SDKELI®

LSE Series Laser Lidar -
Measurement Type

OPERATION MANUAL

(January 2026)

Jining Keli Photoelectronic Industrial Co., Ltd.

■ Directives and standards

LSE series laser lidar (referred to as LSE) meets 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 potential personal injury hazards, please follow all safety information with this symbol 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 LSE, carefully read this manual to understand the procedures and requirements for installation, operation, and configuration.
- LSE should be selected, installed, maintained, and serviced by qualified personnel. Qualified personnel refer to those who have received professional training and hold recognized qualifications, or individuals with extensive knowledge, training, and experience who have demonstrated the ability to handle such tasks.
- To avoid the optical path striking the ground, the installation height of LSE should be greater than or equal to 200mm. During installation, LSE should be kept as far away as possible from vibration-prone areas.
- Do not drop LSE.
- The use of LSE must comply with local standards, laws, and regulations.
- The user should establish and effectively implement safety operation management rules and regulations.

■ Applications

The measurement LSE 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 LSE must meet the following conditions:

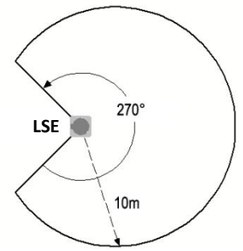
- LSE can only detect objects within its detection capability.
- LSE cannot detect transparent or semi-transparent objects.

■ Do not install LSE in the following environments:

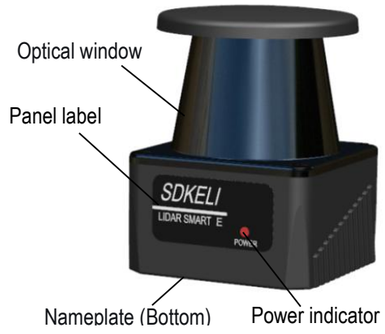
- Locations where environmental conditions (such as temperature, humidity, stray light, shock, and vibration, etc.) fall outside the ranges specified in this manual.
- Areas where flammable and explosive gases are present.
- Areas where substances such as dense smoke, particulates, or corrosive chemicals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

1. Working principles

LSE is designed based on pulsed laser ranging principles to realize the two dimensional zone detection with an angle of 270° and radius of 10m through rotational scanning.



2. Appearance information



State of power indicator	Corresponding sate of lidar
Slow flashing	Starting state
Continuous on	Operating state
Fast flashing	Fault state

3. Specification

Series		Max. scan radius	Scan angle	Output form		Max. measurement error	Angle resolution		Installation code
LSE	—	□□	27	□□	/	□	□□	/	□□

Specification	Max. scan radius	Output form	Measurement accuracy	Angle resolution
LSE-1027DE/H03	10m@70％ reflectance 4m@10％ reflectance	Ethernet output	±3cm	0.33°
LSE-2027DE/H03	20m@70％ reflectance 8m@10％ reflectance		±3cm	0.33°

Scanning angle: 270°

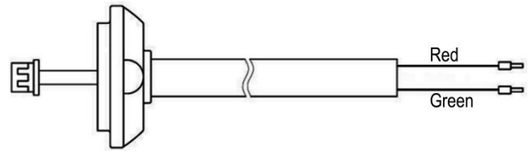
Installation code: SZ—Horizontal installation

4. Power cable

■ The network interface is an RJ45 standard connector, the cable length is 1m.

Core color	Signal definition
White/Orange	TX+
Orange	TX−
White/Green	RX+
Green	RX−

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



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

5. Technical parameters

Optical properties		
Laser light source	Wavelength: 905nm; Class A laser product	
Max. scanning radius	20m@70％ reflectance, 8m@10％ reflectance	
Scanning angle	270°	
Angle resolution	0.33°	
Pitch angle	±1.0°	
Response time	36ms/1 scanning cycle	
Measurement accuracy	Typical ±3cm	
Electrical / mechanical parameters		
Supply voltage	DC9V to DC30V	
Power-on time	Typical 8s	
Power consumption	Typical 3W	
Output	Ethernet UDP protocol output	
Dimensions	64mm×62mm×83mm	
Cable length	1m (Standard length)	
Environmental properties		
Ambient temperature	Operating	-10°C to 50°C (non-condensing)
	Storage	-40°C to 70°C

