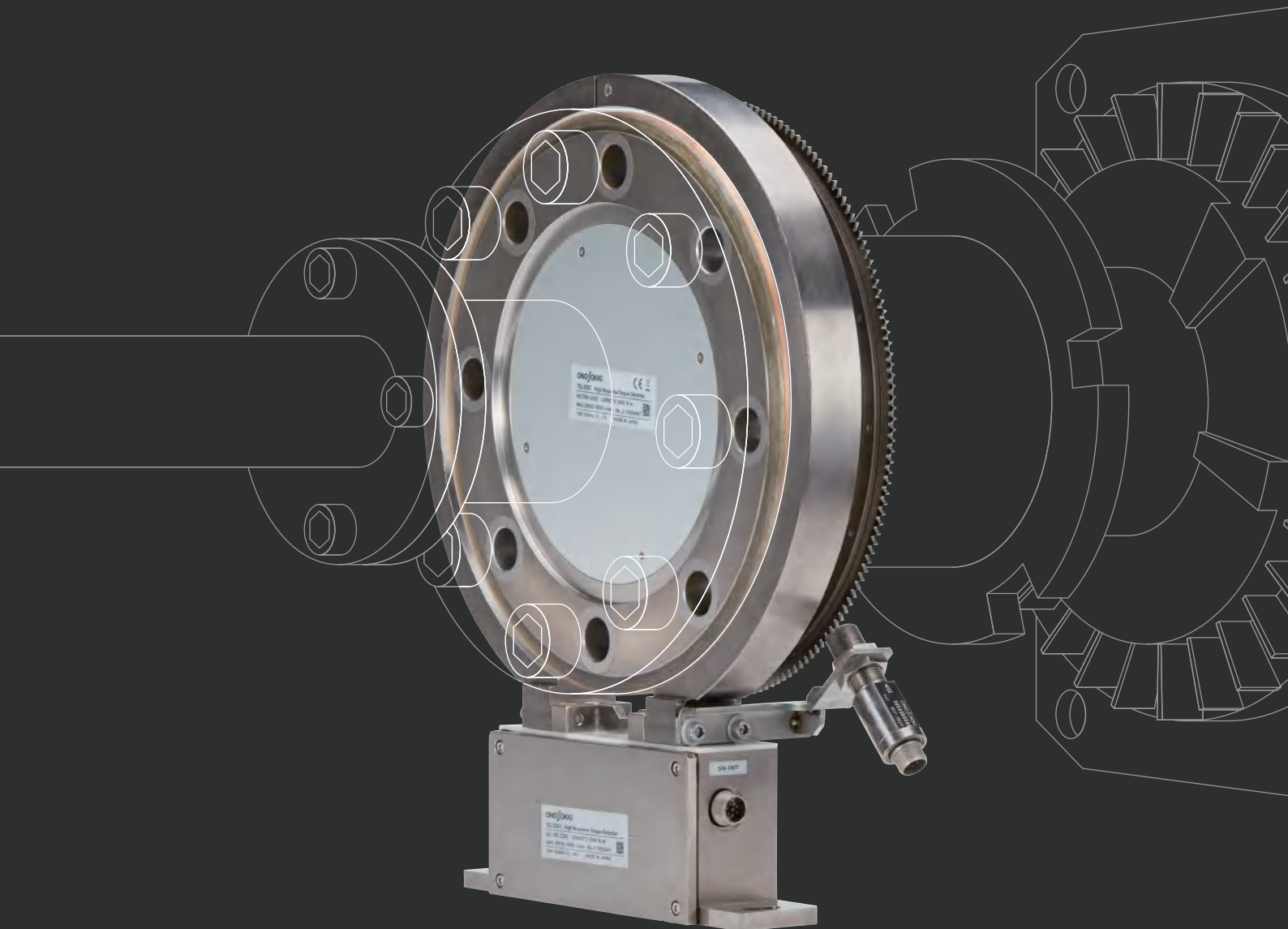


TQ-3507

ONOSOKKI

Torque Detector

Flange type High-stiffness Torque Detector
capturing minute fluctuations accurately

