

# optris® CT 1M/2M

## TECHNICAL DATA



### Precise non-contact temperature measurement from 250 °C to 2200 °C

#### Features:

- Miniaturized Infrared Thermometer with 1.0  $\mu\text{m}$  respectively 1.6  $\mu\text{m}$  wave length range for measurements of metals, of secondary metal processing, metal oxides and ceramic materials
- Very small sensing head of 14 mm diameter and 28 mm length fits everywhere and is usable up to 125 °C ambient temperature without cooling
- Temperature ranges from 250 °C to 2200 °C, measuring spots up from 1.8 mm and exposure times up from 1 ms
- Short measuring wave length of 1.0  $\mu\text{m}$  respectively 1.6  $\mu\text{m}$  reduces error of temperature readings on surfaces with low or unknown emissivity



#### General Specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20 °C ... 100 °C (1M) to 125 °C (2M) (sensing head) 0 °C ... 85 °C (electronics)
Storage temperature	Sensing head: -40 °C ... 100 °C (1M) to 125 °C (2M) 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	Sensing head: 40 g / Electronics: 420 g

#### Electrical Specifications

Outputs / analog	0/4–20 mA, 0–5/10 V, thermocouple J, K, alarm output
Output / alarm	24 V / 50 mA (open collector)
Optional	Relay: 2 x 60 V DC / 42 V AC <sub>eff.</sub> 0.4 A; optically isolated
Outputs / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500 $\Omega$ (with 8–36 V DC) mV min. 100 k $\Omega$ load impedance thermocouple 20 $\Omega$
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. 100 mA

#### Measurement Specifications

Temperature ranges (scalable via programming keys or software)	485 °C ... 1050 °C (1ML) 650 °C ... 1800 °C (1MH) 800 °C ... 2200 °C (1MH1) 250 °C ... 800 °C (2ML) 385 °C ... 1600 °C (2MH) 490 °C ... 2000 °C (2MH1)
Spectral ranges	1.0 $\mu\text{m}$ (1M) / 1.6 $\mu\text{m}$ (2M)
Optical resolution CT 1ML / 2ML (90 % energy)	40:1 (2.7 mm @ 110 mm)
Optical resolution CT 1MH / 1MH1 / 2MH / 2MH1 (90 % energy)	75:1 (1.5 mm @ 110 mm)
System accuracy <sup>1)</sup> (at ambient temp. 23 $\pm$ 5 °C)	$\pm$ (0.3 % of reading + 2 °C)
Repeatability (at ambient temp. 23 $\pm$ 5 °C)	$\pm$ (0.1 % of reading + 1 °C)
Temperature resolution	0.1 K
Exposure time <sup>2)</sup>	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

<sup>1)</sup>  $\epsilon = 1$ , Exposure time 1 s

<sup>2)</sup> With dynamic adaptation at low signal levels

