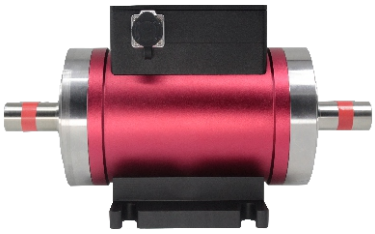
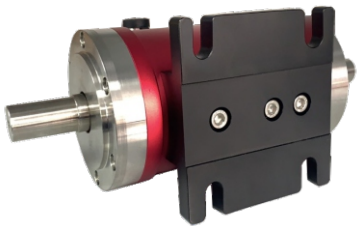
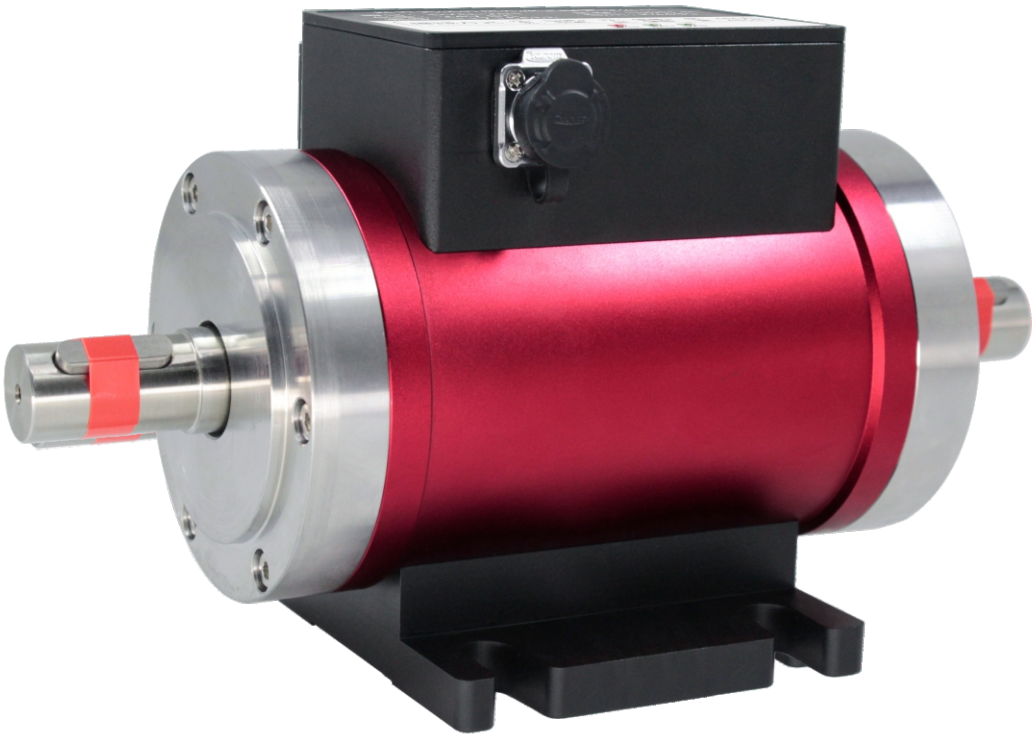
Application cases of dynamic torque products

ATO







Applicable to various torque test scenarios----

CE RoHS

Propulsion torque sensor intelligent slip ring free dynamic torque sensor

- The product specification includes 0.05N.m~ 50000N. M (higher range can be customized)
- 24V or ± 15V DC power input
- Comprehensive accuracy: 0.1% F.S
- Isolation of power supply and signal greatly reduces interference
- Wireless transmission no slip ring high speed response
- Stainless steel elastomer
- Speed selectable current, voltage or frequency signal
- Torque signal 5-15khz

High precision and good stability

More than 1 / 1000 accuracy and excellent stability are achieved.Small torque can also achieve high-precision measurement.

Non contact, maintenance free

There are no wear parts such as brush collector ring and slip ring, and there is no need for regular maintenance and replacement of parts.

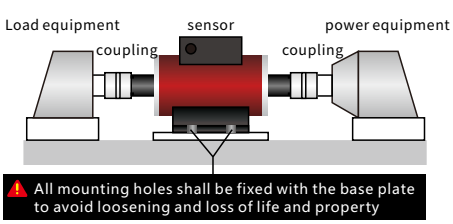
Measurable static torque

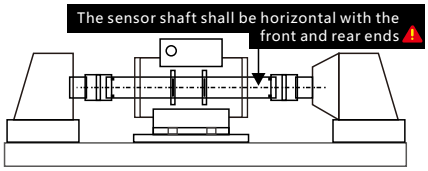
When transmitting signals, it has nothing to do with rotation, speed and steering.

