# SensorsX

# SX-FVNB Series

Vortex Flowmeter

Saturated Steam | Superheated Steam | Gas | Liquid

| | | |
|---|---|---|
| **±1.0% (Liquid) / ±1.5% (Gas)**<br>Measurement Accuracy | **DN15 – DN300**<br>Nominal Diameter Range | **Pulse / 4-20 mA / RS485**<br>Output Signal |
| **IP65**<br>Ingress Protection (IEC 60529) | **Explosion protection options available**<br>Explosion Protection | **1.6 – 4.0 MPa**<br>Working Pressure Range |

*Industrial Flow Measurement | Steam | Gas | Liquid | Pipeline*

## ■ PRODUCT OVERVIEW

The SX-FVNB Series vortex flowmeter measures volumetric flow, standard volumetric flow, or mass flow of gases, steam, and liquids based on the Kármán vortex principle. It is suitable for saturated steam, superheated steam, general gases, liquids, compressed air, natural gas, oil and chemical fluids, industrial circulation, drainage, and wastewater treatment applications. The series is available in in-line and insertion-type configurations, with integral or remote-mounted converter options.


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## ■ KEY FEATURES

| | |
|---|---|
| ◆ **No Moving Parts**<br>Simple structure, easy installation and maintenance | ◆ **High Measurement Accuracy**<br>Liquid ±1.0 %; Gas ±1.5 % |
| ◆ **Stable Pulse Output**<br>Pulse output proportional to actual flow rate; highly stable performance | ◆ **Wide Measurement Range**<br>Turndown ratio up to 1:20 (in-line); 1:25 (insertion type) within Re $2\times10^4$ – $7\times10^6$ |
| ◆ **Low Pressure Drop**<br>approximately 1/4 to 1/2 of an orifice plate meter under comparable conditions. | ◆ **Anti-Vibration Design**<br>Noise suppression circuit and anti-vibration sensing element |
| ◆ **Low Power Consumption**<br>1× 3.6V/10AH lithium battery operates > 1 year | ◆ **EEPROM Flow Accumulation**<br>Cumulative flow protected against power loss for > 10 years |
| ◆ **Software Linearity Correction**<br>Software-corrected non-linearity improves accuracy | ◆ **Temperature Options**<br>standard fluid temperature up to +250 °C; high-temperature configuration up to +350 °C |

## ■ TYPICAL APPLICATIONS

**Typical Applications**

- Oil & Gas
- Water & Wastewater
- Natural Gas Metering
- Compressed Air
- Steam
- Chemical Processing
- Industrial Pipelines

## ■ PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| **Measurement** | |
| Measured Fluid | Saturated steam, superheated steam, general gases, liquids (avoid multi-phase flow) |
| Measurement Range — Gas | 7 m/s to 40 m/s (23 to 131 ft/s) |
| Measurement Range — Liquid | 0.7 m/s to 7 m/s (2.3 to 23 ft/s) |
| **Accuracy** | |
| Measurement Accuracy — Liquid | Class 1.0 |
| Measurement Accuracy — Gas | Class 1.5 |
| Repeatability — Liquid | 0.3 % |
| Repeatability — Gas | 0.5 % |
| **Measurement Range** | |
| Reynolds Number Range | $2\times10^4$ to $7\times10^6$ (turndown ratio up to 1:20 in-line; 1:25 insertion) |
| **Process Conditions** | |
| Fluid Temperature — Standard | −40 °C to +250 °C (−40 °F to +482 °F) |
| Fluid Temperature — High Temp | 100 °C to 350 °C (+212 °F to +662 °F) |
| Working Pressure — Standard | 1.6 MPa (232 psi) |
| Working Pressure — Optional | 2.5 – 4.0 MPa (363 – 580 psi) — specify on order |
| **Meter Body** | |
| Meter Body Material | 304 Stainless Steel |

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## ■ ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Power Supply** | |
| Working Power | 24 VDC (or 12 VDC); lithium battery |
| **Output Signal** | |
| Pulse Output | 3-wire, low level ≤ 1 V, high level ≥ 4 V |
| Analog Output | 4–20 mA |
| Digital Interface | RS485 |
| **Electrical Connection** | |
| Cable Entry | M20×1.5 with cable clamp and nut assembly |
| **Protection** | |
| Ingress Protection | IP65 (IEC 60529) |
| Explosion Protection | Non-explosion proof (standard); Flameproof optional |

