## SensorsX

# SX-FLPNB Series

Spoke-Type Load Cell

Force & Weighing | Spoke-Type Compression Load Cell



| | | |
|---|---|---|
| **0.5 – 100 t**<br>Rated Capacity (1,102 – 220,462 lb) | **≤ ±0.05% F.S.**<br>Non-Linearity / Hysteresis / Repeatability | **2.0 mV/V ±10%**<br>Output Sensitivity |
| **IP65**<br>Ingress Protection | **−20 to +60 °C**<br>Operating Temp. (−4 to +140 °F) | **5 – 12 V DC**<br>Recommended Excitation (max 15 V DC) |

## ■ PRODUCT OVERVIEW

The SX-FLPNB Series is a spoke-type load cell for weighing and force measurement in industrial automation systems. It features a rugged alloy steel construction, good resistance to lateral forces and off-center loading, and a low center of gravity. Versions with and without a base are available. The load cell has a nominal output sensitivity of 2.0 mV/V and a recommended bridge excitation voltage of 5–12 V DC. Optional transmitter modules provide conditioned analog or digital outputs, depending on the selected configuration.



## ■ KEY FEATURES

| | |
|---|---|
| ◆ Rugged Spoke-Type Construction | ◆ Good Resistance to Lateral Forces and Off-Center Loading |
| ◆ Low Center of Gravity | ◆ Easy Installation |

## ■ TYPICAL APPLICATIONS

### Application Fields

- Industrial Automation
- Weighing Systems
- Force Measurement Systems


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## ■ PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| **Measurement** | |
| Rated Capacity | 0.5, 1, 3, 5, 10, 20, 30 … 100 t (1,102, 2,205, 6,614, 11,023, 22,046, 44,092, 66,139 … 220,462 lb) |
| Output Sensitivity | 2.0 mV/V ±10% |
| **Accuracy** | |
| Non-Linearity | ≤ ±0.05% F.S. |
| Hysteresis | ≤ ±0.05% F.S. |
| Repeatability | ≤ ±0.05% F.S. |
| Creep | ±0.03% F.S. / 30 min |
| Temperature Sensitivity Drift | ±0.05% F.S. / 10 °C (±0.05% F.S. / 18 °F) |
| Zero Point Temperature Drift | ±0.05% F.S. / 10 °C (±0.05% F.S. / 18 °F) |
| Zero Output | < ±1% F.S. |
| **Overload** | |
| Safe Overload | 150% F.S. |
| Ultimate Overload | 300% F.S. |

## ■ ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Excitation** | |
| Recommended Excitation Voltage | 5–12 V DC |
| Maximum Excitation Voltage | 15 V DC |
| **Bridge** | |
| Input Resistance | 380 ± 10 Ω |
| Output Resistance | 350 ± 3 Ω |
| Insulation Resistance | ≥ 2,000 MΩ |
| **Output Signal** | |
| Signal Output Options | Optional transmitter modules are available for signal conditioning, with output options including 4–20 mA, 0–5 V, 0–10 V, PROFIBUS, Modbus, CANopen, and RS-485. |
| **Electrical Connection** | |
| Cable | Direct cable outlet |

*Note: These excitation ratings apply to the mV/V-output load cell. Supply requirements for configurations with a transmitter depend on the selected transmitter module.*

