evve
LONG RANGE

PRODUCT
SHEET
2020

DIODE

LASER RANGE FINDERS (LRF)

The ELR laser range finders (LRF) offer the best in accuracy, reliability, energy-sufficiency and range. Our diode LRF's efficiently measure distances to non-cooperative targets up to 20 km away with high precision. They are robust and light-weight. Due to their high ranging rate (up to 25 hertz) tracking of fast-moving objects is possible. The devices all use the same communication interfase and can be integrated into different systems. The LRF's use 1.5-µm diode lasers and are completely eye-safe: the wavelength is invisible to the human eye and not detectible by I²-based night vision equipment.

ELR LRF's meet MIL-STD-810-G. They are especially developed for military applications, where accurate and instant distance information enables a prompt response to threats.

SOME TYPICAL FIELDS OF APPLICATION:

- MOBILE SURVEILLANCE
- WEAPON-MOUNTED FIRE CONTROL SYSTEMS (FCS)
- AIRBORNE MULTI-SENSOR PLATFORMS (MSP) & GYRO STABILIZATION SYSTEMS
- BORDER SURVEILLANCE
- MULTI-SENSOR CAMERA PLATFORMS

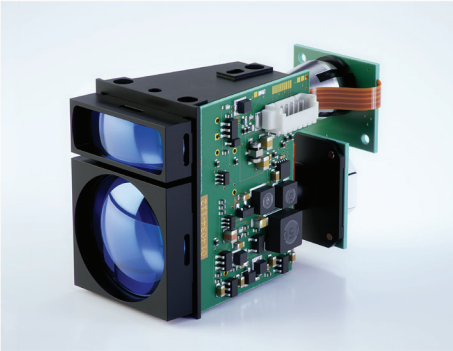
FEATURES

- FLEXIBLE INTEGRATION: COMPACT & EXTREMELY LIGHT-WEIGHT, SAME SOFTWARE FOR ALL MODELS
- LOW TOTAL COST OF OWNERSHIP: MAINTE-NANCE-FREE, HIGH MTBF LEVELS & HIGH-RELIABILTY
- SUPERB POWER MANAGEMENT DUE TO ADVANCED LASER DIODE TECHNOLOGY
- EXCEPTIONAL FIRST HIT PROBABILITY: RELIABLE, ACCURATE & FAST DETECTION
- INVISIBLE TO NIGHT VISION DEVICES
- FAST WORKING SYSTEM: FAST STARTUP & PASSIVE COOLING
- 100% USER SAFE WHEN RANGING COOPERATIVE TARGETS: LOW SINGLE PULSE ENERGY
- 0 METER NOHD: TOTALLY EYE-SAFE, EVEN WHEN USED WITH BINOCULARS

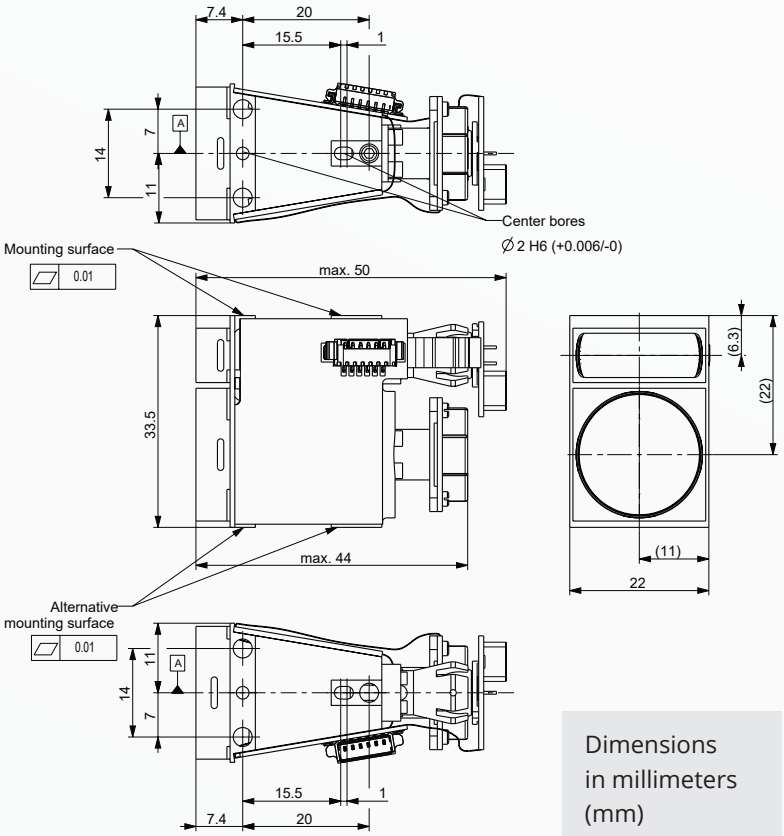
MODELS

The LRF's are available in three models: LRF-5, LRF-14 and LRF-20. ELR integrates the LRF's in the ELR medium and long range visual and/or thermal cameras. The LRF's can also be delivered as stand-alone or integratable device into your own system. An European export license is required. ELR will assist you with the application.

