



More Precision

thermoMETER // Non-contact IR temperature sensors





thermoMETER CHot

Housed IR temperature sensor for harsh ambient conditions

- Measuring range from -40°C to 975°C
- Up to 250°C ambient temperature without cooling
- Pressure-resistant sensor head up to 10bar (autoclave applications)
- Integrated high temperature cable
- For a number of applications in dryers, kilns, heat treatment in the processing of metals, plastics, textiles and in the semiconductor industry
- Narrow-focussed lenses enable diagonal alignment to the target (avoids influence by material thickness)
- Selectable and scalable analogue output, optional digital interfaces

Optical specifications thermoMETER CHot

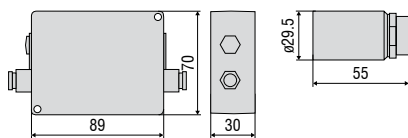
□ = smallest spot size (mm)

| Standard Focus | | | | | | | | | | | |
|----------------------------------|---------------|-----|-----|-----|-----|------|------|------|-----|-----|-----|
| SF02 | 2:1 | 5 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | |
| SF10 | 10:1 | 7 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | |
| | distance (mm) | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | |
| Close Focus (integrated CF lens) | | | | | | | | | | | |
| CF10 | 10:1 | 6.5 | 4.8 | 3 | 9.4 | 17.3 | 25.2 | 33.1 | 41 | 49 | 57 |
| | distance (mm) | 0 | 15 | 30 | 50 | 75 | 100 | 125 | 150 | 175 | 200 |

| Model | CTH-SF02-C3H | CTH-SF10-C3H |
|--------------------------------|--|--|
| Optical resolution | 2:1 | 10:1 |
| Temperature range ¹ | -40°C to 975°C | |
| Spectral range | 8 to 14 μm | |
| System accuracy ² | ±1% or ±1.5°C | |
| Repeatability ² | ±0.5% or ±0.5°C | |
| Temperature resolution | 0.25°C | |
| Response time | 100ms | |
| Emissivity/gain ¹ | 0.100 to 1.100 | |
| Transmissivity ¹ | 0.100 to 1.100 | |
| Signal processing ¹ | peak hold, valley hold, average; extended hold function with threshold and hysteresis | |
| Certificate of calibration | optional | |
| Outputs/analogue | channel 1 | 0/4 - 20mA, 0 to 5/10V, thermocouple J, K |
| | channel 2 | sensor temperature (-20 to 250°C as 0 to 5V or 0 to 10V), alarm output |
| Outputs/analogue | optional | relay: 2 x 60VDC/42VAC _{eff} ; 0.4A; electrically isolated |
| Outputs/digital | optional | USB, RS232, RS485, CAN, Profibus DP, Ethernet |
| Output impedances | current output | mA max. 500Ω (with 5 to 36VDC) |
| | voltage output | min. 100kΩ load impedance; thermocouple 20Ω |
| Inputs | programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions) | |
| Cable length | 3m (standard), 8m, 15m | |
| Power supply | 8 to 36VDC; max. 100mA | |
| Protection class | IP65 (NEMA-4) | |
| Ambient temperature | sensor: -20°C to 250°C controller: 0°C to 85°C | |
| Storage temperature | sensor: -40°C to 250°C controller: -40°C to 85°C | |
| Relative humidity | 10 to 95%, non condensing | |
| Vibration | sensor | IEC 68-2-6: 3 G, 11 to 200Hz, any axis |
| Shock | sensor | IEC 68-2-27: 50 G, 11ms, any axis |
| Weight | sensor: 40g (without massive housing), 200g (with solid case); controller: 420g | |

¹ adjustable via programming keys or software

² at ambient temperature 23 ±5°C and object temperatures ≥20°C; whichever is greater



Product identification

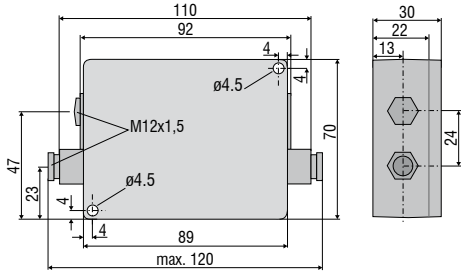
| CTH- | SF02- | C3H |
|-------------------|-------|--|
| | | Length high temperature cable [3m (standard) / 8m / 15m] |
| | | Focus [SF02 / SF10 / CF10] |
| thermoMETER CThot | | |

