

## optris® CT LT

Precise non-contact temperature measurement from -50°C to 975°C



### FEATURES

- One of the smallest infrared sensors worldwide with 22:1 optical resolution
- Rugged and usable up to 180°C ambient temperature without cooling
- Separate electronics with easy accessible programming keys and LCD backlit display
- Selectable analog output: 0/4-20 mA, 0-5 V, 0-10 V, thermocouple type K or J
- Optional USB, RS485, RS232 interface, relay outputs (2 x optically isolated), CAN-Bus, Profibus DP, Ethernet
- Installation of up to 32 sensing heads
- CTEX: Explosion proof version (ATEX)



### General Specifications

|                      |  |
|----------------------|--|
| Environmental rating | IP 65 (NEMA-4)   |
| Ambient temperature  | -20°C to 180°C (130°C at LT02) (sensing head)<br>0°C to 85°C (electronics) |
| Storage temperature  | sensing head: -40 to 180°C (130°C at LT02)<br>electronics: -20°C to 85°C   |
| 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               | sensing head 40 g<br>electronics 420 g                                     |

### Electrical Specifications

|                            |   |
|----------------------------|---|
| Outputs/analog             | channel 1: 0/4 - 20 mA, 0-5/10 V, thermocouple J, K<br>channel 2: sensind head temperature (-20°C - 180°C 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   |
| Outputs/digital (optional) | USB, RS232, RS485 (optional), CAN-Bus, Profibus DP, Ethernet  |
| Output impedances          | mA max. 500 Ω (with 8-36 V DC)<br>mV min. 100 kΩ load impedance<br>thermocouple 20 Ω  |
| Inputs                     | programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)      |
| Cable length               | 1 m (standard), 3 m, 8 m, 15 m  |
| Current draw               | max. 100 mA   |
| Power Supply               | 8-36 V DC   |

### Measurement Specifications

|   |  |
|---|--|
| Temperature range (scalable via programming keys or software)                           | -50°C to 975°C (LT22)<br>-50°C to 600°C (LT15)<br>-50°C to 600°C (LT02)                        |
| Spectral range  | 8-14 μm  |
| Optical resolution (90% energy)   | 22:1 (precision glass optics)<br>15:1 (precision glass optics)<br>2:1 (with flat front window) |
| CF-lens (optional)  | 0.6 mm @ 10 mm (LT22)<br>0.8 mm @ 10 mm (LT15)<br>2.5 mm @ 23 mm (LT02)                        |
| System accuracy <sup>1),2)</sup> (at ambient temp. 23 ±5°C)                             | ± 1% or ± 1°C  |
| Repeatability <sup>1),2)</sup> (at ambient temp. 23 ±5°C)                               | ± 0.5% or ± 0.5°C  |
| Temperature resolution (display)  | 0.1°C  |
| NETD <sup>2),3)</sup>   | 0.05 K (LT22/LT15)<br>0.1 K (LT02)   |
| Response time   | 150 ms (95 %)  |
| Emissivity/Gain (adjustable via programming keys or software)                           | 0.100 - 1.100  |
| Transmissivity/Gain (adjustable 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   |

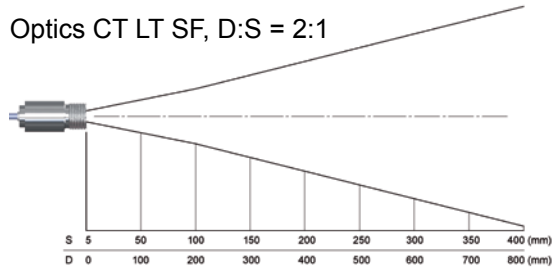
<sup>1)</sup> whichever is greater

<sup>2)</sup> at object temperatures > 0°C, ε = 1

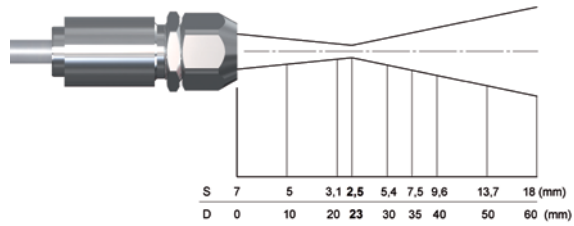
<sup>3)</sup> at time constant 200 ms and T<sub>obj</sub> 25°C