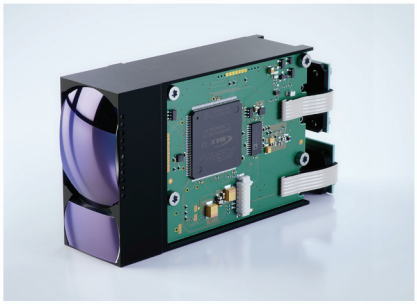
LRF-5



The lRF-5 is the world's smallest LRF module in its range class. With an extremely low weight of less than 33 grams, it can measure target within 5 km range, with an accuracy better than 0.5 meter. Thanks to its exceptionally compact size, low energy consumption and robust, shock-resistant construction, the LRF-5 module is ideal for handheld and weapon-mounted optoelectronic systems or UAV applications.

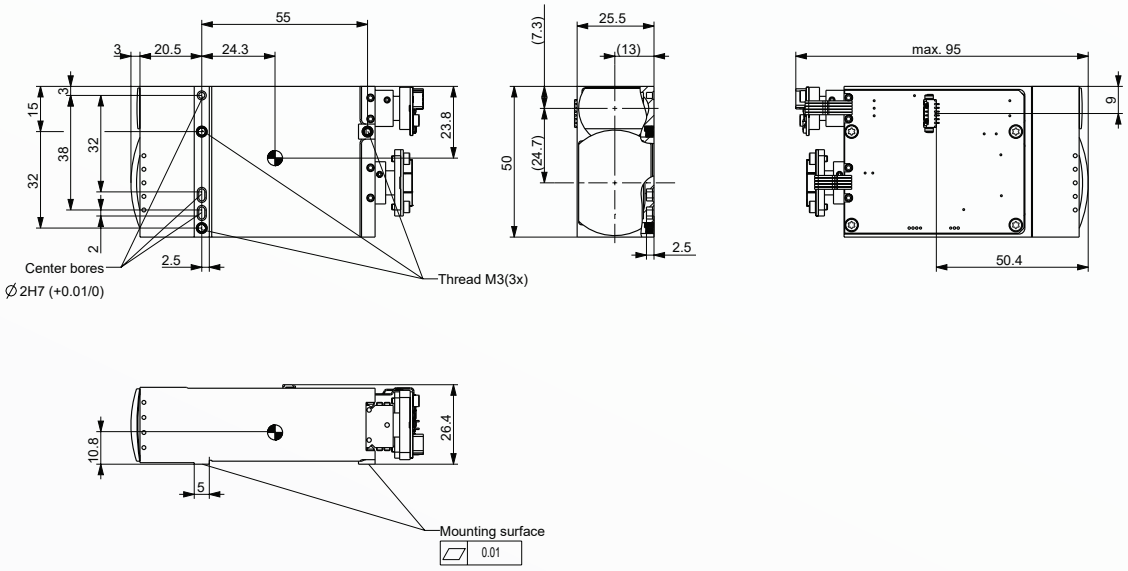


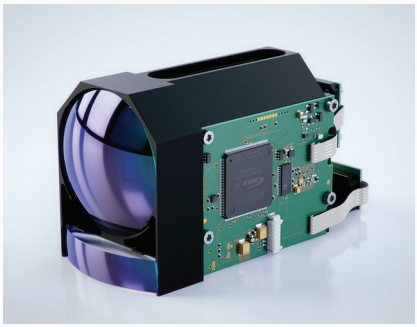
Dimensions in millimeters (mm)



