

Precise non-contact  
temperature measurement  
from  $-58\text{ }^{\circ}\text{F}$  to  $1922\text{ }^{\circ}\text{F}$



Features:

- One of the smallest infrared sensors worldwide with up to 22:1 optical resolution
- Rugged sensing head - usable up to  $356\text{ }^{\circ}\text{F}$  ambient temperature without cooling
- Two-piece design with easy accessible programming keys and LCD backlit display
- Built-in USB interface for simple sensor setup via mobile phone or PC
- Selectable analog outputs: 0/4 – 20 mA, 0 – 5 V, 0 – 10 V, thermocouple type K
- Optional EtherNet/IP, Profinet, Ethernet TCP / Modbus TCP, Modbus RTU, RS485, RS232 interface or relay outputs (2 x optically isolated)
- Easy and flexible exchange of sensing heads

General specifications

Environmental rating	IP 65 (NEMA-4)
Operating temperature range <sup>1)</sup>	$-20\text{ }^{\circ}\text{C} \dots 180\text{ }^{\circ}\text{C}$ ( $-4\text{ }^{\circ}\text{F} \dots 356\text{ }^{\circ}\text{F}$ ) (248 $^{\circ}\text{F}$ for LT 02) (sensing head) $-20\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ( $-4\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$ ) (electronics)
Storage temperature	$-40\text{ }^{\circ}\text{C} \dots 180\text{ }^{\circ}\text{C}$ ( $-40\text{ }^{\circ}\text{F} \dots 356\text{ }^{\circ}\text{F}$ ) (248 $^{\circ}\text{F}$ for LT 02) (sensing head) $-40\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$ ( $-40\text{ }^{\circ}\text{F} \dots 185\text{ }^{\circ}\text{F}$ ) (electronics)
Operating air humidity range	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 (1.41 oz) (sensing head) / 420 g (14.82 oz) (electronics)

Electrical Specifications

Output / analog (2x)	0 / 4 – 20 mA, 0 – 5 / 10 V, thermocouple K, alarm
Output / alarm	24 V / 50 mA (open collector)
Relay outputs (optional)	2 x 60 V DC / 42 V AC <sub>eff.</sub> ; 0.4 A; optically isolated
Outputs / digital	built-in USB-interface, Optional EtherNet/IP, Profinet, Ethernet TCP / Modbus TCP, Modbus RTU, RS485, RS232 interface or relay outputs (2 x optically isolated)
Output impedances	mA max. 500 $\Omega$ (with 8 – 36 V DC) mV min. 100 k $\Omega$ load impedance thermocouple 20 $\Omega$
IO Pins (3x)	flexible programming as in- or output: external emissivity adjustment, ambient temperature compensation, uncommitted value, trigger (reset of holdfunctions), alarm output (open collector 24 V / 50 mA)
Cable length	1 m (3.3 ft) (standard), 3 m (9.84 ft), 8 m (26.25ft), 15 m (49.21ft)
Power	8 - 30 V DC 1.2W

Measurement specifications

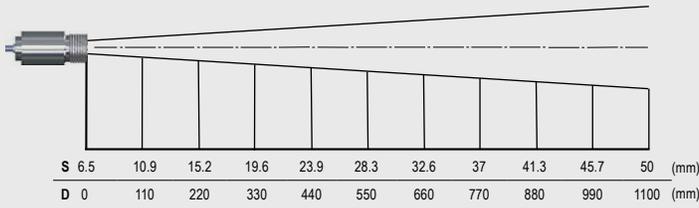
Measuring Temperature range (scalable via programming keys or software)	$-50\text{ }^{\circ}\text{C} \dots 650\text{ }^{\circ}\text{C}$ ( $-58\text{ }^{\circ}\text{F} \dots 1202\text{ }^{\circ}\text{F}$ ) (LT 02) $-50\text{ }^{\circ}\text{C} \dots 800\text{ }^{\circ}\text{C}$ ( $-58\text{ }^{\circ}\text{F} \dots 1472\text{ }^{\circ}\text{F}$ ) (LT 15) $-50\text{ }^{\circ}\text{C} \dots 1050\text{ }^{\circ}\text{C}$ ( $-58\text{ }^{\circ}\text{F} \dots 1922\text{ }^{\circ}\text{F}$ ) (LT 22)
Spectral range	8–14 $\mu\text{m}$
Optical resolution (90% energy)	22:1 15:1 2:1
Smallest spot size	0,6 mm at 10 mm (0.02 in at 0.39 in) (LT22 + CF lens)
Measurement uncertainty <sup>2), 3), 4), 5), 7)</sup>	$\pm 1\%$ or $\pm 1\text{ }^{\circ}\text{C}$ ( $\pm 1\%$ or $\pm 33.8\text{ }^{\circ}\text{F}$ )
Repeatability <sup>2), 3), 4), 5), 7)</sup>	$\pm 0.1\%$ or $\pm 0.1\text{ }^{\circ}\text{C}$ ( $\pm 0.1\%$ or $\pm 32.18\text{ }^{\circ}\text{F}$ )
Temperature resolution (display)	0.1 K
NETD <sup>4), 5), 6)</sup>	60 mK (LT 02) 25 mK (LT 10) 35 mK (LT 22)
Response time	40 ms (LT02) 115 ms (LT10 & LT22)
Emissivity / Gain (adjustable via programming keys or software)	0.05 – 1.100
Transmissivity / Gain (adjustable via programming keys or software)	0.05 – 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 / App	IR Mobile App / Optris CompactPlus Connect

- 1) The LCD displays capacity may be limited at ambient temperatures below  $0\text{ }^{\circ}\text{C}$
- 2) Whichever is greater
- 3)  $T_{obj} > 0\text{ }^{\circ}\text{C}$
- 4)  $\epsilon = 1$
- 5) Response time = 200ms
- 6)  $T_{obj} = 77\text{ }^{\circ}\text{F}$
- 7) at ambient temperature  $23 \pm 5\text{ }^{\circ}\text{C}$  ( $73.4 \pm 41\text{ }^{\circ}\text{F}$ )

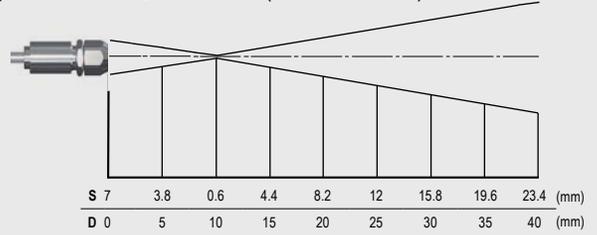
# optris CTi LT

## Optical specifications

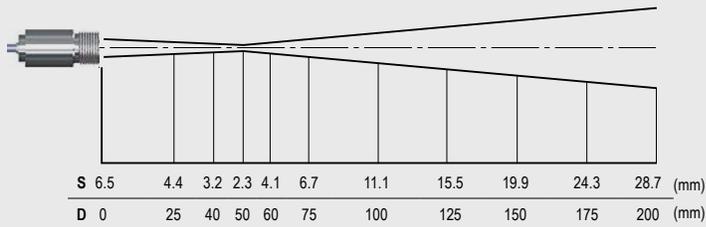
Optics CTi LT SF, D:S = 22:1



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



Optics CTi LT SF with additional CF lens (ACCTCF)/ far field = 1.5:1



More optical data: <https://optris.com/us/optris-calculator/>



## Dimensions in mm (in)

### Electronics

