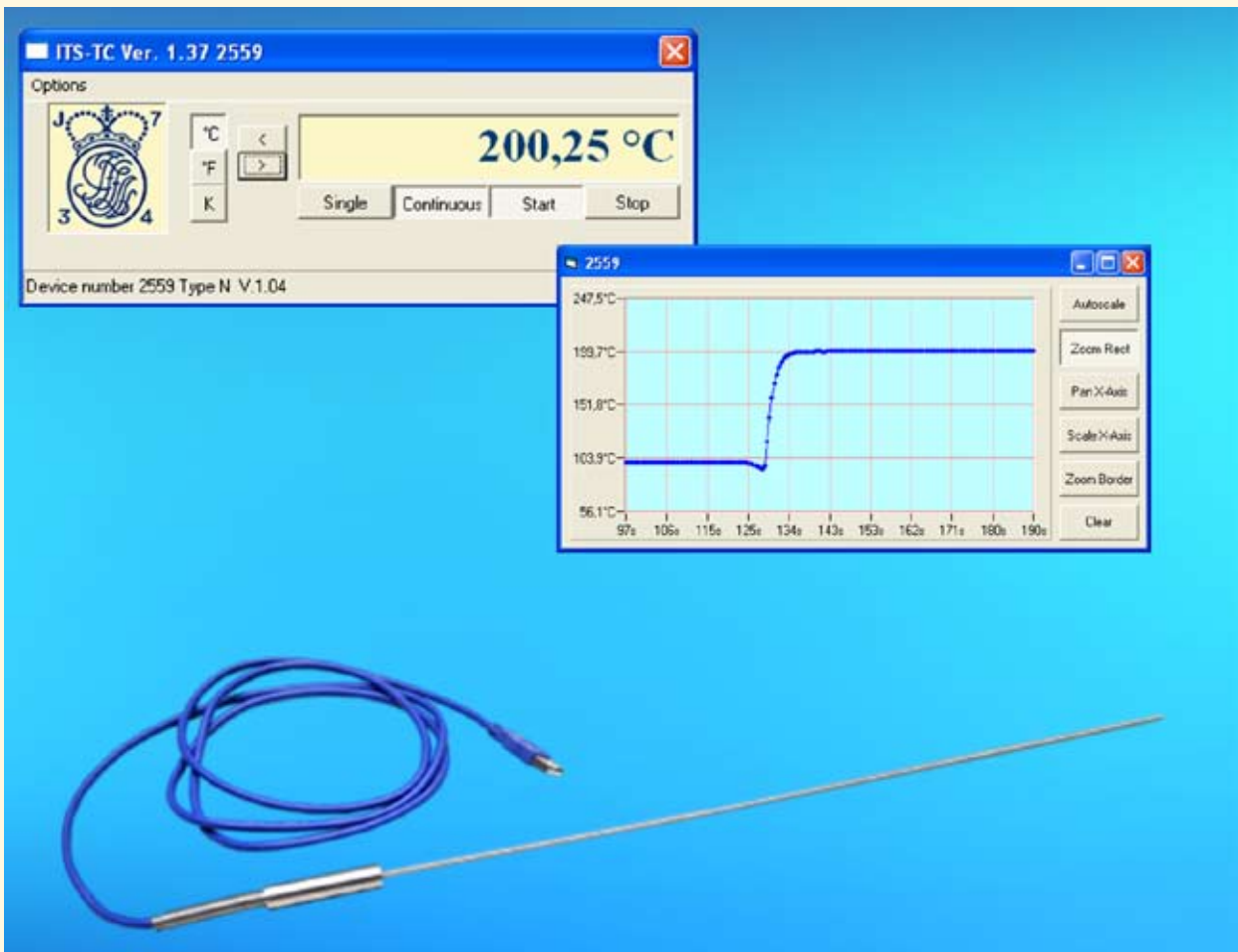


Innovative High Precision USB Temperature Measurement System



ITS-TC is a new and special type of a complete temperature measurement system with integrated data logging and graphical functions for the direct connection to every PC/laptop via the USB port.

It is part of the ISAscale® product group and is based on a special thermocouple type in connection with the high precision data acquisition system ISA-ASIC, developed by ISABELLENHÜTTE.

