

Model: ZHKY2050A

Item: Noncontact rotary torque sensor

Capacity: 200, 300, 500N.m

Material: Aluminum body, stainless steel shaft

Precision: $\pm 0.2\%$ F.S

Application: Motor, etc.

Speed measure: YES, max. 8000RPM



(Optional accessories available)

Build-in display: Torque speed power display

External Torque speed power display- PY802

English Software

Features:

- 1, Small in size, easy to use and install and strong signal anti-interference ability.
- 2, It is non-contact / contactless, wear-free, suitable for long-term high-speed rotation.

Technical specification:

Torque capacity	200, 300, 500N.m can customize to 1000N.m, 2000N.m or higher.
Speed range	0,100,200-1000,4000,6000,7000, 8000 Varies with Capacity
Excitation voltage:	12-30VDC 15V DC (for frequency signal output), 24V DC (for voltage or current signal output)
Torque signal output	10 $\pm$ 5 KHZ (Zero 10kHz) default 4~20mA, 0 $\pm$ 5/10VDC, 0-5/10VDC, RS485/RS232
Speed signal output	60 pulse TTL, on-off output 0-5/10VDC, 4-20mA, RS485/ RS232
Accuracy	$\pm 0.3\%$ F.S / $\pm 0.2\%$ F.S/ $\pm 0.1\%$ F.S
Temp Effect on Zero-%RO/	± 0.02
Temp Effect on Range-%RO/	± 0.02
Working Temperature range:	0 ~ +50°C
Compensated temperature range	0~+60°C
Electrical connection	6-pins, 8 pins
Safety overload:	200 %F.S
Material	Aluminum body, stainless steel shaft
Cable length:	5 m
Cable connection:	Red: Exc+ Black: Exc - Green: Signal + White: Signal-

4-M4 depth 8
the other 2 holes are at the other side

65
85
32.5
28
46
24
35
37
70
144
3
30
3
30
8
28
30
30
28
30

key groove dimension: LxW: 30x8 mm

The diagram shows three circuit configurations for digital outputs:

- Open Drain Output:** A single NPN transistor with its emitter connected to GND and its collector connected to the output pin (Vout). The input (Vin) is connected to the base. The output pin is shown with a pull-up resistor connected to a supply voltage.
- Differential Output:** A differential line driver IC, labeled AM26LS31CDR, with its input (Vin) connected to the non-inverting input (+). The two outputs, Y+ and Y-, are shown as complementary signals.
- Push-pull Output:** A complementary NPN and PNP transistor pair. The PNP transistor's emitter is connected to +5V and its base is connected to the input (Vin). The NPN transistor's emitter is connected to GND and its base is also connected to the input (Vin). The collectors of both transistors are connected together to form the output pin (Vout).

	Output	Description
Signal	Pulse open drain	NPN open drain, user needs to add resistor R to get pulse output. When Output is 5V, R is between 330Ω~1KΩ When Output is 12V, R is between 2KΩ~4.7KΩ When Output is 24V, R is between 10KΩ~20KΩ
		Default torque output is 10±5KHZ, default speed output is 0-30KHz (60 pulses, 1KHz correspondences to 1000RPM)
		support special pulse output, please inform before order
	Pulse push pull	Default active high output is +5V (also support +12V), please inform before order.
		Default torque output is 10±5KHZ, default speed output is 0-30KHz (60 pulses, 1KHz correspondences to 1000RPM)
		Support special pulse output, please inform before order
	Pulse differential	Differential output chipset is AM26LS31, recommended receiving chipset AM26LS32, can also drive optocoupler directly.
		Default torque output is 10±5KHZ, default speed output is 0-30KHz (60 pulses, 1KHz correspondences to 1000RPM)
		support special pulse output, please inform before order
	Voltage output	Full range support 0±10VDC, user can define any output range within Full range..
		Default torque output is 0±10VDC, default speed output is 0-10VDC.
Communication	Current output	Full range support 0-20mA, user can define any output range within Full range..
		Default torque output is 4-12-20mA, default speed output is 4-20mA.
	RS485	Communication baud rate (bps) support : 115200, 57600, 38400, 19200, 9600, 4800, 2400. Default 115200.
	RS232	Communication baud rate (bps) support : 115200, 57600, 38400, 19200, 9600, 4800, 2400. Default 115200.
		CAN
Communication baud rate (bps) support : 1M, 500K, 250K, 100K, 50K, 10K, 1K. Default 1M.		
Default power supply is 24VDC. If need 12VDC, please inform before order. 24VDC supply power max. 150mA 12VDC supply power max. 300mA.		

Electrical connection specification

6 pins electrical wiring							
	Pin	Color	Pulse /Current / Voltage	RS485	RS232	CAN	Pulse Differential
Power supply	pin 5	Red	Power supply Vin+				
	pin6	Black	Power supply Vin-				
Signal	pin3	Green	Torque	A+	TxD	H+	Torque A+
	pin 4	Yellow	Speed				Speed B+
	pin 1	White	Signal - (GND)	GND			Torque A -
	pin 2	Blue	/	B-	RxD	L-	Speed B -
Signal- (GND) have to use white GND, cannot use power supply - Vin- and GND are not same active output, has voltage difference							

8 pins electrical wiring (output signal coexist with communication)					
Power supply	pin 5	Red	Power supply Vin+		
	pin6	Black	Power supply Vin-		
Signal			Pulse / current / voltage		Pulse Differential
	pin3	Green	Torque		Torque A+
	pin4	Yellow	Speed		Speed B+
	pin1	White	Signal - (GND)		Torque A -
	pin2	Blue	/		Speed B-
Communication			RS485	RS232	CAN
	pin7	Brown	A+	TxD	H+
	pin8	Grey	B-	RxD	L-
Signal - (GND) Have to use white GND, cannot use input power supply - Vin- and GND are not same active output, has voltage difference					

Installation Manual

1, Application Area

ZHKY2050 series dynamic torque sensor is an accurate measuring device for torque and mechanical power consumption. Mainly applied in

- 1.1 Electromotor, Engine motor, internal-combustion engine and other rotating equipment.
- 1.2 Fan, water pump, torque wrench
- 1.3 Train, auto mobile, tractor, airplane, ship, mining machine
- 1.4 Water recycling system
- 1.5 Viscometer
- 1.6 Process industry

2, Installation requirement

- 2.1 Suitable for both vertical and horizontal installation
- 2.2 All loading equipment, torque sensor, power equipment should be installed on a solid platform to avoid excessive vibration. Otherwise, it may cause unstable reading, reduce accuracy or even damage torque sensor.

2.3 Use elastic pin coupling

2.4 **Flexible fixing** is recommended for fixing the middle part of torque sensor. **Do not** apply rigid fixing.

2.5 **Concentricity tolerance** of loading equipment, torque sensor, power equipment should be **less than $\Phi 0.05\text{mm}$** .

3, Installation steps

3.1 Confirm distance between power equipment and loading equipment based on shaft connection type and torque sensor length. Adjust the gap between the axil line (of power & loading equipment) and datum plane, make sure the coaxial between them is less than $\Phi 0.03\text{mm}$, then fix power & loading equipment on datum plane.

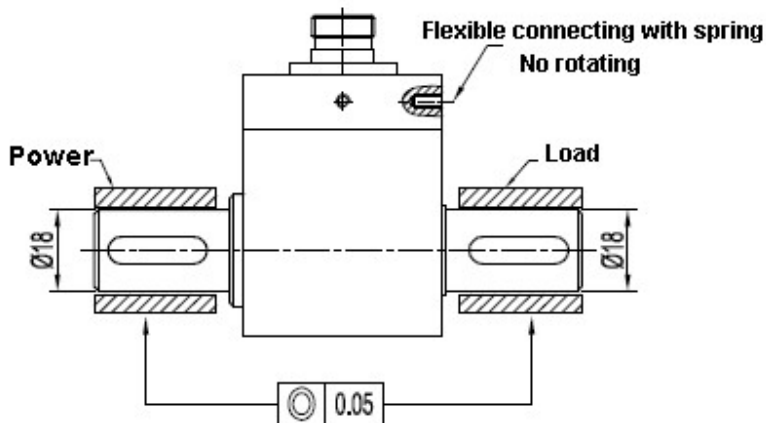
3.2 Install coupling on each shaft

3.3 Adjustment the distance between torque sensor and datum plane, make sure the coaxially between their axil line and the axil line of power & loading equipment is less than $\Phi 0.03\text{mm}$. Then fix torque sensor on datum plane.

