

SWIR 50–1000mm f/5.5 (WFOV) f/9.5 (NFOV) Continuous Zoom Lens

Long-Range SWIR Imaging for Tactical
and Surveillance Applications (PN 680555)



The SWIR 50–1000mm continuous zoom lens is a high-performance imaging solution tailored for long-range ISR (Intelligence, Surveillance, and Reconnaissance) systems.

Designed for use with 10 μ m SXGA, 15 μ m and 10 μ m VGA SWIR detectors, it delivers sharp, high-contrast imagery across the full 0.6–1.7 μ m spectral band. This broad wavelength coverage enables effective imaging of commonly used defense lasers at 850nm, 905nm, 1064nm, and 1550nm, making the SWIR 50-1000mm particularly advantageous for laser detection and tracking.

The SWIR 50-1000mm, maintains sharp focus over the entire zoom range and achieves near diffraction-limit

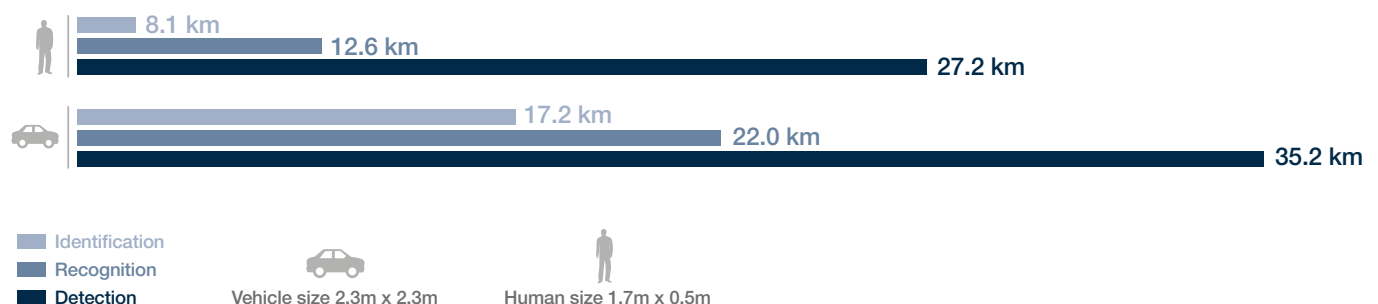
performance, addressing challenges such as line-of-sight (LOS) stabilization and athermalization.

With a unique combination of long-range detection exceeding 34 km, rugged design, and the ability to penetrate haze, smoke and fog, the lens ensures superior visibility in harsh environmental conditions. The Ophir SWIR 50-1000mm continuous zoom lens delivers the image clarity required to cut through obscurants and support critical security operations making it ideal for ISR air, land, naval systems.



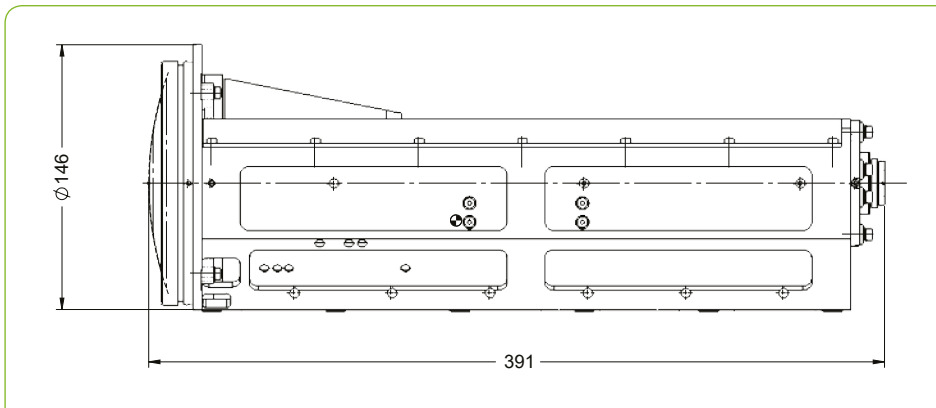
KEY PRODUCT FEATURES

- Designed for 10 μ m SXGA, 15 μ m VGA, and 10 μ m VGA SWIR detectors
- Long-range detection exceeding 35km
- Maintain focus and line of sight through the entire zoom range
- Continuous zoom in the 0.6–1.7 μ m SWIR regime enabling laser line detection
- Ruggedized for harsh environments (IP67 front element, -32°C to +75°C operation)
- Ideal for long-range surveillance, ISR air-land-naval systems.



Assumptions: 1280 SWIR 10 μ m detector | TRM4 model | Day mode | 0.6 μ m to 1.7 μ m spectral range | 25Hz frame rate | Overcast daylight irradiance | 0.2 path radiance factor | 0.2km⁻¹ atmospheric attenuation coefficient | 50% detection probability | Human and vehicle target 50% reflectivity | 15% background reflectivity.

TYPICAL ICD



WFOV (50mm)

HFOV	640x512	1280x1024
15 μ	10.9°	
10 μ		14.5°

NFOV (1000mm)

HFOV	640x512	1280x1024
15 μ	0.6°	
10 μ		0.7°

Property	Value	
Optical	WFOV	NFOV
Focal Length	50mm	1000mm
F#	5.5	9.5
Average transmission (0.6–1.7 μ m)	85%	
Back Focal Length	9.8mm in air	
Distortion in diagonal	$\leq 2.5\%$	
Minimum Focusing Range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Time (NFOV to WFOV)	≤ 4.4 sec.	
Max. Dimensions	$\varnothing 146$ mm x 391mm	
Weight	≤ 3.6 kg	
Electrical		
Lens Control	Designated lens controller	
Supply Voltage	12V	
Current Consumption	< 0.5 A (max)	
Communication Protocol	RS422, RS422	
Environmental		
Operation Temperature	-32°C to $+75^{\circ}\text{C}$	
Storage Temperature	-40°C to $+80^{\circ}\text{C}$	
Sealing	IP67 front element only	
Configurations		
680555-001	High Durability, C-mount compatibility	