Accessories page 40-43

- Rail mount adapter for controller
- Digital-interface kits
- Certificate of calibration

CT / CTfast / CTM1/M2/M3

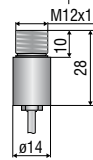
controller



ancillary CF lens (optional)

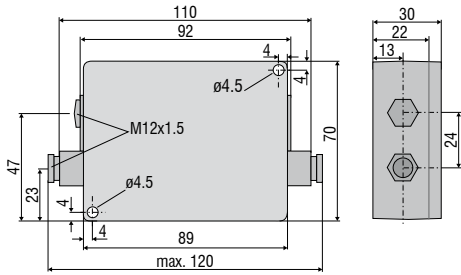


sensor

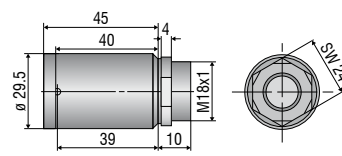


CThot / CTP-3 / CTP-7

controller

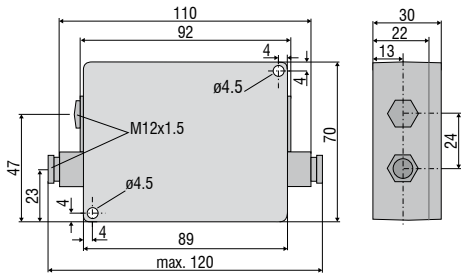


sensor with protective housing

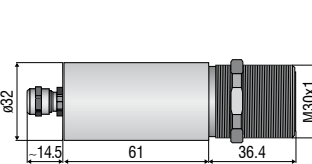


CTM3-XL

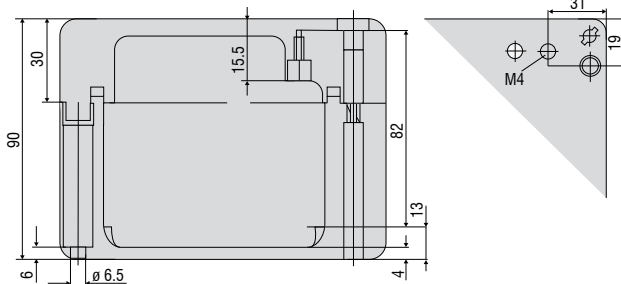
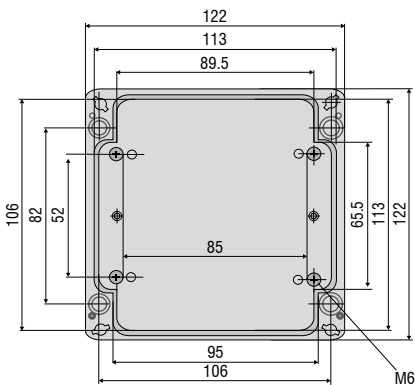
controller



