



Capacitive Bubble Sensors: Cost-Effective Air Bubble Detection

Leinfelden-Echterdingen, 12 November 2024. In many industrial applications, it is important to precisely monitor the constant flow of liquids. Undesired air bubbles in the liquid stream are problematic because they can negatively influence processes or cause damage. EBE sensors + motion offers a new solution for this with the capaTEC® technology. The capacitive sensors detect air bubbles in liquids in a simple, cost-effective and highly efficient way and thus address a central challenge in industry.

The new bubble sensor from EBE reliably detects air bubbles and discontinuities of liquids – regardless of the liquid and properties of the hose. Even with mechanical tolerances or changing hose sizes, the sensor's detection performance remains constant, making it a robust and flexible solution for a wide range of industrial applications. Thanks to the application of the innovative capaTEC® technology, the sensor excels in demanding environments such as food production, the pharmaceutical and chemical industries, and process automation.

Capacitive Sensor Technology: Reliable even in Air Bubble Detection

Capacitive bubble sensors are based on the measurement of capacitance changes caused by the different permittivity of air and liquid. Usually, they are used for level detection, but the capaTEC® sensors from EBE are also perfectly suited for detecting air bubbles in hoses and non-metallic tubes. When an air bubble passes the sensor the electric field changes, and the sensor detects the bubble precisely and reliably. Compared to conventional ultrasonic sensors the capacitive technology is significantly more cost-efficient and less sensitive to mechanical tolerances. The capacitive sensor shows its strengths especially with mechanical backlash and variable hose thicknesses. Moreover, it does not require specifically customized housings, which not only reduces the complexity of the installation but also facilitates its use in a wide range of applications. Unlike optical sensors, which only work reliably under specific conditions – for example with transparent hoses and liquids – the capacitive bubble sensor can be used regardless of the color and transparency of the medium. “Our new capacitive bubble sensor is a real alternative to established technologies and offers high reliability at an attractive price,” explains Armin Wellhöfer, managing director of EBE sensors + motion. “Particularly noteworthy is its tolerance to mechanical variabilities that are unavoidable in many industrial processes. The capaTEC® technology enables us to offer a robust and flexible solution.”

Fields of Application of Capacitive Bubble Sensors

With this development EBE offers a reliable and cost-effective solution for applications where the detection of air bubbles is crucial. In processes where liquids are pumped through hoses, air bubbles can cause malfunctions. The capacitive bubble sensors ensure precise monitoring of the constant liquid flow in the process and thus ensure reliability and quality in the application. The

sensors are used in a variety of industries, including food and beverage production, pharmaceutical and chemical processes, as well as in general process automation.



Picture file: PR_EBE_Bubble_Sensor.jpg

Picture text: Sensors based on EBE sensors + motion's capaTEC® technology reliably detect air bubbles in tubes.

Picture source: EBE Elektro-Bau-Elemente GmbH

Publication of photos is licence-free and free of charge. Source information requested.

Short Profile

EBE Elektro-Bau-Elemente GmbH (brand name: EBE sensors + motion), headquartered in Leinfelden-Echterdingen near Stuttgart, develops and manufactures OEM products in the field of sensor technology, components for human-machine interfaces (HMI) as well as actuators and mechatronics. The focus is on sensors and encoders based on in-house technologies for industry, household appliances, medical technology and mobility. The range of sensors includes, among others, level and quality sensors for fluids, position sensors and capacitive touch probes. EBE's magnetic encoders are optimized for reliable operation in demanding applications. EBE also develops and manufactures customer-specific electromagnets as well as robust rotary switches, push-buttons and mechatronic systems.

Contact

EBE Elektro-Bau-Elemente GmbH

External Press Officer: Doris Tischer

Sielminger Str. 63, 70771 Leinfelden-Echterdingen, Germany

Tel. +49 711 79986-0, E-Mail: press@ebe.de