



Pt100 Type L Low Temperature Precision Thermometers

The eXacal precision thermometers are used for precise temperature measurements or as calibration standards.

- ✓ **NEW design:** gastight handle with inert gas filling
- ✓ Temperature range: **-200°C to 250°C**
- ✓ small measurement uncertainties: **11mK to 13mK**
- ✓ robust alternative to ITS-90 standard thermometers
- ✓ high stability and good calibration capability
- ✓ low hysteresis and drift due to inert gas



New design: gastight handle with inert gas filling

Due to the new design of the gas-tight handle, the thermometer's protective tube can be filled with a protective gas. This improves the properties of the thermometer and ensures less drift and hysteresis at the extremely low temperatures down to the argon point (-189 °C).

Calibration

eXacal thermometers are calibrated in our own DAkkS calibration laboratory. The DAkkS accreditation ensures that all calibrations are traceable to national and international standards. The calibration of eXacal resistance thermometers is carried out at ITS-90 fixed points. It is also possible to carry out calibrations according to the comparison method in liquid baths and calibration furnaces. The measurement uncertainty is calculated from many components. The largest contributions are reproducibility, ITS-90 function, self-heating and hysteresis.

| Range | Fixed Point | Uncertainty |
|-------------|-------------|-------------|
| -189,3442°C | Argon | 11mK |
| -38,8344°C | Mercury | 5mK |
| 0,01°C | Water | 5mK |
| 29,7646°C | Gallium | 6mK |
| 156,5985°C | Indium | 9mK |
| 231,928°C | Tin | 10mK |

The given measurement uncertainties correspond to k=2, include an ITS-90 function and are given for the respective range.

Technical data

| Model | eXacal Pt100L |
|-------------------------------|---|
| Temperature range | -189,4332 °C to 250 °C |
| Nominal resistance | Pt100 (100 Ohm) |
| typical annual drift | 2,5mk |
| Connection type | Four-wire |
| Connecting cable | temperature resistant – very low EMF stranded wires from own production |
| Connection | depending on configuration |
| Sheath material | Metal |
| Thermometer wire | Silver |
| Dimensions | |
| Handle | ∅20mm x 100mm (new design: gas tight) |
| diameter | 6mm |
| Length | depending on configuration |
| Connection cable | depending on configuration |
| Detector | |
| R0 | 100 Ohm ± 0,05 Ohm |
| Alpha | 0,003850 ± 0,000005 |
| Standard | IEC 60751:2008 |
| tolerance | 1/10 DIN |
| length | 25mm |
| recommended measuring current | 1mA |
| Self-heating | 5mK to 10mK |
| DAkkS Calibration | |
| Fixed point calibration | 11mK to 13mK |
| Comparison calibration | 15mK to 25mK |

Further information:
www.exacal.de