sensor



CTex





| Mechanical accessories | | |
|------------------------|-------------------|---|
| Art. No. | Model | |
| 2970203 | TM-FB-CT | Mounting bracket, fixed |
| 2970325 | TM-FB2-CT | Mounting bracket, adjustable in one axis, for simultaneous assembly of CT sensor and laser sighting aid |
| 2970336 | TM-FBMH-CT | Mounting bracket, adjustable in one axis, for massive housing |
| 2970204 | TM-AB-CT | Mounting bracket, adjustable in 2 axes |
| 2970205 | TM-MB-CT | Mounting bolts with M12x1 thread |
| 2970206 | TM-MG-CT | Mounting fork, adjustable in 2 axes, with M12x1 fastening |
| 2970207 | TM-AP-CT | Air purge collar for sensors from 10:1 lens |
| 2970335 | TM-APS-CT | Air purge collar for sensors from 10:1 lens made from stainless steel |
| 2970208 | TM-AP2-CT | Air purge collar for sensor with 2:1 lens |
| 2970209 | TM-APL-CT | Air purge collar, laminar |
| 2970210 | TM-APLCF-CT | Air purge collar, laminar with integrated ancillary CF lens |
| 2970357 | TM-APLCFH-CT | Air purge collar, laminar with integrated ancillary CF lens for M1/M2/M3/M5 sensors |
| 2970386 | TM-APMH-CT | Air purge collar made from stainless steel for massive housing |
| 2970211 | TM-RAM-CT | Right angle mirror for measurements 90° to the sensor axis |
| 2970212 | TM-RAIL-CT | Rail mount adapter for CT controller |
| 2970213 | TM-COV-CT | Closed cover for controller |
| 2970214 | TM-MHS-CT | Massive housing made from stainless steel |
| 2970215 | TM-MHSFCF-CT | Massive housing made from stainless steel with integrated ancillary CF lens |
| 2970358 | TM-MHSFCFH-CT | Massive housing made from stainless steel with integrated ancillary CF lens for M1/M2/M3/M5 sensors |
| 2970216 | TM-MHA-CT | Massive housing made from anodised aluminium |
| 2970217 | TM-MHACF-CT | Massive housing made from anodised aluminium with integrated ancillary CF lens |
| 2970359 | TM-MHACFH-CT | Massive housing made from anodised aluminium with integrated ancillary CF lens for M1/M2/M3/M5 sensors |
| 2970218 | TM-MHB-CT | Massive housing made from brass |
| 2970219 | TM-MHBFCF-CT | Massive housing made from brass with integrated ancillary CF lens |
| 2970360 | TM-MHBFCFH-CT | Massive housing made from brass with integrated ancillary CF lens for M1/M2/M3/M5 sensors |
| 2970220 | TM-PT-CT | Protective tube made from brass |
| 2970326 | TM-PA-CT | Pipe adapter for the mounting of reflection protection tubes |
| 2970327 | TM-ST20-CT | Reflection protection tube; length 20mm |
| 2970328 | TM-ST40-CT | Reflection protection tube; length 40mm |
| 2970329 | TM-ST88-CT | Reflection protection tube; length 88mm |
| 2970221 | TM-LST-CT | Laser sighting aid for CT sensors incl. batteries (2xAlkaline AA) |
| 2970300 | TM-LSTOEM-CT | OEM laser sighting aid, 635nm, 3.5m cable, for connection to CT controller |
| 2970300-008 | TM-LSTOEM-CT(008) | OEM laser sighting aid, 635nm, 8m cable, for connection to CT controller |
| 2970222 | TM-EX-CT | Accessories kit for using CT in Ex areas (Zone 1: PTB 01 ATEX 2053/ E II (1/2) G [EEx ia/ib] IIC/IIIB), pre-assembled EX box, without Zener barriers, applicable in combination with CT sensors (except for CTfast) |

| Optical accessories | | |
|---------------------|-------------|--|
| Art. No. | Model | |
| 2970201 | TM-CF-CT | Ancillary CF lens (only for SF models) |
| 2970202 | TM-PW-CT | Protective window (only for SF models) |
| 2970297 | TM-CFAG-CT | Ancillary lens with external thread |
| 2970330 | TM-CFH-CT | Ancillary lens for M1/M2/M3/M5 sensors |
| 2970331 | TM-CFHAG-CT | Ancillary lens with external thread for M1/M2/M3/M5 sensors |
| 2970299 | TM-PWAG-CT | Protective window with external thread |
| 2970332 | TM-PWH-CT | Protective window for M1/M2/M3/M5 sensors |
| 2970333 | TM-PWHAG-CT | Protective window with external thread for M1/M2/M3/M5 sensors |

