



OTL-LSP LRS 1010A

Laser Range Finder Module

Eye-Safe • High Accuracy • Compact Size • Stable Performance • Easy Integration



Product Overview

The **OTL-LSP LRS 1010A** laser ranging module is an eye-safe laser ranging module in the photoelectric system, which can detect the target distance and transmit the measured distance to the host computer through serial communication.

The module consists of a laser, a transmitting optical system, a receiving optical system and a control circuit. It features small size, light weight, stable performance, and can be easily integrated into various electro-optical systems.

It supports single ranging and continuous ranging, range strobe, front and rear target indication, and self-inspection function. With high ranging accuracy and reliable performance, it is suitable for handheld, vehicle-mounted, and pod-based applications.



1535 nm
Wavelength



≥ 15 km
Max. Range
(Large Target)



≥ 10 km
Max. Range
(Vehicle)



≥ 7 km
Max. Range
(Personnel)



≤ ± 2 m
Ranging
Accuracy
(RMS)



1 ~ 10 Hz
Ranging
Frequency



≤ 140 g
Weight



≤ 83 × 48 × 46 mm
Size



-40°C ~ +60°C
Operating
Temperature

Product Highlights



Long-Range Measurement

≥ 10 km for vehicles (2.3 m × 2.3 m),
≥ 15 km for large targets (buildings), under good visibility conditions.



High Accuracy

Ranging accuracy ≤ ± 2 m (RMS), accuracy ≥ 98%.



Eye-Safe (Class 1)

1535 nm laser wavelength, safe for human eyes.



Multiple Functions

Single / continuous ranging, range strobe, front & rear target indication, self-inspection function.



Standard Interface

RS422, 115200 bps, easy integration and secondary development.



Compact & Lightweight Design

Small size (≤ 83 × 48 × 46 mm), light weight (≤ 140 g), low power consumption.

DATASHEET

OTL-LSP LRS 1010A

Laser Range Finder Module | Technical Datasheet

PRODUCT OVERVIEW

The OTL-LSP LRS 1010A laser ranging module is described in the source as an eye-safety laser ranging module for photoelectric systems. It detects target distance and transmits the measured distance to a host computer through serial communication.

The module consists of a laser, transmitting optical system, receiving optical system, and control circuit. The source lists single and continuous ranging, range strobe, front and rear target indication, and self-inspection functions.

The source specifies a vehicle ranging distance of ≥ 10 km under visible conditions with visibility ≥ 15 km, diffuse reflectance ≥ 0.3 , and humidity $\leq 80\%$. Other target categories are not quantified in the source.



PRODUCT HIGHLIGHTS

Feature	Specification from source
Laser wavelength	1535 nm $\pm$ 5 nm
Vehicle range	≥ 10 km for a 2.3 $\times$ 2.3 m vehicle target under stated conditions
Ranging accuracy	$\leq \pm 2$ m (RMS); accuracy $\geq 98\%$
Flexible operation	Single and continuous ranging; adjustable 1–10 Hz frequency
Target indication	Range strobe; front and rear target indication; self-inspection
Interface	RS422 serial interface, 115200 bps
Compact design	Weight ≤ 140 g; dimensions $\leq 83 \times 68 \times 46$ mm
Power	Average ≤ 1.5 W at 1 Hz operation; peak ≤ 5 W

Technical Specifications

Optical, electrical, mechanical, and environmental data

OPERATING RANGE & PERFORMANCE

Parameter	Value in source
Test visibility	≥ 15 km
Diffuse reflectance	≥ 0.3
Relative humidity	$\leq 80\%$
Vehicle target size	2.3×2.3 m
Vehicle ranging distance	≥ 10 km
Laser wavelength	$1535 \text{ nm} \pm 5 \text{ nm}$
Laser divergence angle	≤ 0.3 mrad
Continuous ranging frequency	1–10 Hz, adjustable
Ranging accuracy	$\leq \pm 2$ m (RMS)
Accuracy	$\geq 98\%$
Minimum measuring range	≤ 50 m
Ranging resolution	≤ 30 m (multi-target)

