NMB

SPECIFICATIONS

Torque Transducer by
Rotary Transformer method

TORQUE TRANSDUCER
TMNR−10NM～10KNM

Spec. No. EN232001−B 1/3

● PERFORMANCE

Rated capacity	: ±10 N･m{1.020 kgf･m}～±10 kN･m{1 020 kgf･m}
Safe overload	: 120 %R.C.
Ultimate overload	: 200 %R.C.
Rated output	: 1.3 mV/V±0.26 mV/V (TMNR−10NM～20NM： 0.75 mV/V±0.15 mV/V)
Accuracy of detected value	: ±0.5 %R.O. (In case of combination with Minebea's Transmitter CSA−561) (Linearity, hysteresis and repeatablity are included.)

● ELECTRICAL

Recommended excitation voltage	: 2 VAC
Insulation resistance	: 500 MΩ or more (DC 50 V)（Between bridge and main body）

● TEMPERATURE

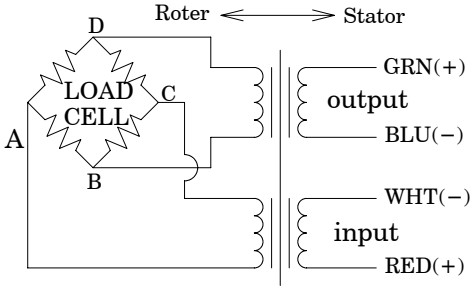
Temperature range, safe	: 0 ℃ to 90 ℃ (Operating temperature range should be 0 ℃ to 40 ℃ due to generation of heat at bearing.)
Temperature effect on zero balance	: 0.2 %R.O./10 ℃
Temperature effect on output	: 0.2 %LOAD/10 ℃

● Characteristics on rotation

Maximum number of rotation	: TMNR−10NM～200NM ： 10 000 rpm TMNR−500NM～1KNM ： 8 000 rpm TMNR−2KNM～5KNM ： 5 000 rpm TMNR−10KNM ： 4 000 rpm
Zero point shift by rotation	: 0.3 %R.O.(TMNR−10NM～200NM：0.5 %R.O.)
Temperature rise by rotation	: TMNR−10NM～1KNM：40 ℃ or less／at maximum rotation. TMNR−2KNM～10KNM：50 ℃ or less／at maximum rotation.
● Cable (Accessories) (P/N： CAC−160−5M)	: φ10, 4 cores shielded 5 m cable with connecter to the both ends. P/N of connector：TC1108−12A10−7M10.0, PRC03−12A10−7M10.5
● Class of protection	: Equal to IP40
● Gear for rotation detector (Built−in)	: S45C black coated TMNR−10NM～200NM： 60 tooth, Module 1, width 8 mm TMNR−500NM～1KNM： 60 tooth, Module 1.25, width 10 mm TMNR−2KNM～10KNM： 120 tooth, Module 1, width 10 mm
● Durability	: 10^6 times at rated load
● Sold separately	: Base, Rotation detector (MP−981), Cable for rotation detector (MX−705)

NOTE) R.O. indicates Rated Output and also R.C. indicates Rated Capacity. Polarity of output will become plus (+) when counter−clockwise rotation is applied. If polarity change is required, change wiring of blue and green for output.

Wiring diagram



Composition	
Main body	1
Cable	1
Sunk key (S45C)	2
Inspection data	1
Certificate	1
Instruction manual	1

NMB

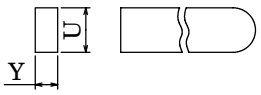
SPECIFICATIONS

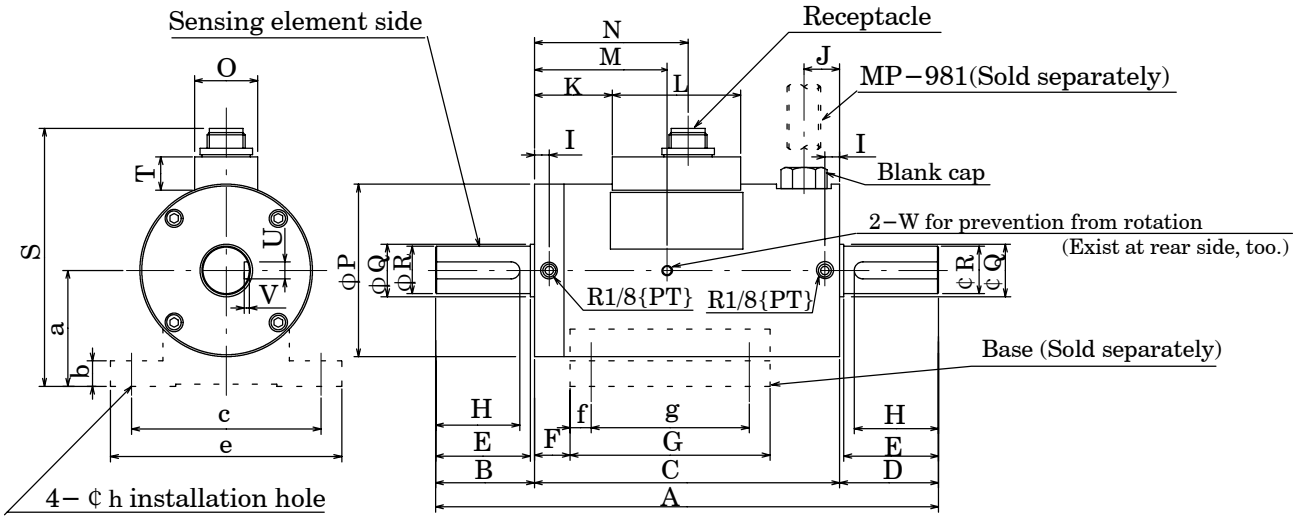
TORQUE TRANSDUCER
TMNR−10NM～10KNM

Spec. No. EN232001−B 2/3

TMNR−10NM～1KNM

Key dimensions (S45C Sunk key)





Outline dimensions Unit：mm

P/N	Rated capacity	A	B	C	D	E	F	G	H	I	J
TMNR−10NM	10 N･m {1.020 kgf･m}	240	45	149	46	43	20	95	40	7	17
TMNR−20NM	20 N･m {2.039 kgf･m}										
TMNR−50NM	50 N･m {5.099 kgf･m}										
TMNR−100NM	100 N･m {10.20 kgf･m}	240	45	149	46	−	20	95	40	7	17
TMNR−200NM	200 N･m {20.39 kgf･m}										
TMNR−500NM	500 N･m {50.99 kgf･m}	325	81	164	80	80※	26	96	65	11	20
TMNR−1KNM	1 kN･m {102.0 kgf･m}										

P/N	K	L	M	N	O	ϕP	ϕQ	ϕR	S	T	Key width U	Key thickness Y
TMNR−10NM	41	60	67	76	30	82	23	20h7	125	14	6(+0.020,0)	6(0,−0.030)
TMNR−20NM												
TMNR−50NM												
TMNR−100NM	41	60	67	76	30	82	−	23h7	125	14	8(+0.025,0)	7(0,−0.090)
TMNR−200NM												
TMNR−500NM	45	60	74	80	30	110	40※	38h7	159	19	10(+0.030,0)	8(0,−0.090)
TMNR−1KNM												

P/N	V	W	a	b	c	e	f	g	ϕh	Weight (Approx. kg)
TMNR−10NM	3.5(+0.1,0)	M5 depth 6	55±0.1	12	90	110	10	75	7	3
TMNR−20NM										
TMNR−50NM										
TMNR−100NM	4(+0.2,0)	M5 depth 6	55±0.1	12	90	110	10	75	7	3
TMNR−200NM										
TMNR−500NM	5(+0.2,0)	M6 depth 6	70±0.2	15	110	130	10	76	7	7.5
TMNR−1KNM										

. There are no E and Q at the end of right jig in the ※ section on the Dimension table.

. Parenthesized figures indicate the dimensional tolerance on the Dimension table.

NMB

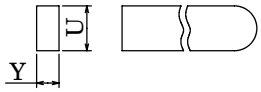
SPECIFICATIONS

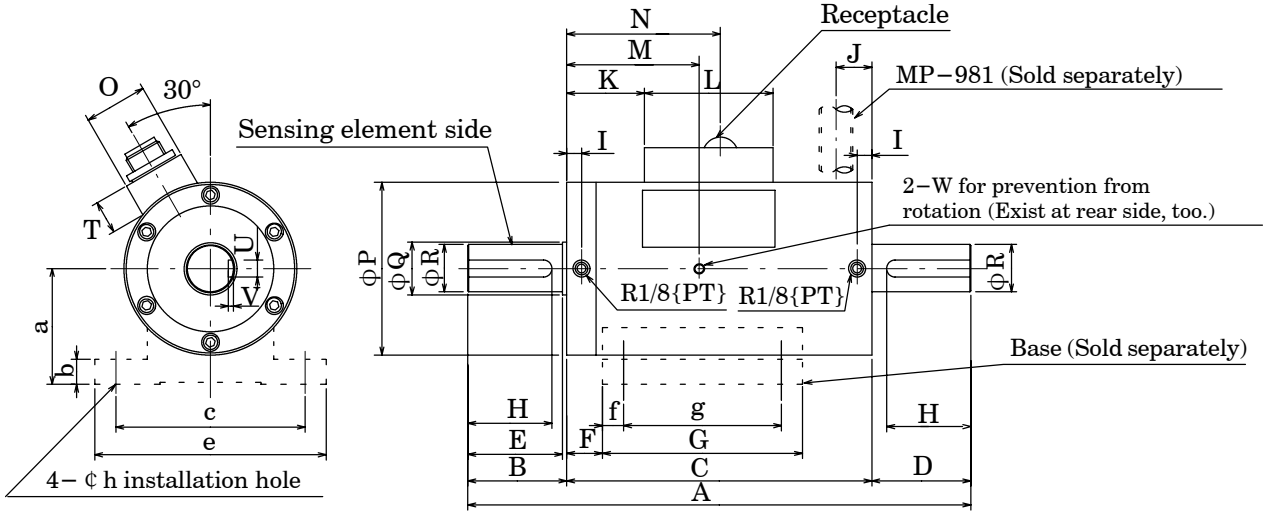
TORQUE TRANSDUCER
TMNR−10NM～10KNM

Spec. No. EN232001−B 3/3

TMNR−2KNM～10KNM

Key dimensions (S45C sunk key)





Outline dimensions Unit : mm

P/N	Rated capacity	A	B	C	D	E	F	G	H	I	J
TMNR−2KNM	2 kN･m {203.9 kgf･m}	400	106	188	106	105	29	110	90	11	26
TMNR−3KNM	3 kN･m {305.9 kgf･m}										
TMNR−5KNM	5 kN･m {509.9 kgf･m}										
TMNR−10KNM	10 kN･m {102 0 kgf･m}	500	150	200	150	145	27	130	130	12	31

P/N	K	L	M	N	O	ϕP	ϕQ	ϕR	T	Key width U	Key thickness Y
TMNR−2KNM	53	60	84	88	30	158	70	63h7	19	18(+0.035,0)	11(0,−0.110)
TMNR−3KNM											
TMNR−5KNM											
TMNR−10KNM	58	60	95	93	30	170	80	76h7	20	22(+0.035,0)	14(0,−0.110)

P/N	V	W	a	b	c	e	f	g	ϕh	Weight (Approx. kg)
TMNR−2KNM	7(+0.2,0)	M6 depth 10	100±0.2	20	140	170	15	80	9	21
TMNR−3KNM										
TMNR−5KNM										
TMNR−10KNM	9(+0.2,0)	M8 depth 15	110±0.2	25	150	180	15	100	11	32

. Parenthesized figures indicate the dimensional tolerance on the Dimension table.

P/N of torque transducer	P/N of base
TMNR−10NM～200NM	NRBS−1
TMNR−500NM～1KNM	NRBS−2
TMNR−2KNM～5KNM	NRBS−3
TMNR−10KNM	NRBS−4

Specifications and outline dimensions and so on which have printed may subject to change for the purpose of improvement without notice.