

**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
- Temperature measuring ranges from 50 °C to 1800 °C and exposure times starting from 1 ms
- Short wave length range of 2.3 µm to reduce error of reasuring with measurements on materials with unknown emissivity



**General Specifications**

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20 °C ... 85 °C (sensing head) 0 °C ... 85 °C (electronics)
Storage temperature	-40 °C ... 125 °C (sensing head) -40 °C ... 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
Outputs / alarm	24 V/ 50 mA (open collector)
Optional	Relay: 2 x 60 V DC/ 42 V AC <sub>eff</sub> ; 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 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
Power Supply	8–36 V DC
Current draw	Max. 100 mA

**Measurement Specifications**

Temperature ranges (scalable via programming keys or software) <sup>1)</sup>	50 °C ... 400 °C (3ML) 100 °C ... 600 °C (3MH) 150 °C ... 1000 °C (3MH1) <sup>4)</sup> 200 °C ... 1500 °C (3MH2) <sup>4)</sup> 250 °C ... 1800 °C (3MH3) <sup>4)</sup>
Spectral ranges	2.3 µm
Optical resolution (90 % energy)	22:1 (3ML) 33:1 (3MH) 75:1 (3MH1–3MH3)
System accuracy <sup>2)</sup> (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 <sup>3)</sup>	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

<sup>1)</sup>  $T_{object} > T_{sensing\ head} + 25\text{ °C}$

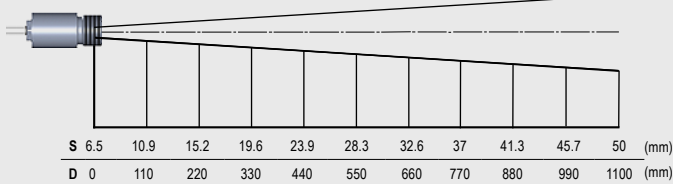
<sup>2)</sup>  $\epsilon = 1$ , response time 1 s

<sup>3)</sup> With dynamic adaptation at low signal levels

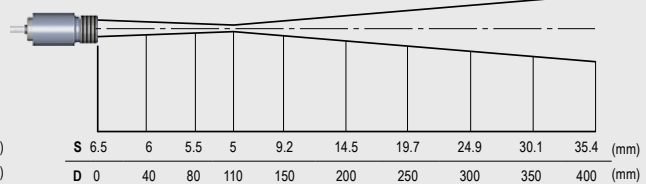
<sup>4)</sup> Specification valid at  $T_{object} \geq \text{start of measurement range} + 50\text{ °C}$

## Optical Specifications

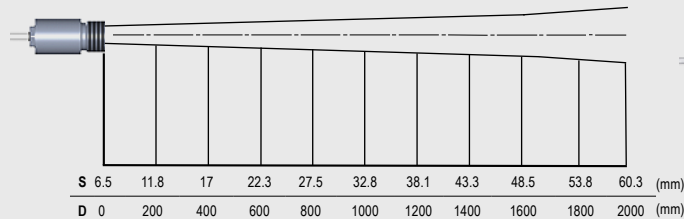
Optics CT 3ML SF, D:S = 22:1



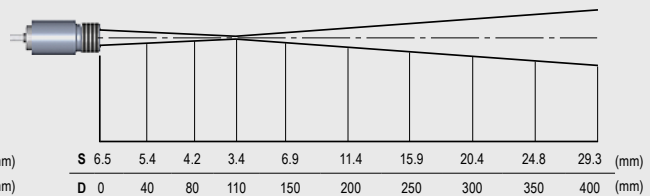
Optics CT 3ML CF, D:S = 22:1 (far field = 9:1)



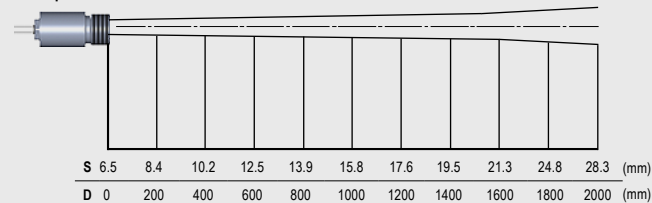
Optics CT 3MH SF, D:S = 33:1



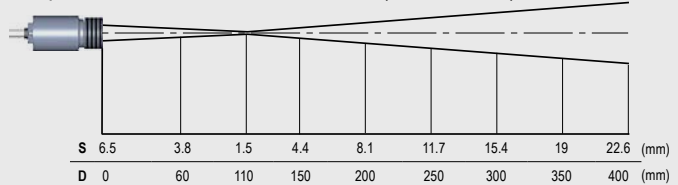
Optics CT 3MH CF, D:S = 33:1 (far field 11:1)



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

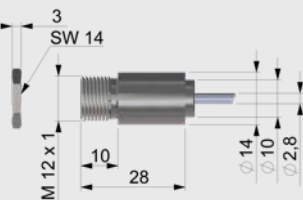


Optics CT 3MH1-H4 CF, D:S = 75:1 (far field 40:1)

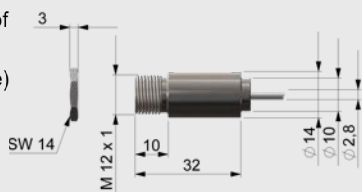


## Dimensions

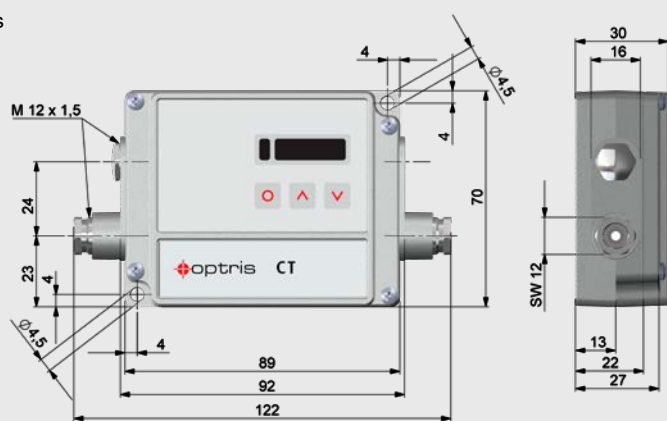
Sensing head



Messkopf  
(built-in  
CF lens)

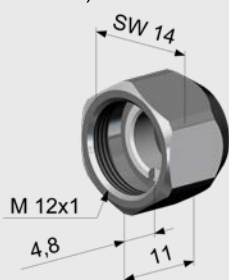


Electronics

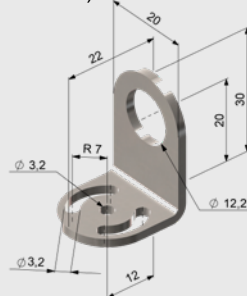


## Accessories (examples)

CF-Vorsatzlinse  
(ACCTCF)



Montagewinkel, fest  
(ACCTFB)



Freiblasvorsatz mit integrierter  
CF-Vorsatzlinse (ACCTAPLCF)

