SensorsX

SX-FTNNB Series

Non-Contact Dynamic Torque Sensor

Dynamic Torque Measurement for Rotating Applications



0.5 – 500 N·m Range (0.37 – 368.8 lbf·ft)	**± 0.2% F.S.** Accuracy Class	**< 12,000 rpm** Maximum Rotational Speed
IP50 Ingress Protection Rating	**0 – 5 V / 0 – 10 V / 4 – 20 mA** Output Signal	**15 – 28 V** Reference Excitation

■ PRODUCT OVERVIEW

The SX-FTNNB Series is a non-contact dynamic torque sensor for rotating shaft applications, with rated capacities from 0.5 to 500 N·m. It features high torsional stiffness and offers voltage or current output options. Optional rotational speed and angle measurement are available.



■ KEY FEATURES

◆ **Non-contact torque measurement**	◆ **High torsional stiffness**
◆ **High-speed operation**	◆ **Optional rotational speed and angle measurement**

■ TYPICAL APPLICATIONS

- Dynamic torque measurement on rotating shafts
- High-speed rotating equipment testing
- Motor and drive system testing
- Pump and fan drive torque testing
- Gearbox and drivetrain testing

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■ PERFORMANCE SPECIFICATIONS

Measuring Range	
Range	0.5–500 N·m (0.37 … 368.8 lbf·ft)
Maximum Rotational Speed	<12,000 rpm
Accuracy	
Accuracy Class	±0.2% F.S.
Repeatability	±0.02% F.S.
Temperature Effects	
Temperature Sensitivity Drift	±0.1% F.S. / 10 K
Zero Point Temperature Drift	±0.1% F.S. / 10 K
Response	
Fastest response time	1 ms
Overload	
Safe overload torque	150% F.S. (static)
Limit Torque	200% F.S. (static)
Breaking torque	300% F.S. (static)

■ ELECTRICAL SPECIFICATIONS

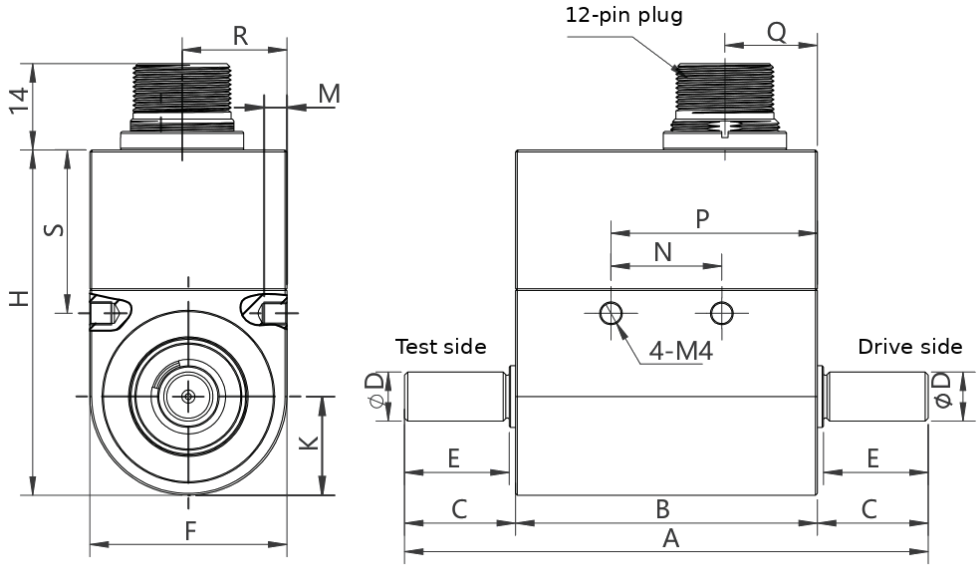
Power	
Supply Voltage	15–28 V
Current Consumption	≤60 mA
Output Signal	
Voltage Output	0–5 V DC / 0–10 V DC
Current Output	4–20 mA
Electrical Connection	
Connector	Binder 581 series, 6-pin

■ ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating Temperature Range	−10 to +60 °C (14 to 140 °F)
Mechanical & Environmental	
Ingress Protection Rating	IP50

