



# More Precision

**thermoMETER**  
Non-contact IR temperature sensors





### thermoMETER CThot

The CThot has been designed for the most extreme temperature environment applications.

The thermopile detector embedded inside the sensor head is absolutely unique. It can measure in an ambient environment of 250°C without any additional external cooling.

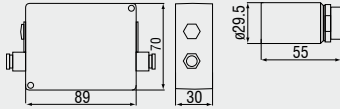
The compact sensor head is housed in a special housing to reduce any thermal shock.

- Measuring range from -40°C to 975°C
- Sensor operates in up to 250°C environment without any cooling
- High pressure stability up to 10bar (autoclave)
- Integrated high temperature cable
- Ideal for applications in dryers, ovens, heat treatment lines in the metal and glass industry, paper, plastic and textile manufacturing and semiconductor processing
- Analogue and digital output, thermocouple J/K emulation and serial interface
- Fully programmable instrument for enhanced signal processing and I/O control
- Separate controller with easy accessible programming keys and multi colour LCD backlit display

### Optical specifications thermoMETER CThot

□ = smallest spot size (mm)

Standard Focus optics										
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 in mm		0	100	200	300	400	500	600	700	800
Close Focus optics (CF lense optional available)										
CF02	2:1	7	5.6	4.3	3	2.6	2.6	3	4.7	6.3
CF10	10:1	7	5	1.2	8	18	24			
distance in mm		0	5	10	15	20	25	30	35	40



### Product identification

**CTH - SF02 - C3H**  
 Cable length [3m (standard) / 8m / 15m]  
 Focus [SF02 / SF10]  
 thermoMETER CThot

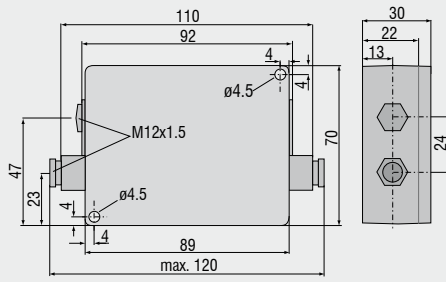
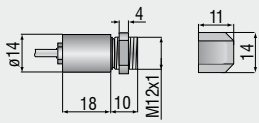
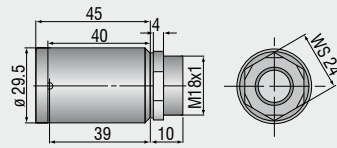
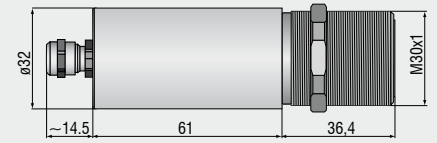
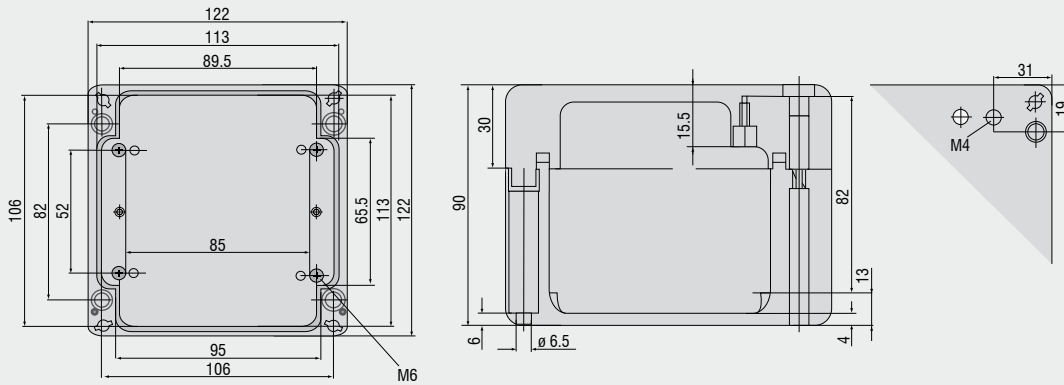
Model	CTH-SF02-C3H	CTH-SF10-C3H
Optical resolution	2:1	10:1
Temperature range <sup>1</sup>	-40 to 975°C	
Spectral range	8 to 14μm	
System accuracy <sup>2</sup>	±1% or ±1.5°C	
Repeatability <sup>2</sup>	±0.5% or ±0.5°C	
Temperature resolution	±0.25°C	
Response time	100ms	
Emissivity/gain <sup>1</sup>	0.100 to 1.100	
Transmissivity/gain <sup>1</sup>	0.100 to 1.100	
Signal processing <sup>1</sup>	Peak hold, valley hold, average; extended hold function with threshold and hysteresis	
Certificate of calibration	optional	
Outputs/analogue	channel 1 channel 2 optional	0/4 to 20mA, 0 to 5/10V, thermocouple J, K sensor temperature (-20 to 250°C as 0 to 5V or 0 to 10V), alarm output relay: 2 x 60VDC/ 42VAC <sub>eff</sub> ; 0.4A; optically isolated
Outputs/digital	optional	USB, RS232, RS485, CAN, Profibus DP, Ethernet
Output impedances	current output voltage output	mA max. 500Ω (5 to 36VDC) mV 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	
Environmental rating	IP 65 (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); controller: 420g	

<sup>1</sup> adjustable via programming keys or software

<sup>2</sup> ± ambient temperature: 23±5°C; whichever is greater; at object temperatures ≥20°C

### Accessories page 42 - 45

- ▶ Rail mount adapter for controller
- ▶ Digital-Interface kit
- ▶ Software CompactConnect
- ▶ Relay output module
- ▶ Certificate of calibration

**Controller****CT / CTfast / CTM1/M2/M3****CThot / CTP7****CTM3-XL****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-tool
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 bolt with M12x1 thread
2970206	TM-MG-CT	Mounting fork, adjustable in 2 axes, with thread M12x1
2970207	TM-AP-CT	Air purge collar from 10:1 optics
2970335	TM-APS-CT	Air purge collar from 10:1 optics, stainless steel
2970208	TM-AP2-CT	Air purge collar for 2:1 optic
2970209	TM-APL-CT	Air purge collar, laminar
2970210	TM-APLCF-CT	Air purge collar, laminar, with integral CF-lens
2970357	TM-APLCFH-CT	Air purge collar, laminar, with integral CF-lens for M1/M2/M3/M5 sensors
2970386	TM-APMH-CT	Air purge collar, stainless steel for massive housing
2970211	TM-RAM-CT	Right angle mirror for 90°C measurements
2970212	TM-RAIL-CT	Rail mount adapter for CT controller
2970213	TM-COV-CT	Closed cover for controller
2970214	TM-MHS-CT	Massive housing, compact, stainless steel
2970215	TM-MHS-CF-CT	Massive housing, compact, stainless steel with integrated CF-lens
2970358	TM-MHSCFH-CT	Massive housing, compact, stainless steel with integrated CF-lens for M1/M2/M3/M5 sensors
2970216	TM-MHA-CT	Massive housing, compact, anodized aluminium
2970217	TM-MHACF-CT	Massive housing, compact, anodized aluminium with integrated CF-lens
2970359	TM-MHACFH-CT	Massive housing, compact, anodized aluminium with integrated CF-lens for M1/M2/M3 sensors
2970218	TM-MHB-CT	Massive housing, compact, brass
2970219	TM-MHBCF-CT	Massive housing, compact, brass with integrated CF-lens
2970360	TM-MHBCFH-CT	Massive housing, compact, brass with integrated CF-lens for M1/M2/M3/M5 sensors
2970220	TM-PT-CT	Protective tube, lang, brass
2970326	TM-PA-CT	Pipe adapter for sighting tube
2970327	TM-ST20-CT	Sighting tube, length 20mm
2970328	TM-ST40-CT	Sighting tube, length 40mm
2970329	TM-ST88-CT	Sighting tube, length 88mm
2970221	TM-LST-CT	Laser sighting tool for CT sensors incl. batteries (2xalkaline cells AA)
2970300	TM-LSTOEM-CT	OEM Laser pointing device, 635nm, rotation symmetrical, 3.5m cable
2970300.008	TM-LSTOEM-CT(008)	OEM Laser pointing device, 635nm, rotation symmetrical, 8m cable
2970222	TM-EX-CT	CTex-Kit: Accessory-Kit for use of the CT in hazardous locations according zone 1: PTB 01 ATEX 2053/ E II (1/2) G [EEx ia/ib] IIC/IIB, preassembled Ex-box without zener barriers, combinable with all standard CT SF sensors (except CTfast)

**Optical accessoires**

Art. No.	Model	
2970201	TM-CF-CT	CF-lens (SF sensors only)
2970202	TM-PW-CT	Protective window (SF sensors only)
2970297	TM-CFAG-CT	Lens with external thread
2970330	TM-CFH-CT	Lens for M1/M2/M3 sensors
2970331	TM-CFHAG-CT	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 incl. computer cable, software CompactConnect
2970224	TM-RS232K-CT	RS232 interface kit incl. computer cable, software CompactConnect
2970338	TM-RS485USBK-CT	RS485-USB-adapter, incl. PC cable, software CTconnect, terminal block, for use with TM-485B-CT
2970227	TM-CANK-CT	CAN-Bus interface for optris CT/ protocol: CANopen Presettings: module address 20 (14H), 250kBaud, 0-60°C
2970228	TM-PFBDPK-CT	Profibus-DPv1 interface for CT selectable with DIN M12 or SUB-D connection
2970229	TM-ETHNK-CT	Profibus-DPv1 interface for CT selectable with DIN M12 or SUB-D connection
2970230	TM-RI-CT	Relay interface: Two optically isolated relays, 60VDC/ 42VACRMS, 0,4A
2970226	TM-RS485B-CT	RS485 interface

**Calibration**

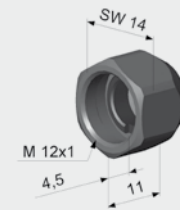
Art. No.	Model	
2970231	TM-CERT-CT	Certificate of calibration acc. ISO9001: testing procedure with defined ambient temperatures, target dimensions and distances; Test temperatures 20°C/ 100°C/ 500°C
2970310	TM-HTCERT-CT	Certificate of calibration for CTM sensors

**CTM3-XL**

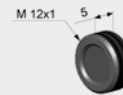
Art. No.	Model	
2970352	TM-FBXL-CT	Mounting bracket, adjustable in one axis
2970353	TM-ABXL-CT	Mounting bracket, adjustable in two axes
2970354	TM-APXL-CT	Air purge collar
2970361	TM-XLCERT-CT	Certificate of calibration



TM-FB-CT Mounting bracket, fixed



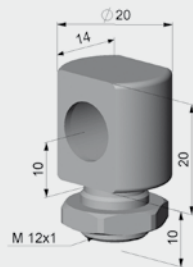
TM-CF-CT Close Focus Lens (SF sensors only)



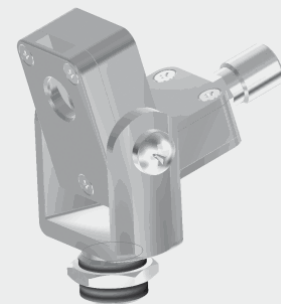
TM-CFAG-CT CF lens with external thread resp.  
TM-PWAG-CT Protective window with external thread



TM-AB-CT Mounting gimble, adjustable in two axes



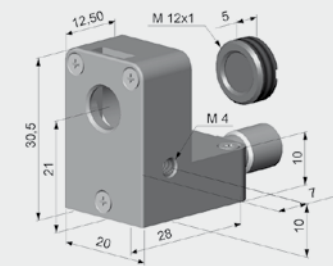
TM-MB-CT Mounting bolt with M12x1 thread adjustable



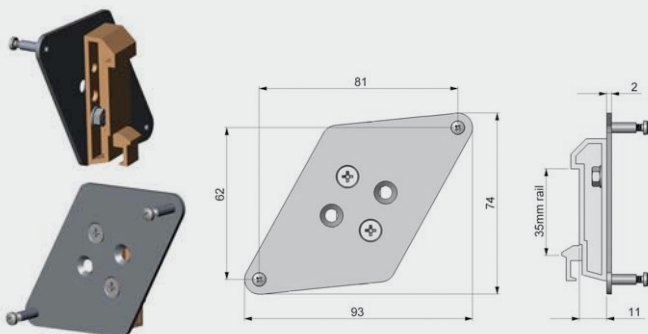
TM-APL-CT Laminar air purge collar and  
TM-MG-CT Mounting fork



