



Anton Paar

::: Unique Density & Concentration Meters



Millikelvin Thermometer MKT 50

The Millikelvin Thermometer MKT 50 in combination with standard and industrial platinum resistance thermometers measures temperatures with the highest precision.

Traceable temperature measurements and calibrations for industry, laboratories and research

MKT 50 in combination with platinum resistance thermometers (Pt 100 and Pt 25.5) is designed for temperature measurements of the highest accuracy as well as comparison and fixed point calibrations for industry, laboratories and research. Using calibrated Platinum Resistance Thermometers you can achieve a measurement uncertainty (instrument and sensor) of 1-10 mK.



User-friendly and versatile

- ▶ The temperatures of two connected measuring sensors are calculated directly in the instrument and then displayed.
- ▶ ITS-90 or IEC 751 calibration parameters for 30 measuring sensors can be programmed.
- ▶ MKT 50 allows the continuous calculation and display of the current values, mean values and standard deviations (over 5 to 50 measurement values) for both sensors simultaneously.
- ▶ MKT 50 is the perfect instrument for the calibration and adjustment of DMA density meters or SVM viscometers.
- ▶ A case for the safe transport of MKT 50 and two measuring sensors is available.
- ▶ A switch box for 8 channels is available (cascadable up to 32 channels, controlled manually or via RS 232).

Patented measuring principle with outstanding features

- ▶ For each measurement the zero point correction (measuring current reversal) and gain error correction (comparison with reference resistor) are repeated.
- ▶ The influence of thermal voltages is completely removed by reversing the measuring current.
- ▶ The direct current method prevents errors due to parasitic capacitive or inductive resistances.
- ▶ The precision and long-term stability of the resistance measurement only depend on the reference resistor.
- ▶ The internal reference resistor is easily calibrated and adjusted by connecting a standard resistor.

Available platinum resistance thermometers

- ▶ Anton Paar offers a range of highly stable Pt 100 Platinum Resistance Thermometers (PRTs) with factory or DKD calibration certificates.
- ▶ Special PRTs are available for the calibration and adjustment of DMA density meters and SVM viscometers.

Technical specifications

Measuring range	
Temperature	-260 to +962 °C (-418 to +1764 °F)
Resistance	0 to 440 Ω
Resolution	
Temperature	0.1 mK (Pt 100)
Resistance	40 μΩ
Measurement uncertainty*	
Temperature	< 1 mK (Pt 100)
Resistance	< 400 μΩ
Measuring sensor	Pt 100 or Pt 25.5 (DIN IEC 751 or ITS-90)
Measuring current	0.41 mA _{rms}
Internal reference resistor	380 Ω (Vishay)
Number of sensor inputs	2
Sensor connection	4 wire (Lemo 1S304)
Measuring time (for both channels)	1.44 seconds
Data outputs	RS 232 D (optional USB**) LAN (Ethernet, 10 Mbit)
Ambient operating temperature	0 to 35 °C (for highest accuracy 20 to 25 °C recommended)
Temperature coefficient	< 0.6 ppm/°C
Power supply	Power adapter 7.5 V or 2xAA batteries
Dimensions (L x W x H)	240 x 190 x 110 mm (9.5 x 7.5 x 4.3 inches)
Weight	approx. 2 kg (4.4 lbs)

*) refers to the calibration of the reference resistor without contribution of the sensor (confidence level: 95 %, number of measurement values: 50, reference temperature: 23 °C)
**) with USB/RS 232 adapter

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Instruments for:

Density & concentration measurement	Colloid science
Rheometry and viscometry	High-precision temperature measurement
Sample preparation	Refractometry
Microwave synthesis	Polarimetry
	X-ray structure analysis

Specifications subject to change without notice.

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