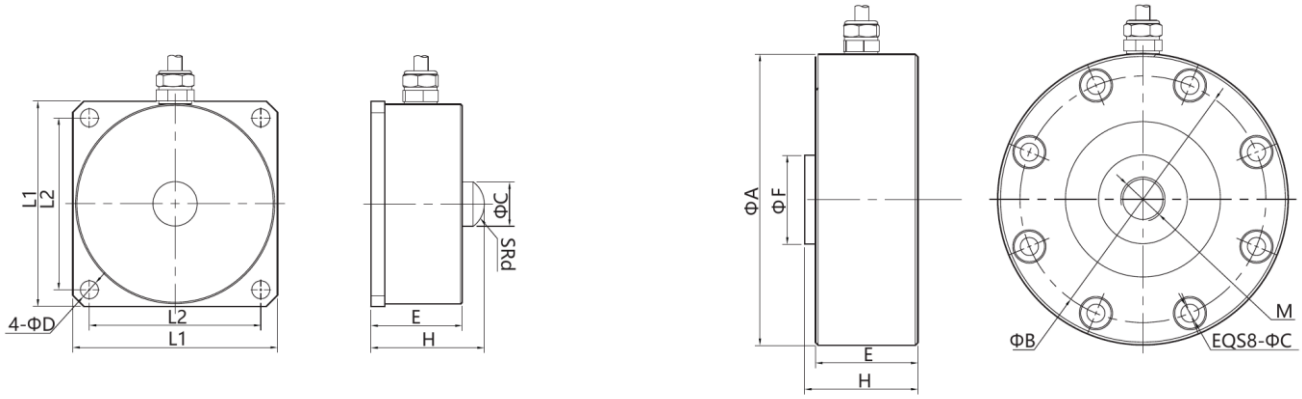
## ■ ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| **Temperature** | |
| Operating Temperature | −20 to +60 °C (−4 to +140 °F) |
| **Mechanical & Environmental** | |
| Ingress Protection | IP65 |
| **Housing** | |
| Material | Alloy steel |


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## ■ MECHANICAL DIMENSIONS

### Dimensions — Version A (with base) and Version B (without base)




**Version A (with base)** **Version B (without base)**

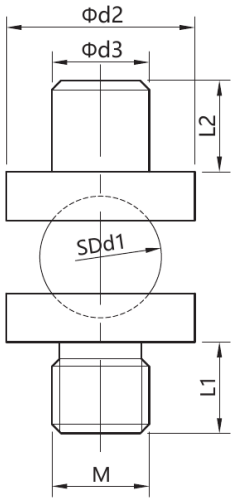
*Outline drawings (unit: mm)*

| Version A — Capacity (t) | L1 | L2 | D | E | H | C | d |
|---|---|---|---|---|---|---|---|
| 0.3 – 1 (661 – 2,205 lb) | 74 (2.91) | 62 (2.44) | 6.5 (0.26) | 33 (1.30) | 41 (1.61) | 16 (0.63) | 52 (2.05) |
| 2 – 7 (4,409 – 15,432 lb) | 90 (3.54) | 73 (2.87) | 8.5 (0.33) | 44 (1.73) | 53.5 (2.11) | 20 (0.79) | 70 (2.76) |
| 10 – 25 (22,046 – 55,116 lb) | 116 (4.57) | 96 (3.78) | 11 (0.43) | 70 (2.76) | 82 (3.23) | 30 (1.18) | 91 (3.58) |
| 30 – 50 (66,139 – 110,231 lb) | 132 (5.20) | 108 (4.25) | 13 (0.51) | 85 (3.35) | 97 (3.82) | 38 (1.50) | 120 (4.72) |
| 100 (220,462 lb) | 240 (9.45) | 190 (7.48) | 26 (1.02) | 112 (4.41) | 125 (4.92) | 76 (2.99) | 200 (7.87) |

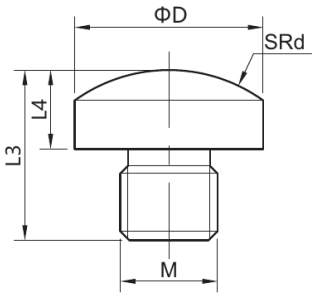
| Version B — Capacity (t) | A | F | E | H | B | C | M |
|---|---|---|---|---|---|---|---|
| 0.5 – 7 (1,102 – 15,432 lb) | 105 (4.13) | 32 (1.26) | 34 (1.34) | 37 (1.46) | 88.9 (3.50) | 6.5 (0.26) | M16×1.5 |
| 10 – 25 (22,046 – 55,116 lb) | 125 (4.92) | 39 (1.54) | 48 (1.89) | 52 (2.05) | 101.6 (4.00) | 8.5 (0.33) | M32×1.5 |
| 30 – 50 (66,139 – 110,231 lb) | 145 (5.71) | 50 (1.97) | 54 (2.13) | 58 (2.28) | 116.8 (4.60) | 10.5 (0.41) | M40×1.5 |
| 60 – 100 (132,277 – 220,462 lb) | 205 (8.07) | 80 (3.15) | 78 (3.07) | 85 (3.35) | 162 (6.38) | 12.5 (0.49) | M60×2.0 |


