

# TWA-RAD S

(RADAR)

MANUAL

2020.11

Atelsystech, 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) Approaching object movement recognition

## 2. Basic Specifications

- 1) Power supply : DC +5V
- 2) Current consumption : 100mA
- 3) Operation temperature : -30 ~ +75℃
- 4) Modulation method : CW
- 5) Antenna gain : 12.6 dBi (MAX)
- 6) Detection distance : 10m (MAX)
- 7) IF output : single-ended
- 8) Output frequency : 24.05 ~ 24.25 GHz
- 9) Interface : 1Port GPIO Output

## 3. Product Size

- 1) Width : 50mm
- 2) High : 42mm
- 3) Diameter size : 42mm
- 4) Cable length : 450mm

## 4. Electrical Characteristics

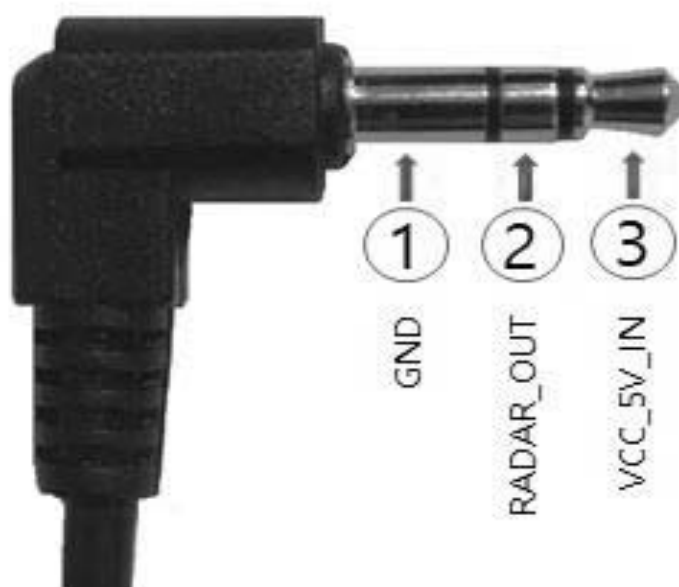
### 1) General Specification

ITEM	Parameter		Specification			Unit
			Min	Typ	Max	
Microwave	Frequency		24.09	24.15	24.23	GHz
	BLANK		-	-	-	-
Detection	Beam Width @3dB	Horizontal	60	70	80	deg
		Vertical	20	30	40	
	Sensing Range @ Front (car)			5	10	m
Antenna	Number		1Tx ,1Rx			1X4
Size	PCB Dimensions		30 X 30			mm
Output	DATA OUT		GPIO 1 Port			3.3V

### 2) Operating Conditions

Parameter	Parameter	Min	Typ	Max	Unit
VCC	Input Power		5		V
PWR_3V3	Main Power Voltage		3.3		V
Operating	Operating Temperature	-30		75	°C
	Operating Current			100	mA

## 5. Pin Description

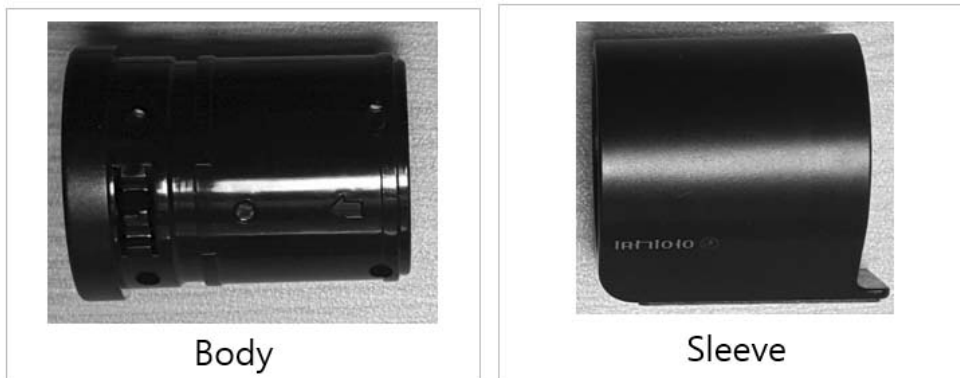


PIN	Name	Description
1	GND	Ground
2	RADAR_OUT	High signal output when an approaching object detected
3	VCC 5V_IN	Main supply voltage.

## 6. Installation Method of the Device

- 1) The radar module is installed in the center of 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

### Component



### Install Guide



## 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.

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 contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exempts de licence qui sont conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes:(1) Cet appareil ne doit pas provoquer d'interférences.(2) Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent provoquer un fonctionnement indésirable de l'appareil

The antenna must be installed so as to maintain at all times a distance minimum of at least 20 cm between the radiation source and your body.

L'antenne doit être installée de façon à maintenir en tout temps une distance minimale de 20 cm entre la source de rayonnement et votre corps.