CAN Newsletter Online

Rotary encoder with integrated I/O functionality

Wachendorff (Germany) has introduced the WDGA-I/O. It is an absolute rotary encoder with integrated I/O functionality. The device enables the connection of analog/digital sensors to the CAN network.

Rotary encoder with integrated I/O functionality (Photo: Wachendorff)

ABSOLUTE ENCODERS MEASURE POSITIONS AND ANGLES in close proximity to the process, e.g. on motors, joints, cogwheels etc. Additional sensors are installed right next to them, e.g. to measure temperature, vibration, pressure etc. Several sensors are usually connected to an I/O box, which converts analog signals into digital signals and sends them to the control unit, for example via a CAN network, so that the appropriate signal lines and power supply lines for these sensors do not have to pass through the entire machine to the control unit.

Wachendorff has now integrated the I/O functionality into their encoder while still maintaining the compact installation space. The encoder with EnDra technology offers all the functionalities of the encoder for CANopen via a CAN node and the information on digital or analog values via a further node. All functionalities of the encoder are designed to operate over a temperature range of -40 °C to +85 °C. The robust construction of the encoder with bearings sealed to IP65 (IP67 optional), IP67 on the back and high permissible axial and radial bearing loads of 220 N (400 N optional), makes it ideal for use in harsh industrial applications as well as in stationary or mobile machinery.

The device enables machine and system manufacturers to connect analog/digital sensors to the CAN network. A number of possible combinations for a range of applications is made possible through up to three multi-functional inputs and outputs, each either digital or analog for connecting thermocouples, PT100, DMS, 0/4-20 mA or +/- 10 V_{DC}. The I/O ports can be configured and scaled for a specific type of sensor via software.

Examples of applications include motor temperature monitoring, whereby the thermocouple is connected to the CAN network; or measuring the pressure in hydraulic systems, whereby the control unit is now also able to monitor the pressure, as well as the position. Another example: On a rope winch, in addition to the maximum extension, the force is measured via a strain-gauge.