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More Precision

thermoMETER // Non-contact infrared temperature sensors





thermoMETER CTLaser

Innovative infrared temperature sensor with laser sighting

- Measuring range from -50 °C to 975 °C
- Smallest spots from 0.9 mm - even with low object temperatures
- Double laser sighting for exact measuring field marking and focusing
- Optical system 75:1 with selectable focus settings
- Separate controller with programming keys and backlit display
- Up to 85 °C ambient temperature without cooling
- Automatic laser switch-off at 50 °C
- Selectable and scalable analog output, optional digital interfaces

Optical specifications thermoMETER CTLaser

□ = smallest spot size / focal point (mm)

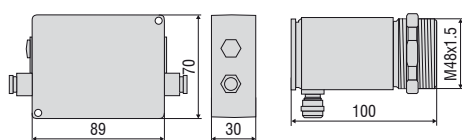
Standard Focus																	
SF75 lens	75:1	20	19.5	19	18.5	18	17.5	17	16.5	16	20.5	25	34	43	52		
distance in mm		0	150	300	450	600	750	900	1050	1200	1350	1500	1800	2100	2400		
Close Focus																	
CF1 lens	75:1	20	9.1	6.4	0.9	9.9	24.8	39.7	54.6	69.6	84.5	99.4	114.4	129.3	159.1	189	218.9
CF2 lens	75:1	20	15.2	14	11.6	7.9	1.9	9.2	16.5	23.8	31.1	38.4	45.7	53	67.6	82.2	96.8
CF3 lens	75:1	20	16.6	15.7	14	11.4	7.1	2.75	8.4	14.1	19.8	25.5	31.2	36.9	48.3	59.6	71
CF4 lens	75:1	20	18.7	18.4	17.8	16.9	15.3	13.7	12.2	10.6	9	7.5	5.9	8.8	14.5	20.3	26
distance in mm		0	40	50	70	100	150	200	250	300	350	400	450	500	600	700	800

Model		CTL-SF75-C3
Optical resolution		75:1
Temperature range ¹⁾		-50 °C to 975 °C
Spectral range		8 to 14 µm
System accuracy ^{2), 3)}		±1 % or ±1 °C
Repeatability ²⁾		±0.5 % or ±0.5 °C
Temperature resolution		0.1 °C
Response time (90 % signal)		120 ms
Emissivity/gain ¹⁾		0.100 to 1.100
Transmissivity/gain ¹⁾		0.100 to 1.000
Signal processing ¹⁾		peak hold, valley hold, average; extended hold function with threshold and hysteresis
Certificate of calibration		optional
Outputs/analog	channel 1	0/4 to 20 mA, 0 to 5/10 V, thermocouple J, K
	channel 2	sensor temperature (-20 to 180 °C as 0 to 5 V or 0 to 10 V), alarm output
Outputs/analog	optional	relays: 2 x 60 VDC/42 VAC _{eff} ; 0.4 A; electrically isolated
Alarm output		open collector (24 V / 50 A)
Outputs/digital		optional USB, RS232, RS485, Modbus RTU, Profibus DP, Ethernet
Output impedances	current output	mA max. 500 Ω (with 5 to 36 VDC)
	voltage output	min. 100 kΩ load impedance, thermocouple 20 Ω
Inputs		programmable functional inputs for external emissivity adjustment ambient temperature compensation, trigger (reset of hold functions)
Cable length		3 m (standard), 8 m, 15 m
Power supply		8 to 36 VDC; max. 160 mA
Laser		class II (635 nm), 1 mW, ON/OFF via controller or software
Protection class		IP65 (NEMA-4)
Ambient temperature		sensor: -20 °C to 85 °C (50 °C if Laser ON); controller: 0 °C to 85 °C
Storage temperature		sensor: -40 °C to 85 °C; controller: -40 °C to 85 °C
Relative humidity		10 to 95 %, non-condensing
Vibration	sensor	IEC 68-2-6: 3 G, 11 to 200 Hz, any axis
Shock	sensor	IEC 68-2-27: 50 G, 11 ms, any axis
Weight		sensor: 600 g; controller: 420 g

¹⁾ adjustable via programming keys or software

²⁾ ambient temperature: 23 ±5 °C; whichever is greater

³⁾ temperature of the object > 0 °C



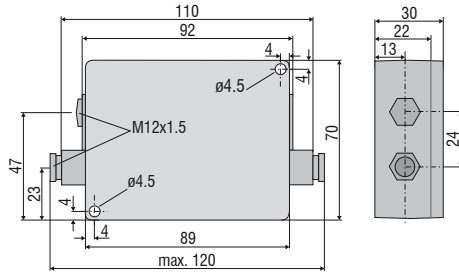
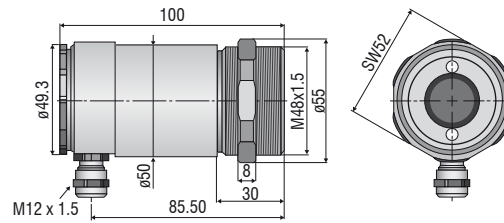
Product identification

