

Laser Rangefinder

1535nm Laser Rangefinder Module

Long-range, high-precision, tactical-grade embedded eye-safe laser ranging core solution.

- First-Class Eye Safety
- Extended Operational Range
- High Precision & Stability
- Military-Grade Robustness
- High Integrability



One Platform Many Possibilities

Contact Us sales@venuslabtech.com

Get a Quote



Get Expert Advice
+65 8099 5547



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Overview

VL-ELRF Series: The Ultimate Precision in Tactical Eye-Safe Ranging

The VL-ELRF series is a premier line of laser rangefinding modules built upon independently developed 1535nm Erbium-doped glass laser technology. These modules are specifically engineered for high-performance integration in defense, security, and professional optoelectronic systems. By utilizing the single-pulse Time-of-Flight (TOF) method, the series achieves exceptional accuracy over extreme distances while maintaining a compact and lightweight form factor.

Designed to withstand harsh environments, the VL-ELRF series features Class 1 eye safety, high shock resistance, and stable performance across a broad temperature range. Whether integrated into handheld reconnaissance devices, vehicle-mounted systems, or high-end UAV gimbals, these modules provide the reliable data necessary for precision target acquisition and long-range observation.

The VL-ELRF series (1535nm Eye-safe Laser Rangefinder) is designed for a wide array of professional and tactical applications due to its long-range capabilities, high precision, and human-safe wavelength. Below are the primary application fields for this series:

- **Handheld Tactical Equipment:** These modules are highly suitable for integration into portable reconnaissance devices and handheld long-range observers.
- **Airborne Payloads (UAV Pods & Gimbals):** Due to their compact size and lightweight design, they are ideal core sensors for UAV gimbals, airship pods, and helicopter-mounted electro-optical systems.
- **Vehicle-Mounted Reconnaissance & Observation:** The series can be integrated into land-based vehicle observation towers or armored vehicle fire control systems for long-distance target acquisition.
- **Advanced Sighting Systems:** These modules provide critical distance data for high-end optical sighting systems used in professional and tactical environments.
- **Strategic Long-Range Monitoring:** Flagship models (like the VL-ELRF-15) are optimized for fixed-station strategic observation platforms, offering detection ranges exceeding 20km for large targets.
- **System Integration & Secondary Development:** With standardized communication protocols (TTL/RS422) and high shock resistance (up to 75g), the modules serve as the core ranging engine for a variety of custom electro-optical platforms.

Qualification

General Technical Specifications

Feature	Specification	Remarks
Operating Wavelength	1535 nm ± 5 nm	Erbium glass laser
Laser Eye Safety	Class 1	Eye-safe at all distances
Ranging Accuracy	±1.0 m to ±1.5 m	High-precision TOF measurement
Ranging Frequency	1 Hz to 10 Hz	Adjustable
Beam Divergence	0.3 mrad	High collimation (VL-ELRF-3 is <0.6mrad)
Operating Temp	-40°C to +60°C	Up to +70°C for some models
Storage Temp	-55°C to +70°C	Up to +75°C for some models
Impact Resistance	75 g	High durability for tactical missions
Power Supply	DC 5V ~ 28V	Wide voltage input

