Cincinnati Electronics

DTAS NIGHTCONQUEROR 640

The NightConqueror Infrared Target Acquisition Sight offers a simple "drop-in" field replacement for the LAV-25 turret sight. CE's NightConqueror high-performance thermal imagers have been selected as the imager of choice for new platforms and as an upgrade to many existing legacy vehicles for U.S. and foreign militaries. With improved capability in nighttime imaging, degraded daytime weather conditions, and battlefield obscurants, it preserves performance integrity and extends the reach and lethality of the warfighter, helping to protect our troops and improve their ability to detect, identify, and destroy threats.

OVERVIEW

- Significantly improved thermal imaging performance.
- Gunner and Commander thermal controls and displays.
- Improved Gunner's daysight magnification.
- Laser range finding controllable by the Gunner and Commander.
- Improved fire control.

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C^{3}ISR > GOVERNMENT SERVICES > AM&M > **SPECIALIZED PRODUCTS**

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IR Target Acquisition Sight

CAMERA SYSTEM PARAMETERS

Sensor Type: MWIR InSb Reticulated
Sensor Size: 256 x 256 Pixels, 30 µm Pitch
Optional: 640 x 512 Pixels, 28 µm Pitch
Cold Shield: f/4
Spectral Band: 3.5-5.0 µm with CO_2 Notch
System Control: Serial Interface
Video Format: RS-170/CCIR Interlaced and 14-bit digital data

LENS PARAMETERS

F/Number: 4.0
Dual Field of View
Effective Focal Length:
- Wide FOV: 50 mm (8.8° x 8.2°)
- Narrow FOV: 250 mm (1.8° x 1.7°)

Optional
- Wide FOV: 100 mm (10.2° x 7.7°)
- Narrow FOV: 500 mm (2.1° x 1.5°)

FOV Change Time: < 1 sec.

POWER REQUIREMENTS

Power Source: 16-40 VDC
Power at Steady State: 26 Watts

MECHANICAL / ENVIRONMENTAL

Weight*: 18 lbs.
Size* (inches): 8.1 L x 13.4 H x 7.0 W
Operating Temperature: -32°C to 65°C
**Sensor/Telescope Unit*

TYPICAL PERFORMANCE

Cool-Down Time: 10 minutes typical
Noise Equivalent Temp Difference @ 22°C: 16 mK

FEATURES AND CAPABILITIES

The DTAS NightConqueror 640 IR Target Acquisition Sight has many advanced features including:

1) Local Area Processing: The camera automatically adjusts gain and level for each pixel in the image. No part of the scene will be over or under saturated.

2) Auto Focus: The IR imager computes a focus metric and determines a best fit within the local region of interest.

3) Electronic Stabilization: A programmable image filter detects sensor motion and eliminates image jitter while allowing normal pan and tilt of the imager.

4) E-Zoom: Interpolated electronic zoom is accomplished with an algorithm that interpolates between FPA detector signals to produce an image with enlarged detail and a more natural looking appearance.

5) Threshold Based Averaging: Reduces temporal noise that may be visible at increased gain settings - it eliminates the "blur" of other reduction algorithms.

50/250 mm DFOV	Tank		Man			
Lens	50/250 mm DFOV Lens		50/250 mm DFOV Lens		Fields of View	
Atmosphere	Good Tx(2)	Limited Tx	Good Tx(2)	Limited Tx	Full FOV	Instant FOV
Target Detection(1) (WFOV)	3.7 km	3.6 km	1.3 km	1.2 km	8.8° x 8.2°	0.60 mrad
Target Recognition (NFOV)	4.2 km	4.1 km	1.4 km	1.4 km	1.8° x 1.7°	0.12 mrad
Target Identification (NFOV)	2.1 km	2.1 km	0.7 km	0.7 km		

1. The standard target model is 2.3 x 2.3 meters NATO panel and 0.75 x 0.75 meters for a standing man. The panel target temperature delta is 1.25°C while the man target temperature delta is taken to be 2°C. 50% probability target detection criteria: 0.75 cycles for detection, 3 cycles for recognition, 6 cycles for identification.

2. The Good Tx atmospheric transmission is 1976 US Standard Model with Rural-Vis=23 km Aerosol and the Limited Tx is Tropical Model with Navy Maritime Aerosol per NVTherm-Sept 2002.

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