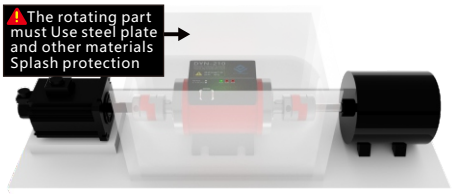
Supporting signal transmitter

The torque signal directly output by the sensor is frequency signal, and the supporting transmitter can output voltage or current signal.

Installation notes



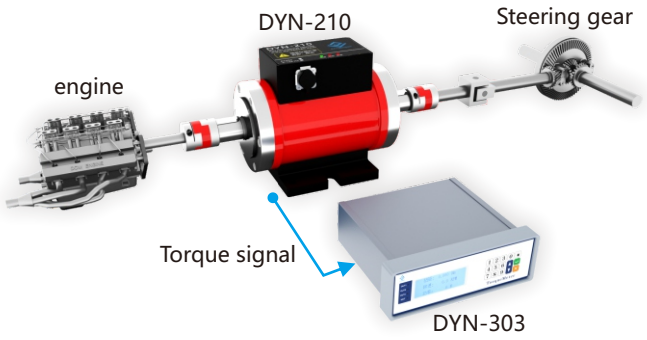




1. Measure the shaft diameter and center height of the sensor to be installed.
2. Use two sets of couplings to install the sensor between the power equipment and the load.
3. Adjust the center height and coaxiality of power equipment, load and sensor respectively, which shall be less than 0.05mm, and then fix them and fasten them reliably without looseness. When small range or high speed sensors are used, the center height and coaxiality of the connection shall be strictly guaranteed. Otherwise, measurement error and sensor damage may be caused.
4. The sensor can be connected with rigid or elastic coupling. When the vibration is large and the coaxiality is less than 0.2mm and more than 0.05mm, it is recommended to select elastic coupling. When the coaxiality exceeds 0.2mm, it is strictly prohibited to use.
5. The installation bottom table shall have a certain strength to ensure the stability of installation and avoid excessive vibration, otherwise the measurement data may be unstable and the measurement accuracy may be affected.
6. The coupling shall be installed close to the shaft shoulder at both ends of the sensor.
7. Whether the standard sensor is installed horizontally or vertically, the sensor is not allowed to bear excessive axial force and bending moment, otherwise it will affect the use of the sensor and even cause damage to the sensor.

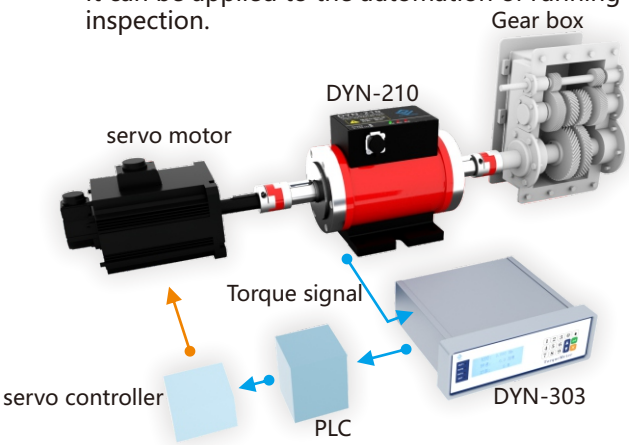
Steering detection

Through the torque measurement of automobile parts such as steering, the delivery inspection is carried out according to the quantification of rotation.



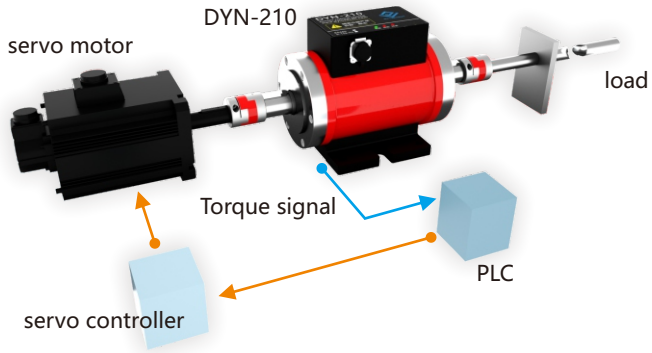
Gear engagement state detection

Through the detection of the output torque signal. It can be applied to the automation of running inspection.



