SDKELI®

CE

LS Series Laser Lidar -
Measurement Type

OPERATION MANUAL

(January 2026)



(The picture is for reference only, the actual item may be different from the picture shown.)

Jining Keli Photoelectronic Industrial Co., Ltd.

■ Directives and standards

LS Series laser lidar (referred to as LS) meets the requirements of the following standards:

- **European Union Directive**
  EMC Directive 2014/30/EU
- **International standard**
  EMI: EN 61326-1: 2013
  EN 55011: 2009 + A1: 2010
  EMS: EN 61326-1: 2013
  EN 61000-4-2: 2009
  EN 61000-4-3: 2006 + A1: 2008 + A2: 2010
  EN 61000-4-4: 2004 + A1: 2010
  EN 61000-4-6: 2009
  EN 61000-4-8: 2010
  EN 61000-4-11: 2004
- **GB standard**
  GB 4208-2017 (IP65)

■ Safety precautions

The following safety warning signs are used to warn of potential personal injury. Be sure to obey all safety information with these signs, so as to avoid possible injury.

⚠ CAUTION

This is a key information prompt symbol.
The contents indicated under this symbol are very important.
Operators must understand and strictly comply with the requirements to avoid potential unexpected safety incidents.

⚠ WARNING

This is a safety warning symbol.
The contents indicated under this symbol are very important.
Operators must strictly adhere to the safety information indicated by the symbol to prevent potential unexpected safety incidents.

■ Safety precautions for use

⚠ CAUTION

- Before using LS, read this manual carefully to understand the procedures and requirements of installation, operation and setting.
- LS should be selected, installed, overhauled and maintained by professionals. Professionals refer to the personnel who have been professionally trained and obtained accredited qualifications, or those who have a wealth of knowledge, training and experience and have owned the ability to solve such problems.
- To prevent light path from playing on the ground, the installation height of LS should be ≧ 200mm. Try to keep LS away from the vibration area during installation.
- When configuring the lidar through the USB port, it is must be to confirm whether the housing of lidar is electrified first and make sure that the housing is connected without electrification. A multimeter is suggested to be used to measure the voltage between the lidar non-painted housing (e. g. , at the mounting screw hole) and the lidar power supply voltage of 0 V, confirming that the value is ≤10 V.
- Do not let LS drop.
- The use of LS should meet the local relevant standards and laws and regulations.
- Users should establish the rules and regulations for safe operation and management and implement them effectively.

■ Applications

The measurement LS is applicable to the region detection and navigation of mobile robots and the typical application includes storage robots and service robots.

■ The detection objects of LS must meet the following conditions:

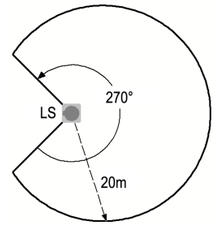
- Be able to detect the objects within the scope of ability only.
- LS cannot detect transparent and semitransparent objects.

■ Do not install LS in the following environments:

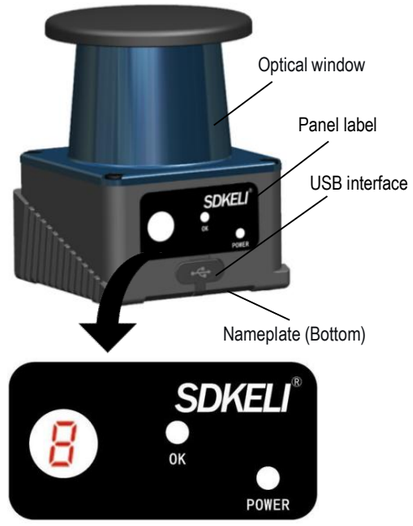
- Locations where environmental conditions (such as temperature, humidity, stray light, shock, and vibration, etc.) fall outside the ranges specified in this manual.
- Areas where flammable and explosive gases are present.
- Areas where substances such as dense smoke, particulates, or corrosive chemicals are present.
- Areas subject to strong optical interference (e.g., direct light exposure) that may affect LS performance.

