

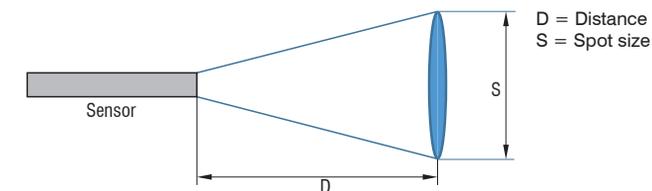
## Optical Specifications

Standard Focus (in mm)								
SF15	15:1	6.5	11.5	14	18	23.5	29.5	35.5
Distance		0	100	200	300	400	500	600

Close Focus (when using the screwable CF lens, in mm)								
CF15	15:1	6.5	3.7	0.8	4.4	8.1	11.8	15.4
Distance		0	5	10	15	20	25	30

0.8 = smallest spot size / focal point (mm)

The D:S ratio (example 15:1, see table) refers to the ratio between the distance (distance from the front edge of the sensor to the measuring object) and the spot size (measurement spot size).



Optical diagram

## LED Functions

The green and red LEDs on the transparent rear side of the sensor can be configured using an optional programming adapter. The green LED with the self-diagnosis function is activated at the factory.

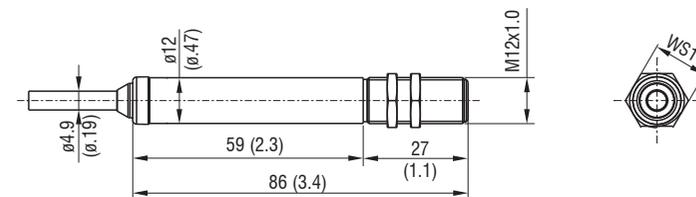
Color	Functions	Meaning
Red	Alarm LED	LED lights up red when an alarm threshold is exceeded or undershot.
Green	Aiming support	Laser sighting for aligning the sensor with hot or cold objects using the green LED
	Self-diagnostics	The green LED indicates that the sensor is in perfect condition.
Off	Off	LED disabled.

## Mechanical Installation

The sensors have a metric M12x1-thread and can be attached to available mounting equipment either directly via this sensor thread or by means of the nuts (2x) included. Various mounting brackets and fixtures are available as accessories.

**NOTICE** Avoid rough mechanical force on the sensor.

> Destruction of the sensor



Dimensional drawing thermoMETER FI-SF15-C1, dimensions in mm

The LED can be used in the Aiming Support mode to precisely align the sensor with the measuring objects.



## Functions

The thermoMETER FI sensors are non-contact infrared temperature measurement sensors. They measure the infrared radiation emitted by objects and calculate the surface temperature based on this.

## Unpacking, Included in Delivery

- 1 Sensor
- 2 Mounting nuts
- 1 Blue protective cap
- 1 Setup Guide

## Warnings

Connect the power supply and the display/output device according to 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 connection cable against damage.

> Destruction of the sensor, failure of the measuring device

Never fold the connection cable and do not bend it in tight radii. The minimum bending radius is 40 mm (static). Dynamic movement is not permitted.

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

Avoid exposure of sensor (both optics and housing) to cleaning agents that contain solvents.

> Damage to or destruction of the sensor

Avoid abrupt changes in ambient temperature.

> Inaccurate or incorrect measurements

## Notes on Product Marking

The product meets CE and UKCA requirements. All specifications and safety instructions described in the operating instructions must be observed.

## Electrical Installation

Use a power supply unit with a stabilized output voltage of 5 ... 30 VDC, which supplies a minimum current of 50 mA. Residual ripple should be no more than 200 mV. Supply the sensor with power either via USB or externally via a power adapter, but not at the same time.

The shield of the sensor must be grounded, as the shield and GND are separated.

## Pin Assignment

Color	Signal	Description
Red	V <sub>CC</sub>	Power supply
Green	V <sub>OUT</sub>	Analog output Voltage
Black	GND	Ground
Yellow	Tx	Digital interface Output
Orange	Rx	Digital interface Input
Brown	OC	Open-collector output
Shield		Black cable with larger cross-section

## Pin assignment

## Voltage Output

The sensor has a voltage output at the V<sub>OUT</sub> connection.

