

Precise focussing and non-contact temperature measurement from $-50\text{ }^{\circ}\text{C}$ to $975\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$ to $1787\text{ }^{\circ}\text{F}$)



Features:

- Low and high temperature measurements of smallest spots up from 0.9 mm (0.04 in)
- 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 $85\text{ }^{\circ}\text{C}$ ($185\text{ }^{\circ}\text{F}$) ambient temperature without cooling and automatic laser switch off at $50\text{ }^{\circ}\text{C}$ ($122\text{ }^{\circ}\text{F}$)
- 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⁾	$-20\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$) (sensing head) ($50\text{ }^{\circ}\text{C}$ [$122\text{ }^{\circ}\text{F}$] with laser ON) $-20\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$) (electronics)
Storage temperature	$-40\text{ }^{\circ}\text{C} \dots 125\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F} \dots 257\text{ }^{\circ}\text{F}$) (sensing head) $-40\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$) (electronics)
Relative humidity	10–95 %, non condensing
Vibration	IEC 68-2-6: 3 G, 11–200 Hz, any axis
Shock	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	600 g (21.2 oz) (sensing head) 420 g (14.8 oz) (electronics)

Electrical specifications

Output / analog	Channel 1: 0/4–20 mA, 0–5/ 10 V, thermocouple J, K Channel 2: sensing head temperature ($-40\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$] as 0–5 V or 0–10 V), alarm output
Output / alarm	24 V / 50 mA (open collector)
Optional	Relay: 2 x 60 V DC / 42 V AC _{eff} ; 0.4 A; optically isolated
Output / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500 Ω (with 5–36 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 (standard), 8 m, 15 m (9.8 ft [standard], 26.2 ft, 49.2 ft)
Power supply	8–36 V DC
Current draw (laser)	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)	$-50\text{ }^{\circ}\text{C} \dots 975\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F} \dots 1787\text{ }^{\circ}\text{F}$)
Spectral range	8–14 μm
Optical resolution (90 % energy)	75:1 CTlaser 50:1 CTlaser F
Selectable focus (CTlaser) ¹⁾	CF1: 0.9 mm @ 70 mm (0.04 in @ 2.76 in) CF2: 1.9 mm @ 150 mm (0.07 in @ 5.91 in) CF3: 2.75 mm @ 200 mm (0.11 in @ 7.87 in) CF4: 5.9 mm @ 450 mm (0.23 in @ 17.7 in) SF: 16 mm @ 1200 mm (0.63 in @ 47.2 in)
System accuracy ²⁾ (at ambient temp. $23 \pm 5\text{ }^{\circ}\text{C}$) (at ambient tem. $73 \pm 9\text{ }^{\circ}\text{F}$)	$\pm 1\text{ }%$ or $\pm 1\text{ }^{\circ}\text{C}^{3),4)}$ (CTlaser) $\pm 1.5\text{ }%$ or $\pm 1.5\text{ }^{\circ}\text{C}^{3),4)}$ (CTlaser F) ($\pm 1\text{ }%$ or $\pm 1.8\text{ }^{\circ}\text{F}^{3),4)}$ [CTlaser]) ($\pm 1.5\text{ }%$ or $\pm 2.7\text{ }^{\circ}\text{F}^{3),4)}$ [CTlaser F])
Repeatability (at ambient temp. $23 \pm 5\text{ }^{\circ}\text{C}$) (at ambient tem. $73 \pm 9\text{ }^{\circ}\text{F}$)	$\pm 0.5\text{ }%$ or $\pm 0.5\text{ }^{\circ}\text{C}^{2),3)}$ (CTlaser) $\pm 1\text{ }%$ or $\pm 1\text{ }^{\circ}\text{C}^{2),3)}$ (CTlaser F) ($\pm 0.5\text{ }%$ or $\pm 0.9\text{ }^{\circ}\text{F}^{2),3)}$ (CTlaser) ($\pm 1\text{ }%$ or $\pm 1.8\text{ }^{\circ}\text{F}^{2),3)}$ (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 sensor or software)	0.100–1.100
IR window correction (adjustable via software)	0.100–1.000
Signal processing (parameter adjustable via software)	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 $0\text{ }^{\circ}\text{C}$

²⁾ Different spotsizes for CTlaser F (D:S = 50:1)

