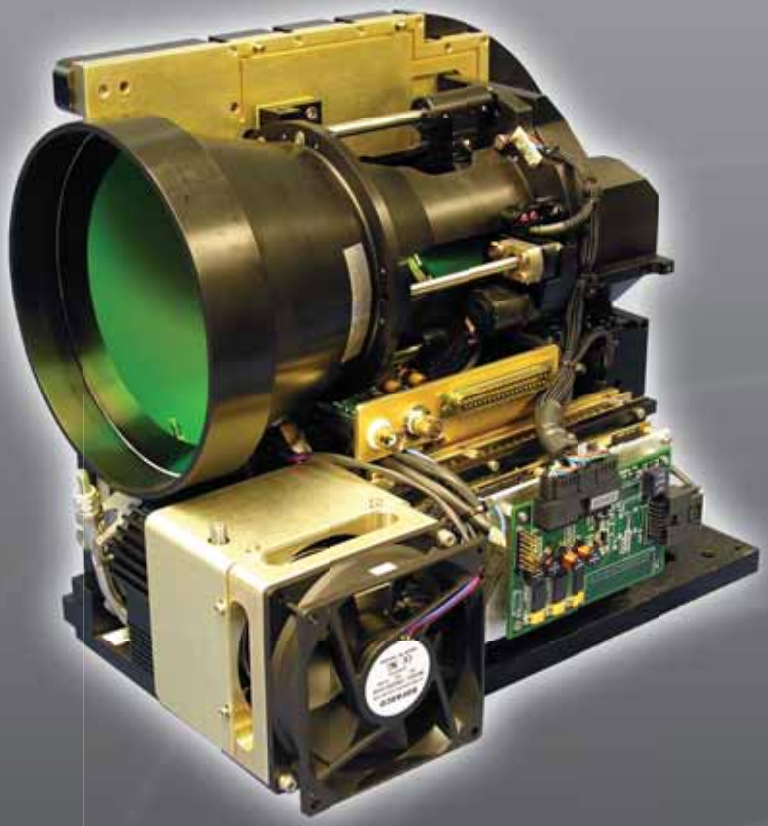
Cincinnati Electronics

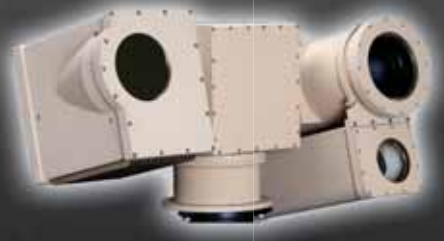
NIGHTCONQUEROR 640 280/840 MM

An environmentally sealed, high-performance thermal imager with a dual-FOV motorized lens and a 280/840 mm focal length, the NightConqueror is a true force multiplier. Its staring 2D FPA FLIR technology offers flexibility in a diversity of vehicle mounted, ship-borne, or ground-based configurations, enabling it to operate from marine environments, moving vehicles, and fixed installations, day or night, and in adverse weather. Rugged and impervious, the sealed enclosure protects the high-performance NightConqueror infrared camera to image anywhere, anytime. Possessing superior housing integrity, the camera's target detection, recognition, and identification capabilities are unmatched and undiminished in any situation.



OVERVIEW

- Single input and output connector with remote control via a selectable RS-232/422 serial port.
- Output of the FLIR image is available in RS-170 or CCIR video format or 14-bit Hotlink® digital video.
- Advanced environmental enclosure with superior ruggedization of camera ensures continuous operation in the harshest of vibration and temperature environments.
- Multiple temperature ranges available for optimal scene quality.
- Non-uniformity corrections (NUC) are internally supported for both scene and 3-point, operator guided self-calibration.
- CE's proven technology significantly lowers total life cycle costs.



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Long Range Thermal Imager

CAMERA SYSTEM PARAMETERS

Sensor Type: MWIR InSb Reticulated
Sensor Size: 640 x 512 Pixels, 28 µm Pitch
Cold Shield: f/6
Spectral Band: 3.6-5.0 µm with CO_2 Notch
System Control: RS-422 Serial Interface
Video Format: RS-170A

LENS PARAMETERS

F/Number: 6.0
Dual Field of View
Effective Focal Length:
Wide FOV: 280 mm (3.7° x 2.8°)
Narrow FOV: 840 mm (1.2° x 0.9°)
FOV Change Time: < 1 sec.

POWER REQUIREMENTS

Power Source: 18-32 VDC
Power at Steady State: < 50 Watts

MECHANICAL / ENVIRONMENTAL

Weight: 45.0 lbs.
Size (inches): 14.1 L x 12.3 H x 11.2 W
Operating Temperature: -30°C to 55°C

TYPICAL PERFORMANCE

Cool-Down Time: 5 minutes typical
Noise Equivalent Temp Difference @ 25°C: 40 mK

FEATURES AND CAPABILITIES

The NightConqueror 640 Long Range Thermal Imager 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.

280/840 mm DFOV	Tank		Man			
Lens	280/840 mm DFOV Lens		280/840 mm DFOV Lens		Fields of View	
Atmosphere	Good Tx(2)	Limited Tx	Good Tx(2)	Limited Tx	Full FOV	Instant FOV
Target Detection(1) (NFOV)	37.6 km	32.6 km	17.1 km	15.8 km	1.2° x 0.9°	0.03 mrad
Target Detection(1) (WFOV)	18.1 km	16.6 km	7.1 km	6.7 km	3.7° x 2.8°	0.10 mrad
Target Recognition (NFOV)	13.4 km	12.2 km	5.2 km	4.9 km	1.2° x 0.9°	0.03 mrad
Target Identification (NFOV)	7.3 km	6.8 km	2.7 km	2.6 km	1.2° x 0.9°	0.03 mrad

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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