optris® CTratio 1M

TECHNICAL DATA

Glass fiber ratio thermometer for non-contact temperature measurement from 700 °C to 1800 °C (1292 °F to 3272 °F)

Features:

- 5 ms fast temperature measurements of hot objects
- Insensitive to certain dust and partially observed targets due to ratio principle; in general suppression of object emissivity changes
- Rugged sensing head withstands 250 °C (482 °F) without cooling
- Built-in laser marks the actual spot size at any distance
- Programmable 1 or 2 color modes

General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature[1)]	–20 °C ... 250 °C (–4 °F ... 482 °F) (sensing head) –20 °C ... 85 °C (–4 °F ... 185 °F) (electronics) (70 °C [158 °F] with laser ON)
Storage temperature	–40 °C ... 250 °C (–4 °F ... 482 °F) (sensing head) –40 °C ... 85 °C (–40 °F ... 185 °F) (electronics)
Relative humidity	10 – 95 %, non condensing
Vibration	IEC 68-2-6: 3 G, 11 – 200 Hz, any axis
Shock	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	375 g (13.2 oz) (sensing head) 420 g (14.8 oz) (electronics)

Electrical specifications

Output / analog	0/4 – 20 mA, 0 – 5/ 10 V
Optional	Relay: 2 x 60 V DC/ 42 V AC_{eff}; 0.4 A; optically isolated
Digital interface	USB (only for Programming) (optional)
Output impedances	mA max. 500 Ω (with 5 – 36 V DC) mV min. 100 kΩ load impedance
I/O-Pins	Two programmable in-/outputs; selectable as alarm output (open collector 24 V/1 A), input for triggered signal output and peakhold function or as analog input for external emissivity or slope adjustment
Fiberoptics length	3 m (standard), 6 m, 10 m, 15 m (9.8 ft [standard], 19.7 ft, 32.8 ft, 49.2 ft)
Power supply	8 – 36 V DC
Current draw	max. 200 mA
Aiming laser	Laser 650 nm, 1 mW, ON/OFF via electronic box or software

Measurement specifications

Temperature range	700 °C ... 1800 °C 1292 °F ... 3272 °F)
Spectral range	0.7 – 1.1 µm
Optical resolution (95 % energy)	40:1
System accuracy[2)] (at ambient temp. 23 ±5 °C) (at ambient tem. 73 ±41 °F)	±1 % or ±1 °C (±1 % or ±1.8 °F)
Repeatability (at ambient temp. 23 ±5 °C) (at ambient tem. 73 ±41 °F)	±0.5 % or +1 °C (±0.5 % or +1.8 °F)
Temperature resolution (>900 °C)	0.1 K
Exposure time (95 % signal)[3)]	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
Software	optris® Compact Connect

[1)] The functioning of the LCD display may be limited in ambient temperatures below 0 °C (32 °F)

[2)] ε = 1, response time 1 s

[3)] With dynamic adaptation at low signal levels

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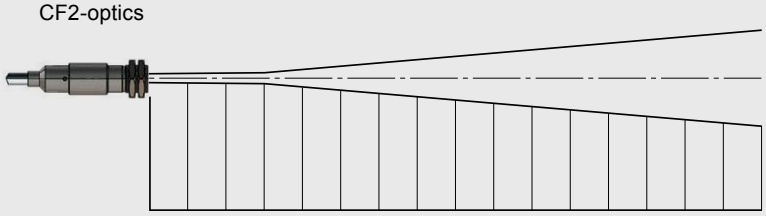
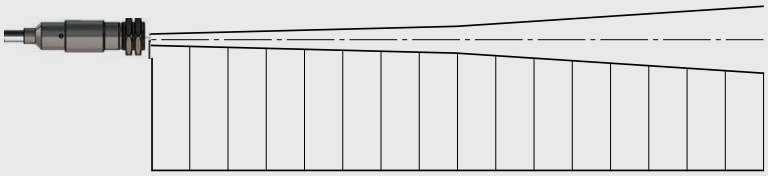
Optical parameter

CF2-optics



S	5.1 (0.20)	6.4 (0.25)	7.7 (0.30)	23.6 (0.93)	50.1 (1.97)	77.6 (3.06)	104.1 (4.10)	mm (in)
D	102 (4.02)	200 (7.87)	305 (12.0)	762 (30.0)	1524 (60.0)	2286 (90.0)	3048 (120)	mm (in)

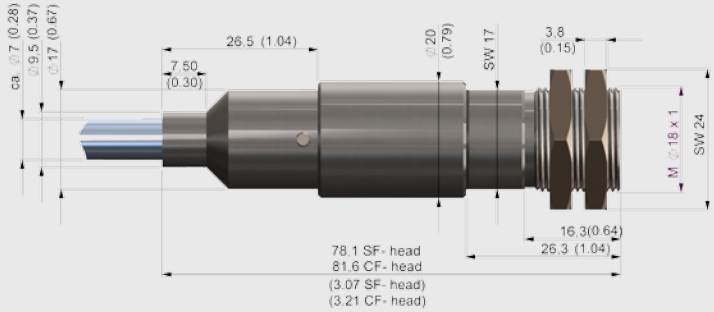
SF-optics



S	6.6 (0.26)	10.6 (0.42)	21.1 (0.83)	31.3 (1.23)	41.4 (1.63)	52 (2.05)	62.6 (2.46)	73.3 (2.89)	84 (3.31)	mm (in)
D	102 (4.02)	305 (12.0)	762 (30.0)	1143 (45.0)	1524 (60.0)	1905 (75.0)	2286 (90.0)	2667 (105)	3048 (120)	mm (in)

Dimensions

Sensing head



Electronics