SDKELI®

KLM LIDAR - Measurement Type

OPERATION MANUAL

(January 2026)



Jining Keli Photoelectronic Industrial Co., Ltd.

■ Directives and standards

KLM series lidar (referred to as KLM) meets the following standards:

- European Union Directive

  EMC Directive 2014/30/EU

- International standard

  EN 60825-1: 2014 (Class 1 laser product)

  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/IP67)

■ Safety precautions

⚠ 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.

■ Safety precautions for use

⚠ CAUTION

- Before using KLM, carefully read this manual to understand the procedures and requirements for installation, operation, and configuration.
- KLM 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.
- KLM is a Class 1 laser product (eye-safe); the laser beam is invisible to the human eye. Using controls, adjustments, or procedures not specified in this manual may result in hazardous radiation exposure.
- When configuring the lidar via the USB port, first ensure that the lidar housing is not electrically charged. Confirm that the lidar housing is in a non-electrified condition before making any connections. Use a multimeter to measure the voltage between the non-painted surface of the lidar housing (e.g., the mounting thread holes) and the 0V power supply terminal of the lidar. Ensure that this value is ≤10V.
- KLM should be used at locations with an altitude of ≤2000m above sea level.
- Do not drop KLM.
- The use of KLM must comply with local standards, laws, and regulations.
- The user should establish and effectively implement safety operation management rules and regulations.

■ Applications

The measurement KLM 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 KLM must meet the following conditions:

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

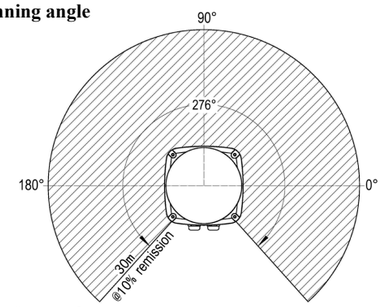
■ Do not install KLM in the following environments:

- Places outside the scope of environment parameters (temperature, humidity, interference light, impact vibration, etc.) specified in this Operation Instructions.
- Places with flammable and explosive gas.
- Places with dense smoke, particles, corrosive chemicals and other substances.
- Places that may have strong light interference (e.g. direct light) with KLM.

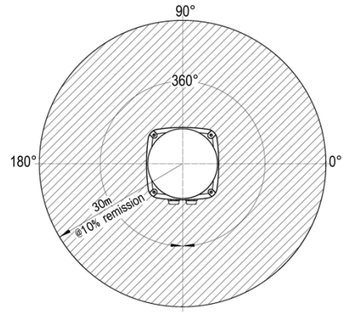
1. Working principles

KLM is designed based on pulsed laser ranging principles to realize the two dimensional zone detection with an angle of 276° or 360° , and radius of 30m @10% reflectance through rotational scanning.

276° scanning angle



360° scanning angle



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 KLM, so as not to affect the use and life of the lidar.

Sign	Indicator	Description
OK	Normal	Green is on during normal operation and red is on when there is a fault
POWER	Power	Red is on when power on
8	1	Display upon completion of power-on startup.
	6	Connect with the computer
	8	It flashes during power-on initialization
	F	KLM system fails
	Under coexistence of multiple status, multiple status words are displayed circularly	

3. Specification

Series — Scan radius — Scan angle — Output form / Installation code

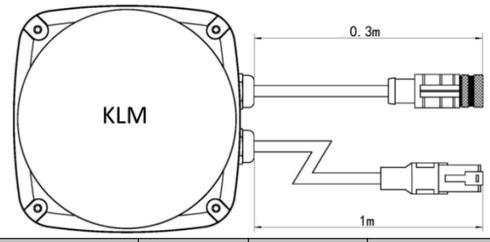
KLM — □□ — □□ — □□ / □□

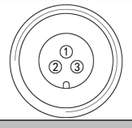
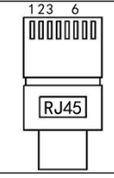
Specification	Scan radius	Scan angle	Output form
KLM-2027DE	20m@10% reflectance 53m@70% reflectance	276°	Ethernet
KLM-3027DE	30m@10% reflectance 80m@70% reflectance	276°	Ethernet
KLM-2036DE	20m@10% reflectance 53m@70% reflectance	360°	Ethernet
KLM-3036DE	30m@10% reflectance 80m@70% reflectance	360°	Ethernet

Installation code: SZ: Horizontal installation/CZ: Vertical installation

4. Output interface

The power output interface is a M12-3 core hole head, the cable length is 0.3m. The network interface is an RJ45 standard connector, the cable length is 1m.

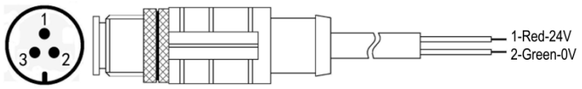


Power interface	Color	Signal definition	Signal description
	1-Red	24V	Working power supply
	2-Green	0V	
Network interface	**Color**		**Signal definition**
	1-White/Orange		TX+
	2-Orange		TX-
	3-White/Green		RX+
	6-Green		RX-

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5. Transmission cable

The transmission cable is a 3-core shielded cable with an M12-3 core needle at one end, which is connected to the power output interface, and the other end of each core is stripped and tinned to connect to the device. For the color and function definition of each core, see the power output interface. The standard wiring length of the transmission line is 2m.



