

**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 <sup>1)</sup>	$-20\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ( $-4\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$ ) (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 <sub>eff</sub> ; 0.4 A; optically isolated
Output / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500 $\Omega$ (with 5–36 V DC) mV min. 100 k $\Omega$ load impedance, thermocouple 20 $\Omega$
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 $\mu\text{m}$
Optical resolution (90 % energy)	75:1 CTlaser 50:1 CTlaser F
System accuracy <sup>2)</sup> (at ambient temp. $23 \pm 5\text{ }^{\circ}\text{C}$ ) (at ambient tem. $73 \pm 41\text{ }^{\circ}\text{F}$ )	$\pm 1\text{ }^{\circ}\text{C}$ or $\pm 1\text{ }^{\circ}\text{C}^{3),4)}$ (CTlaser) $\pm 1.5\text{ }^{\circ}\text{C}$ or $\pm 1.5\text{ }^{\circ}\text{C}^{3),4)}$ (CTlaser F) ( $\pm 1\text{ }^{\circ}\text{C}$ or $\pm 1.8\text{ }^{\circ}\text{F}^{3),4)}$ [CTlaser]) ( $\pm 1.5\text{ }^{\circ}\text{C}$ 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. $73 \pm 41\text{ }^{\circ}\text{F}$ )	$\pm 0.5\text{ }^{\circ}\text{C}$ or $\pm 0.5\text{ }^{\circ}\text{C}^{2),3)}$ (CTlaser) $\pm 1\text{ }^{\circ}\text{C}$ or $\pm 1\text{ }^{\circ}\text{C}^{2),3)}$ (CTlaser F) ( $\pm 0.5\text{ }^{\circ}\text{C}$ or $\pm 0.9\text{ }^{\circ}\text{F}^{2),3)}$ (CTlaser) ( $\pm 1\text{ }^{\circ}\text{C}$ 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 <sup>5)</sup> (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

<sup>1)</sup> The functioning of the LCD display may be limited in ambient temperatures below  $0\text{ }^{\circ}\text{C}$

<sup>2)</sup> Different spotsizes for CTlaser F (D:S = 50:1)

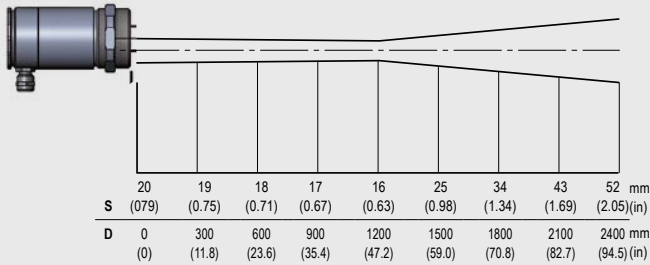
<sup>3)</sup> Whichever is greater

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

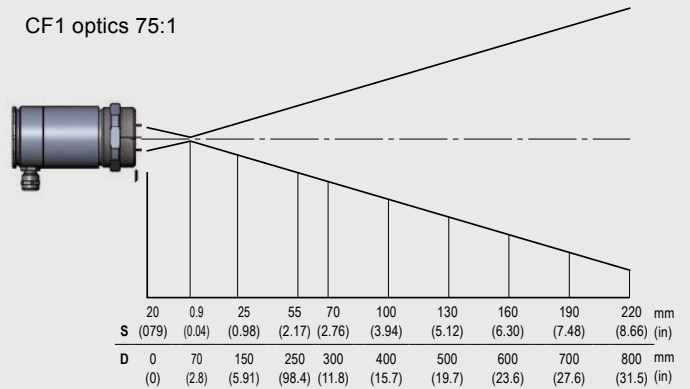
<sup>5)</sup> With dynamic adaption at low signal levels

## Optical parameter

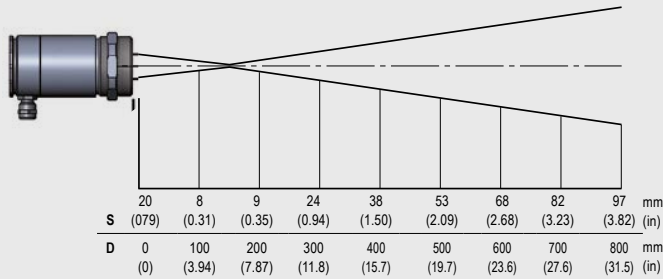
SF optics 75:1



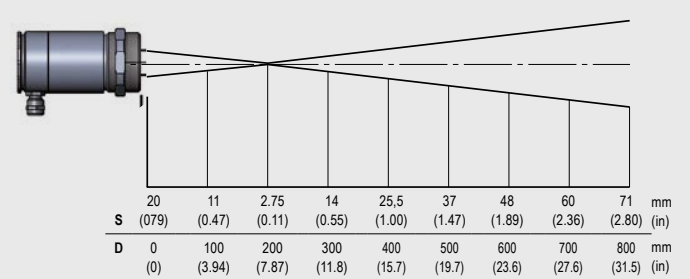
CF1 optics 75:1



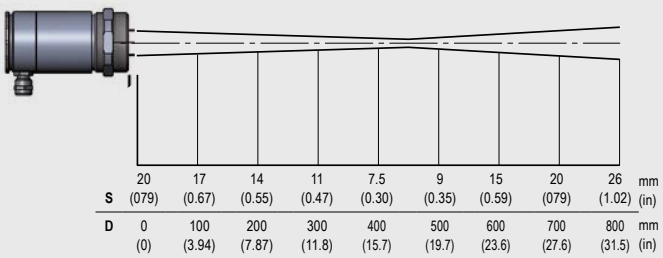
CF2 optics 75:1



CF3 optics 75:1

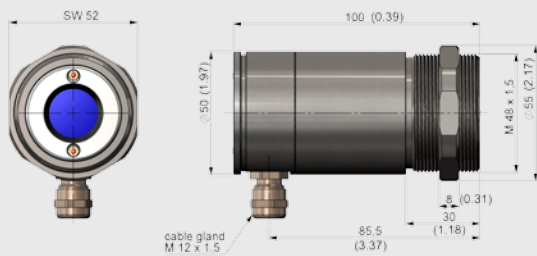


CF4 optics 75:1



## Dimensions

Sensing head



Electronics