## ■ ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| **Temperature** | |
| Ambient Temperature — Without LCD | −35 °C to +60 °C (−31 °F to +140 °F) |
| Ambient Temperature — With LCD | −5 °C to +60 °C (+23 °F to +140 °F) |
| Relative Humidity | 5 % – 95 % |
| **Mechanical & Environmental** | |
| Ingress Protection | IP65 (IEC 60529) |

## ■ PROCESS CONNECTIONS & WETTED MATERIALS

| | |
|---|---|
| **Process Connection** | |
| Connection Type — Standard | Flanged — EN 1092 / ASME B16.5, Raised Face (RF) available on request |
| Connection Type — Alternate | Wafer (clamp) type |
| Nominal Diameter | DN15 – DN300 (NPS 1/2" – 12") |
| Rated Pressure | 1.6 MPa, 2.5 MPa, 4.0 MPa |
| **Materials in Contact with Medium** | |
| Meter Body Material | 304 Stainless Steel (standard); 316L Stainless Steel available |

## ■ COMMUNICATION PROTOCOLS

### Pulse Output [Standard]

| | |
|---|---|
| Output | 3-wire pulse; low level ≤ 1 V; high level ≥ 4 V |

### 4–20 mA Analog [Optional]

| | |
|---|---|
| Analog Output | 4–20 mA DC |

### RS485 [Optional]

| | |
|---|---|
| Interface | RS485 |


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| | |
|---|---|
| Protocol | RS485 digital interface |

## ■ CERTIFICATIONS & APPROVALS

| | |
|---|---|
| **Explosion Protection (Optional)** | |
| Explosion Protection | Explosion protection options available |
| **General Compliance** | |
| Ingress Protection | IP65 per IEC 60529 |

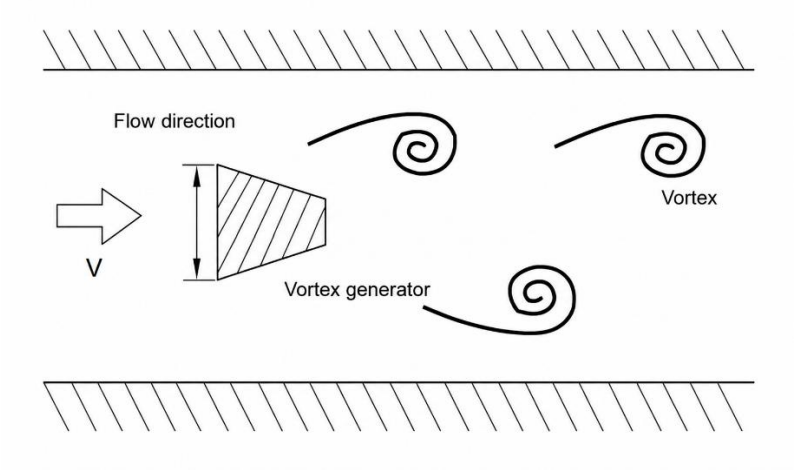
## ■ OPERATING PRINCIPLE

The SX-FVNB vortex flowmeter operates on the Kármán vortex principle. When a bluff body (vortex generator) is inserted perpendicularly into a measurement tube, alternating regular vortices form on both sides of the bluff body (Kármán vortex street). The vortex shedding frequency is expressed as:

$$f = St \times v / d$$

f — Vortex shedding frequency
St — Strouhal number
v — Flow velocity
d — Width of the bluff body

When d/D = 0.281, the released vortices are most stable (D is the pipe diameter). The Strouhal number is a key coefficient of the vortex flowmeter: within a certain Reynolds number range (Re = $2\times10^4$ to $7\times10^6$) the Strouhal number remains approximately constant (St ≈ 0.17, the flat portion of the curve), so the vortex shedding frequency is proportional to the flow velocity. By detecting the frequency f, the flow velocity v can be obtained, from which the volumetric flow rate is derived. The SX-FVNB uses a piezoelectric sensor inside the detection probe to measure the vortex shedding frequency, from which volumetric flow rate is derived.





