optris® CT 1M/2M
TECHNICAL DATA

optris infrared measurements

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

Features:

- Miniaturized Infrared Thermometer with 1.0 µm respectively 1.6 µm 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 µm respectively 1.6 µm 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_{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) mV min. 100 kΩ load impedance 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. 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 µm (1M)/ 1.6 µm (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[1] (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[2]	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] ε = 1, Exposure time 1 s

[2] With dynamic adaptation at low signal levels

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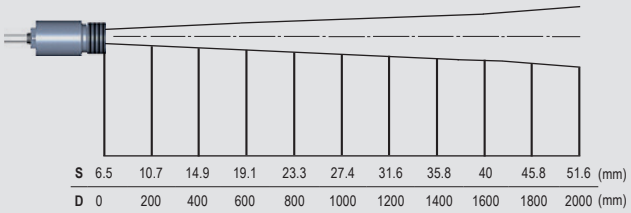
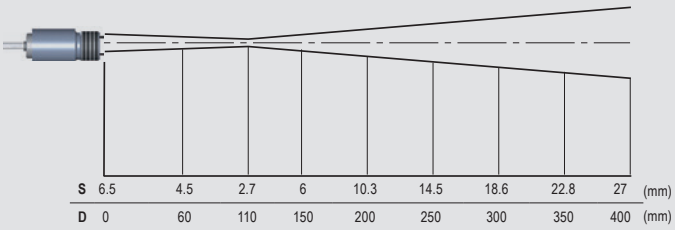
optris® CT 1M/2M

Optical Specifications

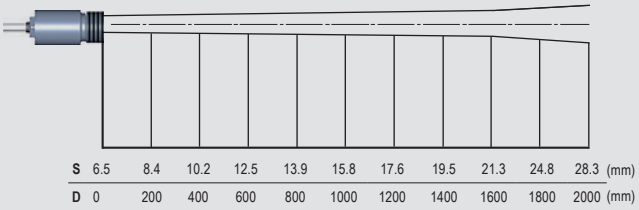
CT 1ML/2ML SF, D:S = 40:1



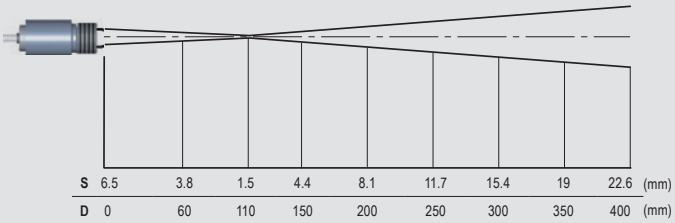
CT 1ML/2ML CF, D:S = 40:1 (Fernfeld = 12:1)



CT 1MH/1MH1/2MH/2MH1 SF, D:S = 75:1

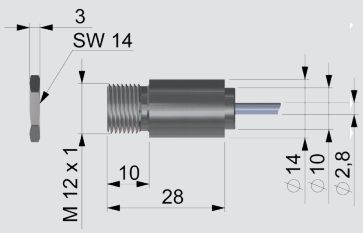


CT 1MH/1MH1/2MH/2MH1 CF, D:S = 75:1 (far field = 14:1)

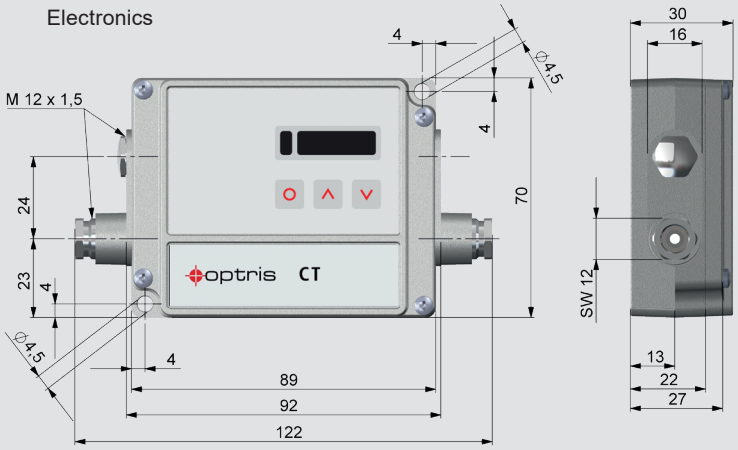


Dimensions

Sensing head

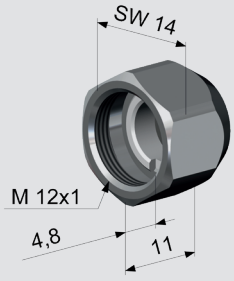


Electronics

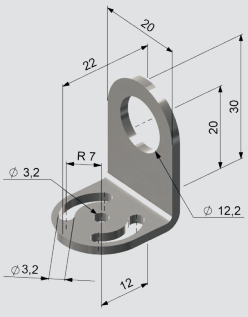


Accessories (examples)

CF-lens
(ACCTCFHT)



Air purge collar with integrated
CF-lens (ACCTAPLCFHT)



Mounting bracket, fixed
(ACCTFB)