

Quick Start Manual

LR-1BS5D-C1 2D 270° Mini LiDAR Sensor

Sensing Reality



QSEN-1BS5D-C1-202005



1. Electrical Connection

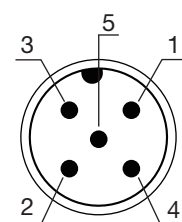
LR-1BS5D-C1 contains two connectors on the back side, which are 4PIN Ethernet, 5 PIN power connector, which is shown as below.



Figure 1: Connection diagram

2. Power connector

Power supply requirement for LR-1BS5D-C1 is 12V~32V. The pin definitions of power connector are as follows:



No.	Definition
1	DC(12~32V)
2	GND
3	SYNC
4	N.C
5	N.C

Figure 2: Power connector

3. Communication

The LR-1BS5D-C1 is connected to the computer through a standard Ethernet RJ-45 Connector, The point cloud packet receiving port number is 2368, The IP setup process is shown below:

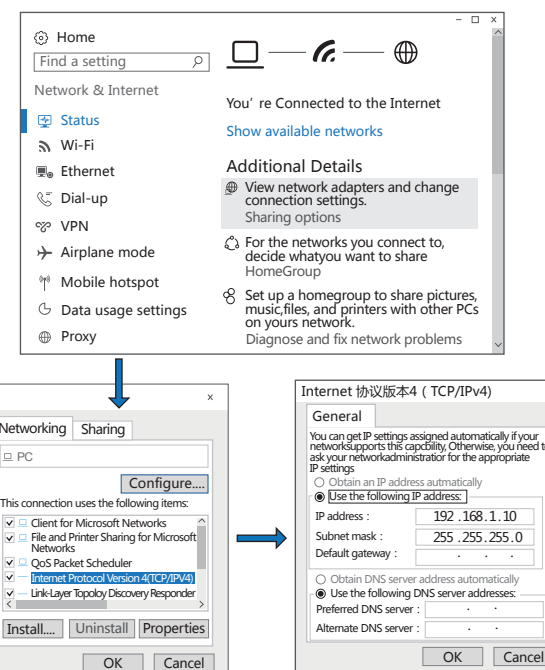


Figure 3: Network IP Settings

Both the LiDAR and the computer IP addresses must be set in the same subnet and conflict should be avoided. Factory setting: IP: 192.168.1.100, subnet mask: 255.255.255.0. Computer IP: 192.168.1.10 Subnet mask: 255.255.255.0.

The IP settings can be modified on the configuration web page.

4. Mechanics Connection

There are 2×M3 screw holes (3mm depth) on the back for mounting of LR-1BS5D-C1. There are also 2×M3 screw holes (7mm depth) at the bottom for mounting of LiDAR. The bottom of the LR-1BS5D-C1 LiDAR has 2 connections.

