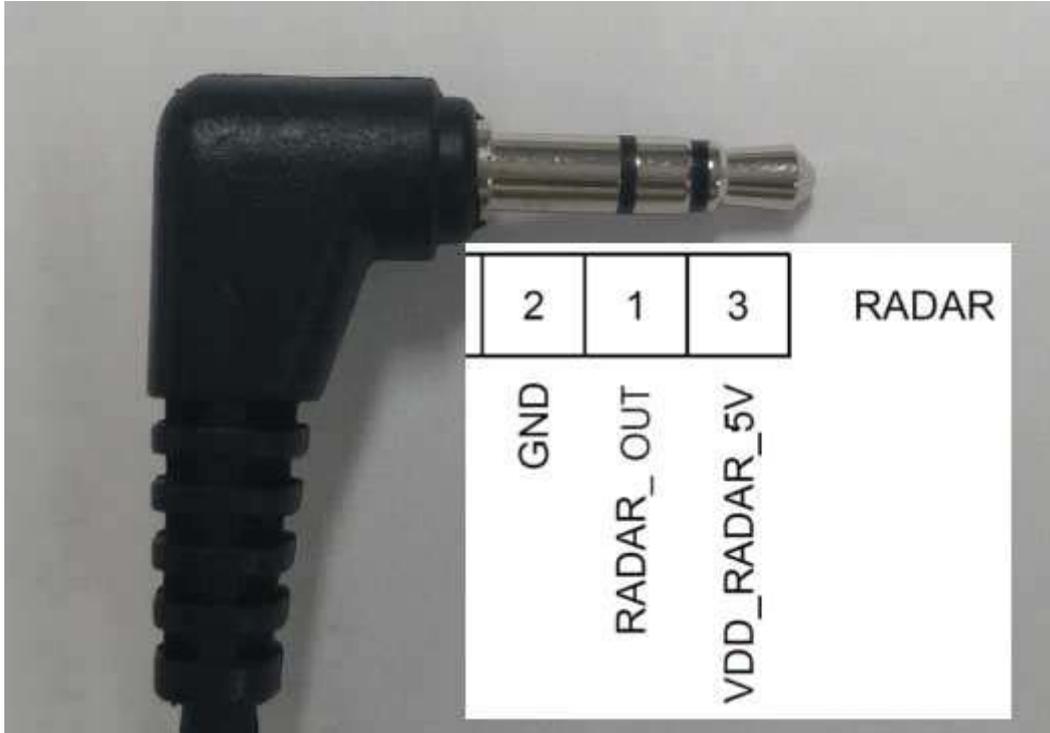
3. Product Size

- 1) Width : 50mm
- 2) Height : 42mm
- 3) Diameter size : 42mm
- 4) Cable length : 4,500mm

4. Specification

	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
Microwave	Frequency			24.14		GHz
	Output Power (EIRP)			15		dBm
	Beam Width (NPBW)	Horizontal	65	80	110	deg
		Vertical	25	35	45	deg
Detection	Sensing Coverage	Horizontal	±30	±40	±55	deg
	Sensing Range	Front (Car)		5	10	m
Operating	Supply Voltage		4.8	5	5.3	V
	Current Consumption			75	80	mA
	Operating Temp.		-30		75	°C
Antenna	Number		1TX, 1RX			
Size	Board Dimensions (max.)		30 X 30			mm
Output	Data out		GPIO 1 port			
	Current				25	mA
	V _{OH}		2.9		3.3	V

5. Pin Description



PIN	Name	Description
1	RADAR_OUT	High signal output when an object is detected.
2	GND	Ground
3	VDD_RADAR_5V	Main supply voltage. (Only one of VCC_5V and VCC_3.3V should be selected and used.)

6. Installation Method of the Device

- 1) The radar module is installed in the center of the top of the car glass.
- 2) Clean the glass of the car to which the module is attached.
- 3) Remove the adhesive tape protective film of the module.
- 4) Level the module and attach it to the mounting position.
- 5) Connect the module's cable to the dashcam's radar module connection port.
- 6) Turn on the dashcam and check if the module is working properly.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The antenna(s) must be installed such that a minimum separation distance of at least 20 cm is maintained between the radiator (antenna) and all persons at all times.

IC Warning

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions : (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure

The antenna (or antennas) must be installed so as to maintain at all times a distance minimum of at least 20 cm between the radiation source (antenna) and any individual. This device may not be installed or used in conjunction with any other antenna or transmitter.

l'exposition aux RF

L'antenne (ou les antennes) doit être installée de façon à maintenir tout instant une distance minimum de au moins 20 cm entre la source de radiation (l'antenne) et toute personne physique.