


**Precise non-contact  
temperature measurement  
from  $-50\text{ }^{\circ}\text{C}$  to  $975\text{ }^{\circ}\text{C}$**



**Features:**

- One of the smallest infrared sensors worldwide with 22:1 optical resolution
- Rugged and usable up to  $180\text{ }^{\circ}\text{C}$  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), Profibus DP, Ethernet
- Installation of up to 32 sensors in one network (with RS485)
- CTex: Explosion proof version (ATEX) 

**General specifications**

Environmental rating	IP 65 (NEMA-4)
Ambient temperature <sup>1)</sup>	$-20\text{ }^{\circ}\text{C}$ ... $180\text{ }^{\circ}\text{C}$ ( $130\text{ }^{\circ}\text{C}$ to LT02) (sensing head) $-20\text{ }^{\circ}\text{C}$ ... $85\text{ }^{\circ}\text{C}$ (electronics)
Storage temperature	$-40\text{ }^{\circ}\text{C}$ ... $130\text{ }^{\circ}\text{C}$ (sensing head) $-40\text{ }^{\circ}\text{C}$ ... $85\text{ }^{\circ}\text{C}$ (electronics)
Relative humidity	10–95 %, non condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock (sensor)	IEC 60068-2-27 (25G and 50G)
Weight	40 g (sensing head) / 420 g (electronics)

**Electrical Specifications**

Outputs / analog	Channel 1: 0/4–20 mA, 0–5/ 10 V, thermocouple J, K Channel 2: sensind head temperature ( $-20\text{ }^{\circ}\text{C}$ ... $180\text{ }^{\circ}\text{C}$ 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, Profibus DP, Ethernet
Output impedances	mA max. 500 $\Omega$ (with 8–36 V DC) mV min. 100 k $\Omega$ load impedance thermocouple 20 $\Omega$
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
Power Supply	8–36 V DC
Current draw	Max. 100 mA

**Measurement specifications**

Temperature range (scalable via programming keys or software)	$-50\text{ }^{\circ}\text{C}$ ... $975\text{ }^{\circ}\text{C}$ (LT22) $-50\text{ }^{\circ}\text{C}$ ... $600\text{ }^{\circ}\text{C}$ (LT15) $-50\text{ }^{\circ}\text{C}$ ... $600\text{ }^{\circ}\text{C}$ (LT02)
Spectral range	8–14 $\mu\text{m}$
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 (with LT22) 0.8 mm @ 10 mm (with LT15) 2.5 mm @ 23 mm (with LT02)
System accuracy <sup>2),3)</sup> (at ambient temp. $23 \pm 5\text{ }^{\circ}\text{C}$ )	$\pm 1\%$ or $\pm 1\text{ }^{\circ}\text{C}$
Repeatability <sup>2),3)</sup> (at ambient temp. $23 \pm 5\text{ }^{\circ}\text{C}$ )	$\pm 0.5\%$ or $\pm 0.5\text{ }^{\circ}\text{C}$
Temperature resolution (display)	0.1 K
NETD <sup>3),4)</sup>	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

<sup>1)</sup> The LCD displays capacity may be limited at ambient temperatures below  $0\text{ }^{\circ}\text{C}$

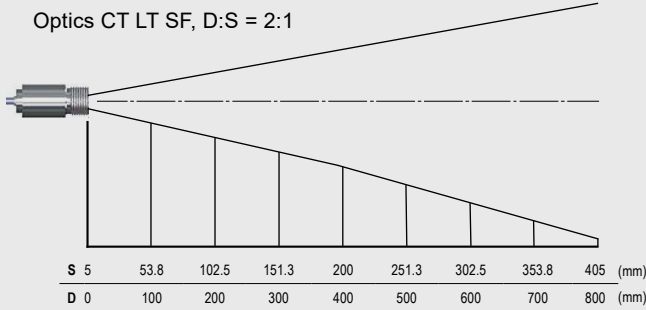
<sup>2)</sup> Whichever is greater

<sup>3)</sup> At object temperatures  $>0\text{ }^{\circ}\text{C}$ ,  $\epsilon = 1$

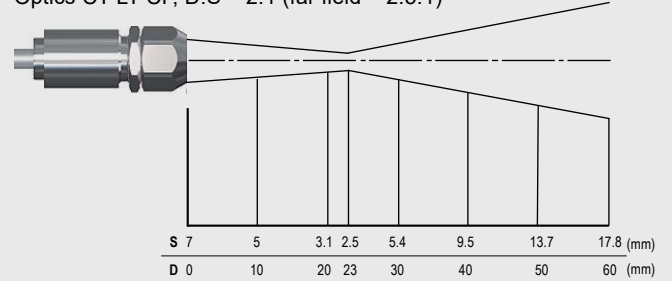
<sup>4)</sup> At time constant 200 ms and  $T_{Obj} 25\text{ }^{\circ}\text{C}$

