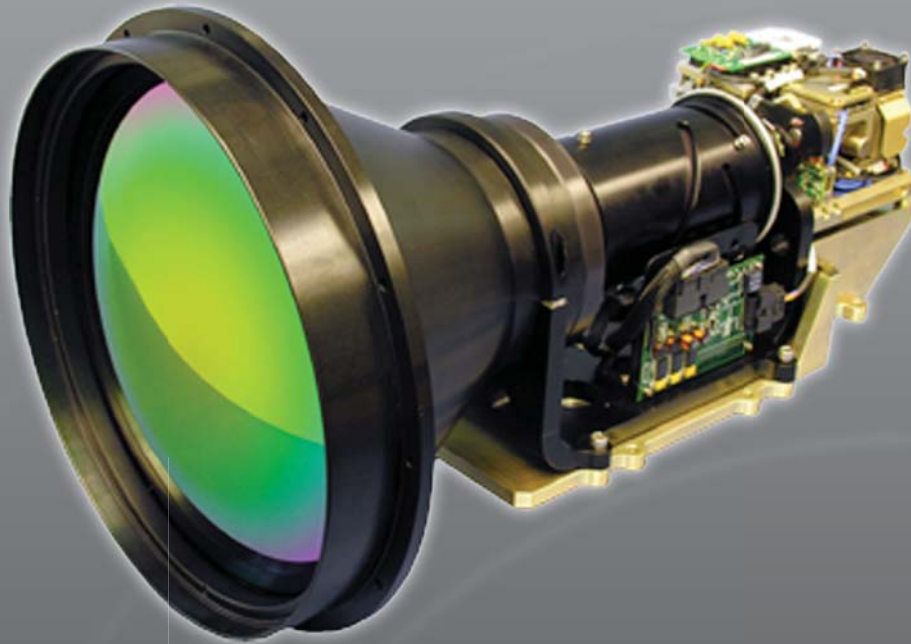


## NIGHTCONQUEROR CMI WALRSS

The Wide Area Long Range Surveillance System (WALRSS) is a high performance thermal imager with a motorized continuous zoom 150-1000 mm focal length lens. Well suited for extremely long-range applications, the WALRSS imager utilizes the NightConqueror Compact Modular Imager (CMI), providing a wider field of view and more pixels on target, yielding a higher resolution.



### OVERVIEW

- Sensor module integrates advanced hybridized micro-electronics and unique sensor architecture.
- Tightly compact structure provides lighter weight, lower power consumption and higher system magnification.
- Remote operation using RS-422 serial port 4X electro optical zoom with pan capability.
- Numerous video overlays including time, text cursors and reticules, and sensor diagnostics.
- 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 CMI WALRSS

### WIDE AREA LONG RANGE SURVEILLANCE SYSTEM

#### CAMERA SYSTEM PARAMETERS

Sensor Type: MWIR InSb Reticulated  
 Sensor Size: 640 x 512 Pixels, 20 µm Pitch  
 Cold Shield: f/4  
 Spectral Band: 3.6-4.95 µm with CO<sub>2</sub> Notch  
 System Control: RS-422 Serial Interface (115.2KB)  
 Video Format: RS-170A (Analog)  
                   HOTLINK-II (Digital)  
                   CCIR (Optional)  
                   Firewire IEEE 1394 Camera Link (Optional)

#### LENS PARAMETERS

F/Number: 4.0  
 Effective Focal Length: Continuous Zoom 150-1000 mm  
     Wide FOV: 150 mm (4.9° x 3.7°)  
     Narrow FOV: 1000 mm (0.7° x 0.6°)  
 FOV Change Time: < 1 sec.

#### POWER REQUIREMENTS

Power Source: +28 VDC (Mil-704E Normal Conditions)  
 Power at Steady State: 35 Watts

#### MECHANICAL/ENVIRONMENTAL

Weight: 28 lbs. (63 lbs. with Enclosure)  
 Size (inches): 23.5 L x 12.0 H x 12.0 W  
 Operating Temperature: -32°C to 55°C

#### TYPICAL PERFORMANCE

Cool-Down Time: 5 minutes typical  
 Noise Equivalent Temp Difference @ 27°C: < 30 mK

#### FEATURES AND CAPABILITIES

The NightConqueror CMI WALRSS 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.

Lens	Tank		Man		Fields of View	
	150-1000 mm Continuous Zoom	Limited Tx	150-1000 mm Continuous Zoom	Limited Tx	Full FOV	Instant FOV
Atmosphere	Good Tx <sup>(2)</sup>	Limited Tx	Good Tx <sup>(2)</sup>	Limited Tx	Full FOV	Instant FOV
Target Detection <sup>(1)</sup> (NFOV)	42.8 km	35.7 km	25.9 km	22.1 km	0.7° x 0.6°	0.02 mrad
Target Detection <sup>(1)</sup> (WFOV)	14.0 km	11.9 km	5.6 km	5.3 km	4.9° x 3.7°	0.13 mrad
Target Recognition (NFOV)	15.9 km	13.6 km	6.8 km	6.4 km	0.7° x 0.6°	0.02 mrad
Target Identification (NFOV)	13.2 km	11.3 km	5.3 km	5.1 km	0.7° x 0.6°	0.02 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 NVThermIP.

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