

optris® CT XL 3MH

Non-contact temperature measurement from 100°C to 1800°C of laser material processing



FEATURES

- New infrared thermometer for laser material processing, laser welding and laser soldering
- Special blocking filter against laser radiation of most of all diode lasers and solid state lasers (VIS to 1800 nm and 10.6 μm)
- Far focus version for use with laser collimator optics
- Usable up to 85°C ambient temperature without cooling
- 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	-40°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	150 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

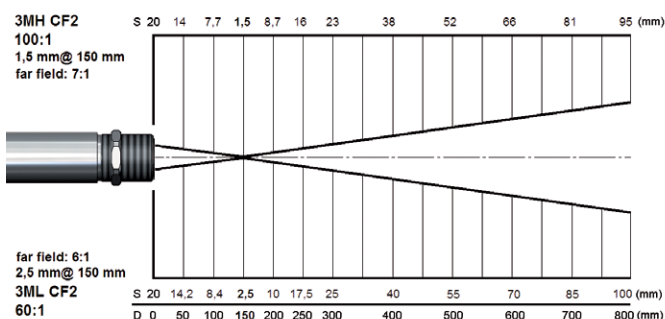
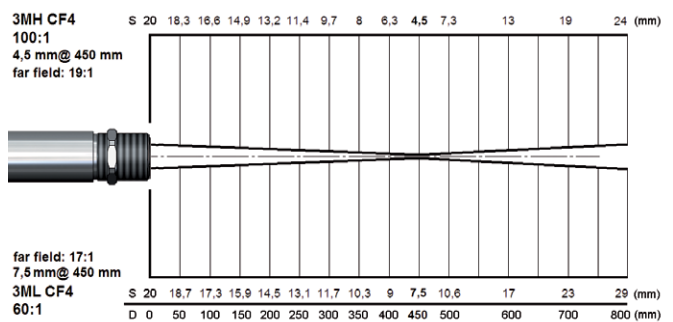
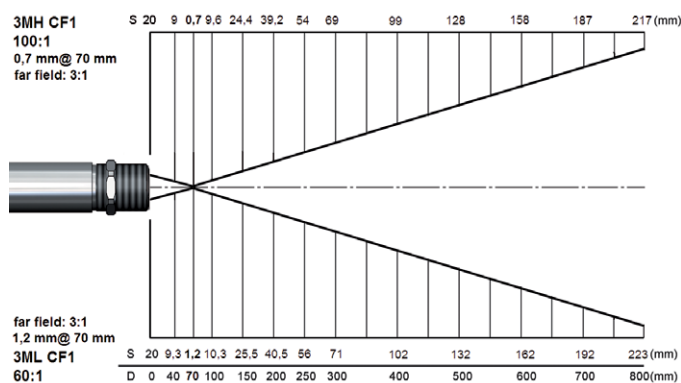
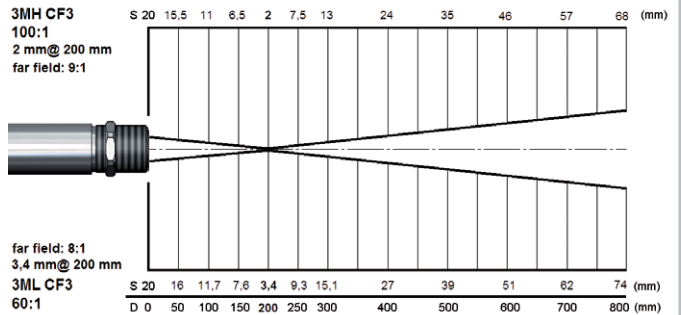
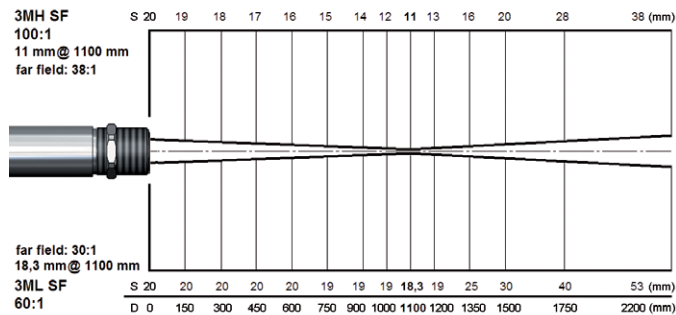
Temperature ranges ¹⁾ (scalable via programming keys or software)	100°C to 600°C (3MH) 150°C to 1000°C (3MH1) 200°C to 1500°C (3MH2) 250°C to 1800°C (3MH3)
Spectral ranges	2.3 μm
Optical resolution (90 % energy)	100:1 (3MH) 300:1 (3MH1-H3)
System accuracy ²⁾ (at ambient temp. 23 ± 5°C)	± (0.3% of reading + 2°C)
Repeatability (at ambient temp. 23 ± 5°C)	± (0.1% of reading + 1°C)
Temperature resolution	0.1 K
Exposure time ³⁾ (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⁾ $T_{object} > T_{sensing\ head} + 25^{\circ}C$

²⁾ $\mathcal{E} = 1$, Response time 1 s

³⁾ with dynamic adaptation at low signal levels

Optical Specifications

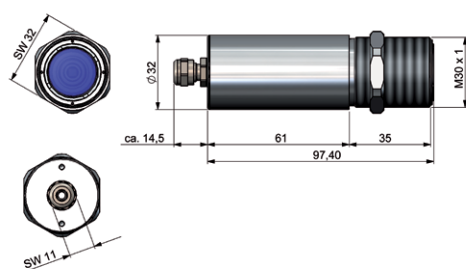


Further optics, D:S = 300:1

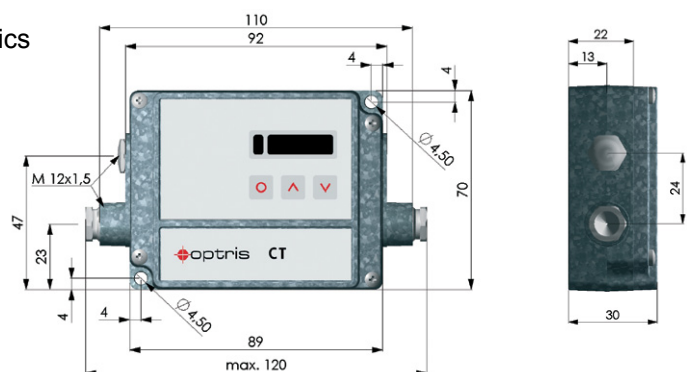
...SF	3.7 mm @ 1100 mm
...CF2	0.5 mm @ 150 mm
...CF3	0.7 mm @ 200 mm
...CF4	1.5 mm @ 450 mm
...FF	12 mm @ 3600 mm

Dimensions

Sensing head



Electronics



Specifications are subject to change without notice
CTXL3MH-DS-E2011-06-A