

## TKTM-01 Torque Sensor

### Manual

Changzhou Tuoke's torque sensors feature both reaction (non-rotating) and rotary torque sensors that utilize bonded gage technology. The torque sensors are non-contact and don't use support bearings or slip rings. All torque sensors are machined from stainless steel and temperature hardened for low torsional deflection as well as temperature compensated for long term stability.

Here are the features as follow:

- (1). Contactless
- (2). Higher frequency response
- (3). Compact size
- (4). Wide application range

## 1、 SPECIFICATIONS

Table 1: Specification of Torque Sensor TKTM-01

NO.	SPECIFICATIONS	OUTPUT
1	Length of BB housing	68/73/84/100/120 mm
2	Type	Dynamic/Static, Double side
3	Supply voltage	4.3~5.5 VDC
4	Current	<0.012 A
5	Capacity	0.5 ~ 85 Nm
6	Output at rated capacity	0.7 ~ 3.6 VDC
7	Sensitivity	(35±1) mV/ Nm
8	Speed	32P
9	Nonlinearity	±0.5%F.S.
10	Repeatability	±0.5%F.S.
11	Consistency	≥98%F.S.
12	Temperature effect	±0.011%F.S./°C
13	Overload	200%F.S.
14	Operating temperature	-20 ~ +85 °C
15	IP	IP 67

Table 2: The Input-output Relationship of Torque Sensor TKTM-01

Torque(Nm)	0	17	34	51	68	85	0
<b>Output</b>							
<b>Left (V)</b>	0.7049	1.3178	1.9369	2.5359	3.1208	3.6275	0.7050
<b>Right (V)</b>	0.7036	1.3304	1.9341	2.5284	3.0942	3.6044	0.7038

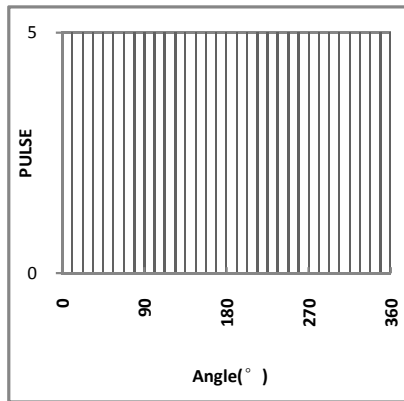
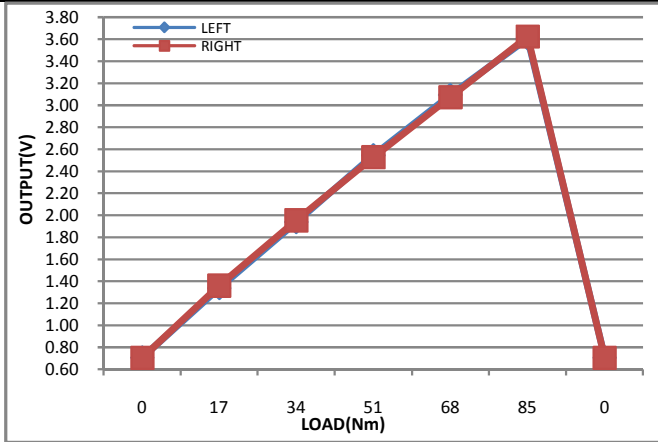


Figure 1: The Input-output Relationship of Torque Sensor TKTM-01

2、Dimensions/Size

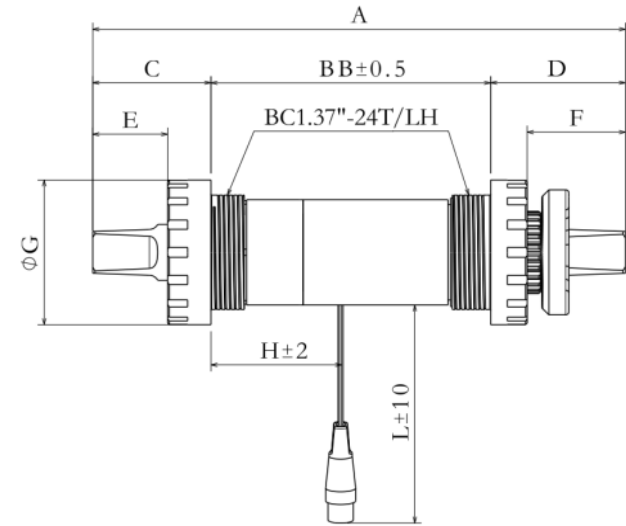


Figure 2: The Size of Torque Sensor TKTM-01

Table 3: Size of Torque Sensor WT-060-0X00 (mm)

BB	A	C	D	E	F	G	H	L
68	148	38.5	41.5	25.5	30.5	44	29	150 (option)
73	148	33.5	41.5	20.5	30.5	44	34	
84	160	34.5	41.5	21.5	30.5	44	43	
100	176	35.5	40.5	22.5	29.5	44	56	
120	200	39.5	40.5	26.5	29.5	44	60	

### 3、Wiring Diagram

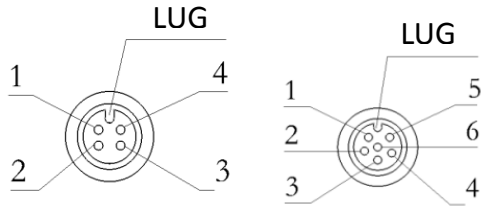


Figure 3: Pin Configuration & Functions (Top-View)

Table 4: Pin Configuration & Functions

Pin Code	Functions	Cable Colors	
		4PINS	6PINS
1	EXC+	Red	Red
2	EXC-	Black	Black
3	Torque	Green	Yellow
4	Speed	Blue	Green
5	RX		Blue
6	TX		White

### 4、INSTALL

#### 1) Appearance

Appearance of Torque Sensor TKTM-01 is shown in figure 4.