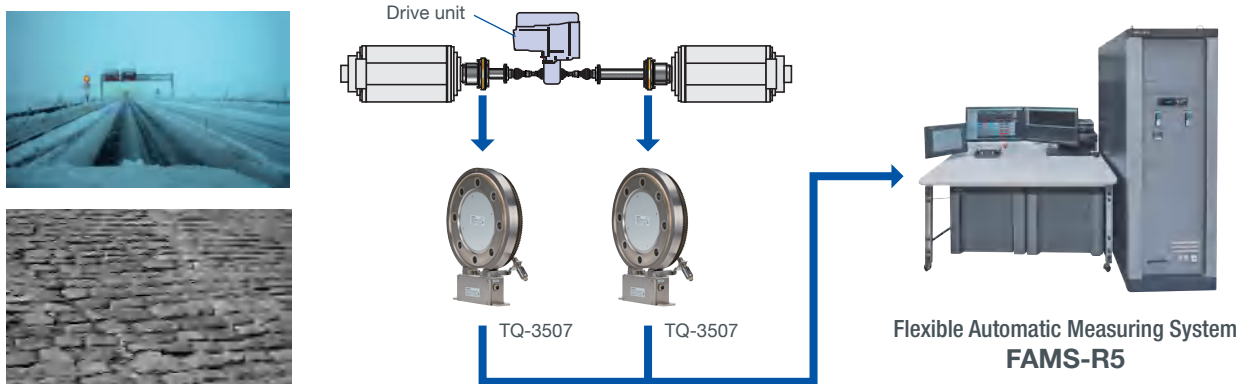


TQ-3507 Flange type High-stiffness Torque Detector (5 kN·m)

Ideal for torque measurement on benches in automotive development

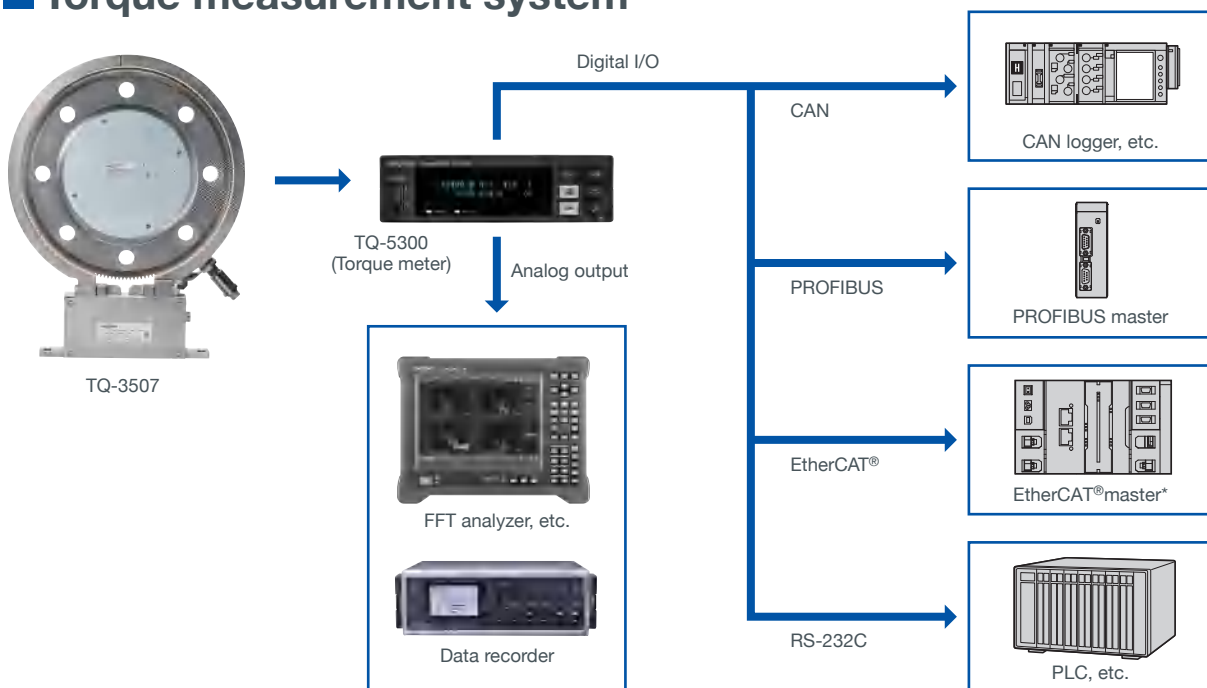
The improvement of energy efficiency has been required in future generation vehicles. The TQ-3507 Flange type High-stiffness Torque Detector has been developed primarily for torque measurement of wheel shaft (5 kN·m) and accurately captures minute torque fluctuations. It helps to grasp the energy loss precisely and improve energy efficiency of your system.

