



Medium Range Collision Avoidance Radar

CAR-A60-1

Application Manual



Microbrain Intelligent Technology Co., Ltd.

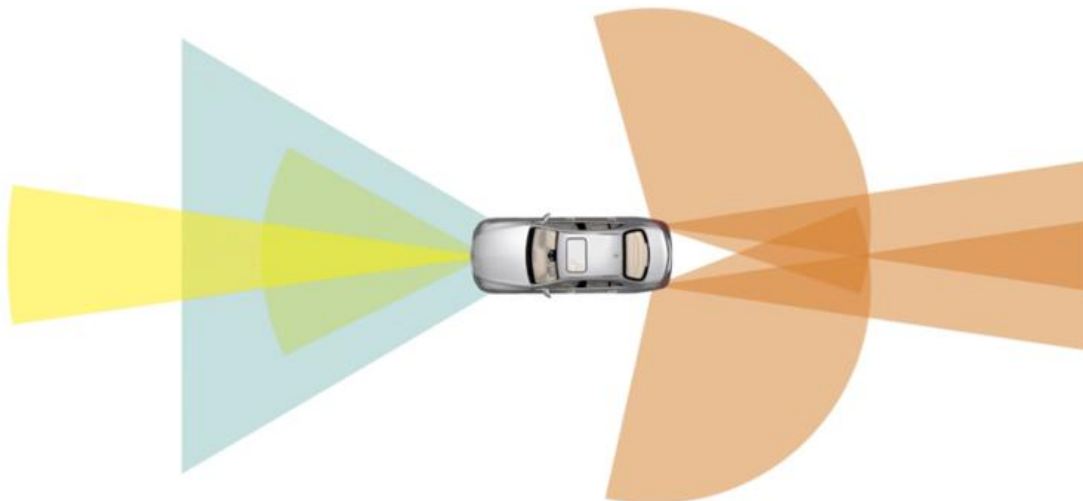
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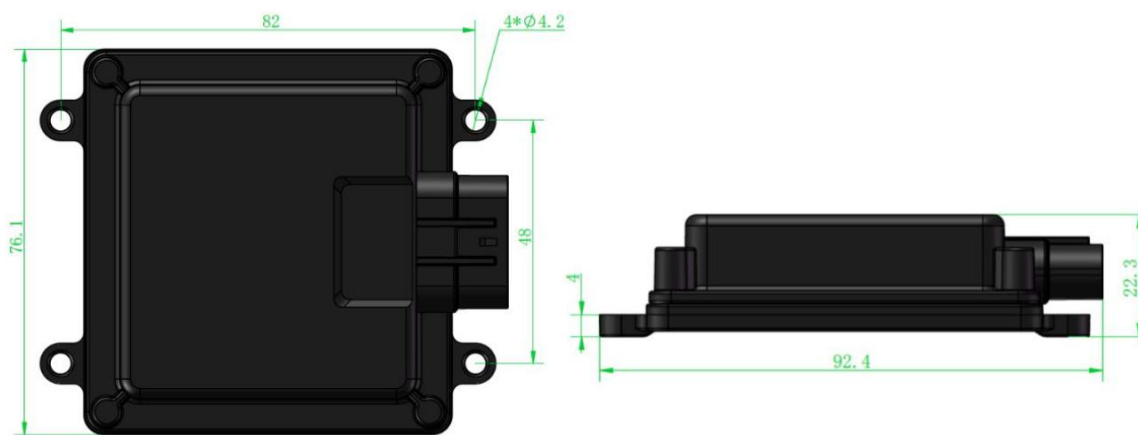
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1-Brief Introduction

CAR-A60-1 77GHz millimeter wave collision avoidance radar is developed for the detection of obstacles in front and forward collision warning when driving at medium/low speed. Compared with infrared, laser and ultrasonic radars, millimeter wave radar is less affected by weather changes and has good anti-jamming performance and range detection ability.

