

More Precision.

optris[®] CT XL 3MH

Non-contact temperature measurement
 from 100°C to 600°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 1800nm 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	sensing head: -40 - 85°C electronics: 0 - 85°C
Storage temperature	sensing head: -40 - 125°C electronics: -40 - 85°C
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	sensing head 150 g electronics 420 g
Electrical specifications	
Outputs/analog	0/4 - 20 mA, 0 - 5/10 V, thermocouple J, K, alarm
Alarm output	Open - collector (24V/50mA)
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 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. 100 mA
Power supply	8 - 36 V DC

Measurement specifications	
Temperature ranges (scalable via programming keys or software) ¹⁾	100 - 600°C
Spectral range	2,3 μm
Optical resolution ⁴⁾	100:1
System accuracy ²⁾ (at ambient temperature 23 ±5°C)	±(0,3% of reading + 2°C)
Repeatability (at ambient temperature 23 ±5°C)	±(0,1% of reading + 1°C)
Temperature resolution (digital)	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

¹⁾ T_{object} > T_{sensing head} + 25°C

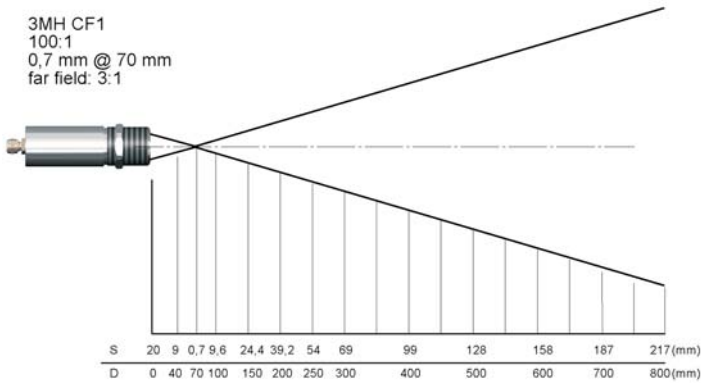
²⁾ E=1, Response time 1 s

³⁾ with dynamic adaptation at low signal levels

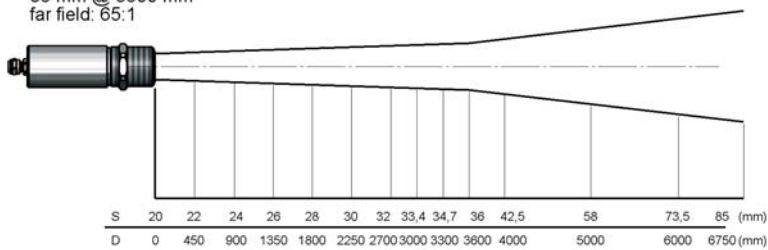
⁴⁾ 90 % Energy

optris® CT XL 3MH

3MH CF1
100:1
0,7 mm @ 70 mm
far field: 3:1



3MH FF
100:1
36 mm @ 3600 mm
far field: 65:1

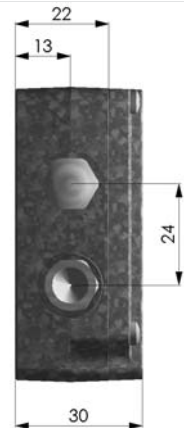
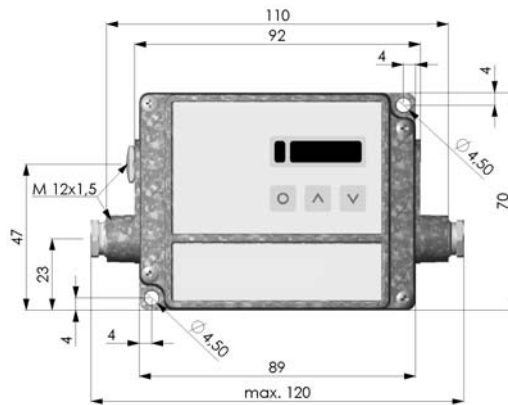


Dimensions

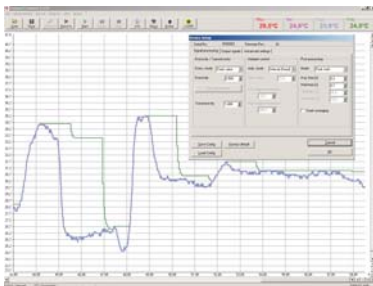
Sensing head



Electronics



CompactConnect Software



- Software for easy sensor setup and remote controlling, supports multi tasking
- Graphic display for temperature trends and automatic data logging for analysis and documentation with 1 ms response time
- Adjustment of signal processing functions and programming of outputs and functional inputs of the sensor
- Automatic emissivity adjustment
- The software CompactConnect allows to customize the sensor to application needs of the user