CTL -	SF75-	C3
		Cable length [3 m (standard) / 8 m / 15 m]
		Focus [SF75 / CF1 / CF2 / CF3 / CF4]
		thermoMETER CTLaser

Accessories page 8 - 9

- Mounting bracket
- Air purge collar
- Rail mount adapter for controller
- Water cooled housing
- Interface kit
- CompactConnect software
- Certificate of calibration



CTLaser**Controller****Sensor**

TM-FB-CTL Mounting bracket (fixed);
included in CTL scope of supply



TM-AB-CTL Mounting bracket (adjustable)



TM-W-CTL Water cooled housing and
air purge collar TM-AP-CTL,
mounted on adjustable mounting bracket TM-AB-CTL



TM-W-CTL Water cooled housing



TM-AP-CTL Air purge collar



TM-CJA-CTL Cooling Jacket Advanced - cooling jacket suitable for ambient temperatures up to 315 °C (mounting bracket is included in the scope of delivery)



TM-PF-CTL and TM-MF-CTL mounting flange M48x1.5 for directly mounting a CTL sensor



TM-RM-CTL Furnace wall mount accessory for CTLaser: TM-MF-CTL, TM-PF-CTL, TM-AST300-CTL and TM-PA-CTL

Mechanical accessories		
Art. No.	Model	
2970238	TM-AB-CTL	Mounting bracket, adjustable, stainless steel
2970239	TM-AP-CTL	Air purge collar, stainless steel
2970241	TM-RAIL-CTL	Rail mount adapter for CTLaser controller
2970242	TM-COV-CTL	Closed cover for controller
2970243	TM-MN-CTL	Mounting nut, stainless steel (spare)
2970244	TM-FB-CTL	Mounting bracket, fixed, stainless steel (spare)
2970298	TM-A20UN-CTL	Screw adapter M48x1.5 on 20UN-2A screw including mounting nut
High temperature accessories		
2970240	TM-W-CTL	Water cooled housing, stainless steel, for ambient temperatures up to 175 °C
2970369	TM-MF-CTL	Mounting flange M48x1.5 for TM-PF-CTL
2970370	TM-AST300-CTL	Reflection protection tube M48x1.5, 300 mm length
2970371	TM-PA-CTL	Pipe adapter M48x1.5
2970372	TM-RM-CTL	Furnace wall mount accessory for CTL (TM-MF-CTL, TM-AST300-CTL and TM-PA-CTL)
2970412	TM-PF-CTL	Pipe flange M48x1.5 for directly mounting a CTL sensor
2970487	TM-CJA-CTL	Cooling Jacket Advanced - universal cooling jacket for CSLaser, CTLaser up to 315 °C (TM-CJA-FP-CTL front attachment is additionally required)
2970493	TM-CJA-FP-CTL	Front attachment for CTL, CSL
Calibration		
2970253	TM-CERT-CTL	Certificate of calibration
Interfaces		
2970728	TM-USBK-CTL	USB-interface board, cable with Micro-USB plug and adapter for USB-C- and USB-A, CompactConnect software (as download link), Quick reference, second cable gland for controller
2970246	TM-RS232K-CTL	RS232 interface, computer cable, CompactConnect software, second cable gland for controller
2970338	TM-RS485USBK-CTL	RS485-USB-adapter, incl. PC cable, CompactConnect software and CTmulti, second cable gland for use with interface board TM-RS485B-CTL
2970248	TM-RS485B-CTL	RS485-interface board incl. second cable gland
2970250	TM-PFBDPK-CTL	Profibus-DPV1 interface with plug-in connection
2970251	TM-ETHNK-CTL	Ethernet-Kit: interface board, external Ethernet adapter, CompactConnect software, second cable gland
2970252	TM-RI-CTL	Relay interface: two electrically isolated relays, 60 VDC/ 42 VAC _{eff} , 0.4 A
2970711	TM-MBRTU-CTL	Modbus-RTU-interface board incl. second cable gland

Infrared thermal imagers from Micro-Epsilon



thermoIMAGER TIM Compact thermal imaging cameras for industrial temperature monitoring

- Temperature range from -20 °C to 1900 °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