

Absolute redundant safety rotary encoder

The WH58MR from Siko is a magnetic safety rotary encoder with redundant position detection and hollow shaft, developed for use in mobile machines. CANopen Safety, redundant CANopen, or redundant SAE J1939 interfaces are available.

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The WH58MR encoder, rounds off the portfolio that includes the WV58MR safety rotary encoder with solid shaft (Source: Siko)

When angles, positions and speeds have to be detected accurately in utility vehicles, engineers are often faced with a difficult task. The rotary encoder has to be sturdy, flexible for mechanical adaptation, offer the right interface and, of course, meet the safety requirements of DIN EN ISO 13849. Siko from Buchenbach (Germany) has extended its product range in the field of mobile machines for precisely this task.

The WH58MR safety rotary encoder can be fitted with a hollow shaft of 10 mm to 15 mm open on one side as an option. And all with an external diameter of just 58 mm. The rotary encoder is also particularly flexible when it comes to the type of connection. In addition to the M12 plug (single or with BUS IN/BUS OUT), there are also variants available with a cable outlet or customized plug connectors. For all this flexibility, the rotary encoder also impresses as far as sturdiness is concerned. Shock and vibration loads, UV resistance, the salt-spray-resistant housing and protection type IP67 make the encoder suitable for use in applications in particularly harsh conditions.

It is the all-important "internal values" that distinguish this rotary encoder. The encoder is based on the Pure.Mobile technology platform. This technology has been designed and developed specifically for tasks involving position detection in utility vehicles. "Unlike other products available on the market, our sensors for mobile machines have been designed exclusively for them. Thanks to our over 30 years of experience in the utility vehicle sector, we know what is important and we are setting new standards with this platform. This explains why the name Pure.Mobile is so appropriate," emphasized Mathias Roth, Mobile Automation Sector Manager at Siko.

Every sensor with the Pure.Mobile label meets the EMC requirements for construction machines, forestry machines, and agricultural machines, the requirements of E1, and is based on wear-free, magnetic sensing technology. The rotary encoder can be equipped with additional functions, such as an integrated tilt sensor, DIP switches for configuration or digital inputs and outputs, by means of option cards that customers select.

The safe rotary encoder can be configured as a single-turn or multiturn variant. The measurement range of 4096 revolutions (12-bit multiturn) is broken down into 16 384 steps (14 bits) per revolution. The company uses a gear to allow the multiturn to capture information. In contrast to battery-powered or self-contained multiturn technologies, it continues delivering position values reliably for years. And it does so over a wide temperature range of -40 °C to +85 °C.

The two galvanically-separated sensor units of the rotary encoder record positions entirely autonomously. Absolute position and speed are continuously sent to the control system through the interface. The customer can choose between a CANopen Safety, redundant CANopen, or redundant SAE J1939 interface. The rotary encoder can therefore be used for applications up to performance level "d" (PLd as per EN ISO 13849).

The rotary encoder is a magnetic safety rotary encoder with redundant position detection and hollow shaft, which has been specially developed for use in mobile machines. It can be used in safety-critical applications – up to performance level PLd. Thanks to its particularly robust design, an optionally redundant CANopen or CANopen Safety interface, it is ideally suited for tough conditions in mobile machines.

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