

NightConqueror 640

The ultimate generation of performance in infrared thermal imaging.



**Lets You Take on and Conquer the Darkness...
Cut Through Atmospheric Clutter and Adverse
Daytime Visibility... With the Highest
Definition Thermal Imagery.**

The new *NightConqueror* family of advanced thermal imaging modules enhances situational awareness... provides a common clear view of the battlespace... extends the reach of the warfighter.

- Compact and electronically-advanced for simple interchangeability and interoperability across

platforms and horizontal integration across the battlespace.

- Combines the most advanced electronic technology and sensor architecture, achieving maximum compactness, lighter weight, lower power consumption and higher system magnification.
- A true force multiplier, the NightConqueror's integrated staring 2D FPA FLIR technology applied in airborne, shipboard or ground-based configurations offers flexibility and synergy in a diversity of deployments.

NightConqueror 640 System Parameters and Physical Characteristics

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 CO ₂ Notch
Scene Temperature	Three Preset Ranges
System Control	Serial Interface
Video Format	RS-170/CCIR Interlaced and 14-bit Digital Data
Uniformity Calibration	Internal 2-Point Source
Dual Field of View	
Wide FOV	16.3° Horizontal x 12.3° Vertical
Narrow FOV	4.0° Horizontal x 3.0° Vertical

LENS PARAMETERS *(custom lens described)*

F/Number	4.0
Effective Focal Length	(Std) (with 1.9X Adapter)
Wide FOV	62.5 mm 118 mm
Narrow FOV	250 mm 473 mm
Average Transmittance	>0.85%
Minimum Object Distance	<1 m (Wide FOV)
FOV Change Time	<1 sec.

POWER REQUIREMENTS

Power Source	+15 VDC
Power at Steady State	16 Watts

MECHANICAL/ENVIRONMENTAL *(without lens)*

Weight	2.9 lbs.
Size <i>(Inches)</i>	6.55 L x 2.8 H x 2.8 W
Operating Temperature	-32°C to +55°C

TYPICAL PERFORMANCE

Cool-Down Time	8 Minutes Typical
Noise Equivalent Temp Difference (NETD) @ 22°C	16 mK
Minimal Resolvable Temp Difference (MRTD)	40 mK at 100% Nyquist, 5 mK at 10% Nyquist
Dynamic Range	70 dB for Each Selectable Integration Time
Operability	>99.5%

Standard Target Detection, Recognition and Identification Ranges

TANK

Field of View	WFOV - 16.3° x 12.3°		NFOV - 4.0° x 3.0°		1.89X NFOV - 2.2° x 1.6°	
Atmosphere	Good Tx ⁽²⁾	Limited Tx	Good Tx	Limited Tx	Good Tx	Limited Tx
Target Detection ⁽¹⁾	7.5 km	4.0 km	18.4 km	4.9 km	22 km	5.0 km
Target Recognition	2.1 km	1.8 km	7.5 km	4.0 km	12 km	4.6 km
Target Identification	1.1 km	1.0 km	4.1 km	2.9 km	7.1 km	3.9 km

MAN

Field of View	WFOV - 16.3° x 12.3°		NFOV - 4.0° x 3.0°		1.89X NFOV - 2.2° x 1.6°	
Atmosphere	Good Tx ⁽²⁾	Limited Tx	Good Tx	Limited Tx	Good Tx	Limited Tx
Target Detection ⁽¹⁾	1.7 km	1.6 km	6.4 km	3.9 km	10.2 km	4.7 km
Target Recognition	0.45 km	0.43 km	1.7 km	1.5 km	3.0 km	2.4 km
Target Identification	0.23 km	0.22 km	0.89 km	0.84 km	1.5 km	1.4 km

1 The standard target model for a tank's side view is 2.3 x 6.4 meters and 0.75 x 0.75 meters for a standing man. The tank target temperature delta T is 1.25°C while the man target temperature delta T 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 and limited transmittance extinction coefficients are taken to be $\sigma = 0.2/\text{km}$ and $\sigma = 1/\text{km}$ respectively.