

## Non-contact temperature measurement of CO<sub>2</sub> and CO flame gases up to 1650 °C

### Features:

- Accurate temperature measurement of CO<sub>2</sub> (F2) or CO (F6) flame gases in the range of 200 °C up to 1650 °C 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 at any distance
- Optics 45:1 with selectable focus, compact sensor head size
- Usable up to 85 °C ambient temperature without cooling and automatic laser switch off at 50 °C
- Cooling and protection accessories for harsh environmental conditions
- Calibrated under inert gas atmosphere (Argon)



### General specifications

|                                   |                                                                                        |
|-----------------------------------|----------------------------------------------------------------------------------------|
| Environmental rating              | IP 65 (NEMA-4)                                                                         |
| Ambient temperature <sup>1)</sup> | -20 °C ... 85 °C (sensing head, 50 °C with laser ON)<br>-20 °C ... 85 °C (electronics) |
| Storage temperature               | -40 °C ... 85 °C (sensing head)<br>-40 °C ... 85 °C (electronics)                      |
| Relative humidity                 | 10 – 95 %, non condensing                                                              |
| Vibration (sensor)                | IEC 68-2-6: 3 G, 11 – 200 Hz, any axis                                                 |
| Shock (sensor)                    | IEC 68-2-27: 50 G, 11 ms, any axis                                                     |
| Weight                            | 600 g (sensing head) / 420 g (electronics)                                             |

### Electrical specifications

|                    |                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Outputs / 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 <sub>eff</sub> ; 0,4 A;<br>optically isolated                                                              |
| Outputs / digital  | USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)                                                                               |
| Output impedances  | mA max. 500 Ω (at 5 – 36 V DC)<br>mV min. 100 kΩ Lastwiderstand<br>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                                                                                                                            |
| Visor laser 635 nm | 1 mW, ON/OFF via electronic box or software                                                                                            |

### Measurement specifications

|                                                                                         |                                                                                       |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Temperature range<br>(scalable via programming keys or software)                        | 200 °C ... 1450 °C (F2 / F6)<br>400 °C ... 1650 °C (F2H / F6H)                        |
| Spectral range                                                                          | 4.24 μm (F2)<br>4.64 μm (F6)                                                          |
| Optical resolution<br>(90 % energy)                                                     | 45:1                                                                                  |
| System accuracy<br>(at ambient temp. 23 ± 5 °C)                                         | ±1 % <sup>2) 3)</sup>                                                                 |
| Repeatability<br>(at ambient temp. 23 ± 5 °C)                                           | ±0.5 % or +0.5 °C <sup>3) 4)</sup>                                                    |
| Temperature resolution                                                                  | 0.1 K                                                                                 |
| Exposure time <sup>5)</sup> (90 % signal)                                               | 10 ms                                                                                 |
| Emissivity / Gain<br>(scalable via programming keys or software)                        | 0.100 – 1.100                                                                         |
| Transmissivity<br>(scalable 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                                                               |

<sup>1)</sup> The functioning of the LCD display may be limited in ambient temperatures below 0 °C

<sup>2)</sup> At ambient temperatures >300 °C

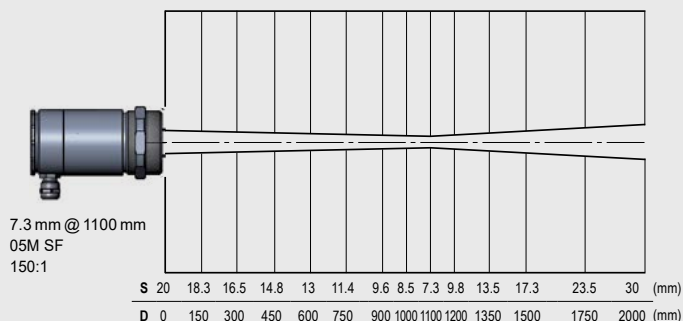
<sup>3)</sup> ε = 1, response time 1 s

<sup>4)</sup> Whichever is greater

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

## Optical specifications

Chart SF optics, D:S = 45:1

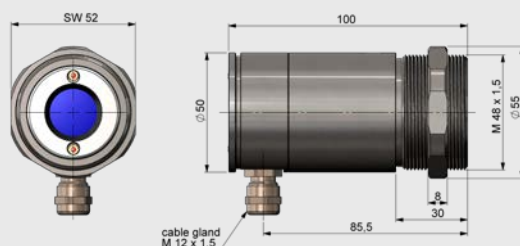


Further optics, D:S = 45:1

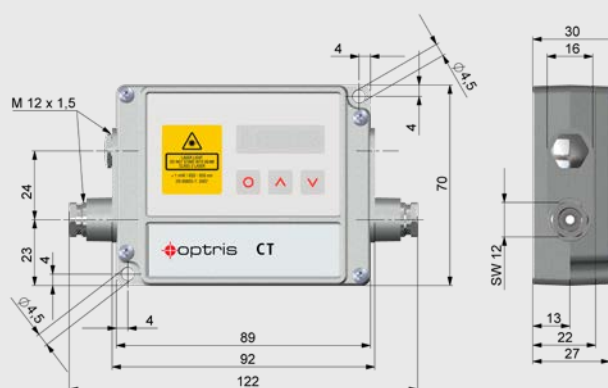
|         |                 |
|---------|-----------------|
| ... SF  | 27 mm @ 1250 mm |
| ... CF1 | 1.6 mm @ 70 mm  |
| ... CF2 | 3.4 mm @ 150 mm |
| ... CF3 | 4.5 mm @ 200 mm |
| ... CF4 | 10 mm @ 450 mm  |

## Dimensions

Sensing head



## Electronics



## Accessories (examples)

Mounting angle, adjustable  
in two axes (ACCTLAB)

Cooling housing  
(AC CJCTL)

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  
(ACCTLRM)

