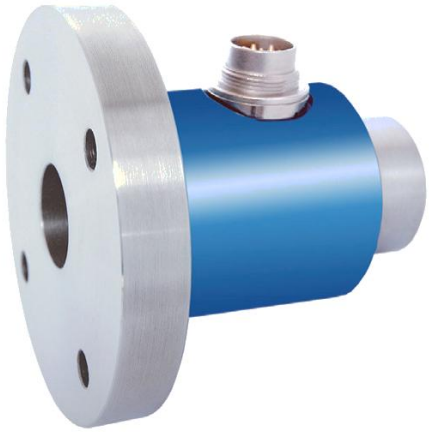
SensorsX

SX-FTRNB Series

Static Torque Sensor

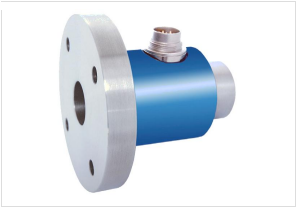
Static and Reaction Torque Measurement



2 – 5,000 N·m Rated Capacity (1.5 – 3,688 lbf·ft)	**≤ ±0.1% F.S.** Non-Linearity	**1.0 mV/V** Output Sensitivity
IP65 Ingress Protection Rating	**Stainless steel** Material	**5 – 12 V DC** Recommended Excitation (18 V max.)

■ PRODUCT OVERVIEW

The SX-FTRNB Series is a flange-mounted static torque sensor with a square socket interface, intended for applications that do not require continuous rotation. Rated capacities range from 2 to 5,000 N·m, with an output sensitivity of 1.0 mV/V. Optional conditioned outputs are available through an external transmitter module.



■ KEY FEATURES

- ◆ **Flange mounting with a square socket interface**
- ◆ **IP65 ingress protection rating**
- ◆ **Repeatability of ≤±0.05% F.S.**
- ◆ **Safe overload capacity of 150% F.S.**

■ TYPICAL APPLICATIONS

- Static and reaction torque measurement
- Valve and actuator torque testing
- Torque measurement in test fixtures
- Square-drive tool torque testing (1/4"–1 1/2")
- Fastener tightening torque testing

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■ PERFORMANCE SPECIFICATIONS

Measuring Range	
Rated Capacity	2, 5, 12, 25, 63 … 5,000 N·m (1.5, 3.7, 8.9, 18.4, 46.5 … 3,688 lbf·ft)
Performance Characteristics	
Output Sensitivity	1.0 mV/V
Non-Linearity	≤ ±0.1% F.S.
Hysteresis	≤ ±0.05% F.S.
Repeatability	≤ ±0.05% F.S.
Creep	±0.05% F.S. / 30 min
Zero Output	< ±1% F.S.
Temperature Effects	
Temperature Effect on Output	±0.05% F.S. / 10 °C (18 °F)
Temperature Effect on Zero	±0.05% F.S. / 10 °C (18 °F)
Overload	
Safe Overload	150% F.S.
Ultimate Overload	200% F.S.

■ ELECTRICAL SPECIFICATIONS

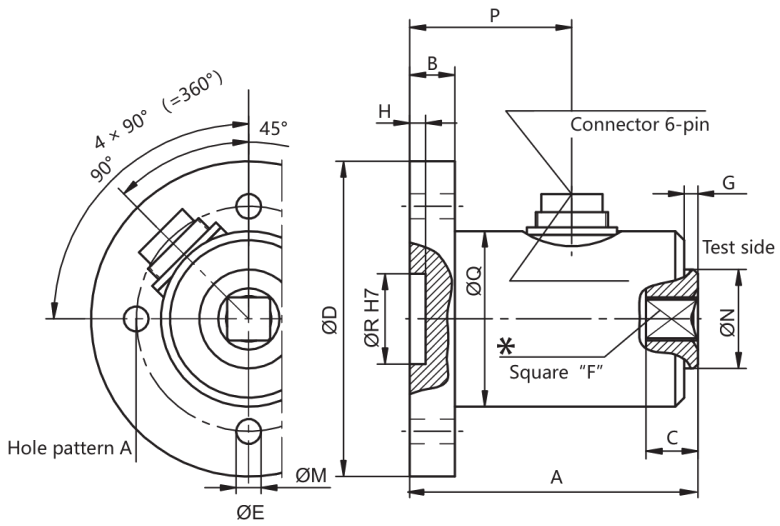
Excitation	
Recommended Excitation Voltage	5–12 V DC
Maximum Excitation Voltage	18 V DC
Bridge	
Input Resistance	380 ± 10 Ω
Output Resistance	350 ± 3 Ω
Insulation Resistance	≥2,000 MΩ
Output Signal	
Optional Outputs	Available via an external transmitter module: 4–20 mA, 0–5 V, 0–10 V, PROFIBUS, Modbus, CANopen, and RS485, depending on module configuration.
Electrical Connection	
Connector	Binder 581 series, 6-pin connector

■ ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating Temperature	−30 to +80 °C (−22 to 176 °F)
Mechanical & Environmental	
Ingress Protection Rating	IP65
Housing	
Material	Stainless steel

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■ MECHANICAL DIMENSIONS



2 / 5 / 12 N·m	
A / B / C	64 / 10 / 8 mm (2.52 / 0.39 / 0.31 in)
ØD / ØE / ØM	70 / 50 / 5.5 mm (2.76 / 1.97 / 0.22 in)
G / H / P	3 / 3 / 36 mm (0.12 / 0.12 / 1.42 in)
ØN / ØQ / ØR H7	22 / 39 / 20 mm (0.87 / 1.54 / 0.79 in)
Square socket size (F) / Hole pattern	1/4" / A
25 / 63 N·m	
A / B / C	64 / 10 / 11.5 mm (2.52 / 0.39 / 0.45 in)
ØD / ØE / ØM	70 / 50 / 5.5 mm (2.76 / 1.97 / 0.22 in)
G / H / P	3 / 3 / 36 mm (0.12 / 0.12 / 1.42 in)
ØN / ØQ / ØR H7	22 / 39 / 20 mm (0.87 / 1.54 / 0.79 in)
Square socket size (F) / Hole pattern	3/8" / A
100 / 160 / 200 N·m	
A / B / C	75 / 12 / 16 mm (2.95 / 0.47 / 0.63 in)
ØD / ØE / ØM	80 / 60 / 6.6 mm (3.15 / 2.36 / 0.26 in)
G / H / P	15 / 3 / 41 mm (0.59 / 0.12 / 1.61 in)
ØN / ØQ / ØR H7	29.8 / 45 / 20 mm (1.17 / 1.77 / 0.79 in)
Square socket size (F) / Hole pattern	1/2" / A
500 N·m	
A / B / C	88 / 15 / 24 mm (3.46 / 0.59 / 0.94 in)
ØD / ØE / ØM	100 / 80 / 9 mm (3.94 / 3.15 / 0.35 in)
G / H / P	3 / 3 / 45 mm (0.12 / 0.12 / 1.77 in)
ØN / ØQ / ØR H7	44 / 59 / 20 mm (1.73 / 2.32 / 0.79 in)
Square socket size (F) / Hole pattern	3/4" / B
1,000 N·m	
A / B / C	94 / 15 / 28.6 mm (3.70 / 0.59 / 1.13 in)
ØD / ØE / ØM	120 / 100 / 11 mm (4.72 / 3.94 / 0.43 in)
G / H / P	5 / 3 / 45 mm (0.20 / 0.12 / 1.77 in)
ØN / ØQ / ØR H7	54 / 69 / 20 mm (2.13 / 2.72 / 0.79 in)

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Square socket size (F) / Hole pattern	1" / C
2,000 N·m	
A / B / C	124.5 / 20 / 41.5 mm (4.90 / 0.79 / 1.63 in)
ØD / ØE / ØM	145 / 120 / 13 mm (5.71 / 4.72 / 0.51 in)
G / H / P	5 / 3 / 55 mm (0.20 / 0.12 / 2.17 in)
ØN / ØQ / ØR H7	76 / 90 / 20 mm (2.99 / 3.54 / 0.79 in)
Square socket size (F) / Hole pattern	1 1/2" / C
5,000 N·m	
A / B / C	129.5 / 25 / 41.5 mm (5.10 / 0.98 / 1.63 in)
ØD / ØE / ØM	200 / 170 / 17 mm (7.87 / 6.69 / 0.67 in)
G / H / P	5 / 4 / 57 mm (0.20 / 0.16 / 2.24 in)
ØN / ØQ / ØR H7	95 / 125 / 105 mm (3.74 / 4.92 / 4.13 in)
Square socket size (F) / Hole pattern	1 1/2" / C

Note: All dimensions are in millimeters unless otherwise specified. Hole pattern A: 4 × 90° (= 360°), offset 45°. * Square socket size (F) is specified in the table.

■ ORDERING INFORMATION — SX-FTRNB

Complete model number example: SX-FTRNB-5 N·m241l6

Measurement Range	
5 N·m	5 N·m (3.69 lbf·ft)
100 N·m	100 N·m (73.76 lbf·ft)
Power Supply	
10	10 V DC
24	24 V DC
Torque Polarity	
1	Clockwise positive, counter-clockwise negative
2	Clockwise negative, counter-clockwise positive
Output	
L	1.0 mV/V
I	4–20 mA
V1	0–5 V
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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