IR LIGHTWEIGHT ZOOM LENSES
FOR COOLED MWIR, AND UNCOOLED LWIR CAMERAS

- High MTF performance
- Extremely compact configuration
- Optimized for stabilized payloads
- Suitable for a wide range of applications
Meet the LightIR family: lightweight, compact & high performance

Overview
The LightIR thermal imaging zoom lenses are both lightweight and high-performance, designed specifically for use in unmanned aerial vehicles payloads, drones and hand-held devices. The outstanding optomechanical design of the Light IR product family ensures that these lenses are the smallest, lightest and most compact on the market today, while still achieving the highest levels of IR thermal imaging performance.

Key features
- High MTF performance
- Extremely compact configuration
- Optimized for stabilized payloads
- Suitable for a wide range of applications
- Maintains focus through the entire zoom range
- Cost-effective design and structure
- The 15-75mm is the first zoom lens specifically designed for 10-12µm uncooled LWIR cameras
- The 16-180mm is a folded-optics continuous zoom lens designed for reduced SWaP MWIR 10µm pitch VGA FPA
THE LIGHTEST, MOST COMPACT, & HIGHEST PERFORMANCE THERMAL IMAGING ZOOM LENSES
LightIR 16-180mm f/3.6, Motorized Continuous Zoom
Designed for MWIR 10µm pitch VGA FPA
680389

NEW

### Property | Value
--- | ---
**Optical** |  
Focal Length | WFOV 16mm; NFOV 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

**Mechanical** |  
Focus Mechanism | Motorized, Adjustable
Focus Time (minimum range to ∞) | ≤8 sec.
Zoom Time (NFOV to WFOV) | ≤8 sec.
Max. Dimensions | Length 121mm; Width 70mm; height 102mm
Weight | 460gr

**Electrical** |  
Lens Control | Designated lens controller
Drive Voltage | 6-12VDC
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 lens only

**Configurations** |  
680389-001 | HD
680389-002 | LRHC
LightIR 20-275mm f/5.5, Motorized Continuous Zoom
680314

**Optical**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Focal Length</td>
<td>20mm</td>
</tr>
<tr>
<td>F#</td>
<td>5.5</td>
</tr>
<tr>
<td>Back Focal Length</td>
<td>23.52</td>
</tr>
<tr>
<td>Cold stop to FPA distance</td>
<td>19.4mm</td>
</tr>
<tr>
<td>Minimum Focusing Range</td>
<td>5m</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
</tr>
<tr>
<td>Max. Dimensions</td>
<td>Ø58 X 67.1mm</td>
</tr>
<tr>
<td>Weight</td>
<td>264 gr</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
</tr>
<tr>
<td>Drive Voltage</td>
<td>12VDC</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>0.2A average, 0.5A peak</td>
</tr>
<tr>
<td>Communication Interface</td>
<td>RS485, RS422</td>
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</tbody>
</table>

**WFOV (EFL 20mm)**

<table>
<thead>
<tr>
<th>HFOV(deg)</th>
<th>480x384</th>
<th>640x512</th>
</tr>
</thead>
<tbody>
<tr>
<td>20µ</td>
<td>28.0</td>
<td></td>
</tr>
<tr>
<td>15µ</td>
<td>20.9</td>
<td>28.0</td>
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</table>

**NFOV (EFL 275mm)**

<table>
<thead>
<tr>
<th>HFOV(deg)</th>
<th>480x384</th>
<th>640x512</th>
</tr>
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<tbody>
<tr>
<td>20µ</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>15µ</td>
<td>1.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>

LightIR 15-75mm f/1.2, Motorized Continuous Zoom
680386

**Optical**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Focal Length</td>
<td>15mm</td>
</tr>
<tr>
<td>F/#</td>
<td>1.2</td>
</tr>
<tr>
<td>Back focal length</td>
<td>20.78mm</td>
</tr>
<tr>
<td></td>
<td>24.28mm</td>
</tr>
<tr>
<td></td>
<td>Including 0.63mm for Si window</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
</tr>
<tr>
<td>Max. Dimensions</td>
<td>Ø75 X 88mm</td>
</tr>
<tr>
<td>Weight</td>
<td>320 gr</td>
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<td><strong>Electrical</strong></td>
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<tr>
<td>Drive voltage</td>
<td>12VDC</td>
</tr>
<tr>
<td>Current consumption</td>
<td>0.15A, 0.3A peak</td>
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<tr>
<td>Communication interface</td>
<td>RS 485, RS 422, RS 232</td>
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</tbody>
</table>

**WFOV (15mm)**

<table>
<thead>
<tr>
<th>HFOV(deg)</th>
<th>480x384</th>
<th>640x512</th>
</tr>
</thead>
<tbody>
<tr>
<td>25µ</td>
<td>37.9</td>
<td></td>
</tr>
<tr>
<td>17µ</td>
<td>25.3</td>
<td>43.4</td>
</tr>
<tr>
<td>12µ</td>
<td>17.7</td>
<td>29.9</td>
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</table>

**NFOV (75mm)**

<table>
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<tr>
<th>HFOV(deg)</th>
<th>480x384</th>
<th>640x512</th>
</tr>
</thead>
<tbody>
<tr>
<td>25µ</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>17µ</td>
<td>5.1</td>
<td>8.2</td>
</tr>
<tr>
<td>12µ</td>
<td>3.5</td>
<td>5.8</td>
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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 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, automotive and commercial applications: IR Components and complex lens assemblies with fixed or motorized focus and zoom lenses.

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