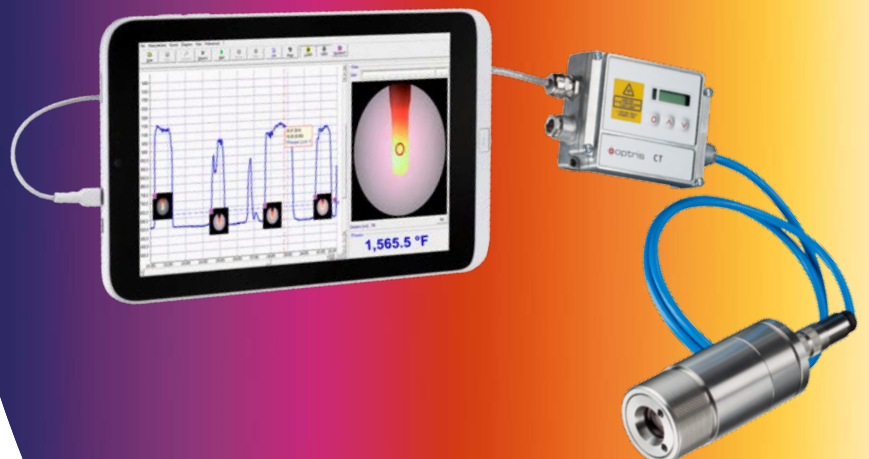




CTvideo 1M/2M

Precise non-contact temperature measurement of metals and ceramics from 250 °C to 2200 °C (482 °F to 3992 °F) with adjustable focus, patented crosshair laser and video sighting

innovative infrared technology



optris® CTvideo 1M/2M

TECHNICAL DATA

Features:

- Parallel use of video sighting and crosshair laser for easy sensor alignment (measuring spots up from 0.5 mm (0.02 in) under all viewing conditions possible)
- Manual focusing for measurement distances from 90 mm (3.5 in)
- Response times up from 1 ms
- Usable in up to 70 °C (158 °F) ambient temperature without cooling and automatic laser switch off at 50 °C (122 °F)
- 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



Measurement specifications

| | |
|--|---|
| Temperature range (scalable via software) | 485 °C ... 1050 °C (905 °F ... 1922 °F) (1ML) 650 °C ... 1800 °C (1202 °F ... 3272 °F) (1MH) 800 °C ... 2200 °C (1472 °F ... 3992 °F) (1MH1) 250 °C ... 800 °C (482 °F ... 1472 °F) (2ML) 385 °C ... 1600 °C (725 °F ... 2912 °F) (2MH) 490 °C ... 2000 °C (914 °F ... 3632 °F) (2MH1) |
| Spectral range | 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 T _{amb} = 23 ± 5 °C [at T _{amb} = 73 ± 41 °F]) | ± (0.3 % of reading + 2 °C) ± (0.3 % of reading + 36 °F) |
| Repeatability (at T _{amb} = 23 ± 5 °C [at T _{amb} = 73 ± 41 °F]) | ± (0.1 % of reading + 1 °C) ± (0.1 % of reading + 34 °F) |
| Temperature resolution | 0.1 K (1ML, 2ML) 0.1 K (1MH, 1MH1, 2MH, 2MH1) |
| Exposure time ²⁾ | 1 ms (90 %) |
| Emissivity / Gain (adjustable via software) | 0.100 – 1.100 |
| IR window correction (adjustable via software) | 0.100 – 1.000 |
| Signal processing (parameter adjustable via software) | Peak hold, valley hold, average; extended hold function with threshold and hysteresis |
| Software (incl.) | optris® Compact Connect (Sensor setup, video sighting and process monitoring) |