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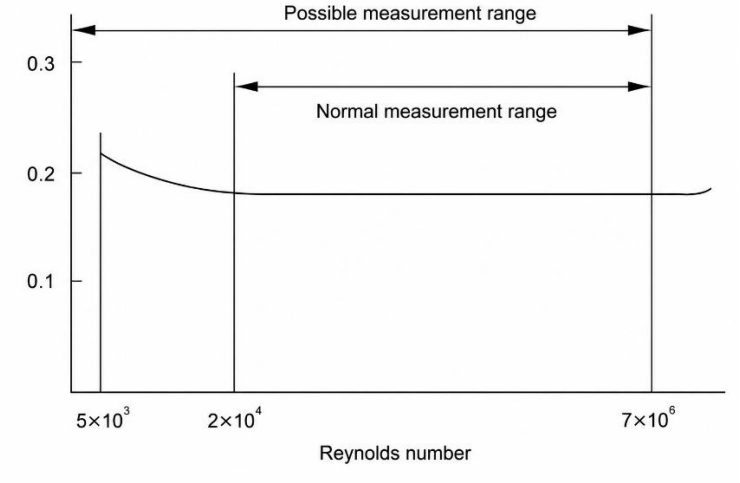


**Converter Circuit Composition**

The converter processes the weak electrical signal detected by the sensing element (an irregular sine wave) through amplification, filtering, and shaping, and outputs a pulse signal proportional to the flow rate or converts it into a standard 4–20 mA signal. The converter circuits of the SX-FVNB series vortex flowmeter are shown schematically in Figure (1) and Figure (2).

**Figure 1 Block Diagram (Pulse Output):**

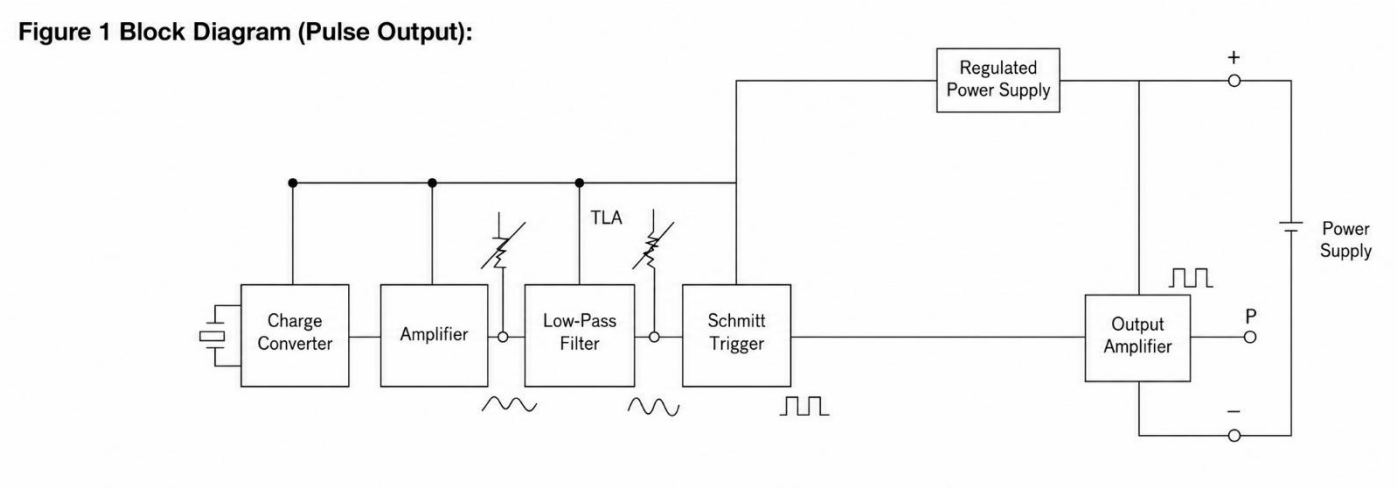


Figure 1 — Circuit block diagram (pulse output): Charge Converter → Amplifier → Low-Pass Filter → Schmitt Trigger → Output Amplifier; powered via a Voltage Regulator from the supply; pulse signal output P (+/−).