1. Working principle

LS is designed based on pulsed laser ranging principles to realize the two dimensional zone detection with an angle of 270° and radius of 20m through rotational scanning.



2. Appearance information



⚠ CAUTION

Be sure to press the black sealing cover on the USB interface tightly to prevent moisture, dust, etc. from entering the LS, so as not to affect the use and life of the lidar.

Mark	Indicator	Status	Description
OK	Normal	Green	Lights up during normal operation and turns off when a fault occurs
POWER	Power	Red	Indicates that power is on
8	Digital tube	1	Indicates that power-on startup is complete
		6	Establish communication with the computer
		8	Blinks at 1-second intervals during power-on initialization
		F	Indicates an LS system fault
		When multiple statuses coexist, multiple status words are displayed cyclically (with an interval of 1 second)	

3. Specification

Series Maximum scan radius Scan angle Output form Measurement accuracy Angle resolution Installation code

LS(2) — □□ 27 □□ / □ □□ / □□

Specification	Maximum scan radius	Output form	Measurement accuracy	Angle resolution
LS-1027DE/M03	10m@70% reflectance	Ethernet, can provide ROS, windows, linux driver	±4cm@1sigma	0.33°
LS-1027DE/H03	4m@10% reflectance		±2cm@1sigma	
LS-2027DE/M03	20m@70% reflectance		±4cm@1sigma	0.33°
LS-2027DE/H03	8m@10% reflectance		±2cm@1sigma	
LS2-1027DE/M03	10m@70% reflectance		±4cm@1sigma	0.33°
LS2-1027DE/H03	4m@10% reflectance		±2cm@1sigma	
LS2-2027DE/M03	20m@70% reflectance		±4cm@1sigma	0.33°
LS2-2027DE/H03	8m@10% reflectance		±2cm@1sigma	

Scan angle: 270°

Installation code:

SZ: Horizontal installation

CZ: Vertical installation

FZ: Scatter shield installation

4. Transmission cable

■ There is RJ45 standard connector at the output end of network cable, and the cable length is 1 m.

No.	Core color	Signal definition
1	White/orange	TX+
2	Orange	TX-
3	White/green	RX+
4	Green	RX-

■ The structure of power cable is shown below, and the standard wire length is 1 m.



Core color	Signal definition	Signal description
Red	24V	Working power supply
Green	0V	

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5. Technical parameters

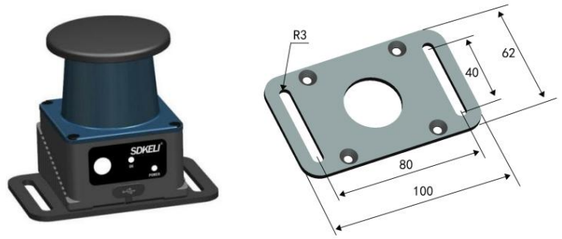
Optical characteristics		
Laser light source	905nm wavelength, Class 1 laser product	
Max. scan radius	20m@70％ reflectance	
Scan angle	270°	
Angle resolution	0.33°	
Response time	High precision	36ms/r
	Basic type	43ms/r
Measurement accuracy	High precision	±2cm@1sigma
	Basic type	±4cm@1sigma
Electrical / mechanical parameters		
Voltage supply	DC9V to DC30V	
Power-on and start-up time	Typical 8s	
Power consumption	Typical 3W	
Output	Ethernet output	
Dimensions	62×64×84.2mm	
Cable length	1 m (Standard length)	
Environmental characteristics		
Ambient temperature	Operating	-10℃ to 50℃(non-condensing)
	Storage	-30℃ to 70℃
Ambient humidity	Operating	35%RH to 85%RH
	Storage	35%RH to 95%RH
Ambient light immunity	15000Lux	
Shock resistance	Acceleration: 10g; Pulse duration: 16ms； Number collisions: three axes, 1000 ± 10 times per axis	
Vibration resistance	Frequency: 10Hz to 55Hz; Amplitude: 0.35±0.05mm； Number of scans: three axes, 20 times per axis	
Enclosure rating	IP65	
Electromagnetic compatibility (EMC)	EMI	EN 61326-1: 2013 EN 55011: 2009 + A1: 2010
	EMS	EN 61326-1: 2013 EN 61000-4-2: 2009 EN 61000-4-3: 2006 + A1: 2008+ A2: 2010 EN 61000-4-4: 2004 + A1: 2010 EN 61000-4-6: 2009 EN 61000-4-8: 2010 EN 61000-4-11: 2004