General specifications

| | |
|----------------------|--|
| Environmental rating | IP 65 (NEMA-4) |
| Ambient temperature | –20 °C to 70 °C (50 °C with laser ON) (–4 °F to 158 °F (122 °F with laser ON) |
| Storage temperature | –40 °C to 85 °C (–40 °F to 185 °F) |
| Relative humidity | 10 – 95 %, non-condensing |
| Vibration | IEC 68-2-6: 3 G, 11 – 200 Hz, any axis |
| Shock | IEC 68-2-27: 50 G, 11 ms, any axis |
| Weight | 600 g (21.2 oz) (sensing head) 420 g (14.8 oz) (electronics) |

Electrical specifications

| | |
|-------------------------------------|--|
| Output / 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 (9.8 ft [standard], 16.4 ft, 32.8 ft) |
| Cable length (USB) | 5 m, extendable up to 100 m over Ethernet (16.4 ft, expandable up to 328.1 ft over Ethernet) |
| Current draw (laser) | max. 160 mA |
| Power supply | 8 – 36 V DC |
| Laser 635 nm | 1 mW, ON/OFF via electronic box or software |

¹⁾ $\tau = 1$, response time 1 s

²⁾ With dynamic adaptation at low signal levels

³⁾ The functioning of the LCD display may be limited in ambient temperatures below 0 °C.

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TECHNICAL DATA

Optical parameters

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

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

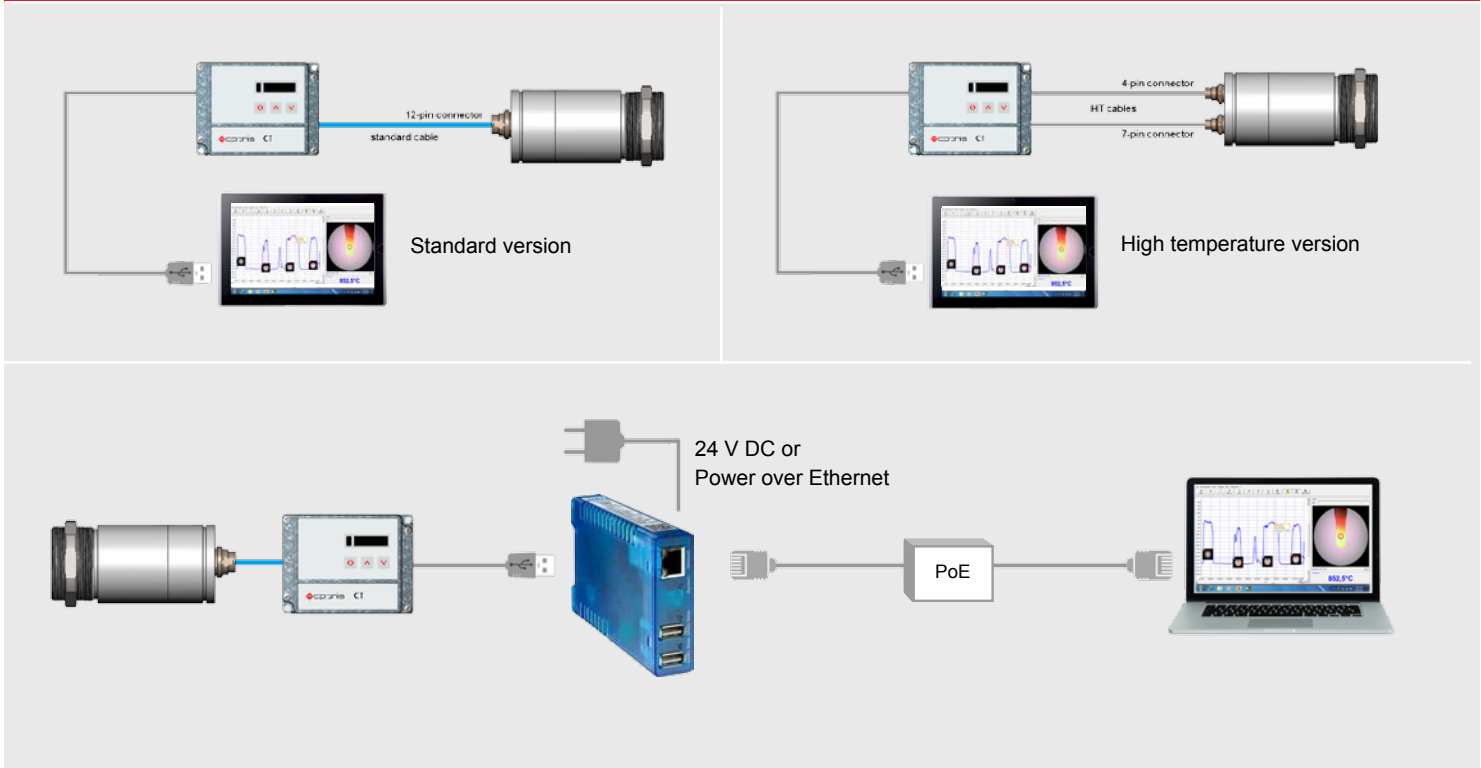
The sensors are available in two versions:

Standard focus (SF): 200 mm (7.9 in) till infinity

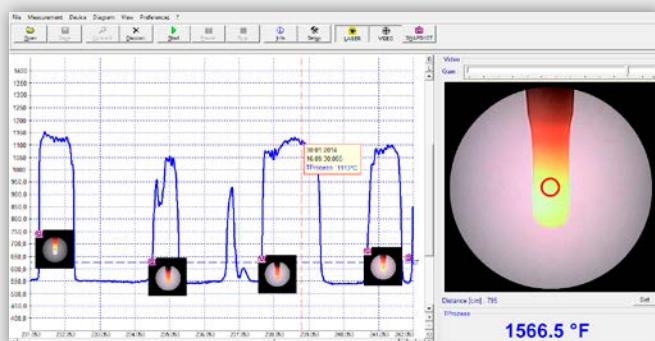
Close focus (CF): 90 mm till 250 mm (3.5 in till 9.8 in)

| | 1ML, 2ML: SF optics (150:1) | | | | | | | | 1ML, 2ML: CF optics (150:1) | | | | | |
|----------------------------|---|---------------|---------------|---------------|----------------|----------------|----------------|-----------------|---|---------------|---------------|---------------|---------------|---------------|
| Meas. spot size in mm (in) | 1.3 (0.05) | 2.0 (0.1) | 3.0 (0.1) | 4.7 (0.19) | 7.3 (0.29) | 10.7 (0.42) | 16.7 (0.66) | 33.3 (1.31) | 0.6 (0.02) | 0.8 (0.03) | 1.0 (0.04) | 1.2 (0.05) | 1.4 (0.06) | 1.7 (0.07) |
| Meas. distance in mm (in) | 200 (7.9) | 300 (11.8) | 450 (17.7) | 700 (27.6) | 1100 (43.3) | 1600 (63.0) | 2500 (98.4) | 5000 (196.9) | 90 (3.5) | 120 (4.7) | 150 (5.9) | 180 (7.1) | 210 (8.3) | 250 (9.8) |
| | 1MH, 1MH1, 2MH, 2MH1: SF optics (300:1) | | | | | | | | 1MH, 1MH1, 2MH, 2MH1: CF optics (300:1) | | | | | |
| Meas. spot size in mm (in) | 0.7 | 1.0 (0.04) | 1.5 (0.06) | 2.3 (0.09) | 3.7 (0.15) | 5.3 (0.21) | 8.3 (0.33) | 16.7 (0.66) | 0.3 (0.01) | 0.4 (0.02) | 0.5 (0.02) | 0.6 (0.02) | 0.7 (0.03) | 0.8 (0.03) |
| Meas. distance in mm (in) | 200 (7.9) | 300 (11.8) | 450 (17.7) | 700 (27.6) | 1100 (43.3) | 1600 (63.0) | 2500 (98.4) | 5000 (196.9) | 90 (3.5) | 120 (4.7) | 150 (5.9) | 180 (7.1) | 210 (8.3) | 250 (9.8) |

Connection modes



Software included



- 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

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TECHNICAL DATA

Dimensions sensing head

