thermoMETER CSLaser

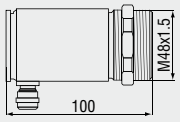
The thermoMETER CSlaser has a two-beam laser aiming feature, which marks the actual spot size at any distance. The controller is not necessary with this model, because the controller is already integrated into the sensor. This represents a major technical advantage, especially where space is limited. The sensor can be optimised for specific measurement tasks by using different lenses.

- ➔ Measuring range from -30°C to 1600°C
- ➔ Measuring spots up from 0.5mm and response times up from 10ms
- ➔ Optical resolution up to 300:1 with selectable focus
- ➔ Double laser aiming marks real spot location and spot size at any distance
- ➔ Scalable 4 - 20mA analogue output/ additional simultaneous alarm output
- ➔ Optional USB programming interface and software
- ➔ Emissivity directly adjustable on sensor or via software
- ➔ Short circuit and polarity reversal protection
- ➔ Usable up to 85°C ambient temperature without cooling and automatic laser switch off at 50°C
- ➔ Wide power range: 5 – 28V DC

Optical specifications thermoMETER CSLaser CSL-SF50 and CSLHS-SF50

□ = smallest spot size (mm)

Standard Fokus																	
SF50 optic	**50:1**	20	20.5	21	21.5	22	22.5	23	23.5	24	29.5	35	48	57	68		
	distance in mm	*0*	*150*	*300*	*450*	*600*	*750*	*900*	*1050*	*1200*	*1350*	*1500*	*1800*	*2100*	*2400*		
Close Fokus																	
CF1 optic	**50:1**	20	10	8.5	1.4	11	26	41	57	72	60	103	118	133	164	194	225
CF2 optic	**50:1**	20	15.5	15	12	9	3	11	19	26	33	42	49	57	72	88	103
CF3 optic	**50:1**	20	16.5	16	14	12	8	4	10	16	21	28	33	40	52	64	76
CF4 optic	**50:1**	20	19.5	19	18.4	18	16.5	15	14	13	11.5	10	9	12	19	25	32
	distance in mm	*0*	*40*	*50*	*70*	*100*	*150*	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*600*	*700*	*800*



Product identification

CSL - SF50
- Focus [SF50 / CF1 / CF2 / CF3 / CF4]
- thermoMETER CSLaser

Product identification

CSLM - 2 H SF300
- Focus [SF300 / CF1 / CF2 / CF3 / CF4]
- Temperature range [H]
- Spectral range [8-14µm / 1.6µm]
- thermoMETER CSLaser

Model	CSL-SF50	CSLHS-SF50	CSLM-2LSF150	CSLM-2HSF300
Optical resolution	50:1		150:1	300:1
Temperature range [1]	-30°C to 1000°C	-20°C to 150°C	250°C to 800°C	385°C to 1600°C
Spectral range	8 to 14µm		1.6µm	
System accuracy [3]	±1% or ±1°C		±(0.3% of reading + 2°C) [4]	
Repeatability [3]	±0.5% or ±0.5°C		±(0.1% of reading + 1°C) [4]	
Temperature resolution	0.1°C	0.025°C	0.1°C	
Response time (90% signal)	150ms		10ms	
Emissivity/Gain [1]	0.100 - 1.100			
IR window correction [2]	0.100 - 1.100			
Signal processing [2]	peak hold, valley hold, average; extended hold function with threshold and hysteresis			

Outputs/analogue	4 to 20mA
Alarm output	0 to 30V / 500mA (open collector)
Outputs/digital (optional)	uni-/ bidirectional, 9.6 kBaud, 0/3V digital level, USB
Output impedances	max. 1000Ω (depending on supply voltage)
Current draw (Laser)	45mA at 5V / 20mA at 12V / 12mA at 24V
Power supply	5 to 28VDC
Laser	class II (635nm), 1mW, ON/OFF via software

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 85°C (50°C if Laser ON)
Storage temperature	-40°C to 85°C
Relative humidity	10 to 95%, non condensing
Vibration	IEC 68-2-6: 3G, 11 to 200Hz, any axis
Shock	IEC 68-2-27: 50G, 11ms, any axis
Weight	600g

[1] adjustable via programming keys or software
[2] adjustable via software
[3] at ambient temperature 23 ±5°C; whichever is greater; temperature of the object >0°C
[4] ε = 1, response time 1s

LASER RADIATION
DO NOT STARE IN THE BEAM
CLASS 2 LASER
EN60825-1:2002
P≤1mW; λ=635nm

Optical specifications thermoMETER CSLaser

□ = smallest spot size (mm)

Standard Fokus															
2H SF	**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
2L SF	**150:1**	20	18.3	16.5	14.8	13	11.4	9.6	8.5	7.3	9.8	13.5	17.3	23.5	34.6
	distance in mm	*0*	*150*	*300*	*450*	*600*	*750*	*900*	*1000*	*1100*	*1200*	*1350*	*1500*	*1750*	*2200*
Close Fokus															
2H CF2	**300:1**	20	13.5	7	0.5	7.3	14	21	n.v.	34.5	n.v.	48.2	61.8	75.4	89
2L CF2	**150:1**	20	13.7	7.3	1	8	15	22	n.v.	36	n.v.	50	64	78	92
2H CF3	**300:1**	20	15.2	10.3	5.5	0.7	5.8	11	n.v.	21.2	n.v.	31.5	41.8	52.1	62.4
2L CF3	**150:1**	20	15.4	10.7	6	1.3	6.7	12	n.v.	22.6	n.v.	33.3	44	55	65
2H CF4	**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
2L CF4	**150:1**	20	18.1	16.3	14.4	12.5	10.6	8.7	6.8	4.9	3	5.6	10.7	12.8	21
	distance in mm	*0*	*50*	*100*	*150*	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*600*	*700*	*800*
Far Focus optics															
2H FF	**300:1**	20	19	18	17	16	15	14	13.4	12	16.5	24.4	33.4	40	
2L FF	**150:1**	20	20.5	21	21.5	22	22.5	23	23.4	24	29	41	53.4	62.5	
	distance in mm	*0*	*450*	*900*	*1350*	*1800*	*2250*	*2700*	*3000*	*3600*	*4000*	*5000*	*6000*	*6750*	

Accessories page 56 - 57
- Mounting bracket
- Air purge collar
- Rail mount adapter for controller
- Water cooled housing
- Certificate of calibration
- USB Kit (TM-USBK-CS) page 57