



## LS2 laser radar

The first mini laser radar in China



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## Safety reliable

- Based on pulse laser ranging technology, the pulse light energy value is 1000 times higher than that of a continuous constant light source, thus ensuring the stability and reliability of measurement. Meanwhile, combined with nanosecond narrow pulse technology, it is Class 1 laser which is safe to human eyes;
- industrial design, stable and reliable. IP65, dedicated temperature drift error elimination design, professional EMC design and harsh testing, environmental light, shock and vibration tests;

## Protection area

- 2D detection and scanning area of 270° scanning angle, 20m radius;
- Small, flexible, accurate, reliable, and cost-effective. It is an ideal choice for obstacle avoidance and navigation of mobile robots.

## Easy and fast operation

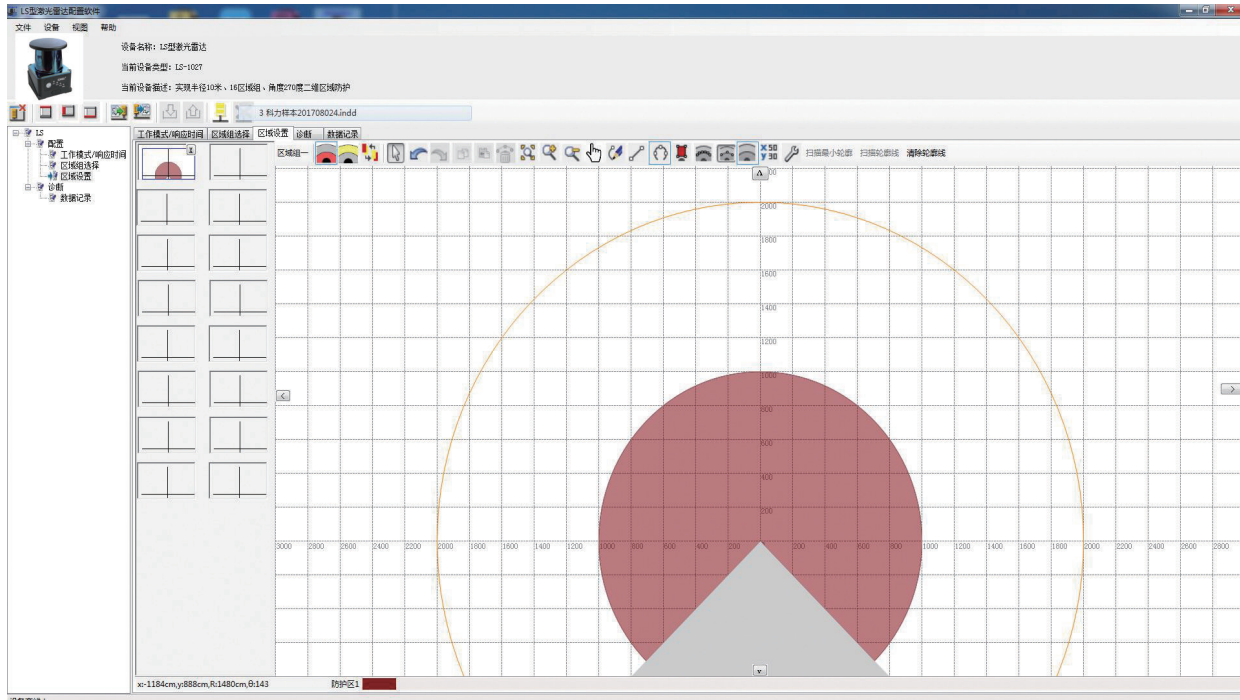
- fast scanning speed, 25000 times scanning in 1 second, scanning time of single turn 40ms;
- The detachable window design, convenient for maintenance, reduce maintenance costs and Extend the service life of the product;
- Up to 16 groups of detection areas that can be defined. The detection zones can be defined as any complex and irregular shapes according to user needs.



## Product introduction

LS2 laser radar can achieve the two-dimensional zone detection and profile scanning with a range of 270° and a radius of 20m, featuring small size, high flexibility, good capability and reliability and high cost performance, so it is the ideal choice for the obstacle avoidance and navigation of mobile robot.

