

## Liability for Material Defects

All components of the device have been checked and tested for functionality at the factory. However, if defects occur despite our careful quality control, MICRO-EPSILON or your dealer must be notified immediately.

The liability for material defects is 12 months from delivery.

Within this period, defective parts, except for wearing parts, will be repaired or replaced free of charge, if the device is returned to MICRO-EPSILON with shipping costs prepaid. Any damage that is caused by improper handling, the use of force or by repairs or modifications by third parties is not covered by the liability for material defects. Repairs are carried out exclusively by MICRO-EPSILON.

Further claims can not be made. Claims arising from the purchase contract remain unaffected. In particular, MICRO-EPSILON shall not be liable for any consequential, special, indirect or incidental damage. In the interest of further development, MICRO-EPSILON reserves the right to make design changes without notification.

For translations into other languages, the German version shall prevail.

You can download a detailed instruction manual as PDF file from our web site under <http://www.micro-epsilon.de/download/manuals/man--thermoMETER-CS--com.pdf>

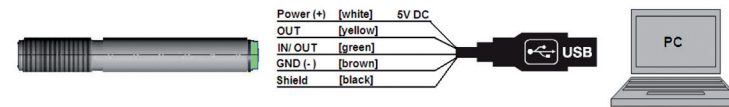
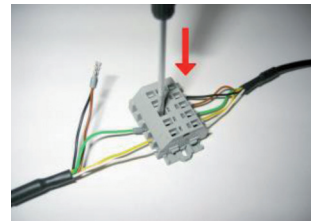


## Digital Communication

For a digital communication the optional USB programming kit is required.

The sensor is offering two ways of digital communication:

- Bidirectional communication (sending and receiving data)
- Unidirectional communication (burst mode – the sensor is sending data only)



## Open Collector Output



The open collector output is an additional alarm output on the thermoMETER CS and can control an external relay e.g. In addition the analog output can be used simultaneously.

## Direct Connection to an RS232 Interface on the PC

The thermoMETER CS works with a UART voltage of 3.3 V. For a bidirectional RS232 connection of the sensor the following interface circuits can be used: MAX3381E (manufacturer: Maxim), see Chapter Direct Connection to an RS232 Interface on the PC.

## Software (Optional)

### Installation

- ➡ Insert the installation CD into the according drive on your computer. If the autorun option is activated the installation wizard will start automatically.
- ➡ Otherwise please start setup.exe from the CD-ROM. Follow the instructions of the wizard until the installation is finished.

The installation wizard will place a launch icon on the desktop and in the start menu.

If you want to uninstall the software from your system please use the uninstall icon in the start menu.

### Main Features

- Graphic display for temperature trends and automatic data logging for analysis and documentation
- Complete sensor setup and remote controlling
- Adjustment of signal processing functions
- Programming of outputs and functional inputs

You will find a detailed software manual on the CD.

### Minimum System Requirements

- Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10
- USB interface
- Hard disc with at least 30 MByte free space
- At least 128 MByte RAM
- CD-ROM drive



## Functions

The sensors of the CS series are non-contact infrared temperature sensors.

They calculate the surface temperature based on the emitted infrared energy of objects.

## Unpacking, Included in Delivery

- 1 Sensor thermoMETER CS
- 1 Connection cable
- 2 Mounting nuts
- 1 Assembly instructions

## Warnings

Connect the power supply and the display/output device in accordance with the safety regulations for electrical equipment.

> Risk of injury, damage to or destruction of the sensor

Avoid shocks and impacts to the sensor.

> Damage to or destruction of the sensor

The supply voltage must not exceed the specified limits.

> Damage to or destruction of the sensor

Protect the sensor cable against damage.

> Destruction of the sensor, failure of the measuring device

Do not kink the sensor cable and bend the sensor cable in tight radius. The minimum bending radius is 14 mm (static). A dynamic movement is not allowed.

> Damage to the sensor cable, failure of the measuring device

No solvent-based cleaning agents may have an effect on the sensor (neither for the optics nor the housing)

> Damage to or destruction of the sensor

## Notes on CE Marking

The following apply to the thermoMETER CS:

- EU Directive 2014/30/EU
- EU-Directive 2011/65/EU, "RoHS"

The measuring system is designed for use in industrial environments and meets the requirements.