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## Optional Load Buttons




**Optional Load Button 2**




**Optional Load Button 1**

*Optional load buttons (unit: mm)*

| Button 2 — Capacity (t) | L1 | L2 | d1 | d2 | d3 | M |
|---|---|---|---|---|---|---|
| 0.5 – 7 | 15 (0.59) | 15 (0.59) | 20 (0.79) | 31 (1.22) | 16 (0.63) | M16×1.5 |
| 10 – 25 | 24 (0.94) | 24 (0.94) | 38.1 (1.50) | 38 (1.50) | 30 (1.18) | M32×1.5 |
| 30 – 50 | 35 (1.38) | 35 (1.38) | 41.2 (1.62) | 50 (1.97) | 40 (1.57) | M40×1.5 |
| 60 – 100 | 45 (1.77) | 45 (1.77) | 63.5 (2.50) | 80 (3.15) | 60 (2.36) | M60×2.0 |

| Button 1 — Capacity (t) | L3 | L4 | D | d | M |
|---|---|---|---|---|---|
| 0.5 – 7 | 28 (1.10) | 13 (0.51) | 31 (1.22) | 80 (3.15) | M16×1.5 |
| 10 – 25 | 51 (2.01) | 24 (0.94) | 38 (1.50) | 120 (4.72) | M32×1.5 |
| 30 – 50 | 62 (2.44) | 32 (1.26) | 50 (1.97) | 200 (7.87) | M40×1.5 |
| 60 – 100 | 80 (3.15) | 42 (1.65) | 80 (3.15) | 280 (11.02) | M60×2.0 |

*Note: All dimensions are in millimeters, with inch equivalents in parentheses, unless otherwise specified. Mounting threads are metric (M16 × 1.5, M32 × 1.5, M40 × 1.5, and M60 × 2.0).*


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## ■ ORDERING INFORMATION

**Complete model number example: SX-FLPNB-A1t10I0L**

| | |
|---|---|
| **Base** | |
| **A** | With base |
| **B** | Without base |
| **Rated Capacity** | |
| **0.5t** | 0.5 t (1,102 lb) |
| **1t** | 1 t (2,205 lb) |
| **3t** | 3 t (6,614 lb) |
| **5t** | 5 t (11,023 lb) |
| **10t** | 10 t (22,046 lb) |
| **20t** | 20 t (44,092 lb) |
| **30t** | 30 t (66,139 lb) |
| **100t** | 100 t (220,462 lb) |
| **Power Supply** | |
| **05** | 5 V DC |
| **10** | 10 V DC |
| **12** | 12 V DC |
| **24** | 24 V DC |
| **Output** | |
| **I** | 4–20 mA |
| **V1** | 0–5 V |
| **V2** | 0–10 V |
| **V3** | 0–±5 V |
| **V4** | 0–±10 V |
| **RS** | RS-485 |
| **L** | 2.0 mV/V ±10% |
| **Electrical Connection** | |
| **0** | Cable outlet |
| **Mounting** | |
| **L** | Bolt mounting |
| **Customization Options** | |
| **D** | Custom configuration — specify requirements when ordering |

*Example: SX-FLPNB-A1t10I0LD — SX-FLPNB Series, Version A with base, 1 t rated capacity, 10 V DC supply, 4–20 mA output, integral cable, bolt mounting, and custom configuration.*


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