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Press Release

TDS501 from E+E Elektronik: Continuous dew point measurement down to −70 °C Td without signal freezing

With the TDS501, E+E Elektronik introduces a next-generation dew point sensor for demanding industrial applications. The sensor enables continuous dew point measurement with auto-calibration and without signal freezing, providing the basis for reliable 24/7 process control.

(Engerwitzdorf, April 2026) **Industrial drying processes, especially in battery manufacturing, place the highest demands on dew point measurement. At very low moisture levels, even the smallest deviations can affect product quality, yield and safety. This makes a stable, continuous measurement signal essential. With the TDS501, E+E Elektronik presents its latest development for dew point measurement: continuous measurement thanks to auto-calibration based on a new four-element measuring method, dew point monitoring down to −70 °C Td, and smart protection concepts. The sensor therefore supports reliable around-the-clock process monitoring and efficient dehumidification control.**

New: Four-element measuring method

Typical process events such as opening doors and airlocks or load changes require a stable measurement signal. A frozen or heavily averaged signal during auto-calibration can create blind spots in the process in such environments. The TDS501 was therefore developed around a key requirement in the control of very low dew points: auto-calibration must not interrupt the measurement signal. In highly dynamic applications, control decisions are made continuously. A signal that freezes during calibration can conceal real process deviations precisely when they matter most. To address this, the TDS501 uses an innovative new technology based on a four-element measuring method with robust capacitive sensing elements. The aim is to provide continuous dew point information for 24/7 process monitoring and therefore stable control loops.

Dew point monitoring down to −70 °C Td for demanding industrial drying

With the TDS501, E+E Elektronik extends its dew point portfolio to measuring ranges down to −70 °C Td. This makes the sensor suitable for applications in which extremely low moisture is a critical process variable. These include battery manufacturing and the drying of plastic granulate. In such processes, stable dew point monitoring helps reduce moisture-related scrap, define safety margins more precisely and control dehumidification efficiently.

Smart protection concepts and configurable filter caps

Seasonal fluctuations, plant shutdowns or component failures can cause short-term condensation in compressed air systems. The TDS501 is designed to remain reliable even under such atypical conditions and to reduce condensation-related drift through practical design features. These include robust sensing elements, a sintered stainless steel filter and a durable stainless steel construction.

As standard, the TDS501 is equipped with a stainless steel filter that offers a balanced ratio between protection and response time. For cleanroom applications, where particularly fast response times are required, an open filter

cap is available as an option. It further improves response time and allows even earlier detection of dew point deviations.

Reproducible measurement results up to 80 bar

When dew point becomes a control variable, the measurement signal must remain consistent even under changing operating conditions. The TDS501 combines high repeatability with an accuracy of ±2 °C Td, supporting stable and reproducible production conditions. It is also designed so that typical changes in process temperature do not affect the measurement result.

With a pressure rating of up to 80 bar, the sensor can be installed directly where the process takes place. This provides a robust basis for process control and quality assurance in industrial compressed air application

An optimally matched measurement system for reliable performance

The TDS501 is more than a sensing element in a housing. It is a holistically developed measurement system in which the sensing element, electronics, mechanical integration, installation and adjustment are optimally matched to one another. For users, this means stable, repeatable measurement results and a reliable basis for process decisions across devices, batches and operating conditions.

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Photo: The TDS501 from E+E Elektronik

Company profile

E+E Elektronik is an Austrian sensor specialist in the fields of humidity, dew point, moisture in oil, CO2, air velocity, flow, pressure and temperature. Handheld measuring devices, humidity calibration systems and calibration services complete the comprehensive product portfolio. The aim of E+E is to support its partners in the area of energy savings and process optimization. The main applications for E+E products are in industrial measurement technology as well as HVAC and building automation.

A certified quality management system in accordance with ISO 9001 and IATF 16949 ensures the highest quality standards. E+E Elektronik is represented by its own subsidiaries in China, Germany, France, India, Italy, Korea, USA and sales partners in more than 60 countries worldwide. The accredited E+E calibration laboratory is

commissioned by the Austrian Federal Office of Metrology and Surveying (BEV) to provide the national standards for humidity, dew point, air flow velocity and CO_2 gas concentration.

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