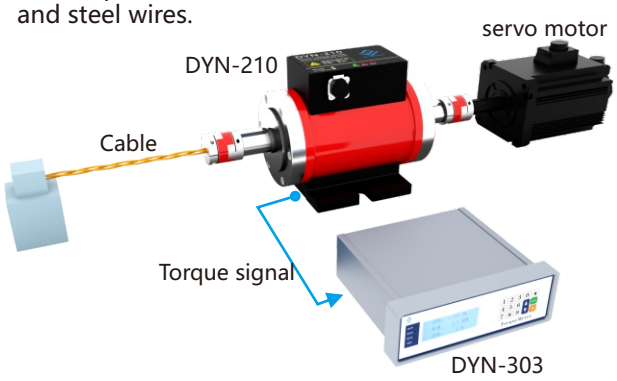
Detect the torque output of the servo motor

Insert a torque sensor between the servo motor and the load to detect the torque output, which is used for all kinds of load detection.



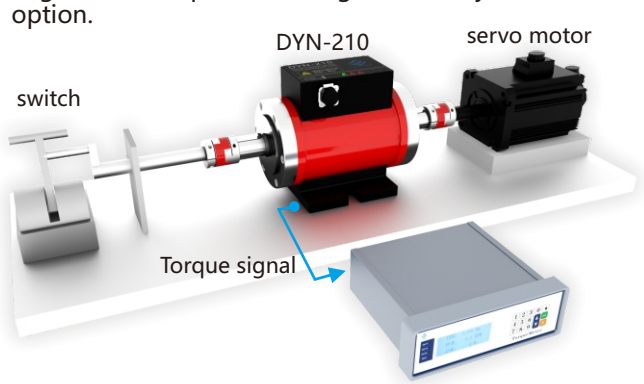
Torque tester

The performance and durability are tested through the torque measurement of the torsion test of cables and steel wires.



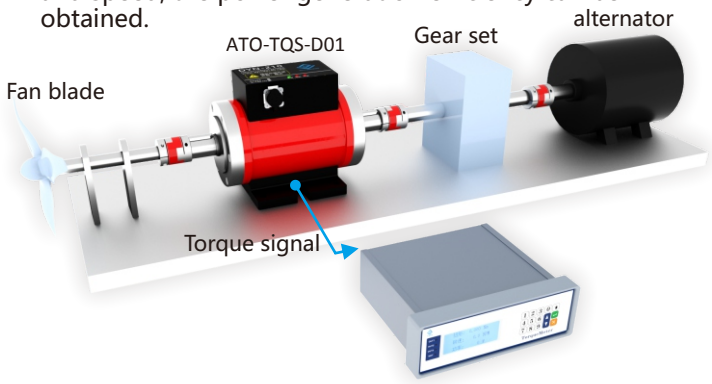
Rod and hinge inspection

Through the quantitative management of rod and dumpling chain. The torque of the corresponding angle can be captured through the rotary encoder option.



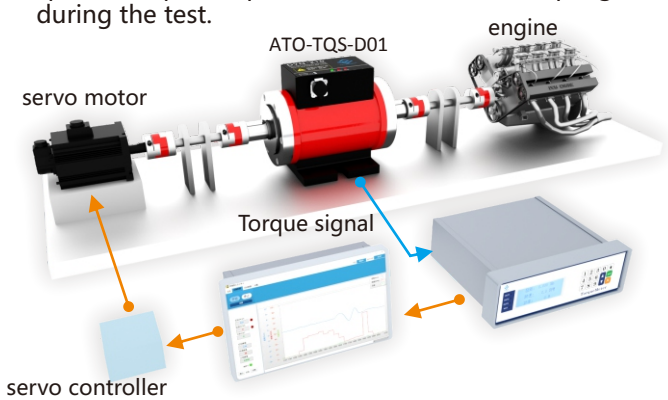
Generation efficiency measurement

It can measure the power generation efficiency of wind power generation. By calculating the torque and speed, the power generation efficiency can be obtained.



