

LightIR 16-180mm f/3.6

Folded-Optic Zoom Lens

Designed for Reduced SWaP MWIR 10µm VGA Detectors



The Ophir LightIR 16-180mm MWIR f/3.6 continuous zoom lens is a compact, thermal imaging lens optimized for 10µm pitch VGA FPA (focal plane array) detectors.

It features a folded optics design that significantly reduces the length of the lens and, therefore, the overall size and weight of the optical system in which it is incorporated.

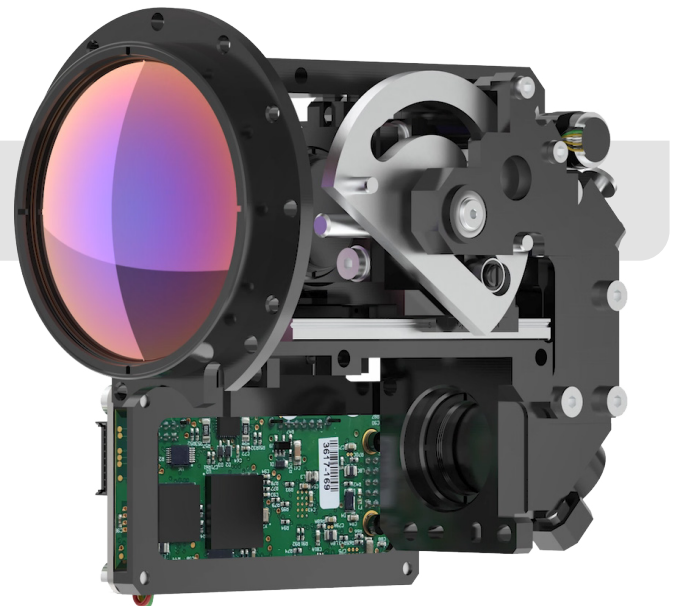
The lens is 65% smaller than existing MWIR (medium wave infrared) 10µm VGA lenses. With its disruptive combination of SWaP capabilities, detection range over 13+ km, and cost-effective pricing, the new zoom lens is an enabler for advanced drone, tactical UAV IR cameras, as well as micro-/mini-tactical payloads in the commercial, homeland security, and defense markets.

With a focal length of 16-180mm and an f/stop of 3.6, the latest LightIR is a compact, high performance, motorized continuous zoom lens. The folded optics design enables long optical lengths, which produce a reduced sensitivity to tolerances in compact configurations that incorporate fewer optical elements. The innovative design also enables near diffraction-limit performance in harsh environments, and addresses such challenges as line-of-sight (LOS) stabilization and athermalization.

At only 460gr, it is one of the lightest weight, continuous zoom lenses on the market. It maintains sharp focus over the entire zoom range. The mechanical and electrical interface assures easy integration into camera systems.

Product Features

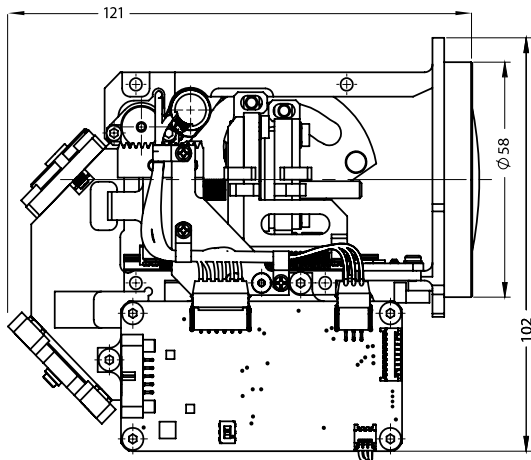
- Meets low SWaP demand with long EFL
- Efficient folded optics design for max. volume use
- Designed for MWIR 10µm pitch VGA sensors
- Ideal for mini/ micro tactical payloads
- Detection range exceeds 13km*



■ Identification
■ Recognition
■ Detection

Vehicle size 2.3m x 2.3m Human size 1.7m X 0.5m

Note: Calculated values real world performance may vary depending on the weather conditions.



WFOV (16mm)

HFOV	640x480
10 μ	22.6°

NFOV (180mm)

HFOV	640x480
10 μ	2.0°

Property

Value

Optical	WFOV	NFOV
Focal Length	16mm	180mm
F#	3.6	
Average transmission (3.4-4.2 μ m)	\geq 80% (LRHC); >82% (HD)	
Cold stop to FPA Distance	12mm	
Cold Stop CA	\varnothing 3.37mm	
Back Focal Length	23.08mm in air	
Distortion (in diagonal)	<2%	
Minimum Focusing Range	5m	50m
Nuc (by defocus)	Blur to 7mm diameter	
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	\leq 8 sec.	
Zoom Time (NFOV to WFOV)	\leq 8 sec.	
Max. Dimensions	Length 121mm; Width 70mm; height 102mm	
Weight	460gr	
Electrical		
Lens Control	Designated lens controller	
Drive Voltage	6-12VDC	
Current Consumption	< 0.5A average, 1.0A peak	
Communication Protocol	RS422	
Environmental		
Operation Temperature	-32°C to +75°C	
Storage Temperature	-54°C to +85°C	
Sealing	IP67 front lens only	
Configurations		
680389-001	High Durability	
680389-002	Low Reflection Hard Carbon	

