optris CTi LThot
TECHNICAL DATA

Precise non-contact temperature measurement from –50 °C to 1050 °C (-58 °F to 1922 °F) in rough environmental conditions

Features:

- The new infrared thermometer for hot environmental temperatures up to 250 °C (482 °F) without any need of cooling
- A varity of applications in dryers, ovens, heat treatment lines in the metal and glass industry, paper, plastic and textile manufacturing and semiconducto processing in the temperature range of –50 °C to 1050 °C (-58 °F to 1922 °F) and a response time up from 40 ms
- Selectable 10:1 or 2:1 optics, compact sensor head size
- Narrow beam optics allows oblique aiming to avoid material thickness dependent temperature readings
- Monitor box for programming and temperature display
- Analog outputs 0/4–20 mA, 0–5/10 V, thermocouple type K and integrated digital interfaces (optional), USB, RS232, RS485, Modbus RTU, Modbus TCP, Ethernet TCP, Profinet or EtherNet/IP

General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	–20 °C ... 250 °C (–4 °F ... 482 °F) (sensing head) 0 °C ... 85 °C (32 °F ... 185 °F) (electronics)
Storage temperature	–40 °C ... 250 °C (–40 °F ... 482 °F) (sensing head) –40 °C ... 85 °C (–40 °F ... 185 °F) (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 (1.4 oz) (sensing head) / 420 g (14.8 oz) (electronics)

Electrical Specifications

Outputs / analog	0 / 4 – 20 mA, 0 – 5 / 10 V, thermocouple K, alarm
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	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 Ω (with 8 – 36 V DC) mV min. 100 kΩ load impedance thermocouple 20 Ω
IO Pins (3x)	flexible programming as in- or output: external emissivity adjustment, ambient temperature compensation, uncommitted value, trigger (reset of hold-functions), alarm output (open collector 24 V/ 50 mA)
Cable length	3 m (standard), 8 m, 15 m (9.8 ft [standard], 26.2 ft, 49.2 ft)
Power Supply	8 - 30 V DC 1.2W

Measurement specifications

Temperature range (scalable via programming keys or software)	–50 °C ... 1050 °C (–58 °F ... 1922 °F)
Spectral range	8 – 14 µm
Optical resolution (90 % energy)	2:1 10:1
Smallest spot size	0,6 mm at 10 mm (0.02 in at 0.39 in) (LT22 + CF lens)
Measurement uncertainty[2), 3), 4), 5), 7)]	±1.5 °C or ±1 % (±34.7 °F or ±1 %)
Repeatability[2), 3), 4), 5), 7)]	±0.13 °C or ±0.1 % (±32.23 °F or ±0.1 %) (LT hot 2:1) ±0.16 °C or ±0.1 % (±32,29 °F or ±0.1 %) (LT hot 10:1)
Temperature resolution (display)	0.1 K
NETD [4), 5), 6)] (typically)	37 mK (LT hot 2:1) 45 mK (LT hot 10:1)
Response time (90% energy)	45 ms (LT hot 2:1) 40 ms (LT hot 10:1)
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	IR Mobile App / Optris CompactPlus Connect

1) The LCD displays capacity may be limited at ambient temperatures below 0 °C
2) Whichever is greater
3) T_{obj} >32 °F
4) ε = 1
5) Response time = 200ms
6) T_{obj} = 77 °F
7) at ambient temperature 23 ± 5 °C (73,4 ± 41 °F)

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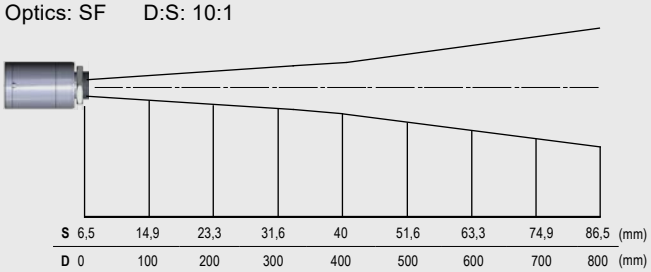
Optical specifications