The output impedance must be  $\geq 10$  k $\Omega$ . It is necessary that the shield is connected to ground or GND.

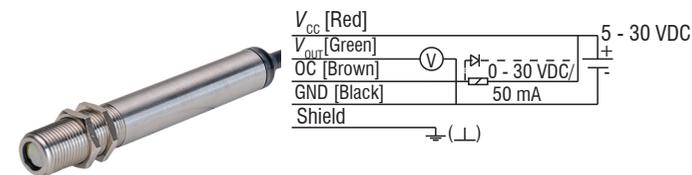
**NOTICE** Avoid a residual ripple of > 200 mV on the power supply unit used.

> Damage to or destruction of the controller



Pin assignment voltage output

## Open-Collector Output



Pin assignment open-collector output

The open-collector output is an additional alarm output on the sensor and can control an external relay, for example. In this case, the normal analog output is available at the same time.

**NOTICE** If a relay is used, a freewheeling or protective diode must be installed.

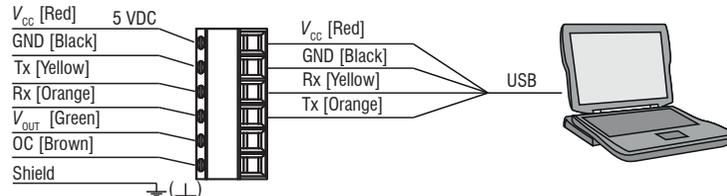
> Damage to the output

## Digital Output

Use the optionally available USB converter for digital communication, see chapter Optional Accessories in the operating instructions, and the sensorTOOL software.

Connect the wire of the USB converter indicated below to the wire of the same color of the connection cable using a terminal block.

The analog output and the open-collector output can be used in parallel.



Pin assignment digital output

## Quick Guide

### Initial Operation

sensorTOOL by Micro-Epsilon is a piece of software that you can use to apply settings to the sensor and to view and document measurement data.

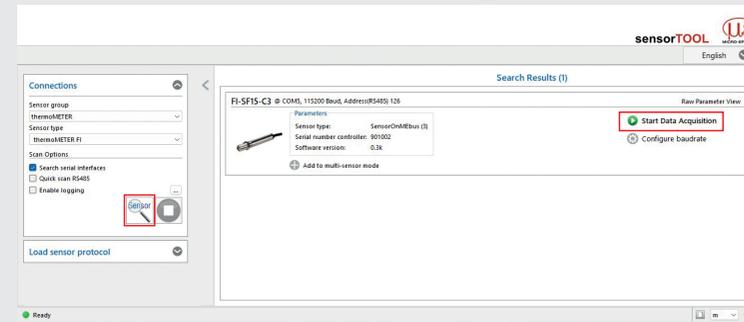
➔ Connect the sensor to a PC/Notebook via the USB interface by using the USB converter<sup>1</sup>.

The supply voltage is supplied via the USB interface.

➔ Start the sensorTOOL program.

You can find this program online at <https://www.micro-epsilon.com/fileadmin/download/software/sensorTool.exe>.

➔ Select thermoMETER in the Sensor group drop-down menu and select thermoMETER FI in the Sensor type drop-down menu.



First interactive site after calling the sensorTOOL

➔ Select the required sensor from the list.

➔ Check the box Search serial interfaces.

➔ Click on the Sensor button with the magnifying glass icon in order to start the search.

1) See chapter Optional Accessories in the operating instructions.

All available channels will now be displayed in the Search Results (x) overview.

➔ Click on the Start Data Acquisition button or the Sensor icon to start the measurement.

You can find more information about the sensor in the operating instructions. They are available online at

<https://www.micro-epsilon.com/download-file/man--thermoMETER-FI--en.pdf>

or with the QR code at right:



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