## Technical Data

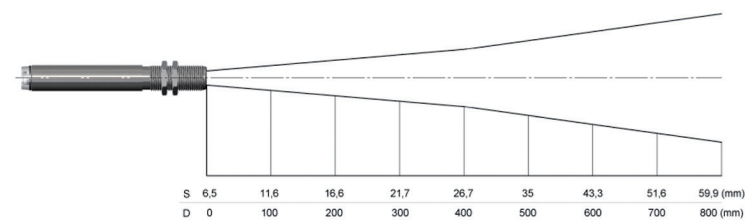
Ambient temperature	-20 ... +80 °C (-4 ... +176 °F)
Storage temperature	-40 ... +85 °C (-40 ... +185 °F)
Relative humidity	10 ... 95 %, non condensing
Dimensions	M12x1, 85 mm long
Cable length	1 m (standard), 3 m, 8 m, 15 m
Output impedance	min. 10 kΩ load impedance
Current draw	10 mA
Power supply	5 ... 30 VDC
Temperature range	-40 ... 400 °C (scalable via software) <sup>1</sup>
Spectral range	8 ... 14 μm
Optical resolution	15:1
Accuracy <sup>2,3</sup>	± 1.5 °C or ± 1.5 % of reading (whichever is greater)
Warm-up time	10 min

1) Optional up to 1030 °C

2) At ambient temperature 23 ± 5 °C and object temperatures > 0 °C

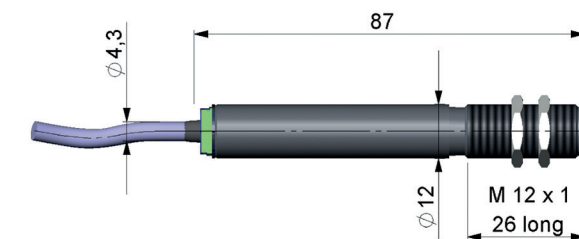
3) Accuracy for thermocouple output ±2.5 °C or ±1 %

## Optical Chart (15:1)



## Mechanical Installation

The thermoMETER CS is equipped with a metric M12x1 thread and can be installed either directly via the sensor thread or with the help of the both hex nuts (standard) to the mounting bracket available.



## Electrical Installation

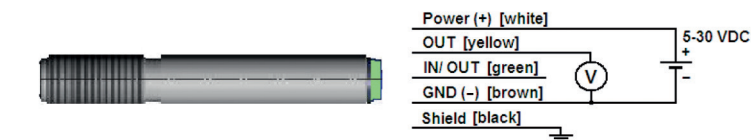
- Please use a stabilized power supply unit with an output voltage in the range of 5 – 30 VDC which can supply 100 mA. The residual ripple should be max. 200 mV.

➔ Supply the thermoMETER CS either via USB or externally via power supply and not simultaneously!

- - Use shielded cables only. The sensor shield has to be grounded.
- The shield (black) on the CS is not connected to GND (brown). In any case it is necessary to connect the shield to ground or GND (whichever works best)!

## Analog Device

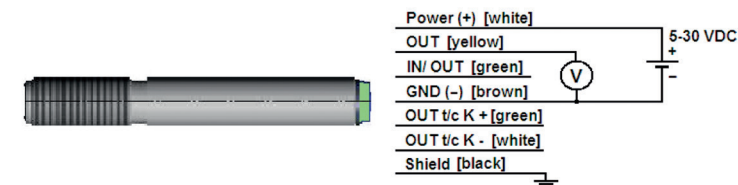
(mV Output on OUT Pin)



The output impedance must be ≥ 10 kΩ.

## Analog Device

(Thermocouple Type K Output on OUT t/c K pins /only at Model CSTK Output on OUT-Pin)



The output impedance must be ≥ 10 kΩ.

## LED Functions

The green LED can be programmed for the following functions. For the programming the USB adapter cable incl. software (option) is necessary. The factory default setting for the LED is self diagnostic.

LED Alarm	LED lights up if the object temperature exceeds or deceeds an alarm threshold.
Automatic aiming support	Sighting feature for an accurate aiming of the CS to hot or cold objects
Self diagnostic	LED is indicating different states of the sensor.
Temperature code indication	Indication of the object temperature via the LED
Off	LED deactivated.

## Factory Settings

The sensor is supplied with factory settings, see also the Chapter Factory Settings in the Operating Instructions.

The default settings can be changed with the optional USB kit (USB adapter cable + software).