MIKRON MC320

Cost-effective, high performance mid-wave infrared (MWIR) camera for demanding real-time applications in temperature ranges between 150 and 1600°C (302 to 2912°F).

The Mikron® MC320 is a non-contact infrared imager with a unique design that produces superior images and temperature measurement accuracy (±2°C). Designed with advanced maintenance-free electronics and Industrial Protective packaging, the MC320 offers unparalleled accuracy for demanding industrial and manufacturing applications The MC320 can be configured with flame-filtering capability for furnace and kiln monitoring.

PRODUCT HIGHLIGHTS

- 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
- Supports low and high temperature applications
- Optional industrial grade rugged enclosure for harsh environments
- Gigabit Ethernet communication
- Support for I/O module, OPC, and Modbus through LumaSpec™ RT Control Software

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

AT A GLANCE

Temperature Ranges

150 to 500°C (302 to 932°F)
200 to 800°C (392 to 1472°F)
400 to 1600°C (752 to 2912°F)

Configurations

MC320M (3 to 5 μm)
MC320MHT (3 to 5 μm)
MC320F (3 .9 μm)
MC320FHT (3.9 μm)
MC320G (4.8 to 5.2 μm)
MC320GHT (4.8 to 5.2 μm)

Image Update Rate

60 Hz (Standard)
9 Hz (E series)

Measurement Accuracy

±2°C or 2% of reading

Detector

320 x 240 Uncooled Focal Plane Array

MIKRON MC320

MC320 VARIATIONS

Model	Filter	Range 1 (°C)	Range 2 (°C)	Range 1 (°F)	Range 2 (°F)
MC320M	3 to 5 μm	150 to 500°C	200 to 800°C	302 to 932°F	392 to 1472°F
MC320MHT	3 to 5 μm	400 to 1600°C		752 to 2912°F	
MC320F	3.9 μm	200 to 800°C		392 to 1472°F	
MC320FHT	3.9 μm	400 to 1600°C		752 to 2912°F	
MC320G	4.8 to 5.2 μm	200 to 800°C		392 to 1472°F	
MC320GHT	4.8 to 5.2 μm	400 to 1600°C		752 to 2912°F	

TECHNICAL DATA

Performance	
Measurement Accuracy	±2°C or 2% of reading
Image Update Rate	Standard: 60 Hz
	E series: 9 Hz
A/D Resolution	16 bit
Detector	320 x 240 Uncooled Focal Plane Array
Emissivity Correction	0.1 to 1.0
Transmittance	0.1 to 1.0
Sensitivity/NETD	0.06°C @ 30°C (0.108°F @ 86°F)

Optical Specifications	
Focus Range	30 cm to infinity
Field of View (FOV)	Standard: 21° (H) x 16° (V)
	Wide: 53° (H) x 40° (V)

| Interface	
Analog	TV Output (NTSC or PAL)
Digital	Gigabit Ethernet
Connections	4-pin power (LEMO-0K), RJ45 Ethernet, 3-pin trigger (M8), coaxial (BNC)

| Environmental Specifications	
Protection Class	IP54 / NEMA 4
Operating Temperature	0 to 50°C (32 to 122°F) (at housing)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	Non-condensing conditions
Weight	1 kg (2.55 lbs) (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	83 mm x 81.49 mm x 178.28 mm (3.26" x 3.20" x 7.01")

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TECHNICAL DATA (CONTINUED)

Electrical	
Power Supply	12 to 30 V or Power over Ethernet standards
Power Consumption	10 W Typical, 13 W Max
Load (Analog Output)	75 Ω
Isolation	Power supply, communication, and IOs are isolated from each other

