

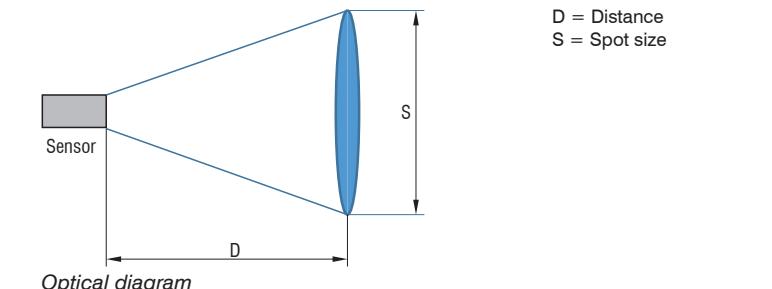
## Optical Specifications

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	

= 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).



## 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.

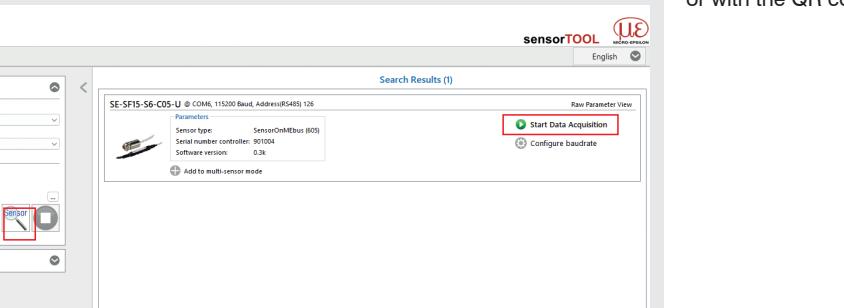
- Connect the sensor to a PC/Notebook via the USB interface using the optionally available USB adapter <sup>1</sup> from Micro-Epsilon.

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 SE in the Sensor type drop-down menu.



- 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.



Setup Guide  
thermoMETER SE



## Functions

The thermoMETER SE 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
- 1 Mounting nut
- 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 sensor cable against damage.

> Destruction of the sensor, failure of the measuring device

Never fold the sensor cable and do not bend it in tight radii. The minimum bending radius is 22 mm (static). Dynamic movement is not permitted.

> Damage to the sensor 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

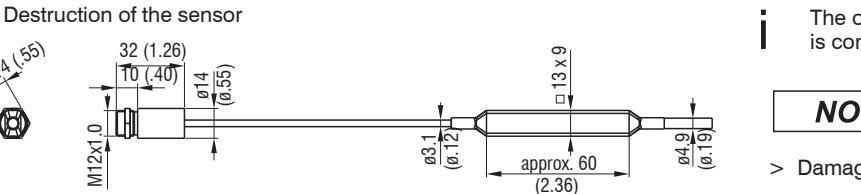
The product meets CE and UKCA requirements. All specifications and safety instructions described in the operating instructions must be observed.

## 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 nut included. Various mounting brackets and fixtures are available as accessories.

### NOTICE

Avoid rough mechanical force on the sensor.



Dimensional drawing thermoMETER SE-SF15-S05-C05, dimensions in mm (Inches, rounded off)

## 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 but not both 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	$V_{cc}$	Power supply
Green	$V_{out}$	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

Depending on the sensor variant ordered, the voltage or current output of the sensors is preconfigured. The user can change the output type via the optionally available USB converter, see chapter Optional Accessories in the operating instructions, and the sensorTOOL software.

## Voltage Output

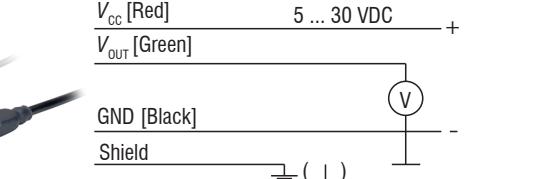
The sensor has a voltage output at the  $V_{out}$  connection. The shield of the sensor is separated from the GND connection.

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

### NOTICE

Avoid a residual ripple of  $> 200 \text{ mV}$  on the power supply unit used.

> Damage to or destruction of the controller

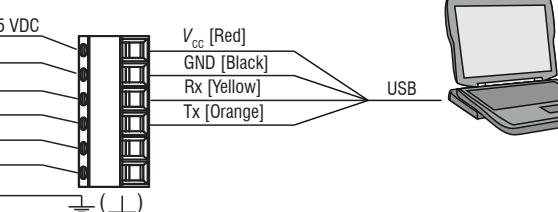


Pin assignment digital output

## 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 sensor cable using a terminal block.

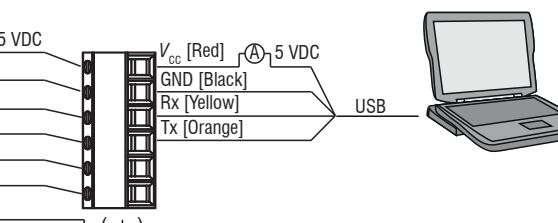


Pin assignment digital output

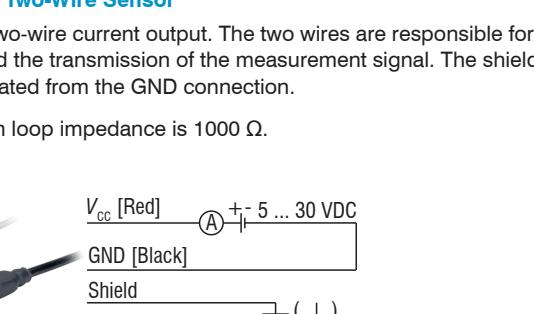
## Combination of Analog Output and Digital Output

The sensors can communicate digitally and be used as an analog device (current or voltage) at the same time. In this case, power is supplied via the USB interface (5 V).

The sensor can communicate in parallel in all operating modes (current and voltage output). The analog measurement signal can then be accessed either at the analog voltage output or in the supply voltage (current output as 2-wire sensor).



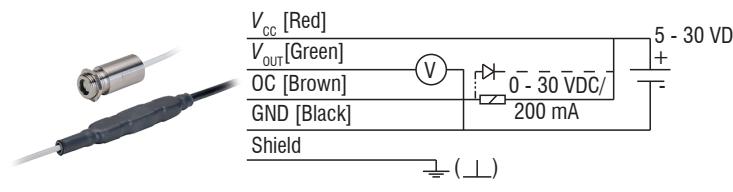
Pin assignment analog and digital output combined



Pin assignment current output as two-wire sensor

## 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 no-normal output is available at the same time.



Terminal assignment open-collector output

### NOTICE

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

> Damage to the output

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