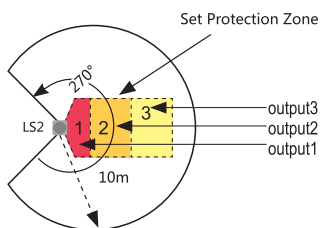
## Configuration software



### Easily settings of complex area

- ( 1 ) Applicable to Windows system, requiring less memory and hard disk;
- ( 2 ) Friendly interface, easy operation and quick user introduction ;
- ( 3 ) Up to 16 zone groups at most, four working modes, each zone group can set up to three protection zones ;
- ( 4 ) The protection area is simple to draw and easy to modify. Any complex and irregular protection area can be set by using drawing tools and automatic scanning of the environmental contours ;
- ( 5 ) Real-time monitoring of surrounding environment contours and accurate data display.

## Area configuration



Identification	Meaning	Description
3	Protection zone 3 configured by the user	OUTPUT3 will enter OFF state when obstacle is detected
2	Protection zone 2 configured by the user	OUTPUT2 will enter OFF state when obstacle is detected
1	Protection zone 1 configured by the user	OUTPUT1 will enter OFF state when obstacle is detected
LS2	LS2 laser radar	At the scanning angle is 270°, when the radius is 20m, the reflectivity is @70%; when the radius is 8m, the reflectivity is@10%

## Application scenario



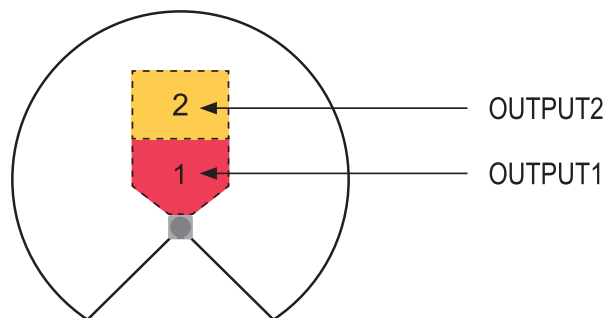
LS2 laser radar



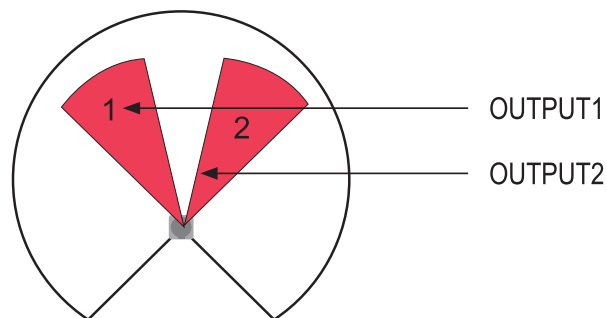


## Operating mode

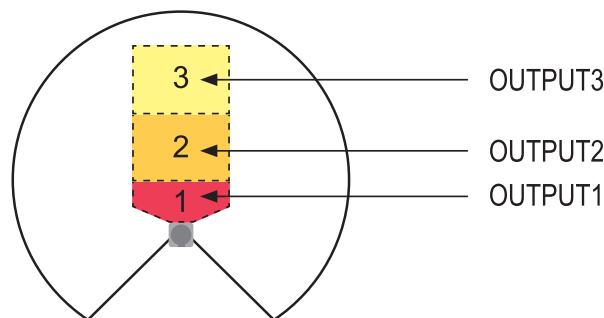
Mode 1: User can configure 2 protection zones from far and near corresponding to OUTPUT2 and OUTPUT1; meanwhile, provide system failure output OUTPUT3.



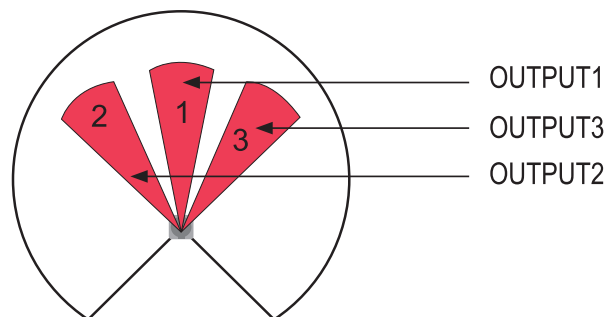
Mode 2: User can configure two independent protection zones corresponding to OUTPUT1 and OUTPUT2; meanwhile, provide system failure output OUTPUT3.



