

Media Release

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Sensirion announces global availability of the STC42A Automotive H2 sensor for thermal runaway detection

Sensirion announces the general market availability of the STC42A, the perfect choice for hydrogen detection, both in battery thermal runaway and hydrogen leakage applications. Designed for automotive applications that require reliable hydrogen concentration measurements in clean air, STC42A is now available for purchase through our global network of trusted channel partners.



The STC42A is Sensirion's digital thermal conductivity hydrogen sensor, specifically designed for automotive battery monitoring systems (BMS) for early thermal runaway detection in electric vehicles. Qualified according to AEC-Q100 (Grade 2), the STC42A meets stringent automotive reliability and robustness requirements and is optimized for safety-relevant battery applications. The sensor features a digital I2C interface and supports autonomous communication with an external SHT41A humidity and temperature sensor. Via the I2C controller interface, humidity and temperature data are read from the SHT41A sensor and directly fed into the STC42A, enabling real-time absolute humidity compensation of the hydrogen signal.

Based on Sensirion's expertise in thermal conductivity sensing, the STC42A is factory calibrated and delivers a fully compensated digital hydrogen output. The proven thermal conductivity measurement principle provides excellent robustness, and long-term stability at lowest power consumption, making the STC42A a reliable sensing solution for safety-critical thermal runaway detection in all battery systems.

As part of the STC4x family, the STC42A offers optimized hydrogen gas sensing for thermal runaway applications. It is the perfect choice for hydrogen detection, both in battery thermal runaway and hydrogen leakage applications. The key advantage of STC42A is the outstanding performance based

on Sensirion's CMOSens® sensor technology, which combines the sensor element, signal processing and digital calibration on a single CMOS chip.

"With the STC42A, Sensirion provides an automotive hydrogen sensor for detecting early gas emissions associated with thermal runaway in batteries. This supports system designers in triggering timely safety measures in line with emerging 5-minute warning requirements defined by relevant safety standards.," says Pascal Erne, Product Manager for battery state monitoring.

For more information or to obtain the STC42A, please visit our website or contact your local Sensirion distribution partner.

About Sensirion – Experts for Environmental and Flow Sensor Solutions

Sensirion is one of the world's leading developers and manufacturers of sensors and sensor solutions that improve efficiency, health, safety, and comfort. Founded in 1998, the company now employs around 1'200 people at its headquarters in Stäfa, Switzerland, and in numerous international subsidiaries. Their product range includes environmental sensors for the precise and reliable measurement of humidity and temperature, volatile organic compounds (VOC), nitrogen oxides (NOx), carbon dioxide (CO₂), formaldehyde and particulate matter (PM_{2.5}), as well as gas and liquid flow sensors, differential pressure sensors, and gas leakage sensors. These solutions are used across a wide range of applications. As a pioneer in innovation, Sensirion develops solutions for the specific needs of customers and partners from the automotive, industrial, medical, HVAC and consumer electronics markets, as well as high-quality products for cost-efficient mass production. More information and current key figures are available at www.sensirion.com.