



More Precision

thermoMETER // Non-contact infrared temperature sensors





thermoMETER CSmicro

Miniature OEM infrared temperature sensor with controller integrated in the cable

- Measuring range from -40 °C to 1030 °C
- Applicable in ambient temperatures up to 120 °C without cooling (sensor)
- Robust, silicon-coated lens
- Integrated controller with LED alarm display and intelligent sighting aid, alarm signal, temperature-code display or self-diagnostics
- Integrated controller in the cable
- Scalable analog output and simultaneous alarm output
- Protection against short circuit and polarity change
- Programmable controller
- Optional USB interface and software for programming
- Best price - ideal for OEM applications

Optical specifications thermoMETER CSmicro

□ = smallest spot size / focal point (mm)

| Standard Focus | | | | | | | | | | | |
|---|----------------|-----|------|-------|-------|------|-------|-------|-------|------|------|
| SF02 | 2:1 | 5 | 53.8 | 102.5 | 151.3 | 200 | 251.3 | 302.5 | 353.8 | 405 | |
| SF15 | 15:1 | 6.5 | 11.6 | 16.6 | 21.7 | 26.7 | 35 | 43.3 | 51.6 | 59.9 | |
| | distance in mm | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | |
| Close Focus (with optionally available CF lens) | | | | | | | | | | | |
| CF02 | 2:1 | 7 | 6 | 5 | 4.1 | 3.1 | 2.5 | 3.3 | 5.4 | 7.5 | 9.5 |
| CF15 | 15:1 | 7 | 3.9 | 0.8 | 4.7 | 8.6 | 10.9 | 12.5 | 16.4 | 20.3 | 24.2 |
| | distance in mm | 0 | 5 | 10 | 15 | 20 | 23 | 25 | 30 | 35 | 40 |

| Model | CSmi-SF02-C1 | CSmi-SF15-C1 | CSmiHS-SF15-C4 |
|-----------------------------------|--|--------------|--|
| Optical resolution | 2:1 | 15:1 | 15:1 |
| Temperature range | -40 °C to 1030 °C ¹⁾ | | -20 °C to 150 °C |
| Spectral range | 8 to 14 μm | | |
| System accuracy | ±1.0 % or ±1.0 °C ⁴⁾ | | |
| Repeatability | ±0.5 % or ±0.5 °C ³⁾ | | ±0.3 % or ±0.3 °C ⁴⁾ |
| Temperature coefficient | ± 0.05 °C/°C or ± 0.05 % °C ⁵⁾ | | |
| Temperature resolution | 0.15 °C ⁶⁾ | | 0.025 °C ⁶⁾ |
| Response time (90 %) | 14 ms (adjustable up to 999 s via optional programming adapter) | | 150 ms (adjustable up to 999 s via optional programming adapter) |
| Emissivity/Gain | 0.100 to 1.100 ²⁾ | | 0.100 to 1.100 ¹⁾ |
| Transmissivity/gain ¹⁾ | 0.100 to 1.100 | | |
| Signal processing ¹⁾ | peak hold, valley hold, average; extended hold function with threshold and hysteresis | | |
| Dimensions of controller | length 35 mm; ø12 mm | | |
| Outputs/analog | 0 to 5 V or 0 to 10 V 1/10/100 mV/°C | | 4 to 20 mA |
| Max. loop resistance | - | | 1000 Ω ⁷⁾ |
| Outputs/alarm | alarm (50 mA / 24 V) | | 0-30 V / 500 mA (open collector) |
| Outputs/digital (optional) | mono-/bidirectional, 9.6 kBaud, 0/3 V level, alternative USB | | |
| Inputs | programmable functional inputs for external emissivity adjustment (0 to 5 VDC), hold function or USB communication | | programmable functional input for triggered signal output or peak hold function |
| LED functions | alarm display, automatic aiming aid, self-diagnostics, temperature display (via temp. code) | | |
| Cable length | 1 m (standard length); 0.5 m between sensor and controller; 0.4 m between controller and terminal device | | 4 m (0.5 m sensor - controller); sensor incl. massive housing TM-MHS-CT (ø29.5 mm x 55 mm) |
| Power supply | 9 mA (5 to 30 VDC) | | 4...20 mA (5 to 30 VDC) |
| Protection class | IP65 (NEMA-4) sensor head | | |
| Ambient temperature | sensor: -20 °C to 120 °C controller: -20 °C to 80 °C | | sensor -20 °C to 75 °C controller: -20 °C to 75 °C |
| Storage temperature | -40 °C to 85 °C (sensor and controller) | | |
| Relative humidity | 10 to 95 %, non-condensing | | |
| Vibration | IEC 68-2-6: 3 G, 11 to 200 Hz, any axis | | |
| Shock | IEC 68-2-27: 50 G, 11 ms, any axis | | |
| Weight | 42 g | | 200 g |