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**Figure 2 Circuit Block Diagram (Analog Output):**

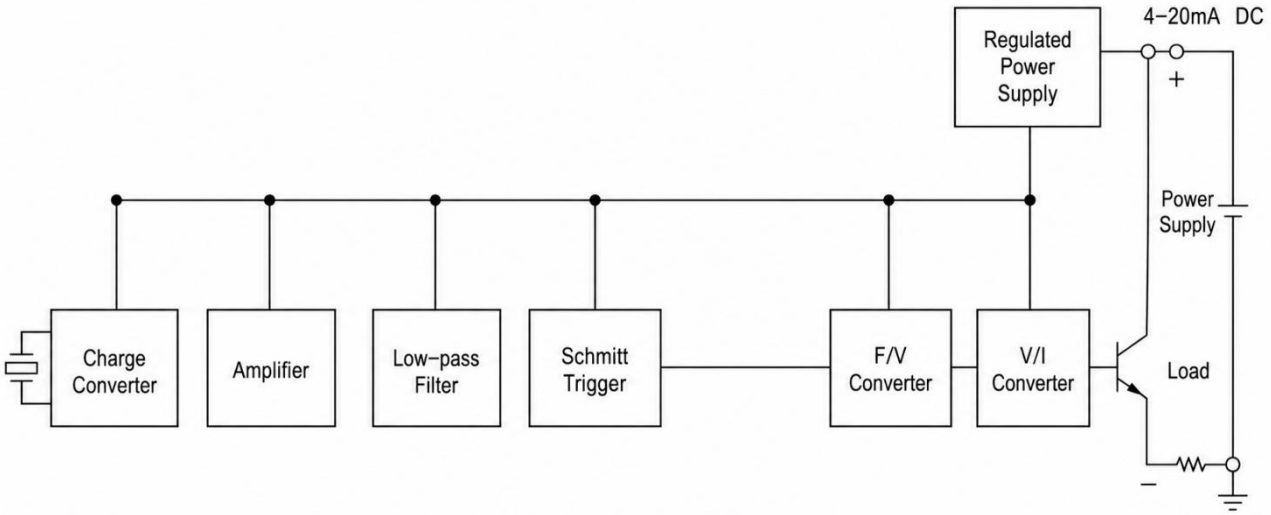
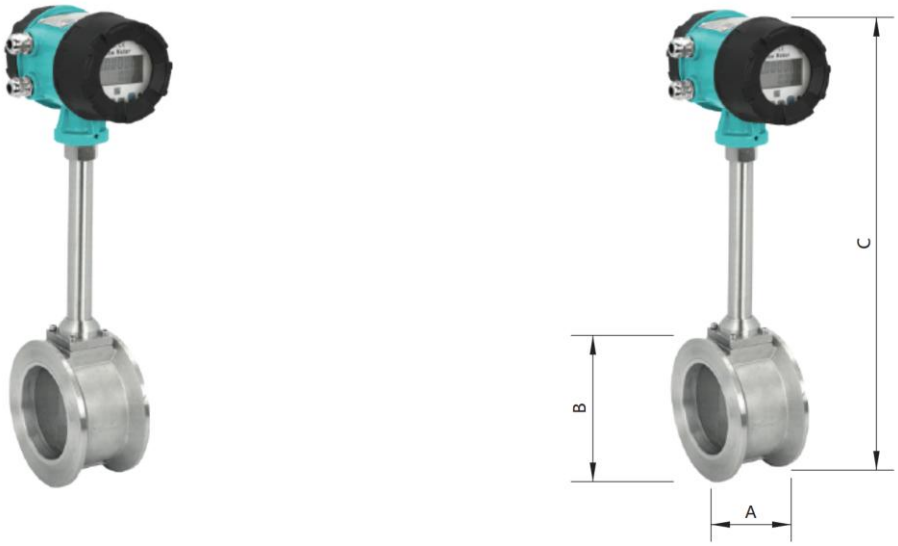



Figure 2 — Circuit block diagram (analog output): Charge Converter → Amplifier → Low-Pass Filter → Schmitt Trigger → F/V Converter → V/I Converter; powered via a Voltage Regulator; 4–20 mA DC output to load.