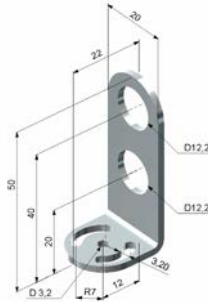
| Interfaces | | |
|------------|------------------|--|
| Art. No. | Model | |
| 2970223 | TM-USBK-CT | USB interface kit: USB interface, USB cable, Software CompactConnect, second cable gland for controller |
| 2970224 | TM-RS232K-CT | RS232 interface: RS232 interface, computer cable, software CompactConnect, second cable gland for controller |
| 2970338 | TM-RS485USBK-CTL | RS485-USB-adapter, incl. PC cable, software CompactConnect and CTmulti, second cable gland for use with interface board TM-RS485B-CT |
| 2970226 | TM-RS485B-CT | RS485 interface board incl. second cable gland |
| 2970227 | TM-CANK-CT | CAN-Bus interface for thermoMETER CT/ protocol: CANopen presettings: module address 20 (14H), 250kbaud, 0-60°C |
| 2970228 | TM-PFBDPK-CT | Profibus-DPV1 interface for thermoMETER CT with plug-in connection |
| 2970229 | TM-ETHNK-CT | Ethernet-Kit: interface board, external Ethernet adapter, software CompactConnect |
| 2970230 | TM-RI-CT | Relay interface: Two electrically isolated relays, 60VDC/ 42VAC _{RMS} , 0.4A |

| Calibration | | |
|-------------|--------------|--|
| Art. No. | Model | |
| 2970231 | TM-CERT-CT | Certificate of calibration |
| 2970310 | TM-HTCERT-CT | Certificate of calibration for CTM sensors |

| CTM3-XL | | |
|----------|--------------|--|
| Art. No. | Model | |
| 2970352 | TM-FBXL-CT | Mounting bracket, adjustable in one axis |
| 2970353 | TM-ABXL-CT | Mounting bracket, adjustable in 2 axes |
| 2970354 | TM-APXL-CT | Air purge collar, stainless steel |
| 2970361 | TM-XLCERT-CT | Certificate of calibration |



TM-LST-CT Laser sighting aid, battery-operated (2x Alkaline AA), for alignment of CT sensors (dimensions identical to CT sensor)



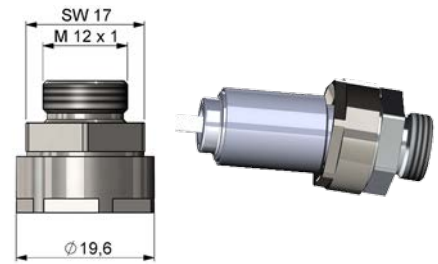
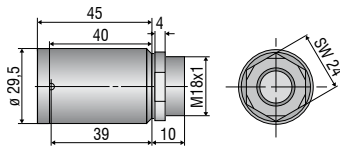
TM-FB2-CT Mounting bracket for sensor and laser sighting aid



TM-RAM-CT Right angle mirror



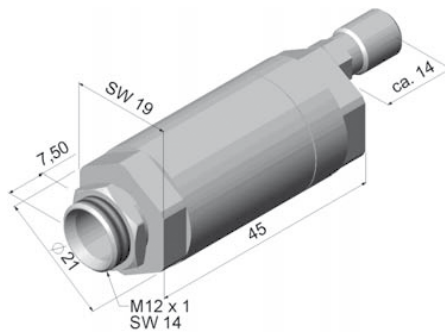
TM-MHS-CT Massive housing, stainless steel
TM-MHA-CT Massive housing, aluminium
TM-MHB-CT Massive housing, brass



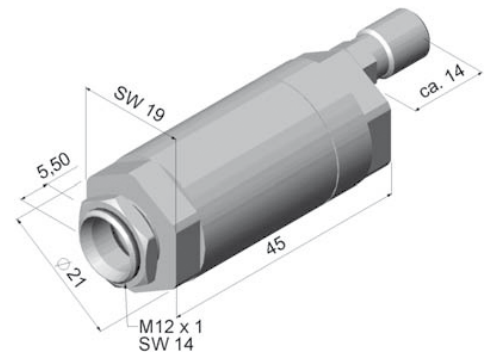
TM-TAS-CT Pivoted joint for CT sensors



Dirt and deposit on the lens like smoke, steam and high air humidity (condensation) are avoided or reduced by using an air purge collar.



TM-AP-CT Standard air purge collar for 10:1 / 15:1 / 22:1 lenses



TM-AP2-CT Standard air purge collar for 2:1 lens

Further IR temperature measurement devices from Micro-Epsilon



thermoIMAGER TIM
Compact USB thermal imaging cameras
for precise thermography



thermoMETER CTVideo/CSVidéo
IR temperature sensors with
crosshair laser sighting and video output



thermoMETER Handheld
Innovative handheld pyrometer with laser
sighting for inspection and maintenance



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