



More Precision

thermoMETER // Non-contact IR temperature sensors





thermoMETER CTM1/M2

Miniaturised temperature sensor with 1.0 and 1.6 μ m measuring wavelength

- Measuring range from 250°C to 2200°C
- Up to 125°C ambient temperature without cooling
- For metal processing such as welding, soldering, forming, sintering and for measurements of metal oxides and ceramics
- Extended compensation for measuring errors using short measuring wavelength (e.g. with emissivity changes or misadjustment)
- High compatibility with electromagnetic fields e.g. with induction welding
- Compact sensor for installation even in confined space
- Selectable and scalable analogue output, optional digital interfaces

Optical specifications thermoMETER CTM1/M2

□ = smallest spot size (mm)

Standard Focus										
1SF40/2SF40	40:1	7	7	10	15	20	25	30	35	40
1SF75/2SF75	75:1	7	7	7	8	11	14	17	20	23
distance (mm)		0	200	400	600	800	1000	1200	1400	1600
Close Focus (integrated CF lens)										
1CF40/2CF40	40:1	6.5	4.5	2.7	6	10.3	14.5	18.6	22.8	27
1CF75/2CF75	75:1	6.5	3.8	1.5	4.4	8.1	11.7	15.4	19	22.6
distance (mm)		0	60	110	150	200	250	300	350	400

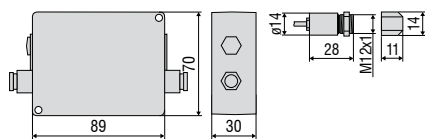
Model	CTM-1SF40-C3	CTM-1SF75-C3	CTM-1SF75H1-C3	CTM-2SF40-C3	CTM-2SF75-C3	CTM-2SF75H1-C3
Optical resolution	40:1	75:1		40:1	75:1	
Temperature range ¹	485 to 1050°C	650 to 1800°C	800 to 2200°C	250 to 800°C	385 to 1600°C	490 to 2000°C
Spectral range	1.0µm			1.6µm		
System accuracy ^{2,3}	±(0.3% of reading + 2°C)					
Repeatability ²	±(0.1% of reading + 1°C)					
Temperature resolution	0.1°C					
Response time ⁴	1ms (90%)					
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				
Outputs/analogue	optional	relay: 2 x 60VDC/42VAC _{eff} ; 0.4A; electrically isolated				
Alarm output		open - collector (24V/ 50mA)				
Outputs/digital	optional	USB, RS232, RS485, CAN, Profibus DP, Ethernet				
Output impedances	current output	mA max. 500Ω (with 8 - 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)				
Umgebungs-temperatur	sensor	-20°C to 100°C			-20°C to 125°C	
	controller	0°C to 85°C				
Storage temperature	sensor	-40°C to 100°C			-40°C to 125°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; controller: 420g				

¹ adjustable via programming keys or software

² at ambient temperature: 23 ± 5°C

³ ε = 1, response time 1s

⁴ with dynamic adaption at low signal levels



Product identification

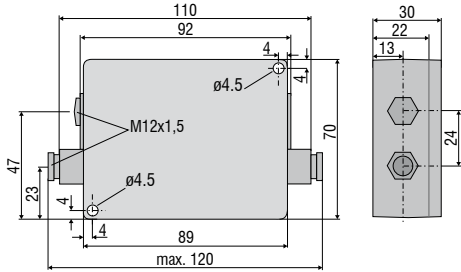
CTM-	1	SF40-	C3
Cable length [3m (standard) / 8m / 15m]			
Focus [SF40 / SF75 / CF40 / CF75]			
Spectral range [1µm / 1.6µm]			
thermoMETER CTM			

Accessories page 40-43

- Protective window
- Mounting bracket / Mounting bolt
- Air purge collar
- Right angle mirror
- Rail mount adapter for controller
- Massive housing
- Protective tube
- Laser sighting aid
- Digital-interface kits
- Certificate of calibration

CT / CTfast / CTM1/M2/M3

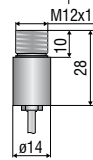
controller



ancillary CF lens (optional)

