

Rotating Torque Sensors **s_FY02 SERIES**

(rotary socket torque sensor with round shaft)

s_FY02 torque sensor series generalities

s_FY02 series is a rotary socket torque sensor with round shaft and keys, specifically designed for micro torque measurements.

Within the other potential uses, there are the electrical motor monitoring, the torque testing benches, and any other application for which a torque monitoring would be required (optionally, the torque sensor can be provided with a digital indicator).

s_FY02 torque sensor is based on steel alloy shaft, on which is duly applied a full *Weathstone* strain gauge bridge. A silvered slip ring assembly coupled to a brushes set, allows the s_FY02 torque sensor to be used for rotary application, with maximum rotational speed up to 3000 rpm.

Mentioned coupling transmits the correct voltage for the torque sensitive bridge excitation to, and collect the transduction output signal (mV) from the rotating square drive torque sensor.

Each unit is CE compliant and it is provided with its factory traceable (to *Chinese National Metrological Network*), calibration certificate.



s-FY02 rotary torque sensor

s_FY02 torque sensor series main characteristics:

- several measuring ranges are available within the s_FY02 series;
- improved overall accuracy, cost effective;
- strain gauge based technology, slip ring rotary torque sensor;
- rotational speed up to 3000 rpm, clockwise, counterclockwise;

s_FY02 torque sensor series specifications:

- available ranges:	±0.1, ±0.2, ±0.5, ±1, ±2, ±3 and ±5 Nm;
- rated output:	1.0 mV / V ±10%;
- excitation:	from 5 to 15 Vdc (maximum);
- zero balance:	±2 % R.O.;
- linearity error:	±0.15 % R.O.;
- hysteresis:	±0.15 % R.O.;
- non repeatability:	±0.05 % R.O.;
- creep (30 min):	±0.1 % R.O.;
- safe overload:	120 % F.S.;
- ultimate overload:	200 % F.S.;
- compensated temperature:	-10 to +40 °C;
- operating temperature:	-20 to +60 °C;
- temperature shift (zero):	±0.01 % R.O./°C;
- temperature shift (span)	±0.01 % R.O./°C;
- input bridge resistance:	350 ±30 ohms;
- output bridge resistance:	350 ±5 ohms;
- insulation resistance:	> 5000 Mohms (50 V);
- ingress protection:	IP62;
- shaft material:	stainless steel;
- electrical connection:	socket connector with cap (flying connector provided);
- max rotational speed:	3000 rpm.

Weighing Measuring Controlling																											
CERTIFICATE OF CALIBRATION																											
Date: 2016-08-08	Temperature: 22 °C																										
Item No.	FY02 100M																										
Rated Output	1.000mV/V																										
Excitation	5-15V																										
Operating Temp.	-20...+60°C																										
Zero Balance	±2% of R.O.																										
Temp. Shift Zero	±0.01% of R.O./°C																										
Linearity Error	±0.15% of R.O.																										
Temp. Shift Linearity	±0.01% of R.O./°C																										
Hysteresis	±0.15% of R.O.																										
Super Resolution	20:100																										
Non-repeatability	±0.05% of R.O.																										
Output Resistance	220Ω																										
Compensation	±0.1% of R.O.																										
Insulation Resistance	>5000Ω(50V)																										
Safe Overload	120% of F.S.																										
Ingress Protection	IP62																										
Uncertainty (k=2)	100% of F.S.																										
Material of Element	Stainless steel																										
Cable	60.0' 1000mm																										
Wiring Code	Checkmate Red E- Black E- Green S- White S-																										
Excitation Driver	5V 100mA																										
S/N: F0400077																											
<table border="1"> <thead> <tr> <th colspan="2">Test report @ 10V DC Excitation</th> </tr> <tr> <th>Load (Nm)</th> <th>Output (mV)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>2</td> <td>2.000 ± 0.200</td> </tr> <tr> <td>4</td> <td>4.000 ± 0.200</td> </tr> <tr> <td>6</td> <td>6.000 ± 0.200</td> </tr> <tr> <td>8</td> <td>8.000 ± 0.200</td> </tr> <tr> <td>10</td> <td>10.000 ± 0.200</td> </tr> <tr> <td>12</td> <td>12.000 ± 0.200</td> </tr> <tr> <td>14</td> <td>14.000 ± 0.200</td> </tr> <tr> <td>16</td> <td>16.000 ± 0.200</td> </tr> <tr> <td>18</td> <td>18.000 ± 0.200</td> </tr> <tr> <td>20</td> <td>20.000 ± 0.200</td> </tr> </tbody> </table>		Test report @ 10V DC Excitation		Load (Nm)	Output (mV)	0	0	2	2.000 ± 0.200	4	4.000 ± 0.200	6	6.000 ± 0.200	8	8.000 ± 0.200	10	10.000 ± 0.200	12	12.000 ± 0.200	14	14.000 ± 0.200	16	16.000 ± 0.200	18	18.000 ± 0.200	20	20.000 ± 0.200
Test report @ 10V DC Excitation																											
Load (Nm)	Output (mV)																										
0	0																										
2	2.000 ± 0.200																										
4	4.000 ± 0.200																										
6	6.000 ± 0.200																										
8	8.000 ± 0.200																										
10	10.000 ± 0.200																										
12	12.000 ± 0.200																										
14	14.000 ± 0.200																										
16	16.000 ± 0.200																										
18	18.000 ± 0.200																										
20	20.000 ± 0.200																										
CE																											

