

optris® CTlaser 3M

Non-contact temperature measurement with precise aiming from 50°C to 1800°C



FEATURES

- Accurate temperature measurements of metals, secondary metal processing and ceramic materials
- Double laser aiming marks real spot location at any distance
- Optical resolution up to 100:1 with selectable focus
- Temperature ranges from 50°C to 1800°C, measuring spots up from 0.7 mm and response times up from 1 ms
- Usable up to 85°C ambient temperature without cooling
- Short measuring wave length of 2.3 μm reduces error of temperature readings on surfaces with low or unknown emissivity

General Specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 85°C (sensing head, 50°C with laser ON) 0°C to 85 (electronics)
Storage temperature	-40°C to 85°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	600 g (sensing head) 420 g (electronics)

Electrical Specifications

Outputs/analog	0/4 - 20 mA, 0-5/10 V, thermocouple J, K
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 5-36 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 (standard), 8 m, 15 m
Current draw	max. 160 mA
Power Supply	8-36 V DC
Laser 635 nm	1 mW, ON/OFF via electronic box or software

Measurement Specifications

Temperature range 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 range	2.3 μm
Optical resolution (90 % energy)	60:1 (3ML) 100:1 (3MH) 300:1 (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 (digital)	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

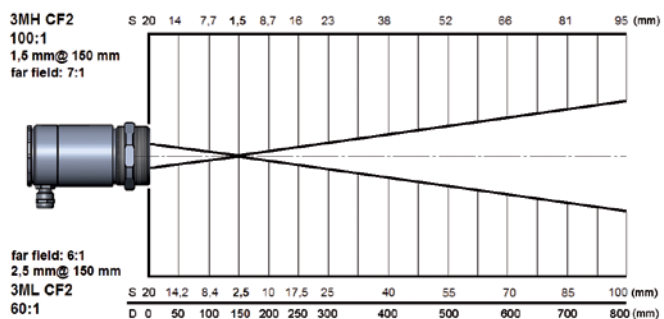
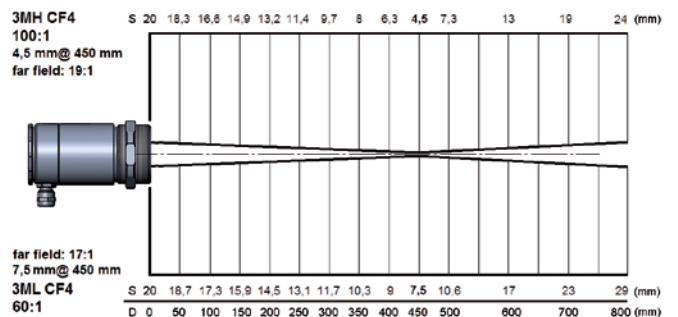
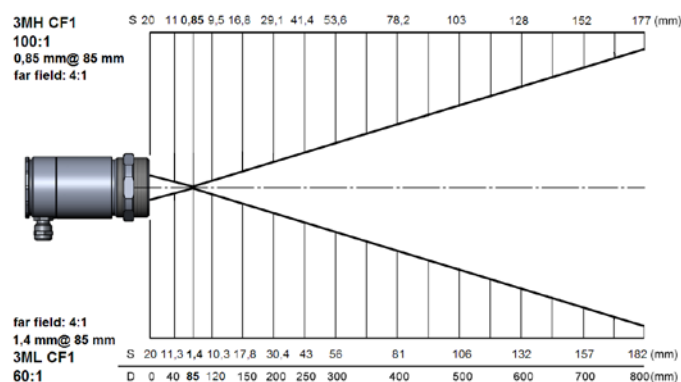
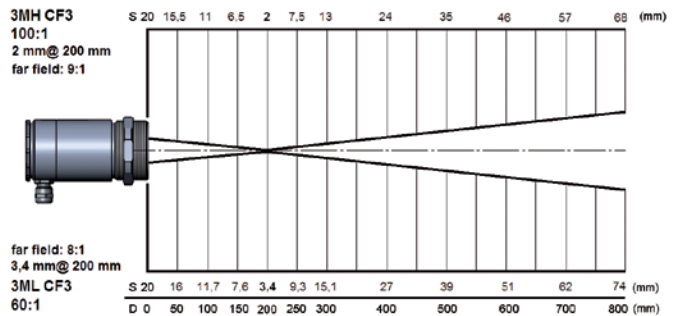
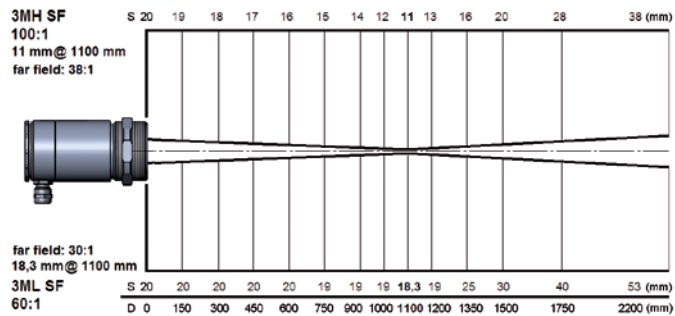
¹⁾ $T_{\text{object}} > T_{\text{sensing head}} + 25^{\circ}\text{C}$

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

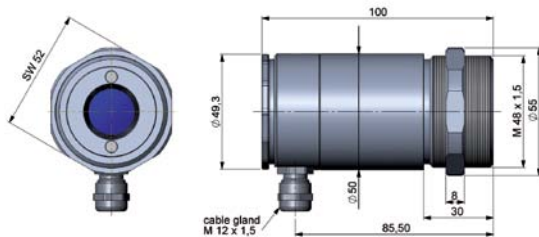


Further optics, D:S = 300:1

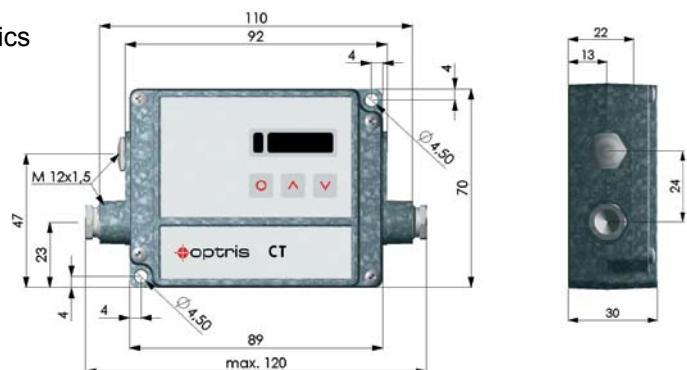
...SF	3.7 mm @ 1100 mm
...CF2	0.5 mm @ 150 mm
...CF3	0.7 mm @ 200 mm
...CF4	1.5 mm @ 450 mm
...FF	12 mm @ 3600 mm

Dimensions

Sensing head



Electronics



Specifications are subject to change without notice
CTlaser3M-DS-E2014-01-A