IR ZOOM LENS PORTFOLIO FOR LONG-RANGE SURVEILLANCE & COUNTER-UAS

MWIR • LWIR • SWIR CONTINUOUS ZOOM LENSES

WIDE PORTFOLIO. MULTIPLE CRITICAL MISSIONS.

Modern border security, defense, and force-protection operations require optical systems capable of detecting, classifying, and tracking threats across land, sea, and air. The same lenses that enable long-range ISR operations are also core components of today's advanced Counter-UAS systems.

The Ophir® IR continuous zoom lenses deliver the extended range, thru-zoom line of sight (LOS) stability, and high-precision boresight performance required to:

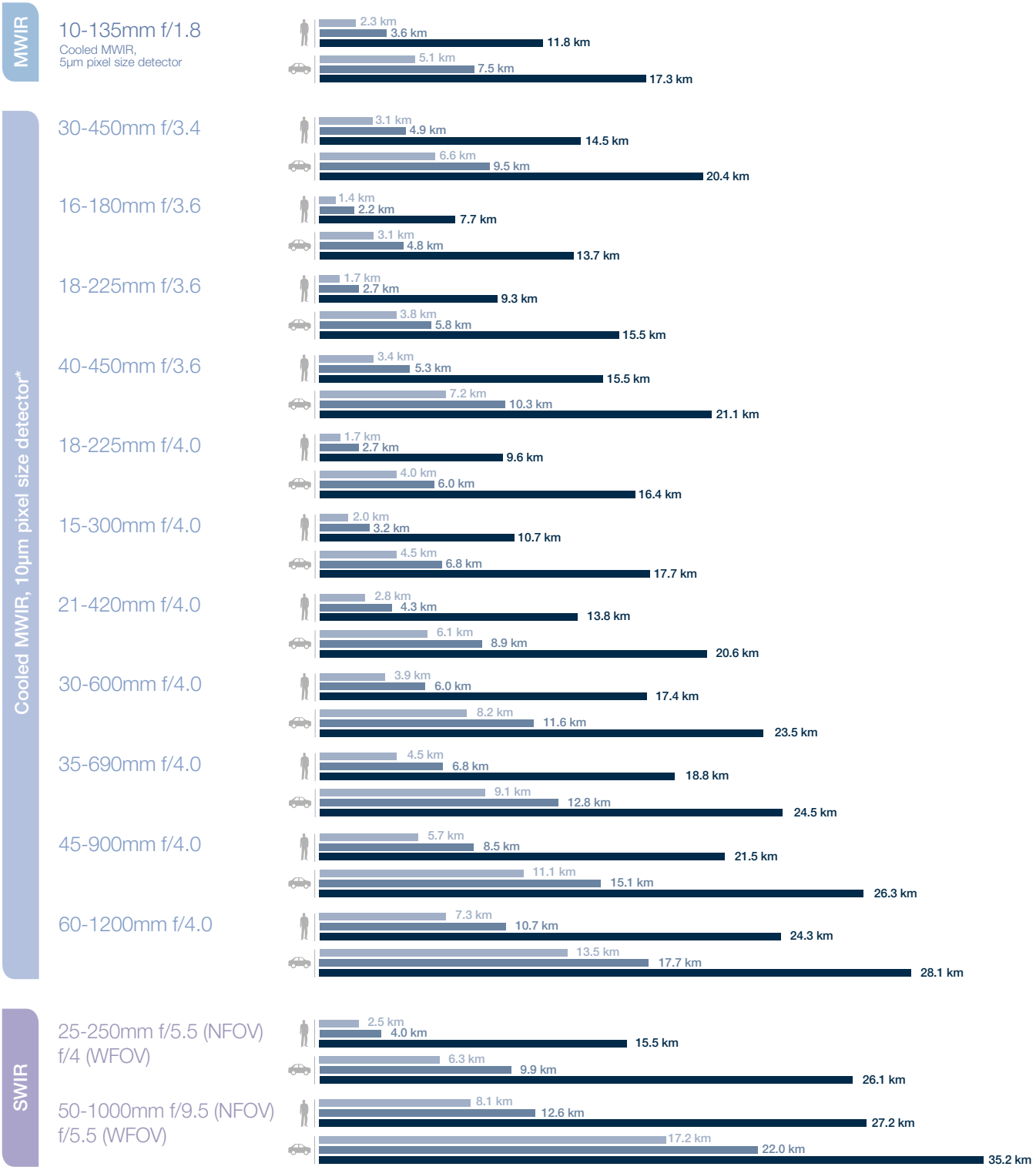
- Detect human, vehicle, and drone targets at long distances
- Maintain image clarity across the entire zoom range
- Track fast-moving sUAS without losing line-of-sight
- Operate reliably in harsh environmental conditions

With deployments worldwide and deep collaboration with leading defense OEMs, we provide proven IR optics that ensure mission success.

