



### thermoMETER CTlaserM3

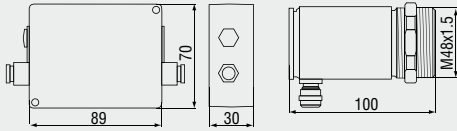
*Innovative precision infrared temperature sensor marking the actual spot size on your measurement target at any distance with 2.3 $\mu$ m wavelength for metal, ceramic and shiny targets*

- Measuring range from 50°C to 1800°C
- Special short wavelength (2.3 $\mu$ m) minimises errors caused by low emissivity for accurate temperature measurements on metal, shiny and ceramic targets down to 50°C
- Cooling and protection accessories for harsh environmental conditions
- Real mapping of the actual spot size, with automatic laser protection
- Precision optics (300:1 / 100:1 / 60:1) with different models for a specific focus point
- Extreme small measurement spot down to 0.45mm
- Only 1ms response time to capture fast events

### Optical specifications thermoMETER CTlaserM3

□ = smallest spot size (mm)

Standard Focus optics															
<b>3LSF</b>	<b>60:1</b>	20	20	20	20	20	19	19	19	18.3	19	25	30	40	53
<b>3HSF</b>	<b>100:1</b>	20	19	18	17	16	15	14	12	11	13	16	20	28	38
<b>3 H1/H2/H3 SF300</b>	<b>300:1</b>	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
<i>distance (mm)</i>		0	150	300	450	600	750	900	1000	1100	1200	1350	1500	1750	2200
Close Focus optics															
<b>3LCF1</b>	<b>60:1</b>	20	9.3	1.2	10.3	25.5	40.5	56	71	102	132	162	192	223	
<b>3HCF1</b>	<b>100:1</b>	20	9	0.7	9.6	24.4	39.2	54	69	99	128	158	187	217	
<i>distance (mm)</i>		0	40	70	100	150	200	250	300	400	500	600	700	800	
Close Focus optics															
<b>3LCF2</b>	<b>60:1</b>	20	14.2	8.4	2.5	10	17.5	25	40	55	70	85	100		
<b>3HCF2</b>	<b>100:1</b>	20	14	7.7	1.5	8.7	16	23	38	52	66	81	95		
<b>3 H1/H2/H3 CF2</b>	<b>300:1</b>	20	13.5	7	0.45	7.3	14	21	34.5	48.2	61.8	75.4	89		
<b>3LCF3</b>	<b>60:1</b>	20	16	11.7	7.6	3.4	9.3	15.1	27	39	51	62	74		
<b>3HCF3</b>	<b>100:1</b>	20	15.5	11	6.5	2	7.5	13	24	35	46	57	68		
<b>3 H1/H2/H3 CF3</b>	<b>300:1</b>	20	15.2	10.3	5.5	0.7	5.8	11	21.2	31.5	41.8	52.1	62.4		
<i>distance (mm)</i>		0	50	100	150	200	250	300	400	500	600	700	800		



**Product identification**

**CTLM - 3 L SF60 - C3**

- Cable length [3m Standard / 8m / 15m]
- Focus [SF60/100 / CF1 / CF2 / CF3 / CF4]
- Temperature range [L / H]
- Spectral range [2.3µm]
- thermoMETER CTLaserM3

Model	CTLM-3LSF60-C3	CTLM-3HSF100-C3	CTLM-3H1SF300-C3	CTLM-3H2SF300-C3	CTLM-3H3SF300-C3
Optical resolution	60:1	100:1	300:1		
Temperature range <sup>1,2</sup>	50 to 400°C	100 to 600°C	150 to 1000°C	200 to 1500°C	250 to 1800°C
Spectral range	2.3µm				
System accuracy <sup>3</sup>	±(0.3% of reading +2°C)				
Repeatability <sup>3</sup>	±(0.1% of reading +1°C)				
Temperature resolution (digital)	0.1°C				
Response time (90% signal) <sup>4</sup>	1ms				
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	0/4 to 20mA, 0 to 5/ 10V, thermocouple J, K			
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. 500Ω (with 5 - 36VDC)			
	voltage output	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 36 VDC; max. 160mA			
Laser		class II (635nm), 1mW, ON/OFF via controller or software			
Environmental rating		IP 65 (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: 3G, 11-200Hz, any axis			
Shock	sensor	IEC 68-2-27: 50G, 11ms, any axis			
Weight		sensor: 600g; controller: 420g			

<sup>1</sup> adjustable via controller or software  
<sup>2</sup> target temperature > sensor temperature + 25°C  
<sup>3</sup> E=1, response time 1s; ± ambient temperature: 23 ±5°C  
<sup>4</sup> with dynamic adaptation at low signal levels

**Optical specifications thermoMETER CTLaserM3**

□ = smallest spot size (mm)

Close Fokus															
<b>3LCF4</b>	<b>60:1</b>	20	18.7	17.3	15.9	14.5	13.1	11.7	10.3	9	7.5	10.6	17	23	29
<b>3HCF4</b>	<b>100:1</b>	20	18.3	16.6	14.9	13.2	11.4	9.7	8	6.3	4.5	7.3	13	19	24
<b>3 H1/H2/H3 CF4</b>	<b>300:1</b>	20	18	16	13.8	11.8	9.7	7.6	5.6	3.5	1.4	3.8	8.6	13.3	18
distance (mm)		0	50	100	150	200	250	300	350	400	450	500	600	700	800
Far Field															
<b>3 H1/H2/H3 FF</b>	<b>300:1</b>	20	19	18	17	16	15	14	13.4	12	16.5	24.4	33.4	40	
distance (mm)		0	450	900	1350	1800	2250	2700	3000	3600	4000	5000	6000	6750	

**Accessories page 22 - 23**

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