HIGH PERFORMANCE SENSORS FOR HARSH ENVIRONMENTS

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Facts & figures

- Founded in 1991, headquarters in Ebnat-Kappel, Switzerland
- Development and production (13,500 m²) in Switzerland
  - incl. clean room ISO 5 (>1,000 m²) and production (3,700 m²)
- Approx. 400 employees worldwide (2020)
- > 15 nationalities worldwide
- > 25 million sensors per year
- > 4,000 products
- Up to 200 new products every year
- Worldwide sales
- 40 active patent families
- ISO 9001:2015 / ISO 1400
IST AG as your partner for physical, chemical and biological sensors is specialized in customized sensor solutions.

We rely on a broad portfolio of thin-film sensor elements, which are especially designed for applications in harsh environments and can be adapted to any customer’s needs.

For each individual requirement, we analyze, evaluate, find or develop the right sensor solution in close cooperation with our customers. Any system is only as good as the sensor – and that applies to applications in harsh environments even more!
Physical, chemical & biological sensors
Physical & chemical sensors

Temperature sensors

Flow sensors

Humidity sensors & modules
TEMPERATURE SENSORS
Temperature sensors

IST AG develops and manufactures platinum, nickel and TSic temperature sensors. Our sensors stand out with their excellent long-term stability, high measuring accuracy and vibration resistance. The ESCC qualified sensor in space applications and the PW family are only a few examples of our large portfolio of platinum sensors.
Temperature sensors

Platinum
- Excellent long-term stability
- High accuracy (up to 1/10 DIN (+/- 0.012 %) available)
- Temperature range from -200 °C to +1000 °C

Nickel
- TCRs from 4000 to 6720 ppm/K available
- Simple linearization and high sensitivity
- Temperature range from -60 °C to +300 °C

TSic
- High performance / cost ratio
- Low current consumption: 35 µA during operation
- High accuracy: up to +/-0.07 °C with oversampling
Thin-film RTD temperature sensors

Platinum
The IST AG platinum RTD temperature sensors are developed with the highest quality materials and cover a wide operating temperature range of -200 °C to +1000 °C. The sensors can operate in the harshest conditions while experiencing minimal drift. Their construction is extremely robust and thanks to their small dimensions, the sensors are offered in various housings. The platinum temperature sensors are available with a standard TCR of 3850 ppm/K and with accuracies according to the IEC 60751 norm.

Groups and pairs
IST AG offers sensor solutions based on paired or grouped sensors. In many cases not the accuracy of the absolute temperature is of importance but the relative deviation between two or more sensors. For these applications,

IST AG offers specially selected temperature sensors into groups and pairs.
Nickel RTD temperature sensors

Nickel RTD temperature sensors of IST AG provide solutions for precise temperature measurements applications. These sensors are characterized by a simple linearization and a steep characteristic curve which make them suitable for e.g. HVAC applications.

- Temperature range -60 °C to +300 °C
- Excellent long-term stability
- Easy interchangeability
- Available with various TCR’s such as 6180 pp/K (Nickel ND), 5000 ppm/K (Nickel NL), 6370 ppm/K (Nickel NJ), 6720 ppm/K (Nickel NA), Balco
Nickel thin-film temperature sensors

IST AG offers thin-film sensors developed for simulating standard Cu wire-wound sensors. These temperature sensors are developed and manufactured according to GOST 6651-2009 norm.

- TCR of 4280 ppm/K
- Base resistances of 50 Ohm or 100 Ohm
- Robustness
- Small dimensions
- Short response time
- Vibration and temperature shock resistance
- Excellent long-term stability
- Various housing options
Wide temperature range

Standard and customer specific

Typical standard curves for Pt 1000 and Ni 1000
Wide range of wire connections
ESCC qualified sensors for space applications

IST AG offers ESCC qualified thin-film platinum temperature sensors.

- Stable measuring results at 70’000 cycles
- Temperature range: -200 °C to +200 °C
- Available with different ranging from Pt100 to Pt2000
- Coefficient of resistance (TCR) remains very stable
- High stability regarding drift
- Small size (L x W x H: 2.3 x 2.0 x 1.1 mm), the light weight and the robustness due to the lack of moving parts

IST AG is the first, and currently also the only supplier providing ESCC qualified Pt temperature sensors. The temperature sensors are available both as Engineering Model (EM) or as Flight Model (FM).

