

optris® CT 3M

Precise non-contact temperature measurement of metals from 50 °C to 1800 °C



FEATURES

- Miniaturized Infrared Thermometer with 2.3 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 85°C ambient temperature without cooling
- For measurements on metal surfaces with a very low start temperature of 50 °C
- Short wave length range of 2.3 µm to reduce error of reading with measurements on materials with unknown emissivity

General Specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20 °C to 85 °C (sensing head) 0 °C to 85 °C (electronics)
Storage temperature	-40 to 125 °C (sensing head) -40°C to 85 °C (electronics)
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	40 g (sensing head) 420 g (electronics)

Electrical Specifications

Outputs/analog	0/4 - 20 mA, 0-5/10 V, thermocouple J, K, alarm
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 (optional)	USB, RS232, RS485, CAN, Profibus DP, Ethernet
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
Current draw	max. 100 mA
Power Supply	8-36 V DC

Measurement Specifications

Temperature ranges ¹⁾ (scalable via programming keys or software)	50 °C to 400 °C (3ML) 100 °C to 600 °C (3MH) 150 °C to 1000 °C (3MH1) ²⁾ 200 °C to 1500 °C (3MH2) ²⁾ 250 °C to 1800 °C (3MH3) ²⁾
Spectral ranges	2.3 µm
Optical resolution (90% energy)	22:1 (3ML) 33:1 (3MH) 75:1 (3MH1-H3)
System accuracy ³⁾ (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 ⁴⁾ (90% signal)	1 ms
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⁾ $T_{\text{object}} > T_{\text{sensing head}} + 25 \text{ °C}$

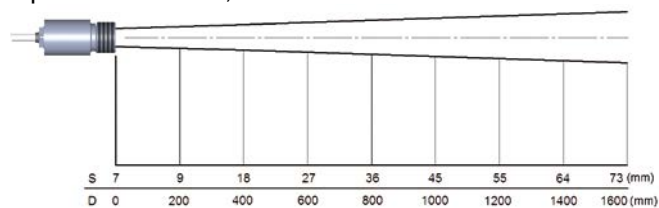
²⁾ Specification valid at $T_{\text{object}} \geq \text{start of measurement range} + 50 \text{ °C}$

³⁾ $\epsilon = 1$, Response time 1 s

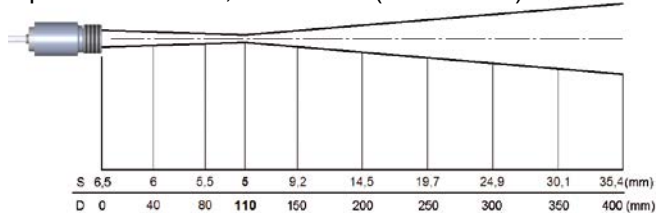
⁴⁾ with dynamic adaptation at low signal levels

Optical Specifications

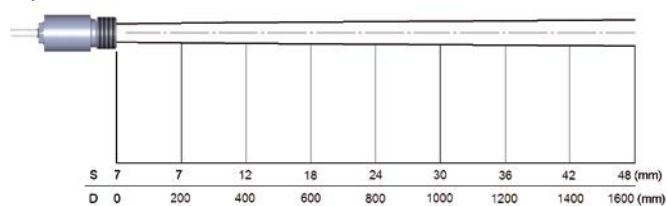
Optics CT 3ML SF, D:S = 22:1



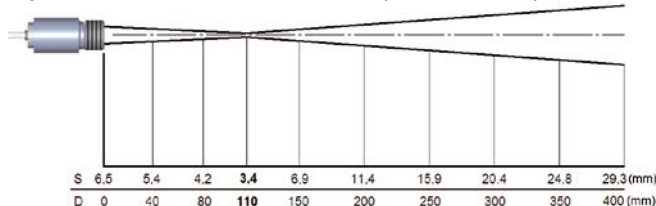
Optics CT 3ML CF, D:S = 22:1 (far field 9:1)



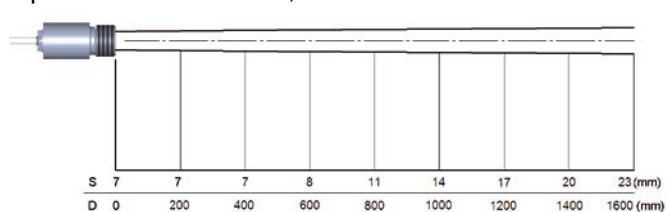
Optics CT 3MH SF, D:S = 33:1



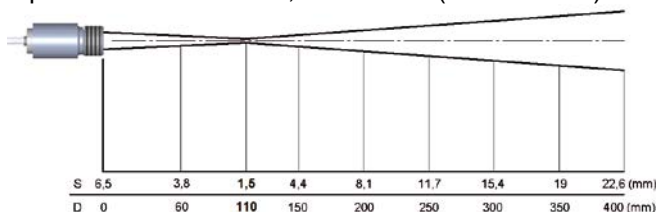
Optics CT 3MH CF, D:S = 33:1 (far field 11:1)



Optics CT 3MH1-H3 SF, D:S = 75:1

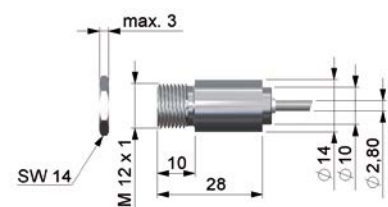


Optics CT 3MH1-H3 CF, D:S = 75:1 (far field 40:1)

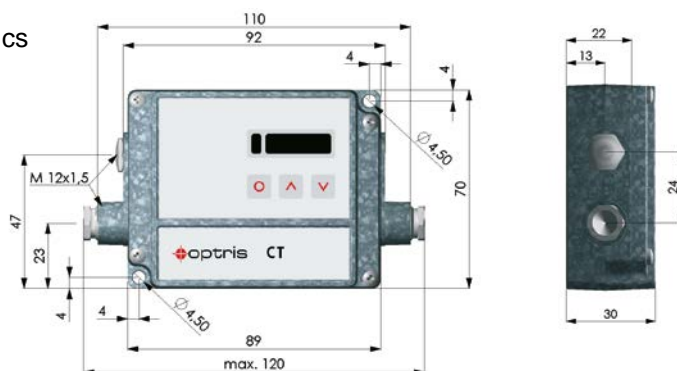


Dimensions

Sensing head

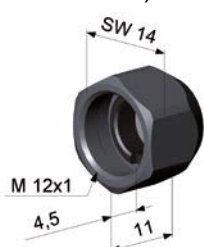


Electronics

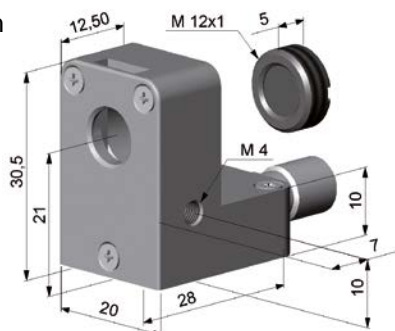


Accessories (examples)

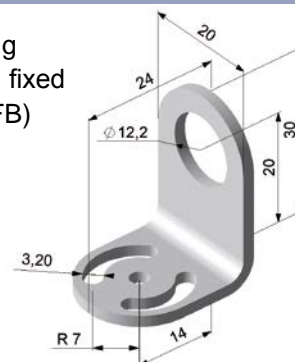
CF-lens (ACCTCFHT)



Air purge collar with integrated CF-lens (ACCTAPLCFHT)



Mounting bracket, fixed (ACCTFB)



Specifications are subject to change without notice
CT3M-DS-EZ015-10-A