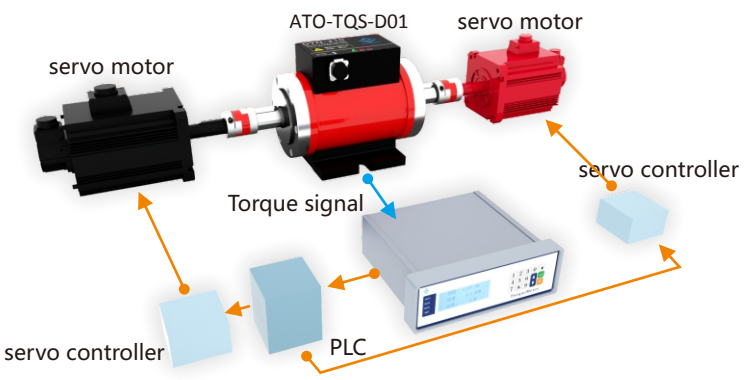
Engine characteristic tester

It is used to test the performance of the engine. For engines with large vibration caused by torque, speed and power, please use double disc coupling during the test.



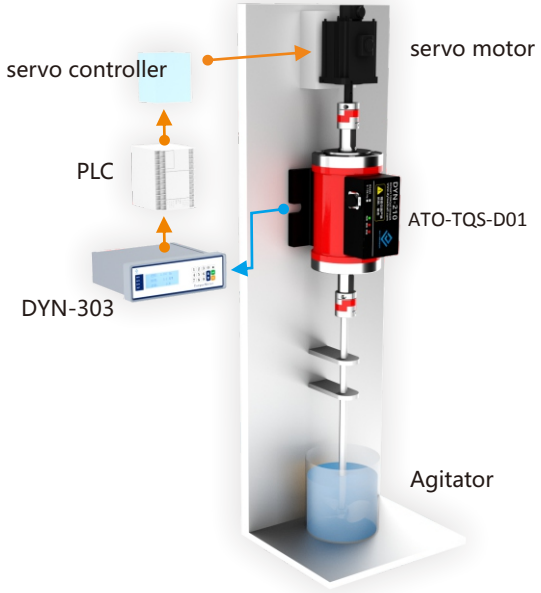
Motor detector

According to the torque and rotation pulse signals output by the sensor, the torque and power characteristics based on speed can be measured.



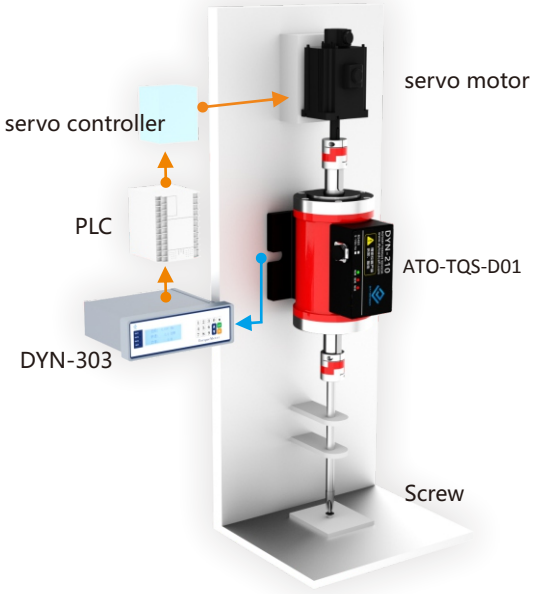
blender

Measure the load torque applied to the mixing impeller shaft during mixing. According to the change of stirring torque value, the viscosity change caused by mixing operation and reaction operation in chemical process can be mastered. The contact signal can be output with the upper and lower limits of torque.



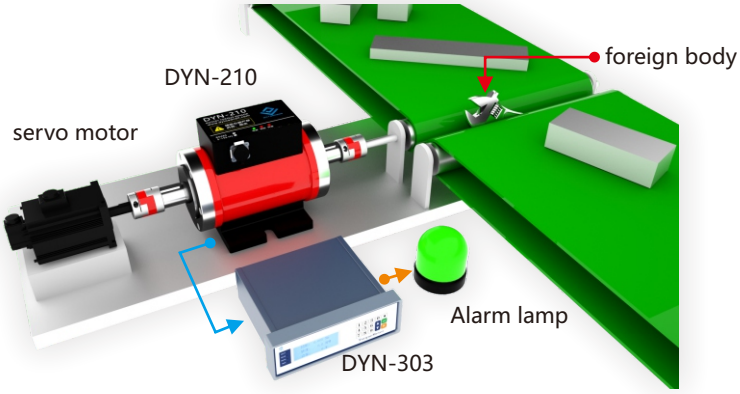
Screw fastening machine with torque measurement function

Measure the tightening torque of the screws and tighten the screws at the same time. The torque can always be managed and can be applied to the automatic control of screw tightening machines.



