



Non-contact temperature measurement of CO₂ and CO flame gases up to 1650 °C (2912 °F)

Features:

- Accurate temperature measurement of CO₂ (F2) or CO (F6) flame gases in the range of 200 °C (392 °F) up to 1650 °C (2912 °F) in combustion processes, garbage burning or processes inside chemical reactors
- Double laser aiming marks real spot location and spot size up from 1.6 mm (0.06 in) at any distance
- Optics 45:1 with selectable focus, compact sensor head size
- Usable up to 85 °C (185 °F) ambient temperature without cooling and automatic laser switch off at 50 °C (122 °F)
- Cooling and protection accessories for harsh environmental conditions
- Calibrated under inert gas atmosphere (Argon)



General specifications

| | |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental rating | IP 65 (NEMA-4) front mountable at vacuum processes (up to 10 ⁻³ mbar) |
| Ambient temperature ¹⁾ | -20 °C ... 85 °C (-4 °F ... 185 °F) (sensing head) (50 °C [122 °F] with laser ON) -20 °C ... 85 °C (-4 °F ... 185 °F) (electronics) |
| Storage temperature | -40 °C ... 125 °C (-4 °F ... 257 °F) (sensing head) -40 °C ... 85 °C (-40 °F ... 185 °F) (electronics) |
| Relative humidity | 10 – 95 %, non condensing |
| Vibration | IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise) |
| Shock | IEC 60068-2-27 (25G and 50G) |
| Weight | 600 g (21.2 oz) (sensing head) 420 g (14.8 oz) (electronics) |

Electrical specifications

| | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Output / analog | 0/4 – 20 mA, 0 – 5/ 10 V, thermocouple J, K |
| 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 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 (9.8 ft [standard], 26.2 ft, 49.2 ft) |
| 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) | 200 °C ... 1450 °C (F2 / F6) (392 °F ... 2642 °F [F2 / F6]) 400 °C ... 1650 °C (F2H / F6H) (752 °F ... 2912 °F [F2H / F6H]) |
| Spectral range | 4.24 μm (F2) 4.64 μm (F6) |
| Optical resolution (90 % energy) | 45:1 |
| System accuracy (at ambient temp. 23 ± 5 °C) (at ambient tem. 73 ± 9 °F) | ± 1 % ^{2) 3)} |
| Repeatability (at ambient temp. 23 ± 5 °C) (at ambient tem. 73 ± 9 °F) | ± 0.5 % or + 0.5 °C ^{3) 4)} (± 0.5 % or + 0.9 °F ^{3) 4)}) |
| Temperature resolution (digital) | 0.1 K |
| Exposure time ⁵⁾ (90 % signal) | 10 ms |
| 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 °C

²⁾ At ambient temperatures > 300 °C (572 °F)

³⁾ ε = 1, response time 1 s

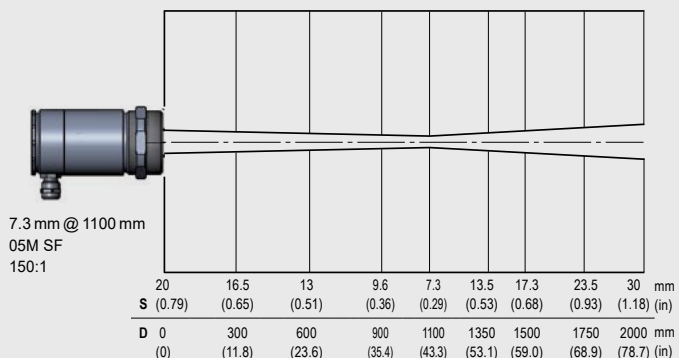
⁴⁾ Whichever is greater

⁵⁾ With dynamic adaptation at low signal levels

optris CTlaser F2/F6

Optical parameter

Chart SF optics, D:S = 45:1

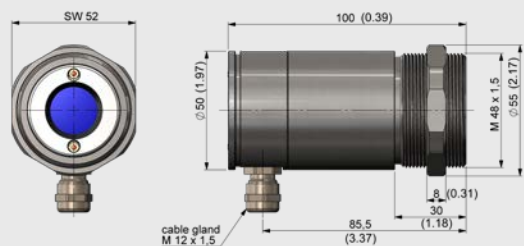


Further optics, D:S = 45:1

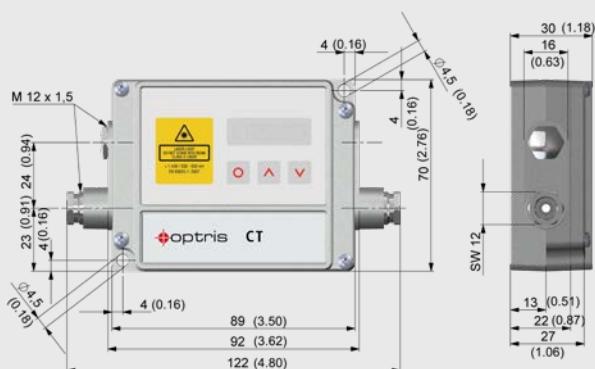
| | |
|---------|----------------------------------------|
| ... SF | 27 mm @ 1250 mm (1.06 in @ 49.2 in) |
| ... CF1 | 1.6 mm @ 70 mm (0.06 in @ 2.76 in) |
| ... CF2 | 3.4 mm @ 150 mm (0.13 in @ 5.91 in) |
| ... CF3 | 4.5 mm @ 200 mm (0.18 in @ 7.87 in) |
| ... CF4 | 10 mm @ 450 mm (0.39 in @ 17.7 in) |

Dimensions

Sensing head



Electronics



Accessories

Mounting angle, adjustable in two axes (ACCTLAB)



Cooling housing (ACCJCTL)



Mounting angle for cooling housing, adjustable in two axes (ACCJAB)



Water cooling and air purge for sensing head (ACCTLW + ACCTLAP)



Mounting device for cooling housing (ACCLRM)

