optris® CTlaser 3M
TECHNICAL DATA

optris infrared measurements

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 300:1 with selectable focus
- Temperature ranges from 50 °C to 1800 °C, 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[1)]	–20 °C ... 85 °C (sensing head, 50 °C with laser ON) –20 °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	600 g (sensing head) / 420 g (electronics)
Electrical specifications	
Outputs / analog	0/4 – 20 mA, 0 – 5/ 10 V, thermocouple J, K
Outputs / 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	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
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
Power Supply	8 – 36 V DC
Current draw	Max. 160 mA
Laser 635 nm	1 mW, ON/OFF via electronic box or software

Measurement specifications	
Temperature range[2)] (scalable via programming keys or software)	50 °C ... 400 °C (3ML) 100 °C ... 600 °C (3MH) 150 °C ... 1000 °C (3MH1)[3)] 200 °C ... 1500 °C (3MH2)[3)] 250 °C ... 1800 °C (3MH3)[3)]
Spectral range	2.3 µm
Optical resolution (90 % energy)	60:1 (3ML) 100:1 (3MH) 300:1 (3MH1 – 3MH3)
System accuracy[4)] (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[5)] (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)] The functioning of the LCD display may be limited in ambient temperatures below 0 °C

[2)] $T_{object} > T_{sensing\ head}$ +25 °C

[3)] Specification valid at T_{object} ≥ start of measurement range +50 °C

[4)] ε = 1, response time 1 s

[5)] With dynamic adaptation at low signal levels

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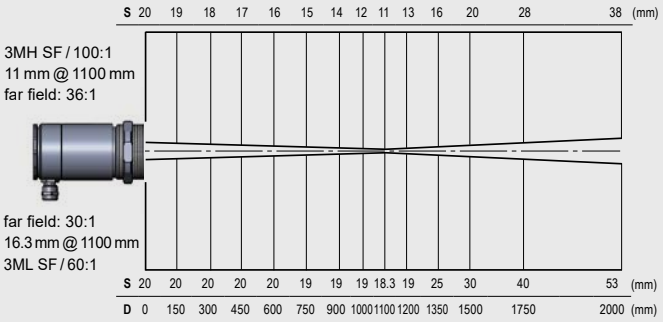
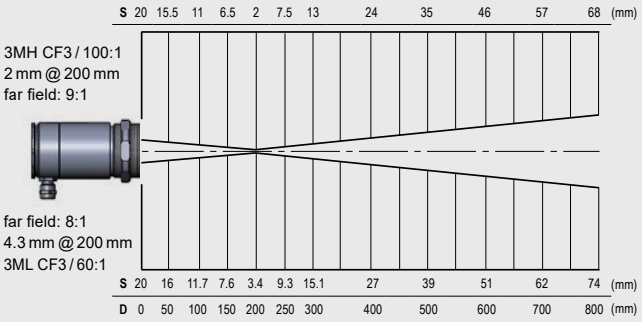
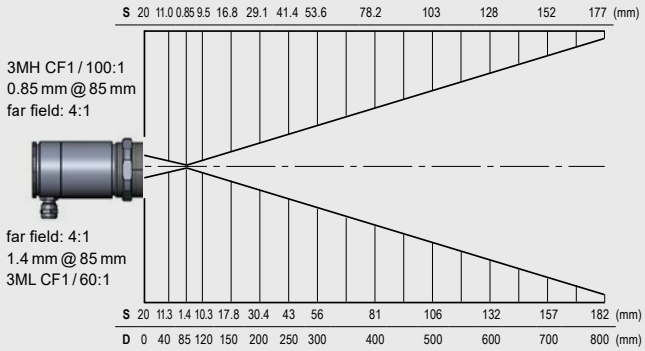
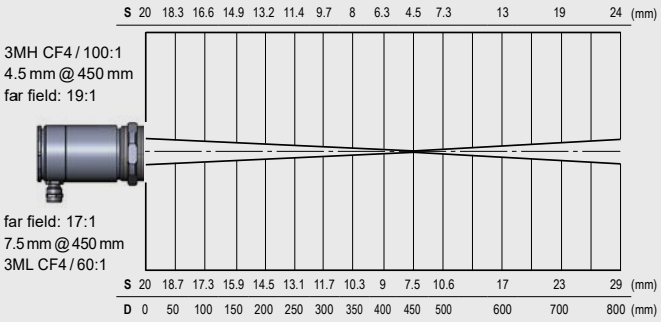
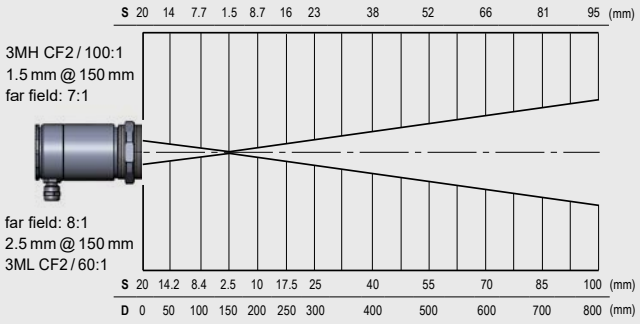
Optical specifications









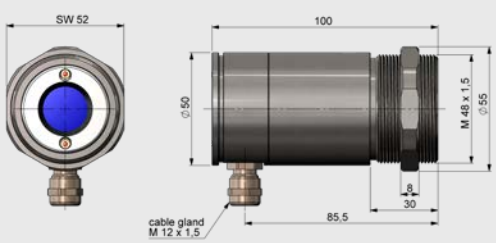


Further optics, D:S = 300:1

... 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