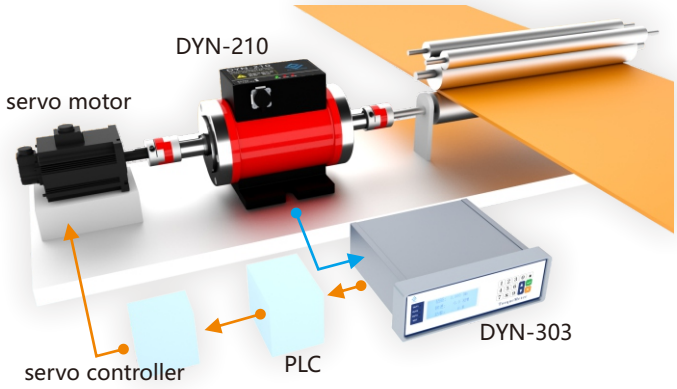
Abnormal detection of conveyor belt conveying

During conveyor belt conveying, abnormal bite can be detected by measuring the torque of the rotating shaft of the conveyor. Stop conveying by quickly detecting foreign objects and falling workpieces.

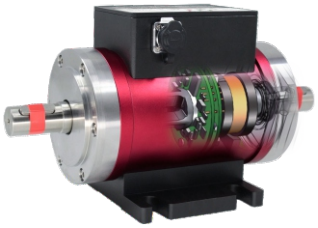


Measurement of rotating load of roller

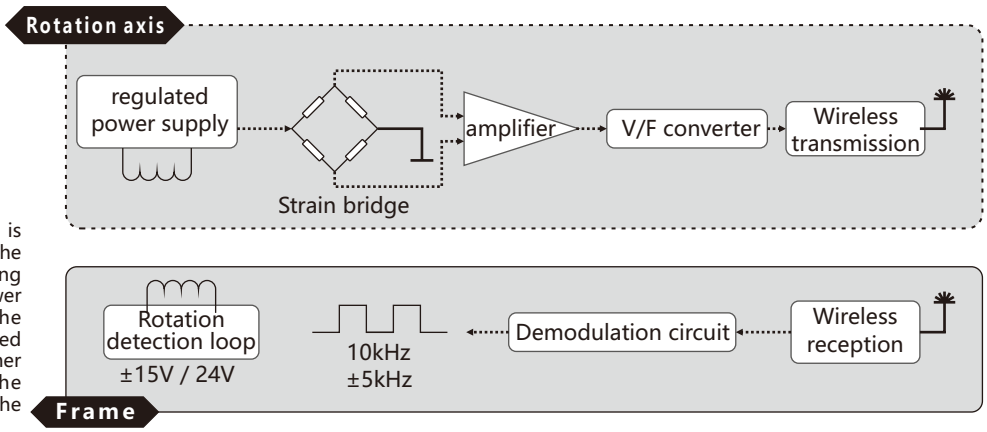
The load variation of paper, foil and sheet passing through the conveyor wheel can be measured. Adjust and manage the stick quantitatively by measuring the torque.



Working principle of torque



The torque applied to the rotating shaft is detected by a strain gauge. Converts the amount of torque applied to the rotating shaft into an electrical signal. The power supply to the rotating device and the detection of electrical signals are completed in a non-contact way. There is no other mechanical contact part between the rotating device and the frame except the bearing.