#### 2) Install

- (1) Adjust the torque of the constant torque wrench to  $(35\pm 2)$  Nm, use the wrench to screw the left cap 1 into the bottom bracket (The non-sprocket side), and tighten the left cap as shown figure 5.

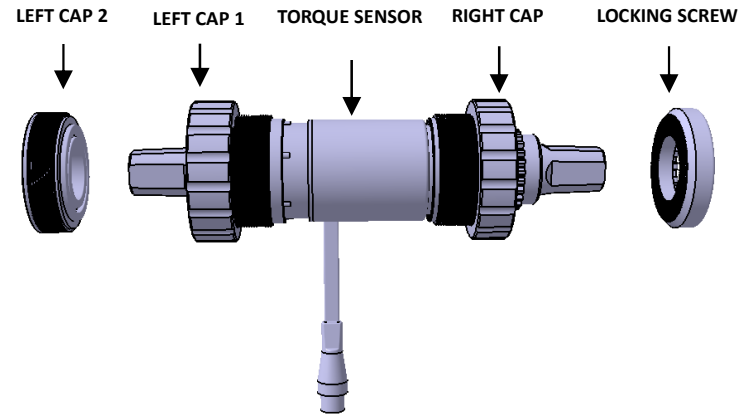


Figure 4: Appearance Specification of Torque Sensor

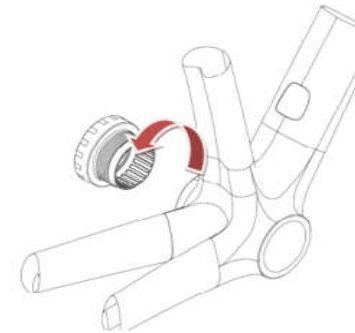


Figure 5

- (2) Enclose the sensor by the bottom bracket (the sprocket side): pass the lead through (to ensure the lead is not cut off as it runs through the outlet hole), enclose the sensor when the lead is pulled out (paying attention to the match between the positioning step and the slot).

- (3) Adjust the constant torque wrench to  $(35\pm 2)$  Nm, use the wrench to screw the right cap into the bottom bracket (the sprocket side), and tighten the lock cap as shown figure 6.

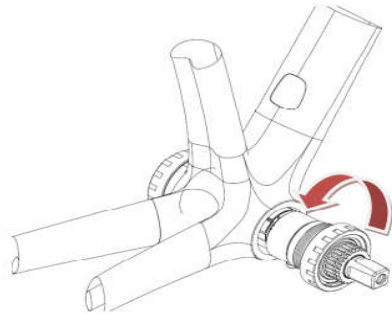


Figure 6

- (4) Adjust the torque of the constant torque wrench to  $(10\pm 2)$  Nm, use the wrench to screw the left cap 2 into the left cap 1, and tighten it.
- (5) Align the spline keyway of the crank set assembly with that in the sensor sleeve and slowly push it into the end as shown below.
- (6) Adjust the torque on the constant torque wrench to 35Nm, and use it to screw the bracket locking ring into the external thread of the torque body, and tighten the bracket locking ring as shown figure 7.
- (7) Use a pneumatic torque wrench to fix the right crank group and left crank group with M8x15 screws (torque  $\leq 35$ Nm) respectively at both ends of the central shaft as shown figure 8.

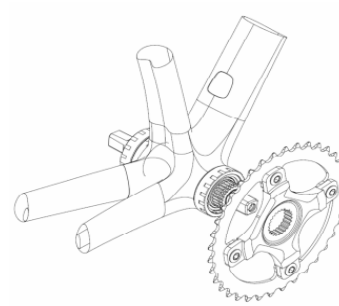


Figure 7

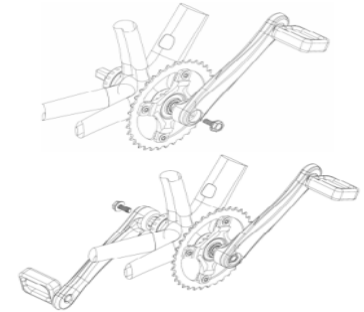


Figure 8

## 5、CAUTIONS

- 1) The sensor should be stored in a ventilated dry room. Avoid storing near strong magnetic objects.
- 2) Should not be used for a long time overload.
- 3) Should avoid wading to use.
- 4) Do not contact magnetic materials with products (mainly axes)
- 5) It is forbidden to be knocked during product transportation and installation.
- 6) At installation and disassembly it shall be carried out in accordance with the prescribed procedures to prevent break line.