

Two encoders in the installation space of one

Redundant absolute encoder with CAN interface

The requirements for reliability, availability and safety of machines and systems are increasing. Users meet the requirements with strategies adapted to the application for the design of the machine, system and control technology. TR-Electronic has set itself the goal of supporting a wide variety of structures and strategies with technically high-quality solutions. In addition to the SIL / PL-certified sensor solutions, there are also redundant versions that also allow other safety concepts in the design.

CR_582 CANopen are two encoders in the space of a standard industrial encoder with size 58 mm. Two single and multi-turn detections work inside, which transfer their actual values to two separately operating CAN controllers. The two systems inside work independently. They only share the shaft and the connection technology to the CANopen network. The position within the revolution is resolved with 13 bits, in the standard configuration 4096 revolutions are detected absolutely.

In CANbus, CR_582 identifies as two participants (2 IDs). The ID of the first CAN controller is set with the hardware switches on the encoder, as with any other CANopen device. The second controller's address has a fixed offset. The gear factors of each of the two internal encoder systems can be parameterized independently. Rational gear factors are available - even rotating axes can be scanned without rounding errors. The two encoder systems can also be referenced (set to zero) differently.

The scanning technology is designed with different techniques. This reduces the likelihood that an error influence will cause a failure in both systems at the same time. The characteristic value for CCF determined during the analysis is 80 and thus exceeds the requirements for avoiding failures due to a common cause. The user adopts the characteristic value for his design of safety functions.

The user now has all the freedom to evaluate the two independently determined and transmitted measured values in terms of availability, safety and diagnostic coverage in his control system. Mechanically, CR_582 CANopen provides the solutions available in generation 2 absolute rotary encoders by TR-Electronic: solid shaft and blind shaft are possible as well as the choice between radial and axial connection. The CR_582 CANopen thus offers another solution variant in the standard portfolio for individual customer requirements.

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CR_582-CANopen – redundant CANopen-encoder made by TR-Electronic, axial or radial connector