SENTINEL MLRF X

Multi-Functional LONG RANGE THERMAL BINOCULAR

The SENTINEL MLRF X is a ruggedized, multi-sensor thermal imaging and observation binocular designed for conventional forces, special operations forces, and homeland security units operating in the High North and Arctic environment. The system delivers ISR, target acquisition, and situational awareness across day, night, and degraded visual environments — including polar darkness, white-out, blowing snow, and the contested electromagnetic conditions characteristic of Arctic operations.

A 640 × 512 uncooled thermal imaging sensor provides long-range detection and classification under all weather conditions, while an AI-enabled processing engine analyzes live video in real time to automatically detect vehicles, vessels, and personnel — accelerating threat identification across featureless Arctic terrain and maritime littoral zones. A complementary direct view optical channel provides 7× magnification, 7° field of view, and ±5 SD visual acuity to support sustained observation during extended High North patrols. The system incorporates an eye-safe laser rangefinder with 10 km ranging capability, digital magnetic compass, and embedded GPS, enabling real-time range, azimuth, and target location in GPS-degraded and magnetically anomalous Arctic environments. This sensor-to-decision capability supports maritime domain awareness, call-for-fire, and network-enabled operations aligned to Arctic experimentation objectives. Engineered to MIL-STD durability standards, the SENTINEL MLRF X is optimized for 24/7 continuous operations in the austere and strategically contested High North.

Infrared sensors	
Detector type	Vox
Resolution (pixels)	640 x 512
Spectrum (µm)	8-14
Pitch size (µm)	12
NETD (mK) @F1.0	<40
Frequency (Hz)	50
Objective Focal Length (mm)	50 @F1.0
Field of View (°)	8.8 x 7.0
Non-uniformity correction	Auto
Detection/Recognition of tank target (km)	6.3/1.6
Detection/ Recognition of human target (km)	2.3/0.6
Digital Noise Reduction (DNR)	Yes
Wide dynamic range WDR	Yes
Video	PAL/NTSC
Zoom	1-4x (1-8x optional)
Direct view	
Optical magnification (x)	7
Field of View (°)	7
Exit pupil diameter (mm)	7
Day channel	
Objective Focal Length (mm)	35
Eyepiece Focal Length (mm)	13.9
Resolution (pixels)	1280x1024
Frequency (Hz)	30
Field of View (°)	12.4 x 7.0
Zoom	1-4x (1-8x optional)
Use with night vision goggles	Yes

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LRF	
Laser type	Semiconductor laser, Class I
Laser wavelength (µm)	1,550
Detection range (m)	20 - 10,000
Ranging accuracy (m)	±2
Laser pointer	
Wavelength (nm)	850 (IR)
GPS	
Type	GPS, Galileo (GNSS)
Target locating error	±5M (target<1km)
Format	Lat/Long and MGRS
Wi-Fi	Optional
Fusion	
Combing day and thermal image	Yes
Fusion modes	At least 3 modes of image combining
Magnetic compass	
Azimuth resolution/accuracy	1°/ 1°
Elevation resolution/accuracy	1°/ 1°
Elevation range	+/- 80°
Mechanics and environmental	
Interpupillary distance (mm)	64
Eyepiece diopter adjustment (dpt)	±5
Internal video & photo recording	Yes
Connectivity	Power input, RS232 (remote control), USB (output videos and images)
Continuous working time (hours)	Up to 6 hours when LRF measurements are disabled Up to 5 hours during full operation (all functions active)
Dimensions with eyepiece (mm)	190 x 160 x 90
Weight without battery (kg)	1.5
Power	Internal battery: rechargeable 4x18650, DC power supply 12VDC
Temperature range (°C)	-30 to +60
Storage temperature range (°C)	-35 to +65
Waterproof	MIL STD 810 (1m for 30 min)
Mechanical interface/mounts	1/4' tripod mount

DELIVERY SET

Supplied with the following standard accessories:

- Soft carrying case
- 4x 18650 batteries
- Li-ion battery USB charger
- Hard carrying case
- Operation manual
- Multi-use cable

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