

**YOUR OPTICS PARTNER FOR
COUNTER DRONE SYSTEMS
IR LONG RANGE ZOOM LENSES
LWIR, MWIR, SWIR SOLUTIONS**





SupIR 80-1200mm f/5.5

Target* identification range >2.5km
VGA 15 μ m pixel detector



SupIR 50-1350mm f/5.5

Target* identification range 3.0km
VGA 15 μ m pixel detector



SupIR 60-1200mm f/4

Target* identification range >3.0km
SXGA 10 μ m pixel detector

* Target dimensions 40x40cm quadcopter/drone



MINIMIZE FALSE POSITIVE ALERTS WITH OPHIR'S INFRARED CONTINUOUS ZOOM LENSES FOR HIGH-PERFORMANCE, EXTENDED VISION RANGE

Drones' proliferation in recent century raise potential security threats to both civilian and military entities. Such threats triggered to a new, rapidly emerging Counter-Unmanned Aerial Systems (C-UAS) technologies. Its mission is to detect, identify and disable such threats. Infrared (IR) based systems, or IR imaging combined in such multi-sensor types systems, is a prevalent technology enabling **detection, identification and tracking** the small unmanned aerial system (sUAS). Ophir designs and manufactures precise, long-range IR continuous zoom lenses for integration into premier C-UAS platforms.

Partnering with leading defense OEMs to design IR based C-UAS electro-optical systems, along with a proven track-record of numerous deployments in the field, we deliver a wide selection of extended range IR thermal continuous zoom lenses.

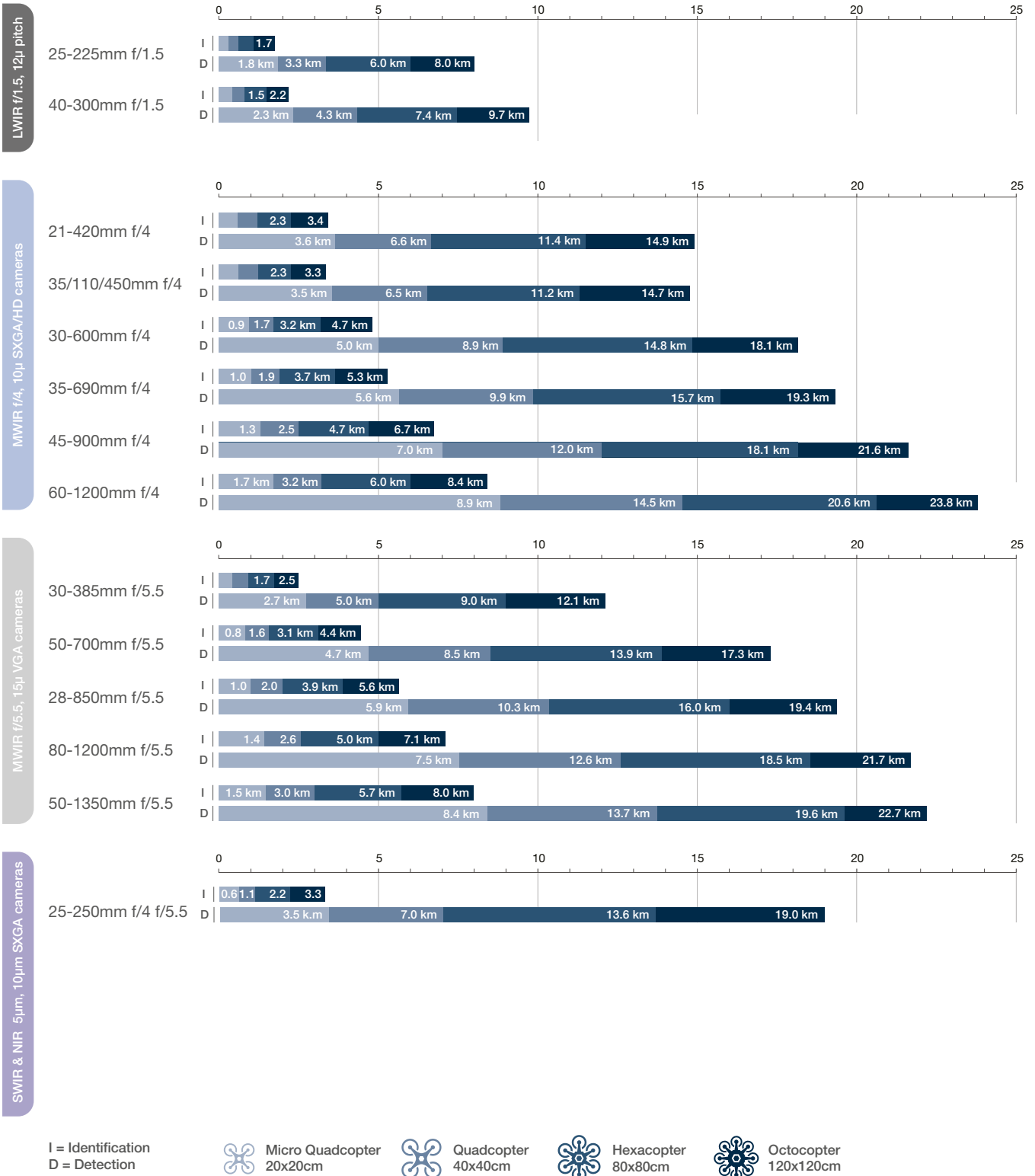
Incorporating top infrared performance for mission success means delivering outstanding detection and identification capabilities. Our lenses provide crisp, clear imagery across the full zoom range, with Modulation Transfer Function (MTF) quality close to the diffraction limit and precise line-of-sight (LOS) accuracy. These features ensure that high frame rate sensors can avoid image blurring even with fast-moving targets. Early and accurate identification is crucial for minimizing false positive alerts, and Ophir's continuous zoom capabilities ensure that targets can be tracked without losing sight.