¹⁾ adjustable via software

²⁾ adjustable via 0 to 5 VDC input or software

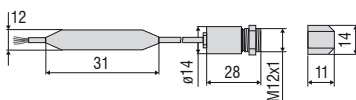
³⁾ ambient temperature 23 ± 5 °C; whichever is greater; object temperature ≥ 0 °C

⁴⁾ ambient temperature 23 ± 5 °C; whichever is greater; object temperature > 20 °C

⁵⁾ with object temperature < 100 °C; time constant from > 0.2 s

⁶⁾ with object temperature > 20 °C; time constant from > 0.2 s

⁷⁾ depends on supply voltage



Product identification

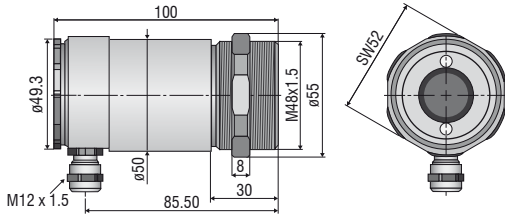
| | | |
|--|-------|----|
| CSmi - | SF15- | C1 |
| Cable length [1 m (standard) other cable lengths on request] | | |
| Focus [SF / CF] | | |
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Accessories page 54 - 55

- Ancillary CF lens
- Protective window
- Mounting bracket / mounting bolt
- Air purge collar
- Right angle mirror
- USB kit

CSLaser

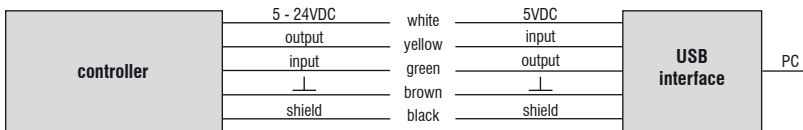
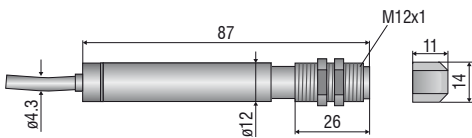
sensor



CS

sensor with integrated controller

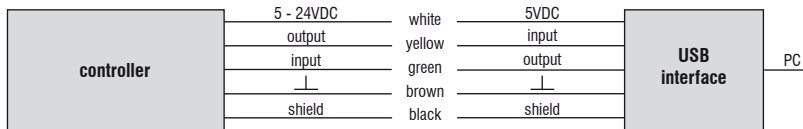
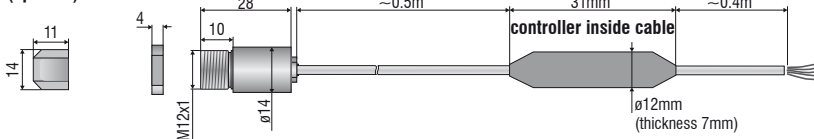
ancillary CF lens (optional)