ELECTRICAL, MECHANICAL & ENVIRONMENTAL

Parameter	Value in source
Power supply voltage	DC 9–16 V (can be customized)
Average power consumption	≤ 1.5 W (1 Hz operation)
Peak power consumption	≤ 5 W
Weight	≤ 140 g
Dimensions	$\leq 83 \times 68 \times 46$ mm
Working temperature	-40 °C to $+60$ °C
Storage temperature	-50 °C to $+70$ °C

Interfaces & Installation

Serial communication, connector pinout, and mechanical drawing

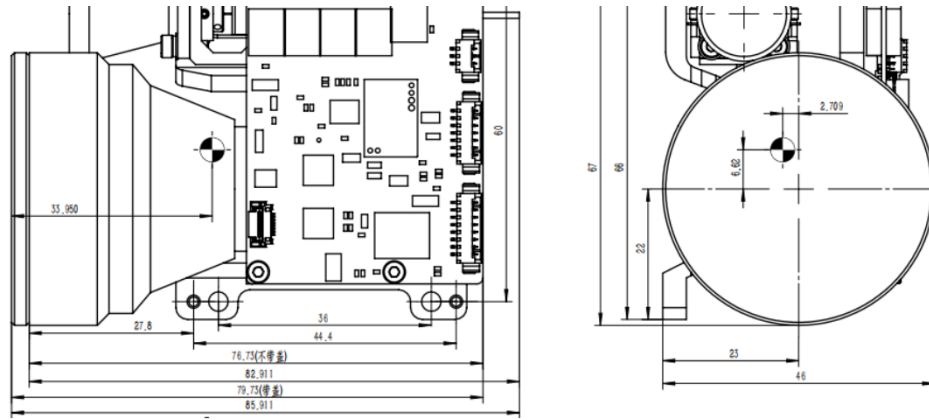
COMMUNICATION INTERFACE

Item	Specification
Communication interface	RS422
Baud rate	115200 bps
Connector model	Molex 51021-0800
Connector type	8-pin socket

8-PIN SOCKET WIRING DEFINITION

Pin	Signal	Wire color	Remarks
1	RS422 RX+	Brown	RS422 receive +
2	RS422 RX-	Blue	RS422 receive -
3	RS422 TX-	Yellow	RS422 send -
4	RS422 TX+	Purple	RS422 send +
5	GND	White	Communication interface
6	+12V	Red	Power supply
7	GND	Black	Power supply grounding
8	Empty	Green	Empty / unused

INSTALLATION DIMENSION DRAWING



The mechanical drawing is reproduced from page 3 of the supplied PDF. Use the original drawing for detailed dimension callouts and installation tolerances.

Precautions for Use

Handling, environmental limits, and safe integration

SAFETY AND HANDLING

- The source describes the 1535 nm laser as eye-safe, but advises users not to look directly into the laser.
- When adjusting optical-axis parallelism, cover the receiving lens to avoid permanent detector damage from excessive echoes.
- The module is not airtight. Keep relative humidity below 80% and maintain a clean environment.
- Measurement range depends on atmospheric visibility and target reflectance. Fog, rain, and wind-blown sand can reduce range; increasing the angle between the target and laser beam can also reduce range.
- Do not emit the laser at highly reflective targets such as glass or white walls within 50 m, to avoid strong echoes that may damage the APD detector.
- Do not connect or disconnect cables while the device is powered.
- Check power-supply polarity carefully to avoid permanent equipment damage.

INTEGRATION CHECKLIST

- Confirm the required DC supply is within 9–16 V unless a customized voltage version is ordered.
- Use the specified Molex 51021-0800 connector and verify wire colors against the source pinout.
- Confirm installation dimensions against the mechanical drawing before fabricating brackets.
- Validate target and environmental conditions when assessing the specified ≥ 10 km vehicle range.

SOURCE AND REVIEW NOTES

Source: OTL-LSP LRS 1010A English technical specification, supplied PDF, 4 pages.

The source provides a quantified operating range only for a vehicle target (≥ 10 km); this catalog does not infer separate building or personnel ranges.

The cover graphic is a designed marketing-style visual based on the source's product appearance and stated specifications. Refer to the original source document for authoritative technical values.



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