Raytek Compact Series

MID
Datasheet

Highlights

- Small sensing head fits where other sensors can't
- Special models for glass and metals processing applications
- 1% accuracy across the whole temperature range
- 0/4 – 20 mA, 0 – 5 V, J or K thermocouple output
- Ambient head temperatures up to 85°C without cooling
- Interchangeable sensing heads
- Adjustable emissivity, transmissivity, peak hold, valley hold and averaging
- 5-digit backlit LCD user interface
- Accessories for cooling and air purging
- Optional RS-232 or RS-485 digital communications
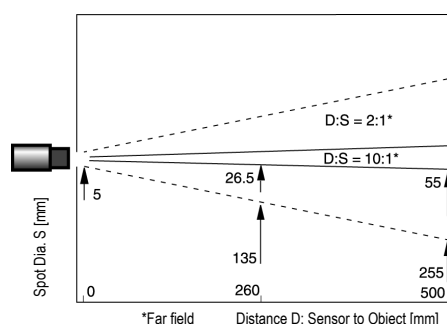- Multidrop Network (max. 32 sensors with RS-485)

Electrical Specifications

Outputs	4 – 20 mA, 0 – 20 mA, 0 – 5 V (scaleable) J or K thermocouple, 10 mV / °C head ambient signal
Cable Length	1 m standard
Output Impedance (T/C)	20 Ω
Minimum Load Impedance (mV)	100 kΩ
Maximum Loop Impedance (mA)	500 Ω with 24 VDC power supply
Current Draw	100 mA
Power Supply	12 – 24 VDC

Sensor Specifications

Environmental Rating	IP65 (NEMA-4)
Ambient Temperature	
Sensing head	0 to 85°C
With air cooling	-18 to 200°C
Electronics housing	0 to 65°C
Storage Temperature	-40 to 85°C
Relative Humidity	10 to 95%, non-condensing
EMI	IEC 801-3, Level 3 (max. cable length 3 m)
Weight	
Sensing head	50 g (with 1 m cable), Stainless steel
Electronics housing	270 g, Zinc, die-cast

Optical Specifications

D:S = 2:1*
D:S = 10:1*
Spot Dia. S [mm]
5
26.5
55
135
255
0
260
500
*Far field   Distance D: Sensor to Object [mm]

Measurement Specifications

Temperature Range	
LT (Low Temperature)	-40 to 600°C
	-25 to 600°C for J-thermocouple output
G5 (Glass)	150 to 850°C
MTB (Medium Temperature)	200 to 1200°C
Spectral Response	
LT	8 to 14 µm
G5	5 µm
MTB	3,5 to 4 µm
Optical Resolution[1]	
LT	2:1 or 10:1
G5, MTB	10:1
System Accuracy[2]	
LT, G5, MTB	±1% or ±1°C [3]
Thermocouple output	-±1% or ±2,5°C [3]
Repeatability	±0,5% or ±0,5°C [3]
Temperature Coefficient	
MIC sensing head[4]	0,05°C / °C or 0,05% / °C [3] (ambient temperature: 23 – 85°C)
MIC sensing head[4]	0,15°C / °C or 0,15% / °C [3] (ambient temperature: 0 – 23°C)
MID sensing head	0,05°C / °C or 0,05% / °C [3] (ambient temperature: 0 – 85°C)
Electronics housing	0,1°C
Temperature Resolution	
LT	0,1°C [5]
G5	0,2°C [5]
MTB	0,4°C
System Response Time	150 ms (95%)
Emissivity	0,100 to 1,100 digitally adjustable increments of 0,001
Transmission	0,100 to 1,000 digitally adjustable increments of 0,001
Signal Processing	Peak hold, valley hold, variable averaging filter, adjustable up to 998 s

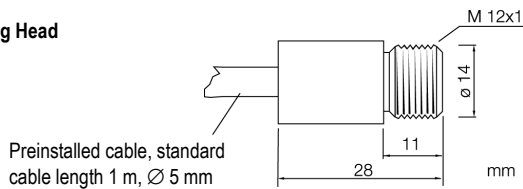[1] 90% energy
[2] at ambient temperature 23°C ± 5°C
[3] whichever is greater
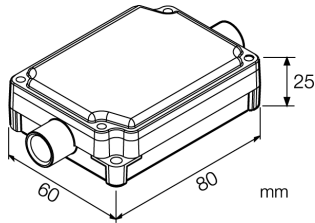[4] with ISO Calibration Certificate, based on NIST/DKD certified probes
[5] for temperature span 300K

Raytek®

Dimensions

Sensing Head

Preinstalled cable, standard
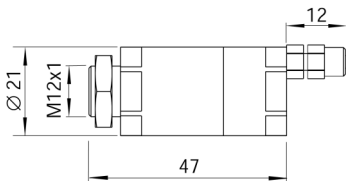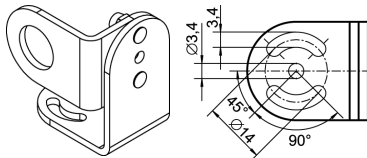cable length 1 m, ⌀ 5 mm

M 12x1
⌀ 14
11
28
mm
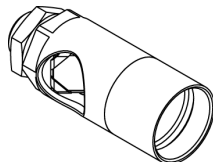
**Electronics
Housing**

25
60
80
mm

Accessories

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

Adjustable Mounting Bracket
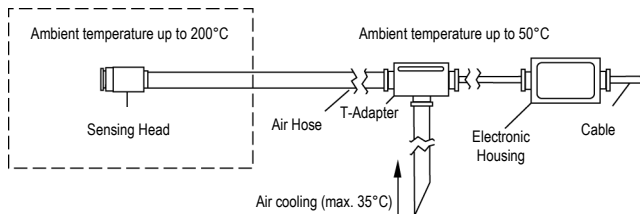(XXXMIACAB),
or fixed mounting bracket
(XXXMIACFB)

⌀3.4
3.4
45°
⌀14
90°

12
⌀ 21
M12x1
47

Air Purge Jacket with fitting,
no cooling (XXXMIACAJ)

Right Angle Mirror for Air Cooling
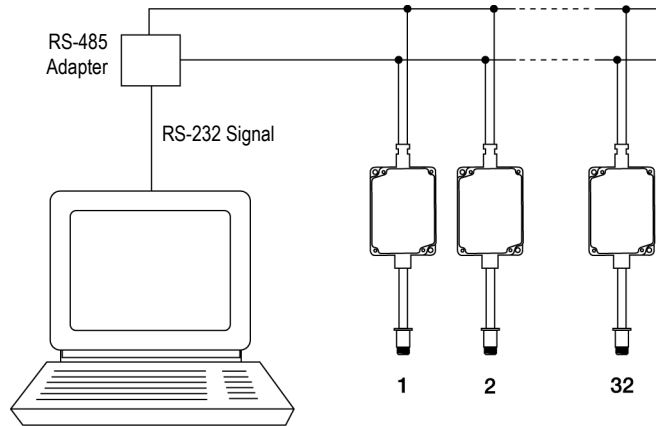Jacket and Air Purge Jacket only
(XXXMIACRAJ)

Air Cooling Jacket and T-Adapter incl. 0,8 m air hose
and insulation (XXXMIACCJ)

Ambient temperature up to 200°C
Ambient temperature up to 50°C
Sensing Head
Air Hose
T-Adapter
Electronic
Housing
Cable
Air cooling (max. 35°C)

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. Up to 32 sensors are supported in a multidrop network.

RS-485
Adapter
RS-232 Signal
1 2 32

DataTemp® Multidrop Software

For use with RS-232 or RS-485 models, DataTemp Multidrop software allows access to the extended digital features of the MID with an easy-to-use interface. Compatible with WIN 95/98/NT/2000, DataTemp Multidrop provides for sensor setup, remote monitoring, and simple data logging for analysis or to meet quality record-keeping requirements.

Additional features configurable with optional RS-232 or optional RS-485 communications and DataTemp MultiDrop Software:

- 5V alarm signal triggered by target temperature or ambient head temperature

- Eight-position "recipe" table that can be easily interfaced to an external control system

- External reset signal input for signal processing

- External inputs for analog emissivity adjustment or background radiation compensation

- Remote digital communication and control of up to 32 sensors in an RS-485 multidrop configuration

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