We also offer customization of the sensors, e.g. extended wires (with an ESCC qualified wire).
Flow sensors

Innovative Sensor Technology IST AG develops and manufactures thin-film mass and thermal flow sensors and offers solutions for a wide variety of flow applications. Our sensors can be used for measuring in gas and liquid applications.

- Detection of flow direction
- Excellent long-term stability
- Simple signal processing
- Measure flow rates and direction from 0 m/s to 100 m/s

Application areas

- Process Control & Automation
- HVAC
- Handheld Devices
- Appliance
- Medical
- Automotive
Flow sensors

FS
- Easy adaptation in applications and housings
- No moving mechanical parts
- Wide operating measuring range
- E.g. for compressed air

SFS
- Ultra fast response time
- Very low power consumption
- Easy system integration including temperature compensation
- Detection of flow direction

OOL
- Suitable for aggressive liquids
- No contact between sensor and liquid
- High chemical resistance

MFS
- High performance over a wide dynamic range
- Flexible use independent of flow channel design
- Resistant against smoke and gas combustion gases
- Detection of flow direction
Digital Out of Liquid Module

Applications:
• Water flow meter
• Process control
• Leak detection

From our portfolio of thermal mass flow sensors, we present our «Out of Liquid» (OOL) sensor solution. These sensors are especially designed for aggressive media. As a special feature, present the «OOL Module» as part of our product launch at this year’s Sensor+Test. The fully calibrated module is designed for use in harsh industrial environments – without sacrificing its sensitivity.
Digital Out of Liquid Characteristics

- Suitable for aggressive liquids
- High chemical resistance
- Very good repeatability
- High accuracy 0 and 20Kg/h
- Temperature compensation already implemented
- Output signal over I^2C protocol
- Electrical power of heater in mW
- Temperature of media in °C
- Temperature of microcontroller
HUMIDITY SENSORS & MODULES
Humidity sensors & modules

IST AG produces a broad range of fully calibrated humidity modules as well as capacitive humidity sensors. Our humidity sensors can be used for measuring in air and water content in oil. In addition to the sensor elements, we also offer them as fully calibrated modules.

- High humidity / chemical stability
- Fast recovery time
- Wide temperature range
- Simple signal processing
- Measure flow rates and direction from 0 m/s to 100 m/s

Application areas

- Process Control & Automation
- HVAC
- Handheld Devices
- Medical
- Biotechnology
- Aviation & Space
- Appliance
- Automotive
- Meteorology
Humidity sensors & modules

Sensors
• Water resistant chip design
• Low drift (less than 0.5% RH/year)
• High chemical resistance to various gases and liquids
• Short response time (<1.5 s to <7 s)
• Temperatures from -80°C to +190 °C

Modules
• Fully calibrated and temperature compensated (ready for plug-in)
• High chemical resistance to various gases and liquids
• High accuracy of temperature and humidity measurement
• Analog and digital versions available
• High temperature measurements
Humidity modules

The digital HYT humidity modules of IST AG offer a wide application window and an optimal price-performance ratio. The sensors are mechanically robust and have a chemical and condensed waterproof sensing area.

- Calibrated and temperature compensated
- Excellent humidity/temperature accuracy and stability
- High chemical resistance
- I²C protocol (address 0x28 or alternative address)
- Wide humidity and temperature range (0% TH to 100% RH and -40 °C to +125°C)
- Very low drift
- Very stable at high humidity
- Interchangeable without adjustments
Humidity sensors

The sensor consists of a ceramic substrate, two metal plates (electrodes) and a non-conductive polymer between them. Our humidity sensors can handle the challenges of temperature cycling and exposure to aggressive chemicals.

- 0% RH to 100% RH
- Temperature range of -80 °C to +190 °C
- Very low drift
- Excellent linearity
- Low hysteresis
- Fast response time
- High chemical resistance

**Polymer**: A material made of long, repeating chains of molecules. The dielectric constant of polymer changes with absorbed moisture.
We look forward to exciting discussions about your customized sensor solution.
Contact us

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