



More Precision

thermoMETER // Non-contact IR temperature sensors





thermoMETER CTLaserGLASS

Non-contact infrared temperature sensor for the glass industry

- Measuring range from 100°C to 1650°C
- Accurate glass temperature measurements on flat glass lines and container glass machines, e.g. with bulb manufacturing, car glass finishing and the production of solar panels and glass bottles
- Double laser marks the exact spot size from 1mm
- Optical systems 70:1 and 45:1 with selectable focus
- Compact sensor design
- Up to 85°C ambient temperature without cooling, laser switch-off at 50°C
- Cooling and protection accessories for harsh environmental conditions
- Selectable and scalable analog output, optional digital interfaces

Optical specifications thermoMETER CTLaserGLASS

□ = smallest spot size (mm)

Standard Focus

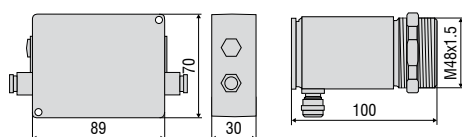
SF45L	45:1	20	20.8	21.7	22.5	23.4	24.2	25	25.9	27	32.5	38.4	50	61.7	73.4		
SF70H	70:1	20	19.6	19.3	19	18.5	18.2	17.8	17.4	17	21.6	26.3	35.5	44.8	54		
distance (mm)		0	150	300	450	600	750	900	1050	1200	1350	1500	1800	2100	2400		

Close Focus

CF1L	45:1	20	9.5	7	1.6	11	26.3	41.7	57	72.6	88.2	104	119.6	135	165	196	227
CF1H	70:1	20	9	6.5	1	10	25	40	55	70	85	100	115	130	160	190	220
CF2L	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
CF2H	70:1	20	15.5	14	11	8	2.2	9.6	17	24.5	42	39.2	47	54	69	84	99
CF3L	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
CF3H	70:1	20	16.9	16	14	11	7.2	2.9	8.7	14.4	20	25.6	31.2	37.3	48.7	60.2	71.6
CF4L	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
CF4H	70:1	20	18.9	18.5	17.8	17	15.5	14	12.5	11	9.5	8	6.5	9.5	15.4	21.2	27.1
distance (mm)		0	40	50	70	100	150	200	250	300	350	400	450	500	600	700	800

Model		CTLG-SF45L-C3	CTLGF-SF45H-C3	CTLG-SF70H-C3	CTLGF-SF45H1-C3
Optical resolution		45:1		70:1	45:1
Temperature range ¹		100 to 1200°C	200 to 1650°C	250 to 1650°C	400 to 1650°C
Spectral range		5.0µm			
System accuracy ²		±1% or ±1.5°C			
Repeatability ²		±0.5% or ±0.5°C			
Temperature resolution		0.1°C			
Response time (90% signal)		120ms	10ms	80ms	10ms
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 20mA, 0 to 5/10V, thermocouple J, K			
	channel 2	sensor temperature (-20 to 180°C as 0 to 5V or 0 to 10V), alarm output			
Outputs/analog	optional	relay: 2 x 60VDC/42VAC _{eff} ; 0.4A; electrically isolated			
Alarm output		open - collector (24V/ 50mA)			
Outputs/digital	optional	USB, RS232, RS485, CAN, Profibus DP, Ethernet			
Output impedances	current output	mA max. 500Ω (with 5 to 36VDC)			
	voltage output	min. 100kΩ load impedance; thermocouple 20Ω			
Inputs		programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger			
Cable length		3m (standard), 8m, 15m			
Power supply		8 to 36VDC; max. 160mA			
Laser		class II (635nm), 1mW, ON/OFF via controller or software			
Protection class		IP65 (NEMA-4)			
Ambient temperature		sensor: -20°C to 85°C (50°C with 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 200Hz, any axis			
Shock	sensor	IEC 68-2-27: 50 G, 11ms, any axis			
Weight		sensor: 600g; controller: 420g			

¹ adjustable via programming keys or software

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


Product identification

CTLG -	SF45L-	C3
Cable length [3m (standard) / 8m / 15m]		
Focus [SF45L/ SF70H / CF1L/H / CF2L/H / CF3L/H / CF4L/H]		
thermoMETER CTLaserGLASS		

