



More Precision

thermoMETER
Non-contact IR temperature sensors





thermoMETER CSmicro

This non contact infrared temperature sensor is the world's smallest IR instrument. With just the compact optical head left, this instrument is perfect for the integration in space restricted applications. The electronic is miniaturised and integrated inside the sensor cable. The CSmicro is fully programmable and is available in four basic models, where each has a unique feature to succeed in the most challenging applications.

- Measuring range from -40 to 1030°C
- Up to 120°C ambient temperature without cooling (sensing head)
- Robust precision silicon optics with AR coating
- Integrated controller with LED alarm indicator and smart electronic sighting support, selfdiagnostic or temperature code indication
- Micro electronics integrated into the cable, field programmable; adjustable emissivity
- Scalable 4-20mA analogue output / additional simultaneous alarm output
- Short circuit and reverse polarity protection
- Programmable controller
- Optional USB programming interface and software

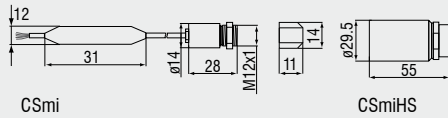
Optical specifications thermoMETER CSmicro

□ = smallest spot size (mm)

Standard focus optics										
SF02	2:1	5	50	100	150	200	250	300	350	400
SF15	15:1	7	8	13	20	27	33	40	47	53
distance (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
CF15	15:1	7	5	0.8	5	11	16	21	27	32
distance (mm)		0	5	10	15	20	25	30	35	40

Product identification

CSmi - SF15 - C1
 Cable length
 Fokus [SF / CF]
 thermoMETER CSmi



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 14µm		
System accuracy	±1.5% or ±1.5°C ³		±1.0% or ±1.0°C ⁴
Repeatability	±0.75% or ±0.75°C ³		±0.3% or ±0.3°C ⁴
Temperature coefficient	± 0.05 K/K or ± 0.05% K ⁵		
Temperature resolution	0.1°C ⁶		0.025°C ⁶
Response time (90%)	30ms (adjustable up to 999s via optional programming device)		150ms (adjustable up to 999s via optional programming device)
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 controller	length 35mm; ø12mm		
Outputs/analogue	0 to 5V or 0 to 10V 1/10/100 mV/°C		4 to 20mA
Loop resistance	-		1000Ω ⁷
Outputs/alarm	Alarm (50mA / 24V)		0-30V / 500mA (open collector)
Outputs/digital (optional)	uni/bidirectional, 9.6 kBaud, 0/3V digital level/USB optional		
Inputs	programmable functional input for external emissivity adjustment (0 - 5VDC), hold function or USB communication		programmable functional input for triggered signal output or peak-hold function
LED functions	alarm indication, automatic aiming support, self diagnostic, temperature indication (via temp. code)		
Cable length	1m (standard); 0.5m between sensor and controller; 0.4m between controller and terminal		4m (0.5m sensor-controller) sensor with massive housing TM-MHS-CT ø29.5mm x 55mm
Power supply	9mA (5 to 30VDC)		4...20mA (5 to 30VDC)
Environmental rating	IP 65 (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 - 95%, non condensing		
Vibration	IEC 68-2-6: 3G, 11-200Hz, any axis		
Shock	IEC 68-2-27: 50G, 11ms, any axis		
Weight	42g		200g

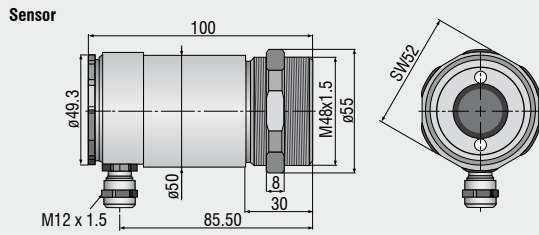
¹ adjustable via software² adjustable via 0 - 5VDC input or software³ ± at ambient temperature 23±5°C; object temperature >0°C; whichever is greater⁴ ± at ambient temperature 23±5°C; object temperature >20°C; whichever is greater⁵ object temperature <100°C; and time constant >0.2s⁶ object temperature > 20°C; and time constant >0.2s⁷ in dependence on supply voltage

