tip_probe

Wireless SAW-based sensors
for a rough environment

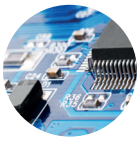
promicron
wireless solutions

Miele

Miele integrates pro-micron SAW-based temperature sensors in your smart ovens

At the Kitchen & Bath industry show in Las Vegas, Miele introduced the product "wireless precision probe". Exclusively for Miele pro-micron developed and produced a sensor in series based on SAW-Technology. It functions as an exact wireless food thermometer and communicates with the oven, which regulates the temperature automatically due to exact data information. No matter what food is cooked, it´s baked or roasted perfectly.

tip300



SAW wireless sensors – how they function

Special sensor units request information wirelessly via radar puls and the response signal determines the measured values, like temperature or force, directly at the measuring point. The sensor unit doesn't use electricity and therefore is completely passive. It consists of a tiny SAW-chip in a sealed casing and an antenna, which is adapted to the limitations. The SAW-chip itself is a piezoelectric crystal with metallic conductors, on which surface acoustic waves are generated with the radar puls.

tip products – customer specific development

Since 2016 pro-micron has specialised in production and development of passive SAW wireless systems for industrial applications. Hereby the focus is on the use in a harsh metallic industrial environment. With an individual adaptation of the sensor design, packaging and antenna design, an optimized solution for specific use can be implemented. Since the end of 2018 pro-micron has been producing SAW-based temperature sensors with 4 sensors in series – the food thermometer tip_probe is successful in US smart home market, since the beginning of 2019.

Further options for SAW sensors

SAW wireless sensors can also detect strains on the SAW-chip, which enables that forces and moments on components can be determined. Also in this case, the SAW sensors don't use electricity, which provides substantial advantages over conventional sensor telemetry with strain gauge.

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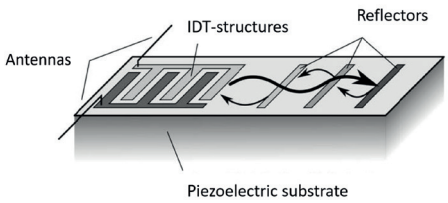
Temperature Sensors:

- up to 300°C with 0,1K relative accuracy
- inside vacuum or various liquids
- continuous measuring
- mobile, moving or rotating objects
- up to 6 sensors



- Temperature
- Force (Strain)
- Rotation (Revolution)
- Position

Example of use: Food industry

In contrast to conventional transmitters the pro-micron thermometer has 4 instead of only one integrated sensor. It can therefore be placed in very flat food in all positions.

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Miele integrates pro-micron SAW-based temperature sensors in their smart kitchens

For determining the core temperature, the temperature sensor has to be placed at the coldest part of the cooking product.

Because of the use of more than one sensor, the customer does not have to find the exact core of the cooking product but only has to insert the sensor into the cooking product. The intelligent sensor takes over this regulation in conjunction with the further developed MIELE-cooking mode.

Pro-micron launched the first worldwide wireless multi-point temperature measuring probe. The system works at 2,45GHZ, meets all relevant criteria and therefore is usable worldwide without restrictions.

MADE IN GERMANY