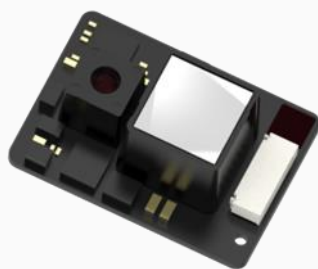


YDLIDAR SDM18 DATA SHEET



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1 PRODUCT OVERVIEW

YDLIDAR SDM18 is a high-performance single-point LiDAR (hereinafter referred to as SDM18) developed by EAI team. Based on the principle of ToF, it is equipped with related optics, electricity, and algorithm design to achieve high-precision laser distance measurement and outputting high frame rate point cloud data of the scanning environment. It can be used for UAV alt-hold, robot obstacle avoidance and navigation, etc.

1.1 Product Features

- High Ranging frequency, high internal sampling rate and filtering algorithm, the data has high stability
- Ranging distance up to 18 meters
- Light weight, about 1.35g
- FDA Class I eye safety standard
- Support UART and IIC interfaces

1.2 Applications

- UAV alt-hold and obstacle avoidance
- Robot obstacle avoidance
- Intelligent equipment obstacle avoidance
- Navigation and obstacle avoidance of home service robots/ robot vacuum cleaners

1.3 Installation and Dimensions

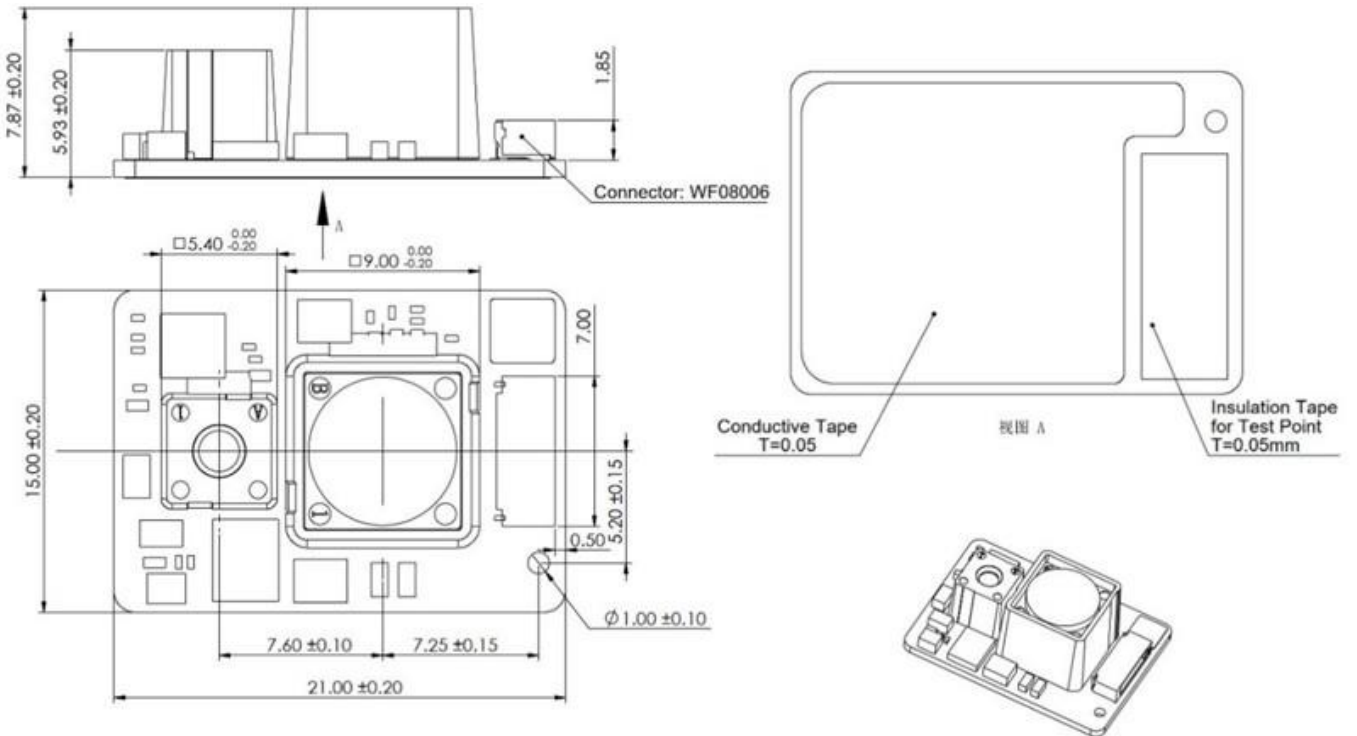


FIG 1 YDLIDAR SDM18 INSTALLATION AND MECHANICAL SIZE (SCREW SPECIFICATION: MM)

2 SPECIFICATIONS

2.1 Product Parameter

CHART 1 YDLIDAR SDM18 PRODUCT PARAMETER

Item	Min	Typical	Max	Unit	Remarks
Ranging frequency	50	100	250	Hz	Indicates ranging times per second,50/100/250Hz
Ranging distance	0.2	/	18	m	80% reflectivity
Relative error	/	30	/	mm	0.2m≤Distance < 1m
	/	60	/	/	1m≤Distance≤6m
	/	1%	/	/	Distance > 6m
Lighting environment	/	100k	/	Lux	/
Working voltage	/	3.3	/	V	/
Working current	/	140	150	mA	/
Power consumption	/	450	500	W	/
Operating temperature	-20	25	50	°C	/
Store temperature	-20	25	70	°C	/
Size	/	21*15*7.87	/	mm	L*W*H
Weight	/	1.35	/	g	N.W.

