thermoMETER CTLaserCOMBUSTION

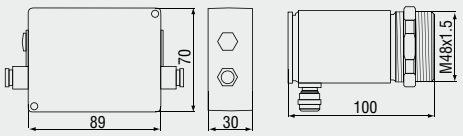
The combustion temperature sensors has been designed specially for the measurement of combustion processes. The thermoMETER CTlaser C2/C4/C6 sensors can measure the temperature of objects through flames or directly record the temperature of flame gases.

- ➔ Measuring range from 200°C to 1450°C
- ➔ Double laser aiming marks real spot location and spot size up from 1.6mm at any distance
- ➔ Usable in all modern applications where “size of spot matters”
- ➔ Optics 45:1 with selectable focus
- ➔ Usable up to 85°C ambient temperature without cooling and automatic laser switch off at 50°C
- ➔ Cooling and protection accessories for harsh environmental conditions

Optical specifications thermoMETER CTLaserCOMBUSTION

□ = smallest spot size (mm)

Standard Focus optics																	
SF45 optic	**45:1**	20	20.8	21.7	22.5	23.4	24.2	25	25.9	27	32.5	38.4	50	61.7	73.4		
	distance in mm	*0*	*150*	*300*	*450*	*600*	*750*	*900*	*1050*	*1200*	*1350*	*1500*	*1800*	*2100*	*2400*		
Close Focus optics																	
CF1 optic	**45:1**	20	9.5	7	1.6	11	26.3	41.7	57	72.6	88.2	104	1196	135	165	196	227
CF2 optic	**45:1**	20	16	14.5	12	9	3.4	11.2	19	27	35	42.5	50.3	58	73.6	89.2	105
CF3 optic	**45:1**	20	17	16.2	14.5	12.3	8.4	4.5	10.7	16.8	23	29	35	41.3	53.5	65.8	78
CF4 optic	**45:1**	20	19.2	19	18.6	18	17	15.6	14.5	13.4	12.3	11.1	10	13.4	20	26.7	33.4
	distance in mm	*0*	*40*	*50*	*70*	*100*	*150*	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*600*	*700*	*800*



Product identification

CTLC - 4 SF45 - C3

- Cable length [3m Standard / 8m / 15m]
- Focus [SF45 / CF1 / CF2 / CF3 / CF4]
- Spectral range [3.9µm / 4.24µm / 4.64µm]
- thermoMETER CTLaserCOMBUSTION

Model	CTLC-4SF45-C3	CTLC-2SF45-C3	CTLC-6SF45-C3
Optical resolution	45:1		
Temperature range [1]	200°C to 1450°C		
Spectral range	3.9µm	4.24µm	4.64µm
Fields of application	through flames to monitor workpieces inside ovens, to measure inside chemical reactors, to observe the brick temperature in combustion chambers	CO_2 flame gases in combustion processes, garbage burning or processes inside chemical reactors	CO flame gases in combustion processes, garbage burning or processes inside chemical reactors
System accuracy [3, 4]	±1%		
Repeatability [3]	±0.5% or ±0.5°C		
Temperature resolution	0.1°C		
Response time (90% signal) [2]	10ms		
Emissivity/gain [1]	0.100 - 1.100		
Transmissivity/gain [1]	0.100 - 1.000		
Signal processing [1]	peak hold, valley hold, average; extended hold function with threshold and hysteresis		
Outputs/analogue channel 1	0/4 - 20mA, 0 - 5/10V, thermocouple J, K		
Outputs/analogue channel 2	sensing head temperature (-20°C to 180°C as 0 to 5V or 0 to 10V), alarm output		
Alarm output	24V / 50mA (open collector)		
Optional	relay: 2 x 60VDC/42VAC_{eff}; 0.4A; optically isolated		
Outputs/digital optional	USB, RS232, RS485, CAN, Profibus DP, Ethernet		
Output impedances current output	mA max. 500Ω (with 8 to 36VDC)		
Output impedances 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 36VDC; 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	-40°C to 85°C		
Relative humidity	10 to 95%, non condensing		
Vibration	IEC 68-2-6: 3G, 11 - 200Hz, any axis		
Shock	IEC 68-2-27: 50G, 11ms, any axis		
Weight	sensor: 600g ; controller: 420g		

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

Accessories page 22 - 23

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

LASER RADIATION
DO NOT STARE IN THE BEAM
CLASS 2 LASER
EN60825-1:2002
P≤1mW; λ=630-650nm