STA79-6-A Door opening obstacle avoidance radar

PRODUCT MANUAL

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Revision record

Date	Version	Description	Author
2023-4-26	V1.0	Initial version	Yu Xuze

1. Product Introduction

STA79-6 Door Open Obstacle Avoidance Radar is an automotive radar product with ultra-high precision based on 79GHz millimeter wave technology independently developed by WHST Co., Ltd. The operating frequency of the radar is 77GHz-81GHz, and the frequency sweep bandwidth is as high as 4GHz. In addition to accurately detecting the horizontal distance and vertical distance and speed information of the target, it can also detect the height of the target to realize the real four-dimensional information detection of the target.

The STA79-6 door-opening obstacle avoidance radar is installed on the lower edge of the door to achieve high-precision detection of obstacles in the range of 150° in the horizontal and 150° in the pitch. The detection accuracy is as high as 5cm, which is suitable for vehicle door opening and obstacle avoidance and automatic door control. It can also cooperate with the automatic parking system to accurately perceive the surrounding environment.

Figure 1 STA79-6-A Radar product physical map

2. Product description

2.1 Technical index

See Table 1 for the technical indicators of STA79-6-A type vehicle radar products.

Table 1. STA79-6-A radar product technical indicators

Product Features	Door opening obstacle avoidance radar
Frequency Range	77GHz~81GHz
Modulation waveform	FMCW
Effective bandwidth	4GHz
Data rate	20Hz
Detection Range	0.15m～4m
Velocity Range	-13.7m/s～+13.7m/s
Dimensions	107.5mm*32mm*13.6mm
Weight	≤80g
Operating Voltage	9~16V DC
Working Temperature	-40℃~+85℃
Azimuth Angle Range	-75° ～+75°
Elevation Angle Range	-75° ～+75°
Ranging accuracy	±0.05m
Speed accuracy	±0.235m/s
Angle accuracy	±0.5°@0°
Working current(typical value)	≤200mA@12V
Power consumption	≤2.5W
Protection level	IP6K7
Communication port	CAN

Installation height	0.2m~0.5m
RF output power	33.67 dBm
Antenna gain	6 dBi

3. Interface description

Radar equipment terminal connector and wiring harness terminal connector are shown in Figure 2, and the wiring definition is shown in Table 2

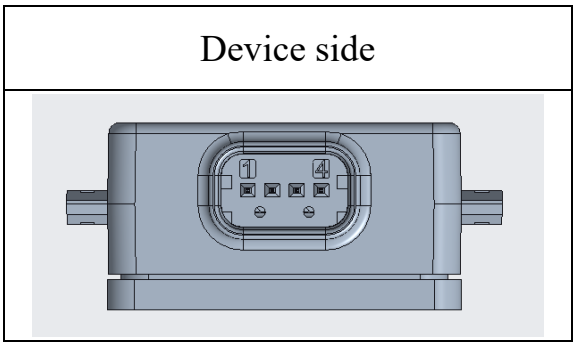

Figure 2 Schematic diagram of wiring

Table 2 Definition of external plug-in pins

NO	Pin definition	Signal function	Note
1	VPOWER	Power input	
2	GND	Ground	
3	DCANH	Public CANH	
4	DCANH	Public CANL	

4. Radar installation method and size

As shown in the radar size diagram in Figure 7, the product size is 106×97.8×27.3mm, and it is directly installed on the car body using reserved three-leg holes to ensure the installation strength. It is recommended to use 3 M5*16 combination screws to fix the radar to the car body mounting hole.

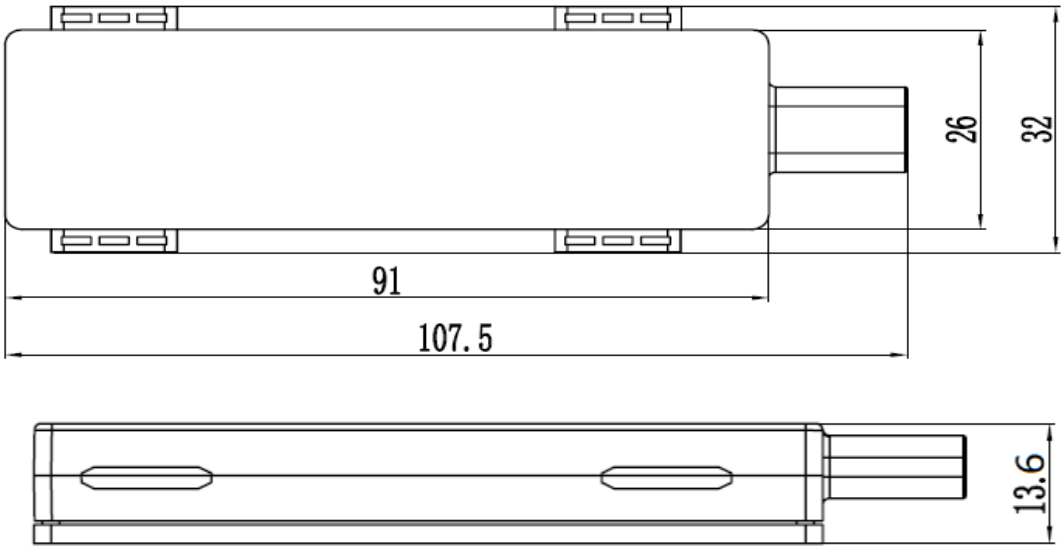

Figure 7 Radar size diagram

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.

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

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 or more 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 Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be co‐located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.