Accessories page 20 - 21

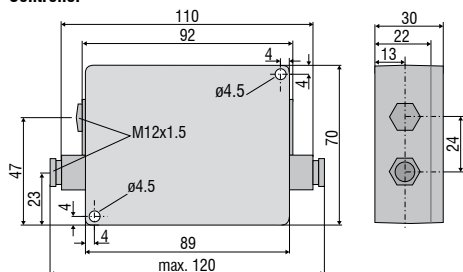
- Mounting bracket
- Air purge collar
- Rail mount adapter for controller
- Water cooled housing
- Interface kit
- Certificate of calibration



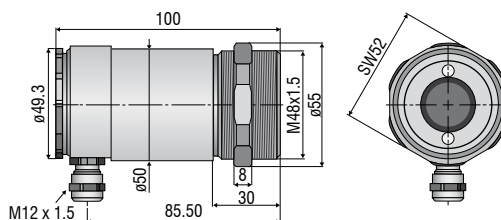
LASER LIGHT
DO NOT STARE INTO BEAM
CLASS 2 LASER
IEC 60825-1:2007
1mW / 630-650nm

CTLaser / CTLaserFAST / CTLaserGLASS / CTLaserM1/M2/M3/M5 / CTLaserCOMBUSTION

Controller

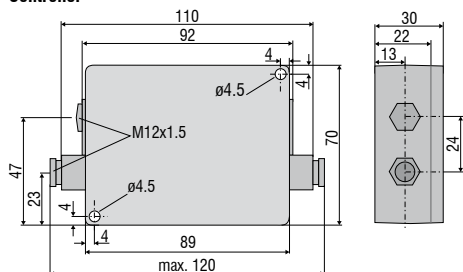


Sensor

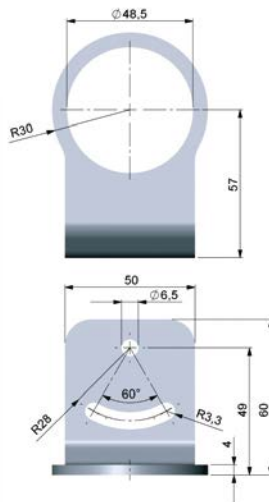
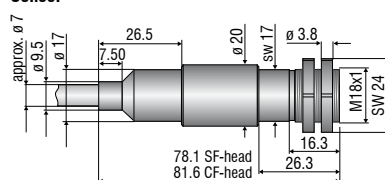


CTratioM1

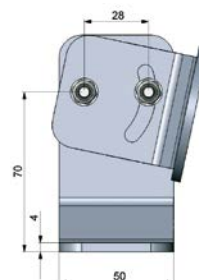
Controller



Sensor



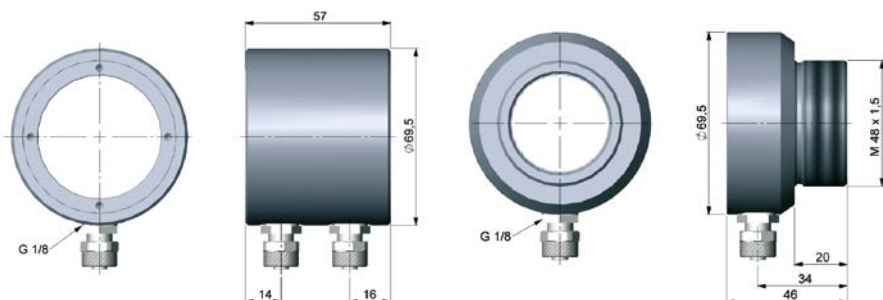
TM-FB-CTL Mounting bracket (fixed);
included in CTL scope of supply



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

Mechanical accessories

Art. No.	Model	
2970238	TM-AB-CTL	Mounting bracket, adjustable, stainless steel
2970239	TM-AP-CTL	Air purge collar, stainless steel
2970240	TM-W-CTL	Water cooled housing, stainless steel, for ambient temperatures up to 175°C
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 on 20UN-2A screw including mounting nut

