

optris® CT 3M

Precise non-contact temperature measurement of metal 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 (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 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 |
| 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 \pm 5°C) | \pm (0.3% of reading + 2°C) |
| Repeatability (at ambient temp. 23 \pm 5°C) | \pm (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⁾ $T_{\text{object}} > T_{\text{sensing head}} + 25^\circ\text{C}$

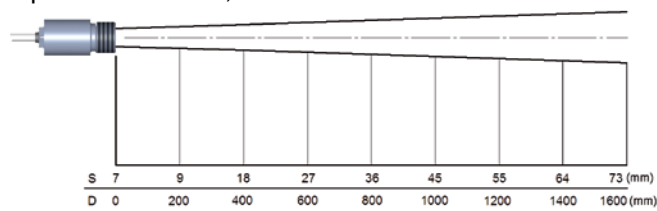
²⁾ Specification valid at $T_{\text{Object}} \geq \text{start of measurement range} + 50^\circ\text{C}$

³⁾ $\epsilon = 1$, Response time 1 s

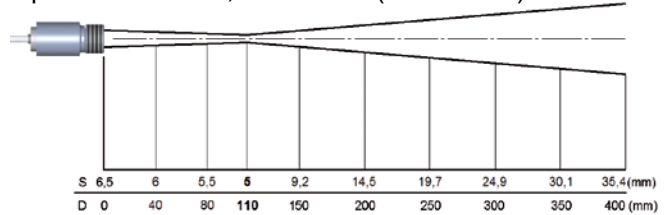
⁴⁾ with dynamic adaptation at low signal levels

Optical Specifications

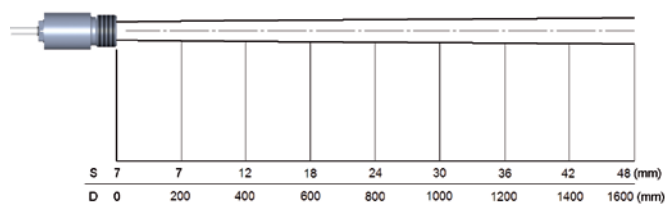
Optics CT 3ML SF, D:S = 22:1



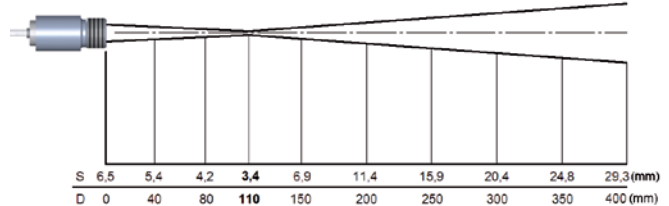
Optics CT 3ML CF, D:S = 22:1 (far field 9:1)



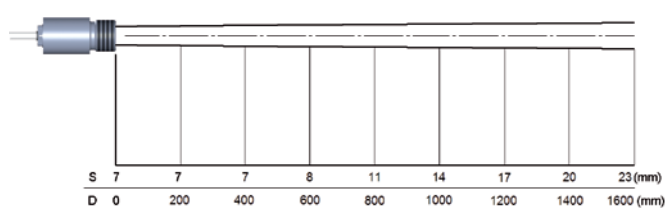
Optics CT 3MH SF, D:S = 33:1



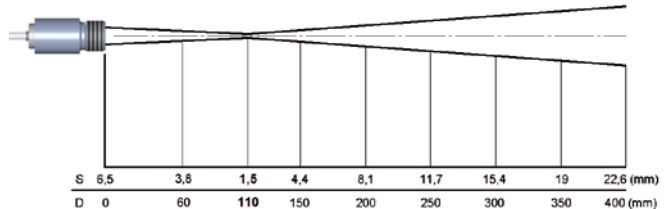
Optics CT 3MH CF, D:S = 33:1 (far field 11:1)



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

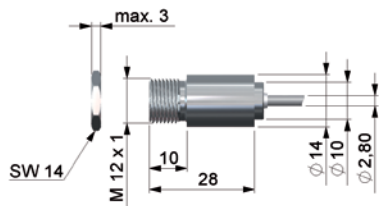


Optics CT 3MH1-H3 CF, D:S = 75:1 (far field 40:1)

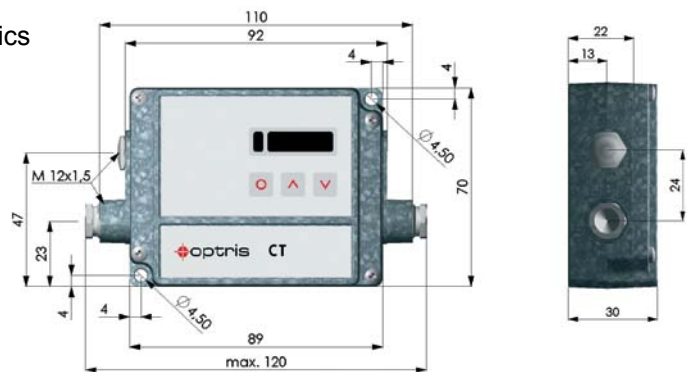


Dimensions

Sensing head

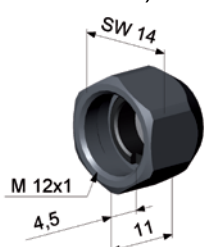


Electronics

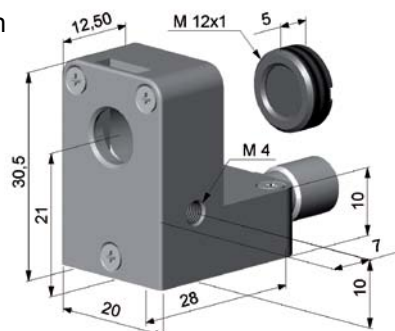


Accessories (examples)

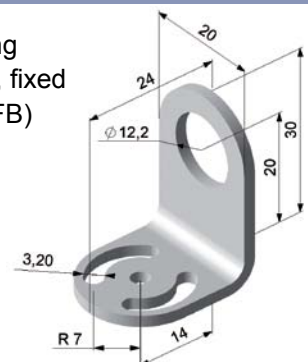
CF-lens (ACCTCFHT)



Air purge collar with integrated CF-lens (ACCTAPLCFHT)



Mounting bracket, fixed (ACCTFB)



Specifications are subject to change without notice
CT3M-DS-EZ014-01-A