The sensor material is made of a special thermoelectric material with high EMF stability. The absolute accuracy of the system is better than every known conventional temperature measurement system based on the Seebeck effect.

The voltage signal supplied by the thermocouple sensor is measured with the offset-free, low-noise ISA-ASIC with a 16 bit resolution. The absolute resolution and noise is better than 1 μV or 0.05 K (50 mK) in the range from -200 to +1200 °C.

The ITS-TC is calibrated as a unit including sensor and electronic circuit. The accuracy is better than 1.5 K, except in the temperature range from -30 to +200 °C, where the accuracy is better than 0.5 K. The sampling rate is 1 Hz in continuous mode and 3 kHz in single mode, meaning that also very fast temperature changes can be detected and recorded.

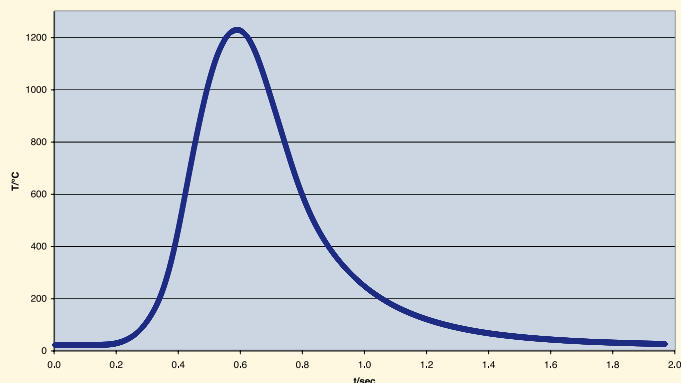
The system works on the USB bus, i. e. the circuit is powered via the bus, and it communicates with any PC or laptop based on Windows® 2000/XP/Vista™ (32 bit). Each sensor has an individual address allowing the parallel operation of up to ten units with one PC/Laptop.

The ITS-TC is supplied with a complete Windows® software for easy temperature measurement and control. Functions like selection of displayed temperature measurement results in °C, °F or K, a data storage function as well as a graphical display of the results are also included in the package. Active X-DLL or LabView® drivers for implementation in used measurement systems are also available.

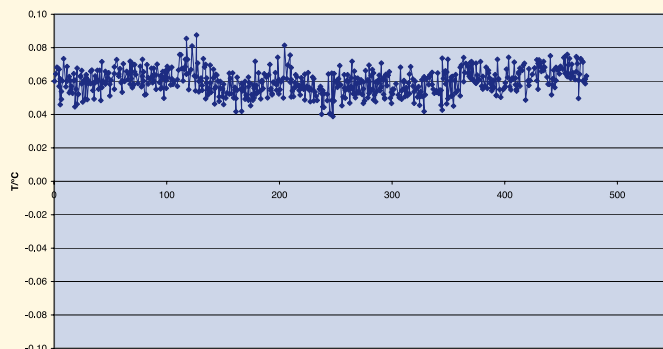
Features of the highly flexible system are:

- Single or continuous measurements with averaging and data compression
- Logger function with data storage on PC for later evaluation with many software packages like Excel®, MathCAD®, etc.
- Integrated graphical display of measurement data over time (CRT-like functions)

The ITS-TC can be recalibrated by ISABELLENHÜTTE if necessary.



Response
(depending on the sensor design)



Noise

Measurement principle	EMF measurement with internal reference temperature compensation, linearization of the used thermocouple, calibration of complete system.
Temperature range	Sensor diameter = 3.00 mm: -200 to +1200 °C Sensor diameter < 3.00 mm: -30 to +500 °C
Sampling rate	1 Hz and 3 kHz
Resolution	≤ 1µV (≤ 0.05 K)
Accuracy (in delivery status)	≤ 1.5 K* in the temp. range from -200 to +1200 °C ≤ 0.5 K* in the temp. range from -30 to +200 °C
Working temperature range for electronic circuit	-30 to +60 °C
Operating System	Windows® 2000/XP/Vista™ (32 bit)

* depending on the thermocouple type, the sensor design and the calibration



ISABELLENHÜTTE

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Cooperation with
German Commission for
Electrical, Electronic &
Information Technolo-
gies of DIN and VDE



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ISO/TS 16949:2002 and
DIN EN ISO 9001:2000
certified

