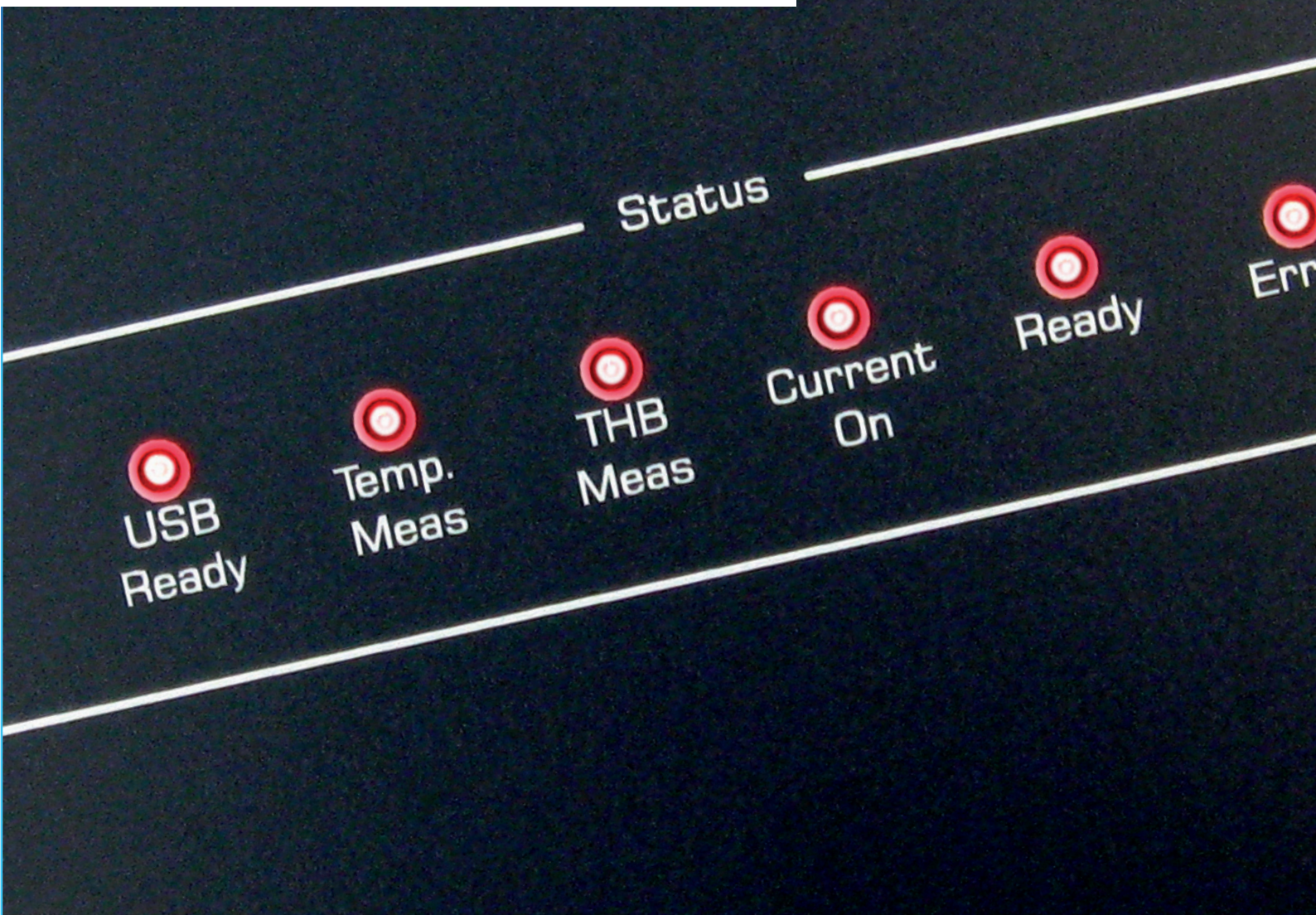


THB - 1 • TRANSIENT HOT BRIDGE

*Measuring instrument for thermal conductivity,
thermal diffusivity and specific thermal capacity*



INSEIS

THB — Transient Hot Bridge

In view of vanishing primary energy resources and global warming, the thermo-physical properties of substances increasingly gain in importance. Knowledge of the specific heat is indispensable, above all for an economic energy use; thermal conductivity and thermal diffusivity are the most important parameters of new, more efficient working materials in the field of energy management, process engineering, biogenic fuels and effective insulators for constructional energy saving. As fuels and insulators, renewable raw materials offer ecological advantages. Their contribution to the protection of the environment and the climate as well as to the protection of finite fossil fuels still depends considerably on their thermo-physical properties which, until now, have been unknown in many cases.

The Transient Hot Bridge technique enables thermal conductivity, thermal diffusivity and specific heat measurements on various sample geometries and materials.

This LINSEIS measuring instrument provides the three material properties simultaneously after just a few minutes time – regardless of whether you have used the patented sensor in a solid matter (incl. bulk material, gels, pastes) or in a liquid.

The preparation of solid samples is pretty simple: One plane surface of two sample halves is sufficient for the sensor. Reference or calibration measurements are a thing of the past. As a matter of course, the THB measures absolute values, with an uncertainty which is not behind that of conventional plate or our laser flash devices.

Different sensors, easily to be exchanged, are available for laboratory and field use.

The THB measures fully automatically. Its software control optimizes the measurement process independently, aiming at a short duration and a minimum uncertainty. In addition, it continuously monitors a possible temperature drift of the sample. Due to the short measurement times, serial measurements can be performed at a forced sequence and with a high sample output.

