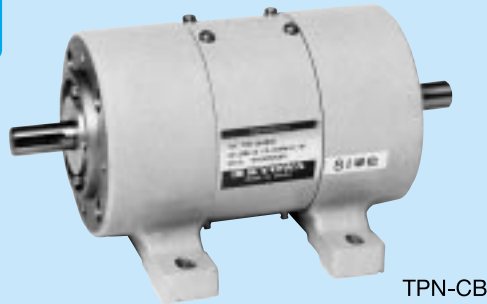


# TPN-AB/CB Rotary Transformer Torque Transducers

● 10 to 500 N·m ● Noncontact ● Suitable for Control Instrumentation



TPN-CB



TPN-AB

TPN-AB/CB series strain gage torque transducers use a rotary transformer for noncontact signal transmission, and thus ensure easy maintenance and long-term stable measurement without concern for abrasion of the slip ring and brush. Grease lubrication lets them perform to specifications for a long period of time, thereby making them suitable for incorporation into equipment or control instrumentation.

## Features

- Easier maintenance than KYOWA's torque transducers of other series
- Good long-term stability
- Excellent durability ensuring suitable application for control instrumentation

## Specifications

### Performance

Rated Capacity: See table below.  
 Nonlinearity: Within  $\pm 0.2\%$  RO  
 Hysteresis: Within  $\pm 0.2\%$  RO  
 Rated Output: 1.2 mV/V (2400  $\mu\text{m/m}$ ) or more

### Environmental Characteristics

Compensated Temperature Range:  $-10$  to  $60^\circ\text{C}$   
 Temperature Effect on Zero Balance: Within  $\pm 0.03\%$  RO/ $^\circ\text{C}$   
 Temperature Effect on Output: Within  $\pm 0.03\%$ / $^\circ\text{C}$

### Electrical Characteristics

Recommended Excitation Voltage: 2 VAC (Carrier 5 kHz)  
 Rotation-Induced Noise: 36  $\mu\text{m/m}$  p-p or less  
 Applicable Strain Amplifier: DPM series with 5-kHz carrier  
 Cable: 4-conductor (0.3 mm<sup>2</sup>) chloroprene shielded cable, 7.6 mm diameter by 5 m long, terminated with connector plug at both ends  
 (Shield wire is connected to mainframe.)

### Mechanical Properties

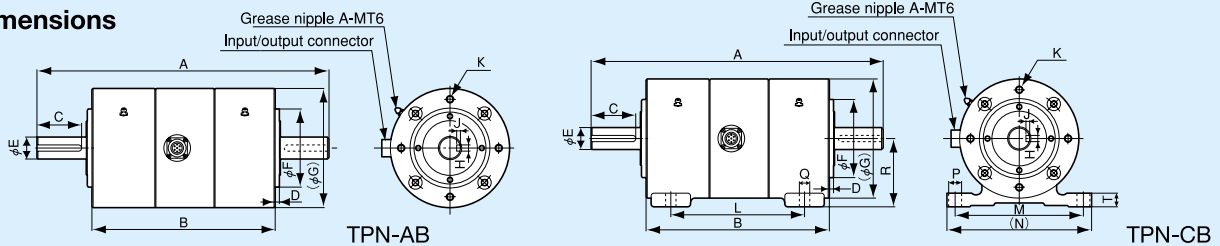
Safe Overload Rating: 150%  
 Max. Speed: See table below.  
 Angle of Torsion: See table below.  
 Torsion Spring Constant: See table below.  
 Moment of Inertia: See table below.  
 Safe Thrust Load: See table below.  
 Safe Load at Shaft End: See table below.  
 Weight: See table below.

For DPM series strain amplifiers, refer to page 3-7.

**Precaution:** TPN-AB/CB series torque transducers are used in combination with a carrier-type strain amplifier, and the carrier frequency affects the output voltage and performance characteristics. In addition, these transducers are calibrated with the bridge excited at 5 kHz. Accordingly, when using a strain amplifier with bridge excited at other than 5 kHz, it is required to calibrate the transducer and amplifier in combination. Such calibration can be made with charge in our factory. Contact us for details. (For safety, transducers in these series cannot be used in combination with amplifiers of DC bridge excitation.)

Model	Rated Capacity	Maximum Speed (rpm)	Rated Angle of Torsion, Approx. (rad)	Torsion Spring Constant, Approx. (N·m/rad)	Moment of Inertia, Approx. (kg·m <sup>2</sup> )	Safe Thrust Load, Approx. (N)	Safe Load at Shaft End, Approx. (N)	Weight (Approx.)	
								AB	CB
TPN-1KMAB/CB	10 N·m	12000	0.024	417	$0.43 \times 10^{-4}$	100	4	3.0 kg	3.5 kg
TPN-2KMAB/CB	20 N·m	12000	0.028	714	$0.43 \times 10^{-4}$	100	8		
TPN-5KMAB/CB	50 N·m	7500	0.021	2381	$3.94 \times 10^{-4}$	300	15	6.0 kg	7.0 kg
TPN-10KMAB/CB	100 N·m	7500	0.025	4000	$3.96 \times 10^{-4}$	500	25		
TPN-20KMAB/CB	200 N·m	5000	0.018	11111	$34.2 \times 10^{-4}$	500	50	14.0 kg	14.5 kg
TPN-50KMAB/CB	500 N·m	5000	0.020	25000	$34.6 \times 10^{-4}$	1000	60		

## Dimensions



Model	A	B	C	D	$\phi E$	$\phi F$	( $\phi G$ )	H	J	K	L	M	N	P	Q	R	T
TPN-1KMAB/CB	226	156	25	5	14	62	98	5	3	M6 ( $\phi 78$ )	85	100	120	12	7	63	14
TPN-2KMAB/CB																	
TPN-5KMAB/CB	296	180	45	6	22	80	123	6	3.5	M8 ( $\phi 100$ )	124	130	154	12	12	73	16
TPN-10KMAB/CB																	
TPN-20KMAB/CB	384	212	70	5	38	107	150	10	5	M8 ( $\phi 125$ )	130	150	190	20	14	100	25
TPN-50KMAB/CB																	

For the tolerance, contact us.