# LSP-LRS-1210A

## Laser Range Finder Module

# Technical Specification

Lumíspot

# 1. Overview

The LSP-LRS-1210A Laser Rangefinder is an eye-safe laser rangefinder within the optoelectronic system, capable of detecting target distances and transmitting the measured distance to the host computer via serial communication.

# 2. Structural Composition and Main Performance Indicators

The LSP-LRS-1210A Laser Rangefinder consists of a laser, a transmission optical system, a reception optical system, and a control circuit. The main performance characteristics are as follows:

## 2.1 Range capacity

Visibility under visibility conditions is not less than 20km, for vehicles (2.3m×2.3m target, diffuse reflectance ≥0.3, humidity ≤80%) ranging distance ≥12km.

## 2.2 Main Function

a) single ranging and continuous ranging;
b) Range strobe, front and rear target indication;
c) Self-test function.2.2 Performance

## 2.3 Performance

a. Wavelength: 1535nm±5nm;
b. Laser divergence Angle: ≤0.3mrad;
c. Continuous ranging frequency: 1 ~ 10Hz adjustable;
d. Ranging accuracy: ≤±3m (RMS);
e. Accuracy: ≥98%;
f. Minimum measuring range: ≤50m;
g. Ranging resolution: ≤30m(multi-target);
h. Power supply voltage: DC9V ~ 18V; (Customizable)
i. Weight: < 240g;
j. Power: average power consumption ≤1.5W (1Hz operation), peak power consumption ≤5W;

k. Size: ≤100mm×60mm×70mm;

l. Working temperature: -40℃ ~ +60℃;

m. Storage temperature: -50℃ ~ +70℃;

## 2.4 Interface Description

Communication interface: RS422, 115200bps

Electrical interface: The interface model is Molex connector 51021-0800. The interface definition is described in the following table.

Table 1: Wiring Definition for 8P Socket

| Pin No. | Definition | wire color | Remarks |
|---|---|---|---|
| 1 | RS422 RX+ | Brown | RS422 Receive (+) |
| 2 | RS422 RX- | Blue | RS422 Receive (-) |
| 3 | RS422 TX- | Yellow | RS422 Transmit (-) |
| 4 | RS422 TX+ | Purple | RS422 Transmit (+) |
| 5 | GND | White | Communication Ground |
| 6 | +12V | Red | Power Supply |
| 7 | GND | Black | Power Supply Ground |
| 8 | Empty | Green | Empty |

## 2.5 Dimension

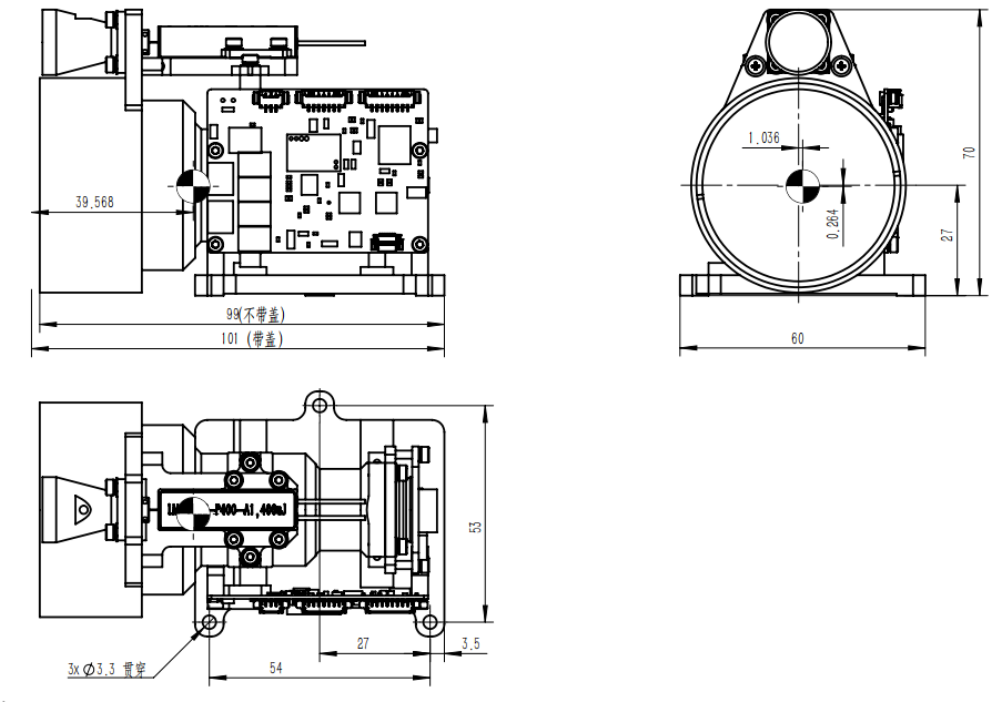


Figure 1: Three-dimensional Envelope Diagram

## 3. User Precautions

The laser emitted by this rangefinder is 1535nm 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 forbidden to emit laser to strong reflection targets such as glass and white walls within 50 meters, so as to avoid too strong echo and damage of 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.