Single point lidar B10X

100Hz measurement speed; 10 meters measurement distance; outdoor resistance to environmental light 100KLux; with excellent cost performance

Characteristic

Time-of-flight based algorithm (Direct Time Of Flight)

Measure distance: 10 meters

Measurement blind area: 3 cm

Measure speed: 100Hz

Measurement accuracy: 1%

Resolution: 1mm

Working temperature: -30~+65℃

Voltage: DC 3.3±9%V

Small size: 12x 9 x 8.5 mm

Weight: 1 gram

Anti-environment light: 100K Lux

Apply

Drone altitude setting and obstacle avoidance

Robot obstacle avoidance

Industrial grade light curtain

AGV Obstacle avoidance

High speed measurement and safety monitoring in the fields of transportation and industrial automation

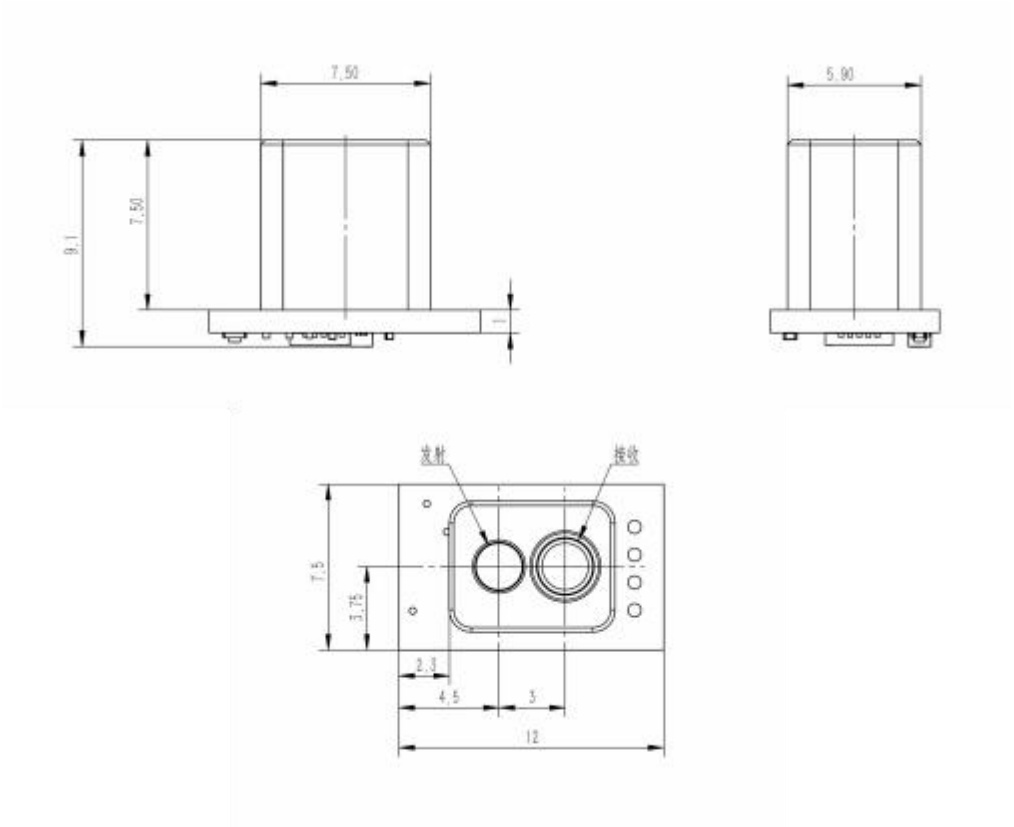
1. Product overview

STAB10X Lidar is a new laser ranging solution launched by our company for drones, sweeping robots, industrial robots and other fields Case. This product is based on the DTOF ranging principle, featuring a small size, low cost, excellent performance, and strong resistance to environmental light interference, making it an upgrade alternative for relevant fields. The product transmits distance information via a UART TTL communication interface, with simple usage, flexible installation, and easy expansion. This model adopts a new optoelectronic solution, offering great cost-effectiveness.

2. Specifications and parameters

Serial Number	Model	STA-B10X
1	Range	0.03-6m(10% Reflectivity),0.03-10m(90% Reflectivity)
2	Range frequency	100Hz
3	Range accuracy	1%
4	Repeatability precision	±10mm
5	Environmental light resistance	100K Lux
6	Measure the laser wavelength	905nm
7	Measure laser levels	Class1
8	Measure the laser field Angle	N/A
9	Indicate the laser wavelength	N/A
10	Indicate laser level	N/A
11	Input voltage	DC 3.3±9%V
12	Peak point current	N/A
13	Average current	N/A
14	Average power consumption	< 0.4W
15	Communication mode	TTL
16	levels of protection	N/A
17	Size (length x width x height)	12 x 9 x 8.5 mm
18	Weight	1g
19	Working temperature	-30℃~+65℃
20	Cable specifications	4pin 1.25mm terminal, 10cm tin coated loose wire
21	Customization scope	Supports customization of external structure, input voltage and output protocol

3. Product size



4. Pin definition

Pin	Define/ wire color	Customer interface
1	TX(red)	RX
2	RX(black)	TX
3	GND(yellow)	The external power supply is negative
4	5V (green)	The external power supply is positive

5. Communication protocol

5.1 Communication interface

UART	
Default rate	460800 (adjustable)
Data bit	8
Stop bit	1
Even-odd check	Not have

5.2 Output format

The SP series ranging module actively outputs data (4 bytes per frame) after power on, and outputs 65535 when unable to measure

Example: 5C 02 11 EC

5C: Fixed frame header 1 byte

02 11: Two bytes represent measurement distance of 4354mm, small end mode, range of 0-65535mm

EC： Starting from 02 and ending at 11, perform sum check and reverse, one byte

6. Verification function: (from the second byte to the last second byte, sum and inverse)

```
uint8_t Check_Sum(uint8_ t *_ pbuff, uint16_t_cmdLen)
{
uint8_t cmd_sum=0;
uint16_t i;
for(i=0;i<_cmdLen;i++)
  {
    cmd_sum += _pbuff[i];
   }
 cmd_sum = (~cmd_sum);
 return cmd_sum;
}
```

7. **Precautions for use**

The product has no reverse connection and overvoltage protection. Please supply power and connect according to the specification

The laser of the product is Class1. Do not look directly at the lens after power on the product

When used in dusty environments, it is recommended to add red glass or acrylic panel (transparency of 905nm band is not less than 85%) outside the lens of the product

When contacting the product, please wear anti-static gloves to avoid product failure

The product is used to measure high reflective objects (such as 3M tape), mirrors, etc.