Core Advantages

- High-precision optics with MTF near the diffraction limit
- Continuous zoom with fixed F# maintained through the full range for stable image brightness
- Focus stability and accurate thru-zoom boresight retention
- Sharp, clear imagery for long-range identification and fast-moving targets
- Adequate pixels-on-target for early and accurate threat classification
- Extended DRI performance across human, vehicle, and drone targets
- Rugged, athermalized design for stability across temperature extremes
- Up to ×30 zoom with fast field-of-view transition for dynamic operational scenarios
- Wide coating options: Hard Carbon, High Durability, Low Reflection, Aquashield™ hydrophobic coating
- Folded-optics designs optimized for payload integration
- Broad detector compatibility including SXGA formats for MWIR and SWIR
- Comprehensive catalog across MWIR, LWIR, and SWIR continuous-zoom lenses
- Designed to meet U.S. and European military standards for durability and environmental resilience

Zoom Lenses Detection, Recognition & Identification (DRI) Performance

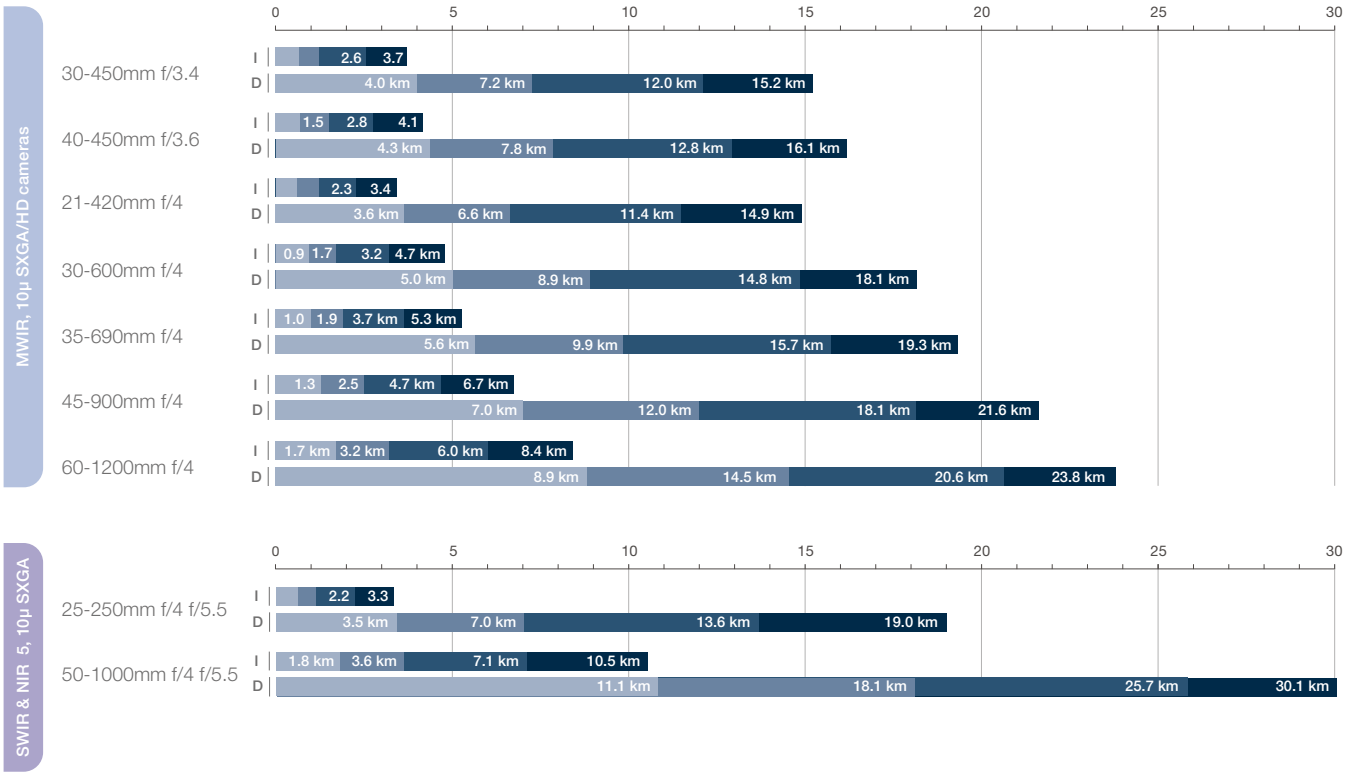


Note: Calculations used are based on "Johnson Criteria" | Real world performance may vary depending on the weather conditions

* **DRI assumptions:** Johnson Criteria; 50% Pd; 0.2km^{-1} attenuation. MWIR/LWIR: 30Hz, ΔT human/vehicle 5°C/2°C; MWIR 23–49mK (f/1.8–f/5.5); LWIR (uncooled) 32–50mK (f/1.0–f/3.6).

** **SWIR assumptions:** 1280, TRM4, day (0.7–1.7µm), 25Hz, overcast, path radiance 0.2, reflectivity 50% target / 15% background. Performance may vary.

UAVs Detection and Identification Ranges (km)



I = Identification
D = Detection

Micro Quadcopter 20x20cm | Quadcopter 40x40cm | Hexacopter 80x80cm | Octocopter 120x120cm

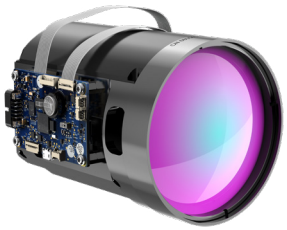