Accessories page 56 - 57

- ▶ CF lense
- ▶ Protective window
- ▶ Mounting bracket / Mounting bolt

- ▶ Air purge collar
- ▶ Right angle mirror
- ▶ USB Kit

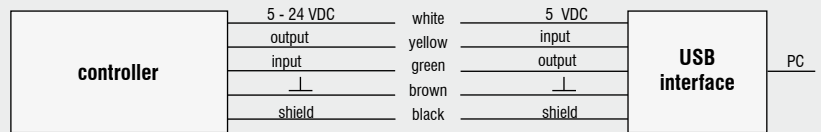
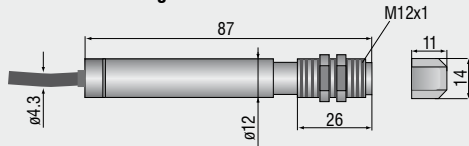
CSLaser



CS

sensor with integrated controller

CF lense

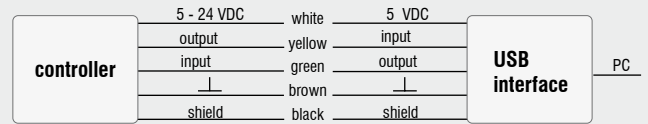
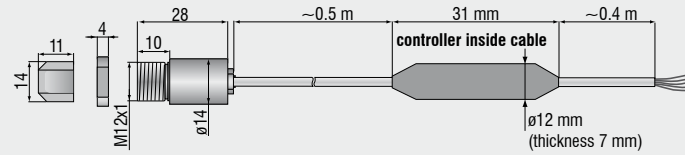


CSmicro / CSmicro 2W

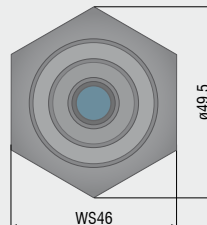
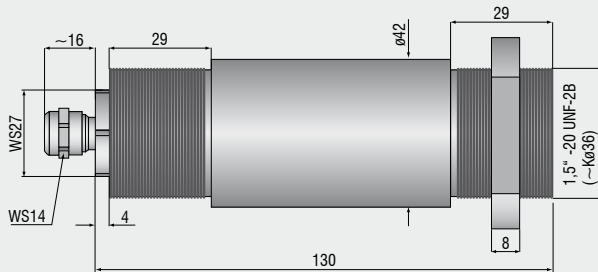
CF lense

sensor

controller inside cable



CX



Mechanical accessories CS / CSmicro / CSmicro 2W

Art. No.	Model	Description
2970279	TM-FB-CS	Mounting bracket, fixed
2970280	TM-AB-CS	Mounting bracket, adjustable
2970281	TM-MB-CS	Mounting bolt with M12x1 thread
2970282	TM-MG-CS	Mounting fork, adjustable in 2 axes, with thread M12x1
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, integrated CF-lens
2970286	TM-RAM-CS	Right angle mirror for 90°C measurements
2970287	TM-USBK-CS	USB interface kit incl. software CompactConnect

Mechanical accessories CX

Art. No.	Model	Description
2970307	TM-AP-CX	Air purge collar, aluminium (anodized)
2970321	TM-FB-CX	Mounting bracket, adjustable in one axis, stainless steel
2970322	TM-AB-CX	Mounting bracket, adjustable in two axes, stainless steel
2970311	TM-USBK-CX	USB-Kit: USB programming adapter, Software CompactConnect

Optical accessories CX

2970302	TM-CF-CX	CF-lens for thermoMETER CX
2970303	TM-PW-CX	Protective window for thermoMETER CX

Optical accessories CS / CSmicro / CSmicro 2W

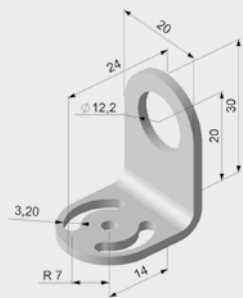
2970277	TM-CF-CS	CF-Lens for CS series
2970278	TM-PW-CS	Protective window for CS series