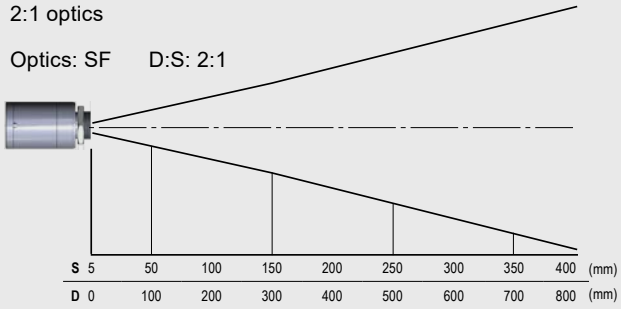
10:1 optics

Optics: SF D:S: 10:1

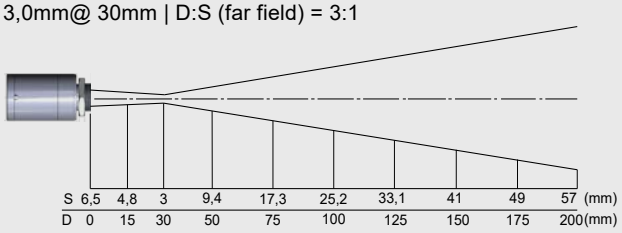


2:1 optics

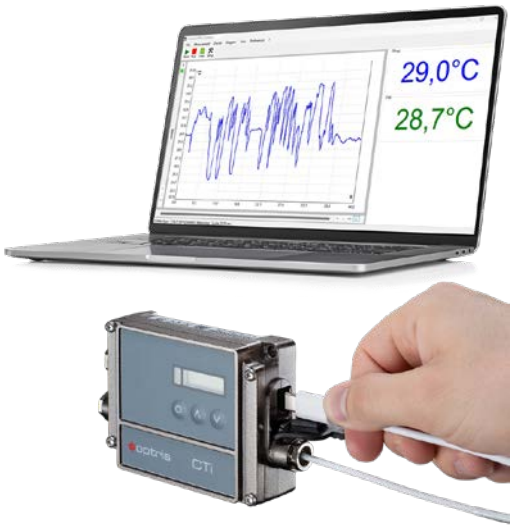
Optics: SF D:S: 2:1



Optics: CF1 | D:S: 10:1
3,0mm@ 30mm | D:S (far field) = 3:1



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



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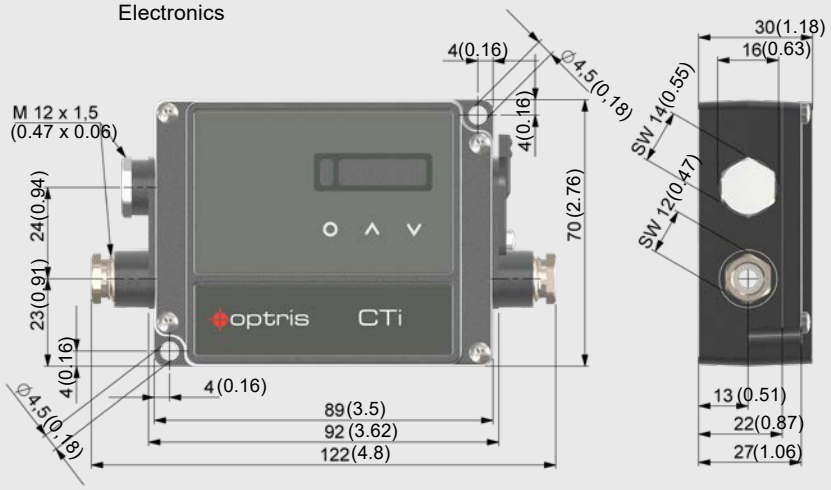
Dimensions in mm (in)

Electronics



Sensing head
(standard)