



thermoMETER CTM-3XL

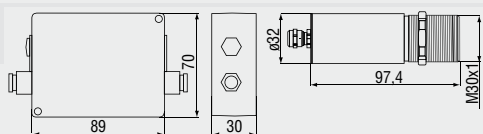
This state of the art non contact infrared temperature sensor operates with a wavelength of $2.3\mu\text{m}$. This special spectral range minimises the emissivity errors and allows readings through glass down to low temperatures of 100°C . A special filter blocks all visible light and no visible up to 1800nm , as well as the $10.6\mu\text{m}$ wavelength.

- Temperature measurement from 100°C to 1800°C
- For laser material processing, laser welding and laser soldering
- Special blocking filter against laser radiation from almost all laser diodes and solid state lasers (VIS to 1800nm and $10.6\mu\text{m}$)
- FF: Far focus optics for use with laser collimator optics
- CF: close focus optics for miniature spot size of 0.5mm
- Operation temperature up to 85°C without cooling
- Short wave length range of $2.3\mu\text{m}$ to minimise error when measuring against materials with unknown emissivity
- Measures through glass

Optical specifications thermoMETER CTM-3XL

□ = smallest spot size (mm)

Standard Focus optics															
SF100	100:1	20	19	18	17	16	15	14	12	11	13	16	20	28	38
SF300 H1/H2/H3	300:1	20	17.8	15.5	13.2	11	8.6	6.4	4.8	3.7	5.5	8.6	11.8	17	26.6
distance in mm		0	150	300	450	600	750	900	1000	1100	1200	1350	1500	1750	2200
Close Focus optics															
CF1-100	100:1	20	9	0.7	9.6	24.4	39.2	54	69	99	128	158	187	217	
distance in mm		0	40	70	100	150	200	250	300	400	500	600	700	800	
Close Focus optics															
CF2-100	100:1	20	14	7.7	1.5	8.7	16	23	38	52	66	81	95		
CF2-300 H1/H2/H3	300:1	20	13.5	7	0.5	7.3	14	21	34.5	48.2	61.8	75.4	89		
CF3-100	100:1	20	15.5	11	6.5	2	7.5	13	24	35	46	57	68		
CF3-300 H1/H2/H3	300:1	20	15.2	10.3	5.5	0.7	5.8	11	21.2	31.5	41.8	52.1	62.4		
distance in mm		0	50	100	150	200	250	300	400	500	600	700	800		
Close Focus optics															
CF4-100	100:1	20	18.3	16.6	14.9	13.2	11.4	9.7	8	6.3	4.5	7.3	13	19	24
CF4-300 H1/H2/H3	300:1	20	18	16	13.8	11.8	9.7	7.6	5.6	3.5	1.5	3.8	8.6	13.3	18
distance in mm		0	50	100	150	200	250	300	350	400	450	500	600	700	800



Product identification

CTM - 3 SF100XL - C3

Cable length [3m]
 Focus [see optical specifications]
 Spectral range [2.3 μ m]
 thermoMETER CTM

Model	CTM-3SF100XL-C3	CTM-3SF300XLH1-C3	CTM-3SF300XLH2-C3	CTM-3SF300XLH3-C3
Optical resolution ¹	100:1	300:1	300:1	300:1
Temperature range ^{2,3}	100 to 600°C	150 to 1000°C	200 to 1500°C	250 to 1800°C
Spectral range	2.3 μ m			
System accuracy ^{4,5}	\pm (0.3% of reading + 2°C)			
Repeatability ⁴	\pm (0.1% of reading + 1°C)			
Temperature resolution (digital)	0.1°C			
Response time (90% signal) ⁶	1ms			
Emissivity/gain ²	0.100 to 1.100			
Transmissivity/gain ²	0.100 to 1.100			
Signal processing ²	peak hold, valley hold, average; extended hold function with threshold and hysteresis			
Certificate of calibration	optional			
Outputs/analogue	0/4 to 20mA, 0 to 5/ 10V, thermocouple J, K, alarm			
Outputs/analogue (option)	relay: 2 x 60VDC / 42VAC; 0.4A; optically isolated			
Alarm output	open-collector (24V / 50mA)			
Outputs/digital	option	USB, RS232, RS485, CAN, Profibus DP, Ethernet		
Output impedances	current output	mA max. 500 Ω (with 5 - 36VDC)		
	voltage output	mV min. 100k Ω load impedance; thermocouple 20 Ω		
Inputs	programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)			
Cable length	3m			
Power supply	8 to 36VDC; max. 100mA			
Environmental rating	IP 65 (NEMA-4)			
Ambient temperature	sensor: -40°C to 85°C controller: 0°C to 85°C			
Storage temperature	sensor: -40°C to 125°C controller: -40°C to 85°C			
Relative humidity	10 to 95%, non condensing			
Vibration	sensor	IEC 68-2-6: 3G, 11-200Hz, any axis		
Shock	sensor	IEC 68-2-27: 50G, 11ms, any axis		
Weight	sensor: 150g; controller: 420g			

¹ 90% energy

² adjustable via programming keys or software

³ target temperature > sensor temperature + 25°C

⁴ \pm ambient temperature 23 \pm 5°C

⁵ E = 1, response time 1s

⁶ with dynamic adaption at low signal levels

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□ = smallest spot size (mm)

Far Focus optics														
FF100	100:1	20	22	24	26	28	30	32	33.4	36	42.5	58	73.5	85
FF300 H1/H2/H3	300:1	20	19	18	17	16	15	14	13.4	12	16.5	24.4	33.4	40
<i>distance in mm</i>		0	450	900	1350	1800	2250	2700	3000	3600	4000	5000	6000	6750

Accessories page 42 - 45

- ▶ Mounting bracket
- ▶ Air purge collar
- ▶ Digital-Interface kit
- ▶ Certificate of calibration