## ■ MECHANICAL DIMENSIONS

**Transmitter Body (Reference)**




*※ Dimensions are for reference only. A, B, C labels indicate key reference dimensions (face-to-face length, height, overall height) which vary by nominal diameter. Contact SensorsX for certified dimension drawings.*

## ■ STRUCTURE COMPOSITION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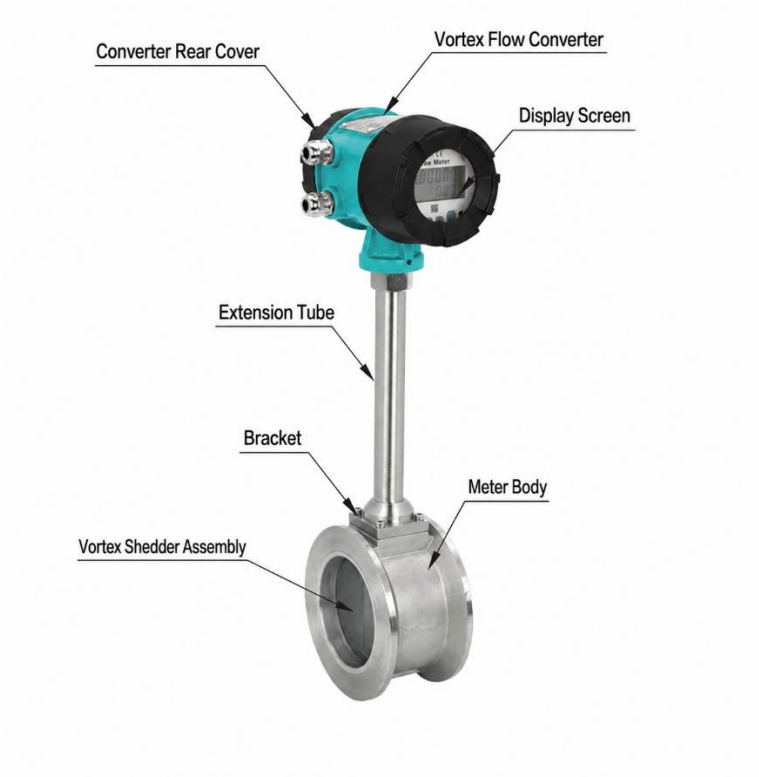


## ■ SELECTION GUIDELINES

1. The vortex flowmeter is a velocity-type flowmeter. The stability of vortex shedding is affected by the flow velocity distribution; therefore, sufficient straight pipe sections must be provided upstream and downstream of the flowmeter to condition the flow.
2. The vortex flowmeter is not suitable for measuring flows with a very low Reynolds number. In general, a Reynolds number of ≥ $2\times10^5$ is required.
3. When vortex shedding occurs, the local pressure inside the pipe drops significantly. When measuring liquids, if the local pressure falls below the saturated vapor pressure corresponding to the liquid temperature, cavitation will occur, which may damage the piezoelectric detection elements or prevent the instrument from operating normally. This must be taken into account during installation and use.
4. To correctly select the vortex flowmeter model, the following process parameters must be known in detail:
   - Fluid name, composition, corrosiveness, abrasiveness, etc.
   - Minimum, normal, and maximum flow rates under operating conditions
   - Minimum, normal, and maximum operating pressures
   - Minimum, normal, and maximum operating temperatures
   - Viscosity under operating conditions
   - For gases, the relative humidity of the gas must also be known
   - Flow characteristics of the fluid in the pipeline: steady flow, varying flow, pulsating flow, gas–liquid two-phase flow, gas–solid two-phase flow, or liquid–liquid two-phase flow
   - Fluid condition: clean, prone to scaling, dirty, or containing easily adhering substances
   - Site environment and installation conditions
   - Explosion-protection requirements for the instrument

## ■ FLOW RANGES

### A — Applicable Flow Ranges for General Liquids and Gases

| Nominal Diameter (mm) | Liquid Flow Range (m³/h) | Gas Flow Range (m³/h) | Connection Type | Pressure Rating (MPa) |
|---|---|---|---|---|
| DN15 | 1.2–6.2 | 5–25 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN20 | 1.5–10 | 6–50 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |


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| | | | | |
|---|---|---|---|---|
| DN25 | 1.6–16 | 9–80 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN32 | 1.9–19 | 13–130 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN40 | 2.5–26 | 18–180 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN50 | 3.5–38 | 30–300 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN65 | 6.2–65 | 48–480 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN80 | 10–100 | 75–750 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN100 | 15–150 | 120–1200 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN125 | 25–250 | 150–1500 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN150 | 36–380 | 260–2600 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN200 | 62–650 | 450–4500 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN250 | 140–1400 | 680–6800 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |
| DN300 | 200–2000 | 1000–10000 | Wafer (flange-clamped) / Flanged | 2.5 / 1.6 |

## B — Flow Ranges for Saturated Steam (unit: kg/h)

| Abs. Pressure (MPa) | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature (°C) | | 120 | 133 | 144 | 152 | 159 | 165 | 170 | 175 | 180 | 184 | 189 | 192 |
| Density (kg/m³) | | 1.1288 | 1.6507 | 2.1628 | 2.6683 | 3.1692 | 3.6665 | 4.1616 | 4.6544 | 5.1451 | 5.6367 | 6.125 | 6.6143 |
| DN15 | Qmin | 5.65 | 8.25 | 10.8 | 13.35 | 15.85 | 18.35 | 20.8 | 23.25 | 25.75 | 28.2 | 30.65 | 33.05 |
| | Qmax | 28.25 | 41.25 | 54 | 66.75 | 79.25 | 91.75 | 104 | 116.25 | 128.75 | 141 | 153.25 | 165.25 |
| DN20 | Qmin | 6.78 | 9.9 | 12.96 | 16.02 | 19.02 | 22.02 | 24.96 | 27.9 | 30.9 | 33.84 | 36.78 | 39.66 |
| | Qmax | 56.5 | 82.5 | 108 | 133.5 | 158.5 | 183.5 | 208 | 232.5 | 257.2 | 282 | 306.5 | 330.5 |
| DN25 | Qmin | 10.17 | 14.85 | 19.44 | 24.03 | 28.53 | 33.03 | 37.44 | 41.85 | 46.35 | 50.76 | 55.17 | 59.49 |
| | Qmax | 90.4 | 132 | 172.8 | 213.6 | 253.6 | 293.6 | 332.8 | 372 | 412 | 451.2 | 490.4 | 528.8 |
| DN32 | Qmin | 14.69 | 21.45 | 28.08 | 34.71 | 41.21 | 47.71 | 54.08 | 60.45 | 66.95 | 73.32 | 79.69 | 85.93 |
| | Qmax | 146.9 | 214.5 | 280.8 | 347.1 | 412.1 | 477.1 | 540.8 | 604.5 | 669.5 | 733.2 | 796.9 | 859.3 |
| DN40 | Qmin | 20.34 | 29.7 | 38.88 | 48.06 | 57.06 | 66.06 | 74.88 | 83.7 | 92.7 | 101.52 | 101.34 | 118.98 |
| | Qmax | 203.4 | 297 | 388.8 | 480.6 | 570.6 | 660.6 | 748.8 | 837 | 927 | 1015.2 | 1103.4 | 1189.8 |
| DN50 | Qmin | 33.9 | 49.5 | 64.8 | 80.1 | 95.1 | 110.1 | 124.8 | 139.5 | 154.5 | 169.2 | 183.9 | 198.3 |
| | Qmax | 339 | 495 | 648 | 801 | 951 | 1101 | 1248 | 1395 | 1545 | 1692 | 1839 | 1983 |
| DN65 | Qmin | 54.24 | 79.2 | 103.68 | 128.16 | 152.16 | 176.16 | 199.68 | 223.2 | 247.2 | 270.72 | 294.24 | 317.28 |
| | Qmax | 542.4 | 792 | 1036.8 | 1281.6 | 1521.6 | 1761.6 | 1996.8 | 2232 | 2472 | 2707.2 | 2942.4 | 3172.8 |
| DN80 | Qmin | 84.75 | 123.75 | 162 | 200.25 | 237.75 | 275.25 | 312 | 348.75 | 386.25 | 423 | 459.75 | 495.75 |
| | Qmax | 847.5 | 1237.5 | 1620 | 2002.5 | 2377.5 | 2752.5 | 3120 | 3487.5 | 3862.5 | 4230 | 4597.5 | 4957.5 |
| DN100 | Qmin | 135.6 | 198 | 259.2 | 320.4 | 380.4 | 440.4 | 499.2 | 558 | 618 | 676.8 | 735.6 | 793.2 |
| | Qmax | 1356 | 1980 | 2592 | 3204 | 3804 | 4404 | 4992 | 5580 | 6180 | 6768 | 7356 | 7932 |
| DN125 | Qmin | 169.5 | 247.5 | 324 | 400.5 | 475.5 | 550.5 | 624 | 697.5 | 772.5 | 846 | 919.5 | 991.5 |
| | Qmax | 1695 | 2475 | 3240 | 4005 | 4755 | 5505 | 6240 | 6975 | 7725 | 8460 | 9195 | 9915 |
| DN150 | Qmin | 293.8 | 429 | 561.6 | 694.2 | 824.2 | 954.2 | 1081.6 | 1209 | 1339 | 1466.4 | 1593.8 | 1718.6 |
| | Qmax | 2938 | 4290 | 5616 | 6942 | 8242 | 9542 | 10816 | 12090 | 13390 | 14664 | 15938 | 17186 |
| DN200 | Qmin | 508.5 | 742.5 | 972 | 1201.5 | 1426.5 | 1651.5 | 1872 | 2092.5 | 2317.5 | 2538 | 2758.5 | 2974.5 |
| | Qmax | 5085 | 7425 | 9720 | 12015 | 14265 | 16515 | 18720 | 20925 | 23175 | 25380 | 27585 | 29745 |
| DN250 | Qmin | 768.4 | 1122 | 1468.8 | 1815.6 | 2155.6 | 2495.6 | 2828.8 | 3162 | 3502 | 3835.2 | 4168.4 | 4494.8 |
| | Qmax | 7684 | 11220 | 14688 | 18156 | 21556 | 24956 | 28288 | 31620 | 35020 | 38352 | 41684 | 44948 |
| DN300 | Qmin | 1130 | 1650 | 2160 | 2670 | 3170 | 3670 | 4160 | 4650 | 5150 | 5640 | 6130 | 6610 |
| | Qmax | 11300 | 16500 | 21600 | 26700 | 31700 | 36700 | 41600 | 46500 | 51500 | 56400 | 61300 | 66100 |

