

Precise non-contact temperature measurement from -50 °C to 1050 °C in rough environmental conditions



Features:

- The new infrared thermometer for hot environmental temperatures up to 250 °C 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 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)
Operating temperature range ¹⁾	-20 °C ... 250 °C (sensing head) -20 °C ... 85 °C (electronics)
Storage temperature	-40 °C ... 250 °C (sensing head) -40 °C ... 85 °C (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 (sensing head) / 420 g (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 _{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 holdfunctions), alarm output (open collector 24 V / 50 mA)
Cable length	3 m (standard), 8 m, 15 m
Power	8 - 30 V DC 1.2W

Measurement specifications

Measuring Temperature range (scalable via programming keys or software)	-50 °C ... 1050 °C
Spectral range	8–14 μm
Optical resolution (90% energy)	2:1 10:1
Smallest spot size	3.0 mm @30 mm (LT hot 10:1 CF1 lens)
Measurement uncertainty ^{2), 3), 4), 5), 7)}	±1.5 °C or ±1 %
Repeatability ^{2), 3), 4), 5), 7)}	±0.13 °C or ±0.1 % (LT hot 2:1) ±0.16 °C 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)	0.05–1.100
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 °C
- 2) Whichever is greater
- 3) $T_{obj} > 0 °C$
- 4) $\epsilon = 1$
- 5) Response time = 200ms
- 6) $T_{obj} = 25 °C$
- 7) at ambient temperature $23 \pm 5 °C$