The dimensions are 82 * 76.1 * 22.3mm, detection distance 40m, integrated CAN interface



2-Precautions for product use

- please keep the radome clean during installation. Clean the radome with a soft wet cloth, and then dry it naturally.
- please pay attention to the shape of the radar during installation to ensure that the radar is not deformed, and do not squeeze, bump or fall.
- during installation, try to stay away from high-power electrical equipment and motors with strong magnetic field Interference.
- during the test, there shall be no obstructions within the radar beam range, and the test environment shall be as wide as possible to avoid affecting the measurement results.
- during installation, ensure that the radar is brand new, and do not disassemble it by yourself.

If you encounter problems that cannot be solved during installation and use, please contact the manufacturer for assistance.

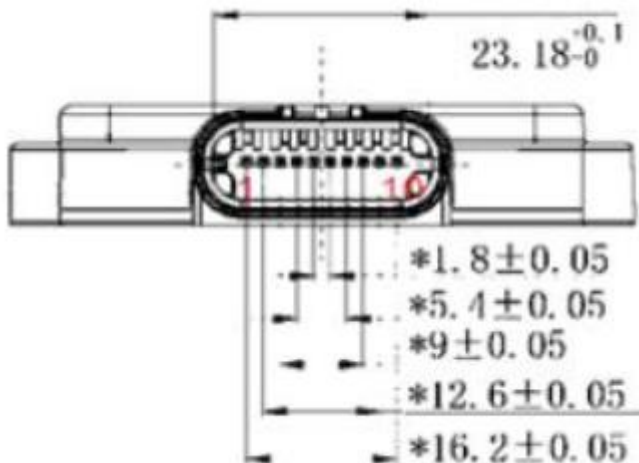
3-Specifications and parameters

Items	Parameter	Technical Specification
System Properties	Working Voltage	12V/24V
	Power supply range	8~26V
	Operating Temperature	-40℃~85℃
	Power	< 2.5W
	Waterproof grade	IP67
	Frequency Band	77-78GHz
	Interface	CAN/500kbps
	Refresh rate	33Hz
	Shell size	82*76.1*22.3mm
	Product weight	About 109.5g
Antenna performance	Number of transceiver channels	2TX 4RX
	Elevation(-6dB)	0~8°
	Azimuth(-6dB)	- 60° ~ + 60°
	Range resolution	0.2m
	Velocity resolution	1.9km/h
	Speed measuring range	±60km/h
	Detection distance	40m

