



# More Precision

**thermoMETER** // Non-contact infrared temperature sensors





### thermoMETER CS

Compact OEM sensor with integrated controller

- Measuring range from -40 °C to 400 °C
- Applicable in ambient temperatures up to 80 °C without cooling
- Robust, silicon-coated lens
- Integrated controller with LED alarm display and intelligent sighting aid, alarm signal, temperature-code display or self-diagnostics
- Protection against short circuit and polarity change
- Programmable controller
- Different outputs: 0-10 V or 0-5 V freely scalable, thermocouple type K, alarm output, digital output
- Optional USB interface and software for programming, direct, serial 9.6 kBaud interface
- Extensive supply voltage range: 5 - 30 VDC
- Best price - ideal for OEM applications
- *Please note: available from 10 pieces*

#### Optical specifications thermoMETER CS

□ = smallest spot size / focal point (mm)

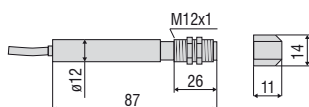
| Standard Focus                                  |                |     |      |      |      |      |      |      |      |      |
|---|----------------|-----|------|------|------|------|------|------|------|------|
| SF15  | 15:1           | 6.5 | 11.6 | 16.6 | 21.7 | 26.7 | 35   | 43.3 | 51.6 | 9.9  |
|   | distance in mm | 0   | 100  | 200  | 300  | 400  | 500  | 600  | 700  | 800  |
| Close Focus (with optionally available CF lens) |                |     |      |      |      |      |      |      |      |      |
| CF15  | 15:1           | 7   | 3.9  | 0.8  | 4.7  | 8.6  | 12.5 | 16.4 | 20.3 | 24.2 |
|   | distance in mm | 0   | 5    | 10   | 15   | 20   | 25   | 30   | 35   | 40   |

| Model                                | CS-SF15-C1  | CSTK-SF15-C1  |
|--------------------------------------|---|---|
| Optical resolution                   | 15:1  |   |
| Temperature range <sup>1)</sup>      | -40 °C to 400 °C  |   |
| Spectral range                       | 8 to 14 μm  |   |
| System accuracy <sup>2)</sup>        | ± 1.5 % or ± 1.5 °C   |   |
| Repeatability <sup>2)</sup>          | ± 0.75 % or ± 0.75 °C   |   |
| Temperature resolution <sup>3)</sup> | 0.1 °C  |   |
| Response time                        | 25 ms to 999 s (90 %), adjustable   |   |
| Emissivity/Gain                      | 0.100 to 1.100 (adjustable via 0 to 5 VDC input or software)  |   |
| 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/analog                       | 0 to 5 V or 0 to 10 V   | additional thermocouple type K<br>0 to 5 V or 0 to 10 V |
|                                      | 1/10/100 mV/°C  |   |
| Alarm output                         | Alarm 0-30 V / 50 mA (open collector)   |   |
| 3-state alarm output                 | adjustable thresholds and voltage levels for: no alarm, pre-alarm, alarm  |   |
| Outputs/digital                      | mono-/bidirectional, 9.6 kBaud, 0/3 V level/USB optional  |   |
| LED functions                        | alarm display, automatic aiming aid, self-diagnostics, temperature display (via temp. code)   |   |
| Inputs                               | programmable functional inputs for external emissivity adjustment, ambient temperature compensation (0 to 5 VDC), hold function or RS232 / USB (optional) communication |   |
| Cable length                         | 1 m (standard), 3 m, 8 m, 15 m  |   |
| Power supply                         | 4 mA (without LED); 10 mA (5 to 30 VDC)   |   |
| Protection class                     | IP63 (NEMA-4)   |   |
| Ambient temperature                  | -20 °C to 80 °C   |   |
| Storage temperature                  | -20 °C to 85 °C   |   |
| Relative humidity                    | 10 to 95 %, non-condensing  |   |
| Vibration                            | IEC 68-2-6: 3 G, 11 to 200 Hz, any axis   |   |
| Shock                                | IEC 68-2-27: 50 G, 11 ms, any axis  |   |
| Weight                               | 58 g  |   |

<sup>1)</sup> adjustable via software

<sup>2)</sup> ambient temperature: 23 ± 5 °C; whichever is greater; object temperature ≥ 0 °C

