Innovative
Sensor Technology

physical. chemical. biological.

TEMPERATURE SENSORS

Wide temperature measurement range with
excellent long-term stability and high accuracy

AEROSPACE

APPLIANCE

AUTOMATION

AUTOMOTIVE

IST AG offers a wide range of sensors based on different technologies suitable for any application. Our RTD platinum temperature sensors are extremely robust, highly accurate and low drift. Our nickel sensor components offer excellent long-term stability and are easily replaceable. IST AG's TSic sensors are semiconductor temperature sensors that feature highly accurate measurements within a limited temperature range.

Platinum Temperature Sensors (Pt)

The IST AG platinum thin-film temperature sensors are available with a standard TCR of 3850 ppm/K and with accuracies according to the IEC 60751 norm.

- Temperature range of -200 °C up to +1000 °C
- Highest quality materials
- Extremely robust
- Made for harshest conditions
- Minimal drift
- Long-term stability
- Variety of small dimensions
- Various housings

Nickel Temperature Sensors (Ni)

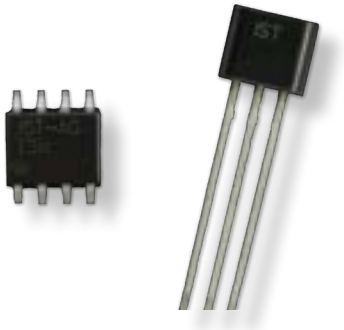
IST AG's nickel temperature sensors are available with various TCRs such as 6180 ppm/K (Nickel ND), 5000 ppm/K (Nickel NL), 6370 ppm/K (Nickel NJ), 6720 ppm/K (Nickel NA) and Balco.

- Temperature range of -60 °C up to +300 °C
- Simple linearization
- Steep characteristic curve
- Long-term stability
- Easy interchangeability

TSic Semiconductor Temperature Sensors

TSic sensors feature highly accurate measurements within a limited temperature range.

- Calibrated temeprature sensors
- Integrated signal converter for analog or digital output
- Easily intergrable
- Excellent accuracy
- Long-term stabiltiy
- Low power consumption



BIOTECHNOLOGY

HVAC

HANDHELD DEVICES

MEDICAL

Our miniaturized platinum thin-film temperature sensors convince not only by their small size. They also feature high long-term stability, and the simple algorithmic signal processing makes them the best choice for medical temperature monitoring in real time. These sensors can also be integrated within semiconductor devices designed specifically for these medical applications.

BondSens

IST AG offers miniature surface mount sensing elements with BondSens, the smallest SMD Pt1000 sensing element worldwide at 0.75mm x 0.75mm chip size. The sensor is designed for automatic placement in high volume applications on printed circuit boards.

- Temperature range of -50 °C up to +150 °C
- Long-term stability
- Interchangeability
- Very low drift

We offer various sensor solutions for applications with limited space requirements.

SMD & FlipChip

IST AG offers wireless RTD Platinum SMD sensors for automatic PCB assembly processes with wrap-around contacts on both ends. Our various SMD technologies are used for different applications and temperature ranges.

- For high temperature applications up to +250 °C
- Excellent long-term stability
- Fast response time
- Low self-heating

FlipChips are developed with contacts on one side resulting in no short-cut risk on the backside of the chip. Furthermore, IST AG offers different FlipChip technologies for different assembly processes (reflow-soldering, bonding or welding).

- Excellent long-term stability
- Fast response time
- Low self-heating
- Optimal price/perfomance ratio

tape & reel

PROCESS CONTROL

SUSTAINABLE ENERGY

Standard or customized

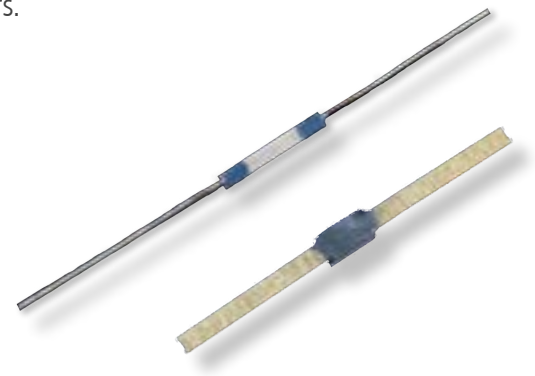
For Narrow Spaces - RTD Sensors with Axial Wires

For applications with limited and narrow spaces, IST AG offers Pt100 RTD sensors with axial lead wires. Its extremely narrow sensor chip construction and glass passivation allows for temperature measurement in very tight spaces. For example, where the sensor must fit in a drill hole or tube with an inner diameter of less than 0.8 mm.