4-Quick use guide

4.1 definition of wire harness

Use 10PIN connector, outline structure is shown as below

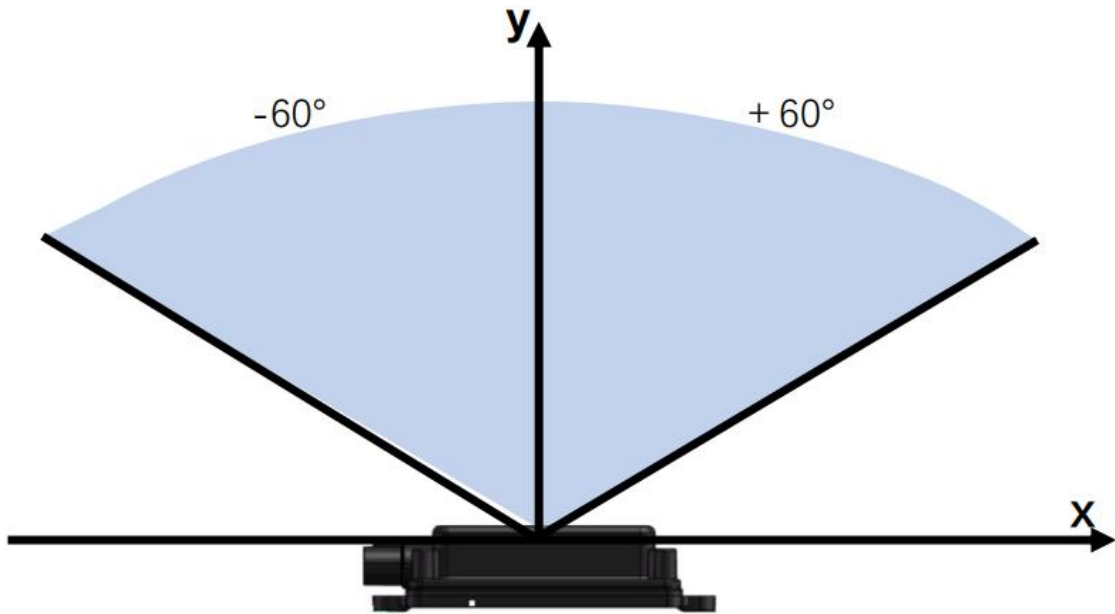
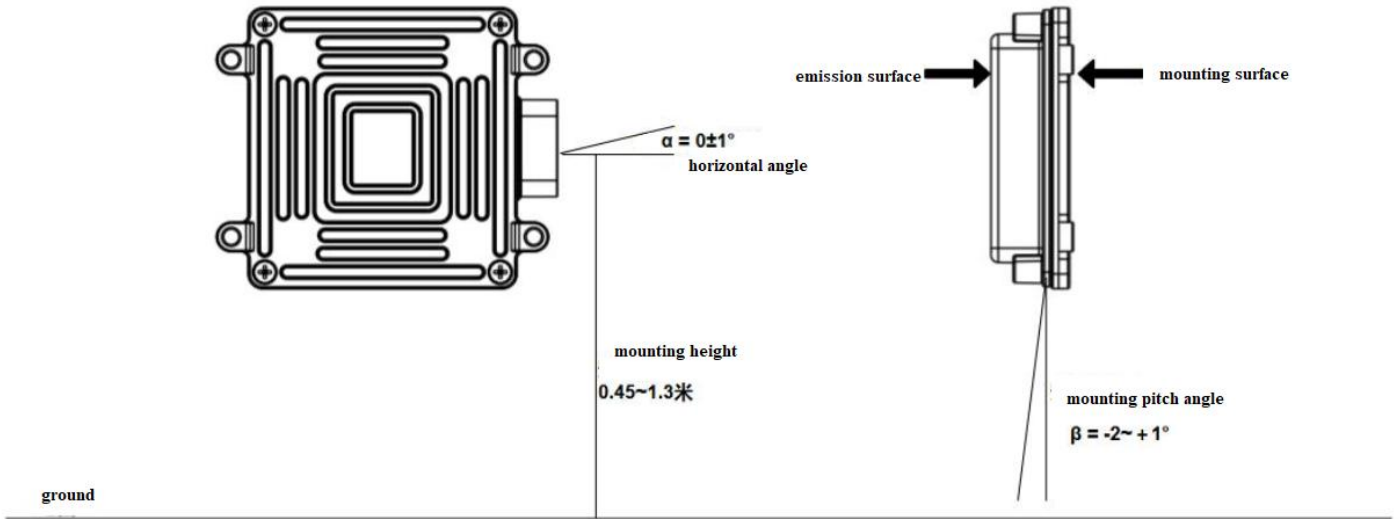


Sr No.	Cable ID	Cable color	Description
1	VCC	red	Power positive
5	GND	black	Power negative
6	CAN_H	yellow	CAN_H
7	CAN_L	white	CAN_L

4.2 installation and coordinate system

- 1) Installation direction: the radar antenna faces the detection area and is installed vertically; the connector comes out to the right, The installation diagram is as below:
- 2) Installation height: it is recommended to be 0.45-1.3m from the ground; If the mounting pitch angle is $-2^{\circ} \sim +1^{\circ}$

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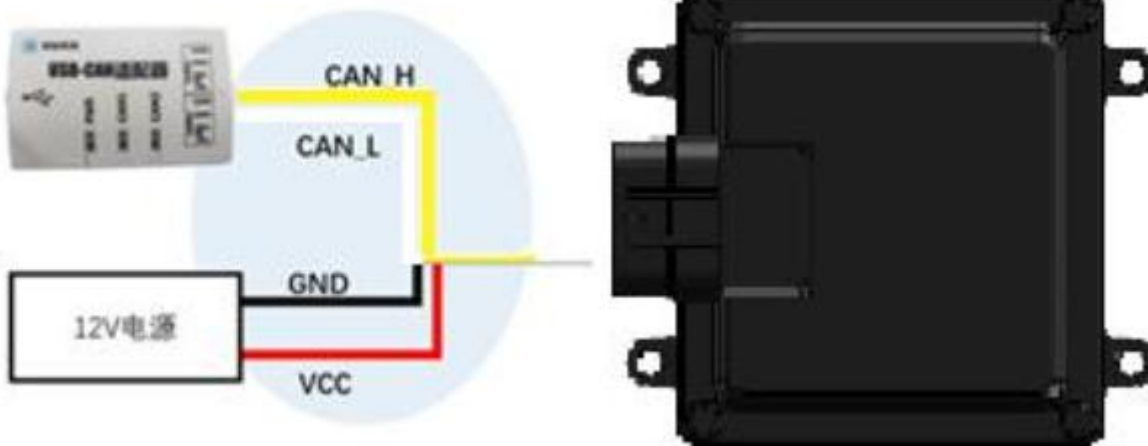
4.3 test operation steps