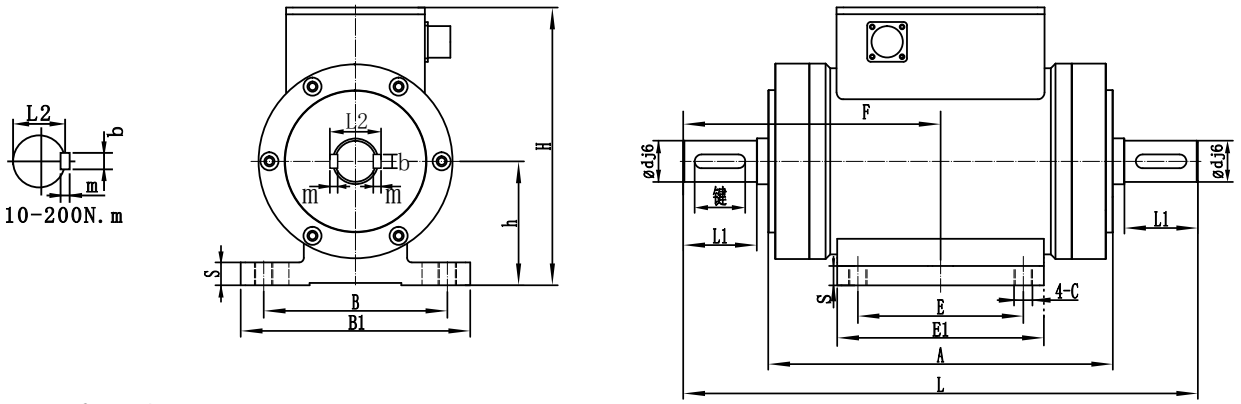
ATO

Product parameters

range (N.m)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	200	300	500	700	1 000	2 000	3 000	5 000	7 000	10 000	20 000	50 000	100 000	1500 000	200 000	300 000
Power input	DC 24V/±15V																										
Consumption current	<200mA																										
Output range	5-15KHz																										
Reaction performance	10KHz																										
Speed output	60 pulse signals																										
Allowable overload	200%																										
Nonlinear	0.1%F.S.																										
lagging	0.5%F.S.																										
Repeatability	0.2%F.S.																										
Operating temperature range	-10 ~ 50℃																										
Zero temperature effect	0.01%F.S.																										
Output temperature effect	0.01%F.S.																										
Maximum speed rpm	10 000																										
Overall dimension (Frame) mm																											
L (Shaft length)	224											242	272	328	385	396	447	700	820	900	900	900					
B1 wide	90											90	90	110	110	120	140	190	290	290	290	300					
H high	123											133	144	150	172	187	244	331	410	420	446	480					
Shaft diameter (mm)	Φ18											Φ28	Φ38	Φ48	Φ65	Φ75	Φ100	Φ165	Φ210	Φ235	Φ255	Φ295					
weight (kg)	4.2											5.5	7.2	10	/	/	/	/	180	/	/	/					

If you need a product that exceeds the standard speed, please consult the sales staff and choose a customized torque sensor.

Overall dimension

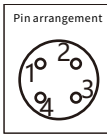


Torque formula T (N.m) =9550*P (KW) /n (rpm)

range(N.m)	Φdj6	ΦD	A	L	L1	H	h	E	E1	B	B1	C	F	S	Standard speed	C-type key(b*l1*m*quantity)
10、20、30、40、50、100	Φ18	Φ85	150	224	32	123	58	72	95	62	90	6.5	112	10	6000	6*32*6*1
200、300	Φ28	Φ95	152	242	42	133	63	72	95	62	90	6.5	121	10	5000	8*42*7*1
500、700	Φ38	Φ105	154	272	56	144	69	72	95	62	90	6.5	136	10	4000	10*56*8*2
1000	Φ48	Φ115	156	328	82	150	70	72	95	82	110	8.5	165	12	3000	14*82*9*2
2000、3000	Φ65	Φ132	165	385	105	172	80	72	95	82	110	8.5	192.5	12	2500	18*105*11*2
5000、7000	Φ75	Φ146	180	396	105	187	89	72	95	82	120	8.5	210	12	2000	20*105*12*2
10000、20000	Φ100	Φ182	180	447	130	244	122	80	110	112	140	10.5	230	15	2000	28*130*16*2
50000	Φ165	Φ250	185	700	240	331	180	120	190	150	190	12.5	350	15	1900	40*240*22*2
100000	Φ210	Φ330	200	820	300	410	210	160	200	250	290	12.5	410	15	1700	50*300*28*2
150000	Φ235	Φ350	250	900	315	420	220	220	260	250	290	17	450	15	1200	56*315*32*2
200000	Φ255	Φ360	210	900	320	446	240	220	260	250	290	17	450	15	1100	56*320*32*2
300000	Φ295	Φ416	224	900	325	480	250	220	270	268	300	17	450	20	1000	70*325*36*2

