



More Precision

thermoMETER // Non-contact IR temperature sensors





thermoMETER CTLaser / CTLaserFAST

Innovative infrared temperature sensor with laser sighting

- Measuring range from -50°C to 975°C
- thermoMETER CTLaserFAST with response times of just 9ms
- Smallest spots from 0.9mm - even with low object temperatures
- Double laser sighting for exact measuring field marking and focusing
- Optical system 75:1 with selectable focus settings
- Separate controller with programming keys backlit display
- Up to 85°C ambient temperature without cooling
- Automatic laser switch-off at 50°C
- Selectable and scalable analog output, optional digital interfaces

Optical specifications thermoMETER CTLaser

□ = smallest spot size (mm)

Standard Focus

| | | | | | | | | | | | | | | | | | |
|---------------|------|----|------|-----|------|-----|------|-----|------|------|------|------|------|------|------|--|--|
| SF75 lens | 75:1 | 20 | 19.5 | 19 | 18.5 | 18 | 17.5 | 17 | 16.5 | 16 | 20.5 | 25 | 34 | 43 | 52 | | |
| distance (mm) | | 0 | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1800 | 2100 | 2400 | | |

Close Focus

| | | | | | | | | | | | | | | | | | |
|---------------|------|----|----|------|-----|-----|------|------|------|-----|------|------|------|-----|-----|-----|-----|
| CF1 lens | 75:1 | 20 | 9 | 5 | 0.9 | 10 | 25 | 40 | 55 | 70 | 85 | 100 | 115 | 130 | 160 | 190 | 220 |
| CF2 lens | 75:1 | 20 | 16 | 14 | 11 | 8 | 1.9 | 9 | 16.5 | 24 | 31 | 38 | 45.5 | 53 | 68 | 82 | 97 |
| CF3 lens | 75:1 | 20 | 17 | 16 | 14 | 11 | 7 | 2.75 | 8.5 | 14 | 19.5 | 25.5 | 31 | 37 | 48 | 60 | 71 |
| CF4 lens | 75:1 | 20 | 19 | 18.5 | 18 | 17 | 15.5 | 14 | 12.5 | 11 | 9 | 7.5 | 5.9 | 9 | 15 | 20 | 26 |
| distance (mm) | | 0 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 |

Optical specifications thermoMETER CTLaserFAST

□ = smallest spot size (mm)

Standard Focus

| | | | | | | | | | | | | | | | | | |
|---------------|------|----|------|-----|------|-----|------|-----|------|------|------|------|------|------|------|--|--|
| SF50 lens | 50:1 | 20 | 20.5 | 21 | 21.5 | 22 | 22.5 | 23 | 23.5 | 24 | 29.5 | 35 | 48 | 57 | 68 | | |
| distance (mm) | | 0 | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1800 | 2100 | 2400 | | |

Close Focus

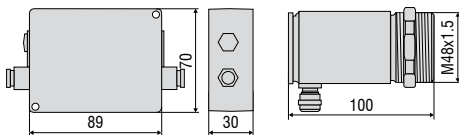
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|---------------|------|----|------|-----|------|-----|------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| CF1 lens | 50:1 | 20 | 10 | 8.5 | 1.4 | 11 | 26 | 41 | 57 | 72 | 60 | 103 | 118 | 133 | 164 | 194 | 225 |
| CF2 lens | 50:1 | 20 | 15.5 | 15 | 12 | 9 | 3 | 11 | 19 | 26 | 33 | 42 | 49 | 57 | 72 | 88 | 103 |
| CF3 lens | 50:1 | 20 | 16.5 | 16 | 14 | 12 | 8 | 4 | 10 | 16 | 21 | 28 | 33 | 40 | 52 | 64 | 76 |
| CF4 lens | 50:1 | 20 | 19.5 | 19 | 18.4 | 18 | 16.5 | 15 | 14 | 13 | 11.5 | 10 | 9 | 12 | 19 | 25 | 32 |
| distance (mm) | | 0 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 |

| Model | CTL-SF75-C3 | CTLF-SF50-C3 |
|--------------------------------|--|--|
| Optical resolution | 75:1 | 50:1 |
| Temperature range ¹ | -50°C to 975°C | |
| Spectral range | 8 to 14µm | |
| System accuracy ^{2,3} | ±1% or ±1°C | ±1.5% or ±1.5°C |
| Repeatability ² | ±0.5% or ±0.5°C | ±1% or ±1°C |
| Temperature resolution | 0.1°C | 0.5°C |
| Response time (90% signal) | 120ms | 9ms |
| Emissivity/gain ¹ | 0.100 to 1,100 | |
| Transmissivity 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 | 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 | |
| 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

³ temperature of the object >0°C



Product identification

| | | |
|---|-------|----|
| CTL - | SF75- | C3 |
| Cable length [3m (standard) / 8m / 15m] | | |
| Focus [SF75 / CF / CF2 / CF3 / CF4] | | |
| thermoMETER CTLaser | | |

Product identification

| | | |
|---|-------|----|
| CTLF - | SF50- | C3 |
| Cable length [3m (standard) / 8m / 15m] | | |
| Focus [SF50 / CF1 / CF2 / CF3 / CF4] | | |
| thermoMETER CTLaserFAST | | |

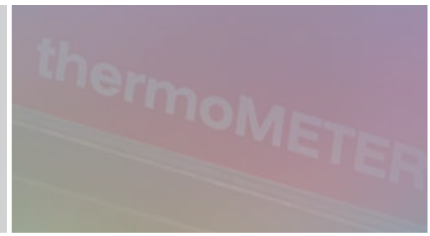
Accessories page 20 - 21

- Mounting bracket
- Air purge collar
- Rail mount adapter for controller

- Water cooled housing
- Interface kit
- Software CompactConnect
- Certificate of calibration



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



| 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 |

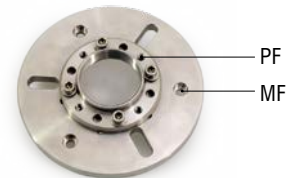
| Calibration | | |
|-------------|---------------|--|
| 2970253 | TM-CERT-CTL | Certificate of calibration |
| 2970324 | TM-HTCERT-CTL | Certificate of calibration for CTLaser M1-/M2-/M3-/M5-/G-sensors |

| 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 |

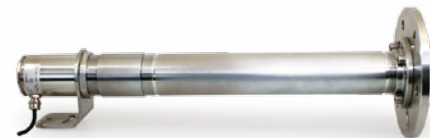
| Sensor cables and high temperature cables for CTLaser | | |
|---|---------------|--|
| 2970374 | TM-CONK-CTL | Connector-Kit for cables with connector |
| 4800254.003 | TM-CB3C-CTL | Sensor cable with connector (3m) |
| 4800254.003H | TM-CB3HC-CTL | High-temperature sensor cable with adapter (3m) |
| 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) |



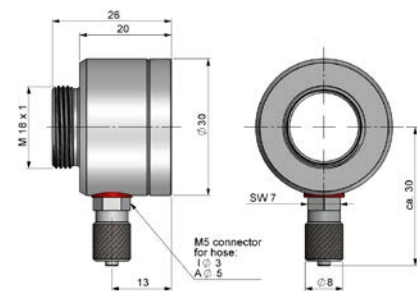
TM-J-CTL cooling jacket (length 228mm, ø 89mm) with adjustable mounting bracket TM-JAB-CTL; suitable for ambient temperatures up to 180°C



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/CSVVideo
IR temperature sensors with crosshair laser
sighting and video output



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