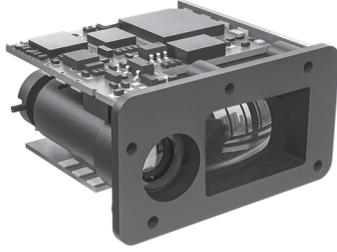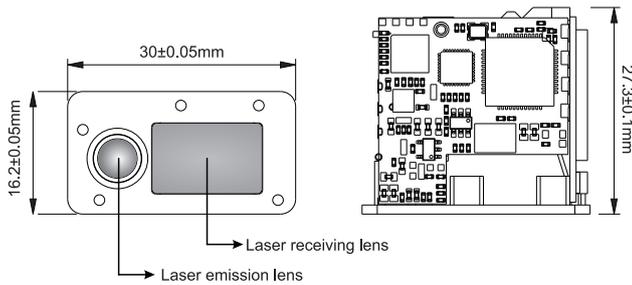# Ranging Module J5AF0

1. Product Description

This ranging sensor module can quickly and accurately provide measurement data to the main control system, using a 905 nm semiconductor laser, It has a TTL interface for communication (can directly communicate with MCU), and can also communicate through a 485 serial port through an adapter (requires a data adapter line); At the same time, it provides host computer testing software and communication protocol instructions to facilitate customer secondary development and build their own ranging system platform; It is a distance sensor with high integration, low power consumption, and light weight.
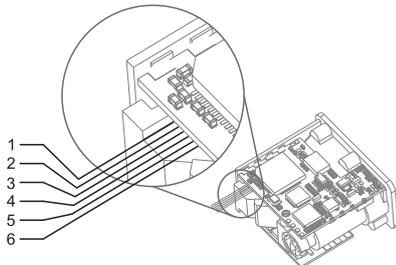
2. Basic parameters

Measurement Range	5 ~ 300m;
Ranging Accuracy	±1m@D<100m; ±1%*D (100m < D < 300m)
Laser Divergence Angle	6~7mrad
Measurement Frequency	≧1hz
Laser Type	905nm
Transmitting Aperture	5.2mm
Receiving Aperture	92x14.5mm
Data Interface	UART TTL
Supply Voltage	DC 3.3~5V
Baud Rate	115200 is the default baud rate; Seven baud rates to choose from
Power Consumption	Standby power consumption < 0.3W Short range (blind spot) power consumption < 0.4W Long distance (air to air) power consumption <0. 8W
Product Weight	≈10g
Product Size	30X27.3X16.2mm
Working Temperature	-20 ~ +60 ℃
Storage Temperature	-40 ~ +70 ℃

3. Dimensions And Assembly

30±0.05mm
16.2±0.05mm
27.3±0.1mm

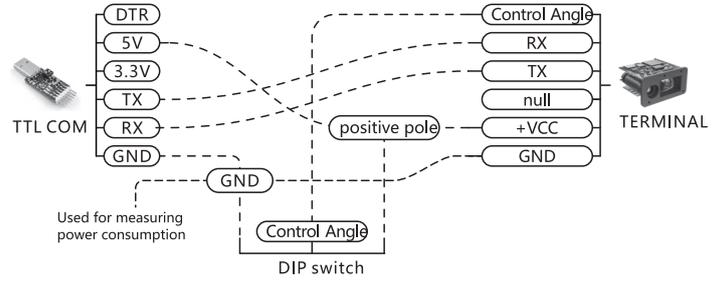Laser receiving lens
Laser emission lens

4. Structure And Pins

1.GND
2.VCC(3.3~5V)
3.NC
4.TX
5.RX
6.Power-EN

5. Operating Steps

Step 1: According to the pin definition of the ranging module, connect the USB/TTL adapter to the ranging module.
*Attention: Do not reverse the power pins and strictly control the power supply voltage within the range of 3.3~5 V, as shown in the figure:

TTL COM
DTR / 5V / 3.3V / TX / RX / GND

Control Angle / RX / TX / null / +VCC / GND

positive pole

TERMINAL

GND

Used for measuring power consumption

Control Angle

DIP switch

Step 2: Install serial port wizard software on computers or other control devices;

Step 3: Connect the ranging module to the computer (or other control equipment) through an adapter, open the serial port wizard software, and perform measurement operations; As shown in the figure:
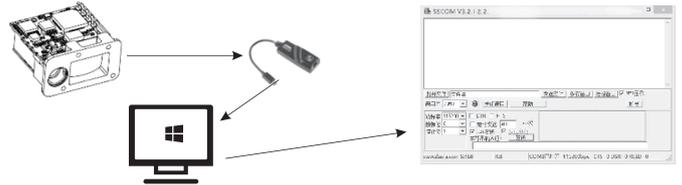
Step 4: Debugging and Testing

1. According to the serial port number of the computer, set the corresponding serial port number to the computer in the software
2. Baud rate setting: Open the software interface and you can set the baud rate (default baud rate is 115200).Settable baud rates: 9600, 14400, 19200, 38400, 57600bps, 115200, 230400bps. 7 baud rates to choose from
3. Please scan the following QR code to obtain a detailed distance measurement agreement

Scan QR code
Obtain detailed communication protocols

6. Matters Needing Attention

- During transportation, pay attention to shock absorption and avoid stacking.
- Do not place it near extreme environments or heat sources to avoid uncontrollable effects on the module.
- When the temperature changes sharply, there will be condensation mist on the lens surface of the module. Do not use the module at this time.
  If the lens is dirty, gently wipe it clean with a lens wiping cloth; Do not use other objects to wipe to avoid damage to the film layer on the lens surface.

Influencing Factors: Range, Speed, Accuracy Of Ranging Function

Target reflectance: Generally, the higher the reflectivity of the target, the better the ranging ability, and the faster the ranging response speed.
For example, for targets with medium reflectivity, it can measure 300 meters, for targets with high reflectivity, it can measure no less than 350 meters, and for targets with low reflectivity, it may only measure 250 meters. (Targets that are difficult to form diffuse reflection, such as water surfaces, may not be able to measure)
Target shape: When the reflective surface area of the measured target is too small or uneven, The ranging ability and ranging response speed will decrease accordingly;
Measurement environments: Factors that affect the range finding ability and range finding response speed also include sunlight intensity, concentrations of water vapor and suspended particulate matter in the air, and the angle of deviation from sunlight exposure.