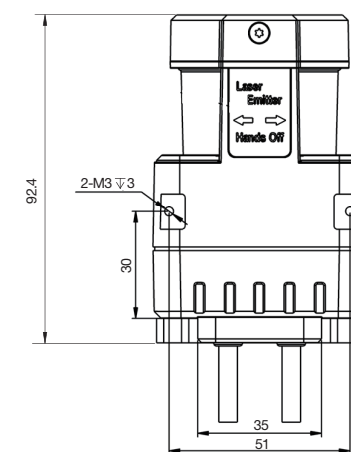


Figure 4: LR-1BS5D-C1 rear view

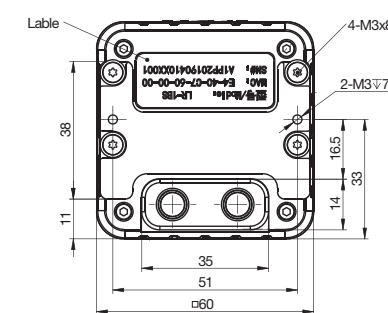


Figure 5: LR-1BS5D-C1 bottom view

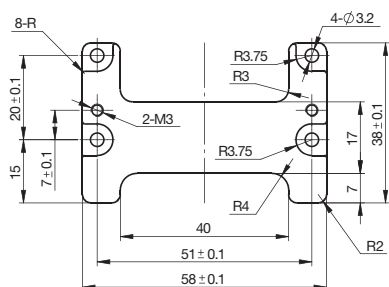
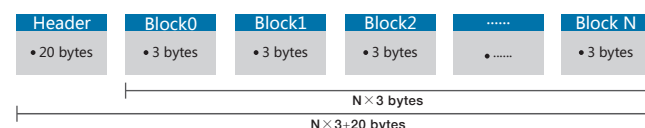


Figure 6: LR-1BS5D-C1 Dimension of Adaptor Plate

5. Communication Data Protocol

TCP/IP standard internet protocol. Data are in little-endian format, lower byte first



The total length of one Data Packet is related to the number of blocks, and the maximum is no more than 1460 bytes, including:
Frame header: 20 bytes
Data blocks: 3 bytes per data block, totaling $N \times 3$ bytes

Offset	Length	Description
0	2	ID, it is always 0xFAF0
2	2	Protocol version, the current code is 0x0200
4	1	Distance scale, distance = readout data x distance scale
5	1	Error status. 0 means OK, a corresponding bit of "1" indicates an error BIT0: Motor fault, BIT1: Abnormal voltage, BIT2: Temperature fault
6	1	Starting angle, resolution 1°
7	1	End angle (not included), resolution 1°
8	2	The number of angles, representing the number of angles between the starting angle and the ending angle, that is, the number of blocks in this packet.
10	2	Bit[14:0]: Rotation rate Bit15: Rotation direction (0: clockwise, 1: counter-clockwise)
12	4	Time stamp: unit ms. Indicates the number of milliseconds after power-on
16	4	Checksum. For the CRC32 checksum of block data (except Frame header), the calculation polynomial is 0x04C11DB7.

Figure 7 Definition of Frame Header

Offset	Length	Description
0	2	Distance readout data, unsigned integer, indicating that the distance is determined by "readout data x distance scale"
2	1	Signal strength, indicates the strength of the received signal, range 0~255

Figure 8 Data block definition

6. Webserver configuration

The LR-1BS5D-C1's parameters can be configured through a web browser:

- Open the web browser (Chrome, Firefox, Edge or other standards-compliant browsers), and enter the sensor's factory default IP address: 192.168.1.100;
- Select motor speed in RPM: 600/900/1200/1500, which is corresponding to 10/15/20/25Hz LiDAR scanning frequency;
- Host IP: User's computer IP Address;
- Host Port: User's computer Port;
- LiDAR IP: LiDAR IP Address;
- Net Mask: Subnet mask;
- Gateway: Gateway address.

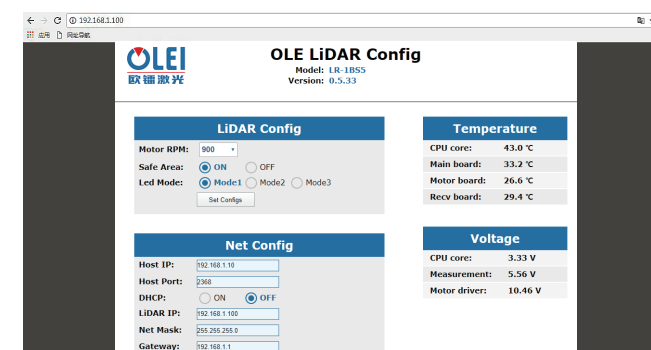


Figure 9: Web page parameter configuration

As the product will be updated constantly, the settings may be changed, subject to actual value.

7. Service and maintenance

Please visit the OLEI official website for enquiry of service and maintenance information;
Website: www.ole-systems.com
Path: Service and Support>>Service and maintenance



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