

Precise non-contact  
temperature measurement  
from  $-50\text{ }^{\circ}\text{C}$  to  $1050\text{ }^{\circ}\text{C}$   
( $-58\text{ }^{\circ}\text{F}$  to  $1922\text{ }^{\circ}\text{F}$ ) in rough  
environmental conditions



Features:

- The new infrared thermometer for hot environmental temperatures up to  $250\text{ }^{\circ}\text{C}$  ( $482\text{ }^{\circ}\text{F}$ ) 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  $-50\text{ }^{\circ}\text{C}$  to  $1050\text{ }^{\circ}\text{C}$  ( $-58\text{ }^{\circ}\text{F}$  to  $1922\text{ }^{\circ}\text{F}$ ) 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	$-20\text{ }^{\circ}\text{C}$ ... $250\text{ }^{\circ}\text{C}$ ( $-4\text{ }^{\circ}\text{F}$ ... $482\text{ }^{\circ}\text{F}$ ) (sensing head) $0\text{ }^{\circ}\text{C}$ ... $85\text{ }^{\circ}\text{C}$ ( $32\text{ }^{\circ}\text{F}$ ... $185\text{ }^{\circ}\text{F}$ ) (electronics)
Storage temperature	$-40\text{ }^{\circ}\text{C}$ ... $250\text{ }^{\circ}\text{C}$ ( $-40\text{ }^{\circ}\text{F}$ ... $482\text{ }^{\circ}\text{F}$ ) (sensing head) $-40\text{ }^{\circ}\text{C}$ ... $85\text{ }^{\circ}\text{C}$ ( $-40\text{ }^{\circ}\text{F}$ ... $185\text{ }^{\circ}\text{F}$ ) (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 <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 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)	$-50\text{ }^{\circ}\text{C}$ ... $1050\text{ }^{\circ}\text{C}$ ( $-58\text{ }^{\circ}\text{F}$ ... $1922\text{ }^{\circ}\text{F}$ )
Spectral range	8–14 $\mu\text{m}$
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 <sup>2), 3), 4), 5), 7)</sup>	$\pm 1.5\text{ }^{\circ}\text{C}$ or $\pm 1\%$ ( $\pm 34.7\text{ }^{\circ}\text{F}$ or $\pm 1\%$ )
Repeatability <sup>2), 3), 4), 5), 7)</sup>	$\pm 0.13\text{ }^{\circ}\text{C}$ or $\pm 0.1\%$ ( $\pm 32.23\text{ }^{\circ}\text{F}$ or $\pm 0.1\%$ ) (LT hot 2:1) $\pm 0.16\text{ }^{\circ}\text{C}$ or $\pm 0.1\%$ ( $\pm 32,29\text{ }^{\circ}\text{F}$ or $\pm 0.1\%$ ) (LT hot 10:1)
Temperature resolution (display)	0.1 K
NETD <sup>4), 5), 6)</sup> (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  $0\text{ }^{\circ}\text{C}$
- 2) Whichever is greater
- 3)  $T_{\text{obj}} > 32\text{ }^{\circ}\text{F}$
- 4)  $\epsilon = 1$
- 5) Response time = 200ms
- 6)  $T_{\text{obj}} = 77\text{ }^{\circ}\text{F}$
- 7) at ambient temperature  $23 \pm 5\text{ }^{\circ}\text{C}$  ( $73,4 \pm 41\text{ }^{\circ}\text{F}$ )

