DADISICK®

Measurement-type Single-layer Scanning Lidar

Obstacle Avoidance And Safety Protection Sensor

DK-LDS2030B5-5S

User Manual

CE RoHS IP65

DADISICK TECHNOLOGY LIMITED

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We reserve the right to make technical changes
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1 Document Description

1.1 Prompt Message

This manual provides instructions and precautions for the correct use of the Freescale DK-LDS2030B5-5S LiDAR product. For safe use of this product, users should also note:

* Comply with necessary safety production guidelines;
* Follow DK-LDS2030B5-5S workplace safety operating procedures and general safety regulations.

This manual is intended for electrical and electronics professionals.

Important Note	Before operating the DK-LDS2030B5-5S, please carefully read this manual to familiarize yourself with its features and functions. This manual does not cover the use of other devices and equipment in the application system where the DK-LDS2030B5-5S is installed and used. For such information, please refer to the relevant documentation for those devices and equipment.

1.2 Content Description

This manual is intended to provide technicians with information on the installation, electrical connections, equipment configuration, and maintenance of the DK-LDS2030B5-5S. Please read the chapters in this manual sequentially. The contents of this manual (in order) include:

* 2. Basic Operation and Precautions
* 3. Product Description
* 4. Product Application
* 5. Equipment Installation
* 6. Electrical Installation
* 7. Equipment Configuration
* 8. Equipment Maintenance
* 9. Troubleshooting
* 10. Technical Specifications

Table 1.1 Basic Product Information

Operating Environment	Indoor / Outdoor
Light Source	Infrared Laser (905nm)
Laser Safety Rating	Class I (GB 7247.1-2012, Eye Safety)
Scanning Angle Range	300° (-60° ~ 240°)
Scanning Frequency	25Hz
Scanning Angle Resolution	0.5°
Measurement Range	0.1m - 20m
10% Reflectivity Range	15m
Built-in Application	Area monitoring
Operating Voltage	DC 10V — 30V
Power Consumption	3.4W (measurement), 7.6W@DC12V / 6W@DC24V (heating)
Enclosure Protection Rating	IP67(GB 4208-2008)
Weight	0.6Kg
Dimensions (L x W x H)	80 × 85 × 102(mm)
Operating Temperature Range	-25℃ - +50℃
Storage Temperature Range	-30℃ - +70℃
Ambient Illumination Range	0lux - 80,000lux

For complete technical information, please read "10 Technical Specifications".

Related Reading

Please use the "LiDAR Diagnostic and Configuration Software (FILPS)" to diagnose and configure the DK-LDS2030B5-5S. For instructions on how to use FILPS, please read the "LiDAR Diagnostic and Configuration Software (FILPS) User Manual".

1.3 Explanation of Symbols

This manual uses the following symbols to mark various important precautions. Special attention should be paid when reading to avoid personal injury and equipment damage.

Danger — Meaning: An imminent dangerous situation that, if not prevented, could cause serious personal injury.

Warning — Meaning: A potential dangerous situation that, if not prevented, could cause serious personal injury.

Handle with caution — Meaning: A potential dangerous situation that, if not prevented, could cause minor personal injury.

Note	Meaning: Potentially harmful situations that, if not prevented, could damage the equipment.
Important Tips	Meaning: Helpful suggestions and tips for efficient and smooth use of the equipment.
Key Points	Meaning: Information about important equipment characteristics.
Explanation	Meaning: Background information on technical issues.
Related Reading	Meaning: Relevant documents that can provide more information.
Software Operation	Meaning: Equipment checks and configurations that require the use of FILPS software.

1.4 Further Reading

Main Point	Complete information about the DK-LDS2030B5-5S can be downloaded online from the following website: https://www.dadisick.com/comm48/Download-Center.htm

1.5 Customer Service

If you have any questions about the DK-LDS2030B5-5S, please feel free to contact us. Our technical support contact information is as follows:

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2 Basic Operations and Precautions

This chapter explains the basic operating procedures and precautions related to personal safety and equipment safety. Please read it carefully before using the DK-LDS2030B5-5S.

2.1 Correct usage method

The DK-LDS2030B5-5S is an optical sensor for non-contact distance measurement. It can be used independently or in a network, primarily for accurate measurement of the surrounding environment and target contours. It can also be used to build security, protection, positioning, and navigation systems.