## Optical specifications

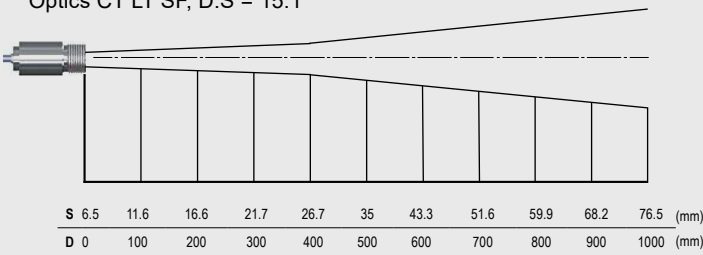
Optics CT LT SF, D:S = 2:1



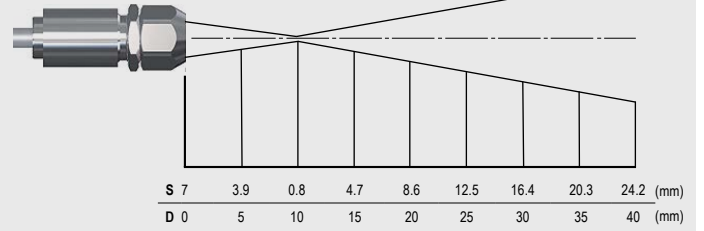
Optics CT LT CF, D:S = 2:1 (far field = 2.5:1)



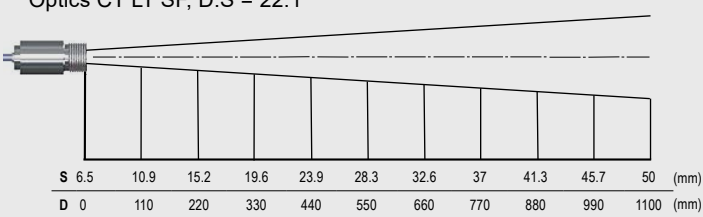
Optics CT LT SF, D:S = 15:1



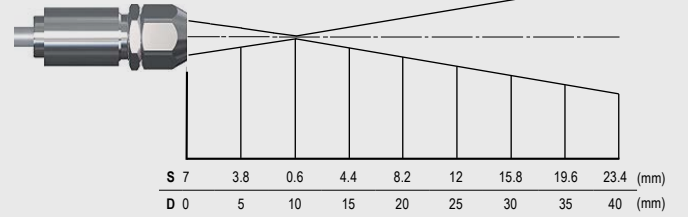
Optics CT LT CF, D:S = 15:1 (far field = 1.5:1)



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

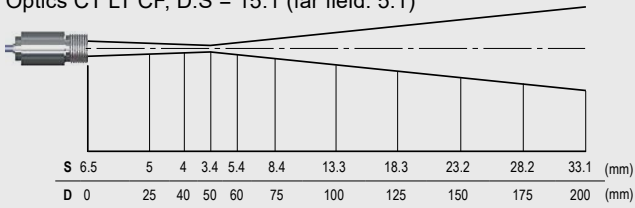


Optics CT LT CF, D:S = 22:1 (far field = 1.5:1)

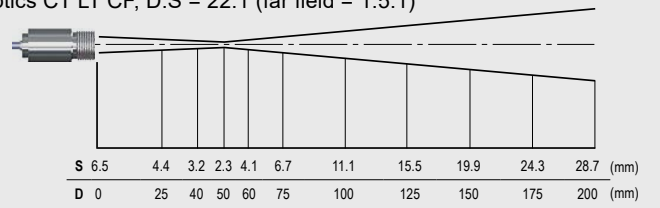


## Versions with built-in CF lenses, head length: 32 mm

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

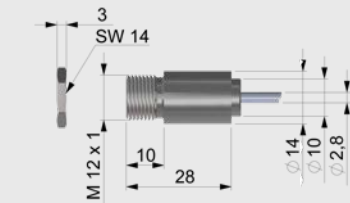


Optics CT LT CF, D:S = 22:1 (far field = 1.5:1)

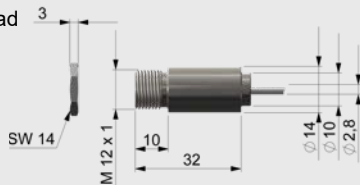


## Dimensions

Sensing head (standard)



Sensing head (built-in CF lenses)



Electronics

