

## 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 <sup>1)</sup> (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 <sup>2)</sup>	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)

<sup>1)</sup>  $\epsilon = 1$ , Exposure time 1 s

<sup>2)</sup> 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

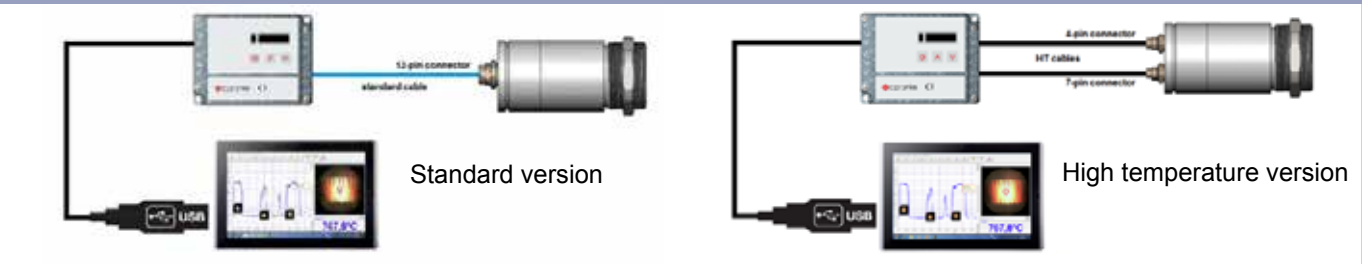
The following tables show examples of measurement distances and the corresponding measurement spot sizes:

1ML, 2ML: SF optics (150:1)									1ML, 2ML: CF 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. spot size in mm	0.6	0.8	1.0	1.2	1.4	1.7
Meas. distance in mm	200	300	450	700	1100	1600	2500	5000	Meas. distance in mm	90	120	150	180	210	250

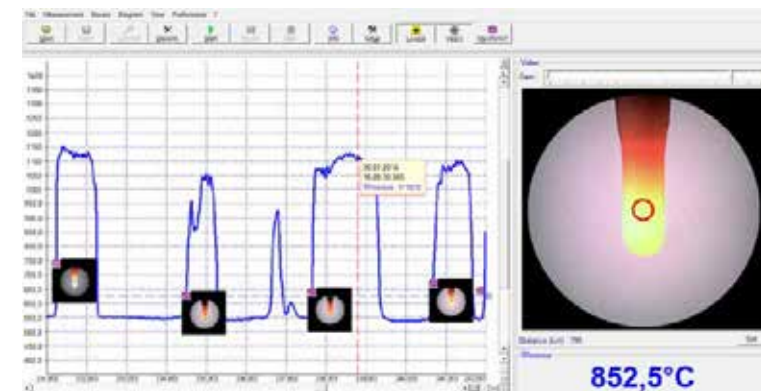
1MH, 1MH1, 2MH, 2MH1: SF optics (300:1)									1MH, 1MH1, 2MH, 2MH1: CF optics (300:1)						
Meas. spot size in mm	0.7	1.0	1.5	2.3	3.7	5.3	8.3	16.7	Meas. spot size in mm	0.3	0.4	0.5	0.6	0.7	0.8
Meas. distance in mm	200	300	450	700	1100	1600	2500	5000	Meas. distance in mm	90	120	150	180	210	250

## Connections



## Software included

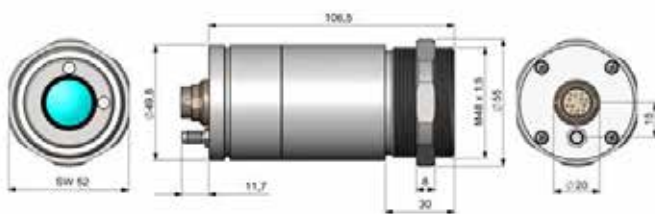
**NEW**



- 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