The DK-LDS2030B5-5S should only be operated by qualified professionals and used in appropriate environments.

Important Note	For information on the environmental requirements for using the DK-LDS2030B5-5S, please refer to "10.1 Datasheet".

2.2 Warning about incorrect usage

- The DK-LDS2030B5-5S is for safety warning purposes only and cannot provide physical protection for personal safety in hazardous environments;
- The DK-LDS2030B5-5S must not be used in hazardous environments where there is an explosive hazard;
- The user assumes all risks associated with using accessories not provided by Freescale.

2.3 Networking Instructions

The DK-LDS2030B5-5S uses standard TCP/IP technology to achieve device networking. In actual network setup, the following prerequisites must be ensured:

- Users are responsible for ensuring the integrity and confidentiality of device data transmitted over the network;
- Necessary network security measures, such as network isolation, firewalls, and antivirus software, must be planned and implemented by the user.

2.4 Disclaimer for Equipment Damage

DADISICK shall not be liable for equipment damage caused by the following reasons:

- Failure to carefully read the user manual;

- Failure to use the equipment correctly as required;
- Operation by unqualified personnel;
- Disassembly of the equipment without DADISICK approval;
- Modification of the equipment without DADISICK approval;
- Technical modifications to the equipment;
- Use of self-made parts.

2.5 Laser Radiation Description

The DK-LDS2030B5-5S uses an infrared laser with a wavelength of 905nm for measurement. The laser beam is invisible to the naked eye.

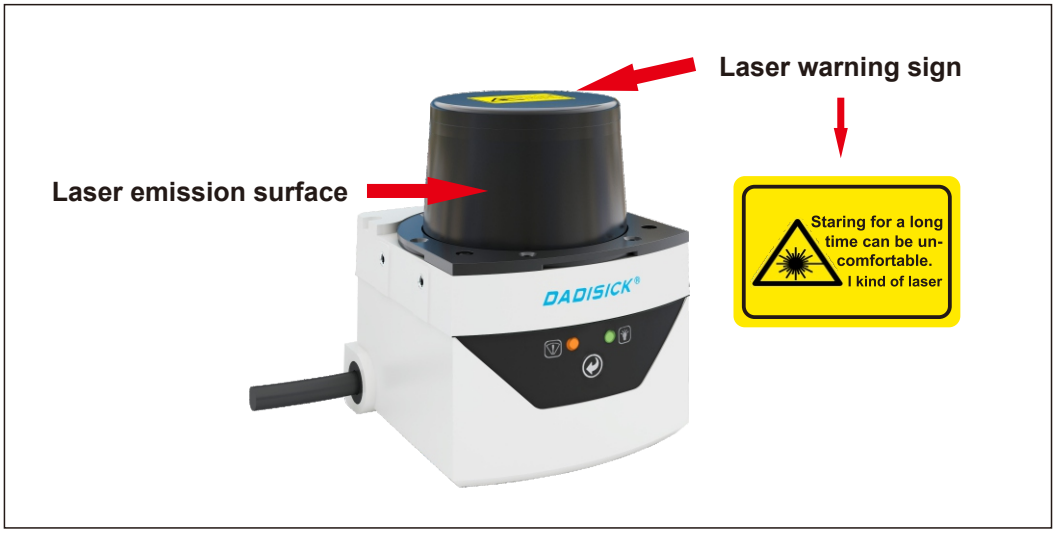
⚠ Operate with caution

DK-LDS2030B5-5S meets the Class I laser safety requirements specified in GB 7247.1-2012 and is harmless to the eyes and skin under normal use. However, improper use may pose safety risks. The main precautions are as follows:

- Do not open the DK-LDS2030B5-5S casing. The DK-LDS2030B5-5S will not stop emitting laser light when the casing is opened while it is powered on.
- Do not look directly at the laser emission surface of the DK-LDS2030B5-5S for extended periods, especially children, as this may cause blindness.

The laser emitting surface of the DK-LDS2030B5-5S is an optical transparent cover, and the laser warning sign is located on the top cover of the equipment, as shown in "Figure 2.1 Laser emitting surface and laser warning sign".

