

Cincinnati Electronics

NIGHTCONQUEROR OPTRONICS SENSOR

The NightConqueror Thermal Imager provided for Optronics Mast Programs is designed to provide advanced sensor technology for new submarines and upgrades for legacy platforms. As part of the opto-electronic imaging system, which incorporates state-of-the-art sensors and other features to provide new capabilities for attack submarines, NightConqueror provides high resolution nighttime and environmentally-degraded daytime viewing for surveillance, reconnaissance, and target acquisition.



OVERVIEW

- Sensor module integrates advanced hybridized micro-electronics and unique sensor architecture.
- Provides lighter weight, lower power consumption and higher system magnification.
- Remote operation using RS-422 or RS-232 serial ports.
- Sensor system consists of infrared imager, cooler, and drive electronics.
- CE's proven technology significantly lowers total life cycle costs.



NIGHTCONQUEROR OPTRONICS SENSOR

OPTRONICS MAST 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 CO₂ Notch
System Control: Serial Interface,
RS232/422 Selectable
Video Format: RS-170/CCIR Interlaced and
14-bit Digital Data

POWER REQUIREMENTS

Power Source: 20-34 VDC
Power at Steady State: 25 Watts

MECHANICAL/ENVIRONMENTAL

Weight: 3.0 lbs.
Size (inches): 7.2 L x 2.8 H x 3.4 W
Operating Temperature: -32°C to 55°C

TYPICAL PERFORMANCE

Cool-Down Time: 8 minutes typical
Noise Equivalent Temp Difference @ 22°C: 20 mK

FEATURES AND CAPABILITIES

NightConqueror Optronics Mast Sensors have 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.

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