

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 | sensing head: -20°C to 180°C (130°C at LT02) electronics: 0°C to 85°C |
| Storage temperature | sensing head: -40 to 180°C (130°C at LT02) 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 electronics 420 g |

Electrical Specifications

| | |
|----------------------------|---|
| Outputs/analog | channel 1: 0/4 - 20 mA, 0-5/10 V, thermocouple J, K 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 _{eff} ; 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) 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 | 1 m (standard), 3 m, 8 m, 15 m |
| Current draw | max. 100 mA |
| Power Supply | 8-36 V DC |

Measurement Specifications

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|---|--|
| Temperature range (scalable via programming keys or software) | -50°C to 975°C (LT22) -50°C to 600°C (LT15) -50°C to 600°C (LT02) |
| Spectral range | 8-14 μm |
| Optical resolution (90% energy) | 22:1 (precision glass optics) 15:1 (precision glass optics) 2:1 (with flat front window) |
| CF-lens (optional) | 0.6 mm @ 10 mm (LT22) 0.8 mm @ 10 mm (LT15) 2.5 mm @ 23 mm (LT02) |
| System accuracy ^{1),2)} (at ambient temp. 23 ±5°C) | ± 1% or ± 1°C |
| Repeatability ^{1),2)} (at ambient temp. 23 ±5°C) | ± 0.5% or ± 0.5°C |
| Temperature resolution (display) | 0.1°C |
| NETD ^{2),3)} | 0.05 K (LT22/LT15) 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 |

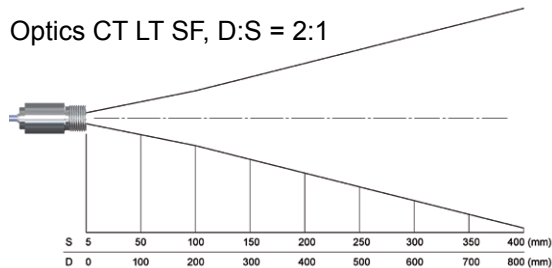
¹⁾ whichever is greater

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

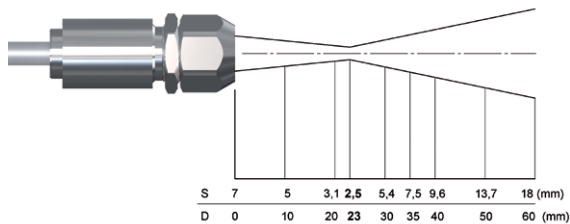
³⁾ at time constant 200 ms and T_{obj} 25°C

Optical Specifications

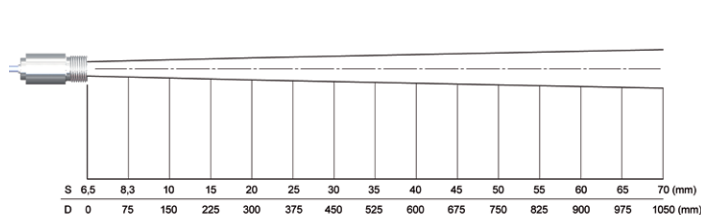
Optics CT LT SF, D:S = 2:1



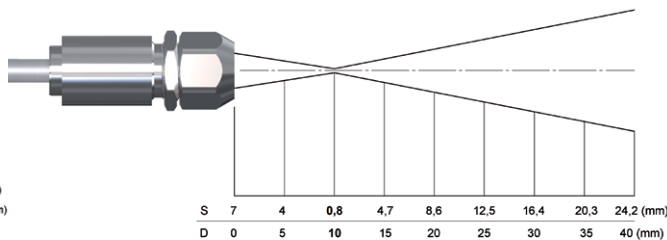
Optics CT LT CF, D:S = 2:1 (far field = 2,5:1)



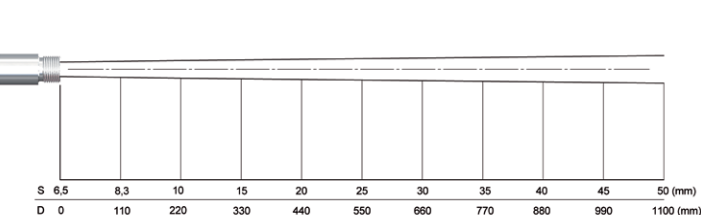
Optics CT LT SF, D:S = 15:1



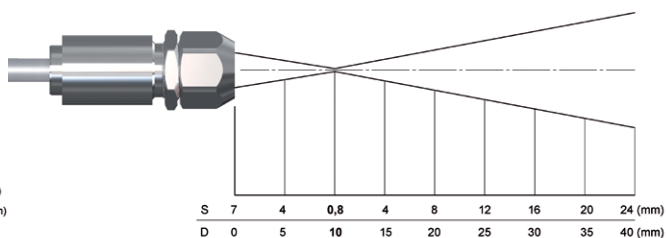
Optics CT LT CF, D:S = 15:1 (far field = 1,5:1)



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

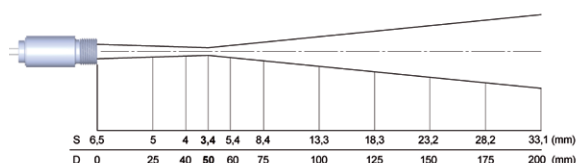


Optics CT LT CF, D:S = 22:1 (far field = 1,5:1)

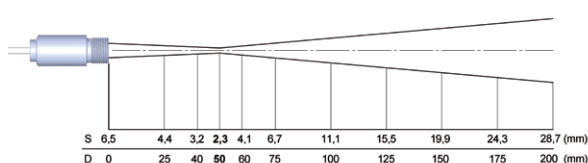


Versions with built-in CF lenses

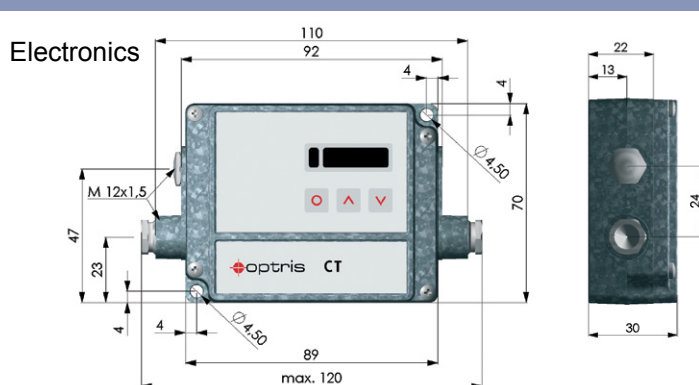
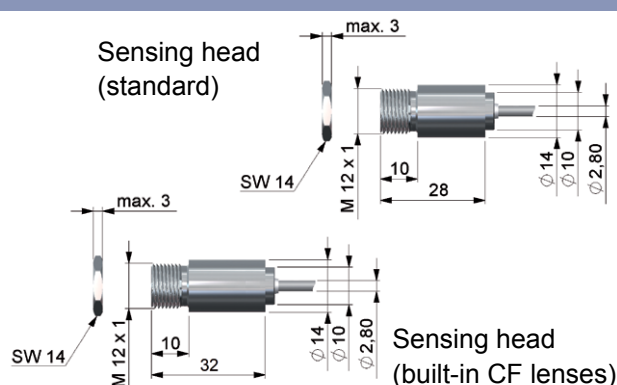
Optics CT LT CF, D:S = 15:1 (far field = 5:1)



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



Dimensions



Specifications are subject to change without notice
CTLT-DS-E2011-12-A