

# Why calibrate temperature devices?

## Application Note



With developments in dry-well technology, precision temperature calibration can be performed in the field.

In process control environments, temperature plays an important role. Most industrial processes rely on the performance of their RTDs (Pt100), thermocouples, and other temperature devices. As the need for precision measurements arises, so does the need to be absolutely sure that the readings are correct.

Due to physical and thermal stress, temperature devices drift from their original “in-tolerance” state. A regular verification of temperature measurement systems is necessary in order to maintain a high level of confidence in the measurements. Calibrations can be performed using a variety of methods; basic to any temperature calibration are heat sources and reference standards.

A temperature heat source can be a fluid bath or a dry-block calibrator. Traditionally, calibration of temperature assemblies has been confined to laboratories due to the size of the calibration equipment. Traditional calibration baths can be difficult to move around. With developments in dry-well technology and micro-baths, precision temperature calibration can be performed successfully in the field.

Dry-wells are now made to fit snugly in your hand and precision of  $\pm 0.005$  °C can be achieved for calibration work. Dry-blocks accept a wide variety of sensors and are flexible in fit and form. Micro-baths can offer even greater flexibility and lower uncertainties. Routine temperature calibrations can even be automated now for substantial time and cost savings.

Reference standards are also available in hand-held packages. Precision to  $\pm 0.005$  °C is attainable in battery-powered thermometers. This opens many doors to calibration work that was traditionally available only in the laboratory. Precision secondary level RTDs also make it possible to achieve previously unheard of uncertainties in the field. If you have a portable temperature application, Fluke Calibration has a solution.

**Fluke Calibration.** *Precision, performance, confidence.™*

