MI3, CM

Noncontact Temperature Measurement for Industrial Applications

New:
Profibus • Modbus®
High Temperature Sensors

Raytek®
A Fluke Company

Fast Measurements

Infrared thermometers measure the energy radiated from an object, without touching it. This measurement technique is important in applications where contact would damage or alter the surface, such as a sheet of plastic film, or contaminate the product, such as food processing.

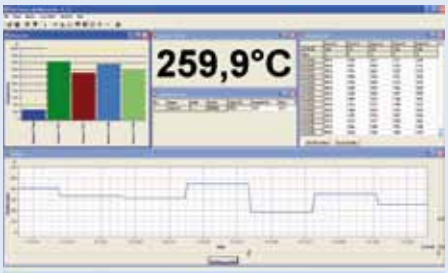
Unlike contact sensors, there is no delay while the infrared thermometer reaches the correct temperature. This makes it ideal for measuring moving or discrete processes. The result is fast, accurate noncontact temperature measurement and tighter control of your process.

Standard Features MI3 LT/G5

- Extended temperature range up to 1650°C
- Optical resolution up to 22:1
- Dedicated close focus lens for spot sizes down to 0.5 mm
- Short response time down to 20 ms
- Industrial rugged cable: Silicone and Halogen free, resistant against oil, bases, and acids
- USB 2.0 interface as standard and selectable field busses

Process Software

More MI3 features are available with the USB or optional RS485 communications and the DataTemp® MultiDrop Software including remote control and monitoring of all sensor variables, an 8-position "recipe" table that can be easily interfaced to an external control system, and even external inputs for analog emissivity adjustment or reflected energy compensation.



Plot temperature values of multiple sensors simultaneously. High and low alarms are shown, making it easy to identify an out-of-range condition.

Compact. Accurate. Affordable.

Bring the advantages of a complete infrared temperature measurement system to your process.

Raytek Compact Series temperature monitoring systems make infrared temperature measurement an economical alternative. The systems are easy-to-install and to integrate into your existing process control system.

Compact Series Models		
MI3 LT/G5	**MI3 1M/2M**	**CM**
Temperature Range		
-40 ... 1650°C	250 ... 1800°C	-20 ... 500°C
Accuracy		
1% or 1°C	0.5% + 2°C	1.5% or 2°C
Signal Processing		
MAX MIN AVG	MAX MIN AVG	No
Optics		
22:1 10:1 2:1	100:1	13:1
Spectral Range		
5 µm 8-14 µm	1 µm 1.6 µm	8-14 µm
Outputs		
0-5/10 V 0/4-20 mA, J, K, R, S* USB, RS485, Alarm Profibus, Modbus	0-5/10 V 0/4-20 mA, J, K, R, S* USB, RS485, Alarm PROFIBUS, Modbus	J, K* or 0 - 5V RS232 Alarm

** Thermocouple type*

Compared to most IR temperature sensors on the market, where the measurements are transferred from the head to the electronics as interference-prone analog signals in a very sensitive µV range, all MI3 sensor modells allow calibrated, digital temperature output directly from each sensor head.

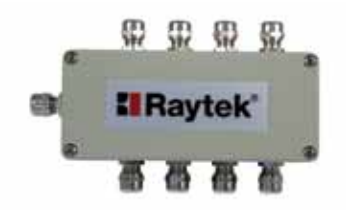
MI3 LT/G5 - The World's Smallest Stand-alone Pyrometer

The Raytek MI3 is a rugged, IP65 stainless steel miniature pyrometer with integrated electronics measuring in a wide temperature range from. Just 14 mm in diameter and 28 mm long, the single piece OEM version is the smallest fully functional, stand-alone infrared temperature sensor for fixed installation on the market today.

For use with standard industrial outputs the MI3 sensor comes with the separate **communication box MI3COMM**, which provides all the functionality of the proven MI series sensors with numerous exciting new features.

The **Multi-channel MI3MCOMM communication box** for multiple sensing head application with USB and RS485 digital communication is available in a convenient **DIN-rail mountable** package.

4 sensing heads can be directly connected to the MI3MCOMM box .



Multi-channel Sensor Interface Box for connecting up to **8 individually addressable heads** to the communication box.

The **OEMMI3 version** of all MI3 sensor modells allow direct digital connection to the host machine controller. No communication box is required. This is ideal for high volume OEM applications requiring MI3 performance with the best possible value and minimum installation costs.

MI3 1M/2M High Temperature Sensors

The new Raytek 1M/2M high temperature sensing heads represent a further extension of performance and innovation in continuous non-contact temperature monitoring for specific OEM applications and high temperature manufacturing processes. The short wavelength sensors deliver more accurate measurements vs. long-wavelength units in case of emissivity changes (for example: metals, ceramics).

The MI31M and MI32M are rugged, IP65 stainless steel sensing heads to handle many applications in a wide temperature range.

The compact MI3 1M/2M sensing head with integrated laser sighting.

Highlights: MI3 Series

- Lowest installation costs per measurement point due to multiple sensing head system design
- Self diagnostic features: break of a head wire, head internal temperature
- Plug & Play exchangeability for sensing heads (no heads parameter anymore; Raytek patent)
- Robust EMI immunity due to digital head-to-box communication
- No cable bending/moving effects allowing continuous reliable measurement in moving installations (robotic arms, linear drives, chains etc)
- Optional network communication interfaces: RS485, Profibus®, Modbus®
- OEM version allows direct digital communication with the host machine controller without the need for an additional communication box

Multiple sensing head design for the digital MI3 saves installation costs.

Convential analog sensors require one box for one sensing head.

Highlights: MI3 1M/2M

- Wide temperature range up to 1800°C
- Laser sighting
- 100:1 optical resolutions
- Spectral models 1 µm /1,6 µm
- Ambient temperatures to 120°C without cooling

CM - The Thermocouple Alternative

When a low-maintenance solution to thermocouples is required, consider the CM. The CM is a rugged, integrated unit with the same output impedance as a thermocouple. It functions accurately without offset errors when used in conjunction with the thermocouple break protection circuitry in most controllers, displays, and transmitters. Combine the CM with the GP monitor to add a display and power supply.

The CM has a rugged stainless steel housing to ensure continuous, long-term performance, even in hostile environments.

The compact CM is an integrated, stainless steel sensor that makes a low-cost thermocouple replacement.

Monitoring edge temperature and drying uniformity for paper production results in higher yields and reduced downtime.

From paint curing to thermoforming, noncontact temperature measurement provides consistent product quality in the automobile industry.

Highlights: CM Sensor

- IP 65 stainless steel electronics housing
- Ambient temperatures to 70°C without cooling
- Accessories for cooling and air purging
- RS232 digital communications
- 150 ms (95%) response time
- One model covers temperature range from -20 to 500°C

Raytek Service Ensures Long Use

With over forty years experience, Raytek knows infrared temperature measurement. Our application specialists are located around the world to help answer your technical questions. Each Compact product includes a two year warranty. In addition, maintenance, training, calibration, and other customized services are available to ensure that you receive the maximum benefits from your Raytek infrared, noncontact thermometer. For more information on Raytek infrared temperature measurement solutions, contact your Raytek application specialist today.

The Worldwide Leader in Noncontact Temperature Measurement

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