Note 1: It is factory FQC standard value, 80% reflectivity material object.

Note 2: Lidar is a precision device, please avoid using Lidar under high or low temperature or strong vibration situation, the relative error parameter index will be relatively larger, and it may exceed the typical value.

2.2 Interface Definition

The SDM18 provides external interface terminal is WF08006, which realizes system power supply and data communication.

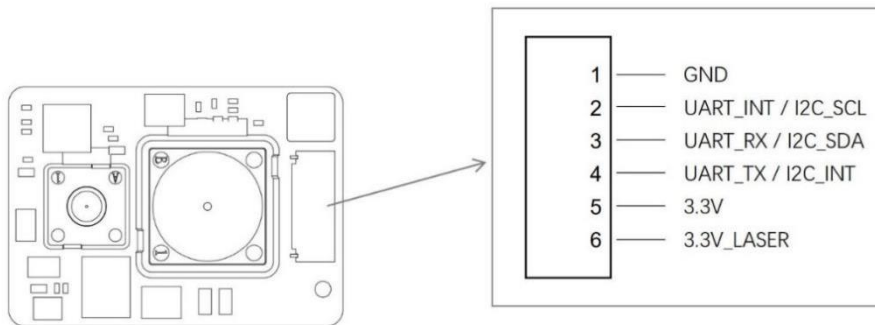


FIG 2 YDLIDAR SDM18 INTERFACES

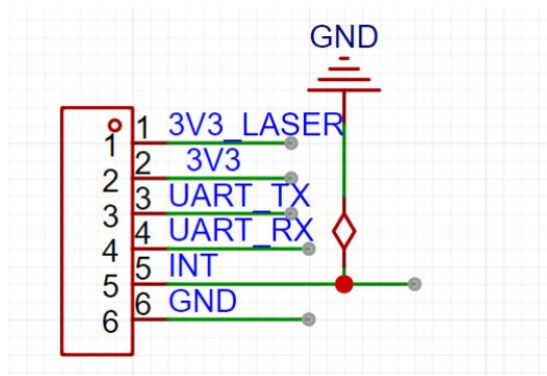
CHART 2 YDLIDAR SDM18 INTERFACE DEFINITION

Pin	Type	Description
1	GND	Grounding
2	INT	Reusing UART-INT/IIC-SCL in two modes
3	RX	Reusing UART-RX/IIC-SDA in two modes
4	TX	Reusing UART-TX/IIC-INT in two modes
5	3.3V Power Supply	3.3V power supply
6	3.3V LASER	Internal laser power supply (additional filtering circuit can be added to ensure a cleaner power supply)

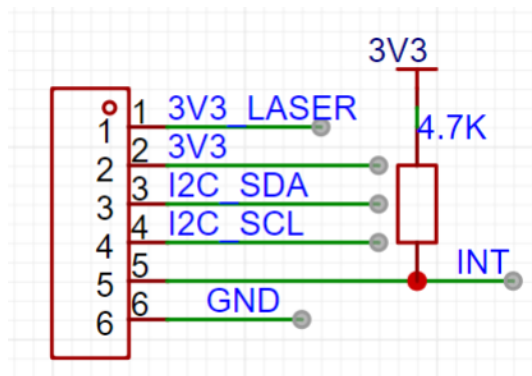
2.3 Hardware interface description

The module supports UART and IIC communication methods, but when powered on, only one interface can be selected for operation.

1. UART communication - When powered on, the INT pin can be grounded, as shown in the following figure:



2. IIC communication - When powered on, the INT pin needs to be pulled up with a 4.7K resistor or directly suspended, as shown in the following figure:



2.4 Data Communication

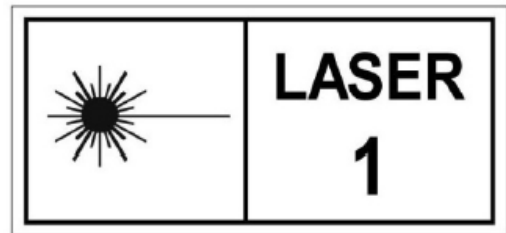
SDM18 supports two communication interfaces, UART and IIC, with default UART mode. Users can connect external systems and this product through the physical interface on the product, and communicate according to the system's communication protocol to obtain real-time data.

CHART 3 YDLIDAR SDM18 COMMUNICATION INTERFACE

Interface	Min	Typical	Max	Unit	Remarks
UART	9600	921600	921600	bps	Signal level 3.3V, 8-bit data bit, 1 stop bit, no parity
IIC	/	400k	1M	bps	Signal level 3.3V


2.5 Optical Characteristic

The infrared point pulse laser used in SDM18 can ensure the safety of human and pet. The lidar has passed testing and conformed to Class I, 21 CFR 1040.10 and 1040.11 safety level, except for IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.



The laser and optical lens finish the transmission and reception of the laser signal to achieve high-frequency ranging while operating. The detailed optical parameters are as follows:

CHART 4 YDLIDAR SDM18 LASER OPTICAL PARAMETERS

Item	Min	Typical	Max	Unit	Remarks
Laser wavelength	898	905	912	nm	Infrared band
FDA	 Class 1 IEC60825-1				

Note: The personal adjustment or reassembly of the Lidar may result in hazardous radiation exposure.

3 REVISE

Date	Version	Content
2024-02-21	1.0	The 1st release