Assumptions: NETD LWIR f/1.5 50mK | NETD MWIR 35.5mK (f/3.4); 32mK (f/3.6); 32mK (f/4, f/5.5) | 2°C target ΔT | 30Hz frame rate LWIR MWIR | 25Hz frame rate SWIR at 0.7µm to 1.7µm spectral range, day mode TRM4 model, 10µm pitch Cardinal 1280 detector, overcast daylight irradiance | 0.2km^{-1} atmospheric attenuation coefficient | 50% detection probability | 0.2 path radiance factor | 250m drone altitude (above ground) | 50% drone reflectivity | 15% background reflectivity

Image 2: Visible vs. SWIR imagery taken simultaneously from >20km distance.

SupIR 10-135mm f/1.8, Motorized Continuous Zoom 680540

MWIR f/1.8

NEW



HD FORMAT

WFOV (10mm)

HFOV	1280x1024
5µ	37.7°

NFOV (135mm)

HFOV	1280x1024
5µ	2.67°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	1.8	
Minimum Focus Range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤5 sec.	
Weight	780gr	
Max. Dimensions	Ø90mm x 129mm	
Electrical		
Lens Control	Designated lens controller	
Drive voltage	12VDC	
Communication Protocol	RS485, RS232	

FoldIR 30-450mm f/3.4, Motorized Continuous Zoom 680465*

MWIR f/3.4

HD FORMAT

WFOV (30mm)

HFOV	640x480	1280x720	1280x1024
15µ	19.3°		
10µ	12.5°	26.9°	26.9°

NFOV (450mm)

HFOV	640x480	1280x720	1280x1024
15µ	1.3°		
10µ	0.8°	1.7°	1.7°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	3.4	
Minimum Focus Range	20m	50m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom Time (NFOV to WFOV)	≤5 sec.	
Weight	2kg	
Max. Dimensions	Ø146mm x 247mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak	
Communication Protocol	RS422, RS232	

* Requires export license

FoldIR 16-180mm f/3.6, Motorized Continuous Zoom 680389

MWIR
f/3.6

WFOV (16mm)

HFOV	640x480
10µ	22.6°

NFOV (180mm)

HFOV	640x480
10µ	2°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	3.6	
Minimum Focus Range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤5.5 sec.	
Zoom Time (NFOV to WFOV)	≤1 sec.	
Weight	465gr	
Max. Dimensions	Length 121mm; Width 70mm; height 102mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	<0.5A average, 1.0A peak	
Communication Protocol	RS422, RS232	