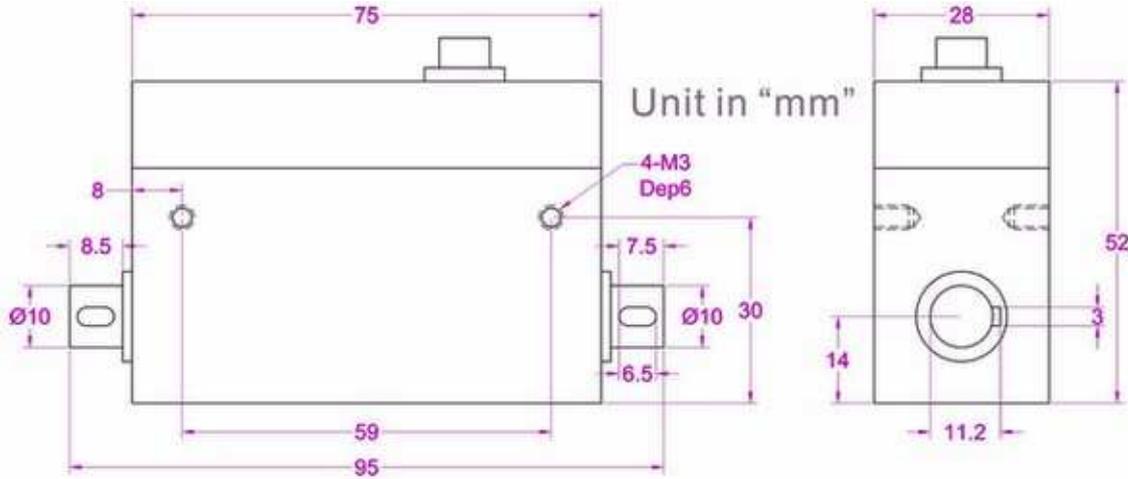
sample of calibration certificate

Certificate of Compliance	
Certificate Number:	BCTC-188888888
Applicant:	1. SPARE S.p.A. (Italy) 2. SPARE S.p.A. (Italy)
Manufacturer:	1. SPARE S.p.A. (Italy) 2. SPARE S.p.A. (Italy)
Product:	1. Torque sensor 2. Torque sensor
Model:	1. FY02 2. FY02
Test Standard:	1. EN 61326-2-2013 2. EN 61326-2-2013
<p>The EUT identified above has been tested by us with the listed standards and found in compliance with the stated EMC Directive (2014/53/EU). It is possible to use CE marking to demonstrate the compliance with the EMC Directive, if it is only valid in connection with the test report number BCTC-188888888.</p>	
 	
<p>This certificate of conformity is based on a single evaluation of the submitted product. The manufacturer is responsible for ensuring that the product continues to comply with the EMC Directive. The manufacturer is responsible for ensuring that the product continues to comply with the EMC Directive.</p>	

sample of manufacturer CE certificate



s_FY02 torque sensor series dimensions:



Torque sensor s_FY02 dimensions (mm, unless differently specified)



s-FY02 rotary torque sensor



s-FY02 rotary torque sensor with connector fitted

s_FY02 torque sensor series manufacturer:

s_FY02 torque sensor manufacturer is a Chinese growing company consolidating its European, North and South Americas markets, capable of design and manufacturing several strain gauges based sensors, like miniature and button shaped load cells, static torque sensors, and obviously several others dynamic torque sensors, including no-contact versions (brushes and slip rings free). All the products (starting from strain gauges, elastic bodies, and finished products), are duly submitted to the production end quality controls. Custom design of force and torque based sensors is also welcome.

