LOW-SWAP COOLED MWIR SOLUTIONS FOR VGA 10µM DETECTORS

LIGHTWEIGHT, COMPACT, HIGH-PERFORMANCE

LightIR 10-135mm f/3.6

LightIR 16-180mm f/3.6

LightIR 18-225 mm f/3.6

WHERE MINIMAL IS CRITICAL

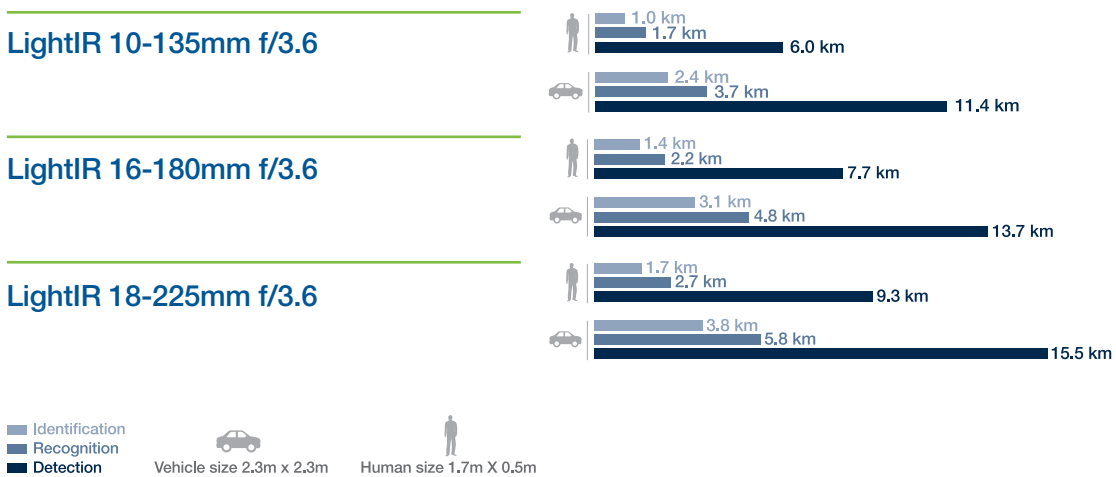
VGA 10µm Compatibility, Unmatched Performance

Introducing the LightIR thermal imaging zoom lenses, meticulously crafted for MWIR VGA 10µm detectors. Offering a groundbreaking combination of features: lightweight, compact, and high-performance. Designed for diverse low-SWaP applications, from unmanned aerial systems (UASs) and aerial vehicles to aircraft vision systems, drones, and handheld thermal imagers (HHTI).

What sets the MWIR VGA 10µm LightIR product family apart is its unparalleled optomechanical design, making them the market's smallest, lightest, and most compact lenses without compromising on top-tier infrared thermal imaging performance.

Product characteristics:

- Optimized for MWIR 640x512 f/3.6 VGA 10µm detectors
- High MTF performance
- Maintain focus through the entire zoom range
- Addressing LOS stabilization
- Easy integration into camera systems
- Extremely compact configuration
- Optimized for stabilized payloads
- Designed to withstand harsh environmental conditions
- Suitable for a wide range of low-SWaP applications
- Cost-effective design and structure



Note: Calculation used are based on "Johnson Criteria" | Real world performance may vary depending on the weather conditions

* Assumptions: 32mK NETD f/3.6 | 30Hz frame rate | 0.2km^{-1} atmospheric attenuation coefficient | 50% detection probability

LightIR 10-135mm f/3.6, Motorized Continuous Zoom

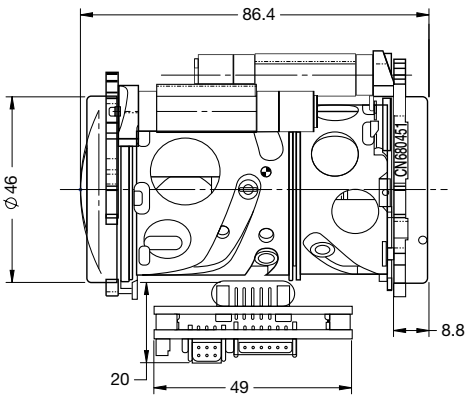
Designed for MWIR 10µm VGA Detectors

680451

Cooled MWIR

NEW

TYPICAL ICD



WFOV (10mm)

HFOV	640x512
10µ	18.5°

NFOV (135mm)

HFOV	640x512
10µ	1.3°

Property	Value	
Optical	WFOV	NFOV
Focal Length	10mm	135mm
F#	3.6	
Average transmission (3.4-4.2µm)	>87% (HD) / ≥80% HC)	
Cold stop to FPA Distance	12mm	
Cold Stop CA	Ø12mm	
Back Focal Length	≥17mm in air	
Distortion (in diagonal)	2.5%	2%
Minimum Focusing Range	5m	500m
Nuc (by defocus)	Blur to 7mm diameter	
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	1 sec.	
Zoom Time (NFOV to WFOV)	4 sec.	
Max. Dimensions	Ø46x86.4mm	
Weight	250gr	
Electrical		
Lens Control	Designated lens controller	
Drive Voltage	12V	
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		
680451-001	High Durability	
680451-002	Hard Carbon	