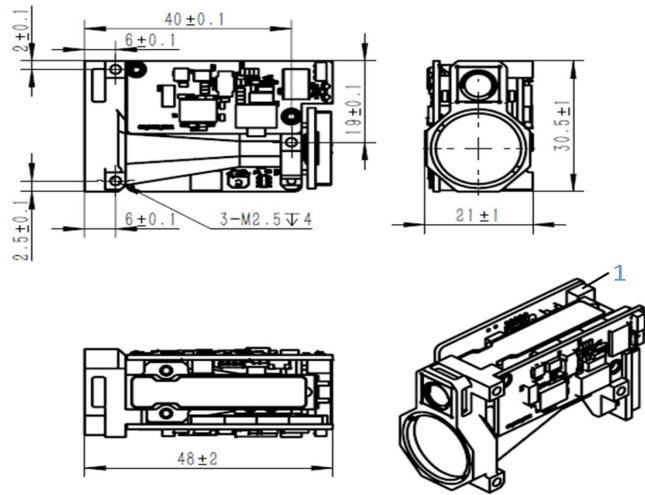
Selection Chart

VL-ELRF Series Selection Guide

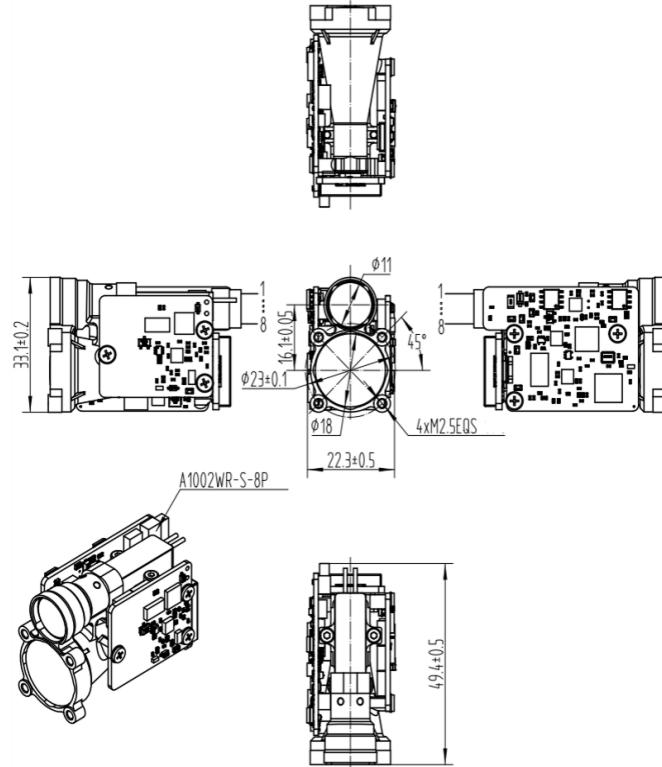
Model	Vehicle Range* ()	Large Target Range* ()	Weight	Primary Interface
VL-ELRF-3	3,000 m	5,000 m	< 33 g	TTL/RS422
VL-ELRF-5	5,000 m	6,000 m	< 40 g	TTL
VL-ELRF-6	6,000 m	7,000 m	< 55 g	RS422
VL-ELRF-8	8,000 m	10,000 m	< 75 g	RS422
VL-ELRF-10	10,000 m	12,000 m	< 130 g	RS422
VL-ELRF-15	15,000 m	20,000 m	< 270 g	RS422

