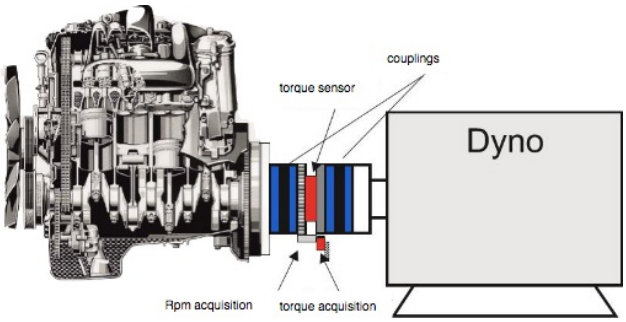
CAN Newsletter Online

TORQUE SENSOR

Up to 10-mm distance between rotor and stator

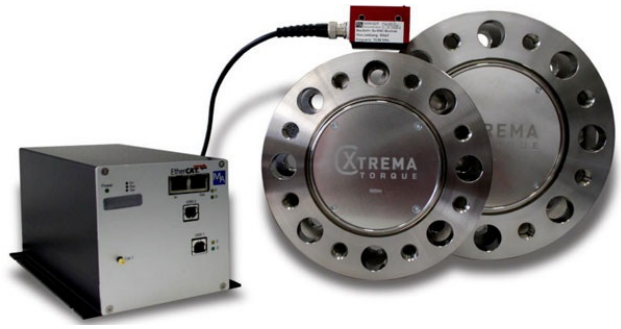
To provide torque measurements on the test stand, Manner Sensortelemetrie has developed the Xtrema torque sensor with a temperature range of -40 °C to +160 °C. It is optional available with CAN.

Test stand operation for the testing of combustion engines, hybrid, and electric motors requires high-precision measuring equipment. Friction power measurements in particular. In order to meet these demands, the transducer has a standard accuracy class of 0,05. It has been designed as a short type with low rotor weight and mass moments of inertia. This is particularly important for electric motor test stands with nominal speeds of up to 24 000 rotations per minute; especially given that these speed requirements must be expected to rise even further. This provides the test stand operator with a set-up for future demands.



Integration in a test stand (Photo: Manner Sensortelemetrie)

The sensor includes a stator pick-up unit with built-in evaluation electronics, which provides the torque sensor with inductive feed. With this design type, the interfaces for frequency output (F = 10 kHz ± 5 kHz) and voltage outputs (U = 0 V ±10 V) are available by default. With the optional version (separate stator), the evaluation unit may be installed inside the control cabinet. The associated tube design evaluation unit can optionally output digital signals via CAN and other networks. Analog signals from 0 V to ±10 V or 4 mA to 20 mA or a frequency output are also possible.



This separate pick-up with tube-design evaluation unit for installation in control cabinet can be realized for example with CAN (Photo: Manner Sensortelemetrie)

The sensor uses a DIN flange pattern that is compatible with torque sensors by HBM and allows for integration into both new and already-built test stands with existing infrastructure. The distance between rotor and stator is up to 10 mm. In combination with the protruding pick-up, it affords protection against damage in case of bearing damage, as well as ease of installation, said the German company. Lack of precision during assembly will not affect the transmission quality, the company added. The optional hollow shaft supports complex test stand set-ups. Oil supply at the center or actuator systems is also provided. The series includes the following ranges: 200 Nm, 500 Nm, 1 kNm, 2 kNm, 3 kNm, 5 kNm, and 10 kNm. The measuring flange's temperature resistance of up to +160 °C and the optional IP67 protection rating are further features.

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