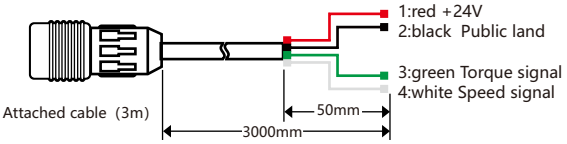
Definition of matching cable connection

4-core wire



Pin number	Cable color	Signal name
1	red	+24V
2	black	Public land
3	green	Torque signal
4	white	Speed signal

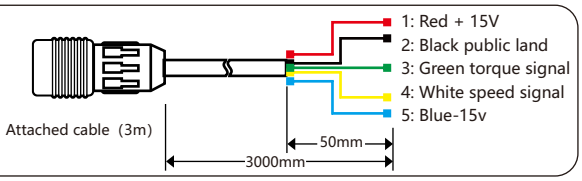
Socket pin assignment



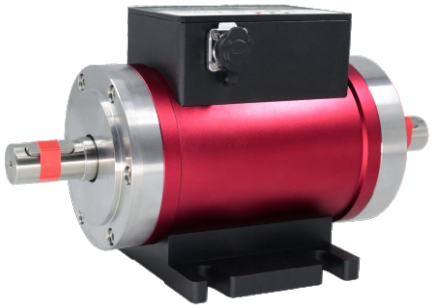
5-core wire

Pin number	Cable color	Signal name
1	red	+15V
2	black	Public land
3	green	Torque signal
4	yellow	Speed signal
5	blue	-15V

Socket pin assignment



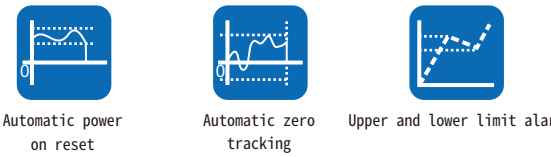
Supporting instruments

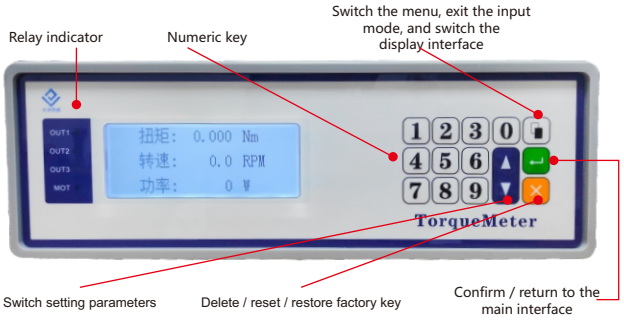


characteristic:

The instrument adopts ARM core processor as the main control. Connected with the dynamic torque sensor whose signal output is frequency, the current torque value can be read quickly. Support current and voltage analog output. Support RS485 output. RS485 and RS232 can be output independently without affecting each other.

- Working environment: temperature: - 20-55 ℃ humidity: 20-90% RH
- measurement accuracy: ±0.05%F.S
- Acquisition speed: 200 times per second
- Protection grade: IP65 (front panel protection)
- Power display range: 0 ~ 99999
- Torque input signal: 5000 ~ 15000hz
- Display: LCD (192 * 64)
- Output voltage: 24V ± 5%, current < 320mA
- Power supply voltage: 100-240V AC 50 / 60Hz
- Power consumption: less than or equal to 15va
- Torque display range: - 99999 ~ 99999
- Speed display range: 0 ~ 99999
- Speed input signal: 0.3-12000hz





Torque: 0.000 N.m
Speed: 0.0 rpm
Power: 0 w

Filter coefficient: 50 Torque division: 0
Power on reset: 0 Zero tracking: 10
Torque range: 20000

Torque decimal: 3 Speed decimal: 1
Torque direction: 0 Single cycle pulse: 060
Torque zero frequency: 09986

Upper limit of torque frequency: 15000
Lower limit of torque frequency: 05000
Alarm mode: 1111 alarm lock: 0

1 alarm: 10000 2. Alarm: 10000
3. Alarm: 15000 4. Alarm: 20000
Hysteresis value: 005 Alarm source: 0

Speed range: 60000 Transmission source: 0
Transmission mode: 0 Fullness: 16010
Zero point: 00000

Torque frequency
00000.0Hz
2021-06-05 11:48

Speed frequency
00000.0Hz
2021-06-05 11:48

Printing method: 0 "Day": 31
"Year": 21 "Hour": 14
"Month": 05 "Points": 40

Baud rate: 4 Stop bit: 2
Communication mode: 1 Mailing address: 001
Interval hours: Interval minutes: