

Compact type torque transducer TMR010 series

2022/08/18

Features



- Strain gage based non-contact type torque transducer with voltage output.
- Economical price. Compact and light weight design most suitable for mounting into the instrumentations.
- Non-contact signal propagation method by the electromagnetic induction, and a maintenance-free without a slip ring..
- Low inertia moment
- High accuracy ± 0.12 %F.S. including non-linearity, hysteresis and repeatability.
- High revolution available (up to 8 000 rpm.)
- Built-in amplifier : voltage output : ± 10 V

Specification

Specification name	Specification contents
Rated capacity	± 2 N·m, ± 5 N·m, ± 10 N·m
Safe overload	150 %R.C.
Ultimate overload	200 %R.C.
Safe thrust load at shaft end	50 N
Static safe load at shaft end	50 N (within 0.2 %F.S.)
Maximum rotation speed	8 000 rpm
Torsional rigidity	880 N · m/rad (TMR010-5NM), 1 340 N · m/rad (TMR010-10NM)
Inertia moment	0.018 kg·cm ²
Torsional peculiar pitch	Approx. 4.8 kHz
Weight	Approx. 0.5 kg
Performance of torque sensor	
Rated output	± 10 V ± 0.05 mV/V

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Measurement accuracy	±0.12 %F.S. including non-linearity, hysteresis and repeatability)
Zero shift by rotation	0.2 %F.S. (typ.)
Temperature rise by rotation	20 °C or less
Durability	10 000 000 times with rated load applied
Zero balance	±0.5 %F.S. of rated capacity
Insulation resistance	100 MΩ or more (50 VDC)
Environment performance	
Operating temp. range	0 °C ~ 60 °C
Temp. range, safe	-10 °C ~ 60 °C
Temp. effect on zero	±0.4 %F.S./10 °C
Temp. effect on output	±0.2 %F.S./10 °C
Amplifier	
Frequency response	DC ~ 500 Hz (- 3 dB±1 dB)
Power supply	24 VDC±10 %
Power consumption	0.1 A (max.)

Table of P/N

Parts No.	Rated capacity [N·m]	Maximum rotation speed [rpm]	Zero shift by rotation [%F.S.]	Difference of temp. rise by rotation / at maximum speed [deg.C]	Mechanical characteristics Inertia moment [kg·cm ²]	Mechanical characteristics Torsional rigidity [kN·m/rad]
TMR010-2NM	±2	8000	0.2	20	0.018	0.350
TMR010-5NM	±5	8000	0.2	20	0.018	0.880
TMR010-10NM	±10	8000	0.2	20	0.018	1.340

Parts No.	Mechanical characteristics Torsional peculiar pitch [KHz]	Mechanical characteristics [N]	Cable	Weight(Approx.) [kg]	CAD files[DXF]	3D CAD files [STEP]
TMR010-2NM	4.8	50	φ4.7, 1 m cable, cable end is separated.	0.5	tmr010.dxf	TMR010-2NM.STEP
TMR010-			φ4.7, 1 m cable,			TMR010-

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5NM	4.8	50	cable end is separated.	0.5	tmr010.dxf	5NM.STEP
TMR010-10NM	4.8	50	φ4.7, 1 m cable, cable end is separated.	0.5	tmr010.dxf	TMR010-10NM.STEP