In addition to the measurement values, the Software calculates and displays the associated measurement uncertainties in accordance with the international ISO standard.

Advantages

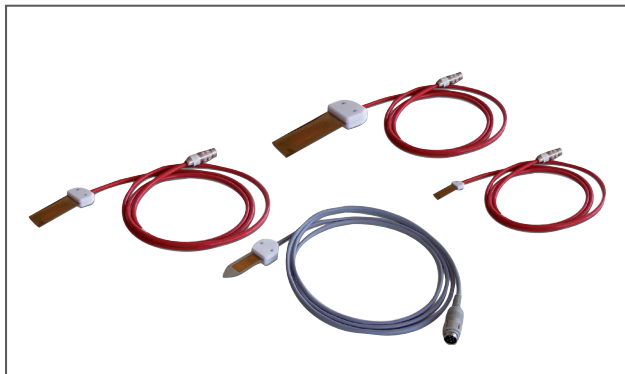
- Highest Accuracy
- Absolute technique (no calibration or reference sample required)
- Fast measurement cycles
- Non destructive measurement
- Broad measuring range
- Broad temperature range
- Easy handling (no trained staff required)
- Simple sample preparation
- Applicable for solids, liquids, powders and pastes
- No influence of sensor contact pressure on measurement
 - Easy measurement of porous and transparent samples



Technical Data

Principle of measurement

Transient strip sources according to a patented transient-hot-bridge procedure (THB), disturbing effect compensated, free from offset.

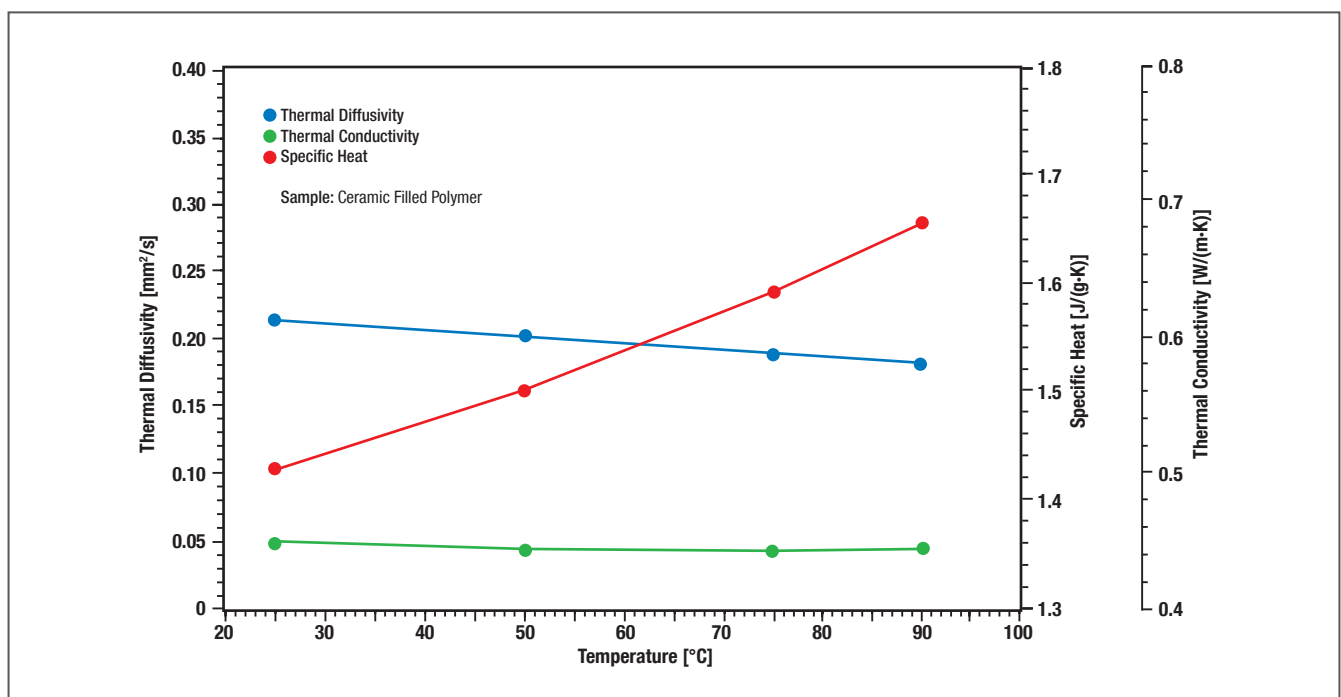


Hardware

- State of the art Laptop
 - Minimum CPU (i7) 6M
 - 50 GB Hard Disk
 - 8 GB RAM
 - Windows 7 original copy
 - 17" TFT display
- Color laser printer
- LINSEIS Thermal Properties Software Package TA-WIN

Specifications

- Table Top System (Thermal Conductivity Analyzer) complete with software and hardware including standard kits and accessories
- Data acquisition software to control system with full parameter setup
- Measuring method: Transient Hot Bridge
- Measuring range:
 - Thermal Conductivity: 0,01 up to 1W/(m·K)
 - Thermal Diffusivity: 0,05 up to 10mm²/s
 - Specific Heat: 100 up to 5000kJ/(m³·K)
- Temperature range: -50° up to +200°C
- Sample Size:
 - Minimum sample size: 17mm diameter
 - Maximum sample size: unlimited
- Precision: Better than 1%
- Accuracy: Better than 5%
- Extra Hook-Ups required: None
- Software:
 - Intuitive Windows® based software interface
 - Easy data export to Microsoft Excel®
 - Calculation of other Thermophysical properties via Measurement or data input (Thermal Diffusivity, Heat Capacity and Density)





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