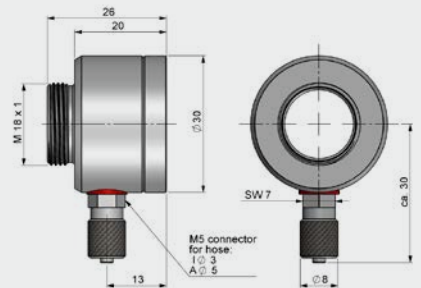
TM-MG-CT Mounting fork with M 12x1 thread adjustable in two axes



TM-APLCF-CT  
CF lense/ protective window - integral  
option for air purge collar



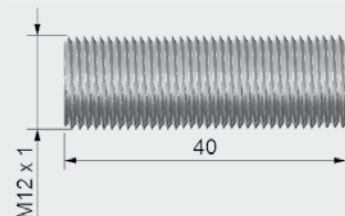
TM-RAIL-CT Rail mount adapter for controller



TM-APMH-CT Air purge collar,  
stainless steel for massive housing



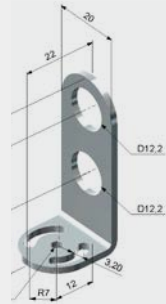
TM-PA-CT Pipe adapter for sighting tube



TM-ST40-CT Sighting tube



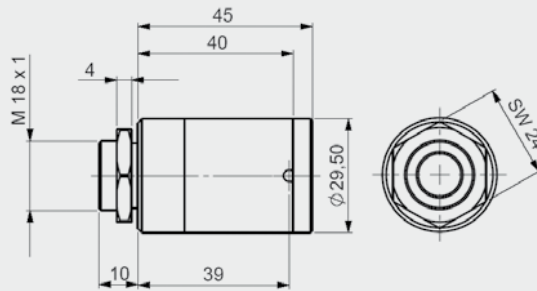
TM-LST-CT  
Laser-Sighting tool



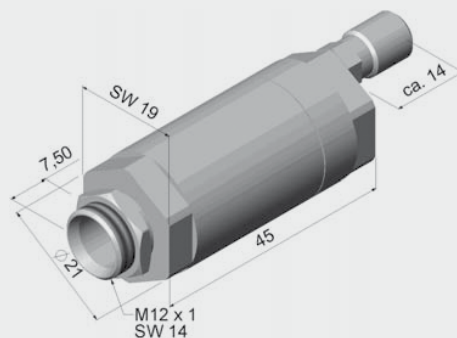
TM-FB2-CT  
Laser-Sighting mounting bracket



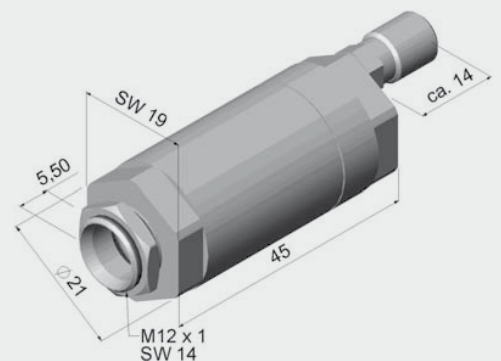
TM-RAM-CT  
Right angle mirror



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



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



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

The lens must be kept clean at all times from dust, smoke, fumes and other contaminants in order to avoid reading errors. These effects can be reduced by using an air purge collar.

## High performance sensors made by Micro-Epsilon



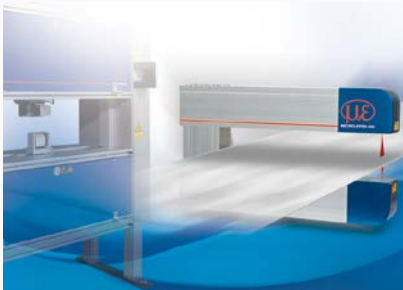
Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Measurement and inspection systems for quality assurance



Optical micrometers, fibre optic sensors and optical fibres



Colour recognition sensors, LED analysers and colour online spectrometer



MICRO-EPSILON Headquarters  
Koenigbacher Str. 15 · 94496 Ortenburg / Germany  
Tel. +49 (0) 8542 / 168-0 · Fax +49 (0) 8542 / 168-90  
info@micro-epsilon.com · www.micro-epsilon.com

MICRO-EPSILON UK Ltd.  
No.1 Shorelines Building · Shore Road · Birkenhead · CH41 1AU  
Phone +44 (0) 151 355 6070 · Fax +44 (0) 151 355 6075  
info@micro-epsilon.co.uk · www.micro-epsilon.co.uk