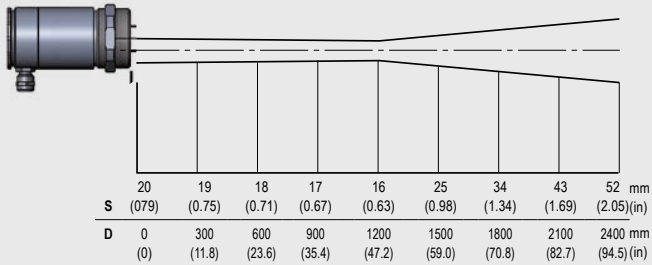
³⁾ Whichever is greater

⁴⁾ At object temperatures $>0\text{ }^{\circ}\text{C}$, $\epsilon = 1$

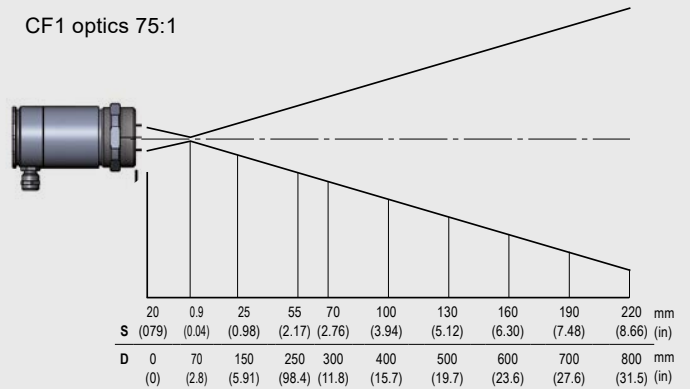
⁵⁾ With dynamic adaption at low signal levels

Optical parameter

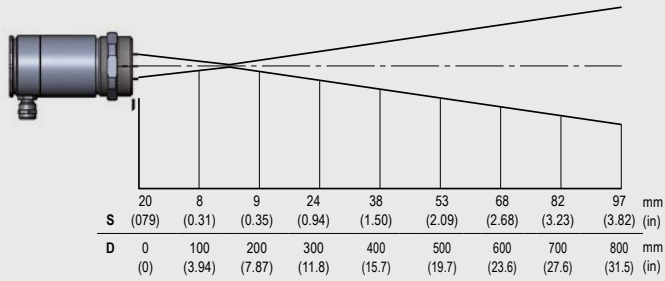
SF optics 75:1



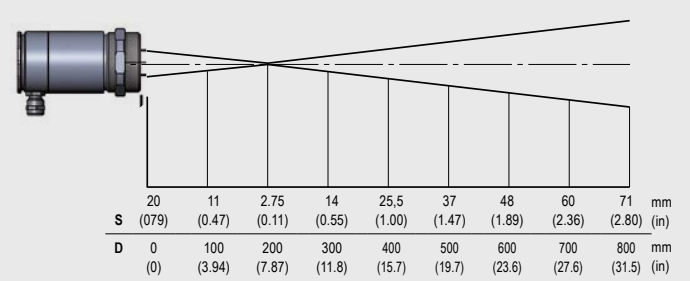
CF1 optics 75:1



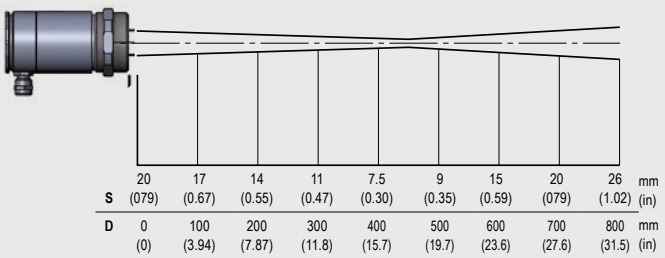
CF2 optics 75:1



CF3 optics 75:1

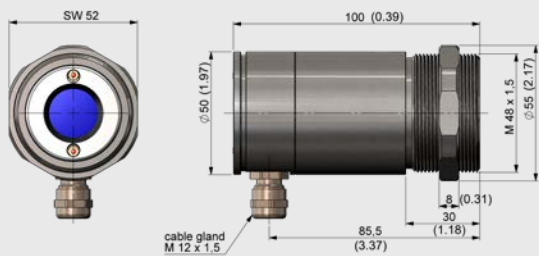


CF4 optics 75:1



Dimensions

Sensing head



Electronics

