

MID

Datasheet



Noncontact Temperature Measurement for Industrial Applications



MID Highlights

- Small sensing head fits where other sensors can't
- Ambient operating range to 85°C (185°F) without cooling
- 5-digit backlit LCD user interface
- Adjustable Emissivity, Peak Hold, Valley Hold and Averaging functions
- 1% accuracy from -40 to 1,200°C (-40 to 2190°F)
- Choice of 2:1 or 10:1 optics
- Special models for glass and metals processing applications
- Powered by 12-24 VDC at ≤ 100 mA
- Accessories for cooling and air purging
- Remote electronics box
- RS-232 or optional RS-485 digital communications for remote setup and monitoring



The Raytek MID is a two-piece infrared temperature measurement system with miniature sensing head and separate electronics.

The sensor is small enough to be installed just about anywhere, yet it performs as well as much larger systems. The MID electronics include a host of signal processing features which you won't normally find in systems in this price range, including Emissivity, Peak Hold, Valley Hold, and Averaging function, all of which are adjustable on the 5-digit LCD user interface.

Designed for a wide range of applications where the target temperature is in the -40 to 1,200°C (-40 to 2,190°F) range, the sensor is housed in a rugged stainless steel enclosure to ensure long term performance, even in harsh industrial environments with ambient temperatures up to 85°C (185°F) without cooling.

Although the MID is small in size, it still has the features you need, with 1% accuracy, a choice of spectral responses, 2:1 or 10:1 optics and user selectable output signals. And the MID's response time is as fast or faster than many advanced systems.

Even more features are available with the RS-232 or optional RS-485 communications and the new DataTemp® MultiDrop Software. These features include remote control and monitoring of all sensor variables, a 5V alarm signal triggered by a target temperature or head ambient temperature, an 8-position "recipe" table that can be easily interfaced to an external control system, an external reset signal input for signal processing, and even external inputs for analog emissivity adjustment or reflected energy compensation.

The MID's miniature size and low cost make it ideal for installation at multiple points along your process. Accurate. Easy to install. Affordable. With the MID, precision infrared temperature measurement is now an economical alternative.

Measurement Specifications

Spectral Response

Model	
LT (Low Temp.)	8 to 14 microns
G5 (Glass)	5 microns
MTB (Medium Temp.)	3.5 to 4 microns

Optical Resolution:

LT	2:1 or 10:1
G5 and MTB	10:1

Temperature Range

Model	
LT	-40 to 600°C (-40 to 1112°F); -25 to 600°C for J-thermocouple output
G5	150 to 850°C (300 to 1,560°F)
MTB	200 to 1,200°C (390 to 2,190°F)

System Accuracy:

±1% of reading or ±1°C, whichever is greater
Thermocouple output accuracy
±1% of reading or ±2.5°C, whichever is greater

System Repeatability:

±0.5% of reading or ±0.5°C (1°F), whichever is greater

Temperature Coefficient

MID	0.15K per K or 0.15% per K,
MIC	0.05K per K or 0.05% per K whichever is greater*
G5 and MTB	0.05K per K or 0.05% per K

Temperature Resolution:

LT and G5	0.3°C or 0.5°F
MTB	0.4°C or 0.7°F

System Response Time:

150ms (95%)

Emissivity:

0.100 to 1.100 digitally adjustable increments of .001

Transmission:

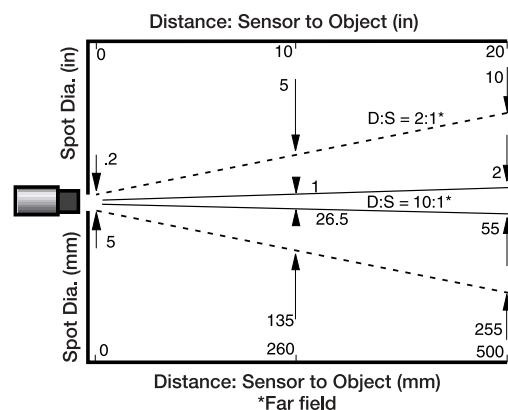
0.100 to 1.100 digitally adjustable increments of .001

Signal Processing:

Peak hold, valley hold, variable averaging filter, adjustable up to 998 seconds

* NIST/DKD certified models available with 0.05K per K

Nominal Optical Specifications



D:S is the optical resolution expressed as a ratio of the distance to the measurement spot divided by the diameter of the spot.

Optical resolution for the MID is 2:1 or 10:1.

Nominal spot size based on 90% energy.

Electrical Specifications

Outputs:	Scalable 4-20mA, 0-20mA, 0-5V, J or K thermocouple
Alarm Relay	10mV/°C Head Ambient signal
Cable Length:	1 m (3.2 ft) standard
Output Impedance (T/C output):	20 ohms
Minimum Load Impedance (mV output):	100K ohms
Maximum Loop Impedance (mA output):	500 ohms with 24 VDC power supply
Current Draw:	100 mA
Power Supply:	12-24 VDC