The key to successful threat identification is to make sure that it covers enough pixels of the chosen sensor. Ophir's continuous zoom lenses provide optical reach to take advantage of early radar detection. A precision zoom lens allows the operator to scan the area in wide field of view to note terrain or other interference. Use of narrow field of view allows the operator to further identify the threat.

Products Characteristics

- High precision optics with MTF close to the diffraction limit
- Continuous zoom providing adequate, focused pixels on target
- Focus maintained through the full zoom range/ entire field-of-view range
- Tight boresight retention
- Extended identification ranges exceeding 8km
- Ruggedized design for durability in harshest environmental conditions
- Accurate Line-of-Sight (LOS)
- Focal length ranges from 21mm to 1350mm
- US and European military standard compliance for temperature, shock, vibration and environmental sealing including DIN 3140, IPC 620, MIL-PRF 13830, Mil-PRF 85285, MIL STD 810, MIL-C-48497, MIL-C-48616, ISO 10110 sections 1-19, ANSVASQ Z1.4.

Target Identification and Detection Ranges (Km)



Assumptions: NETD LWIR f/1.5 50mK | NETD MWIR (f/4, f/5.5) 23mK | 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

SupIR 25-225mm f/1.5, Motorized Continuous Zoom 680157

LWIR
f/1.5



HD
FORMAT

WFOV (25mm)

HFOV	320x240	640x480	1024x768	1280x1024
25μ	18.4°	37.6°		
17μ	12.5°	25.2°	41.1°	
12μ	8.8°	17.7°	28.6°	35.9°

NFOV (225mm)

HFOV	320x240	640x480	1024x768	1280x1024
25μ	2.0°	4.1°		
17μ	1.4°	2.8°	4.4°	
12μ	1.0°	1.9°	3.1°	3.9°