■ Bench system for evaluation of EV drive unit



Accurately measures the transient torque that occurs when driving on a snowy road or on a wavy road, which is reproduced on a bench.

■ Torque measurement system



Supports general-purpose digital communication to accurately transmit measured torque.

*EtherCAT® is technology patented by Beckhoff Automation GmbH and a registered trademark.

Features



Application example in RC-S

■ Outstanding mechanical characteristics

- Achieves high stiffness

Torsional stiffness: 13,000 kN·m/rad

Torsional resonance frequency (detector itself): approx. 3,500 Hz

Increased stiffness while maintaining accuracy.

The high stiffness enables to accurately reproduce the driving state of the actual vehicle, and capture even minute torque fluctuations.

- Light weight

Achieved a weight reduction* and high rigidity at the same time to review the structure.

(*reduced about 3 kg compared to the existing model)



Calibration with a high-precision torque reference device

■ High accuracy

The nonlinearity including hysteresis is the most basic characteristics required for highly accurate torque measurement. ± 0.02 %F.S. is available with the high accuracy function (option).

Standard	Option
± 0.05 %F.S.	$\Rightarrow \pm 0.02$ %F.S.

Accurate nonlinearity measurements are ensured by calibration with a high-precision torque reference device.



Durability testing with continuous load testing system

■ High durability

It has passed the load durability test of 10 million times or more continuously with the rated torque of ± 100 %. In addition, it is a highly durable detector that ensures sufficient safety for material proof stress.

Limit torque: 10 kN·m (200 % of rated torque)

Breakdown torque: 20 kN·m (400 % of rated torque)

Specifications

Rated torque	5,000 N-m	
Rated sensitivity (zero to rated torque)	5,000 Hz	
Output at zero torque	10,000 Hz	
Rated output signal	Positive rated torque	15,000 Hz
	Negative rated torque	5,000 Hz
Output change in the rated temperature range	Sensitivity fluctuation with temperature change of 10 °C	±0.1 %F.S. or less ±0.015 %F.S. or less (with option TQ-0901)
	Fluctuation at torque zero with temperature change of 10 °C	±0.05 %F.S. or less ±0.015 %F.S. or less (with option TQ-0901)
Nonlinearity (including hysteresis)	±0.05 %F.S. or less ±0.02 %F.S. or less (with option TQ-0435)	
Rated rotational speed	8,000 r/min	
Limit load	Limit torque	10 kN-m (200 % of rated torque)
	Breakdown torque	20 kN-m (400 % of rated torque)
	Thrust limit force	22 kN
	Radial limit force	30 kN
	Bending limit moment	2.5 kN-m
Mechanical quantity	Torsional stiffness	13,000 kN-m/rad
	Bending stiffness	54 kN-m/deg
	Inertia moment	102×10 ⁻³ kgm ² 107×10 ⁻³ kgm ² (with rotational detection gear)
ISO1940 balance grade	G2.5	

