

TECH NOTE: TT-3/100 - Using Foil Sensors for Temperature Measurement

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Abstract

Foil resistors can also be used as temperature sensors.

The TT-3/100 is an RTD (Resistance Temperature Detector) based on Nickel that has a linear temperature coefficient, which allows performing accurate temperature measurements.

The Nickel resistor has a specific resistance, e.g. 113 ohms, at a reference temperature. Additionally, a polynomial is delivered with each sensor package which needs to be considered when calculating the temperature value.

The advantages of a TT-3 sensor are:

- ➔ Can be used on radial surfaces easily
- ➔ Flat.
- ➔ Provides Short reaction time.

We performed an experiment with Pt100 sensors as a reference to show how accurate a TT-3 sensor can work. The sensors were bonded onto a metal block and temperature ramps were performed in an oven.







These sensors can be set up quickly. For example, using catman software:

- → Create a customer-specific sensor and assign a name (e.g. "TT-3/100")
- → Enter the polynomial printed on each TT-3 sensor package

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➔ Assign the sensor to the relevant channel

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→ Start the measurement

TT-3/100 measurement from 20°C to 160°C







In comparison, the Pt100 measurements show more scatter:

Further measurements show a very good correlation between the Pt100 and the TT-3/100 sensor:

