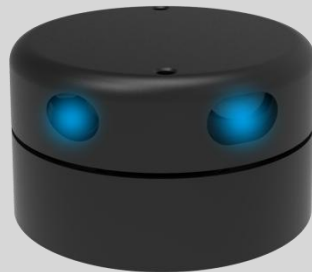


# **YDLIDAR G2 DATASHEET**



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## OVERVIEW

YDLIDAR G2 is a 360-degree two-dimensional rangefinder (hereinafter referred to as G2) developed by YDLIDAR team. Based on the principle of triangulation, it is equipped with related optics, electricity, and algorithm design to achieve high-frequency and high-precision distance measurement. The mechanical structure rotates 360 degrees to continuously output the angle information as well as the point cloud data of the scanning environment while ranging.

### Product Features

- 360 degree omnidirectional scanning ranging distance measurement
- Small distance error, stable performance and high accuracy
- Ranging distance is no less than 12m
- Strong resistance to ambient light interference
- Industrial grade brushless motor drive for stable performance
- Laser power meets Class I laser safety standards
- 5-12Hz adaptive scanning frequency (support customization)
- Ranging frequency up to 5kHz (support customization)

### Applications

- Robot navigation and obstacle avoidance
- Robot ROS teaching and research
- Regional security
- Environmental scanning and 3D reconstruction
- Commercial robot /Robot vacuum cleaner

### Installation and dimensions

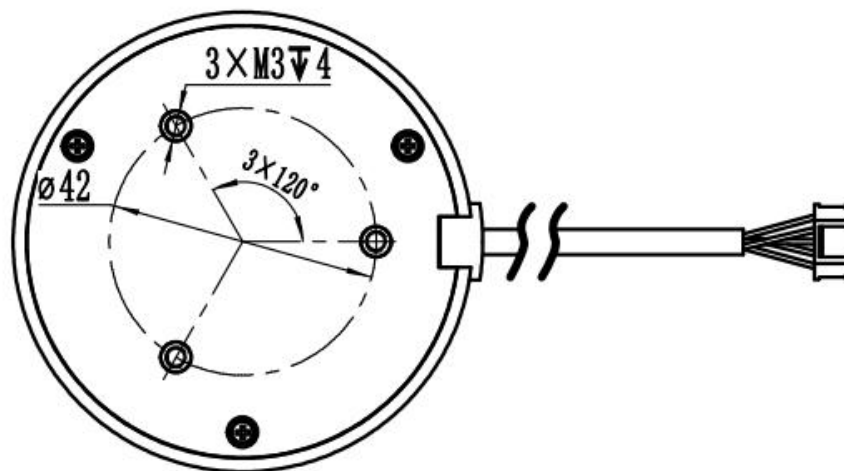


FIG1 YDLIDAR G2 INSTALLATION SIZE

Laser launch receiving center

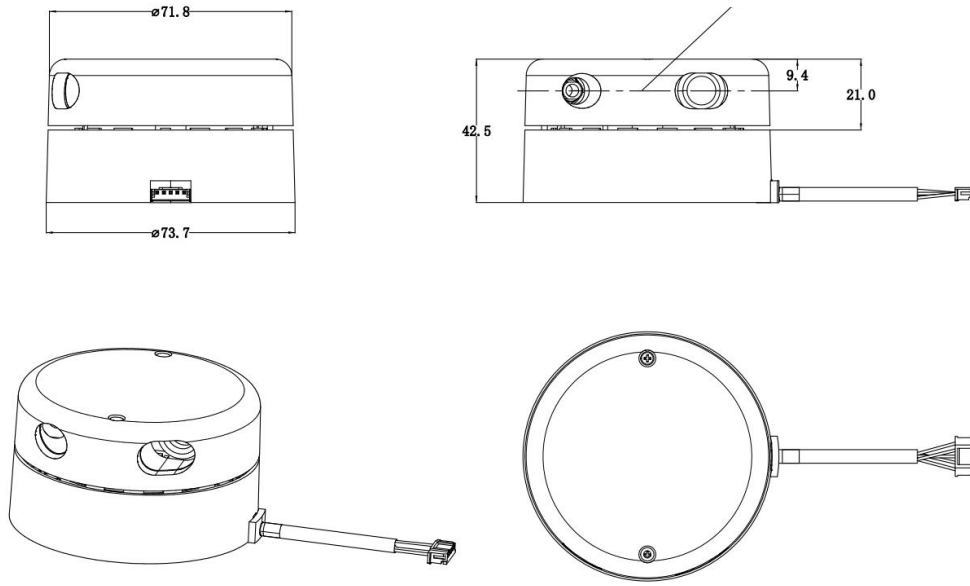


FIG2 YDLIDAR G2 MECHANICAL DIMENSIONS

**SPECIFICATIONS**

**Product Parameter**

CHART1 YDLIDAR G2 PRODUCT PARAMETER

Item	Min	Typical	Max	Unit	Remarks
Ranging frequency	-	5000	-	Hz	Support customization
Motor frequency	5	7	12	Hz	Software speed control, can be customized
Ranging distance	0.12	-	12	m	80% reflectivity
Scanning angle	-	0~360	-	Deg	-
Absolute error	-	2	-	cm	Distance≤0.5m
Relative error	-	1.0%	-	-	0.5m<Distance≤6m

	-	1.5%	-	-	6m<Distance≤8m
	-	2.0%	-	-	Distance>10m
Laser tilt	0.25	1	1.75	Deg	Laser elevation angle
Angle resolution	0.48	0.50	0.52	Deg	Scanning frequency=7