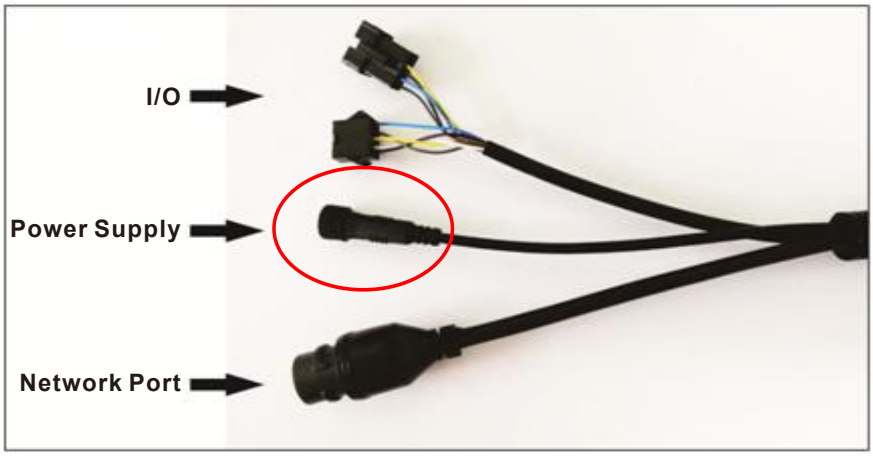
Figure 2.1 Laser emission surface and laser warning sign



2.6 Power supply and rapid start/stop

The DK-LDS2030B5-5S's power supply includes a measurement power supply and a heating power supply, powered via a DC002 type circular waterproof power socket on the side of the device, as shown in "Figure 2.2 Power Socket". The required power voltage is DC10V–30V. The measurement power supply consumes 3.4W under normal operating conditions and a maximum power consumption of 3.9W. The DK-LDS2030B5-5S has a built-in automatic heating module that automatically starts heating when the internal temperature is below 28℃ and automatically stops heating when it is above 40℃. The heating module uses a heating power supply. When heating is activated, the heating power consumption is 7.6W under a DC12V supply voltage and 6W under a DC24V supply voltage. Please provide the power supply according to the above standards during use.

Figure 2.2 Power socket



Important Note

Please read "10.1 Datasheet" carefully to understand the complete power supply requirements of DK-LDS2030B5-5S. Users should follow local regulations to provide necessary protection for the power supply cables to avoid short circuits or power overload; in addition, an emergency circuit breaker should be installed on the power supply cables to quickly disconnect the power supply in an emergency.

- Shutdown method: Turn off the power or unplug the power cable from the power outlet;
- Power-on method: Connect the power cable to the power outlet and turn on the power switch.

The DK-LDS2030B5-5S's device configuration information is stored on non-volatile storage media; starting and stopping the device will not result in the loss of this information.

2.7 Maintenance

Notice

The DK-LDS2030B5-5S must be serviced by employees of DADISICK or a DADISICK-designated organization. Service by other personnel may result in damage to the equipment, and DADISICK will not be liable for any subsequent repairs in such cases.

3 Product Description

3.1 Deliverables

The product deliverables for DK-LDS2030B5-5S are shown in Table 3.1, "Product Deliverables List".

Table 3.1 Product Deliverables List

Deliverables	Quantity	Unit	Description
Certificate of Conformity	1	piece	
Warranty Card	1	piece	
	1	Piece	DK-LDS2030B5-5S LiDAR
	1	Piece	Power Cable
	1	Set	Waterproof RJ45 Connector Cover
	1	Piece	Simple Seating Bracket
	1	Set	1. M4X8 Washer Screws x 4 2. Shock-absorbing Rubber Pads x 8 3. M3 Anti-loosening Nuts x 4 4. M3 Flat Washers x 4 5. Ø4X25X3 Locking Screws x 4
Simple Installation Tools	1	Piece	M4 Hex Wrench

Detailed product documentation, accessory information, diagnostic and configuration software (FILPS) user manual, application development SDK, etc. for the DK-LDS2030B5-5S can be obtained from the following website:

https://www.dadisick.com/comm56/Laser-Scanning-Radars-Download.htm