## Optical Specifications

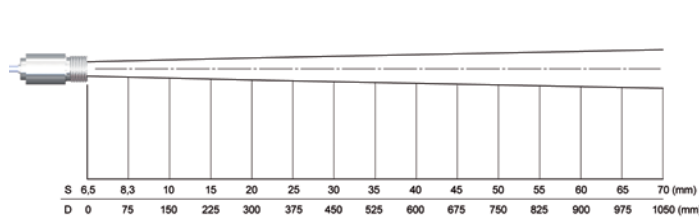
Optics CT LT SF, D:S = 2:1



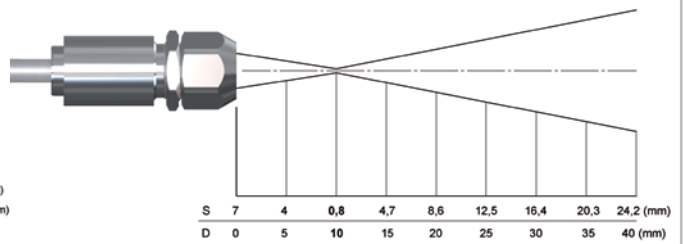
Optics CT LT CF, D:S = 2:1 (far field = 2,5:1)



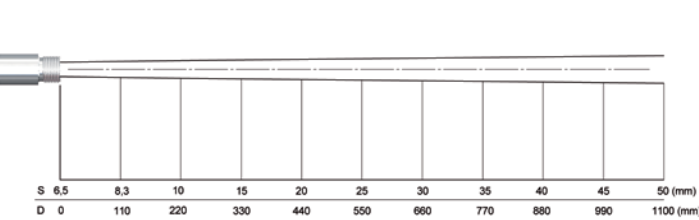
Optics CT LT SF, D:S = 15:1



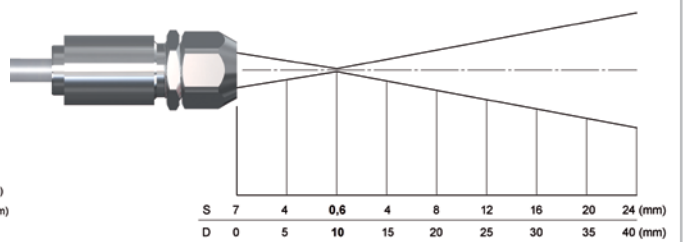
Optics CT LT CF, D:S = 15:1 (far field = 1,5:1)



Optics CT LT SF, D:S = 22:1

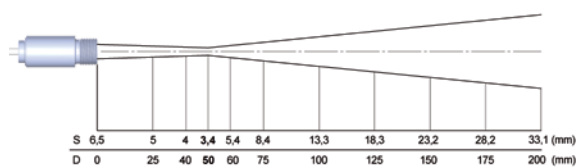


Optics CT LT CF, D:S = 22:1 (far field = 1,5:1)

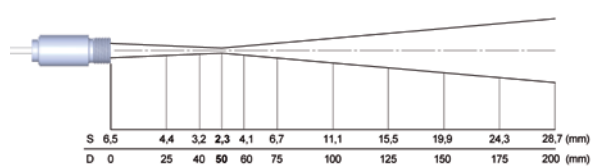


## Versions with built-in CF lenses

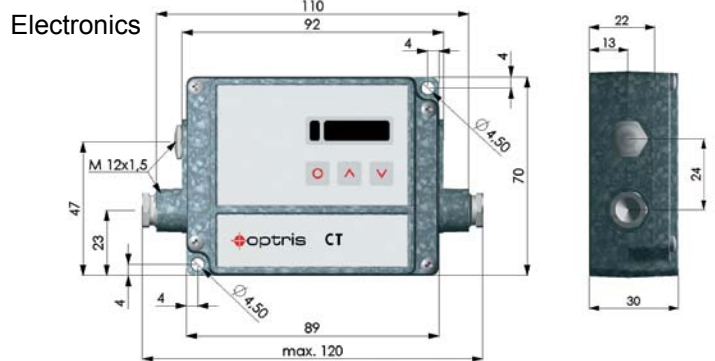
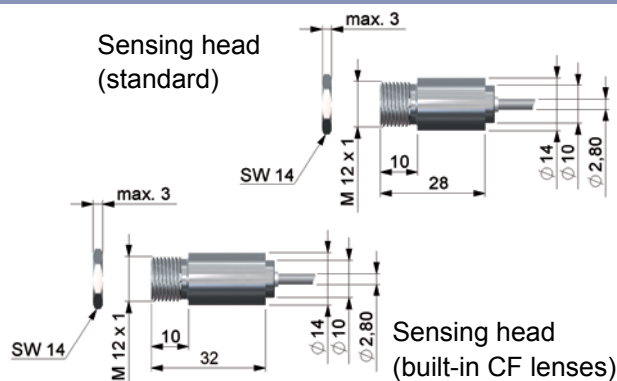
Optics CT LT CF, D:S = 15:1 (far field = 5:1)



Optics CT LT CF, D:S = 22:1 (far field = 6:1)



## Dimensions



Specifications are subject to change without notice  
CTLT-DS-E2014-05-A