LRF-14

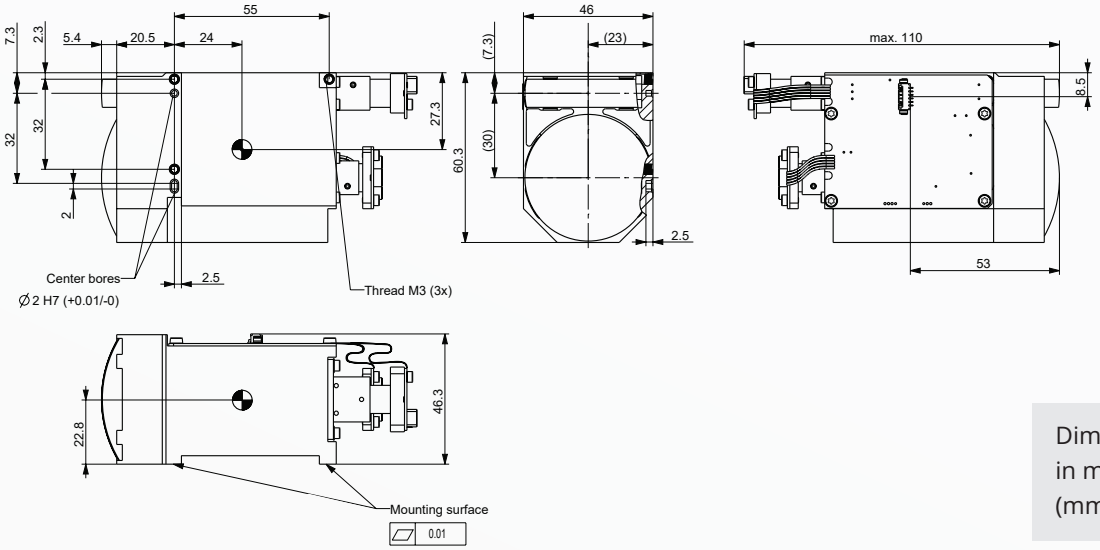
The LRF-14 measures distances to non-cooperative targets within a range of 14 km with an accuracy of at least 1 meter and a measurement rate of up to 25 Hertz. Its weight is only 95 grams.





LRF-20

The LRF-20 measures distances to non-cooperative targets within a range of 20 km with an accuracy of at least 1 meter and a measurement rate of up to 25 hertz. Its weight is only 160 grams.



Dimensions in millimeters (mm)

TECHNICAL SPECIFICATIONS

ALL MODELS

Measurement technology:	Pulse accumulation
Wavelength at 20° C:	~1.55 µm
Laser class:	Class 1 (IEC 60825-1:2014)
Operation:	Single measurement, continuous ranging 1 - 25 Hz
Resolution:	0.1 m
Measurement time:	25 ms to 3,000 ms
Multi-target detection:	5
Discrimination of multi-targets:	25 m
False alarm:	< 1%
ENVIRONMENTAL	
Operating temperature:	-40°C to +80°C
Protection class:	IP00 (Integrated into ELR cameras: IP67)
ELECTRICAL & COMMUNICATION	
Data interface:	UART (LVTTL 3.3 V)
Interface connector:	Molex # 53261-0671 (connects to # 51021-0600)

MODEL:	LRF-5	LRF-14	LRF-20
Divergence:	~ 0.8 mrad	~ 0.7 mrad	~ 0.7 mrad
Measurement range:	10 m to 5,000 m	10 m to 14,000 m	10 m to 20,000 m
TYPICAL MEASUREMENT RANGE			
Man size target * :	≥ 2,000 m	≥ 2,750 m	≥ 3,750 m
NATO standard target * :	≥ 3,000 m	≥ 4,500 m	≥ 6,000 m
Extended target * :	≥ 4,500 m	≥ 8,000m	≥ 11,000 m
Accuracy:	≤ 0.5 m	≤ 1 m	≤ 1 m
MECHANICAL			
Weight	≤ 33 g	≤ 95 g	≤ 160 g
Dimensions (L x B x H)	50 × 22 × 34 mm	95 × 25 × 50 mm	110 × 46 × 60 mm
ENVIRONMENTAL			
Mechanical shock:	1,500 g, 0.7 ms	1,000 g, 1 ms	1,000 g, 1 ms
ELECTRICAL & COMMUNICATION			
Input voltage range:	2 - 5.5 V DC (opt. 4 -16 V DC)	4 - 16 V DC	4 - 16 V DC
Power cons. Operational:	≤ 0.01 W	≤ 0.01 W	≤ 0.01 W
Power cons. During measurement:	≤ 1.8 W)	≤ 2 W	≤ 2 W

* Man size target: (0.75 m × 0.75 m, albedo 30%, 10 km visibility)
NATO standard target: (2.3 m × 2.3 m, albedo 30%, 10 km visibility)
Extended target: (Beam filling, albedo 50%, 23 km visibility)

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