



Millikelvin Thermometer

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. Its digital interfaces make it ideal for automatic 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 up to 1.4 mK. Many officially accredited calibration laboratories rely on MKT 50.



User-friendly and versatile

- ▶ For ITS-90, IEC 751 and ASTM 1137 sensors
- ▶ MKT 50 measures the temperature, resistance, resistance ratios, standard deviation and mean values of both channels simultaneously
- ▶ MKT 50 is a reference resistance meter with a range of 0-440 Ohms
- ▶ Automatic adjustment of DMA M density meters and SVM viscometers

Patented measuring principle with outstanding features

- ▶ Zero point correction (measuring current reversal) and gain error correction (comparison with reference resistor) for each measurement
- ▶ Thermal voltages have no effect because the measuring current is reversed
- ▶ The direct current method prevents errors due to parasitic capacitances or inductances
- ▶ Long-term stability only depends on the internal reference resistor
- ▶ The internal reference resistor can be easily adjusted by connecting a standard resistor
- ▶ Lemo plugs with shielded cable for harsh industrial environments

Available sensors and accessories

- ▶ Highly stable Pt100 sensors with factory or DKD certificates
- ▶ Flexible sensors for adjustment of DMA density meters and SVM viscometers
- ▶ Two types of working SPRTs are available for the highest accuracy (up to 1.4 mK)
- ▶ Carrying case for safe transport of MKT 50 and two measuring sensors
- ▶ Switch box for 8 channels (cascadable up to 32 channels, controlled manually or via RS-232)

Technical specifications

Measuring range	
Temperature	-260 °C to +962 °C (-436 °F to +1764 °F)
Resistance	0 Ω 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	400 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 °C to 35 °C (for highest accuracy 20 °C 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 mm x 190 mm x 110 mm (9.5 inches x 7.5 inches 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

Your distributor: