

MIKRON MCL640

High resolution infrared camera designed for demanding imaging applications. Temperature measurement between -40 up to 1600°C (-40 to 2912°F).



The Mikron® MCL640 is a cost-effective, high performance non-contact infrared imager that produces superior images and temperature measurement ($\pm 2^{\circ}\text{C}$) for a broad range of process monitoring applications. Designed with advanced maintenance-free electronics and industrial protective packaging, the MCL640 offers unparalleled accuracy for demanding industrial and manufacturing applications with an unmatched array of protective accessories.

PRODUCT HIGHLIGHTS

- Designed to operate in harsh environments
- High resolution 640 × 480 pixel thermal imager for process control and monitoring
- Measures from -40 to 1600°C
- Serves the industry's broadest range of process control applications
- Superior images and temperature measurement for longwave applications
- Offers the best view with five standard lens options

TYPICAL APPLICATIONS

- High voltage electrical equipment and substation fault detection
- Metal industry - e.g. furnaces, stamping, rolling and casting
- Safety monitoring - e.g. gasifiers and pipelines
- Predictive maintenance - e.g. metal ladles, refractory lined furnaces and kilns
- Other industry - e.g. flare monitoring

AT A GLANCE

Temperature Ranges

MCL640
-40 to 120°C or 0 to 500°C
(-40 to 248°F or 32 to 932°F)

MCL640HT
200 to 1600°C (392 to 2912°F)

Image Update Rate

9 Hz or 50 Hz

Measurement Accuracy

$\pm 2^{\circ}\text{C}$ or 2% of reading

Detector

640 x 480 Uncooled Micro
Bolometer Array

Lens Options

8° (75 mm)
14° (50 mm)
26° (25 mm)
57° (11 mm)
77° (8.2 mm)

MCL640 VARIATIONS

Model	Filter	Range 1 (°C)	Range 2 (°C)	Range 1 (°F)	Range 2 (°F)
MCL640L	8 to 14 μm	-40 to 120°C	0 to 500°C	-40 to 248°F	32 to 932°F
MCL640HT	8 to 14 μm	200 to 1600°C		392 to 2912°F	

TECHNICAL DATA

Performance	
Measurement Accuracy	±2°C or 2% of reading
Image Update Rate	9 Hz or 50 Hz
A/D Resolution	16 bit
Pixel Pitch	17 μm
Detector	640 x 480 uncooled micro bolometer array
Emissivity Correction	0.1 to 1.0
Transmittance	0.1 to 1.0

Optical Specifications	
Focus	75 mm autofocus, others manual
Focus Range	Lens dependent. See website for details.
Digital Zoom	1-8x using LumaSpec RT software

Interface	
Digital	Gigabit Ethernet
Connections	4-pin power ("pigtail" included), RJ45 Ethernet communication

Environmental Specifications	
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
Compliance	CE, RoHS
Dimensions (without lens)	127 mm × 101.6 mm × 101.6 mm (5" × 4" × 4")

Electrical	
Power Input	12 VDC
Power Consumption	10 W

Scope of Delivery

Includes power connector with 30 mm pigtail, manual (electronic format), carrying case, and LumaSpec RT Viewer software.

Available Options

- Industrial power supply (meets CE standard at 10 V/m)
- Table top power supply (meets CE standard 3 V/m)
- Vortex air-cooled (VC) industrial enclosure

OPTICS

The MCL640 is available with different lenses and the table below shows the correlation between different standard lens options and the resulting field of view and different distances from the object.



Distance of Object [m (ft)]	Measurement Field W × H				
	8° (75 mm) lens	14° (50 mm) lens	26° (25 mm) lens	57° (11 mm) lens	77° (8.2 mm) lens
10 m (32.8')	1.4 m × 1.1 m (4.7' × 3.5')	2.2 m × 1.6 m (7.1' × 5.3')	4.3 m × 3.3 m (14.2' × 10.7')	9.8 m × 7.4 m (32.4' × 24.3')	13.6 m × 10.2 m (44.6' × 33.5')
25 m (82')	3.6 m × 2.7 m (11.9' × 8.9')	5.4 m × 4.1 m (17.8' × 13.4')	10.9 m × 8.2 m (35.7' × 26.7')	24.7 m × 18.5 m (81.1' × 60.8')	34 m × 25.5 m (111.5' × 83.7')
50 m (164')	7.2 m × 5.4 m (23.8' × 17.8')	10.9 m × 8.2 m (35.7' × 26.7')	21.7 m × 16.3 m (71.3' × 53.5')	45.5 m × 37.1 m (162.3' × 121.7')	68 m × 51 m (223' × 167.3')

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.

Communications Protocols

LumaSpec RT software supports many standard communication protocols for connection to DCS including OPC, Modbus, and physical I/Os such as relays and analog outputs. Using these interfaces, you can transfer the alarms and other processed data generated to the plant DCS or to a data historian easily.



Software Analysis Tools

Provides users with a vast array of graphing and analysis tools to characterize thermal data over distance, area, and time to thoroughly understand the temperature features of their subject matter. Using LumaSpec RT software analysis tools, users can quickly validate theory, isolate areas of specific interest, or identify uses for monitoring and alerts.



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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.

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