Property	Value	
Optical	WFOV	NFOV
F/#	1.5	
Minimum Focus Range	1m	>90m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤3 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec. (continuous zoom mode); ≤5 sec. (multi-field of view mode)	
Weight	4.3kg	
Max. Dimensions	Ø178 x 226.5mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	0.5A average, 3.5A peak	
Communication Protocol	RS422	

SupIR 40-300mm f/1.5, Motorized Continuous Zoom 680264

LWIR
f/1.5



HD
FORMAT

WFOV (40mm)

HFOV	320x240	640x480	1024x768
25μ	12.2°	24.5°	
17μ	8.3°	16.6°	26.8°
12μ	5.8°	11.7°	18.8°

NFOV (300mm)

HFOV	320x240	640x480	1024x768
25μ	1.5°	3.0°	
17μ	1.0°	2.1°	3.3°
12μ	0.7°	1.5°	2.3°

Property	Value	
Optical	WFOV	NFOV
F/#	1.5	
Minimum Focus Range	2m	10m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤1 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤9 sec. at -32°C; ≤6 sec. at T ≥ 0°C	
Weight	9.5kg	
Max. Dimensions	Ø222mm x 300mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	12V	
Current consumption	< 0.8A average, 1.5A peak	
Communication Protocol	RS422	

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

MWIR
f/4.0



HD
FORMAT

WFOV (21mm)	
HFOV	640x512
15μ	25.1°
10μ	

WFOV (33mm)	
HFOV	1280x1024
10μ	20.0°

NFOV (420mm)		
HFOV	640x512	1280x1024
15μ	1.3°	
10μ		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 35/110/450mm f/4.0, Motorized Continuous Zoom 680374

MWIR
f/4.0



HD
FORMAT

WFOV (35mm)		
HFOV	640x512	1280x1024
15μ	15.2°	
10μ	10.3°	20.0°

MFOV (110mm)		
HFOV	640x512	1280x1024
15μ	4.9°	
10μ	3.3°	6.4°

NFOV (450mm)		
HFOV	640x512	1280x1024
15μ	1.2°	
10μ	0.8°	1.6°

Property	Value		
Optical	WFOV	MFOV	NFOV
F/#	4.0		
Minimum Focus Range	5m	10m	50m
Mechanical			
Focus Mechanism	Motorized		
Focus Time (minimum range to ∞)	≤5.5 sec.		
Zoom mechanism	Motorized		
Zoom Time (NFOV to WFOV)	≤1 sec. at T≥ 0°C; ≤2 sec. at -40°C		
Weight	2.4kg		
Max. Dimensions	Ø136mmx218.6mm		
Electrical			
Drive voltage	7.5V-12V		
Current consumption	0.05A Average, 0.06A peak		

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

MWIR
f/4.0



HD
FORMAT

WFOV (30mm)	
HFOV	640x512
15μ	17.2°
10μ	

WFOV (60mm)	
HFOV	1280x1024
10μ	11.4°

NFOV (600mm)		
HFOV	640x512	1280x1024
15μ	0.9°	
10μ		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 (35mm)	
HFOV	640x512
15μ	15.2°
10μ	

WFOV (60mm)	
HFOV	1280x1024
10μ	11.5°

NFOV (690mm)		
HFOV	640x512	1280x1024
15μ	0.8°	
10μ		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 (45mm)
for configuration 680425-001/2
& 680426-001/2

HFOV	640x512
15μ	11.4°
10μ	

WFOV (72mm) for configuration
680425-003/4 & 680426-003/4

HFOV	640x512	1280x1024
15μ	7.3°	
10μ		9.3°

NFOV (900mm) all configurations

HFOV	640x512	1280x1024
15μ	0.6°	
10μ		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 Motorized Continuous Zoom 680475/6

MWIR
f/4.0



HD
FORMAT

WFOV (60mm)

HFOV	640x512
15μ	8.6°

WFOV (100mm)

HFOV	640x512	1280x1024
15μ	5.3°	
10μ		6.8°

NFOV (1200mm)

