

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 variety of applications in dryers, ovens, heat treatment lines in the metal and glass industry, paper, plastic and textile manufacturing and semiconductor 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 analog outputs: 0/4 – 20 mA, 0 – 5 V, 0 – 10 V, thermocouple type K
- Optional EtherNet/IP, Profinet, Ethernet TCP/IP / 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)
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	200 g (1.4 oz) (sensing head incl. massive housing) / 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 _{RMS} ; 0.4 A; optically isolated
Digital Interfaces	built-in USB-interface, Optional: EtherNet/IP, Profinet, Ethernet TCP/IP / Modbus TCP, Modbus RTU, RS485, RS232 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
I/O 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	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 / App)	-50 °C ... 1050 °C [-58 °F ... 1922 °F]
Spectral range	8–14 μm
Optical resolution (90% energy)	2:1 10:1
Smallest spot size	3.0 mm @30 mm (LThot 10:1 CF1 lens)
Measurement uncertainty ^{2), 3), 4), 5), 7)}	±1.5 °C or ±1% [±2.7 °F or ±1%]
Repeatability ^{2), 3), 4), 5), 7)}	±0.13 °C or ±0.1% [±0.23 °F or ±0.1%] (LThot 2:1) ±0.16 °C or ±0.1% [±0.29 °F or ±0.1%] (LThot 10:1)
Temperature resolution (display)	0.1 K
NETD (typically) ^{4), 5), 6), 7)}	37 mK (LThot 2:1) 45 mK (LThot 10:1)
Response time (90% energy)	45 ms (LThot 2:1) 40 ms (LThot 10:1)
Emissivity / Gain (adjustable via programming keys or software / App)	0.100–1.100
Transmissivity / Gain (adjustable via programming keys or software / App)	0.100–1.100
Signal processing (parameter adjustable via programming keys or software / App)	Peak hold, valley hold, average; extended hold functions with threshold and hysteresis
Software / App	Optris CompactPlus Connect / IRmobile App

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

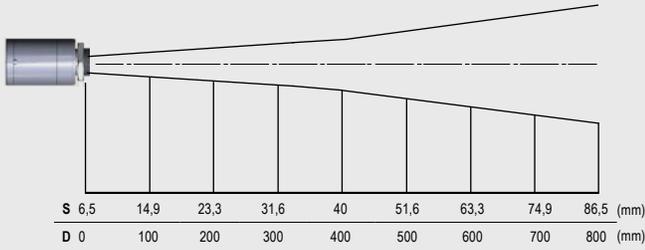
⁶⁾ T_{obj} = 77 °F

⁷⁾ at ambient temperature 23 ± 5 °C (73,4 ± 9 °F)

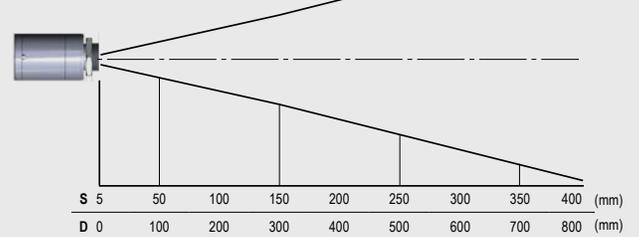
optris CTi LThot

Optical specifications

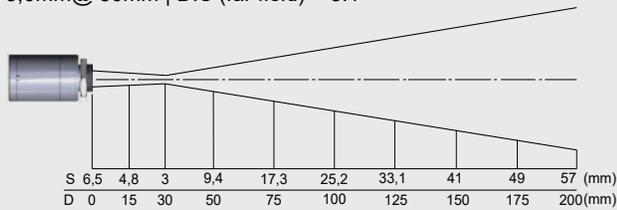
Optics: SF D:S: 10:1



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/>



Dimensions in mm (in)

Electronics

