

## Torque sensor with overload protection

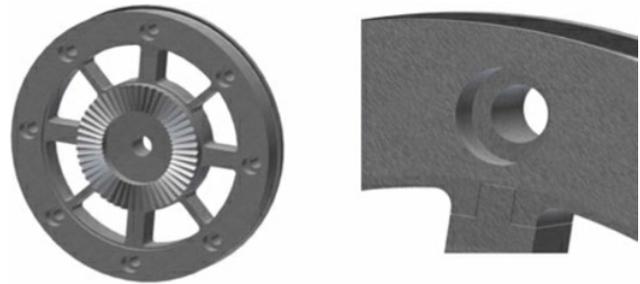
Manner Sensorelementrie (Germany) has developed a torque measuring flange with an integrated overload protection mechanism for drive trains. The overload protection allows an overload factor of 100.

THIS RISK ARISES DURING A SUDDEN BLOCKING of the drive train (bearing damage). Another application case is the measurement of the smallest torque on an over-sized drive train. High breakaway torques are therefore no longer a problem. The overload protection also serves as fitting protection, particularly for smaller torque sensors ( $T < 20 \text{ Nm}$ ). Here, the sensor can already be damaged by the tightening force of the screws.

The measuring flanges operate without bearings. The system accuracy could be improved to 0,05 % for hysteresis and linearity through introduction of the digital sensor telemetry. The torque values are already digitalized in the rotor with 16 bit. The speed signal is also recorded without contact using a gear rim and Hall sensor.

This robust design has already proven itself in practice. Ethernet, USB and CAN for connection to control are also available. In addition, the classic analog output signal is also on offer.

The configuration of the CAN communication parameters can be done with a CAN USB adapter. The settings are done with a PC program, which can be downloaded at the company's homepage. The CAN module can transmit a maximum number of measured values from the rotor electronic, which is 6620 frames per second at an analog bandwidth of 1 kHz. With a standard identifier and a bit rate of 1 Mbit/s this equates a bus load of nearly 50 %. It is possible to activate a divider (from 2 to 128) for reducing the bus load, for connecting more devices or for reducing the bit-rate. The divider can be selected in steps in the power of 2. Until a divider of 8 the system calculates an average over all input values, for bigger dividers the average of the last received 8 values is transmitted. The setting is saved in the CAN module and is still valid after power supply interruption.



*With overload protection, the destruction of the torque sensor during overload can be prevented (Photo: Manner)*