* Requires export license

LightIR 18-225mm f/3.6, Motorized Continuous Zoom 680442

MWIR
f/3.6

WFOV (18mm)

HFOV	640x512
10µ	20°

NFOV (225mm)

HFOV	640x512
10µ	1.6°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	3.6	
Minimum Focus Range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	<2 sec.	
Zoom Time (NFOV to WFOV)	<5 sec.	
Weight	305gr	
Max. Dimensions	Ø63mm x 84.6mm	
Electrical		
Lens Control	Designated lens controller	
Drive voltage	12V	
Current consumption	<0.5A average, 1.0A peak	
Communication Protocol	RS422	

FoldIR 40-450mm f/3.6, Motorized Continuous Zoom 680533*

MWIR
f/3.6

WFOV (40mm)

HFOV	640x480
10µ	8.9°

NFOV (450mm)

HFOV	640x480
10µ	0.85°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	3.6	
Minimum Focus Range	50m	5m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤5.5 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤1 sec.	
Weight	1.85kg	
Max. Dimensions	Ø165 x length 222mm	
Electrical		
Lens Control	Designated lens controller	
Drive voltage	12VDC	
Current consumption	<0.5A average, 1.0A peak	
Communication Protocol	RS422	

* Requires export license

SupIR 18-225mm f/4.0, Motorized Continuous Zoom 680473

MWIR
f/4.0

HD
FORMAT

WFOV (18mm)

HFOV	640x512	1280x720	1280x1024
15µ	29.9°		
10µ	20.2°	39.1°	39.1°

NFOV (225mm)

HFOV	640x512	1280x720	1280x1024
15µ	2.4°		
10µ	1.6°	3.3°	3.3°

Property	Value	
Optical	**WFOV**	**NFOV**
Minimum Focus Range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	<2 sec.	
Zoom Time (NFOV to WFOV)	<5 sec.	
Weight	324gr	
Max. Dimensions	Ø61.4mm x 84mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	<0.5A average, 1.0A peak	
Communication Protocol	RS422	

SupIR 15-300mm f/4.0, Motorized Continuous Zoom 680084/680204

MWIR f/4.0

HD FORMAT

WFOV (15mm)

HFOV	640x512	1280x720	1280x1024
15µ	35.1°		
10µ		45.0°	45.0°

NFOV (300mm)

HFOV	640x512	1280x720	1280x1024
15µ	1.8°		
10µ		2.4°	2.4°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	5m	50m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
	Motorized	
Zoom Time (NFOV to WFOV)	≤5 sec. at -32°C; ≤4 sec. at T≥ 20°C (at max. speed)	
Weight	990gr	
Max. Dimensions	Ø96mm x 130mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak at T= - 32°C; 0.2A average, 1.0A peak at T 20°C	
Communication Protocol	RS422	

SupIR 21-420mm f/4.0, Motorized Continuous Zoom 680160

MWIR f/4.0

HD FORMAT

WFOV

HFOV	640x512	1280x720	1280x1024
	21mm	22mm	33mm
15µ	25.1°		
10µ		29.0°	20.0°

NFOV (420mm)

HFOV	640x512	1280x720	1280x1024
15µ	1.3°		
10µ		1.7°	1.7°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	10m	100m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec. at maximum speed	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec. at -32°C; ≤5 sec. at T≥20°C (at max speed)	
Weight	1.6kg	
Max. Dimensions	Ø132x200.5mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak	
Communication Protocol	RS422	

SupIR 30-600mm f/4.0, Motorized Continuous Zoom 680384/5

MWIR f/4.0

HD FORMAT

WFOV

HFOV	640x512	1280x720	1280x1024
	30mm	46mm	60mm
15µ	17.2°		
10µ		14.6°	11.4°

NFOV (600mm)

HFOV	640x512	1280x720	1280x1024
15µ	0.9°		
10µ		1.2°	1.2°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	5m	200m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤7 sec. at -32°C; ≤5 sec. at T≥ 0°C	
Weight	3.1kg	
Max. Dimensions	Ø173mmx251.9mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak	
Communication Protocol	RS422	

