

Precise non-contact temperature measurement of metal from 50 °C to 1800 °C (122 °F to 3272 °F)



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 (0.6 in) diameter and 28 mm (1.1 in) length fits everywhere and is usable up to 85 °C (185 °F) ambient temperature without cooling
- Temperature measuring ranges from 50 °C to 1800 °C (122 °F to 3272 °F) and exposure times starting from 1 ms
- 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 (-4 °F to 185 °F) (sensing head) 0 °C to 85 °C (32 °F to 185 °F) (electronics)
Storage temperature	-40 °C to 125 °C (-40 °F to 257 °F) (sensing head) -40 °C to 85 °C (-40 °F to 185 °F) (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 (1.4 oz) (sensing head) / 420 g (14.8 oz) (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	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500 Ω (with 8–36 V DC) mV min. 100 k Ω 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 (9.8 ft)
Power Supply	8–36 V DC
Current draw	Max. 100 mA

Measurement specifications

Temperature range (scalable via programming keys or software)	50 °C ... 400 °C (3ML) (122 °F ... 752 °F) 100 °C ... 600 °C (3MH) (212 °F ... 1112 °F) 150 °C ... 1000 °C (3MH1) ⁴⁾ (302 °F ... 1832 °F) 200 °C ... 1500 °C (3MH2) ⁴⁾ (392 °F ... 2732 °F) 250 °C ... 1800 °C (3MH3) ⁴⁾ (482 °F ... 3272 °F)
Spectral range	2.3 μm
Optical resolution (90 % energy)	22:1 (3ML) 33:1 (3MH) 75:1 (3MH1–3MH3)
System accuracy ²⁾ (at ambient temp. 23 $\pm$ 5 °C) (73 $\pm$ 9 °F)	$\pm$ (0.1 % of reading +1 °C) ($\pm$ [0.1 % of reading +1.8 °F])
Repeatability (at ambient temp. 23 $\pm$ 5 °C) (73 $\pm$ 9 °F)	$\pm$ (0.1 % of reading +1 °C) ($\pm$ [0.1 % of reading +1.8 °F])
Temperature resolution (display)	0.1 K
Exposure time ³⁾	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⁾ $T_{\text{object}} > T_{\text{sensing head}} + 25 \text{ °C (+77 °F)}$

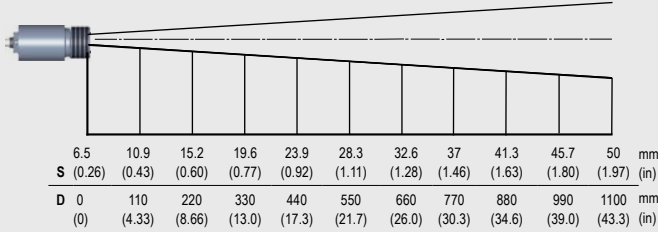
²⁾ $\epsilon = 1$, response time 1 s

³⁾ With dynamic adaptation at low signal levels

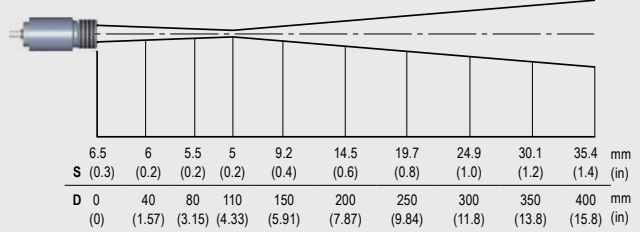
⁴⁾ Specification valid at $T_{\text{object}} \geq \text{start of measurement range} + 50 \text{ °C (+131 °F)}$

Optical specifications

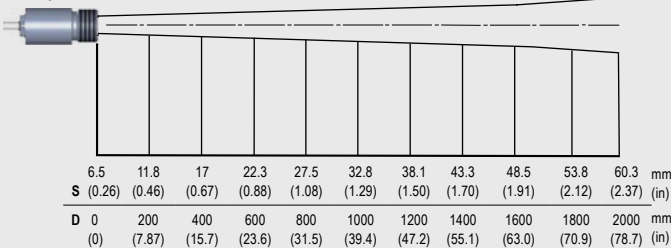
Optics CT 3ML SF, D:S = 22:1



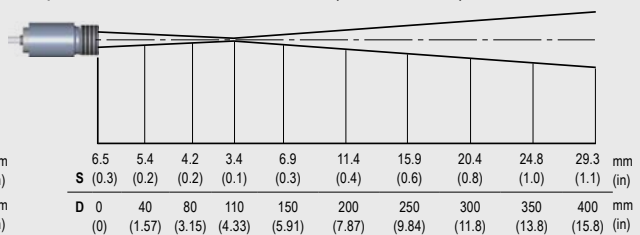
Optics CT 3ML CF, D:S = 22:1 (far field = 9:1)