Mode 3: User can configure 3 protection zones from far and near corresponding to OUTPUT3, OUTPUT2 and OUTPUT1; not provide system failure output.



Mode 4: User can configure 3 independent protection zones corresponding to OUTPUT1, OUTPUT2 and OUTPUT3; not provide system failure output.



## Installation method

Available installation parts (not standard)



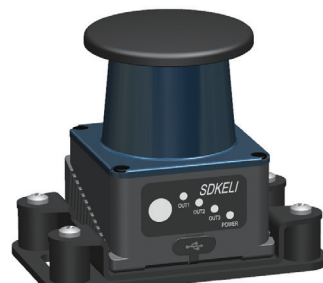
horizontal installation (SZ)



vertical installation (CZ)



Protective cover installation (FZ)



Shock absorption installation (JZ)

## Specifications model

Product Series	Detection Radius	Scanning Angle	Output form	Resolution	Angle resolution	Installation method
LS2 —	□□	27 (270°)	□□/	□	□□/	□□

Type	Specifications	Detection Radius	Output form	Resolution	Angle resolution	Mounting bracket
LS2 obstacle avoidance type	LS2-0627BP/M05	6m@70%reflectivity (White object) , 2m@10%reflectivity (black object)	PNP	standard type, ±4cm@1sigma	0.5°	Horizontal / vertical / protective cover installation optional
	LS2-0627BN/M05	6m@70%reflectivity (White object) , 2m@10%reflectivity (black object)	NPN	standard type, ±4cm@1sigma	0.5°	
	LS2-1027BP/M05	10m@70%reflectivity (White object) , 4m@10%reflectivity (black object)	PNP	standard type, ±4cm@1sigma	0.5°	
	LS2-1027BN/M05	10m@70%reflectivity (White object) , 4m@10%reflectivity (black object)	NPN	standard type, ±4cm@1sigma	0.5°	
LS2 measurement type	LS2-1027DE/H03	10m@70%reflectivity (White object) , 4m@10%reflectivity (black object)	Ethernet, can provide ROS, windows, linux driver	High precision type, ±2cm@1sigma	0.33°	
	LS2-2027DE/H03	20m@70%reflectivity (White object) , 8m@10%reflectivity (black object)	Ethernet, can provide ROS, windows, linux driver	High precision type, ±2cm@1sigma	0.33°	

Note: If the above products do not meet your needs, they can be customized according to your needs. Please contact your local sales manager for details.

## Technical parameters

Optical characteristics					
Detection light source	Wavelength of 905nm, Class 1 laser prod uct				
Maximum detection radius	20m @70% reflectivity (white object ) 8m @10% reflectivity (black object )		Scanning angle range	270°	
Angle resolution	Obstacle avoidance type:0.5°	Measurement type: 0.33°	Measurement error	High precision type ±2cm	
Environmental characteristics					
Environment temperature	Operating	-10°C~55°C (No frost or fog)			
	Storage	-40°C~70°C			
Environment humidity	Operating	35%RH~85%RH			
	Storage	35%RH~95%RH			
Light interference resistance		15000 Lux			
Vibration resistance		Frequency: 10Hz ~ 55Hz; amplitude: 0.35 ± 0.05 mm; number of scans: three axes, 20 times per axis			
Shock resistance		Acceleration: 10g; pulse duration: 16 ms; number of collisions: three axes, 1000 ± 10 times per axis			
Electromagnetic compatibility (EMC )		EMI	EN61326-1: 2013 EN55011: 2009 + A1: 2010		
		EMS	EN61326-1: 2013 EN61000-4-2: 2009 EN61000-4-3: 2006 + A1: 2008 + A2: 2010 EN61000-4-4: 2012 EN61000-4-6: 2009 EN61000-4-8: 2010		
Zone group switching		4 groups of external input signals (Z1, Z2, Z3, Z4) can realize the switching among 16 zone groups			
IP code		IP65			
Dimensions		62×62×84mm			
Electrical characteristics					
Power supply		DC9V~ DC30V	Power consumption	<3W (no load at the output terminal)	
Response time		Obstacle avoidance type	40ms/r adjustable	Measurement type	High precision type 36ms/r

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