

## TPSYS02 PC CONTROLLED THERMAL CONDUCTIVITY MEASUREMENT SYSTEM

TPSYS02 is a system for the measurement of thermal conductivity using TP02 or TP08 Non-Steady-State Probes (NSSP). The system is designed for high accuracy measurements. It is particularly suitable for analysis of soils, thermal backfill materials, sediments, foodstuff, powders, sludges, paints and glues.

The main components of TPSYS02 are the TP02 (or its smaller equivalent, type TP08) Non-Steady-State Probe, the MCU Measurement and Control Unit and software. TP02 and TP08 are designed for measuring in media in the thermal conductivity,  $\lambda$ , range of 0.1 to 6 W/m.K. The measurement principle is that of a NSSP or Transient Line Source. For details on TP02 or TP08, see the separate brochures. The MCU takes care of the measurement and control process. It is recommended to perform measurements with TPSYS02 in a laboratory environment. A special "field configuration" is available for stand-alone measurements.

TPSYS02 is operated in conjunction with a PC or laptop (field configuration: via Keyboard Display). The software arranges communication with the MCU. Unique is that the measurement is extremely fast (several minutes only), absolute and independent of sample size.

### MORE INFORMATION / OPTIONS

*Alternative designs:* Hukseflux is specialised in NSSP design. Alternative models, for instance for field use, are available at Hukseflux.

For use in soils, it is suggested to also consult the brochures of the more robust but less accurate systems FTN, MTN and TNS.

### TPSYS02 SPECIFICATIONS

|                                 |   |
|---------------------------------|---|
| Test method:                    | ASTM D 5334-92<br>and IEEE<br>Standard 442-1981               |
| Sensor supplied:                | TP02 or TP08  |
| Suitable media:                 | 0.1 to 6 W/m.K  |
| Accuracy (depends on sample):   | +/- (3%+0.02)<br>W/mK   |
| Typical heating cycle duration: | 200 s (typical)   |
| Requirements:                   | PC equipped with<br>Windows XP (at<br>least)<br>Free com port |
| Options:                        | Field configuration,<br>Arctic version                        |

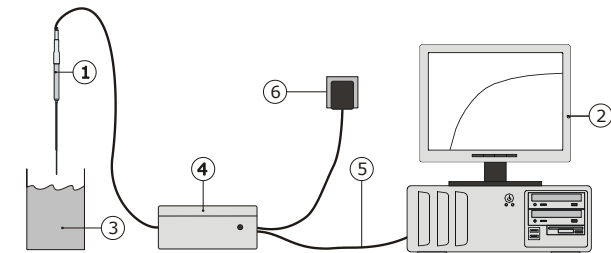


Figure 1 TPSYS02 standard configuration in the lab. Needle type TP02 or TP08 (1), PC (2) (PC not included), Sample (3), MCU (4), RS232 (5), Adapter suitable for both 220 and 110 VAC (6). The MCU runs on 12 VDC, so with a battery power supply and laptop it can also be used in the field.

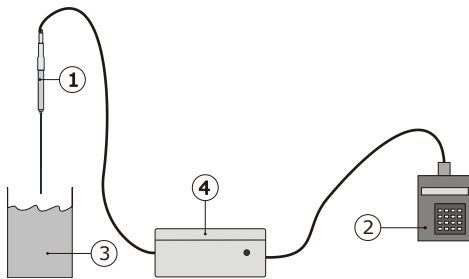


Figure 2 TPSYS02 field configuration. With the Batteries included in the MCU (4), the Keyboard Display (2) can be used for stand-alone operation. After the field experiments TPSYS02 can be connected to a PC and the complete data can be retrieved from the MCU.

### STANDARDS

The measurement with MTN complies with the IEEE Guide for Soil Thermal Resistivity Measurements (IEEE Standard 442-1981) as well as with ASTM D 5334-92 Standard Test Method for Determination of Thermal Conductivity of Soil and Soft Rock. TPSYS is suitable for use by ISO certified laboratories.

### NEW!

For high accuracy calibration CRC Calibration Reference Cylinders are available.  
For insertion into hard media GT Series Guiding tubes can be applied.