<sup>3)</sup> with object temperature < 100 °C and time constant of > 0.2 s



**Product identification**

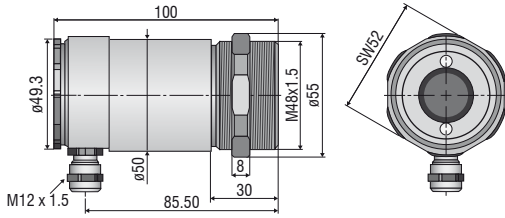
|                       |       |  |
|-----------------------|-------|--|
| CS -                  | SF15- | C1   |
|                       |       | Cable length [1 m (standard) / 3 m / 8 m / 15 m] |
|                       |       | Focus [SF]                                       |
| thermoMETER CS / CSTK |       |  |

**Accessories page 54 - 55**

- Ancillary CF lens
- Protective window
- Mounting bracket / mounting bolt
- Air purge collar
- Right angle mirror

**CSLaser**

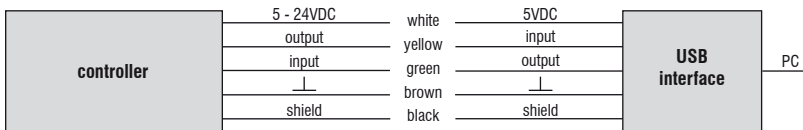
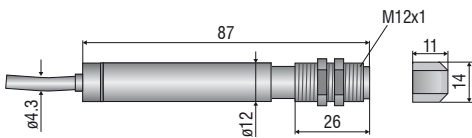
sensor



**CS**

sensor with integrated controller

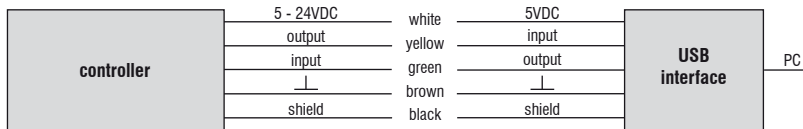
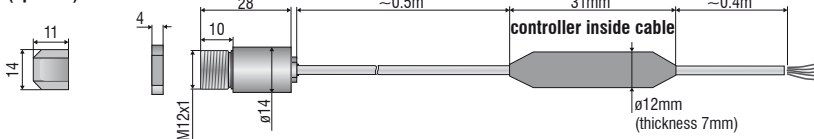
ancillary CF lens (optional)



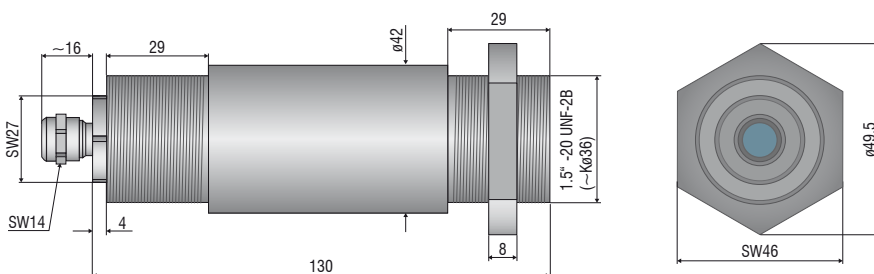
**CSmicro / CSmicro 2W**

ancillary CF lens (optional)

sensor



**CX**





**Mechanical accessories CS / CSmicro / CSmicro 2W**

| Art. No. | Model       | Description  |
|----------|-------------|--|
| 2970279  | Emissivity  | Mounting bracket, fixed                                      |
| 2970280  | TM-AB-CS    | Mounting bracket, adjustable                                 |
| 2970281  | TM-MB-CS    | Mounting bolts with M12x1 thread                             |
| 2970282  | TM-MG-CS    | Mounting fork, adjustable in 2 axes, with M12x1 fastening    |
| 2970283  | TM-AP-CS    | Air purge collar for 10:1 sensors                            |
| 2970284  | TM-APL-CS   | Air purge collar, laminar                                    |
| 2970285  | TM-APLCF-CS | Air purge collar, laminar with integrated ancillary CF lens  |
| 2970286  | TM-RAM-CS   | Right angle mirror for measurements 90 °C to the sensor axis |
| 2970287  | TM-USBK-CS  | USB kit: USB programming adapter, CompactConnect software    |

**Optical accessories CS / CSmicro / CSmicro 2W**

|         |          |                                 |
|---------|----------|---------------------------------|
| 2970277 | TM-CF-CS | Ancillary CF lens for CS models |
| 2970278 | Aluminum | Protective window for CS models |

**Calibration CS / CSmicro / CSmicro 2W**

|         |            |                            |
|---------|------------|----------------------------|
| 2970288 | TM-CERT-CS | Certificate of calibration |
|---------|------------|----------------------------|