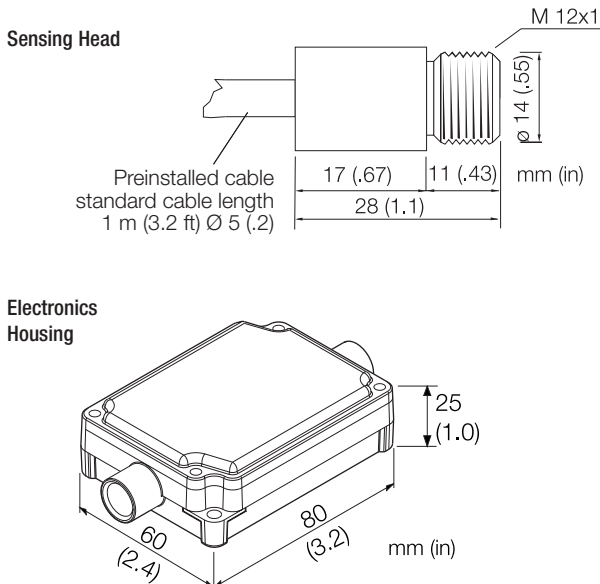
Sensor Specifications

Environmental Rating:	NEMA-4 (IP 65)
Ambient Temperature Range:	
Sensing head	0 to 85°C (32 to 185°F)
With air cooling	-18 to 200°C (0 to 392°F)
Electronics housing	0 to 65°C (32 to 150°F)
Storage Temperature:	-18 to 85°C (0 to 185°F)
Relative Humidity:	10 to 95%, non-condensing
Construction:	
Sensing head	Stainless steel
Electronics housing	Zinc, die-cast

Weight:	
Sensing head (w/1 m cable)	50 g (1.75 oz)
Electronics housing	270 g (9.5 oz)

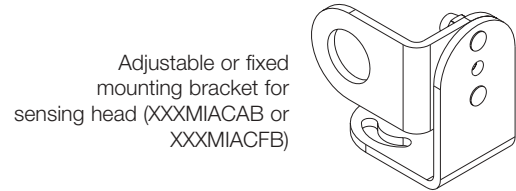
Shock IEC 68-2-27 (MIC ST 810D)-50g's, 11 ms on any axis
 Vibration 68-2-27 (MIC ST 810D)-3g's, 11-200 Hz on any axis

Sensor Dimensions

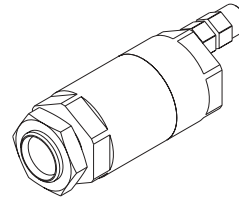


Accessories / Options

Each standard MID package includes a sensing head, one mounting nut, 1 m (3.2 ft) of cable, die-cast housing with premounted electronics, and an operator's manual. Longer cables up to 15m (50ft.) maximum are available and must be specified at time of order.

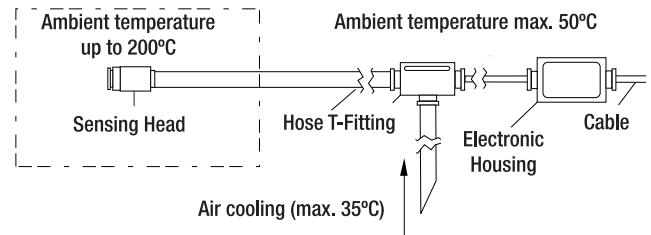


Adjustable or fixed mounting bracket for sensing head (XXXMIACAB or XXXMIACFB)



Air purge jacket to keep lens or right angle mirror clean (XXXMIACAJ)

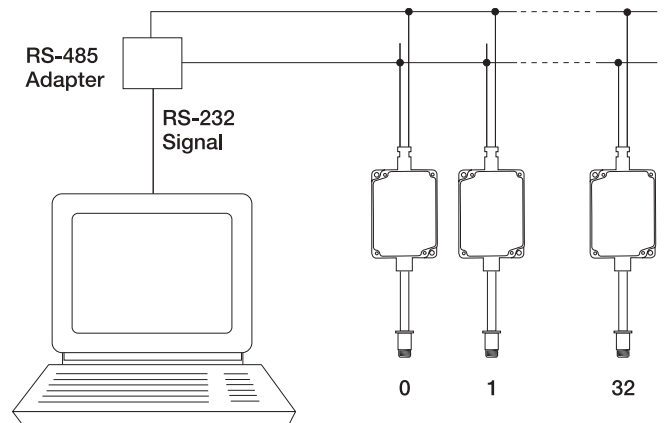
Air cooling/purging system for high temperature environments (XXXMIACJ)

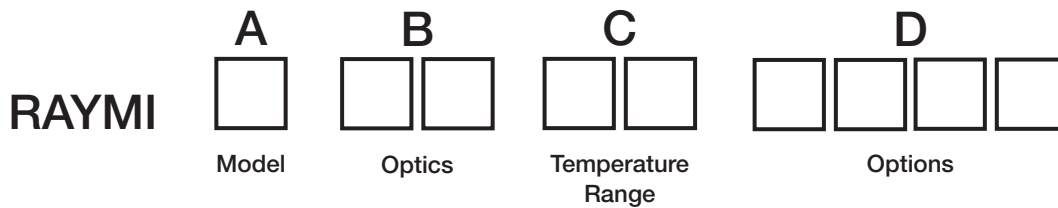


DataTemp® Multidrop software puts you in control.

Multidrop Network Installation

RS-485 sensors can be configured in a multidrop network or point-to-point installation. In multidrop networks, a dedicated PC with DataTemp Multidrop software supports online system monitoring and configuration.





Model	Description
RAYMI	Modular Infrared Thermometer
Code A	Model
D	Standard model includes selectable 4-20mA/0-20mA, 0-5 V, or J/K thermocouple output and head temperature output
C	MID with DKD/NIST calibration certificate and optimized performance
Code B	Optics
02	2:1 D:S sensor with 1m wiring cable
10	10:1 D:S sensor with 1m wiring cable
Code C	Temperature Range
LT	-40 to 600°C (-40 to 1112°F); 8 – 14 microns
G5	150 to 850°C (300 to 1560°F); 5 microns
MTB	200 to 1200°C (390 to 2190°F); 3.5 – 4 microns
Code D	Options
4	RS485 communication for multidrop networks
CB3	3m (9.8') cable
CB8	8m (26') cable
CB15	15m (49') cable
D	Display window for electronics housing
Typical Model Number	RAYMID10LT CB3

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Raytek Automation Products: Noncontact Temperature Measurement for Industrial ApplicationsSM

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