

PST400T Test Station

DATA SHEET

- Measurement, control/verification and pairing of temperature sensors, Pt100 - Pt500 - Pt1000
- Adapted to the requirements for EN1434
- Range +10 °C to +150 °C
- Flexible architecture - easily expandable
- Easy calibration
- PC software for efficient workflow and workflow control



Application

A complete test system for flexible, efficient and accurate measuring and pairing of temperature sensors.

PST400T is the successor to the well-known test station PST300, used since many years by several certified laboratories.

The test station PST400T is optimised for accurate and rapid measurement of temperature sensors.

The capacity enables single sensor calibration up to full scale production volumes and provides, together with the thermostatic bath TB400, a complete system to comply with present as well as future requirements.



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EN 1434

(EN 1434: European standard for heat meters)

The PST400T test station is designed and adapted to the requirements in the EN1434 standard with a contribution to the uncertainty of less than 1/5 of MPE (Maximum Permissible Error).

The temperature range of the test station, +10 to +150 °C, is also adapted to the TB400 bath and enables measuring, verifying and pairing of sensors according to EN1434 over a temperature range of 0 - 180 °C.

For use with other requirements and standards, the test points can be selected variably.

Modular design - flexibility

To enhance flexibility in using and calibrating, the new PST400T is modular designed inside as well as outside the apparatus covers.

The high-quality reference components in the temperature measuring unit are mounted on a separate plug-in PC-board. This enables very quick exchange when calibrating the test station and eliminates considerable production stops.

The temperature measuring unit enables measurements of Pt100, Pt500 and Pt1000 sensors without changing reference components or additional calibration.

The multiplexer cables for connecting the sensors are easily replaceable due to connectors in the multiplexer end.

The flexibility of the modular design enables to connect one or several multiplexers, reference sensors, control sensors and external equipment for calibration etc.

Software

The temperature sensor program for Windows makes the measuring, controlling and pairing of the temperature sensors accurate, efficient and easy to handle.

Data from the measurements and pairing can be stored and printed in several ways.

Function

To the PC, where the software is installed and run, the temperature measure unit is connected via a galvanic isolated communication bus.

In the temperature measuring unit the resistance measurements are done. To this unit, several multiplexer units can be connected.

To each multiplexer up to 21 temperature sensors can be connected. The multiplexer units are placed close to the temperature baths when measuring is on-going.

To the temperature measuring unit, 3 reference sensors (one for each bath) can be connected. This enables accurate, relative measurements.

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Supervision

Inlets for 3 additional control reference sensors enables a continuous supervision of the regular reference sensors without cable switch-over.

Thanks to these continuous comparative measurements, the operator is given fast information if any reference sensor should indicate a deviant measuring behaviour.

The results of this automatic self-check is continuously displayed in the software.

PST400T & TB400 – A complete test system

By combining PST400T with the TB400 baths, a complete and competent test system for temperature sensors is obtained.

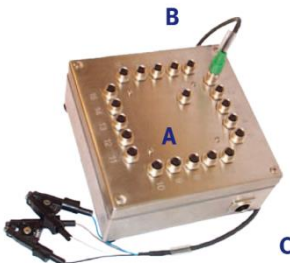
See page page 5 for a system overview!

Temperature measuring unit



- A) Inlets for 1 to 3 st multiplexer units
- B) Inlets for up to 3 + 3 st system reference/control sensors
- C) Inlets for by-passing the internal A/D-converter at calibration
- D) Security key for protection of calibration data etc.

Multiplexer unit



- A) Inlets for up to 21 sensors
- B) Quickly exchangeable sensor cables
- C) No active electronics in signal path

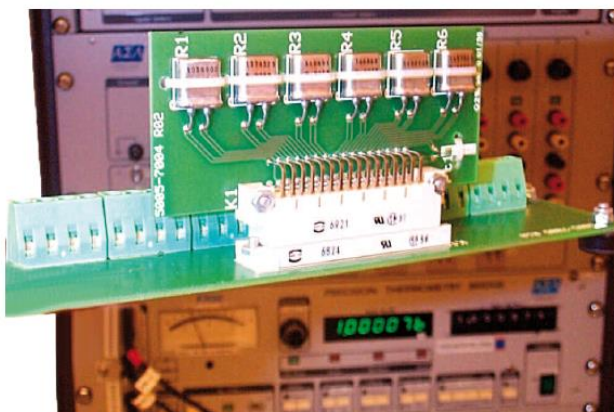
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Plug-in printed circuit board with precision resistors

By completion with an extra precision resistor board, the system can easily be calibrated with minimized production interrupts.

New calibration values for each resistor are written into the software calibration setup.



Technical data PST400T

- **Sensor type**
 - Pt100, Pt500, Pt1000
- **Measurement principle**
 - 4-terminal
 - Absolute measurement or Relative measurement with reference sensor
 - Automatic correction of thermal EMFs ("True Ohm")
- **Temperature range** 9 °C to 153 °C
- **A/D converter** 20 Bit A/D converter
- **Resolution** 0,15 mK
- **Measurement current** Max 0,1 mW at R0 (See EN1434)
- **Accuracy**
 - Absolute accuracy: Better than 2 mK
- **Temperature measuring unit**
 - 3 connections for multiplexer units
 - 6 connections for reference / control sensors
 - 1 connection for galv. isolated serial communication with PC
 - Electrical connection: 230V
 - Connection for calibration or external measurement equipment
- **Multiplexer unit**
 - 21 connections for temperature sensors
 - 1 connection for temperature measuring unit

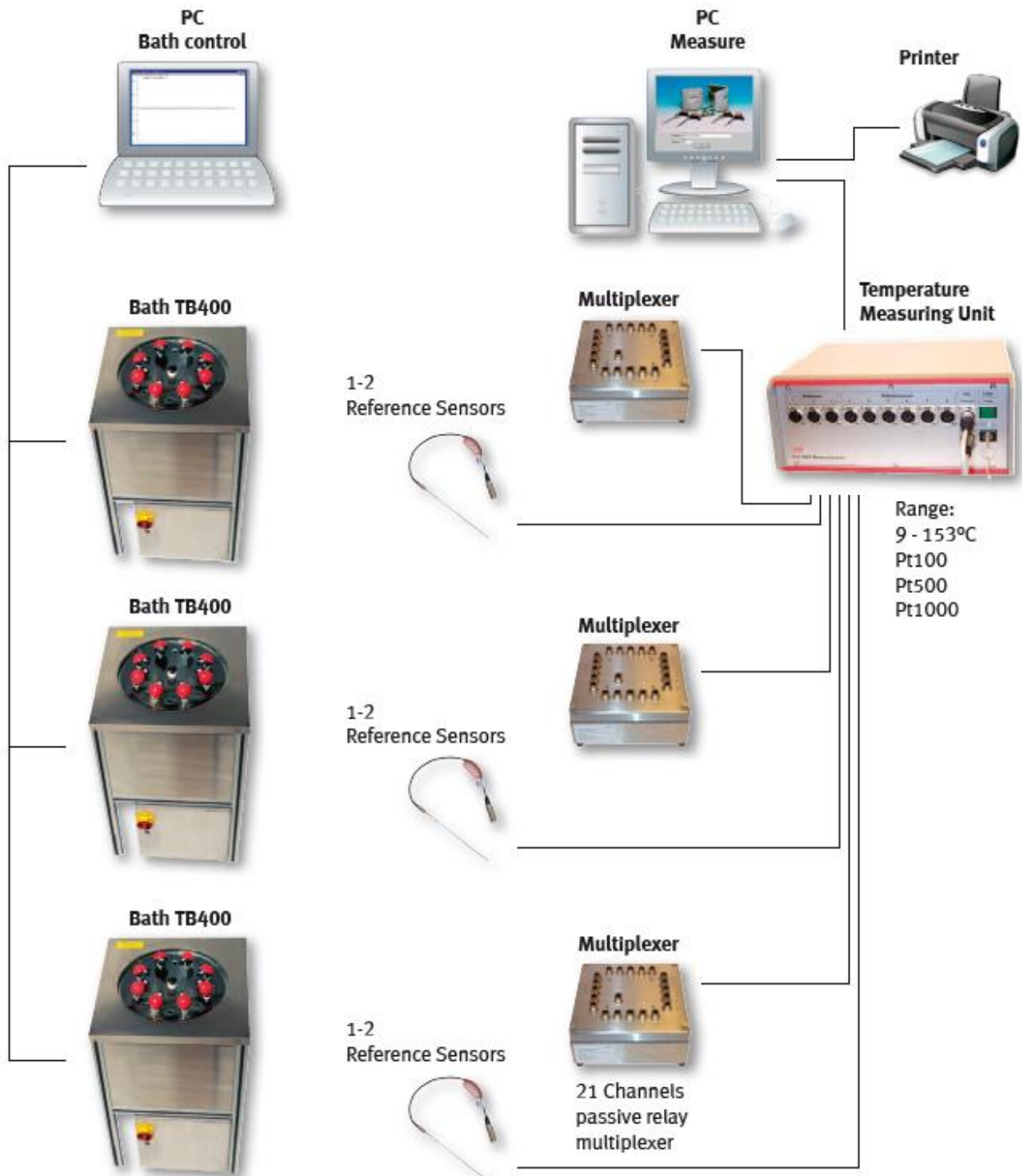
(Contents may change without any further notice)

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PST400T & TB400 - Overview

Complete test system for measuring and pairing of temperature sensors.



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