# optris® CTlaser 1M/2M

## TECHNICAL DATA

**Precise non-contact temperature measurement with precise aiming from 250 °C to 2200 °C**

**Features:**

- Accurate temperature measurements of metals, secondary metal processing and ceramic materials
- Double laser aiming marks real spot location at any distance
- Optical resolution up to 300:1 with selectable focus
- Temperature ranges from 250 °C to 2200 °C, measuring spots up from 0,45 mm and response times up from 1 ms
- Usable up to 85 °C ambient temperature without cooling and automatic laser switch off at 50 °C
- Short measuring wavelength of 1.0 µm or 1.6 µm

### General specifications

| | |
|---|---|
| Environmental rating | IP 65 (NEMA-4) |
| Ambient temperature[1)] | –20 ... 85 °C (sensing head, 50 °C with laser ON)<br>–20 ... 85 °C (electronics) |
| Storage temperature | –40 ... 85 °C (sensing head)<br>–40 ... 85 °C (electronics) |
| Relative humidity | 10 – 95 %, non-condensing |
| Vibration (sensor) | IEC 60068-2-6 (sinus shaped)<br>IEC 60068-2-64 (broadband noise) |
| Shock (sensor) | IEC 60068-2-27 (25G and 50G) |
| Weight | 600 g (sensing head) / 420 g (electronics) |

### Electrical specifications

| | |
|---|---|
| Outputs / analog | 0/4 – 20 mA, 0 – 5/ 10 V, thermocouple J, K |
| Alarm output | 24 V/50 mA (open collector) |
| Optional | Relay: 2 x 60 V DC/ 42 V $AC_{eff}$; 0.4 A; optically isolated |
| Outputs / digital | USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional) |
| Output impedances | mA max. 500 Ω (with 8 – 36 V DC)<br>mV min. 100 kΩ load impedance<br>thermocouple 20 Ω |
| Inputs | Programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions) |
| Cable length | 3 m (standard), 8 m, 15 m |
| Power Supply | 8 – 36 V DC |
| Current draw | Max. 160 mA |
| Laser 635 nm | 1 mW, ON/OFF via electronic box or software |

### Measurement specifications

| | |
|---|---|
| Temperature range (scalable via programming keys or software) | 485 ... 1050 °C (1ML)<br>650 ... 1800 °C (1MH)<br>800 ... 2200 °C (1MH1)<br>250 ... 800 °C (2ML)<br>385 ... 1600 °C (2MH)<br>490 ... 2000 °C (2MH1) |
| Spectral range | 1.0 µm (1M) / 1.6 µm (2M) |
| Optical resolution (90 % energy) | 150:1 (1ML, 2ML)<br>300:1 (1MH, 1MH1, 2MH, 2MH1) |
| System accuracy[2)] (at ambient temp. 23 ±5 °C) | ±(0.3 % of reading +2 °C) |
| Repeatability (at ambient temp. 23 ±5 °C) | ±(0.1 % of reading +1 °C) |
| Temperature resolution | 0.1 K |
| Exposure time[3)] | 1 ms (90 %) |
| Emissivity/ Gain (adjustable via programming keys or software) | 0.100 – 1.100 |
| Transmissivity/ Gain (adjustable via programming keys or software) | 0.100 – 1.100 |
| Signal processing (parameter adjustable via programming keys or software, respectively) | 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, Exposure time 1 s*