HFOV	640x512	1280x1024
15μ	0.5°	
10μ		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	

SupIR 30-385mm f/5.5, Motorized Continuous Zoom 680459

MWIR
f/5.5



WFOV (30mm)

HFOV	640x512
15μ	18.6°

NFOV (385mm)

HFOV	640x512
15μ	1.4°

Property	Value	
Optical	WFOV	NFOV
F/#	5.5	
Minimum Focus Range	5m	70m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤8 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5 sec.	
Weight	740gr	
Max. Dimensions	Ø98mm X 137.9mm	
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	RS485, RS422	

SupIR 50-700mm f/5.5, Motorized Continuous Zoom 680472

MWIR
f/5.5



WFOV (50mm)

HFOV	640x512
15μ	10.9°

NFOV (700mm)

HFOV	640x512
15μ	0.8°

Property	Value	
Optical	WFOV	NFOV
F/#	5.5	
Minimum Focus Range	1m	33m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤8 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5 sec.	
Weight	1.64kg	
Max. Dimensions	Ø156.2mm X 176.7mm	
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	RS485, RS422	

SupIR 28-850mm f/5.5, Motorized Continuous Zoom 680072*

MWIR
f/5.5



HD
FORMAT

WFOV (28mm)

HFOV	640x512	1280x1024
15μ	19.8°	39.8°

NFOV (850mm)

HFOV	640x512	1280x1024
15μ	0.6°	1.3°

Property	Value	
Optical	WFOV	NFOV
F/#	5.5	
Minimum Focus Range	3m	50m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤8 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec.	
Weight	4.6kg	
Max. Dimensions	Length 256mm; Width 176mm; Height 257.5mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	28VDC	
Current consumption	1.25A average, 2.5A peak	
Communication Protocol	RS422	

* Requires export license

SupIR 80-1200mm f/5.5 Motorized Continuous Zoom 680478

MWIR
f/5.5



WFOV (80mm)

HFOV	640x512
15μ	7.1°

NFOV (1200mm)

HFOV	640x512
15μ	0.5°

Property	Value	
Optical	WFOV	NFOV
F/#	5.5	
Minimum Focus Range	5m	220m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤8 sec.	
Zoom mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤5 sec.	
Weight	7.4kg	
Max. Dimensions	Ø268mm x 325.5mm	
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	RS458, RS422	

SupIR 50-1350mm f/5.5, Motorized Continuous Zoom 680356*

MWIR
f/5.5



HD
FORMAT

WFOV (50mm)		
HFOV	640x512	1280x1024
15μ	10.8°	20.5°

NFOV (1350mm)		
HFOV	640x512	1280x1024
15μ	0.4°	0.8°

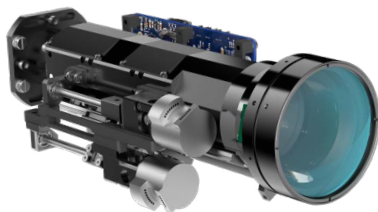
Property	Value	
Optical	WFOV	NFOV
F/#	5.5	
Minimum focus range	5m	200m
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤8 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec.	
Weight	15.6kg	
Max. Dimensions	Length 376.4mm; Ø281mm; height 293mm	
Electrical		
Lens Control	Designated lens controller	
Supply voltage	28VDC	
Current consumption	1.25A average, 2.5A peak	
Communication interface	RS422	

* Requires export license

SWIR & NIR 25-250mm f/5.5 (NFOV) f/4.0 (WFOV) Motorized Continuous Zoom 680471

SWIR

NEW



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	



About Ophir IR Optics

With decades worth of knowledge and experience, Ophir Optronics Solutions LTD., Infrared Optics, an MKS Company (NASDAQ: MKSI), is a world-leading designer and manufacturer of high performance IR thermal lens assemblies 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, commercial and defense applications: complex lens assemblies with fixed or motorized focus and continuous zoom lenses and IR custom components.

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