High temperature accessories for CTLaser

2970366	TM-J-CTL	Cooling jacket (length 228mm, ø89mm) (conversion kit TM-CONK-CTL is required)
2970374	TM-CONK-CTL	Conversion kit for CTL on axial cable exit, for integration in cooling jacket
2970368	TM-JAB-CTL	Adjustable mounting bracket for cooling jacket
2970369	TM-MF-CTL	Mounting flange M48x1.5 for TM-PF-CTL
2970370	TM-AST300-CTL	Reflection protection tube M48x1.5, 300mm 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 and CTVideo / CSVideo up to 315°C

Calibration

2970253	TM-CERT-CTL	Certificate of calibration
2970324	TM-HTCERT-CTL	Certificate of calibration for CTLaser M1-/M2-/M3-/M5-/G-sensors

Interfaces

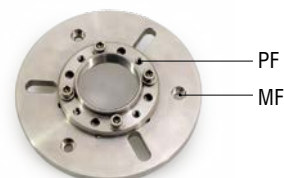
2970245	TM-USBK-CTL	USB interface, computer cable, software CompactConnect second cable gland for controller
2970246	TM-RS232K-CTL	RS232 interface, computer cable, software CompactConnect second cable gland for controller
2970338	TM-RS485USBK-CTL	RS485-USB-adapter, incl. PC cable, Software CompactConnect and CTmulti, second cable gland for use with interface board TM-RS485B-CTL
2970248	TM-RS485B-CTL	RS485 interface board incl. second cable gland
2970249	TM-CANK-CTL	CAN-Bus interface; protocol: CANopen Presettings: module address20 (14H), 250kbaud, 0-60°C
2970250	TM-PFBDPK-CTL	Profibus-DPV1 interface for CT selectable with DIN M12 or SUB-D connection
2970251	TM-ETHNK-CTL	Ethernet-Kit: interface board, external Ethernet adapter, software CompactConnect, second cable gland
2970252	TM-RI-CTL	Relay interface: two electrically isolated relays, 60VDC/ 42VAC _{eff} 0.4A

Sensor cables and high temperature cables for CTLaser

2970374	TM-CONK-CTL	Connector-Kit for cables with connector
4800254.003	TM-CB3C-CTL	Sensor cable with connector (3m)
4800254.003H	TM-CB3HC-CTL	High-temperature sensor cable with adapter (3m)
4800254.008	TM-CB8C-CTL	Sensor cable with adapter (8m)
4800254.008H	TM-CB8HC-CTL	High-temperature sensor cable with adapter (8m)
4800254.015	TM-CB15C-CTL	Sensor cable with adapter (15m)
4800254.015H	TM-CB15HC-CTL	High-temperature sensor cable with adapter (15m)



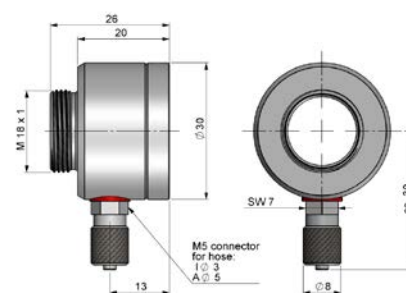
TM-J-CTL cooling jacket (length 228mm, ø 89mm) with adjustable mounting bracket TM-JAB-CTL; suitable for ambient temperatures up to 180°C



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 / CTratio: TM-MF-CTL, TM-PF-CTL, TM-AST300-CTL and TM-PA-CTL



TM-AP-CTR Air purge collar

CTratio

Art. No.	Model	
2970348	TM-FB-CTR	Mounting bracket, stainless steel, adjustable in one axis
2970395	TM-AP-CTR	Air purge collar, stainless steel
2970373	TM-RM-CTR	Furnace wall mount, stainless steel
2970351	TM-CERT-CTR	Certificate of calibration

Further IR temperature measurement devices from Micro-Epsilon



thermoIMAGER TIM
Compact USB thermal imaging cameras
for precise thermography



thermoMETER CTVideo/CSVideo
IR temperature sensors with crosshair laser
sighting and video output



thermoMETER Handheld
Innovative handheld pyrometer with laser
sighting for inspection and maintenance