



## Magnetic Rotary Sensors for Mobile Automation

### Now also with CAN SAE J1939 Interface

The magnetic rotary sensors of the RFC-4800 series by Novotechnik (see Company Information Box) are proven for many industrial and mobile applications. They are compact, easy to install, and they acquire the rotation angle over the entire 360 degrees, at a resolution of up to 14 bit. Now these non-contacting sensors are available with CAN SAE J1939 interface (Image), specifically for applications in utility vehicles. This protocol offers high immunity against interferences, low wiring requirements and diagnostic capabilities. Other attractive sensor features are parametrizable rotational direction, position offset, and a (volatile) rotation counter. The position and speed signal outputs are delivered by way of one or two channels. In addition, the magnetic rotary sensors are quite robust: They can tolerate oscillations and vibrations of up to 20g (in compliance with IEC 600658-2-6) as well as impacts of up to 50g (in compliance with IEC 68068-2-27). And most importantly, they comply with all specified EMC requirements for mobile applications. The strict requirements of the ECE-R10 regulation on electromagnetic compatibility are definitely more than met. The allowable ambient temperature range is between -40°C and +105°C, and the requirements of IP67 and/or IP6K9K have been met.

### Simple Attachment and Accurate Measurements

Sensor attachment inside the vehicle is easy. For rotary sensing, a position sensing magnet is attached to the rotating shaft. The orientation of the magnetic field and thus the signals of the flat sensor of only 15 mm footprint, are changing with the rotation angle. The integrated sensor circuit then converts this signal change into a signal output that is proportional to the rotation angle. This signal is then provided to the higher-level control unit. The sensors feature an (independent) linearity of around +/- 0.5 % and a repeat-

ability of  $0.36^\circ$ . The sensor can be mounted at a distance of up to 5mm (air gap) from the position marker. Since the setup includes neither shaft nor bearing, and the measuring distance is variable, application-specific installation tolerances are not an issue.

Image: The magnetic rotary sensors are now also available with CAN SAE J1939 interface. They provide measurements at a resolution of up to 14bit. And they feature an (independent) linearity of around  $\pm 0.5\%$  and a repeatability of  $0.36^\circ$ . (Source: Big Bale)