DIMENSIONS

Front View
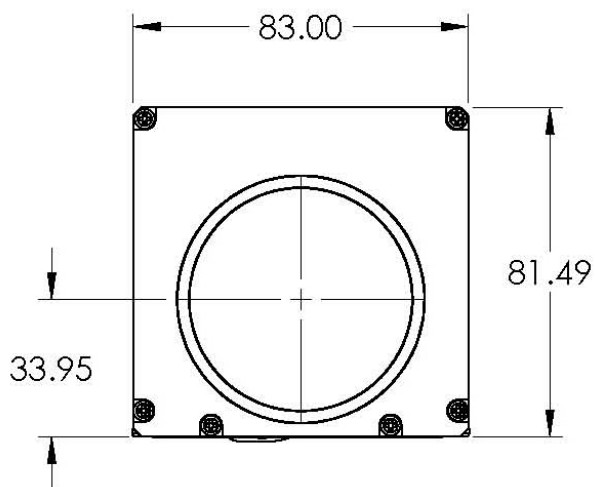
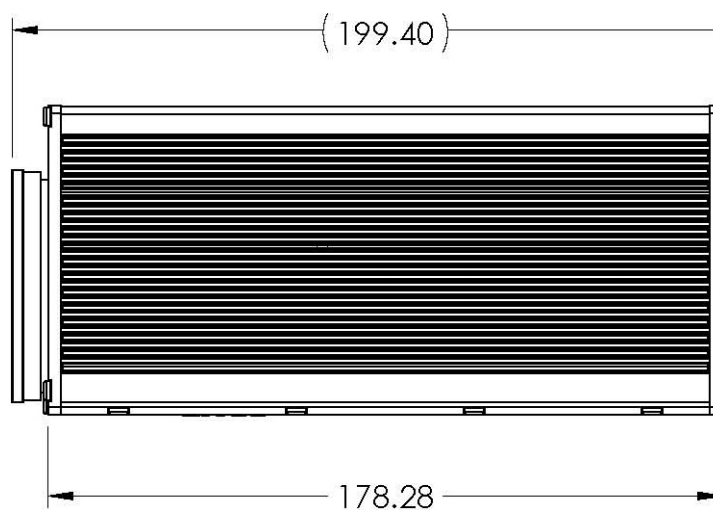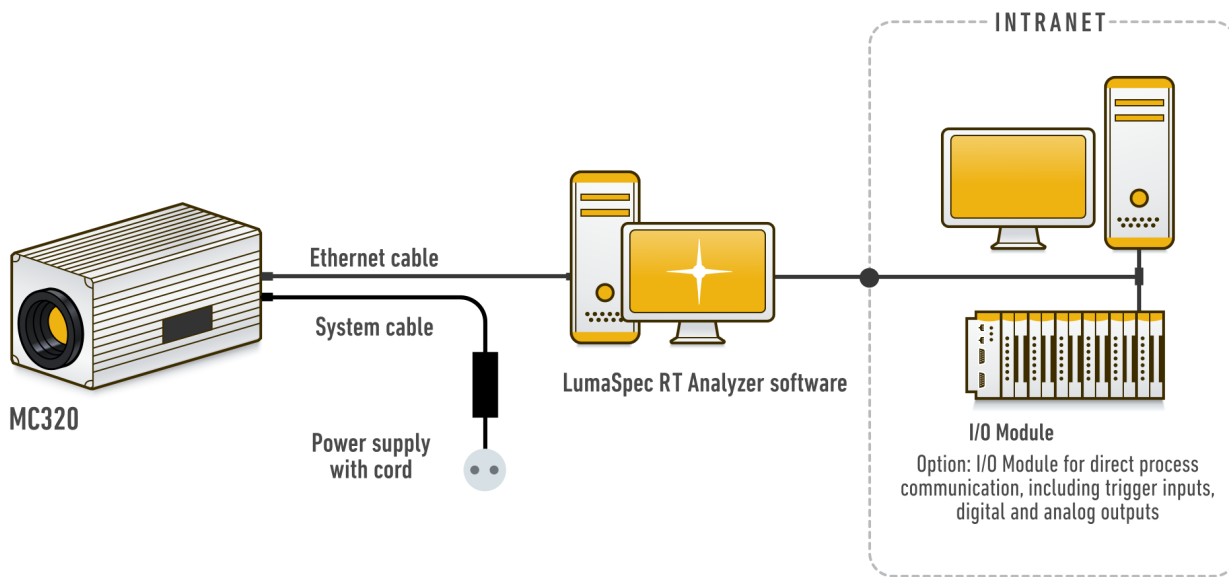### Back View
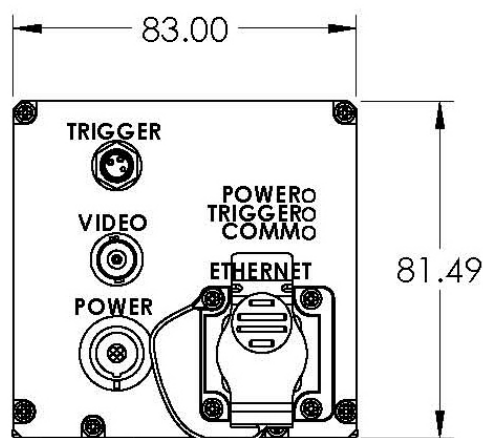
Side View

All dimensions in mm

SYSTEM CONFIGURATION

Advanced Energy'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.

INTRANET

Ethernet cable

System cable

MC320

Power supply
with cord

LumaSpec RT Analyzer software

I/O Module

Option: I/O Module for direct process communication, including trigger inputs, digital and analog outputs

MC320 Mobile Setup

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

Ethernet cable

System cable

MC320

LumaSpec RT Analyzer software

Power supply
with cord

Advanced Energy
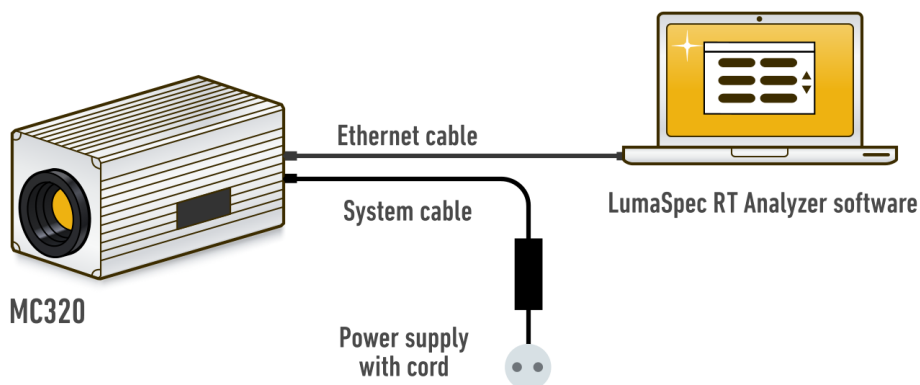
THERMAL IMAGING SOFTWARE: LUMASPEC RT

LumaSpec RT is Windows™ based thermal imaging software that offers high-speed real-time data acquisition and image analysis capabilities. The software enables users to capture images, videos, and data with a thermal imaging camera as well as review and analyze the data with advanced analytical tools.

With LumaSpec RT software, users can use intuitive image and data display tools to understand the thermal characteristics of their processes, equipment, and products using Mikron thermal imaging cameras. Display tools allow users to view thermal snapshots, real time camera feeds, captured sequences, or temperature profiles over larger areas or pinpoint locations.
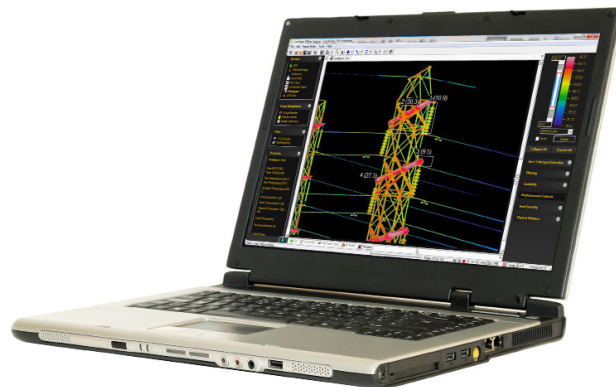
SALIENT FEATURE LIST FOR MC320 CAMERA WITH LUMASPEC RT CONTROL SOFTWARE

- 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

REFERENCE NUMBERS

MC320				
Model	Filter	Temperature Range(s)	Standard Lens, Remote Focus	53° Wide Lens, Remote Focus
MC320M	3 to 5 μm	150 to 500°C, 200 to 800°C	321M8608	321M8610
MC320MHT	3 to 5 μm	400 to 1600°C	321M3608	321M3610
MC320F	3.9 μm	200 to 800°C	321F5608	321F5610
MC320FHT	3.9 μm	400 to 1600°C	321F3608	321F3610
MC320G	4.8 to 5.2 μm	200 to 800°C	321G5608	321G5610
MC320GHT	4.8 to 5.2 μm	400 to 1600°C	321G3908	-

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.

Note: The MC320 camera is designed to operate on a 32 or 64-bit Windows based computer with the following (minimum) components: Dual Core 1.5 GHz or faster processor, 4 GB RAM (running at 1600 MHz), Dedicated Video Card with 1 GB of 900 MHz DDR3 dedicated RAM, 7200 RPM Hard Drive with a 16 MB buffer and using a 3.0 GB/sec SATA bus, Gigabit Ethernet card that supports Jumbo Packets up to 4088 bytes.

ACCESSORIES

PN	Description
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
57 0013	Industrial grade laptop
912 0042 01	Tower style controller
912 0014 01	Remote I/O Blocks (8 analog outputs)

ACCESSORIES (CONTINUED)

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)

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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