

# CALIBRATION

## Traceable to ITS-90 and EN60751

Calibration is needed for high accuracy or for verification to third party.

### Calibration of RTD sensors

1. The sensors are compared at -195°C, -75°C, 0 °C and 100°C with traceable references.
2. A certificate with measurements, calculated Callendar Van-Dusen coefficients, uncertainty and traceability is issued.

### Unique calibration

Senmatic offer a unique calibrated 4-20 mA transmitter - RTD sensor set.

What does unique calibration mean?

1. The RTD sensor is calibrated
2. The transmitter is programmed with the Callendar Van-Dusen coefficients
3. The transmitter is calibrated by simulating the RTD resistance at 3 points (4 mA, 12 mA and 20 mA)
4. Certificates for both calibrations are supplied together with the paired transmitter-sensor set

### Callendar Van-Dusen coefficients?

The resistance at temperature  $t$  can be described this way:  
 $R(t) = R_0 * (1 + A*t + B*t^2 + C*(t-100)*t^3)$  where  $R_0$  is the resistance at 0°C and A, B and C the Callendar Van-Dusen coefficients. Above 0°C  $C=0$ . By active use of the coefficients the sensors uncertainty is less than  $\pm 0.024^\circ\text{C}$  in the calibrated range.

Calibration is only offered with 4 wire sensors.

## International Temperature Scale

