High performance infrared camera for demanding real-time imaging applications

MC320 Series Mid-wave Thermal Imagers

- High performance, cost-effective complete monitoring solution
- Advanced maintenance-free electronics and industrial protective packaging
- Serves unique range of process monitoring applications that are better monitored using mid-wave infrared (MWIR)
- Superior images and temperature measurement for mid-wave applications
- Supports low and high temperature applications
- Optional industrial grade rugged enclosure for harsh environments
- Gigabit Ethernet communication
- Support for IO module, OPC, and Modbus through LumaSpec RT Control software

LumaSense Technologies, Inc., has been an innovative leader in the field of infrared non-contact temperature measurement instruments. LumaSense specializes in turnkey solutions consisting of complete engineering, design, and installation services to meet the most severe and challenging thermal imaging system requirements.

The MIKRON MC320 represents another milestone in innovative infrared thermometry. Designed with advanced maintenance-free electronics and Industrial Protective packaging, the MC320 offers unparalleled accuracy for demanding industrial and manufacturing applications.

The MC320 is a cost-effective, high performance non-contact infrared imager that serves a broad range of process monitoring applications. The unique design produces superior images and temperature measurement accuracy (±2 °C) for mid-wave applications.

The MC320 can be configured with flame-filtering capability for furnace/kiln monitoring. With an unmatched array of protective accessories, the MC320 demonstrates LumaSense’s commitment to long-term trouble-free process monitoring.

Typical Applications:
- Vessels and furnaces
- Rolling processes
- Rotary kilns
- Quality monitoring in glass production
- Through-flame imaging in furnaces and boilers
- Measurement of targets or objects with low emissivity
MC320 Variations

<table>
<thead>
<tr>
<th>Model</th>
<th>Filter</th>
<th>Range 1 (°F)</th>
<th>Range 2 (°F)</th>
<th>Range 1 (°C)</th>
<th>Range 2 (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC320M</td>
<td>3 - 5 μm</td>
<td>302 °F to 932 °F</td>
<td>392 °F to 1472 °F</td>
<td>150 °C to 500 °C</td>
<td>200 °C to 800 °C</td>
</tr>
<tr>
<td>MC320MHT</td>
<td>3 - 5 μm</td>
<td>752 °F to 2912 °F</td>
<td></td>
<td>400 °C to 1600 °C</td>
<td></td>
</tr>
<tr>
<td>MC320F</td>
<td>3.9 μm</td>
<td>392 °F to 1472 °F</td>
<td></td>
<td>200 °C to 800 °C</td>
<td></td>
</tr>
<tr>
<td>MC320FHT</td>
<td>3.9 μm</td>
<td>752 °F to 2912 °F</td>
<td></td>
<td>400 °C to 1600 °C</td>
<td></td>
</tr>
<tr>
<td>MC320G</td>
<td>4.8 - 5.2 μm</td>
<td>392 °F to 1472 °F</td>
<td></td>
<td>200 °C to 800 °C</td>
<td></td>
</tr>
<tr>
<td>MC320GHT</td>
<td>4.8 - 5.2 μm</td>
<td>752 °F to 2912 °F</td>
<td></td>
<td>400 °C to 1600 °C</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Specifications

- Protection Class: IP54 / NEMA 4
- Operating Temperature: 32 to 122 °F (0 °C to 50 °C) (at housing)
- Storage Temperature: -4 to 158 °F (-20 °C to 70 °C)
- Relative Humidity: Non condensing conditions
- Weight: 2.55 lbs. (1 kg) (excludes any protective housing or optional lenses)
- Operating Position: Any operating position
- Housing: 6063 T5 Aluminum Alloy. Finish is alodine, clear, MIL-DTL-5541F, RoHS Compliant
- Dimensions: 3.26 in x 3.20 in x 7.01 in (83 mm x 81.49 mm x 178.28 mm)

Electrical

- Power Supply: 12 - 30V or Power over Ethernet standards
- Power Consumption: 7W Typical, 13W Max
- Load (analog output): 75 Ω
- Isolation: Power supply, communication, and IOs are isolated from each other

Salient Features for MC320 camera with LumaSpec RT Control Software

- Support for non-uniformity correction (manual & auto)
- Remote focus lens control for standard, wide angle, and telephoto lens
- Adjustable emissivity, background, and transmission settings
- Real-time display of thermal images with frame capture and sequence capture
- Includes 19 different color palates
- Auto-Gain available for entire image or ROI
- Multiple types of ROI including point, line, and area with temperature display
- Includes analysis tools like histogram, 3D profile, line profile, and temperature trend
- Alarm generation for entire or ROI image based on minimum, maximum, or average temperature
- Support for OPC (OPC DA 2.0) with user-defined scan rate
- Analog and digital output module
- Web server functionality
- Triggered capture based on alarm conditions
- Password controlled user access
- Digital zoom up to 8X
- Data export to text or Microsoft Excel (includes thermal image, ROI table summary/data, image data) or to text
- Modbus TCP/IP available
- Multi-camera configuration with camera auto start feature
- Image subtraction available
- Analyze previously recorded images
- Export captured sequences to AVI
- Image format compatible with LumaSpec Offline Analyzer software for advanced analysis and report writing
- Optional SDK
### Optics

<table>
<thead>
<tr>
<th>Lens</th>
<th>Field of View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>21° (H) x 16° (V)</td>
</tr>
<tr>
<td>Wide</td>
<td>53° (H) x 40° (V)</td>
</tr>
</tbody>
</table>

### Dimensions

![Dimensions Diagram]

### System Configuration

LumaSense’s thermal imagers offer several configuration options.

**MC320 over network**

The system can be set up by connecting the camera to a network device (switch) or by connecting the camera directly to a dedicated computer using a cross-over Ethernet cable.

**MC320 mobile setup**

Additionally, the camera can be used with a desktop PC or with a notebook PC for a mobile measuring system.
Reference Numbers

<table>
<thead>
<tr>
<th>Model</th>
<th>Lens Type</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC320M</td>
<td>Standard Lens, Remote Focus</td>
<td>(3-5 μm, 150-500 °C, 200-800 °C)</td>
</tr>
<tr>
<td>321M8608</td>
<td></td>
<td></td>
</tr>
<tr>
<td>321M8610</td>
<td>53° Wide Lens, Remote Focus</td>
<td></td>
</tr>
<tr>
<td>MC320MHT</td>
<td>Standard Lens, Remote Focus</td>
<td>(3-5 μm, 400-1600 °C)</td>
</tr>
<tr>
<td>321M3608</td>
<td></td>
<td></td>
</tr>
<tr>
<td>321M3610</td>
<td>53° Wide Lens, Remote Focus</td>
<td></td>
</tr>
<tr>
<td>MC320F</td>
<td>Standard Lens, Remote Focus</td>
<td>(3.9 μm, 200-800 °C)</td>
</tr>
<tr>
<td>321F5608</td>
<td></td>
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</tr>
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<td>321F5610</td>
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Accessories

- 19840-1 Lab power supply (12 V for MC320)
- 20791-1 DIN rail mounted power supply
- 832 0005 02 Connecting cable (4 pin LEMO) 2 m
- 832 0005 05 Connecting cable (4 pin LEMO) 10 m
- 832 0005 10 Connecting cable (4 pin LEMO) 15 m
- 832 0005 25 Connecting cable (4 pin LEMO) 25 m
- 3 829 850 CAT 6 Ethernet cable, 7.5 m
- 3 829 860 CAT 6 Ethernet cable, 15 m
- 3 829 870 CAT 6 Ethernet cable, 25 m
- 20313-1 Lens adapter for MC320 (spare part)
- 3 830 420 ID enclosure for MC320 (23° standard lens)
- 3 835 470 ID enclosure for MC320 (11° standard lens)
- 3 829 870 ID enclosure for MC320 (53° resp. 75° wide angle lens)
- 3 834 410 Adjustable mounting support (3 hole)
- 19931-AP-1 Air purge for MC320
- 812 0008 01 Software LumaSpec RT Viewer
- 812 0009 01 Software LumaSpec RT Basic
- 812 0029 01 Software LumaSpec RT Analyzer
- 812 0029 06 Software LumaSpec RT Analyzer - Multi 6
- 912 0042 01 LumaSpec RT Tower Controller
- 57 0013 LumaSpec RT Industrial Grade Laptop
- 912 0014 01 Remote I/O Blocks (8 analog outputs)
- 912 0015 01 Remote I/O Blocks (Alarm Kit, 8 Channels, Relay)
- 912 0016 01 Remote I/O Blocks (Remote trigger kit)
- 912 0017 01 Remote I/O Blocks (8 analog, 8 alarm outputs)
- 912 0018 01 Remote I/O Blocks (32 analog, 32 alarm outputs)
- 912 0019 01 Remote I/O Blocks (8 analog inputs)

Scope of delivery: 2 m Ethernet cable, 2 m power supply cable, power supply unit (100 to 240 VAC, 47 to 63 Hz), lens cap, manual (on CD), quick start guide, carrying case, and LumaSpec RT Viewer software.

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