

FoldIR 40-450mm f/3.6

Folded-Optics Cont. Zoom Lens for MWIR 10 μ m
VGA Detectors (PN 680533)*

NEW

mks | Ophir

Compact and Lightweight Folded-Optics Design

The FoldIR 40-450mm f/3.6 continuous zoom lens is a high-performance folded-optic continuous zoom lens optimized for MWIR 10 μ m VGA sensors. Its double-folded optical path reduces size and weight, making it ideal for space-constrained applications like unmanned aerial systems (UAS) and gimbal-mounted electro-optical systems. This compact solution integrates seamlessly into 11" gimbals and other tight platforms.

Long-Range Detection and Clarity

Capable of detecting targets over 21 kilometers away, this FoldIR lens provides near-diffraction-limit performance. Its optimization for MWIR sensors ensures high-resolution imaging for critical long-range thermal

detection, recognition, and identification (DRI) tasks, even in tough conditions.

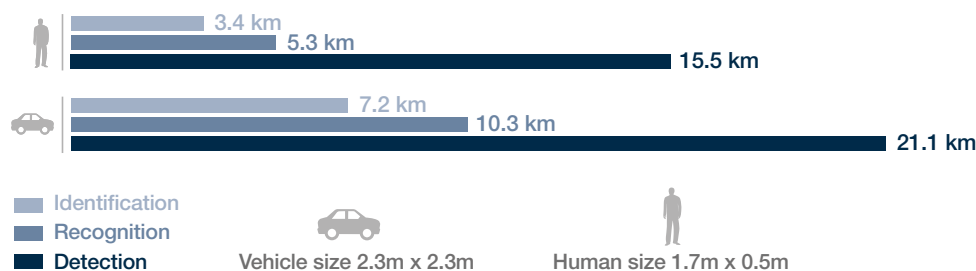
Integrated Mechanical Shutter for NUC

Featuring a built-in mechanical shutter for non-uniformity correction (NUC), the FoldIR lens ensures consistent image quality. This critical feature, controlled by Ophir's proprietary system, maintains performance across varying environments and missions.



KEY PRODUCT FEATURES

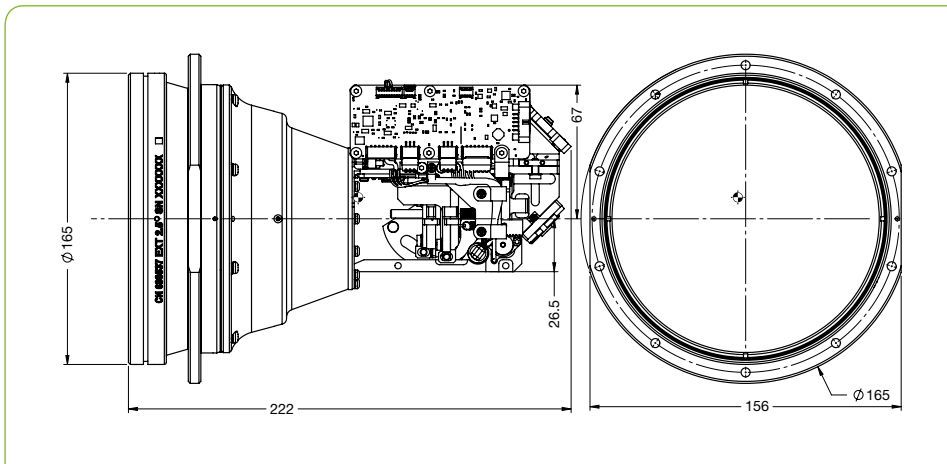
- Efficient folded optics design for minimum volume use
- Physical shutter for mechanical NUC performance
- Designed for MWIR 10 μ m VGA sensors
- Ideal for 11 small size aerial gimbals
- Detection range exceeds 21km
- Requires export license



Assumptions: 32mK NETD at f/3.6 | 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 | 1.74x0.46m, 5°C human size and ΔT | 2.3x2.3m, 2°C vehicle size and ΔT

* Requires export license

TYPICAL ICD



WFOV (40mm)

| | |
|------|---------|
| HFOV | 640x512 |
| 10μ | 9.03° |

NFOV (450mm)

| | |
|------|---------|
| HFOV | 640x512 |
| 10μ | 0.85° |

| Property | Value | |
|----------------------------------|----------------------------|-------|
| Optical | WFOV | NFOV |
| Focal Length | 40mm | 450mm |
| F# | 3.6 | |
| Average transmission (3.4-4.2μm) | 80% (HD) / 76% (HC) | |
| Cold stop to FPA Distance | 12mm | |
| Cold stop CA | 3.37mm | |
| Minimum Focusing Range | 50m | 5m |
| NUC | Mechanical shutter | |
| Mechanical | | |
| Focus Mechanism | Motorized | |
| Focus Time (minimum range to ∞) | ≤5.5 sec. | |
| Zoom Mechanism | Motorized | |
| Zoom Time (NFOV to WFOV) | <1 sec. | |
| Max. Dimensions | Ø165 x length 222mm | |
| Weight | 1.85kg | |
| Electrical | | |
| Lens Control | Designated lens controller | |
| Drive Voltage | 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 element only | |
| Configurations | | |
| 680533-001 | High Durability | |
| 680533-002 | Hard Carbon | |