6. Measurement data

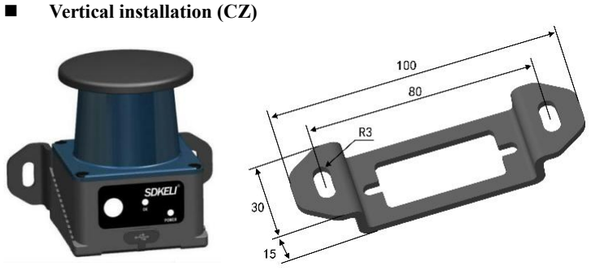
Measurement value (X)	Meaning
X=1	System failure
1＜X≤50000	Normal measurement value (cm)
X＞50000	The target does not exist or the object reflectivity is low

7. Installation

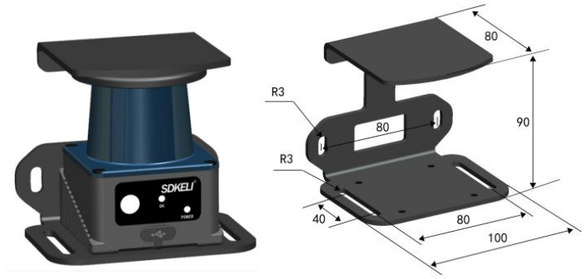
■ **Horizontal installation (SZ)**



■ **Vertical installation (CZ)**



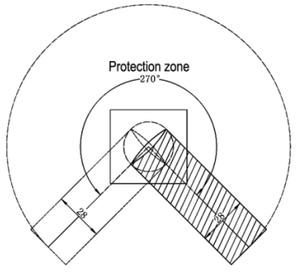
■ **Scatter shield installation (FZ)**



➢ To prevent the light from being projected to the ground, the installation height of LS should be more than 200mm.

➢ Try to keep LS away from the vibration area during installation.

➢ During installation, there should be no obstacles in the optical receiving area shown in the figure below.

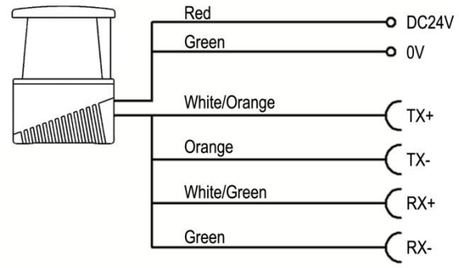


8. Ethernet configuration

Default IP address: 192.168.0.10

Port number: 2112

9. Wiring



⚠ WARNING

- Please read this manual carefully before wiring.
- Wiring must be conducted after the power is cut off.
- Double insulation or reinforced insulation must be used between all input and output interfaces and dangerous voltages.
- LS cables must be kept away from high-voltage wires and power lines.
- Users should not replace the cable without permission.
- Conduct correct wiring after defining the signal meaning of all terminals.

10. Common problems and solutions

Q1. Lidar cannot obtain data through the network port

➢ Whether the lidar network interface is connected to the computer network port.

➢ The default IP address of the lidar is 192.168.0.10. During the test process of the direct connection between the lidar and the computer, the computer IP address needs to be configured as an IP in the format of 192.168.0.xx, that is, it is in the same network segment as the radar IP to communicate normally.

➢ If the lidar network interface is connected to the router (or switch), please ensure that the radar IP is the same as the router's assigned network segment, that is, the router's assigned network segment is at 192.168.0.xx.

➢ The lidar can also modify the IP address through the front USB and the window software provided by us to meet the requirements of the same network segment as the computer.

Q2. Use of front USB port

The front USB port connected to the computer though the configuration cable can be used for demonstration and debugging, and the lidar scanning outline can be displayed through the host computer, and it is not used for lidar data output.

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