# optris® CTratio 1M

TECHNICAL DATA

optris infrared measurements

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

**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 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 (sensing head)<br>-20 °C ... 85 °C (electronics) (70 °C with laser ON) |
| Storage temperature | –40 °C ... 250 °C (sensing head)<br>–40 °C ... 85 °C (electronics) |
| 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 | 375 g (fiber cable (3 m) with head)<br>420 g (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)<br>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,<br>22 m stainless steel armour |
| Power supply | 8 – 36 V DC or USB powered |
| 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 |
| Spectral range | 0.7 – 1.1 µm |
| Optical resolution (95 % energy) | 40:1 |
| System accuracy[2] (at ambient temp. 23 ±5 °C) | ±(1 % of reading +1 °C) |
| Repeatability (at ambient temp. 23 ±5 °C) | ±(0.5 % of reading +1 °C) |
| 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*

[2] *ε = 1, response time 1 s*

[3] *With dynamic adaptation at low signal levels*

Optris GmbH · Ferdinand-Buisson-Str. 14 · 13127 Berlin · Germany
Phone: +49 (0)30 500 197-0 · Fax: +49 (0)30 500 197-10 · E-mail: info@optris.global · www.optris.global

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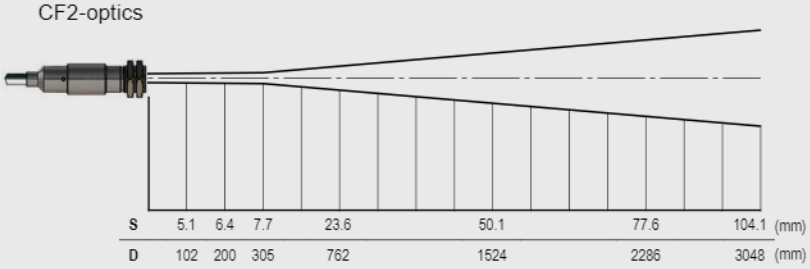
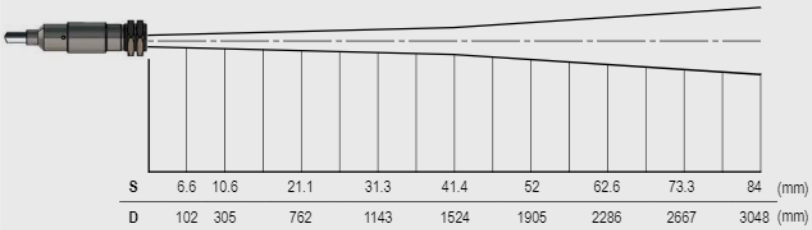
## Optical specifications

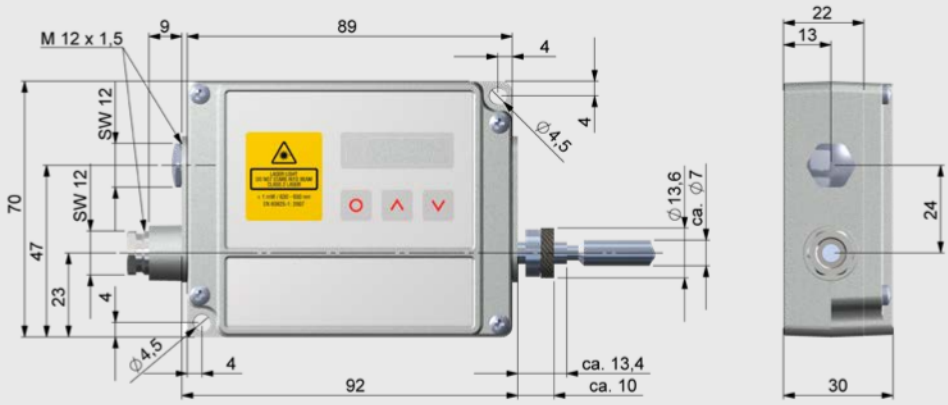
CF2-optics




SF-optics




## Dimensions

Sensing head

Electronics