SensorsX

SX-FMTNB Series

Two-Component Force/Torque Sensor

Torque and Axial Force Measurement



0 – 20 N·m Torque Range (0 – 14.75 lbf·ft)	**0 – 1000 N** Rated Force (0 – 224.8 lbf)	**0.1 % F.S.** Non-Linearity
IP65 Protection Class	**> 0.6 mV/V** Rated Output (4 – 20 mA optional)	**5 – 10 V** Recommended Excitation (15 V max.)

■ PRODUCT OVERVIEW

The SensorsX SX-FMTNB Series is a two-component force/torque sensor designed for simultaneous torque and axial tension/compression measurement. Featuring an aluminum-alloy construction, the series supports torque capacities up to 20 N·m and selectable axial force capacities. It offers mV/V output, with optional analog and RS-485 output configurations for industrial measurement and monitoring applications.



■ KEY FEATURES

- ◆ Creep: 0.05% FS (30 min)
- ◆ Hysteresis / Repeatability: 0.05% FS
- ◆ Safe Overload: 120% FS
- ◆ Compensated Temperature Range: −10 to +40 °C
- ◆ Custom measurement ranges are available upon request.

■ TYPICAL APPLICATIONS

- ● Torque Measurement and Testing
- ● Tension and Compression Force Measurement
- ● Combined Force and Torque Measurement

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■ PERFORMANCE SPECIFICATIONS

Measurement Capacity	
Torque Range	0 – 20 N·m (0 – 14.75 lbf·ft / 0 – 177 lbf·in)
Rated Force	0 – 1000 N (0 – 224.8 lbf)
Accuracy	
Rated Output	> 0.6 mV/V
Zero Balance	± 2 % F.S.
Non-Linearity	0.1 % F.S.
Hysteresis	0.05 % F.S.
Repeatability	0.05 % F.S.
Creep (30 min)	0.05 % F.S.
Temperature Effects	
Temperature Effect on Sensitivity	0.05 % F.S. / 10 °C
Zero Point Temperature Drift	0.05 % F.S. / 10 °C
Overload	
Safe Overload	120 % F.S.
Ultimate Overload	150 % F.S.

■ ELECTRICAL SPECIFICATIONS

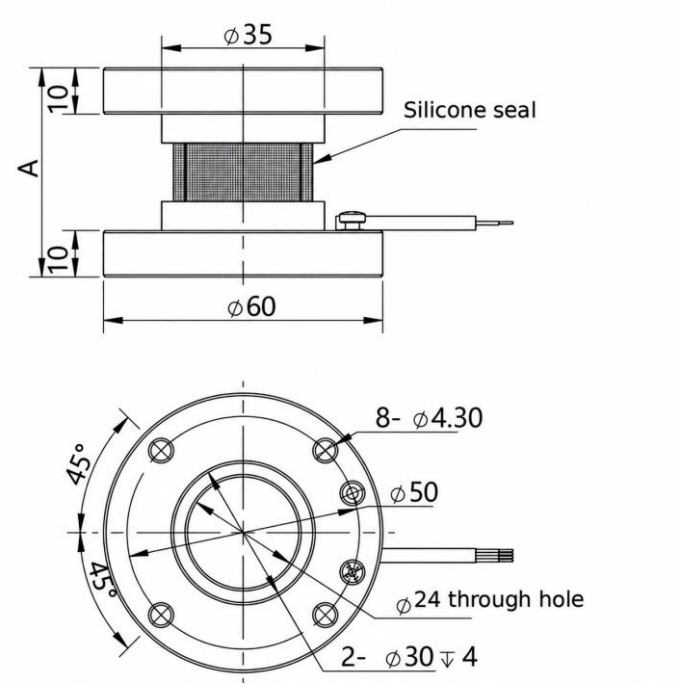
Excitation	
Recommended Excitation	5 – 10 V
Maximum Excitation	15 V
Bridge	
Input Impedance	400 ± 30 Ω
Output Impedance	350 ± 5 Ω
Insulation Resistance	≥ 2000 MΩ (at 100 V DC)
Output Signal	
Optional Analog Output	4 – 20 mA

■ ENVIRONMENTAL SPECIFICATIONS

Temperature	
Compensated Temperature Range	−10 to +40 °C (14 to 104 °F)
Operating Temperature Range	−20 to +60 °C (−4 to +140 °F)
Mechanical & Environmental	
Ingress Protection Rating	IP65
Housing	
Construction Material	Aluminum alloy

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■ MECHANICAL DIMENSIONS



Note: All dimensions are in millimeters unless otherwise specified. Product dimensions may vary depending on the selected measurement range. Please contact SensorsX to confirm the dimensions before ordering.

■ ORDERING INFORMATION — SX-FMTNB

Complete model number example: SX-FMTNB-20N.m-1000N1033L0

Measurement Range	
10N.m-500N	10 N·m / 500 N (7.38 lbf·ft / 112.4 lbf)
20N.m-1000N	20 N·m / 1000 N (14.75 lbf·ft / 224.8 lbf)
Power Supply	
05	5 V DC
10	10 V DC
12	12 V DC
24	24 V DC
Torque Measurement Direction	
1	Clockwise measurement
2	Counter-clockwise measurement
3	Clockwise positive, counter-clockwise negative
4	Clockwise negative, counter-clockwise positive
Force Measurement Mode	
1	Tension only
2	Compression only
3	Tension and compression; tension positive, compression negative
4	Tension and compression; tension negative, compression positive

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Output	
L	> 0.6 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	
0	Integral cable (flying leads)
Customization Options	
D	Customized —specify requirements when ordering

Note: Custom measurement ranges are available upon request.

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