LightIR 16-180mm f/3.6, Motorized Continuous Zoom

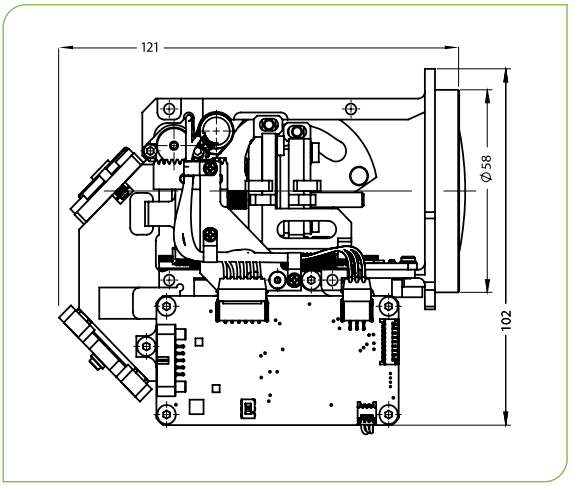
Designed for MWIR 10µm pitch VGA FPA

680389

Cooled MWIR

NEW

TYPICAL ICD



WFOV (16mm)

HFOV	640x480
10µ	22.6°

NFOV (180mm)

HFOV	640x480
10µ	2°

Property	Value	
Optical	WFOV	NFOV
Focal Length	16mm	180mm
F#	3.6	
Average transmission (3.4-4.2µm)	≥80% (LRHC); >82% (HD)	
Cold stop to FPA Distance	12mm	
Cold Stop CA	Ø3.37mm	
Back Focal Length	23.08mm in air	
Distortion (in diagonal)	<2%	
Minimum Focusing Range	5m	50m
Nuc (by defocus)	Blur to 7mm diameter, Optional: mechanical shutter	
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤5.5 sec	
Zoom Time (NFOV to WFOV)	≤1 sec	
Max. Dimensions	Length 121mm; Width 70mm; height 102mm	
Weight	460gr	
Electrical		
Lens Control	Designated lens controller	
Supply Voltage	12V	
Current Consumption	< 0.5A average, 1.0A peak	
Communication Protocol	RS422, RS232	
Environmental		
Operation Temperature	-32°C to +75°C	
Storage Temperature	-54°C to +85°C	
Sealing	IP67 front lens only	
Configurations		
680389-001	HD	
680389-002	LRHC	

LightIR 18-225mm f/3.6 Motorized Continuous Zoom

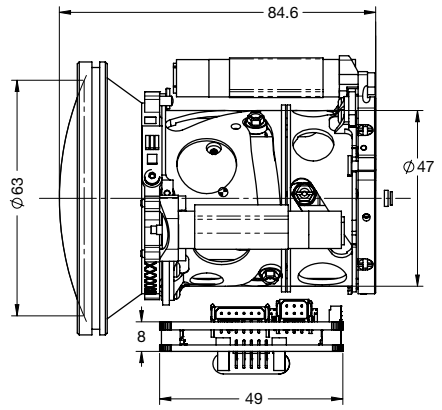
Designed for MWIR 10µm pitch VGA FPA

680442

Cooled MWIR

NEW

TYPICAL ICD



WFOV (18mm)

HFOV	640x512
10µ	20°

NFOV (225mm)

HFOV	640x512
10µ	1.6°

Property	Value	
Optical	WFOV	NFOV
Focal Length	18	225
F#	3.6	
Average transmission (3.4-4.2µm)	>87% (HD) / ≥80% (LRHC)	
Cold stop to FPA Distance	12mm	
Cold Stop CA	Ø3.34mm	
Back Focal Length	18.5mm in air	
Distortion	1.9%	4%
Minimum Focusing Range	5m	50m
Nuc (by defocus)	Blur to 7mm diameter, Optional: mechanical shutter	
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	<2 sec.	
Zoom Time (NFOV to WFOV)	<5 sec.	
Max. Dimensions	Ø63mm x 84.6mm	
Weight	<300gr	
Electrical		
Lens Control	Designated lens controller	
Drive Voltage	12V	
Current Consumption	< 0.5A average, 1.0A peak	
Communication Protocol	RS422	
Environmental		
Operation Temperature	-32ºC to +80ºC	
Storage Temperature	-54ºC to +80ºC	
Sealing	IP67 front lens only	
Configurations		
680442-001	High Durability	
680442-002	Low Reflection Hard Carbon	

About Ophir Infrared Optics

With decades worth of knowledge and experience, Ophir Optronics Solutions LTD., Infrared Optics, an MKS Brand (NASDAQ: MKSI), is a world-leading designer and manufacturer of high-performance IR thermal imaging lenses and optical elements for SWIR, MWIR & LWIR imaging. Using advanced technologies, innovative engineering, and design configurations, Ophir provides a global solution for homeland security, surveillance, defense and commercial applications: IR components and complex lens assemblies with fixed or motorized focus and zoom lenses.

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