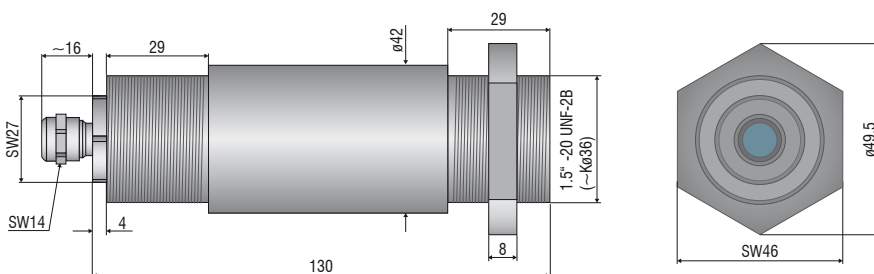
CSmicro / CSmicro 2W

ancillary CF lens (optional)

sensor



CX



Mechanical accessories CS / CSmicro / CSmicro 2W

| Art. No. | Model | |
|----------|-------------|---|
| 2970279 | Emissivity | Mounting bracket, fixed |
| 2970280 | TM-AB-CS | Mounting bracket, adjustable |
| 2970281 | TM-MB-CS | Mounting bolts with M12x1 thread |
| 2970282 | TM-MG-CS | Mounting fork, adjustable in 2 axes, with M12x1 fastening |
| 2970283 | TM-AP-CS | Air purge collar for 10:1 sensors |
| 2970284 | TM-APL-CS | Air purge collar, laminar |
| 2970285 | TM-APLCF-CS | Air purge collar, laminar with integrated ancillary CF lens |
| 2970286 | TM-RAM-CS | Right angle mirror for measurements 90 °C to the sensor axis |
| 2970718 | TM-USBK-CS | USB kit: USB programming adapter, CompactConnect software (as download) |

Optical accessories CS / CSmicro / CSmicro 2W

| | | |
|---------|----------|---------------------------------|
| 2970277 | TM-CF-CS | Ancillary CF lens for CS models |
| 2970278 | Aluminum | Protective window for CS models |

Calibration CS / CSmicro / CSmicro 2W

| | | |
|---------|------------|----------------------------|
| 2970288 | TM-CERT-CS | Certificate of calibration |
|---------|------------|----------------------------|

Mechanical accessories CX

| Art. No. | Model | |
|----------|----------|--|
| 2970307 | TM-AP-CX | Air purge collar, aluminum (anodized) |
| 2970321 | TM-FB-CX | Mounting bracket, adjustable in 1 axis, stainless steel |
| 2970322 | TM-AB-CX | Mounting bracket, adjustable, in 2 axes, stainless steel |

Optical accessories CX

| | | |
|---------|----------|---------------------------------|
| 2970302 | TM-CF-CX | Ancillary CF lens for CX models |
| 2970303 | TM-PW-CX | Protective window for CX models |

Calibration CX

| | | |
|---------|------------|----------------------------|
| 2970323 | TM-CERT-CX | Certificate of calibration |
|---------|------------|----------------------------|



TM-FB-CS mounting bracket, fixed



TM-MG-CS Mounting fork with M12x1 thread, adjustable in two axes



TM-CF-CS Ancillary CF lens (only for LT models)



TM-AP-CS Air purge collar for 10:1 sensors



TM-MB-CS Mounting bolts with M12x1 thread adjustable in one axis



TM-APL-CS Air purge collar, laminar



TM-APLCF-CS Air purge collar, laminar with integrated ancillary CF lens



TM-APL-CS Air purge collar, laminar
TM-MG-CS Mounting fork



TM-AP-CX Air purge collar for CX sensors



TM-CF-CX Ancillary CF lens, TM-PW-CX Protective window



TM-RAM-CS Right angle mirror

Infrared thermal imagers from Micro-Epsilon



thermoIMAGER TIM Compact thermal imaging cameras for industrial temperature monitoring

- Temperature range from -20 °C to 2450 °C
- Ideal for OEM
- Real-time thermography using license-free software
- Protective housing for harsh environments
- Special variants for the glass, metal and plastics industries