SupIR 16-80mm f/1.2

LWIR Zoom Lens for SXGA Uncooled Detectors (PN 680531)

COMING SOON

mks | Ophir

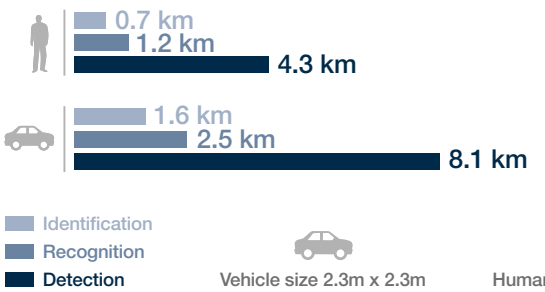
The SupIR 16-80mm f/1.2 is the first zoom lens designed for next-generation SXGA format uncooled LWIR detectors, delivering high-definition thermal imaging in a compact design. The shift to 1280×1024 resolution with a 10-12µm pixel pitch requires optics that maximize image detail while ensuring compatibility with lightweight and power-efficient platforms. This lens provides a continuous zoom solution for applications that require mid-range detection and target recognition without compromising size, weight, or energy efficiency.

With its high modulation transfer function (MTF), and ruggedized design, the SupIR 16-80mm f/1.2 supports tactical ISR and security & surveillance operations. It enhances reconnaissance, situational awareness, and target acquisition in UAVs, lightweight payloads, and autonomous systems.

By introducing SXGA resolution zoom capability to uncooled LWIR sensors, this lens sets a new standard for mid-range thermal imaging. It offers a unique combination of clarity, detection range, LOS and focus retention through the zoom, making it the preferred choice for defense and security electro-optical markets seeking to advance next-generation infrared capabilities.

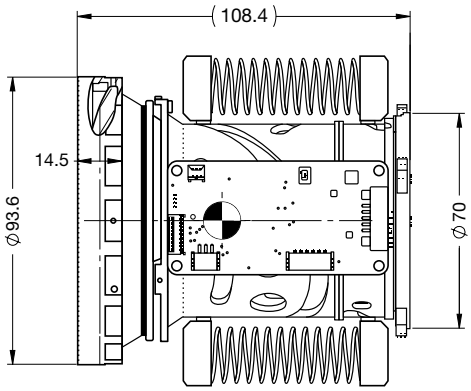
KEY PRODUCT CAPABILITIES

- Optimized for 10-12µm 1280 x 1024 SXGA LWIR uncooled detectors
- Detection range exceeding 8km for NATO vehicle targets
- Compact design with Ø93.6 x 108.4mm and 705g weight, optimized for integration into small UAVs, ISR payloads, and portable surveillance systems
- Maintain focus through the entire zoom range
- Designed for LOS stabilization
- High modulation transfer function (MTF) for enhanced thermal contrast and precise imaging detail
- High-durability coatings for environmental resistance, ensuring stable performance in challenging operational conditions
- Athermalized optical design maintaining consistent imaging across temperature variations



Assumptions: Calculations are based on “Johnson Criteria” | real world performance may vary depending on weather conditions | FLIR92 model | detector LWIR uncooled 12µm pixel pitch | 50mK NETD at f/1.2 | 30Hz frame rate | 0.2km^{-1} atmospheric attenuation coefficient | 50% detection probability | Johnson Criteria for DRI: Detection – 1 spatial cycle on target; Recognition – 4 spatial cycles on target; Identification – 6.4 spatial cycles on target | 5°C human size and ΔT; 2°C vehicle size and ΔT

TYPICAL ICD



WFOV (16mm)

HFOV	1280x1024
12µ	54°
10µ	45°

NFOV (80mm)

HFOV	1280x1024
12µ	10.6°
10µ	9°

Property	Value	
Optical	WFOV	NFOV
Focal Length	16mm	80mm
F#	1.2	
Average transmission (8-12µm)	87% (HD) / 83% (HC)	
Back Focal Length	19mm in air	
Minimum Focusing Range	2m	20m
NUC (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤1sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤5 sec.	
Max. Dimensions	Ø93.6mm x 108.4mm	
Weight	705gr	
Electrical		
Lens Control	Designated lens controller	
Drive voltage	12VDC	
Communication Protocol	RS485, RS232	
Environmental		
Operation Temperature	-32ºC to +70ºC	
Storage Temperature	-40ºC to +80ºC	
Sealing	IP67 front element only	
Configurations		
680531-001	High Durability	
680531-002	Hard Carbon	

www.ophiropt.com/infrared | MKTG@mksinst.com

SupIR 16-80mm f/1.2 datasheet_03/25