**Mechanical accessories CX**

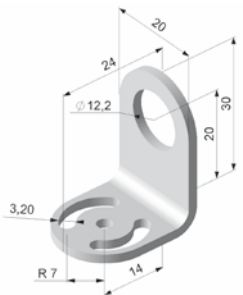
| Art. No. | Model      | Description   |
|----------|------------|---|
| 2970307  | TM-AP-CX   | Air purge collar, aluminum (anodized)                     |
| 2970321  | TM-FB-CX   | Mounting bracket, adjustable in 1 axis, stainless steel   |
| 2970322  | TM-AB-CX   | Mounting bracket, adjustable, in 2 axes, stainless steel  |
| 2970311  | TM-USBK-CX | USB kit: USB programming adapter, CompactConnect software |

**Optical accessories CX**

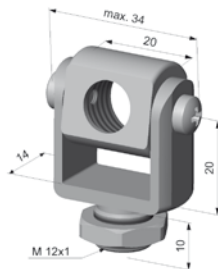
|         |          |                                 |
|---------|----------|---------------------------------|
| 2970302 | TM-CF-CX | Ancillary CF lens for CX models |
| 2970303 | TM-PW-CX | Protective window for CX models |

**Calibration CX**

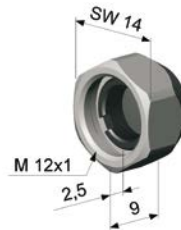
|         |            |                            |
|---------|------------|----------------------------|
| 2970323 | TM-CERT-CX | Certificate of calibration |
|---------|------------|----------------------------|



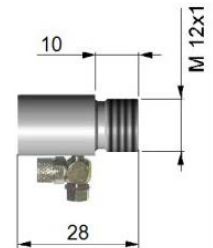
TM-FB-CS mounting bracket, fixed



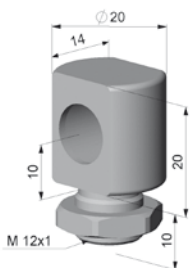
TM-MG-CS Mounting fork with M12x1 thread, adjustable in two axes



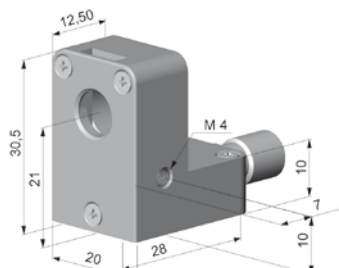
TM-CF-CS Ancillary CF lens (only for LT models)



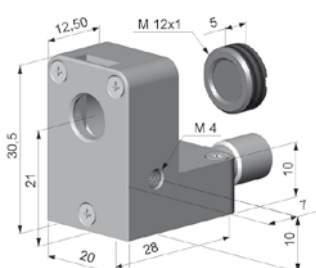
TM-AP-CS Air purge collar for 10:1 sensors



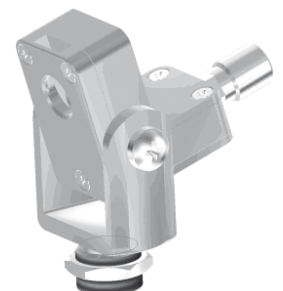
TM-MB-CS Mounting bolts with M12x1 thread adjustable in one axis



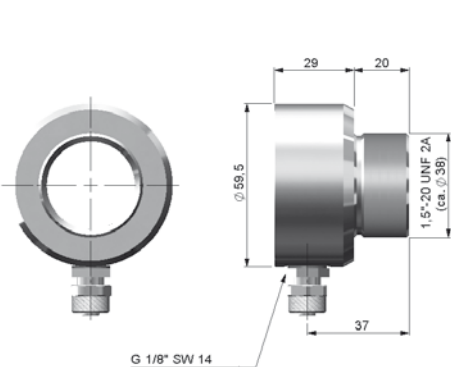
TM-APL-CS Air purge collar, laminar



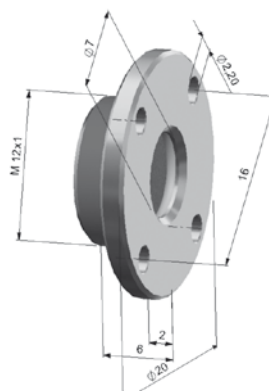
TM-APLCF-CS Air purge collar, laminar with integrated ancillary CF lens



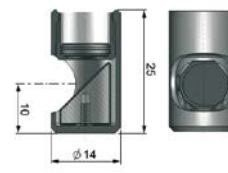
TM-APL-CS Air purge collar, laminar  
TM-MG-CS Mounting fork