*3) With dynamic adaptation at low signal levels*

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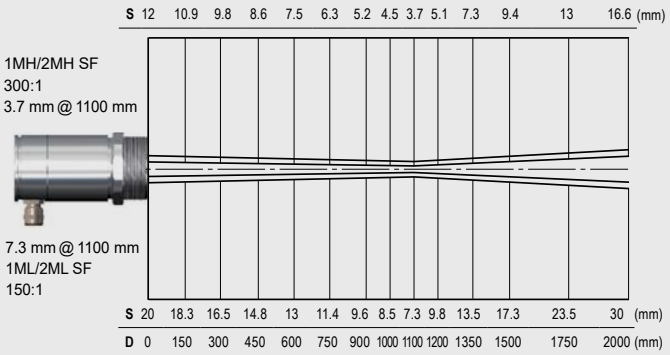
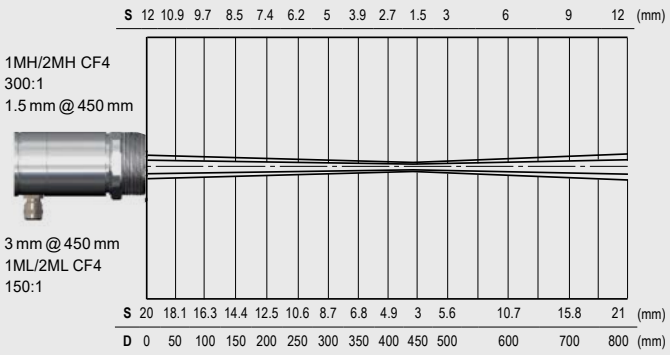
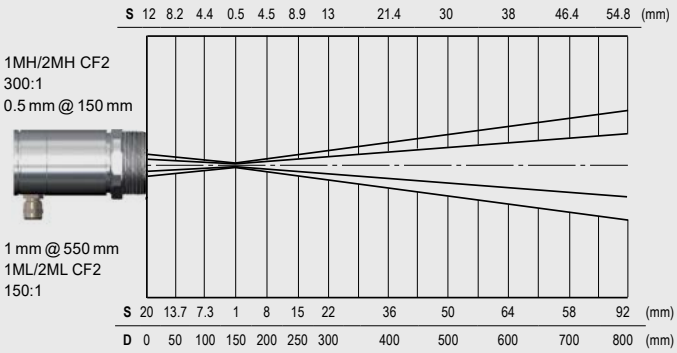
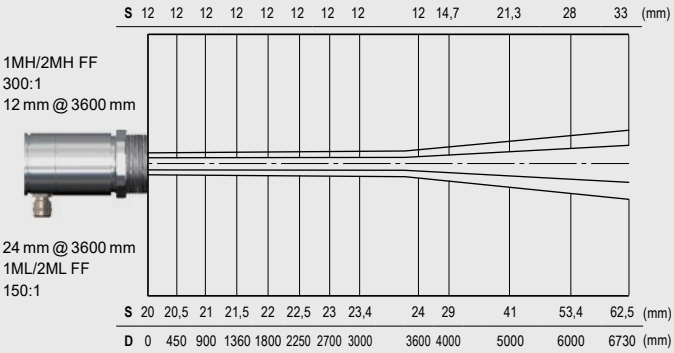
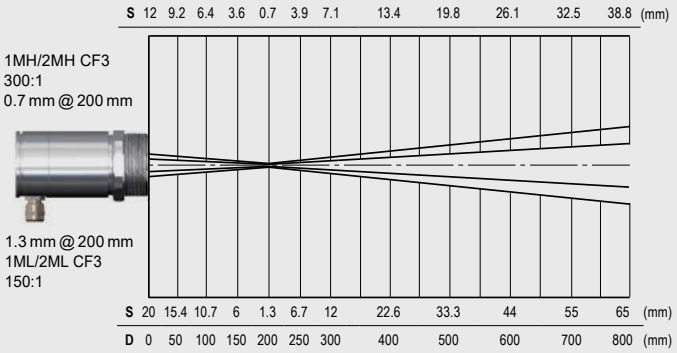
## Optical specifications



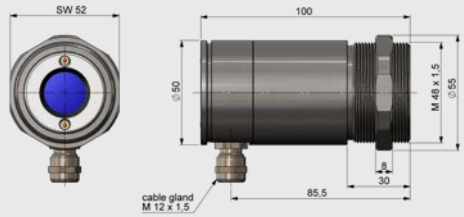




## Dimensions

### Sensing head




### Electronics