

Sensors for MKT 50

You can connect every platinum resistance thermometer to MKT 50 that meets the DIN IEC 60751 requirements and has a nominal value of $100 \Omega (R_0)$.

DIN IEC 60751 gives tolerances for the temperature range $-200 \text{ }^\circ\text{C}$ to $+850 \text{ }^\circ\text{C}$. These tolerances range from several tenths to several $^\circ\text{C}$, depending on the temperature. MKT 50 allows determining the resistance of a sensor with a measuring uncertainty of 1 ppm. To make full use of MKT 50's accuracy, you should definitely use a sensor that is delivered with a calibration certificate. This allows you to measure temperatures across a wide range with very low measuring uncertainty. System measuring uncertainties below 10 mK are possible. The contribution of MKT 50 to this measuring uncertainty is usually negligible.

It is also possible to use ITS-90 for Pt 100 thermometers. But the spectral purity of the platinum and sufficient stability are essential requirements for this.

Find more information in the sensor producer's statements and/or the sensor manual.



Information:

The instrument and sensor are carefully calibrated and adjusted before being delivered. Since thermal stress on the sensor and/or the minor drift of MKT 50's reference resistor cause changes to your measuring system, be absolutely sure to check the temperature measuring device before each larger measurement. In most cases a test using freezing point calibrators or water triple point cells is enough.

Sensors in Stainless Steel Tube

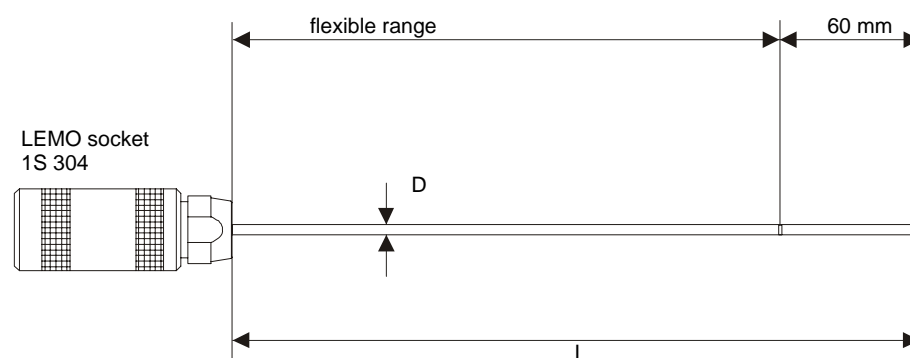


Fig.1 MPMI sensor

Technical Data in General

Protective cover:	Stainless steel 1.4571
Connection wires:	4 wires insulated with aluminum oxide
Sensor:	Pt 100, 1/10 DIN IEC 60751, class B, pre-aged, stabilized
Connection:	Lemo Socket 1S 304

Calibration Certificate

The sensors are available with several calibration certificates. During the calibration procedure several values are measured and calculated.

1. The sensor is measured within the calibration range of interest at 0 °C (or 0.0100 °C) and two or more additional temperatures. This results in at least 3 temperature/resistance data pairs. The measuring uncertainties are respectively stated.
2. The measuring data is used to calculate the coefficients R0, A and B according to DIN IEC 60751.
3. Plausibility check: The sensor is tested once more at another temperature. This temperature is calculated using the coefficients determined above and has to range within the stated measuring uncertainty.
4. For temperatures lower than 0 °C the sensor is additionally measured at the triple point of mercury (approx. -38 °C). This leads to a third coefficient C. Sensors calibrated in this way can be used for temperatures up to -50 °C.

Sensor Types

Type	Mat. No.	D [mm]	L [mm]	Calibration certificate Range [°C]
MPMI 1004/500	69278	4	500	-
MPMI 1004/500	69264	4	500	0 to 200 ^a
MPMI 1004/500	69265	4	500	0 to 420 ^a
MPMI 1004/500	69266	4	500	-50 to 200 ^a
MPMI 1004/500	69267	4	500	-50 to 420 ^a
MPMI 1004/300	69279	4	300	-
MPMI 1004/300	69272	4	300	0 to 200 ^a
MPMI 1002/500	69280	2	500	-
MPMI 1002/500	69268	2	500	0 to 200 ^a
MPMI 1002/500	69269	2	500	0 to 420 ^a
MPMI 1002/500	69270	2	500	-50 to 200 ^a
MPMI 1002/500	69271	2	500	-50 to 420 ^a

Type	Mat. No.	D [mm]	L [mm]	Calibration certificate Range [°C]
MPMI 1002/300	69281	2	300	-
MPMI 1002/300	69274	2	300	0 to 200 ^a
Pt 100 for temperature calibration of a DMA ^b	74557	1.8	340	0 to 100 ^c

- a. DKD calibration certificate
- b. Find more information in the delivered instruction manual.
- c. Factory calibration at Anton Paar (DKD certificate at extra costs available)

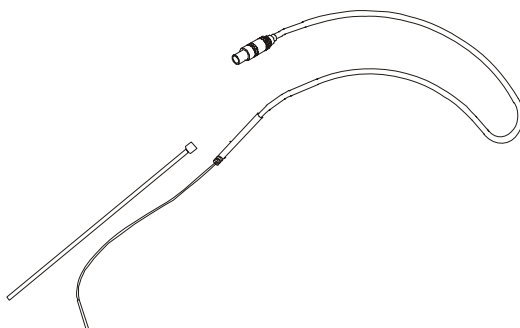


Fig.2 Sensor Pt 100, Mat. No. 74557

If these sensors do not meet your requirements or if you have questions about measuring applications, contact your Anton Paar representative.

Sensor Cable Suitable for all MPMI sensors for MKT 50.

- Mat. No.:** 69276
- Length:** 1.5 m
- Connection wires:** 4 wires insulated with PTFE
- Maximum temperature:** 250 °C



Fig.3 Sensor Cable, Mat. No. 69276