

Cincinnati Electronics

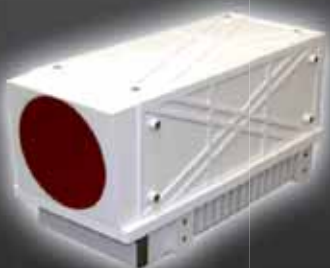
NIGHTCONQUEROR 640 100/500 MM

An environmentally sealed, high-performance thermal imager with a dual-FOV motorized lens and a 100/500 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.



NIGHTCONQUEROR 640 100/500 MM

WIDE AREA THERMAL IMAGER

CAMERA SYSTEM PARAMETERS

Sensor Type: MWIR InSb Reticulated
 Sensor Size: 640 x 512 Pixels, 28 µm Pitch
 Cold Shield: f/4
 Spectral Band: 3.6-5.0 µm with CO₂ Notch
 System Control: RS-422/232 Serial Interface
 Video Format: RS-170/CCIR Interlaced

LENS PARAMETERS

F/Number: 4.0
 Dual Field of View
 Effective Focal Length:
 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: +28 VDC
 Power at Steady State: 30 Watts

MECHANICAL / ENVIRONMENTAL

Weight: 34.0 lbs.
 Size (inches): 19.5 L x 9.3 H x 7.9 W
 Operating Temperature: -32°C to 55°C

TYPICAL PERFORMANCE

Cool-Down Time: < 10 minutes typical
 Noise Equivalent Temp Difference @ 30°C: 30 mK

FEATURES AND CAPABILITIES

The NightConqueror 640 Wide Area 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.

100/500 mm DFOV	Tank		Man		Fields of View	
	100/500 mm DFOV Lens	Limited Tx	100/500 mm DFOV Lens	Limited Tx	Full FOV	Instant FOV
Atmosphere	Good Tx ⁽²⁾	Limited Tx	Good Tx ⁽²⁾	Limited Tx	Full FOV	Instant FOV
Target Detection ⁽¹⁾ (NFOV)	27.5 km	24.4 km	11.7 km	10.8km	2.1° x 1.5°	0.06 mrad
Target Detection ⁽¹⁾ (WFOV)	7.1 km	6.6 km	2.6 km	2.5 km	10.2° x 7.7°	0.28 mrad
Target Recognition (NFOV)	8.2 km	7.6 km	3.0 km	2.9 km	2.1° x 1.5°	0.06 mrad
Target Identification (NFOV)	4.3 km	4.1 km	1.5 km	1.5 km	2.1° x 1.5°	0.06 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.

Cincinnati Electronics
 Infrared Products
 7500 Innovation Way
 Mason, Ohio 45040-9699
 Toll Free: 1-800-852-5105
 Tel: 513-573-6744
 Fax: 513-573-6290
 www.L-3Com.com/CE



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