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■ MECHANICAL DIMENSIONS



0.5 / 1 / 2 / 5 N·m	
A / B / C	85 / 49 / 18 mm (3.35 / 1.93 / 0.71 in)
ØD / E / F	Ø8 g6 / 17 / 32 mm (Ø0.31 / 0.67 / 1.26 in)
H / K / M	56 / 16 / 4 mm (2.20 / 0.63 / 0.16 in)
N / P / Q	18 / 33.5 / 15 mm (0.71 / 1.32 / 0.59 in)
R / S	17 / 26.5 mm (0.67 / 1.04 in)
Feather key	None
10 N·m	
A / B / C	85 / 49 / 18 mm (3.35 / 1.93 / 0.71 in)
ØD / E / F	Ø10 g6 / 17 / 32 mm (Ø0.39 / 0.67 / 1.26 in)
H / K / M	56 / 16 / 4 mm (2.20 / 0.63 / 0.16 in)
N / P / Q	18 / 33.5 / 15 mm (0.71 / 1.32 / 0.59 in)
R / S	17 / 26.5 mm (0.67 / 1.04 in)
Feather key	None
20 / 30 N·m	
A / B / C	111.5 / 71.5 / 20 mm (4.39 / 2.81 / 0.79 in)
ØD / E / F	Ø18 g6 / 18 / 40 mm (Ø0.71 / 0.71 / 1.57 in)
H / K / M	59 / 20 / 5 mm (2.32 / 0.79 / 0.20 in)
N / P / Q	41.5 / 56.5 / 12 mm (1.63 / 2.22 / 0.47 in)
R / S	20 / 8.3 mm (0.79 / 0.33 in)
Feather key	None
50 / 100 N·m	
A / B / C	147.5 / 71.5 / 38 mm (5.81 / 2.81 / 1.50 in)
ØD / E / F	Ø18 g6 / 36 / 40 mm (Ø0.71 / 1.42 / 1.57 in)
H / K / M	59 / 20 / 5 mm (2.32 / 0.79 / 0.20 in)
N / P / Q	41.5 / 56.5 / 12 mm (1.63 / 2.22 / 0.47 in)
R / S	20 / 8.3 mm (0.79 / 0.33 in)

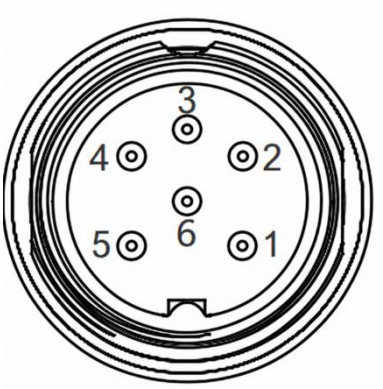
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Feather key	6 × 6 × 30 mm
200 / 500 N·m	
A / B / C	159.5 / 72.5 / 43.5 mm (6.28 / 2.85 / 1.71 in)
ØD / E / F	Ø32 g6 / 38 / 58 mm (Ø1.26 / 1.50 / 2.28 in)
H / K / M	76 / 29 / 6 mm (2.99 / 1.14 / 0.24 in)
N / P / Q	29.5 / 51.5 / 15 mm (1.16 / 2.03 / 0.59 in)
R / S	29 / 8.3 mm (1.14 / 0.33 in)
Feather key	10 × 8 × 36 mm

Note: All dimensions are in millimeters unless otherwise specified. Fixed dimension from the drawing: 14 mm (0.55 in). Mounting threads: 4 × M4. Shaft tolerance: g6.

■ WIRING DIAGRAM

6-Pin Connector — Pin Assignment



Pin 1	Torque signal (+)
Pin 2	Torque signal (−)
Pin 3	Speed signal (+)
Pin 4	Speed signal (−)
Pin 5	Power supply (+)
Pin 6	Power supply (−)

■ ORDERING INFORMATION — SX-FTNNB

Complete model number example: SX-FTNNB-5 N·m241I6

Measurement Range	
5 N·m	5 N·m (3.69 lbf·ft)
100 N·m	100 N·m (73.76 lbf·ft)
Power Supply	
24	24 V DC
Torque Polarity	
1	Clockwise positive, counter-clockwise negative
2	Clockwise negative, counter-clockwise positive
Output	
I	4–20 mA
V1	0–5 V

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V2	0–10 V
V3	0 … ±5 V
V4	0 … ±10 V
RS	RS485
Electrical Connection	
6	Binder 581 series, 6-pin
Customization Options	
D	Custom configuration — specify requirements when ordering

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