Other construction examples could be where sensors with axial lead wires are applied in long hoses or channels, picking up the temperature at several points acting as averaging sensors.

Further Pt RTD solutions for temperature monitoring in small spaces offered by IST AG comprise sensors with inverted welded and bent leads for easier insertion into tubeS.

IST AG's development team continually finds solutions to match any customer's application needs. Take advantage of our long-term experience in our custom sensor system integration knowledge and consult with us to solve your sensor-challenges!



ESD Optimized Temperature Sensors

To avoid the costly consequence caused by ESD, IST AG is committed to continued optimization and development of ESD-optimized temperature sensors to strengthen the stability of our customers' assembled systems.

With optimized design and new process technology we offer platinum temperature sensors with outstanding ESD resistance. The desings have been tested according to European Union Standards, the IEC/EN61000-4-2.

Thanks to a state-of-the art in-house ESD laboratory, we are able to test all our sensors internally according to international standards.

The choice of materials, technologies, size, form and capabilities of our sensor is enormeous. Our experts help you find the right ingredients for the ideal sensor solution for your application. The following examples are just a few of the infinite possibilities available to you:

Metallized Backside (M)

- Improved accuracy and response time
- Can be easily soldered onto a metallic surface - improvement of thermal coupling
- Also available as RealProbeTemp - sensor built-in into stainless steel

Invert Welded and Bent Wires (U)

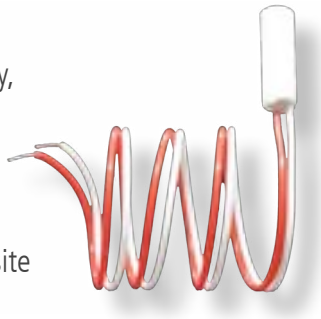
- For applications with limited space
- Optimal for mounting the sensor to the bottom of a tube or a blind hole
- Available with metallized backside and extended or directly welded wires

Temperature measurement up to 600 °C in class A

- Precise measuring results up to IEC 60751 F0.15 (IST AG reference class A) within a wide operating temperature range from -200 °C to +600 °C
- Combines the advantages of wire wound sensors with the advantages of thin film sensors (robustness, small dimensions and very low hysteresis at an optimal price level)
- Available in round ceramic housing (wire-wound sensors can easily be replaced)

Sensors in Housings

- Conventional way: after inserting the sensor, the housing is filled with an epoxy,
- polyurethane or silicone
- Alternative: sensor sensor is soldered to the bottom of the housing (better thermal contact, faster response time)
- Housings are available with various diameters, lengths and materials
- Easy integration in various applications - optimized assembly at the customer site



CUSTOMIZED SENSOR SOLUTIONS FOR YOUR APPLICATION

Benefit from an agile co-creation of a sensor with IST AG and enable your business to focus on your core competence: From simple adaptions of our sensors to fit your application's needs to new development of a tailor-made sensor – from early prototyping to series manufacturing.

SUBSTRATES

- Alumina
- Zirconia
- Sapphire
- Steel
- Copper
- Polymide
- Aluminium nitride
- Silicon

METAL THIN FILM

- Pt
- Rh
- Ti
- Ni
- W
- Cr
- Ag
- Au
- Al
- Mo
- Alloys

DIELECTRIC THIN FILM

- SiO_2
- Si_3N_4
- Ta_2O_5
- Polyimide

DESIGN

- Concept
- Material choice
- Technology choice
- Design of layout

METAL THICK FILM

- Pt
- Au
- Ag
- Alloys

CONNECTION

- Enameled Cu wire, Ø 0.2 mm
- Ag-wire, Ø 0.25 mm
- Ni/Au-wire, Ø 0.2 mm
- Pt-wire, Ø 0.2 mm
- Cu/Ag-wire, PFTE insulated
- Cu/Ag-wire, Peek insulated
- Cu/Ag stranded, PTFE-insulated
- and many more

DIELECTRIC THICK FILM

- Glass
- Organic polymers

PACKAGING

- Welding*
- Bonding
- Soldering*
- Hot-melt
- Injection molding

ASSEMBLY

- Electrical final testing
- Optical final testing
- ESD testing
- Packaging
- Additional assembly

PATTERING

- Photolithography
- Laser trimming
- Dry & wet etching

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