

Uniquely precise temperature sensors

In food and pharmaceutical production there is a very fine line between inadequately treated products and ruined ones. Pentronic's temperature sensors which feature an integrated miniature transmitter can keep companies on the right side of that line leading to greater reliability and lower cost. This conclusion is confirmed by the performance of tens of thousands of individual sensors in demanding applications.

The sensors feature a unique transmitter developed by Pentronic. It is so tiny it can fit on the rear edge of the sensor's protection tube (see images 1 and 2). The result is a complete measuring system which transmits a signal of between 4 to 20 mA directly to the superior system. This design offers two major advantages.

More reliable measurements

First, it reduces the size of measurement errors. Each sensor is individually calibrated and any deviations are already adjusted for during the manufacturing process.

"Any individual differences disappear and the sensors become directly interchangeable without customers having to make any adjustments themselves," explains Pentronic's sales manager Roland Gullqvist.

The theoretical measurement uncertainty for the entire system can be as low as $\pm 0.05^{\circ}\text{C}$. The actual measurement uncertainty depends on what is being measured, how the sensor is applied, and its insert depth.

Low measurement uncertainty means that tighter temperature intervals can be measured, which in turn offers considerable savings in energy-intensive processes.

Lower costs


Second, installation and service are both simpler. The sensors' high protection class, IP67/IP69K, helps make installation easy. The result is lower total costs. The transmitter's low power consumption also enables the sensor to be used in higher ambient temperatures.

Proven performance

Pentronic's well-designed assembly process and in-house production means that sensors

can be customised for their specific measurement task and mounting system. Selected models of Pentronic's Pt100 sensor can also be made available approved by the EHEDG, the US 3-A sanitary standard 74-03/05 and the Russian Sanitary-Epidemiological Conclusion.

Pentronic has been supplying this model of food sensor (see images 1 and 2) to world-leading machinery manufacturers for a couple of years now. Tens of thousands of individual sensors supplied to customers have demonstrated that this design is reliable and highly stable over time. Above all, they have also proven that this system provides correct readings in sensitive processes, leading to higher product quality, lower energy consumption and reduced costs.

Pentronic has followed its original analog transmitter version by developing a digital one which is connected via its own local bus to a gateway that can be customised to suit most buses on the market. More about that in a later issue of Pentronic News. 

1



2



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1. The transmitter can be connected directly to the temperature sensor or via a cable.

2. Pentronic manufactures large series of precise temperature sensors for the food industry.

3. Consumers demand that food is handled hygienically.