The following devices need to be prepared during the test:

Sr No.	Device name	Q'ty
1	CAR-A60-1 radar	1
2	CAR-A60-1 radar wire harness	1
2	Laptop	1
3	USB CAN box(adaptor)	1
4	power terminal (DC female head)	1
5	12V power adapter	1
6	test software	1

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1. Prepare the USB CAN box (support USBCAN (CANalyst-II)), and install the driver on the Laptop at the same time.
2. Connect the radar harness end blue wire (CAN_H) and yellow wire (CAN_L) to the corresponding terminal on the USB CAN box, also connect the radar harness end red wire (power positive) and black wire (power negative) to the DC female head (power supply end).
3. After the 12VDC power supply is connected, the green light (power) of the USB CAN box will be on continuously.



As shown in the figure below, the CAN box communicates with the radar. The delivery packing list does not include the CAN box. If necessary, customers can purchase by themselves or from the radar manufacturer,.



4. Connect the USB interface of the USB CAN box(adaptor) to the laptop and open the test software.

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Area ① is the radar coordinate map, showing the radar detection results; Area ② is the camera display for comparison and recording test; Area ③ is the radar setting function interface. Click "connect equipment" button to connect the radar.

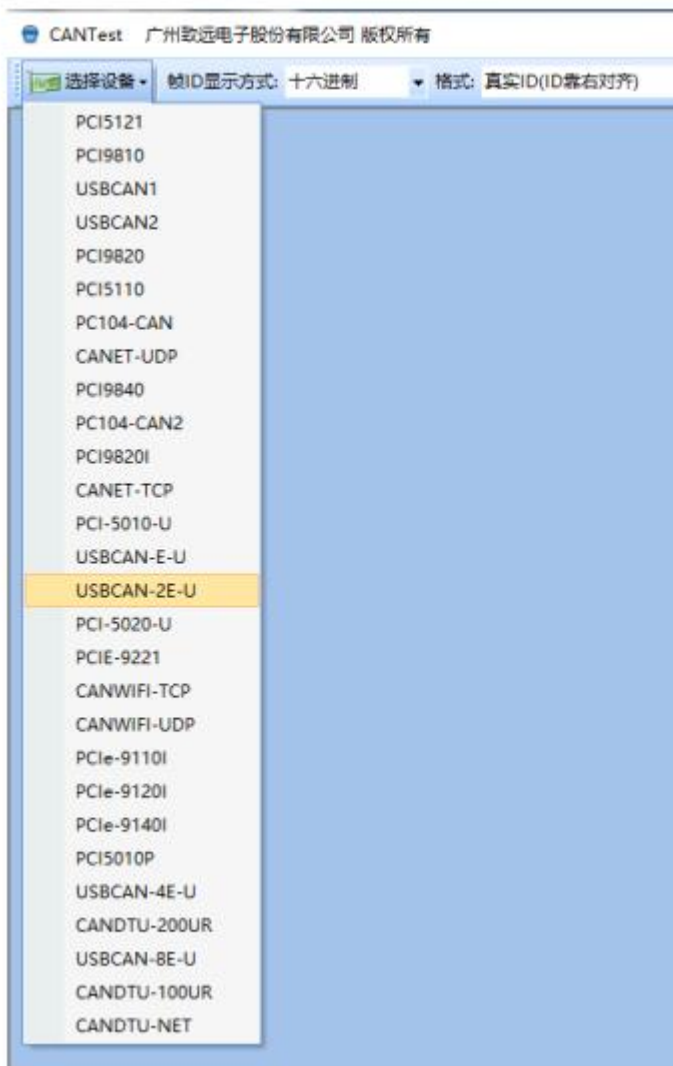
If there is no data output, the CAN box test can be carried out first,

1. Open CANTest software



2. Select "select device - USBCAN-2E-U " in the upper left corner of the software

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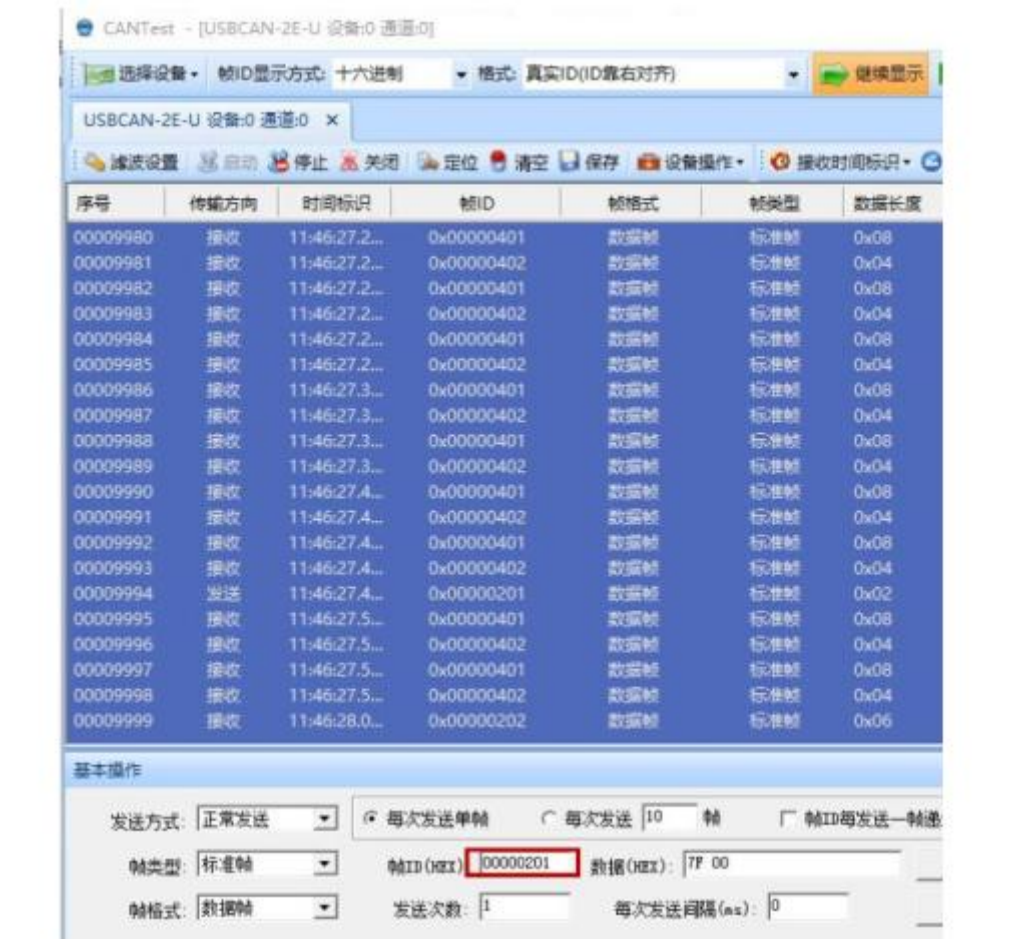


2. Select 500K baud rate, click "OK and start CAN"



3. the following interface indicates data output.

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5- Frequently asked questions (FAQs)

Q1: during the test, click the open test and there is no response

- A: 1. Whether the USB CAN box(adaptor) is suitable.
2. Whether the power supply is connected correctly (12V).
3. Whether CAN box drive is installed

Q2: poor test results?

A: Please check the quick use guide carefully, pay attention to the installation height and direction of the radar, and keep the radar perpendicular to the ground. In case of detection distance short, please check whether the radar is installed vertically.

Q3: poor indoor detection effect?

A: There is multipath effect indoors. It is recommended to evaluate it outdoors. If test Indoors, the radar can be tested against strong reflectors such as the ceiling.