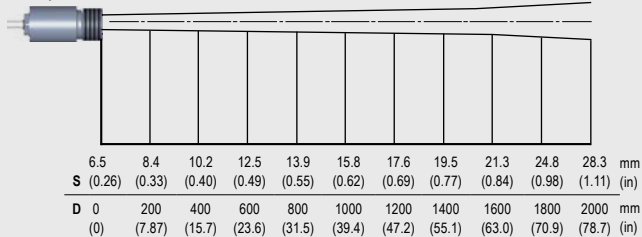
Optics CT 3MH SF, D:S = 33:1



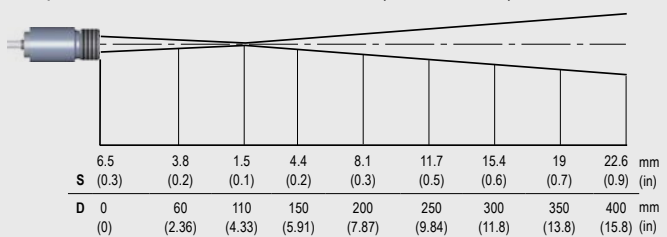
Optics CT 3MH CF, D:S = 33:1 (far field 11:1)



Optics CT 3MH1-H4 SF, D:S = 75:1

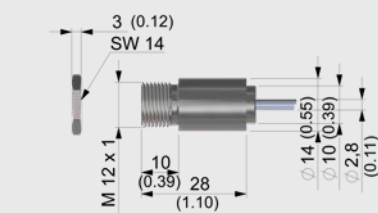


Optics CT 3MH1-H4 CF, D:S = 75:1 (far field 40:1)

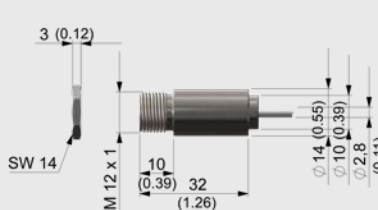


Dimensions

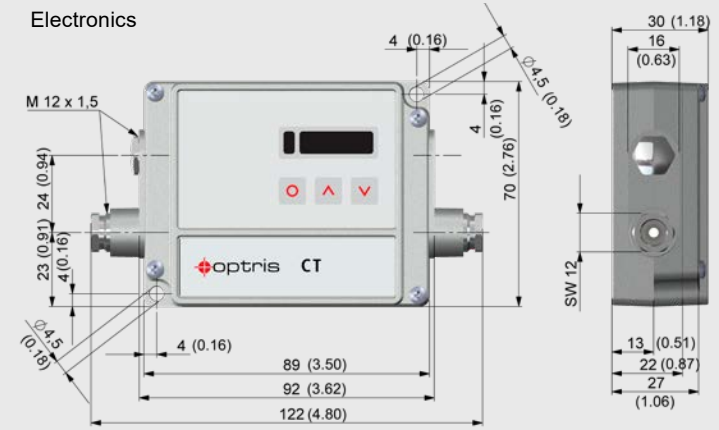
Sensing head (standard)



Sensing head (built-in CF lenses)

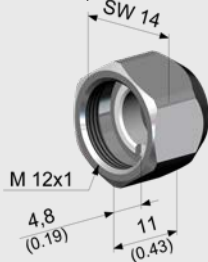


Electronics

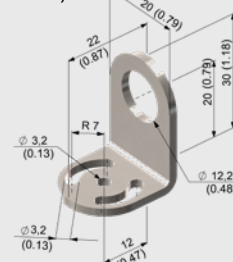


Accessories (examples)

CF-lens (ACCTCFHT)



Mounting bracket, fixed (ACCTFB)



Air purge collar with integrated CF-lens (ACCTAPLCFHT)

