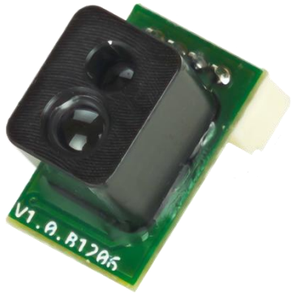
Siman



SDM10 Laser rangefindingModule

SThe DM10 LiDAR is our company’s brand-new laser ranging solution designed for applications in fields such as drones, robotic vacuum cleaners, and industrial robots. Based on the DTOF ranging principle, this product features a compact size, low cost, superior performance, and strong resistance to ambient light interference.and other characteristics, which can serve as an upgraded alternative in the relevant field. This productUses UART transmissionDistance information, simple to use, flexible installation, and easy to expand..For more product information, please visit:www.siman.asia

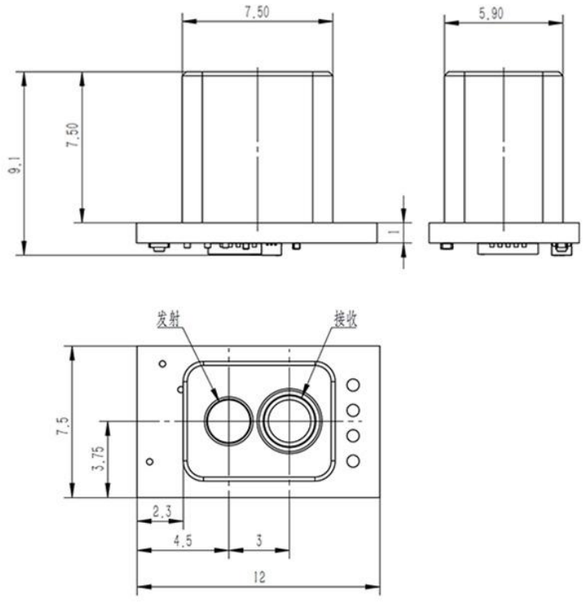
Warning	Please follow the equipment usage guidelines! This product is not a safety sensor and cannot be used for personnel protection.
	➢ Measuring laser (940nm): Class 1 laser product. Safe under normal operating conditions. ➢ This product does not have an explosion-proof design and is prohibited from use in flammable and explosive environments. ➢ The product features reverse-polarity and overvoltage protection. Please ensure proper power supply and wiring according to the specification sheet.. ➢ Be sure to turn off the power before performing any operations. Do not perform wiring operations while the power is still on! 1. Avoid use in dusty/vapor environments or environments with corrosive gases; 2. Avoid inPlaces where corrosive gases are generatedUse; ➢ This product cannot be used in water. ➢ When using outdoors, be sure to add a waterproof cover. ➢ The product may fail when measuring highly reflective objects (such as 3M tape) or mirror surfaces..

Wiring diagram

Pin	Pin Description	User interface
1	TX	RX
2	RX	TX
3	GND	External power negative
4	VCC+5V	External power positive

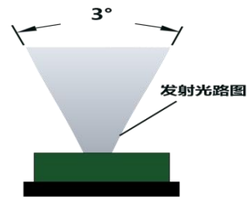
SpecificationsParameter	
Model	**SDM10**
Measurement range	0.05 -9m (90% reflectance), 0.05 - 5m (10% reflectance)
Repeatability	10mm
Accuracy	±5 cm (<5 m), 1% (≥5 m)
Measure frequency	50Hz
Measure the laser light source	940nm,Class 1
Field of View FOV	3°
Anti-environmental light capability	2m@70KLux
Control output	UART TTL
Average power consumption	<0.1W (supports low-power mode)
Operating voltage	4.5-5.5VDC
Peak current	5V@4.5mA
Average current	5V@4mA
Weight	1g
Size	12 x 7.5 x 9.1 mm
Operating temperature	-20~60℃
Electrical connection	41.25mm pin terminal, specification HC-1.25-4A,10cm tin-plated loose wire
Customization scope	Supports customized external structural designs and customized output protocols..

Dimensional drawing



Ranging characteristics

Since the probing light source has a certain divergence angle, in actual measurements, if an accurate distance value is required, the surface area of the object being measured must be larger than the diameter of the light spot at the distance in question. The schematic diagram of the ranging optical path is shown below:



The diameters of the light spots of SDM10 at different distances are shown in the table below:

distance	1m	3m	5m	10m
Spot diameter	6cm	16cm	30cm	55cm

Contact Us

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Scan the code to follow us.

Communication specification: UART TTL		
Baud rate	460800bps (default), can be modified	
Data bit 8	Stop bit 1	Check digit: None

Output format
After power-on, this series of ranging modules actively output data (one frame of data consists of 4 bytes); when no measurement is available, they output 65535.
Example: 5C 02 11 EC
5C: Fixed frame header, 1 byte
02 11Two bytes represent a measured distance of 4354 mm, in little-endian format, with a range of 0 – 65535 mm.
EC: From 02 to 11 inclusive, perform AND and XOR operations on the check value, one byte.

UART instruction

#	Function description	Uplink	Downstream	Note
1	Modify the baud rate	5A 06 02 80 04 73(checksum)	5A 86 02 80 04 F3(checksum)	60 00（9600） C0 00 (19200) 80 01（38400） 80 04（115200） 00 09（230400） 00 0A (256000) 00 12（460800） Other baud rates are not supported.
2	Stop ranging	5A 0A 02 00 00 F3	5A 8A 02 00 00 73	Return 5A 8A 02 00 00 73 Stop ranging
3	Start ranging	5A 0A 02 02 00 F1	5A 8A 02 02 00 71	Return 5A 8A 02 02 00 71 Start ranging

Validation function

（Sum from the second byte to the second-to-last byte, then take the bitwise complement.)

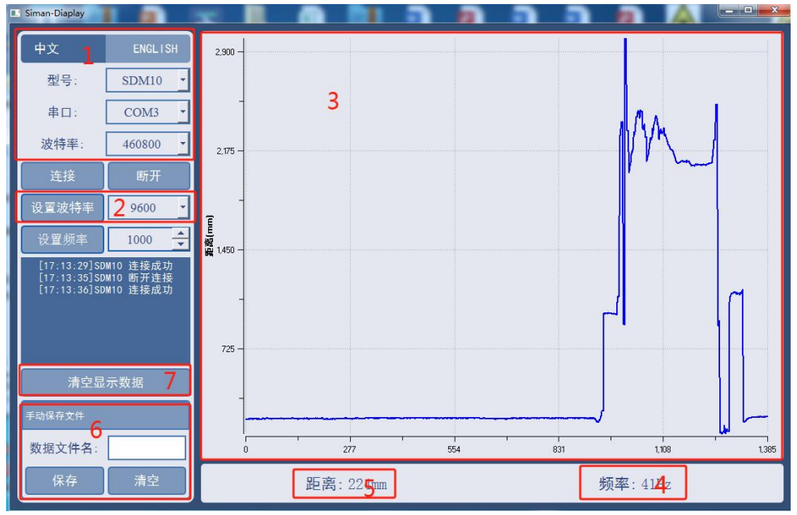
```
uint8_t Check_Sum(uint8_t *_pbuff, uint16_t _cmdLen)
{
uint8_t cmd_sum=0;
uint16_t i;
for(i=0;i<_cmdLen;i++)
{
   cmd_sum += _pbuff[i];
 }
 cmd_sum = (~cmd_sum);
 return    cmd_sum;
}
```

Fast Test:

Test Bill of Materials: TTL-to-USB adapter, 5V power supply, host computer/serial port assistant.

After SDM10 is properly connected, select the baud rate and click OK to view the desired data on the host computer.

The host computer displays the following:



Region 1: Set the corresponding serial port baud rate and other parameters for the model, click Disconnect, then click Connect.

Region 2: Set the baud rate

Region 3: Real-time Distance Line Chart

Region 4: Read real-time frequency

Region 5: Read the real-time distance value

Region 6: Save data to a file

Area 7: Clear all displayed data