

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⁾ | $-20\text{ }^{\circ}\text{C}$... $85\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$... $185\text{ }^{\circ}\text{F}$) (sensing head) ($50\text{ }^{\circ}\text{C}$ [$122\text{ }^{\circ}\text{F}$] with laser ON) $-20\text{ }^{\circ}\text{C}$... $85\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$... $185\text{ }^{\circ}\text{F}$) (electronics) |
| Storage temperature | $-40\text{ }^{\circ}\text{C}$... $125\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$... $257\text{ }^{\circ}\text{F}$) (sensing head) $-40\text{ }^{\circ}\text{C}$... $85\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F}$... $185\text{ }^{\circ}\text{F}$) (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 ($-40\text{ }^{\circ}\text{C}$... $85\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F}$... $185\text{ }^{\circ}\text{F}$] 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) | $-50\text{ }^{\circ}\text{C}$... $975\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$... $1787\text{ }^{\circ}\text{F}$) |
| 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)

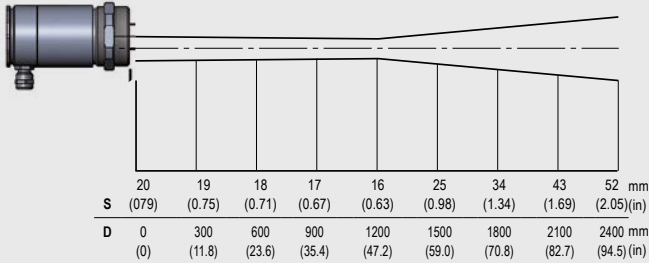
³⁾ Whichever is greater

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

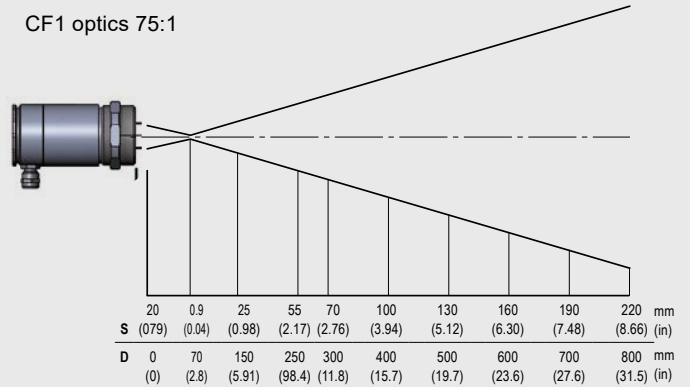
⁵⁾ With dynamic adaption at low signal levels

Optical parameter

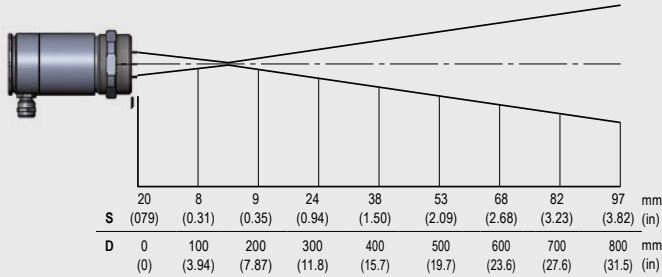
SF optics 75:1



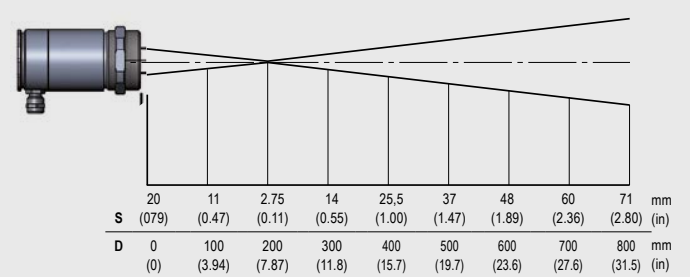
CF1 optics 75:1



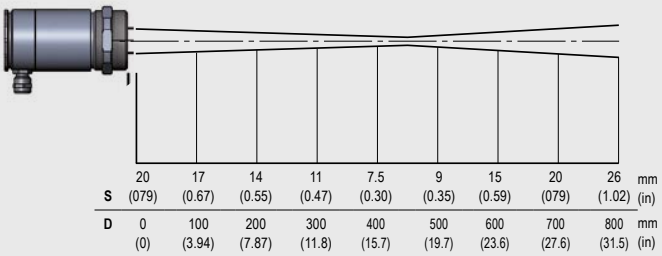
CF2 optics 75:1



CF3 optics 75:1

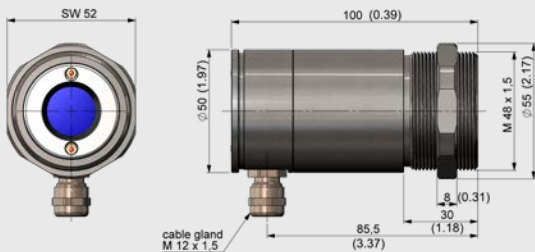


CF4 optics 75:1



Dimensions

Sensing head



Electronics

