optris CTlaser LT
TECHNICAL DATA

Precise focussing and non-contact temperature measurement from –50 °C to 975 °C



Features:

- Low and high temperature measurements of smallest spots up from 0.9 mm
- Double laser aiming marks real spot location and spot size at any distance
- Optics 75:1 and 50:1 with selectable focus
- CT laser F (fast) for scanning of fast moving low temperature objects up from 9 ms response time
- Usable up to 85 °C ambient temperature without cooling and automatic laser switch off at 50 °C
- Selectable analog outputs 0/4 – 20 mA, 0 – 5/ 10 V, thermocouple type K or J
- Optional plug in digital interfaces USB, RS232, RS485, CAN or Profibus DP

General specifications	
Environmental rating	IP 65 (NEMA-4)
Ambient temperature[1)]	–20 ... 85 °C (sensing head, 50 °C with laser ON) –20 ... 85 °C (electronics)
Storage temperature	–40 ... 85 °C (sensing head) –40 ... 85 °C (electronics)
Relative humidity	10 – 95 %, non condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock (sensor)	IEC 60068-2-27 (25G and 50G)
Weight	600 g (sensing head) / 420 g (electronics)

Electrical specifications	
Outputs / analog	Channel 1: 0/4 – 20 mA, 0 – 5/ 10 V, thermocouple J, K Channel 2: sensing head temperature (–40 °C ... 85 °C as 0 – 5 V or 0 – 10 V), alarm output
Alarm output	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 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
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 (scalable via programming keys or software)	–50 ... 975 °C
Spectral range	8 – 14 µm
Optical resolution (90 % energy)	75:1 CTlaser 50:1 CTlaser F
Selectable focus[2)] (CTlaser)	CF1: 0.9 mm @ 70 mm CF2: 1.9 mm @ 150 mm CF3: 2.75 mm @ 200 mm CF4: 5.9 mm @ 450 mm SF: 16 mm @ 1200 mm
System accuracy[3)4)] (at ambient temp. 23 ±5 °C)	±1 % or ±1 °C (CTlaser) ±1.5 % or ±1.5 °C (CTlaser F)
Repeatability[3)4)] (at ambient temp. 23 ±5 °C)	±0.5 % or ±0.5 °C (CTlaser) ±1 % or ± 1 °C (CTlaser F)
Temperature resolution (NETD)	0.1 K / 0.5 K with CTlaser F
Response time[5)] (90 % signal)	9 ms CTlaser F / 120 ms CTlaser
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)] Different spotsizes for CTlaser F (D:S = 50:1)

[3)] Whichever is greater

[4)] At object temperatures >0 °C, ε = 1

[5)] With dynamic adaption at low signal levels

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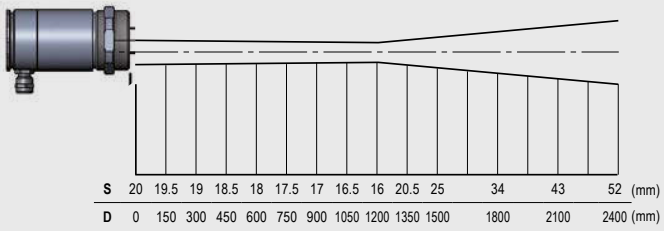
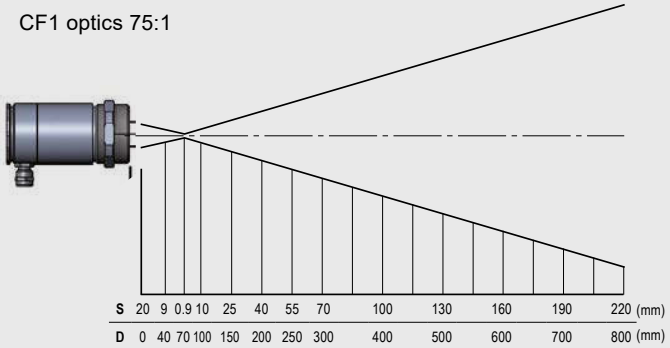
Optical specifications

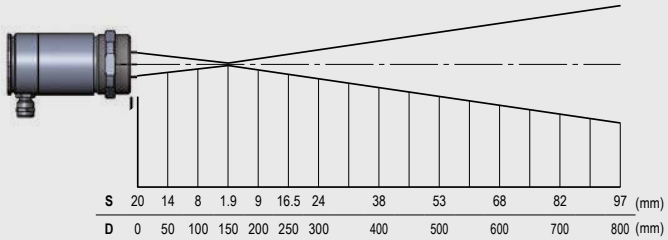
SF optics 75:1



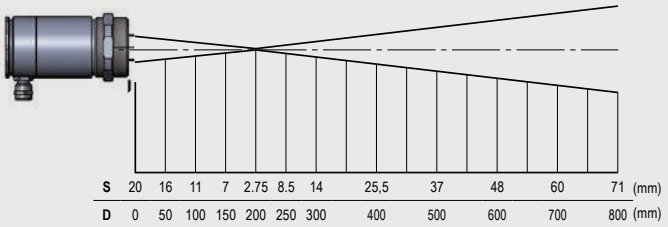
CF1 optics 75:1



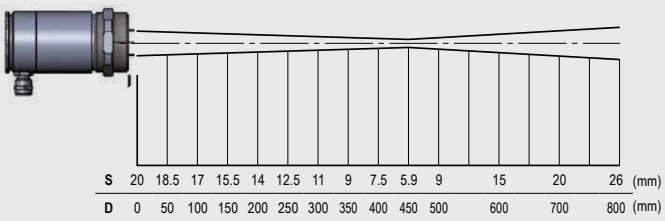
CF2 optics 75:1



CF3 optics 75:1

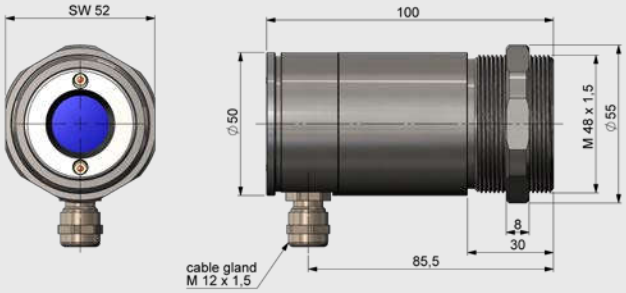


CF4 optics 75:1

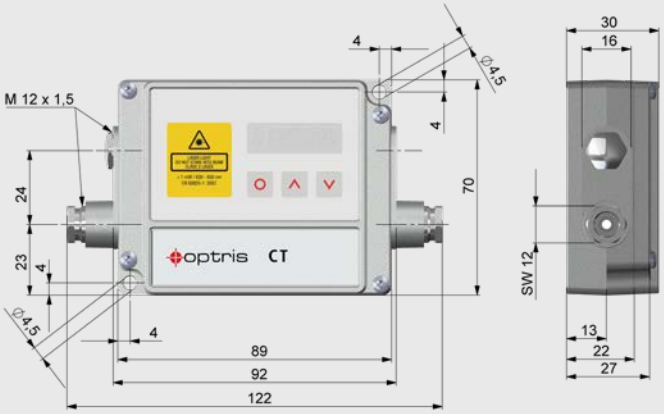


Dimensions

Sensing head



Electronics



Specifications are subject to change without notice · CTlaser LT-EN2019-09-A