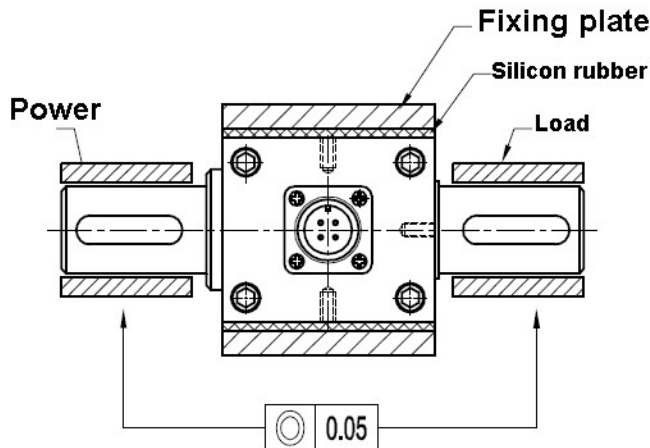
3.4 Fix the coupling, installation finished.

4, Normal installation ways

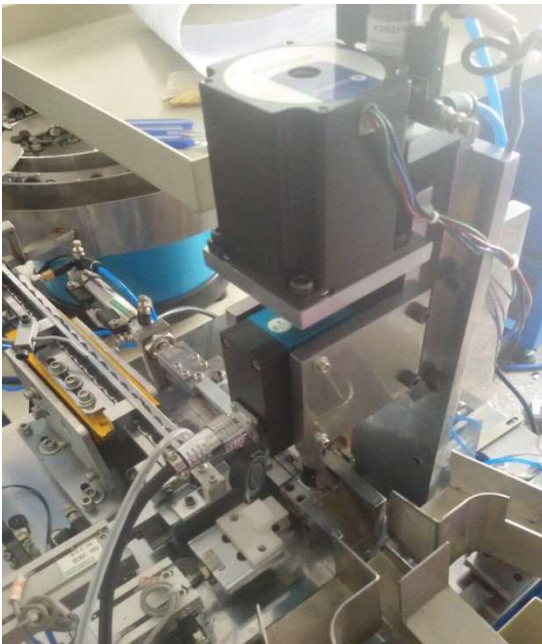
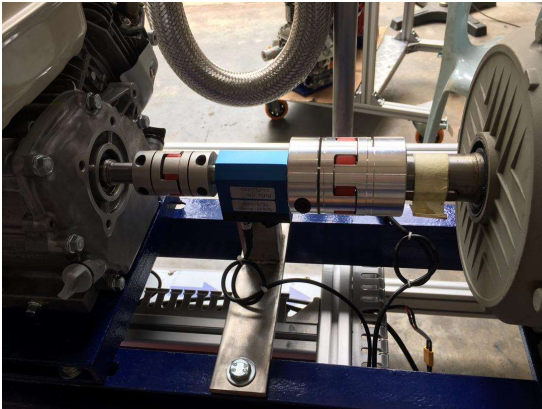
4.1 When speed is less than 300RPM, no frequent clockwise and anti-clockwise rotating, some flexible object can be used to connect with torque sensor and prevent it from rotating.



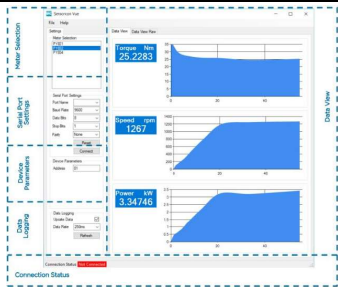
4.2 When speed is higher than 300RPM, with frequent clockwise and anti-clockwise rotating, fixing plate on both front and back of torque sensor is necessary. Add 2-3 mm silicon rubber in the middle of torque sensor and fixing board with 15%-20% compression amount to prevent it from becoming rigid connection.



Installation Reference



Optional Accessories

Display	Coupling	Software
		
Torque Speed Power meter Accessories: installation tools, cable Torque, speed, power value display Input: Frequency Output: Support 4-20mA (default), 0-5V, 0-10V output or RS485 for computer connecting.	Coupling Aluminum for small capacity Alloy steel for medium capacity Stainless steel for big capacity	Software 1, Support data display, storage, download. 2, Able to display torque, speed and power consumption data if the meter connected to it support those functions.