Ambient humidity	Operating	35%RH to 85%RH
	Storage	35%RH to 95%RH
Ambient light immunity	15000Lux	
Enclosure rating	IP65	
Shock resistance	Acceleration: 10g; Pulse duration: 16ms; Number of collision times: 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	
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

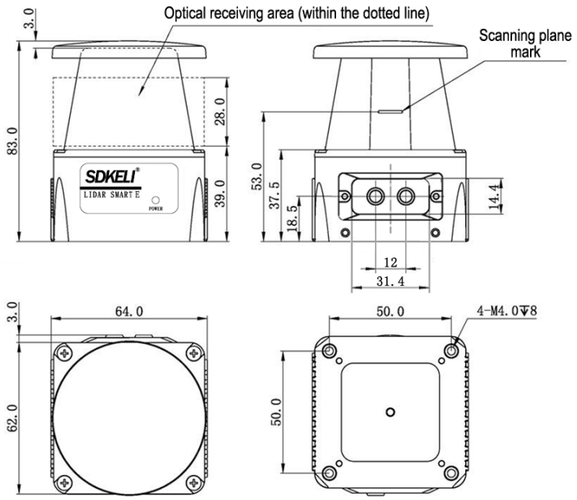
Measurement value (X)	Meaning
X=1	System failure
1＜X≤50000	Normal measurement value (mm)
X＞50000	The target does not exist or the object reflectance is low

7. Ethernet configuration

Default IP address: 192.168.0.10

Port number: 2112

8. Dimensions

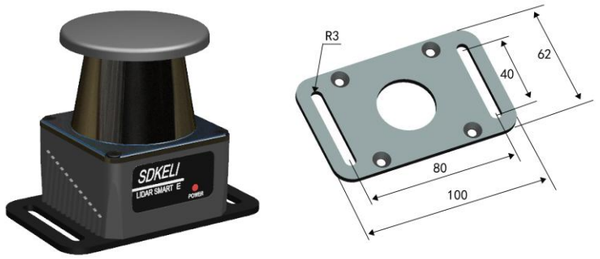


⚠ CAUTION

In the scanning area set by the user, when the scanning optical axis is at any angle, it must be ensured that there is no obstacles in the optical receiving area.

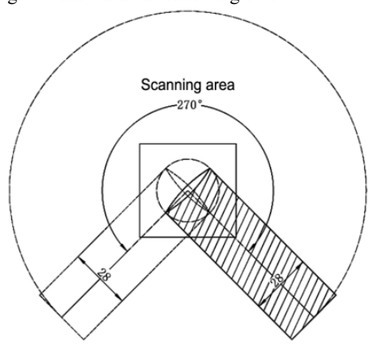
9. Installation

■ **Horizontal installation (SZ)**

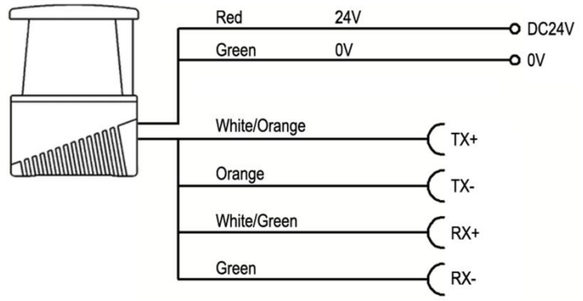


⚠ CAUTION

- To prevent the light from being projected to the ground, the installation height of LS should not be smaller than 200mm.
- Try to keep LSE away from the vibration area during installation.
- During installation, there should be no obstacles in the optical receiving area shown in the following below.



10. Wiring



⚠ WARNING

- Please read this manual carefully before wiring.
- Wiring must be conducted when the power is cut off.
- Double insulation or reinforced insulation must be used between all input and output interfaces and dangerous voltage. Otherwise, electric shock may be caused.
- The cable of LSE must be kept away from high-voltage wires and power lines.
- It is strictly forbidden for users to replace the cable without permission.
- Conduct correct wiring after defining the signal meanings of all terminals.