Diode-Pumped Eye-Safe Laser Range Finder

ABOUT L-3 ALST

Part of L-3 Communications, a global leader in defense technologies and services, Advanced Laser Systems Technology (ALST) is an ISO 9001 certified full-service designer and manufacturer of military grade Eye-Safe Laser Range Finder, Laser Designator, and Multi-Function Laser Systems.

PRODUCT OVERVIEW

The Miniature Laser Range Finder (MLRF) is smallest and lightest member of the L-3 ALST Diode-Pumped Eye-Safe Laser Range Finder product family. Weighing less than 470 grams, firing with nominal 5 mJ output energy, optimized beam divergence, and sensitive APD receiver, the MLRF provides even the most demanding users with exceptional performance in a ruggedized, lightweight compact package.

FEATURES

- Up to 20 km ranging capability, 39.9 km range gate
- 5 mJ nominal energy
- Total weight < 470 gm
- Dimensions 5 in. L x 2.7 in. W x 1.9 in. H
- Diode-Pumped Erbium: Glass
- Avalanche Photo Diode Detector (APD)
- Pulse Repetition Frequency ≤ 1 Hz Nominal
- 14 to 32 VDC
- MIL-STD Tested Environment
DP-ELRF I MLRF

Diode-Pumped Eye-Safe Laser Range Finder

SYSTEM
Max Range: See Figure 1
Min Range: 50 m
Boresight Accuracy (relative to nominal emission axis): \( \leq \pm 200 \mu\text{rad} \) at ambient temperature
Boresight Retention over operating temperature (relative to initial factory alignment): \( \leq \pm 150 \mu\text{rad} \) at ambient temperature
MTBF: 11,000 hours (uninhabited airborne cargo environment @ 40 °C - system powered and firing 25% of time)
7,500 hours (composite wheeled environment @ 50 °C - system powered and firing 25% of time)

LASER
Wavelength: 1535 nm ± 5
Class: Class 1 IAW ANSI-Z136.1-2007
Pulse Rate: \( \leq 1 \text{ Hz Nominal} \)
Laser Shot Life: > 1,000,000 shots
Beam Divergence: Note: 1
Energy Output: Note: 1
Pulse Width: Note: 1

RECEIVER
Range Resolution: 1 m
Range Accuracy: 50 to 300 m Target 7 m 1σ
301 to 10,000 m Target Range: 4 m 1σ
Range Logic: First / Last
Multi-target discrimination: \( \geq 25 \text{ m} \)
Detector Type: Note: 1
Receiver Sensitivity: Note: 1

MECHANICAL
Weight: \( \leq 470 \text{ g (1.04 lbs)} \)
Dimensions: 126.5 mm (4.98 in.) X 686.1 mm (2.68 in.) X 49.3 mm (1.94 in.) (see Figure 2)
Environmental Enclosure: Open frame

ELECTRICAL
Communications Protocol: RS-232 Std (RS-422 and RS-485 available)
Input Voltage: 14 VDC to 32 VDC
Power Consumption: \( \leq 20 \text{ W} \)

ENVIRONMENTAL
Operating Temperature: -40 °C (-40 °F) to +71 °C (+159.8 °F)
Environmental Standards: MIL-STD-810F and MIL-STD-461F

NOTE 1: These parameters, together and in combination with the atmospheric and target characteristics shown, provide the user with the achievable range performance shown in Figure 1.

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