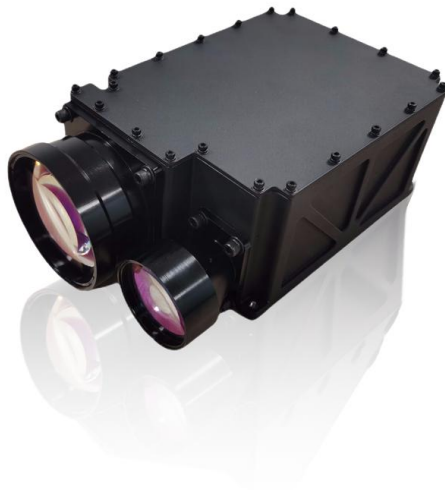


PLRF-L65-B1.2

Laser Range Finder

Technical Specification



Lumispot

1. Scope

PLRF-L65-B1.2 laser rangefinder is a human eye safe laser rangefinder that can detect the target distance and transmit the measured distance to the host computer through serial communication.

2. Development Basis

PLRF-L65-B1.2 laser rangefinder consists of a laser, a transmitting optical system, a receiving optical system and a control circuit. The main performance is as follows:

3. Main functions

The main functions of the laser rangefinder are:

- a. single ranging and continuous ranging;
- b. Range strobe, front and rear target indication;
- c. Self-check function

4. Performance

- a. Wavelength: $1570\text{nm} \pm 5\text{nm}$;
- b. Laser divergence Angle: $1.2 \pm 0.2\text{mrad}$
- c. Maximum range A: 200m-24km (visibility $\geq 25\text{km}$, for large target, reflectivity > 0.2 , humidity $< 80\%$);
- d. Maximum range B: 200m-12km (visibility $\geq 15\text{km}$, Visibility $\geq 25\text{km}$, $2.3\text{m} \times 2.3\text{m}$ vehicle target, target reflectivity ≥ 0.2 , humidity $< 80\%$);
- e. Maximum range C: 200m-6km (Visibility is $\geq 25\text{km}$, with a target area of 0.1 square meters and a target reflectivity of ≥ 0.2 , humidity $< 80\%$)
- f. Continuous ranging frequency: 1~10Hz adjustable;
- g. Ranging accuracy: $\leq \pm 5\text{m}$ (RMS);
- h. Accuracy: $\geq 98\%$;
- i. Minimum measuring range: $\leq 200\text{m}$;

- j. Ranging resolution: $\leq 50\text{m}$;
- k. Power supply voltage: DC18V ~ 32V, typical 28V;
- l. Weight: $< 2275\text{g} \pm 30\text{g}$;
- m. Power consumption $\leq 50\text{W}$ (10Hz);
- n. Size: $\leq 214.3\text{mm} \times 125.5\text{mm} \times 82\text{mm}$ ($\pm 1\text{mm}$) ;
- o. Operating temperature: $-40^{\circ}\text{C} \sim +50^{\circ}\text{C}$;
- p. Storage temperature: $-50^{\circ}\text{C} \sim +65^{\circ}\text{C}$;

