

**High speed pyrometer
for temperature measurement
from 0 °C to 500 °C (32 °F to 932 °F)**



Features:

- Miniaturized Infrared Thermometer with ultra-fast exposure time of 90 μ s
- Small-sized head of 14 mm (0.6 in) diameter and 28 mm (1.1 in) length fits everywhere and is usable up to 70 °C (158 °F) without cooling
- Short wavelengths range of 2.2 – 6 μ m 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 [32 °F] ... 70 °C [158 °F] (sensing head) 0 °C [32 °F] ... 70 °C [158 °F] (electronics)
Storage temperature	-40 °C [-40 °F] ... 85 °C [185 °F] (sensing head) -40 °C [-40 °F] ... 85 °C [185 °F] (electronics)
Relative humidity	10 – 95 %, non-condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock (sensor)	IEC 60068-2-27 (25 G and 50 G)
Weight	40 g [1.4 oz] (sensing head) / 420 g [14.8 oz] (electronics)

Electrical specifications

Outputs / analog	0/4 – 20 mA, 0 – 5/10 V, thermocouple K, alarm
Outputs / alarm	24 V / 50 mA (open collector)
I/O Pins (3x)	flexible programming as in- or output: external emissivity adjustment, ambient temp. 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 _{RMS} ; 0.4 A; optically isolated
Digital interfaces	built-in USB-interface Optional: RS232, RS485, Ethernet, Modbus RTU
Output impedances	mA max. 500 Ω mV min. 100 k Ω load impedance thermocouple 20 Ω
Cable length	3 m (9.8 ft), 8 m (26.2 ft), 15 m (49.2 ft)
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 [32 °F]... 500 °C [932 °F]
Spectral range	2.2 – 6 μ m
Optical resolution (90 % energy)	10:1
System accuracy ¹⁾ (at ambient temp. 23 \pm 5 °C)	\pm (0.3 % of reading + 2 °C) \pm (0.3 % of reading + 3.6 °F)
Repeatability (at ambient temp. 23 \pm 5 °C)	\pm (0.1 % of reading + 1 °C) \pm (0.1 % of reading + 1.8 °F)
NETD ²⁾	120 mK
Temperature coefficient ³⁾	\pm 0.05 K / K or \pm 0.03 % / K
Exposure time (90 %)	90 μ s
Response time (90 %)	300 μ s
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⁾ $\epsilon = 1$, response time 1 s

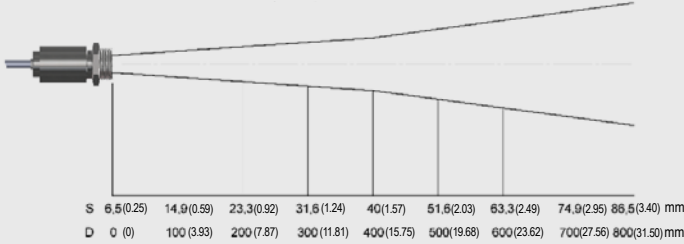
²⁾ At time constant 1 ms and $T_{obj} = 50$ °C (122 °F)

³⁾ For ambient temperatures >10 °C (50 °F) or whichever is greater

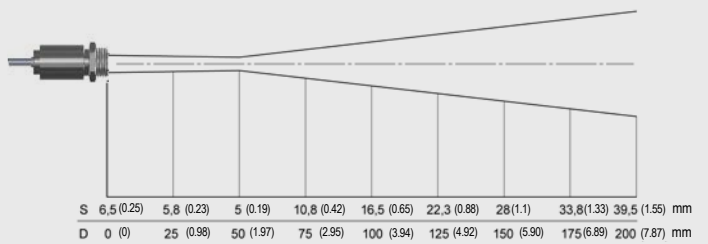
optris CT 4ML

Optical specifications in mm (in)

Optics: SF
D:S = 10:1

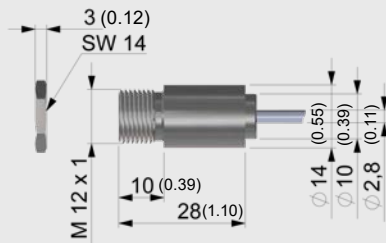


Optics: CF
D:S = 10:1 Focus @ 50 mm

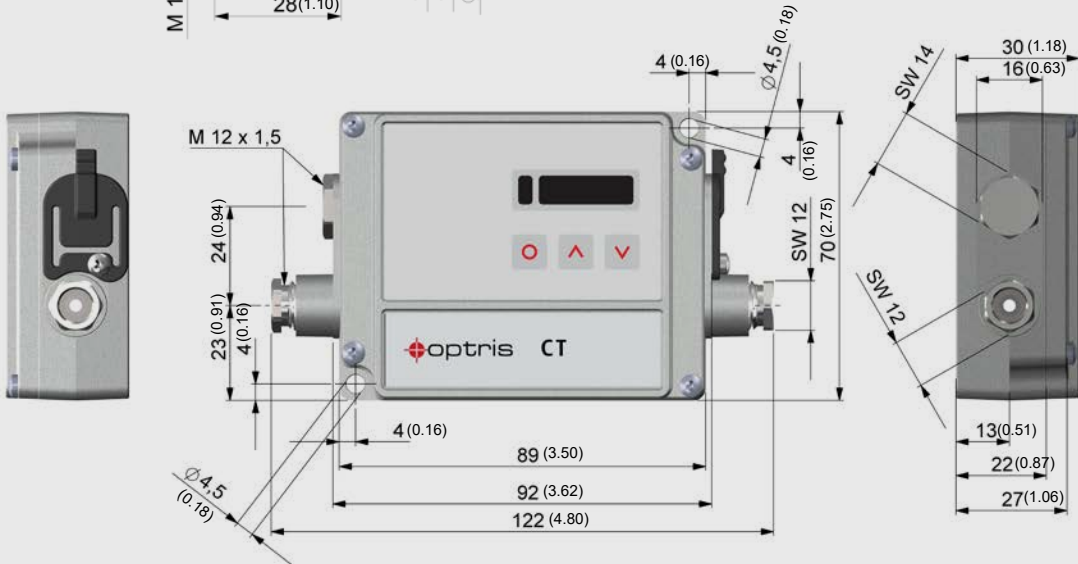


Dimensions in mm (in)

Sensing head



Electronics



Software / App



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

