

INCLINOMETER

CANopen and J1939 are supported

STW (Germany) has released the SMX.igs-e sensor, which measures the inclination angle of an object in relation to the earth's gravity field.

The inclination sensor SMX.igs-e combines an inclination and gyro sensor. It is based on the Mems (micro-electro-mechanical system) technology. Firstly, the sensors were offered with a plain CAN interface. Software support for CANopen and SAE J1939 is available at the beginning of 2021. The introduced sensor family is supported by the company's Opensyde software tool-chain. It enables integration of the sensor into an existing application.

The sensor technology used in combination with a an aluminum housing is suitable for applications in mobile machines under harsh environmental conditions. The measurement values are made available via the CAN interface. The sensors feature one- or two-dimensional inclination measurements in the range of 360° as well as $\pm 90^\circ$. The resolution is $\pm 0,01^\circ$, the achievable accuracy is $0,3^\circ$. Internal filter algorithms are available to improve the accuracy of the measured values. This way the influences of parasitic accelerations can be reduced. A metal housing with integrated status LED completes the device.



The SMX-igs-e inclinometer integrates a gyro sensor (Source: STW)

Typical applications include determination of the inclination for driving and working movements e.g. determination of the position of a digger scoop or a concrete pump. Further application examples are ensuring the stability of vehicles with booms, e.g. cranes, lifting platforms, and fire department turntable ladders. Position monitoring/inclination warning for mobile machines to ensure gear lubrication in applications with oil pan lubrication is another application possibility.

The German company also offers sensors for the acquisition of other physical parameters such as temperature, pressure, strain, and angular velocity. In mobile machines, the measurement values are used, among other things, for monitoring and controlling the electrical- or hydraulic-powered movements. All these sensors are factory calibrated before delivery and have CE and E1 approval.

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