TM-AP-CX Air purge collar for CX sensors



TM-CF-CX Ancillary CF lens, TM-PW-CX Protective window



TM-RAM-CS Right angle mirror

# More Precision.



## thermoMETER CS

OEM Infrared Sensor with Integrated Controller



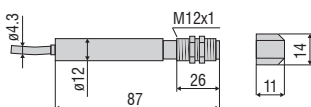
| Model                                 | CS-SF15-C1   | CSTK-SF15-C1   |
|---------------------------------------|--|--|
| Optical resolution                    | 15:1   |  |
| Measuring range <sup>1)</sup>         | -50 ... +400 °C  |  |
| Spectral range                        | 8 to 14 μm   |  |
| System accuracy <sup>2)</sup>         | ±1.5 °C or ±1.5 %  |  |
| Repeatability <sup>2)</sup>           | ±0.75 °C or ±0.75 %  |  |
| Temperature coefficient <sup>3)</sup> | ±0.05 °C/K or ±0.05 %/K  |  |
| Temperature resolution <sup>4)</sup>  | 0.05 °C  |  |
| Response time                         | 14 ms to 999 s (90 %), adjustable  |  |
| Emissivity                            | 0.100 to 1.100 (adjustable via 0 ... 10 VDC input or software)   |  |
| Transmissivity <sup>1)</sup>          | 0.100 to 1.100 (adjustable via software)   |  |
| Signal processing <sup>1)</sup>       | Peak hold, valley hold, average; extended hold function with threshold and hysteresis  |  |
| Supply voltage                        | 5 ... 30 VDC   |  |
| Max. current consumption              | 10 mA; 4 mA (without LED)  |  |
| Signal input                          | programmable functional inputs for external emissivity adjustment, ambient temperature compensation (0 ... 10 VDC), hold function, triggered signal output |  |
| Digital interface                     | mono-/bidirectional, 9.6 / 115.2 kBaud (adjustable via software), 0/3V level/USB optional  |  |
| Analog output                         | 0 ... 5 V or 0 ... 10 V, freely scalable via software  | 0 ... 5 V or 0 ... 10 V, freely scalable via software additional thermocouple type K |
| Switching output                      | Alarm output: 0 ... 30 V / 50 mA (open collector)<br>3-state alarm output: adjustable threshold values and voltage levels for: no alarm, pre-alarm, alarm  |  |
| Connection                            | integrated cable, standard length 1 m, optional 3 m, 8 m or 15 m possible  |  |
| Control and display elements          | Alarm display, automatic aiming aid, self-diagnostics, temperature display (via temp. code)  |  |
| Temperature range                     | Storage  | -40 ... +85 °C   |
|                                       | Operation  | -20 ... +80 °C   |
| Humidity                              | 10 ... 95 % r.H., non-condensing   |  |
| Shock (DIN EN 60068-2-27)             | 50 g / 11 ms, each axis  |  |
| Vibration (DIN EN 60068-2-6)          | 3 g / 11 ... 200 Hz, each axis   |  |
| Protection class (DIN EN 60529)       | IP63 (NEMA-4)  |  |
| Weight                                | approx. 58 g   |  |

<sup>1)</sup> Adjustable via software

<sup>2)</sup> Ambient temperature: 23 ±5 °C; whichever is greater; object temperature ≥ 0 °C

<sup>3)</sup> For ambient temperatures < 18 °C and > 28 °C whichever is greater

<sup>4)</sup> With object temperature < 100 °C and time constant of > 0.2 s



Dimensions in mm, not to scale.

### Optical specifications thermoMETER CS

■ = smallest spot size / focal point (mm)

| Standard Focus                                  |      |     |      |      |      |      |      |      |      |      |
|---|------|-----|------|------|------|------|------|------|------|------|
| SF15  | 15:1 | 6.5 | 11.6 | 16.6 | 21.7 | 26.7 | 35   | 43.3 | 51.6 | 9.9  |
| distance in mm                                  |      | 0   | 100  | 200  | 300  | 400  | 500  | 600  | 700  | 800  |
| Close Focus (with optionally available CF lens) |      |     |      |      |      |      |      |      |      |      |
| CF15  | 15:1 | 7   | 3.9  | 0.8  | 4.7  | 8.6  | 12.5 | 16.4 | 20.3 | 24.2 |
| distance in mm                                  |      | 0   | 5    | 10   | 15   | 20   | 25   | 30   | 35   | 40   |