

Rugged fiber-optic ratio thermometer for non-contact temperature measurement from 450 °C to 3000 °C (842 °F to 5432 °F)



Features:

- Adjustable focus from 300 mm (11.81 in) to infinity with excellent optical resolution up to 100:1
- Laser sighting for real spot size indication at any distance green laser for best visibility on glowing objects
- Rugged sensing head and fiber-optic for ambient temperatures up to 315 °C (599 °F) without cooling
- Two 0/4-20 mA analog outputs (isolated optional)
- Fast measurement with 1 ms response time

General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature sensing head + fiber cable electronics	-20 ... 200 °C (-4 ... 392 °F) (optional to 315 °C [599 °F]) 0 ... 60 °C (32 ... 140 °F)
Storage temperature sensing head + fiber cable electronics	-40 ... 200 °C (-40 ... 392 °F) -40 ... 85 °C (-40 ... 185 °F)
Relative humidity	10–95 %, non-condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped), IEC 60068-2-64 (broad band noise)
Shock (sensor)	IEC 60068-2-27 (25G and 50G)
Weight	210 g (7.4 oz) (fiber cable (3 m [9.8 ft]) with head) 420 g (14.8 oz) (electronics)

Electrical specifications

Outputs analog	2x 0/4-20 mA (12 bit) / optional: 2x 0/4-20 mA (16 bit) isolated
Output impedances	max. 500 Ω (with 8–30 V DC)
Relay Output (optional)	2 x 60 V DC/ 42 V AC _{eff.} ; 0.4 A; optically isolated
Digital Interface	USB (Micro-USB, USB-C and USB-A cable included)
Digital Interfaces (optional)	RS232, RS485
I/O-Pins	Three programmable in-/outputs; selectable as alarm output (open collector 24 V/1 A), input for triggered signal output and peakhold function or as analog input for external emissivity or slope adjustment
Fiber cable length	3 m (standard), 8 m, 15 m (9.8 ft [standard], 19.7 ft, 32.8 ft)
Power supply	8–30 V DC or USB powered ¹⁾
Power consumption	Max. 5 W
Aiming laser	Laser 520 nm, <1 mW, ON/OFF via electronic box or software / App

Measurement specifications

Temperature range	1-Channel	2-Channel	
	450 ... 1400 °C (842 ... 2552 °F)	525 ... 1400 °C (977 ... 2552 °F)	(1ML)
650 ... 2000 °C (1202 ... 3632 °F)	700 ... 2000 °C (1292 ... 3632 °F)	(1MH)	
900 ... 3000 °C (1652 ... 5432 °F)	1000 ... 3000 °C (1832 ... 5432 °F)	(1MH1)	
Spectral range	0.8–1.1 μm		
Optical resolution (90 % energy)	38:1 (1ML) 100:1 (1MH / 1MH1)		
Vario focus	300 mm (11.81 in) to infinity, infinitely adjustable		
System accuracy ²⁾ (at ambient temp. 23 ±5 °C)	±(0.5 % of reading +2 °C)		
Repeatability ²⁾ (at ambient temp. 23 ±5 °C)	±0.3 % of reading		
Temperature resolution	0.1 K		
Response time (90 % signal) ³⁾	1 ms–10 s		
Slope (adjustable via programming keys or analog input)	0.800–1.200		
Emissivity (adjustable via programming keys or analog input)	0.050–1.000		
Signal processing (parameter adjustable via programming keys or software / App, respectively)	1 color / 2 color mode; attenuation monitoring / alarms; peak hold, valley hold, average; extended hold function with threshold and hysteresis		
Software / App	optris Ratio Connect / IRmobile App		

¹⁾ USB powered unit works only in digital communication mode

²⁾ ε = 1, response time 1 s; no attenuation

³⁾ With dynamic adaptation to low signal levels