SupIR 35-690mm f/4.0, Motorized Continuous Zoom 680294/5

MWIR f/4.0

HD FORMAT

WFOV

HFOV	640x512	1280x720	1280x1024
	35mm	46mm	60mm
15µ	15.2°		
10µ		14.8°	11.5°

NFOV (690mm)

HFOV	640x512	1280x720	1280x1024
15µ	0.8°		
10µ		1.0°	1.0°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	5m	200m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤7 sec. at -32°C; ≤5 sec. at T≥ 0°C	
Weight	4kg	
Max. Dimensions	Ø210mm x 264mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak	
Communication Protocol	RS422	

SupIR 45-900mm f/4.0, Motorized Continuous Zoom 680425/6

MWIR f/4.0

HD FORMAT

WFOV

HFOV	640x512	1280x720	1280x1024
	45mm	63mm	72mm
15µ	11.4°		
10µ		10.6°	9.3°

NFOV (900mm)

HFOV	640x512	1280x720	1280x1024
15µ	0.6°		
10µ		0.8°	0.8°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	5m	200m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤7 sec. at -32°C; ≤5 sec. at T≥ 0°C	
Weight	7kg	
Max. Dimensions	Ø286 x 343.6mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 1.0A peak	
Communication Protocol	RS422	

SupIR 60-1200mm f/4.0, Motorized Continuous Zoom 680475/6

MWIR f/4.0

HD FORMAT

WFOV

HFOV	640x512	1280x720	1280x1024
	60mm	87mm	100mm
15µ	8.6°		
10µ		7.6°	6.8°

NFOV (1200mm)

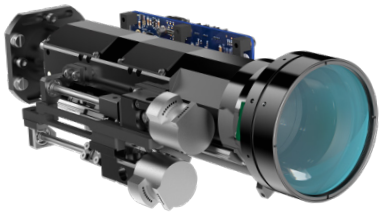
HFOV	640x512	1280x720	1280x1024
15µ	0.5°		
10µ		0.6°	0.6°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	
Minimum Focus Range	<5m	<200m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 8 sec at -32°C; ≤ 5 sec. at T≥20°C (at max. speed)	
Weight	14.6kg	
Max. Dimensions	Ø388mm x 409.2mm	
Electrical		
Lens Control	Designated lens controller	
Drive voltage	12V	
Current consumption	0.5A average, 1.0A peak at T= -32°C; 0.2A average, 1.0A peak at T ≥ 20°C	
Communication Protocol	RS422	

SWIR & NIR 25-250mm f/5.5 (NFOV) f/4.0 (WFOV) Motorized Continuous Zoom

680471

SWIR



HD FORMAT

WFOV (25mm)

HFOV	640x512	1280x1024
15µ	21.7°	
10µ	14.7°	28.7°
5µ	7.3°	14.6°

NFOV (250mm)

HFOV	640x512	1280x1024
15µ	2.2°	
10µ	1.5°	2.9°
5µ	0.7°	1.5°

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	4.0	5.5
Minimum focus range	2m	20m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom Time (NFOV to WFOV)	≤5 sec.	
Weight	840g	
Max. Dimensions	Ø65mm x 214mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	<0.5A (max)	
Communication interface	RS422	

SWIR 50-1000mm f/9.5 (NFOV) f/5.5 (WFOV) Motorized Continuous Zoom

680471

SWIR

NEW

HD FORMAT

WFOV (50mm)

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

NFOV (1000mm)

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

Property	Value	
Optical	**WFOV**	**NFOV**
F/#	5.5	9.5
Minimum focus range	5m	50m
Mechanical		
Focus Mechanism	Motorized. Adjustable	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom Time (NFOV to WFOV)	≤4.4 sec.	
Weight	≤3.6kg	
Max. Dimensions	Ø146mm x 391mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	<0.5A (max)	
Communication protocol	RS422, RS422	

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About Ophir an MKS Inc. Brand

With five decades worth of knowledge and experience, MKS's Ophir Infrared Optics product line is a world leading designer and manufacturer of high-performance IR thermal imaging systems and optics for SWIR, MWIR & LWIR imaging. Using advanced technologies and innovative engineering we provide a global solution for homeland security, surveillance, defense and commercial applications: infrared thermal imaging cameras, complex lens assemblies and components.

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