

## Sensor family for mobile machines

The wire-actuated encoders of the Pure.Mobile family from Siko (Germany) measure position, speed, and inclination due to an integrated single-axis inclination sensor. The sensor data are transmitted to the controller via CANopen, CANopen safety, or J1939 interface, independent of the position value.



Draw-wire encoder SG31 (Source: Siko)

Regardless of whether lifting platforms, mobile cranes, or self-concrete pumps, mobile machines must always function as smoothly, precisely, and efficiently as possible, explained the company. Sensors are in demand here that detect the movements of the machines. With the wire-actuated encoders of the Pure.Mobile family, whose functions can be optionally enhanced, several measured variables can be recorded simultaneously.

Different sensors are necessary to detect all geometric positions of a boom/lifting mast in mobile machines or industrial trucks. In addition to wire-actuated encoders for detecting the linear position, rotary sensors or inclination sensors are also used for detecting rotational movements. All these sensors are essential for the workflow and stability of the machine. However, a large number of sensors also means increasing complexity due to increased cabling and assembly costs as well as higher product costs, explained the company.

The central components of the series are wire-actuated encoders of the type SG31 and SG61, which have a maximum measuring length of 3 meters to 6 meters. By integrating the latest generation of inclination sensors, they combine not only the detection of position and speed, but also the measured value of inclination. The two integrated inclination sensors are

complemented by the variants SG121 and SG150, which offer a maximum measuring length of 12 meters or 15 meters.

The integrated single-axis inclination sensor is available as an option and measures inclinations in the range of  $\pm 180^\circ$  with a resolution of up to  $0,001^\circ$  and an accuracy of  $\pm 0,2^\circ$ . In this way, the sensor also detects small deflections. Its integrated temperature compensation keeps the values stable over the entire measuring and temperature range. The sensor data are transmitted to the controller via CANopen, CANopen safety, or J1939 interface, independent of the position value.

Due to the sensor design, the inclination detection can be integrated into any wire-actuated encoder of the company without changing the design and size or connection type of the sensor. With an increasing range of functions, installation space, assembly effort, and product costs on the machines can be reduced, explained the company.

The SG31 and SG61 wire-actuated encoders are also available in both redundant and non-redundant position and inclination detection variants. As a result, they can also be used for safety-critical applications up to performance level d.

All sensors of the series have been developed according to the requirements of mobile machines. This includes an E1 approval from the Federal Motor Transport Authority as well as EMC (electromagnetic compatibility), shock, and vibration resistance. The sensors provide values, even under harsh environmental conditions, the company continued.

The wire-actuated encoders are suitable for applications including crane construction, stage construction, and warehousing technology, with a measuring length up to 3000 mm. Siko is part of the SPS 2021 exhibition in Nuremberg, Germany and can be found in hall 4A, booth 305.

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