6. Technical parameters

Laser light source	Wavelength: 905nm; Class 1 laser product	
Max. detection range	30m@10% reflectance	
Scanning angle range	276°/360°	
Scanning angle range	Default 0.12°@25Hz，(configurable, Min.0.06°@10Hz）	
Angular resolution	≤25mm (Typical value)	
Repeat accuracy	±6mm@1sigma[1)]	
Temperature drift	360° scanning angle range	±0.6mm/K
	276° scanning angle range	0
Working voltage	DC11V to DC28V	
Power-on time	8s (Typical value)	
Refresh frequency	Default 25Hz (configurable)	
Power consumption	8W (Typical value)	
Output	Ethernet UDP protocol output	
Dimensions	100mm×100mm×115mm	
Ambient temperature	Operating	-30℃ to 50℃ (non-condensing)
	Storage	-40℃ to 70℃
Ambient humidity	Operating	35%RH to 85%RH
	Storage	35%RH to 95%RH
Anti-light interference	80000Lux	
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	
Enclosure rating	IP65/IP67	
EMC	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	

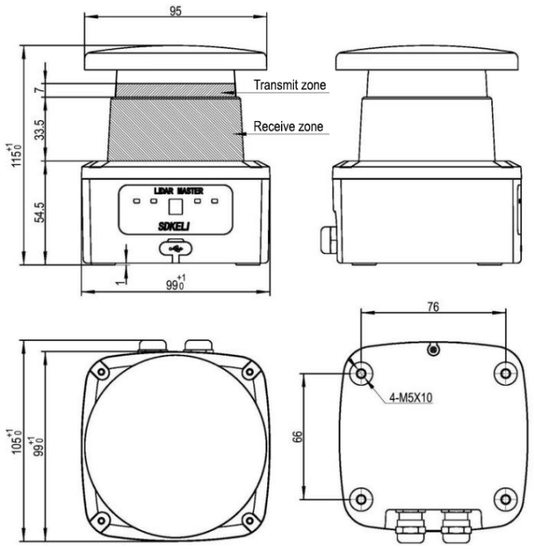
1）This value is obtained by testing the target plate with 10% reflectivity at a distance of 1m from KLM.

7. Ethernet configuration

Default IP address: 192.168.0.10

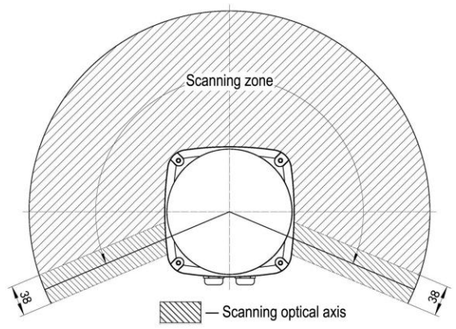
Port number: 2112

8. Overall dimensions



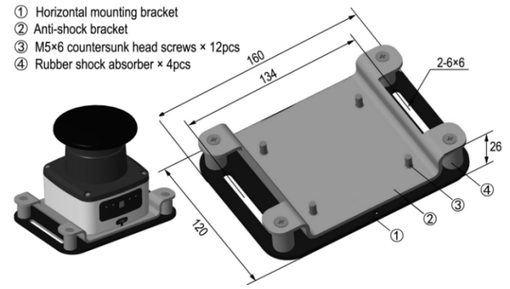
CAUTION

Within the user-set scanning zone, it must be ensured that the optical reception zone (i.e., the shaded zone shown in the figure, which consists of the scanning coverage zone plus the 38mm diameter of the scanning beam) remains free from any obstructions, regardless of the angle of the scanning beam.

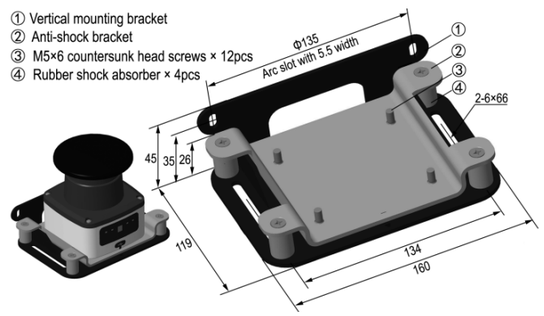


9. Installation

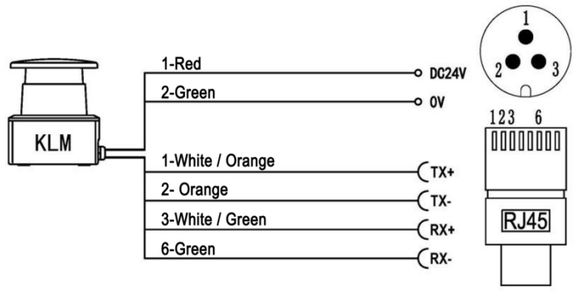
■ **Horizontal installation (SZ)**



■ **Vertical installation (CZ)**



10. Wiring



CAUTION

- 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 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.

11. 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. For the method of changing the lidar IP address, please refer to the "KLM Lidar Configuration Software User Manual".

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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