Dimensions Diagram

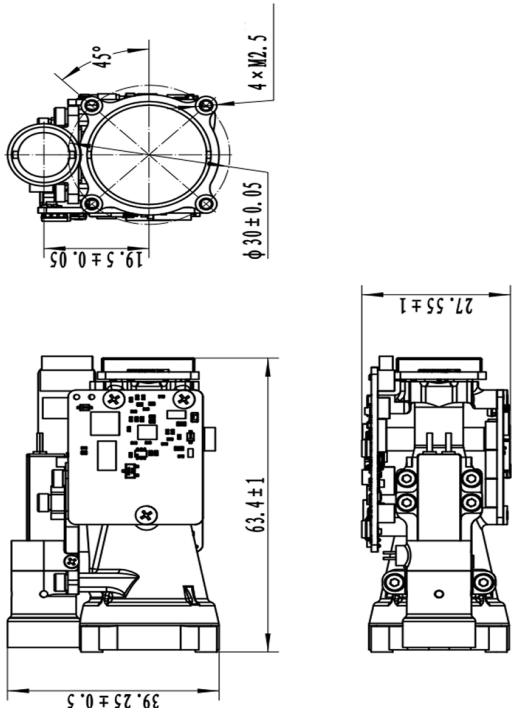
VL-ELRF-3



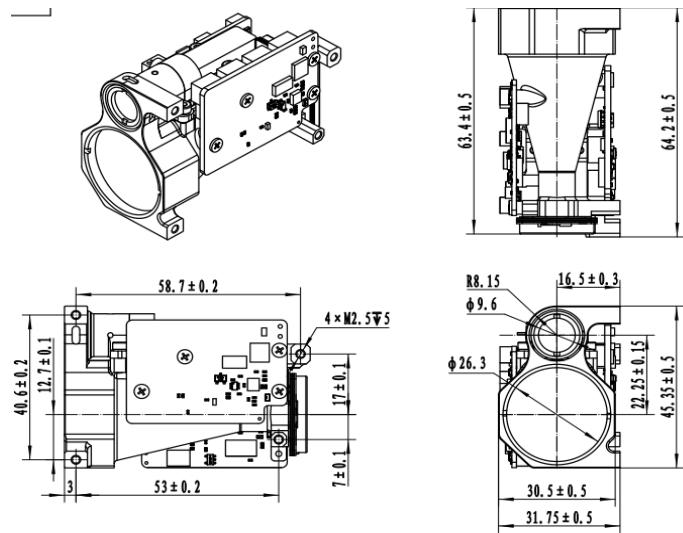
VL-ELRF-5



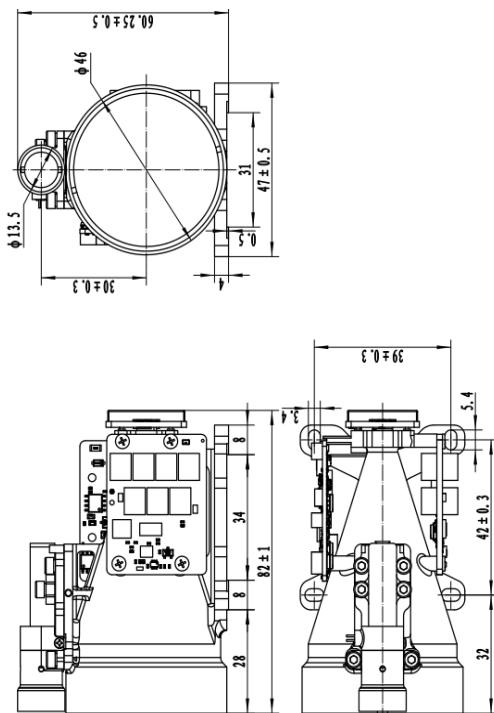
VL-ELRF-6



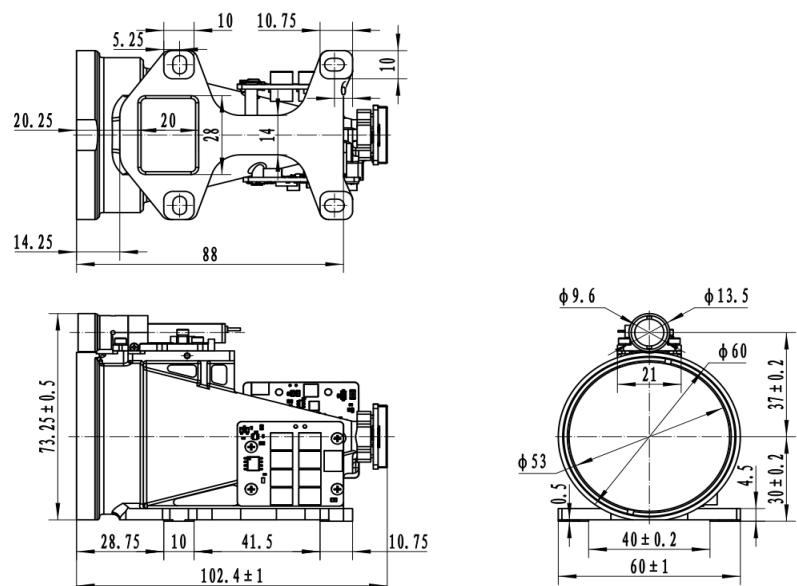
VL-ELRF-8



VL-ELRF-10



VL-ELRF-15



Service & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

1. Warranty Policy

Quality First, Worry-Free Operation

Warranty Period: We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

Coverage: We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

Rapid Response: Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

2. Technical Support

Expert Team, Full-Process Guidance

Technical Consultation: Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

Scheduled Maintenance: We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

Training Services: We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

3. Logistics & Delivery

Precision Packaging, Global Reach

Professional Packaging: Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

Logistics Partners: We partner with top-tier global logistics providers (**DHL / FedEx / UPS / SF Express**) to offer reliable shipping with real-time tracking.

Shipping Insurance: All shipments are fully insured to eliminate logistics risks.

4. Compliance & Certification

Strict Standards, Total Compliance

Quality Certification: Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE and RoHS**.

Export Compliance: "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH standards**, ensuring safety and global compliance."

Explore Series

Model	Large Target Range* ()	Primary Interface	Weight	Vehicle Range* ()
VL-ELRF-3	5,000 m	TTL/RS422	< 33 g	3,000 m
VL-ELRF-5	6,000 m	TTL	< 40 g	5,000 m
VL-ELRF-6	7,000 m	RS422	< 55 g	6,000 m
VL-ELRF-8	10,000 m	RS422	< 75 g	8,000 m
VL-ELRF-10	12,000 m	RS422	< 130 g	10,000 m
VL-ELRF-15	20,000 m	RS422	< 270 g	15,000 m

 Get in touch with our team to explore configurations, request a quote, or learn more about customized solutions tailored to your needs.

Let us help you move science forward—faster and smarter.

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