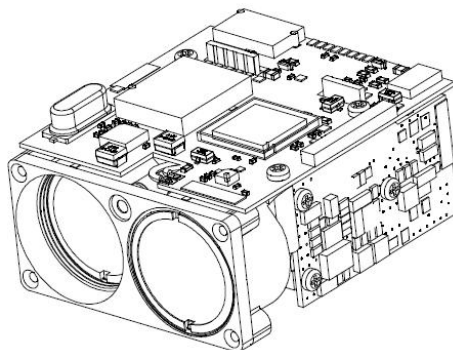


## High frequency 30Hz Laser Rangefinder Module

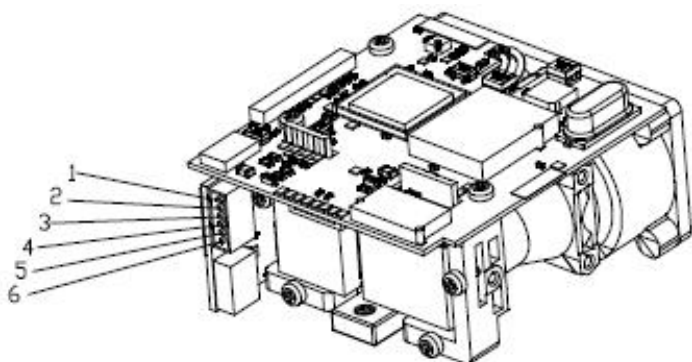


This ranging module can quickly and accurately provide distance measurement for the main control system. The module uses a 905nm semiconductor laser with a ranging resolution of 0.1m and an accuracy of 1m. It features a TTL interface (direct communication with MCU) and can also communicate via a 485 serial port with a data converter (requires a data transfer cable). Additionally, it provides an upper computer test software and instruction set communication protocol for easy secondary development and construction of a customer's own ranging platform system. It is a ranging sensor with high integration, low power consumption, and light weight.

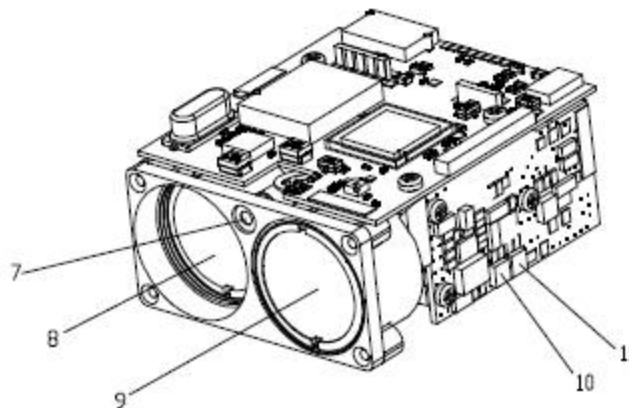
### Module parameters

Model	JIO-A90
Range range	10-270m
Ranging accuracy	±5cm@5m, ±5cm@20m以上
Distance measurement frequency	30Hz
Resolution ratio	±0.1m
Laser wave length	905nm (eye-safe, Class 1 safe laser)
Laser divergence Angle	3mard
Working temperature	-20°C~+60°C
Product weight	36.5g
Product size	49.5*42*26mm
Communication mode	TTL or 485 (optional)
Service voltage	3-5V
Baud rate	38400/19200/14400/9600bps (optional, default is 9600)
Interface connector specification	SH1.0 terminal 6Pin connector SMT mount or row pin available

### Interface connector specification



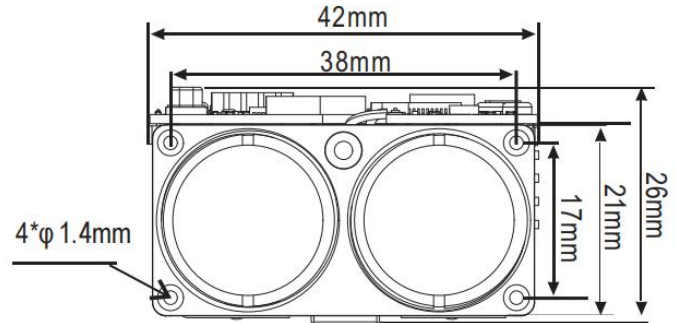
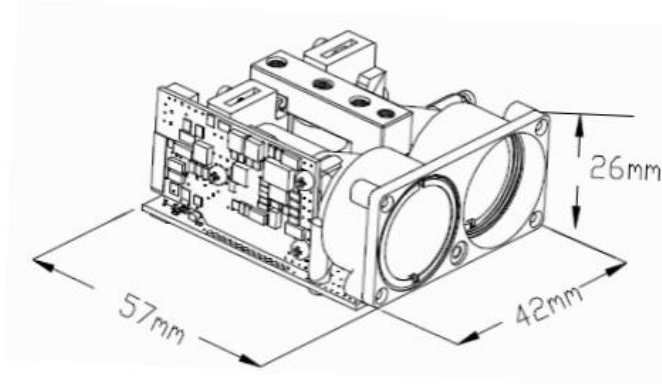
Terminal interface definition:



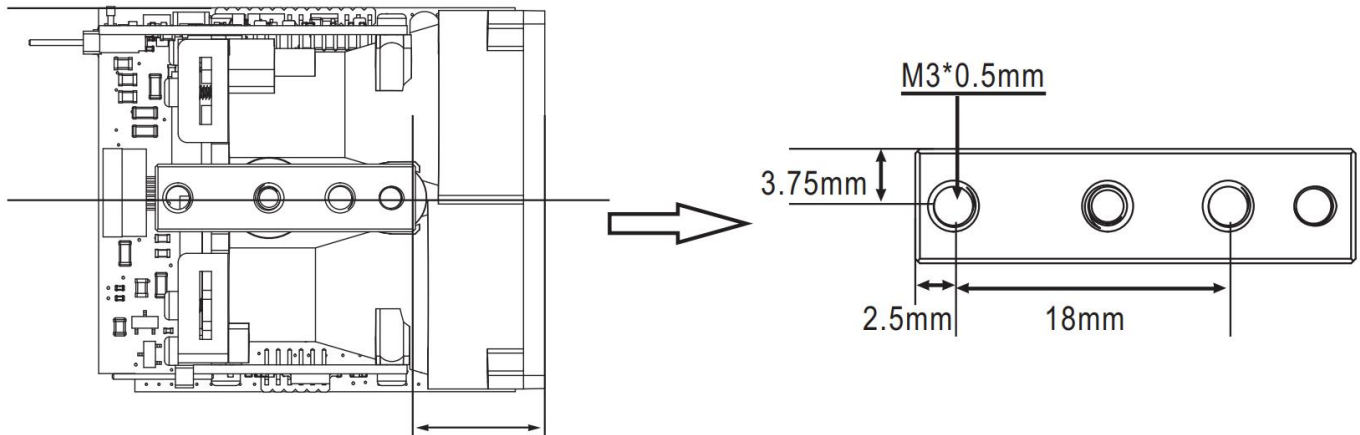
Pin interface definition:

1	SW(NC)	7	Indicating laser hole	13	TX
2	B (485) Communication	8	Laser reception	14	RX
3	A (485) Communication	9	Laser emission	15	USB(+5V)
4	NC	10	Positive battery terminal		
5	VCC(3-5V)	11	Negative battery terminal		
6	GND	12	GND(Ground connection)		

## Product size



Location and dimensions of front nut holes



Nut hole positioning and specification

## Operation procedure

- Step 1: Connect the ranging module with data cable to supply power to the module and output measurement data; (Note: no plug and strictly control the supply voltage range at 5V); or supply power via CR2 (3V) battery;
- Step 2: Install the serial port elf software and connect to a computer or other control device via the connection port.
- Step 3: After the software is installed, open the display interface.

## Commissioning and testing

Select COM port: Set the corresponding COM port in the software based on the computer's COM port.

Baud rate setting: Open the software interface to set the baud rate, with options of 38400/1920/14400/9600bps (default is 9600).

## Matters need attention

### Factors affecting ranging ability and ranging response speed include:

**Target reflectivity:** Generally, the higher the target reflectivity, the better the ranging capability and the faster the ranging response speed. For example, for targets with medium reflectivity, they can be measured up to 600 meters, while targets with high reflectivity can be measured at least 800 meters. For targets with low reflectivity, they may only be measurable up to 300 meters. (For targets that are difficult to form diffuse reflection, such as water surfaces, measurement may not be possible.)

**Target Shape:** When the reflective surface of the measurement target is too small or uneven, the ranging ability and ranging response speed will be correspondingly reduced.

**Measurement Angle:** The better the ranging capability and the faster the ranging response speed when the laser angle is perpendicularly incident on the measurement target reflection surface. Conversely, the ranging capability and ranging response speed will decrease. The ranging capability and ranging response speed cannot be guaranteed to meet the specifications in this manual under extreme measurement angles.

**Measurement environment:** Factors affecting ranging ability and response speed include solar intensity, air humidity and concentration of suspended particles, and the angle of deviation from sunlight exposure (such as reducing ranging distance in rainy, foggy, snowy, and hazy weather conditions).

## Easy to measure target

This product can measure highly reflective targets (such as highway signs), medium reflective targets (such as building walls), and low reflective targets (such as trees, golf flags, animals, etc.). As the reflectivity decreases to a certain extent, the measuring range will correspondingly decrease.



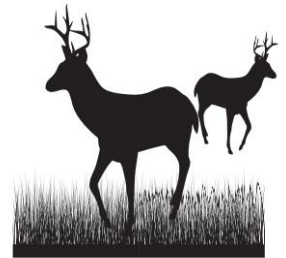
Highway sign



Building wall



Trees



Animal

### The module range is defined under the following conditions:

- 1) The measurement target has a medium reflectance: such as building facades.
- 2) Measure the target reflective surface perpendicular to the laser emission direction.

### Note:

It is recommended that you use a tripod to fix the module when measuring distant targets, so as to reduce the jitter of the module during the measurement process, so as to obtain better measurement results.