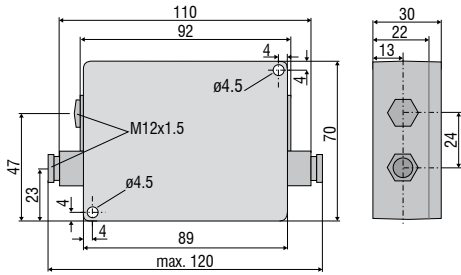


sensor

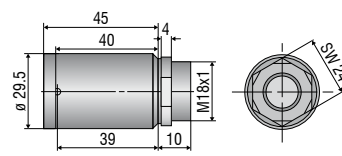


CThot / CTP-3 / CTP-7

controller

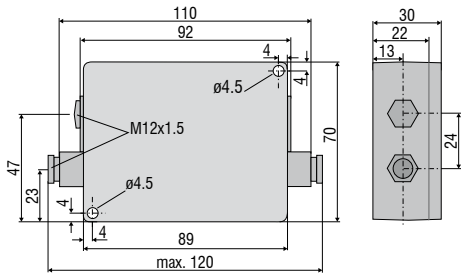


sensor with protective housing

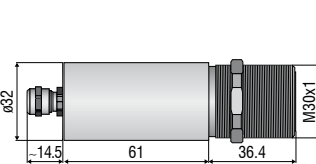


CTM3-XL

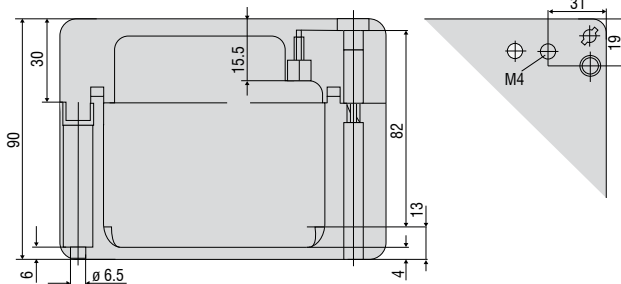
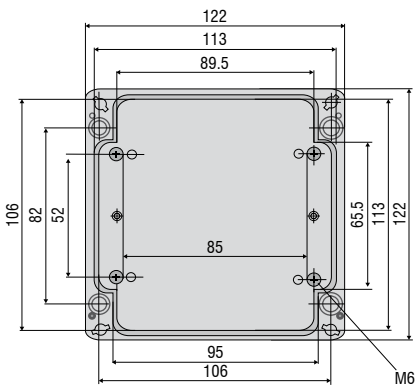
controller



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-MHSCF-CT	Massive housing made from stainless steel with integrated ancillary CF lens
2970358	TM-MHSCFH-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-MHBCF-CT	Massive housing made from brass with integrated ancillary CF lens
2970360	TM-MHBCFH-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

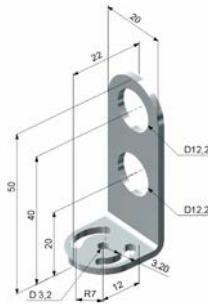
Interfaces		
Art. No.	Model	
2970223	TM-USBK-CT	USB interface kit: USB interface, USB cable, Software CompactConnect, second cable gland for controller
2970224	TM-RS232K-CT	RS232 interface: RS232 interface, computer cable, software CompactConnect, second cable gland for controller
2970338	TM-RS485USBK-CTL	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)



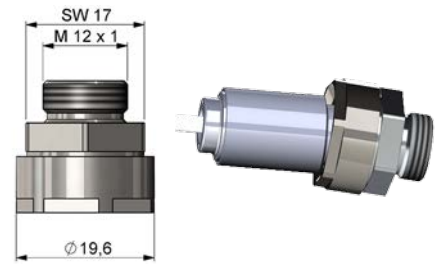
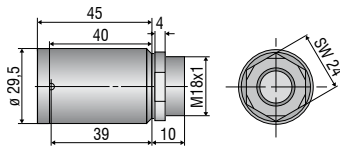
TM-FB2-CT Mounting bracket for sensor and laser sighting aid



TM-RAM-CT Right angle mirror



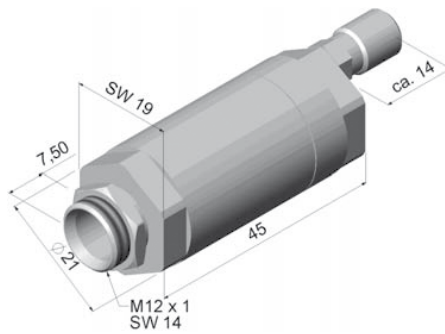
TM-MHS-CT Massive housing, stainless steel
TM-MHA-CT Massive housing, aluminium
TM-MHB-CT Massive housing, brass



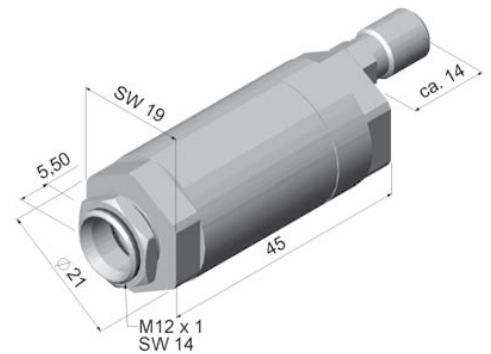
TM-TAS-CT Pivoted joint for CT sensors



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