*Note 1: The ranging range and relative accuracy above are the factory inspection standard value;*

*Note 2: The relative error value indicates the accuracy of the Lidar measurement.*

*Relative error = (Measuring distance - Actual distance) / Actual distance \* 100%.*

*Please avoid using Lidar under high-temperature, high-low temperature or strong vibration use scenarios, which might cause a 3% relative error parameter index.*

## Electrical Parameter

CHART2 YDLIDAR G2 ELECTRICAL PARAMETER

Item	Min	Typical	Max	Unit	Remarks
Supply voltage	4.8	5.0	5.2	V	Excessive voltage might damage the Lidar while low affect normal performance
Voltage ripple	0	50	100	mV	Excessive ripple affect normal performance
Starting current	550	600	650	mA	Higher current required at start-up
Sleeping current	-	<50	-	mA	System sleep, motor rotation
Working current	250	300	350	mA	System work, motor rotation

## Interface Definition

G2 provides a PH2.0-5P female connector with functional interfaces for system power, data communication and motor control.

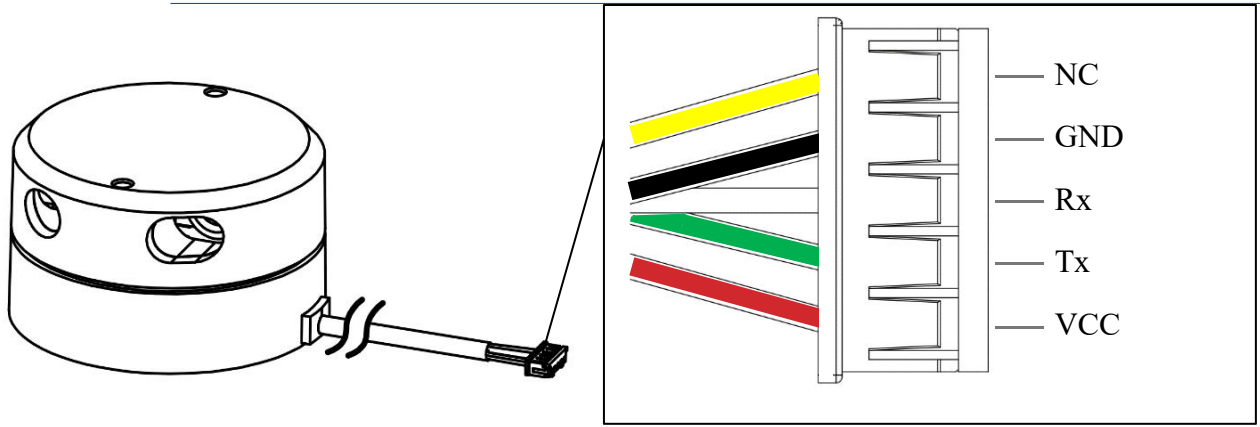


FIG3 YDLIDAR G2 INTERFACES

**CHART3 YDLIDAR G2 INTERFACE DEFINITION**

Pin	Type	Description	Defaults	Range	Remarks
VCC	Power Supply	Positive	5V	4.8V~5.2V	-
Tx	Output	System serial output	-	-	Data stream: Lidar→Peripherals
Rx	Input	System serial port Input	-	-	Data stream: Peripherals→Lidar
GND	Power Supply	Negative	0V	0V	-
NC	-	Reserved pin	-	-	-

**Data communication**

With a 3.3V level serial port (UART), users can connect the external system and the product through the physical interface. After that, you can obtain the real-time scanned point cloud data, device information as well as device status. The communication protocol of parameters are as follows: :

**CHART4 YDLIDAR G2 SERIAL SPECIFICATION**

Item	Min	Typical	Max	Unit	Remarks
Baud rate	-	230400	-	bps	8-bit data bit, 1 stop bit, no parity
High Signal Level	1.8	3.3	3.4	V	Signal voltage > 1.8V
Low signal Level	0	0	0.5	V	Signal voltage < 0.5V

### Motor control

The G2 has its own motor drive with motor speed control function and a command interface instead of a hardware interface for motor control. Please refer to the development manual of this product for details.

### Optical Characteristic

G2 uses an infrared point pulsed laser that meets FDA Class I laser safety standards. The laser and optical lens finish the transmission and reception of the laser signal to achieve high-frequency ranging while working. To ensure system ranging performance, please keep the laser and optical lens clean. The detailed optical parameters are as follows:

**CHART5 YDLIDAR G2 LASER OPTICAL PARAMETERS**

Item	Min	Typical	Max	Unit	Remarks
Laser wavelength	775	785	795	nm	Infrared band
Laser power	-	10	-	mW	Peak power
FDA	⚠ Class I				

### Others

**CHART7 YDLIDAR G2 OTHERS**

Item	Min	Typical	Max	Unit	Remarks
Operating temperature	0	20	50	°C	Long-term work in high temperature environment will reduce life expectancy
Lighting environment	0	550	2000	Lux	For reference
weight	-	-	-	g	N.W.

### Development and support

With a wealth of hardware and software interfaces,G2 can support motor enable control, speed control, and enable control&output control of the ranging core. Thus,users can also implement the power control and scan control purpose.

Also, the 3D model is open. YDLIDAR provides the graphical debugging client-PointCloud Viewers, together with the corresponding SDK development kit and Ros development kit.

For the G2 development manual, SDK development manual and Ros manual, please download from our official website: [www.ydlidar.com](http://www.ydlidar.com)