

**WL 920**

**Advanced Temperature Measurement Trainer**



**Technical Description**

A wide range of temperature measurements can be performed and compared using this unit.

The thermometers and temperature sensors to be investigated are heated to the same temperature in a tank of water. A second heated tank with an electronic control system provides water temperatures up to 80°C. The transient response of the sensors can be examined by quickly immersing them in the second tank.

Digital instruments for measuring temperature, voltage and resistance enable the characteristic curves to be drawn. A 3-channel line recorder can be used to continuously record the measured values from the electrical temperature sensors (thermocouple, thermistor, RTD) and thus to document the different responses.

The trainer can be used for student experiments and is also suitable for demonstrations.

**Learning Objectives / Experiments**

- temperature measurements with
  - \* psychrometer
  - \* bimetallic
  - \* gas thermometer
  - \* thermocouple
  - \* thermistor
  - \* Pt100
- overview of temperature measurement methods
- function of individual temperature measuring instruments
- response characteristic of sensors
- steady-state and non-steady-state behaviour
- reproducible experiments

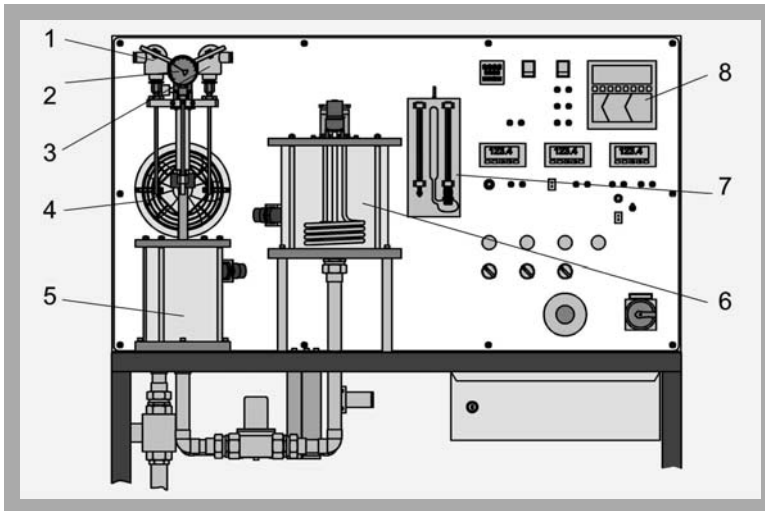
\* **Comparison of various methods of temperature measurement**

\* **Non-steady-state behaviour**

\* **Defined temperature steps possible**

**WL 920**

**Advanced Temperature Measurement Trainer**



1 thermocouple, 2 bimetallic thermometer, 3 RTD (Pt100), 4 fan, 5 tank, 6 tank with heater, 7 psychrometer, 8 3-channel line recorder

**Specification**

- [1] steady-state and non-steady-state temperature measurement with 7 typical instruments
- [2] defined temperature steps up to 80°C
- [3] 2 tanks: water tank and heated tank with temperature control
- [4] both tanks fitted with a stirring machine
- [5] fan generates constant air temperature above experimental tank
- [6] thermometers: bimetallic and gas; psychrometer
- [7] temperature sensors: RTD (Pt100), thermocouple type K, thermistor (NTC)
- [8] calibration device: digital voltmeter
- [9] 3-channel line recorder

**Technical Data**

**Heater**

- power: 2kW
- temperature limit: approx. 80°C

**Stirring machine**

- speed: 330min<sup>-1</sup>

**Fan**

- motor power 29W

- speed: 1.300min<sup>-1</sup>

**Line recorder**

- paper speed: 0...600mm/h

**Measurement ranges**

- thermometer (organic liquid): 0...100°C
- bimetallic thermometer: 0...100°C
- psychrometer: 0...60°C
- thermocouple: -40...1200°C
- thermistor (NTC): 20...55°C
- Pt100: -50...400°C

**Dimensions and Weight**

LxWxH: 1200x700x1550mm

Weight: approx. 185kg

**Required for Operation**

230V, 50Hz, 1 phase or 120V, 60Hz, 1 phase  
Water connection, drain

**Scope of Delivery**

- 1 trainer
- 5 temperature sensors
- 1 set of accessories (laboratory cables, hoses)
- 1 manual

**Order Details**

060.92000 WL 920 Advanced Temperature  
Measurement Trainer