optris CT 4ML
TECHNICAL DATA

optris infrared measurements

High-speed pyrometer for temperature measurement from 0 °C to 500 °C

Features:

- Miniaturized Infrared Thermometer with ultra-fast exposure time of 90 µs
- Small-sized head of 14 mm diameter and 28 mm length fits everywhere and is usable up to 70 °C without cooling
- Short wavelengths range of 2.2 – 6 µm makes it suitable for measurement of metals, metal oxides, ceramics or materials with unknown or changing emissivity

General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	0 °C ... 70 °C (sensing head) 0 °C ... 70 °C (electronics)
Storage temperature	–40 °C ... 85 °C (sensing head) –40 °C ... 85 °C (electronics)
Relative humidity	10 – 95 %, non-condensing
Vibration (sensor)	IEC 60068-2-6 / -64
Shock (sensor)	IEC 60068-2-27 (25 G and 50 G)
Weight	40 g (sensing head) 420 g (electronics)

Electrical specifications

Outputs / analog (2x)	0/4 – 20 mA, 0 – 5/10 V, thermocouple K, alarm
Output / alarm	24 V/ 50 mA (open collector)
I/O Pins (3x)	flexible programming as in- or output: external emissivity adjustment, ambient temperature compensation, uncommitted value, trigger (reset of hold functions), alarm output (open collector 24 V/ 50 mA)
Relay (optional)	2 x 60 V DC/ 42 V AC_{eff}; 0.4 A; optically isolated
Digital interfaces	built-in USB-interface Optional: RS232, RS485, Ethernet
Output impedances	mA max. 500 Ω mV min. 100 kΩ load impedance thermocouple 20 Ω
Cable length	3 m, 8 m, 15 m
Power Supply	8 – 30 V DC / 5 V USB / max. 1.2 W

Measurement specifications

Temperature range (scalable via programming keys or software)	0 °C ... 500 °C
Spectral range	2.2 – 6 µm
Optical resolution (90 % energy)	10:1
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)
NETD[2]	120 mK
Temperature coefficient[3]	±0.05 K/ K or ±0.03 %/ K
Exposure time	90 µs (90 %)
Response time	300 µs (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, peak picker, average; extended hold function with threshold and hysteresis
Software / App	optris CompactPlus Connect / IRmobile

[1] ε = 1, response time 1 s

[2] At time constant 1 ms and T_{Obj} = 50 °C

[3] For ambient temperatures >10 °C or whichever is greater

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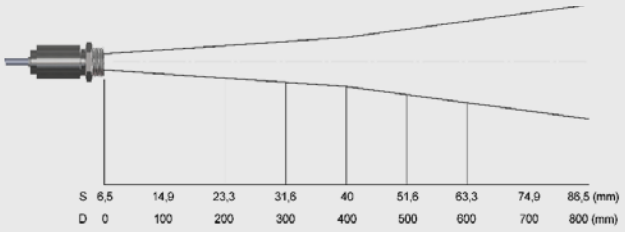
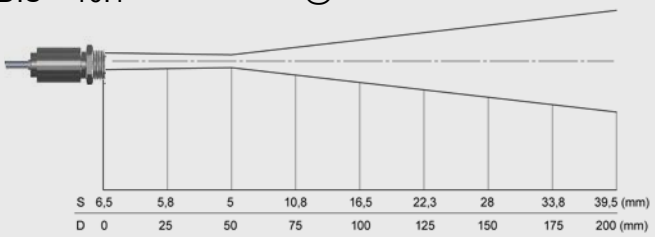
Optical specifications

Optics: SF
D:S = 10:1



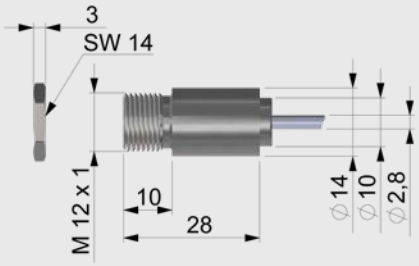
Optics: CF
D:S = 10:1

Focus @ 50 mm

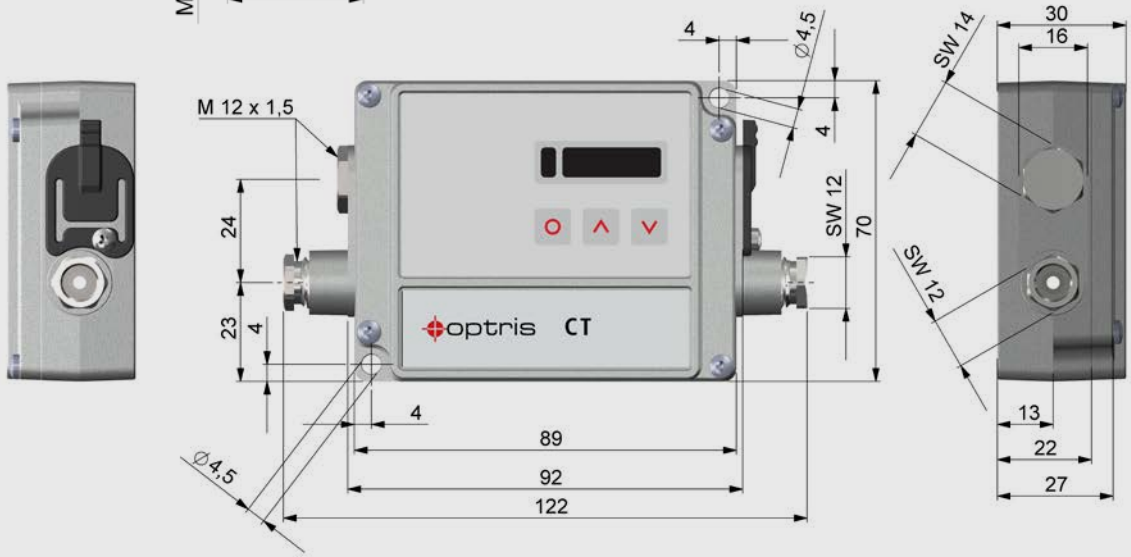


Dimensions (in mm)

Sensing head



Electronics



Software / App

The CT 4ML can be directly connected to a PC or smartphone.

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