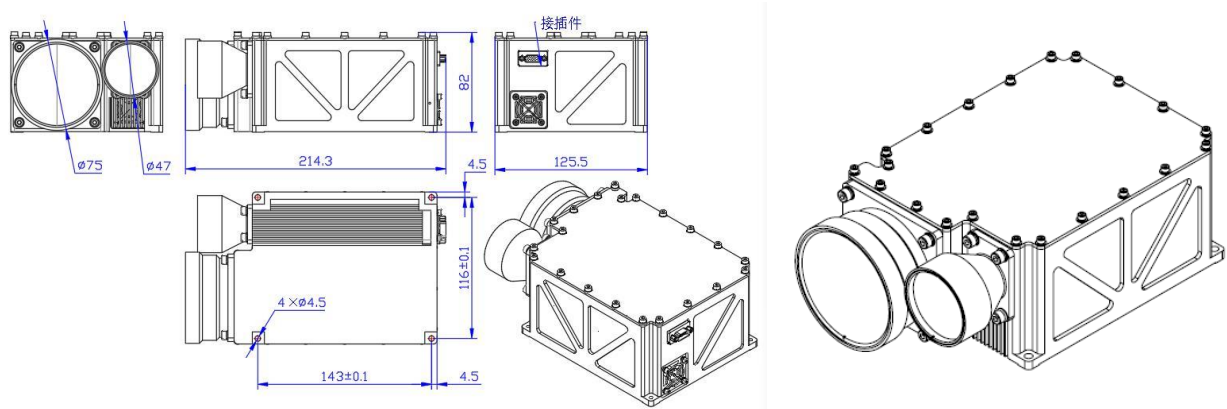
5. Interface

Communication interface: RS422, 115200bps

Electrical interface: The interface model is micro-moment connector J30JM-15ZKP29, the interface definition is detailed in Table 1.

Wire No.	Definition	Remarks
1	DC power supply	+18~32V DC
2		
3		
4		
5	DC power supply ground	+18~32V GROUND
6		
7		
8		
9	Serial T+ (Laser rangefinder sent to platform +)	RS422
10	Serial port R- (platform sent to laser rangefinder -)	
11	Serial T- (Laser rangefinder sent to platform -)	
12	Serial R+ (platform sent to laser rangefinder +)	
13	RS422 Communication GND (not connected)	
14	/	RS422 out of time, width > 10us.
15	/	

6. Installation



7. General requirements

7.1 Reliability

Complies with the provisions of GJB 450A-2004 "General Requirements for Equipment Reliability Work";

Mean Time Between Failures (MTBF): 1800 hours.

7.2 Maintainability

The equipment complies with the provisions of GJB 368B-2009 "General Requirements for Equipment Maintainability Work";

The average time for fault repair at the base level (MTTR): ≤ 30 minutes.

7.3 Testability

It has in-vehicle BIT test measures, online fault detection function, and reports self-check results.

7.4 Assurance

- a) Use maintenance instructions;
- b) Control software and control lines.

7.5 Safety

The product has laser safety warning signs.

7.6 Environmental adaptability

- 1) Operating environment temperature: -40°C to $+55^{\circ}\text{C}$;
- 2) Storage temperature: -50°C to $+65^{\circ}\text{C}$;

- 3) Maximum altitude: 4500m;
- 4) Impact: Half-sine wave, peak acceleration 200m/s², pulse width 11ms, vertical axis 3 times;
- 5) Vibration: Meets GJB150.16A-2009 "Military Equipment Laboratory Environmental Test Methods - Vibration Test", the combined wheeled vehicle vibration environmental requirements of the standard.

8. Notification

- The laser emitted by this rangefinder is 1570nm for human eye safety laser, although it is human eye safety wavelength, but it is recommended not to look directly at the laser;
- When adjusting the parallelism of the optical axis, be sure to block the receiving lens, otherwise the detector will be permanently damaged due to too strong echo;
- This distance measuring module is not airtight, ensure that the relative humidity of the environment is less than 80%, and ensure that the environment is clean and hygienic, so as to avoid damage to the laser;
- The range measurement of the rangefinder is related to the visibility of the atmosphere and the nature of the target. The range measurement will be reduced in conditions of fog, rain and sand. Green leaf clusters, white walls, exposed limestone and other targets have better reflectivity, which can increase the measurement range. In addition, when the Angle of the target to the laser beam increases, the measurement range will be reduced.
- It is strictly prohibited to emit laser to strong reflection targets such as glass and white walls within 150 meters, so as to avoid too strong echo and damage to the APD detector;
- Do not unplug the cable when it is powered on.
- Ensure that the polarity of the power supply is correctly connected; otherwise, the device will be permanently damaged.