

Optical transmission method flange type torque meter TMHS series

2024/02/28

Features



- Optical transformer method thin flange type torque transducer
- Compact size and light weight. Available for high speed measurement by bearingless structure. (Corresponds to rotational speed of 25 000 rpm, and 22 000 rpm for 500 NM or more capacity)
- 0.05 %R.O. in analog output and 0.02 %R.O. in digital output for the accuracy of detected value is achieved.
- Easy to mounting and detaching by adopting with devided structure of stator (part of antenna).
- Special transmitter OPT-563B is provided.
- The detector for rotation speed and rotaional direction is prepared as an option.
- High accuracy and low noise are achieved by the digital singnal transmission by the optical transmission method of the patent.

(USA PAT No. US6.472.656.B2, Japanese PAT No.3448738, PAT No.3453654)

Specification

Specification name	Specification contents
Rated capacity	±100 N·m ~ ±3 kN·m
Safe overload	150 %R.C.
Ultimate overload	300 %R.C.
Rated output	±10 V
Measurement accuracy	Frequency output: ±0.02 %R.O., Voltage output: ±0.05 %R.O. (including linearity, hysteresis and repeatability.)
Temp. range, safe	-10 °C ~ 70 °C
Temp. range, compensated	0 °C ~ 60 °C (non-condensing)
Temp. effect on zero balance	0.02 %R.O./10 °C

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Temp. effect on output	0.03 %LOAD/10°C
Zero shift by rotation	0.5 %R.O.p-p (WB=1 kHz)
Class of protection	IP54 or equivalent
Material (Rotor part)	Alloy steel
Material (Stator part)	Alluminium alloy

Table of P/N

Parts No.	Rated capacity [N·m]	Rated capacity [kN·m]	Maximum rotation speed [rpm]	Zero shift by rotation [%R.O.p-p]	Mechanical characteristics Inertia moment [kg·cm ²]	Mechanical characteristics Torsional rigidity [kN·m/rad]
TMHS-100NM	±100		25000	0.5	13.51	371.7
TMHS-200NM	±200		25000	0.5	13.52	430.1
TMHS-300NM	±300		25000	0.5	13.54	553.5
TMHS-500NM	±500		22000	0.5	19.05	764.5
TMHS-1KNM		±1	22000	0.5	28.27	1171
TMHS-2KNM		±2	16000	0.5	111.6	1706
TMHS-3KNM		±3	16000	0.5	111.7	2106

Parts No.	Mechanical characteristics Torsional peculiar pitch [KHz]	Mechanical characteristics Bending peculiar pitchTorsional rigidity [KHz]	Mechanical characteristics Bending peculiar pitchThrust direction [KHz]	Mechanical characteristics Twist angle at rated capacity [°]	Mechanical characteristics Twist angle at rated capacity [N]	Mechanical characteristics Accuracy safe thrust load [N]	We (App [k
TMHS-100NM	5.357	3.375	3.966	0.015	75	65	1.1
TMHS-200NM	5.778	3.497	4.065	0.027	150	130	1.1
TMHS-300NM	6.577	3.763	4.284	0.031	225	195	1.1

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TMHS-500NM	6.413	3.919	4.404	0.037	375	325	1.4
TMHS-1KNM	6.274	4.016	4.998	0.049	750	650	1.8
TMHS-2KNM	4.04	2.151	2.672	0.067	800	3750	3.7
TMHS-3KNM	4.508	2.368	2.844	0.082	1000	12000	3.7

Parts No.	Weight (Approx.) [kg]	CAD files[DXF]	CAD files [DXF] with detector for rotation speed and rotational direction RPM	3D CAD files [STEP]
TMHS-100NM	2	tmhs_100nm.dxf	rpm100.dxf	TMHS-100NM.STEP
TMHS-200NM	2	tmhs_100nm.dxf	rpm100.dxf	TMHS-200NM.STEP
TMHS-300NM	2	tmhs_100nm.dxf	rpm100.dxf	TMHS-300NM.STEP
TMHS-500NM	2	tmhs_500nm.dxf	rpm500.dxf	TMHS-500NM.STEP
TMHS-1KNM	2	tmhs_1knm.dxf	rpm1K.dxf	TMHS-1KNM.STEP
TMHS-2KNM	2	tmhs_2knm.dxf	tmhs_rpm2K.dxf	TMHS-2KNM.STEP
TMHS-3KNM	2	tmhs_3knm.dxf	tmhs_rpm2K.dxf	TMHS-3KNM.STEP

* Accuracy safe bending load and accuracy safe thrust load are the load (actual measurement value) which generate output error of 0.05%R.O.

* Accuracy safe bending load is the result of applying the load at the position of 200 mm from the flange edge.

* All are the gurantee over static load.

Associated Specification sheet

Specification sheet

Rotation detector for rotation speed and rotational direction : RPM

[Rotation detector RPM No.KT53515-2](#)

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Specification sheet Cable

Connecting cable CAC-176B No.KT53506-1

Options

φ11/ 10-cores shielded cable with connector at the both end.(Selectable from CAC-169A-10 m / -20 m or CAC-169B-30 m)

Specialized transmitter OPT-563B

Detector for rotation speed and rotational direction : RPM