

optris® CTvideo 1M/2M

Precise non-contact temperature measurement of metals and ceramics from 250°C to 2200°C with adjustable focus, patented crosshair laser and video sighting



FEATURES

- Parallel use of video sighting and crosshair laser for easy sensor alignment (measuring spots up from 0.5 mm) under all viewing conditions possible
- Manual focusing for measurement distances from 90 mm with optical resolution up to 300:1
- Response times up from 1 ms
- Usable in up to 70°C ambient temperature without cooling and automatic laser switch off at 50°C
- Short measuring wavelengths of 1.0 µm or 1.6 µm decrease measuring mistakes on surfaces with low or unknown emission rate
- Compact Connect software for fast on-site sensor setup and video alignment or real-time process monitoring

General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 85°C (sensing head, 50°C with laser ON) 0°C to 85°C (electronics)
Storage temperature	-40°C to 85°C
Relative humidity	10 - 95%, non-condensing
Vibration (sensor)	IEC 68-2-6: 3 G, 11-200 Hz, any axis
Shock (sensor)	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	Sensing head: 600 g Electronics: 420 g

Electrical specifications

Outputs/analog	0/4 - 20 mA, 0-5/10 V, thermocouple J, K
Alarm output	24 V/50 mA (open collector)
Output/digital	USB 2.0 Ethernet (via optional USB server)
Video sighting	digital (USB 2.0) 640 x 480 px, FOV 3.1° x 2.4°
Output impedances	mA max. 500 Ω (with 8-36 V DC) mV min. 100 kΩ load impedance thermocouple 20 Ω
Inputs	programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length (sensor-electronics)	3 m (standard), 5 m, 10 m
Cable length (USB)	5 m, extendable up to 100 m over Ethernet
Current draw	max. 160 mA
Power Supply	8-36 V DC
Laser 635 nm	1mW, ON/OFF via electronic box or software

Measurement specifications

Temperature ranges (scalable via programming keys or software)	485°C to 1050°C (1ML) 650°C to 1800°C (1MH) 800°C to 2200°C (1MH1) 250°C to 800°C (2ML) 385°C to 1600°C (2MH) 490°C to 2000°C (2MH1)
Spectral ranges	1.0 µm (1M)/1.6 µm (2M)
Optical resolution (90% energy)	150:1 (1ML, 2ML) 300:1 (1MH, 1MH1, 2MH, 2MH1)
System accuracy ¹⁾ (at ambient temp. 23 ±5°C)	± (0.3% of reading + 2°C)
Repeatability (at ambient temp. 23 ±5°C)	± (0.1% of reading + 1°C)
Temperature resolution	0.1 K (1ML, 2ML) 0.2 K (1MH, 1MH1, 2MH, 2MH1)
Exposure time ²⁾	1 ms (90 %)
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 (incl.)	optris Compact Connect (Sensor setup, video sighting and process monitoring)

¹⁾ $\varepsilon = 1$, Exposure time 1 s

²⁾ With dynamic adaptation at low signal levels

Optical specifications

The vario optics of the CTvideo allows a smooth focusing of the optics to the desired distance.

The sensors are available in two versions: Standard focus (SF): 200 mm till infinity

Close focus (CF) 90 mm till 250 mm

The following tables show examples of measurement distances and the corresponding measurement spot sizes:

1ML, 2ML: SF optics (150:1)

Meas. spot size in mm	1.3	2.0	3.0	4.7	7.3	10.7	16.7	33.3
Meas. distance in mm	200	300	450	700	1100	1600	2500	5000

1ML, 2ML: CF optics (150:1)

Meas. spot size in mm	0.6	0.8	1.0	1.2	1.4	1.7
Meas. distance in mm	90	120	150	180	210	250

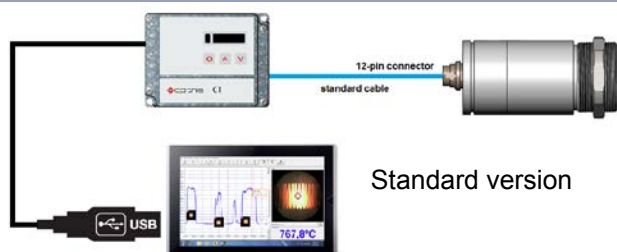
1MH, 1MH1, 2MH, 2MH1: SF optics (300:1)

Meas. spot size in mm	0.7	1.0	1.5	2.3	3.7	5.3	8.3	16.7
Meas. distance in mm	200	300	450	700	1100	1600	2500	5000

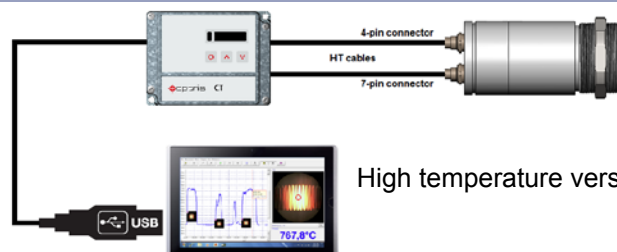
1MH, 1MH1, 2MH, 2MH1: CF optics (300:1)

Meas. spot size in mm	0.3	0.4	0.5	0.6	0.7	0.8
Meas. distance in mm	90	120	150	180	210	250

Connections

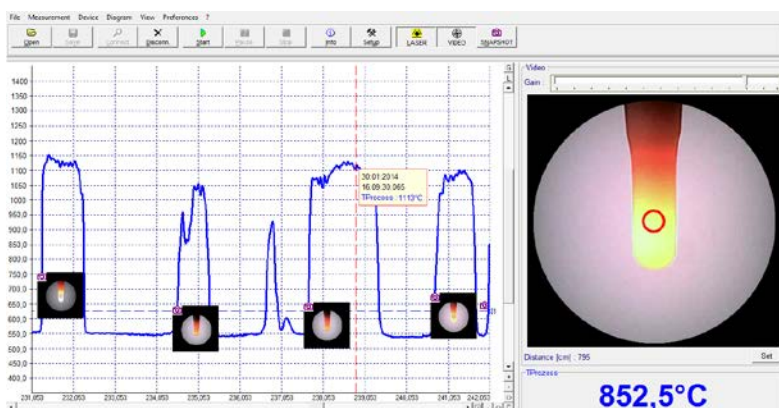


Standard version



High temperature version

Software included

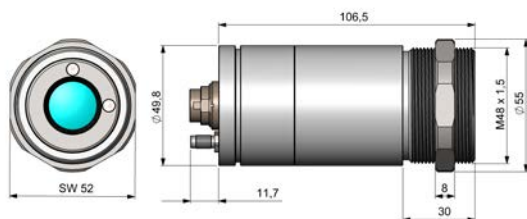


NEW

- Automatic snapshots (time- or temperature dependent) to control and document the process
- Graphic display and recording of the measurement values
- Setup of sensor parameters and signal processing functions
- Remote control of the sensor

Dimensions

Sensing head



Electronics