Supply voltage	DC 24 V (18 to 30 V)
Current consumption	210 mA or less (at supply voltage 24 V)
Power consumption	5 W or less
Reference temperature	25 °C
Rated temperature range	10 to 60 °C
Allowable temperature range	-10 to 60 °C
Allowable humidity range	20 to 85 % with no condensation
Storage temperature range	-20 to 70 °C
Storage humidity range	20 to 85 % with no condensation
Mass	Sensor unit (Rotor): 11.3 kg *with rotational detection gear: 11.6 kg
	Stator main unit: 1.7 kg
CE Marking	EMC Directive :2014/30/EU Standard EN 61326-1
	RoHS Directive :2011/65/EU Standard EN IEC 63000
Operating environment	Indoor use
Accessories	Instruction manual (1 set)
	Inspection chart (1 set)
	Torque label (sticker as 1 spare item, 1 set)

Option

Model	Product name
TQ-0105	Torque signal cable 5 m D-Sub15
TQ-0110	Torque signal cable 10 m D-Sub15
TQ-0115	Torque signal cable 15 m D-Sub15
TQ-0120	Torque signal cable 20 m D-Sub15
TQ-0130	Torque signal cable 30 m D-Sub15

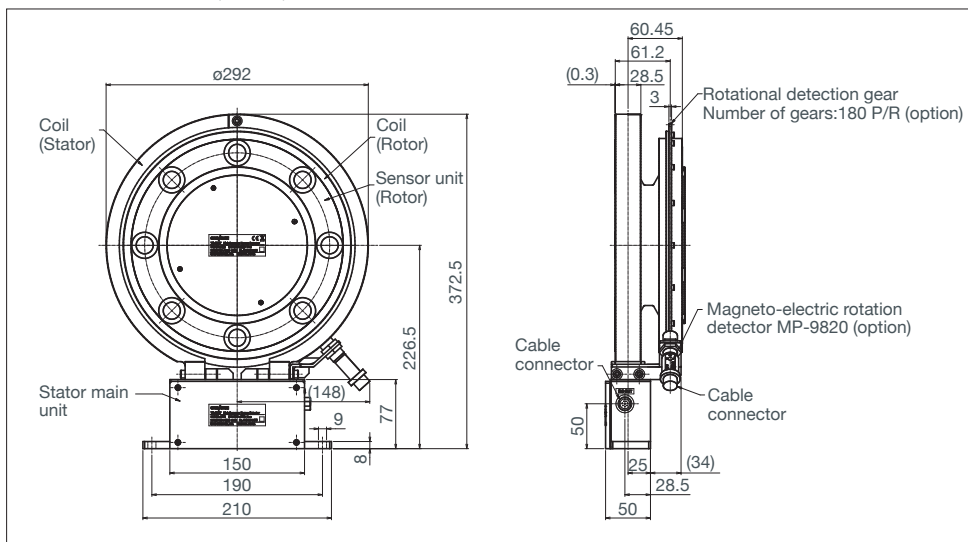
Model	Product name
MX-8105	Rotational signal cable 5 m
MX-8110	Rotational signal cable 10 m
MX-8115	Rotational signal cable 15 m
MX-8120	Rotational signal cable 20 m
MX-8130	Rotational signal cable 30 m

Model	Product name
TQ-0235	Rotational detection gear (180 P/R)
MP-9820	Magneto-electric rotation detector
TQ-0435*1	High accuracy option
TQ-0635	Multi-range option
TQ-0901*2	Temperature effect adjustment option

*1: Nonlinearity including hysteresis: ±0.02 %F.S. or less

*2: Adjusts the fluctuation at zero torque and the sensitivity fluctuation to ± 0.05 %F.S. or less in the temperature range of 25°C to 60°C (change of 35°C).

Outer dimensions (unit: mm)



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