Calibration CX

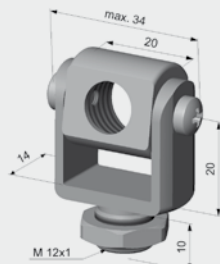
2970323	TM-CERT-CX	Certificate of calibration
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Calibration CS / CSmicro / CSmicro 2W

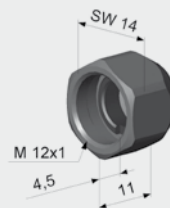
2970288	TM-CERT-CS	Certificate of calibration
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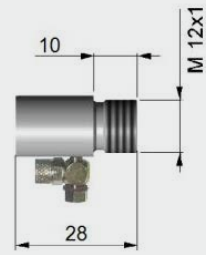
TM-FB-CS Mounting bracket, fixed



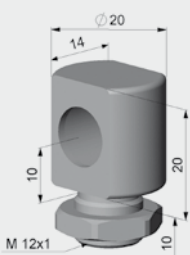
TM-MG-CS Mounting fork with M 12x1 thread adjustable in two axes



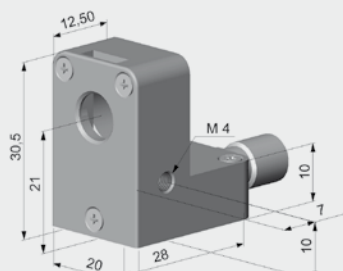
TM-CF-CS Close Focus Lens (LT sensors only)



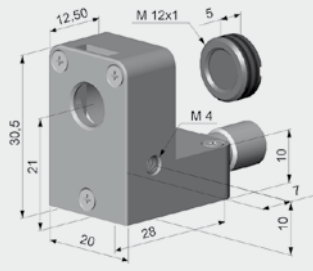
TM-AP-CS Air purge collar for 10:1 sensors



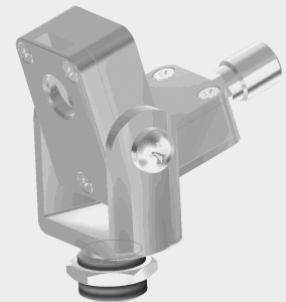
TM-MB-CS Mounting bolt with M12x1 thread adjustable



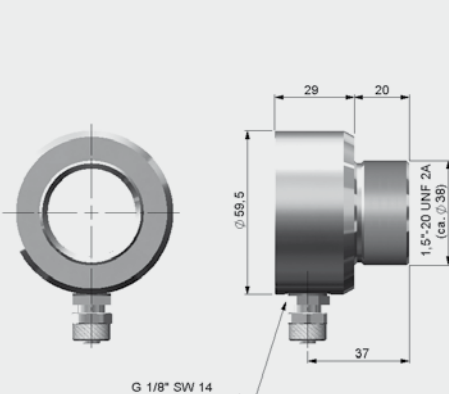
TM-APL-CS Air purge collar



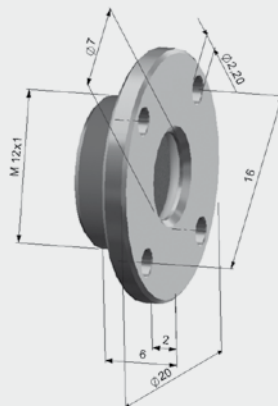
TM-APLCF-CS Air purge collar, laminar, integrated CF-lens



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



TM-AP-CX Air purge collar CX sensors



TM-CF-CX CF-Lens
TM-PW-CX Protective window



TM-RAM-CS Right angle mirror

High performance sensors made by Micro-Epsilon



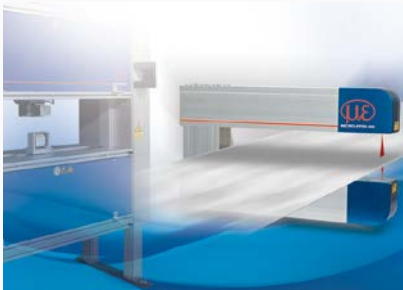
Sensors and systems for displacement and position



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



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