

Sensors increase productivity on fields

The 7000 torque sensors series by NCTE (Germany) measure torque and rotational angle information in driveshafts. They deliver information about conditions and forces via a CAN interface.

AS OUTPUT SIGNAL INTERFACES, ANALOG OUTPUTS (0 V to 10 V; 4 mA to 20 mA) AS WELL AS CAN are available. As an option, the sensor includes a rotational angle signal with 360 increments, and a 5-V TTL signal. Regarding the CAN network: the sensor sends a message containing torque, temperature, rotational speed and error conditions in adjustable time intervals from 0,1 Hz to 1000 Hz. It supports base and extended frame formats described in CAN and bit rates from 10 kbit/s to 1000 kbit/s. It's also possible to trigger the sensor's Tara function with a CAN message. Other interfaces are available upon request. The sensor covers both positive as well as negative torque (bi-directional) and is compatible with power supplies from 9 V_{DC} to 28 V_{DC}.

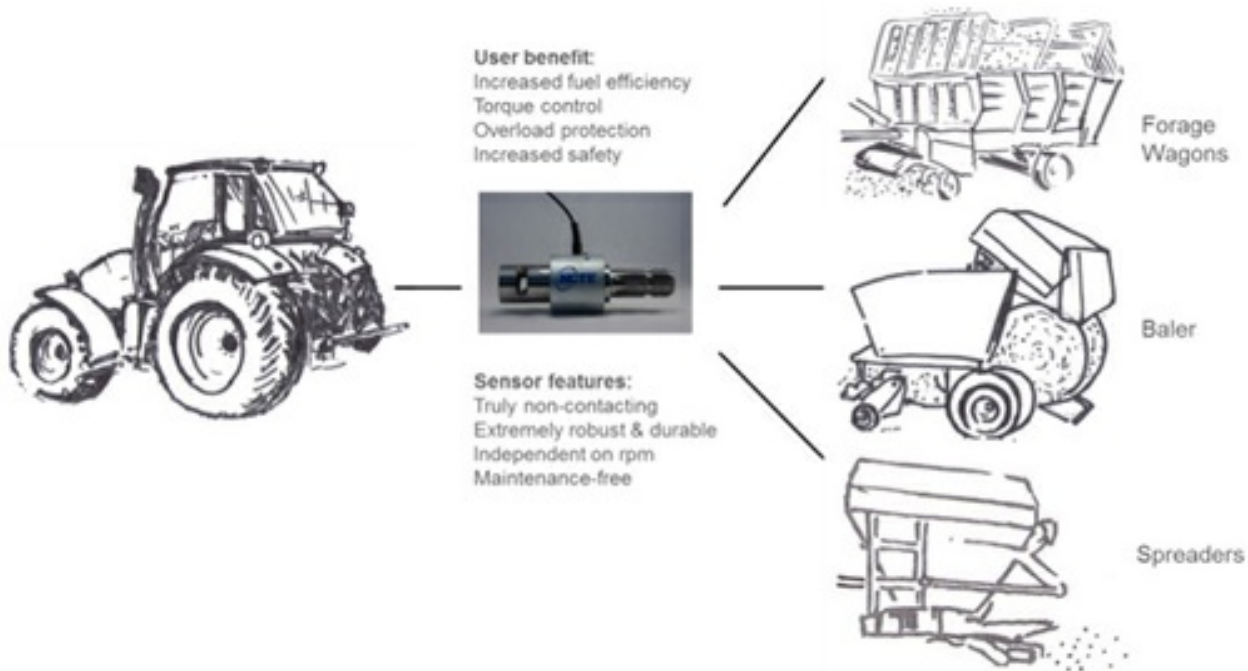


The series 7000 torque sensor was designed for heavy-duty applications in off-highway vehicles and related equipment (Photo: NCTE)



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Field tests have shown efficiency gains when the sensor is used in connection with harvesting equipment, crop choppers, balers, forestry machines, and similar equipment. The sensor has a magneto-elastic working principle: an existing shaft is converted into the primary sensor by magnetic encoding. Application of torque leads to changes in the magnetic field of the shaft, which are detected by electronic coilboards in the secondary sensor unit and translated into an output signal. The torque sensors are, because of their non-contact working principle, robust against mechanical and thermal impacts, including artifacts such as bending and vibrations. They are specified to work between -40 °C and +105 °C, meet IP67 protection, and are maintenance-free. These features make them suitable for environments such as contaminated atmospheres, presence of dust or oil and splash water.



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In their configurations, the series covers a torque range from 0 Nm to 3000 Nm or 5000 Nm. Other options include calibration up to 8000 Nm and a maximum load of 10000 Nm. The plug-and-play setup is ready-to-use; mechanical mounting happens by means of a flange. Alternatively, power take-off shaft connectors are available. The optional remote display unit allows recording torque and angle data, including data logging features and storage on SD-card. Furthermore, a USB interface enables data transfer to a PC for further data processing and analysis.