

## microK Buyers Guide

### The microK Precision Thermometry Bridge

#### **Why choose the microK?**

Because quite simply there is no alternative considering accuracy, stability, versatility, reliability and ease of use.

#### **Accuracy**

Calibration laboratories require accuracy – the microK delivers sub mK performance for resistance thermometers. For thermocouples its performance is comparable with the best laboratory 8.5 Digit DVMs.



It does this by using a new type of Analog to Digital Converter. The technology is licensed from the NPL, the United Kingdoms National Measurement Laboratory. A sigma delta ADC is used, but with a 5 Bit DAC employed in the feedback loop. For more technical data see the “Web Links” box.

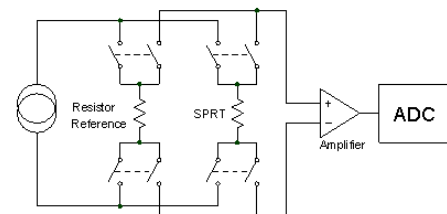
#### **Stability**

For resistance measurements the microK has no drift. This means that the stability specification for microK is 0 ppm / per year!

This is possible because the instrument successively switches the device under test (DUT) and the reference resistor into the same position in the measuring circuit.

The benefit, an inherently stable instrument.

The instrument can be used with external standard resistors or one of the five internal reference resistors.



#### **Versatility**

Secondary laboratories typically use resistance thermometers and for high temperature applications thermocouples. *At last the microK provides users with a high accuracy instrument that can support **all** the thermometers that the laboratory uses.* Standard Platinum Resistance Thermometers (SPRTs), Industrial PRTs, Thermistors and Thermocouples. There are no other instruments available that can work at this precision with all three of these sensor types.

This versatility also provides value – the cost of a DVM with comparable accuracy for thermocouple work is similar to the cost of the microK alone.

The microK has three input channels – guidelines frequently specify that two standards should be used to cross check each other. The microK can have two references and the device under test connected simultaneously.

#### **Reliability**

Before the microK instruments with this level of performance had to use mechanical relays. The microK breaks the mould by using the latest semiconductor devices to provide a completely solid state solution. To reduce the component count high density silicone integration technology is used (FPGA). If you have ever seen inside another instrument in this performance class you may have been concerned about long term reliability and servicing cost. Compare this with the inside of the microK.





**Ease of Use**

The claim “Ease of Use” is a common one but again the microK breaks the mould. The instrument is operated by a large 6.4” (163mm) colour touch screen. Simply tab through the four user screens to configure the instrument with all the options clearly presented. Temperature conversion types include ITS-90, Callendar-van Dusen, Steinhart-Hart and IEC 584-1. Enter coefficients from the touch screen or add a mouse or full size keyboard via the USB interface.



The microK includes a graphing facility with auto or configurable scales. It can also log the data to its internal memory or plug in a USB Pen Drive and log directly to that.



**There Is So Much More**

It doesn't stop there, microK has comprehensive security, an internal data base for all the standards and thermometers and it will warn you if a calibration has passed its expiry date. It can automatically be updated by downloading the latest software from the internet. It is fast with a measurement time of just one second and it uses keep warm currents. The low thermal EMF gold plated tellurium copper input connectors accept 4mm plugs, bare wire or spade terminals.

**Laboratory Thermometer Check List**

Accuracy - SPRT	Better than 1mK <i>Over Whole Range</i>
Channels	Three
Probes Supported	SPRTs, PRTs, Thermistors <i>and Thermocouples</i>
Solid State Design	All solid state <i>NO</i> relays or dials
Stability	0ppm / per year
Measurement Time	<2 Seconds
PC Interface	RS232 and USB Host
Units	Ratio, V, °C, °F and K

*There is no equivalent – don't accept one!*

**Web Links**

- microK General – <http://www.microk.co.uk>
- Design Notes - <http://www.microk.co.uk/design.html>
- Data Sheet: <http://www.microk/microK.pdf>
- Technical Article from Cal Lab Magazine <http://www.microk.co.uk/callab.pdf>
- NPL: <http://www.npl.co.uk>
- Isotech: <http://www.isotechna.com>