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optris® CTratio 1M

Glass fiber ratio thermometer for non-contact temperature measurement from 700°C to 1800°C

FEATURES

- 5 ms fast temperature measurements of hot objects
- Due to ratio principle insensitive to certain dust and partially observed targets; in general suppression of object emissivity changes
- Rugged sensing head withstands 250°C without cooling
- Built-in laser marks the actual spot size at any distance
- Programmable 1 or 2 color mode

General specifications	
Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 250°C (sensing head, 70°C with laser ON) 0°C to 85°C (electronics)
Storage temperature	Sensing head: -40 - 250°C Electronics: -40°C - 85°C
Relative humidity	10 - 95%, non-condensing
Vibration (sensor)	IEC 68-2-6: 3 G, 11-200 Hz, any axis
Shock (sensor)	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	Fiber cable (3m) with head: 375 g, electronics: 420 g

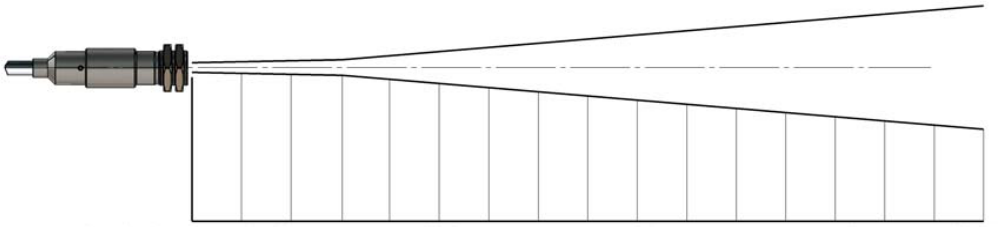
Electrical specifications	
Output/analog	0/4-20 mA, 0-5/10 V
Output impedances	mA max. 500Ω (with 5-36 V DC) mV min. 100 kΩ load impedance
Digital Interface (optional)	USB (Only for Programming)
optional	Relay: 2 x 60 V DC/42 V AC_{eff}; 0,4 A; optically isolated
I/O-Pins	Two programmable in-/outputs; selectable as alarm output (open collector 24 V/1 A), input for triggered signal output and peak-hold function or as analog input for external emissivity or slope adjustment
Fiberoptics length	3 m (standard), 6 m, 10 m, 15 m, 22 m stainless steel armour
Current draw	max. 200 mA
Power supply	8 - 36 V DC or USB powered
Aiming laser	Laser 650 nm, 1mW, ON/OFF via electronic box or software

Measurement specifications	
Temperature range	700°C to 1800°C
spectral range	0.7 - 1.1 µm
Optical resolution (95% energy)	40:1
System accuracy[1] (at ambient temperature 23 ± 5°C)	+/- (1 % T_{Meas} + 1 °C)
Repeatability (at ambient temperature 23 ± 5°C)	+/- (0.5 % T_{Meas} + 1 °C)
Temperature resolution (> 900°C)	0.1 K
Exposure time (95% signal)[2]	5 ms - 10 s
Slope (adjustable via programming keys or analog input)	0.800 - 1.200
Emissivity (adjustable via programming keys or analog input)	0.050 - 1.000
Signal processing (parameter adjustable via programming keys or software, respectively)	1 color / 2 color mode; attenuation monitoring / alarms; peak hold, valley hold, average; extended hold function with threshold and hysteresis

[1] *ε = 1, response time 1 s*
[2] *with dynamic adaptation at low signal levels*

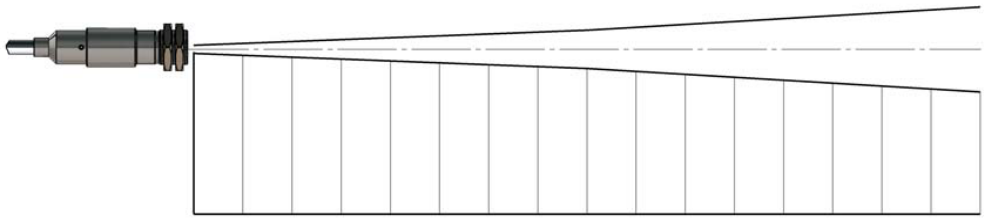
Optical specifications

CF2-optics



spot size (mm)	5,1	6,4	7,7	23,6	50,1	77,6	104,1
distance (mm)	102	200	305	762	1524	2286	3048

SF-optics



spot size (mm)	6,6	10,6	21,1	31,3	41,4	52	62,6	73,3	84
distance (mm)	102	305	762	1143	1524	1905	2286	2667	3048

Dimensions

Sensing head

Electronics