**Continued:**

| Abs. Pressure (MPa) | | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature (°C) | | 195 | 198 | 201 | 204 | 207 | 209.8 | 212 | 214.8 | 217.2 | 219.5 | 221.8 | 223.9 |
| Density (kg/m³) | | 7.1038 | 7.5928 | 8.082 | 8.5718 | 9.0616 | 9.552 | 10.043 | 10.535 | 11.028 | 11.521 | 12.016 | 12.511 |
| DN15 | Qmin | 35.5 | 37.95 | 40.4 | 42.85 | 45.3 | 47.75 | 50 | 52.5 | 55 | 57.5 | 60 | 62.5 |
| | Qmax | 177.5 | 189.75 | 202 | 214.25 | 226.5 | 238.75 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 |
| DN20 | Qmin | 42.6 | 45.54 | 48.48 | 51.42 | 54.36 | 57.3 | 60 | 63 | 66 | 69 | 72 | 75 |
| | Qmax | 355 | 379.5 | 404 | 428.5 | 453 | 477.5 | 500 | 525 | 550 | 575 | 600 | 625 |
| DN25 | Qmin | 63.9 | 68.31 | 72.72 | 77.13 | 81.54 | 85.95 | 90 | 94.5 | 99 | 103.5 | 108 | 112.5 |
| | Qmax | 568 | 607.2 | 646.4 | 685.6 | 724.8 | 764 | 800 | 840 | 880 | 920 | 960 | 1000 |
| DN32 | Qmin | 92.3 | 98.67 | 105.04 | 111.41 | 117.78 | 124.15 | 130 | 136.5 | 143 | 149.5 | 156 | 162.5 |
| | Qmax | 923 | 986.7 | 1050.4 | 1114.1 | 1177.8 | 1241.5 | 1300 | 1365 | 1430 | 1495 | 1560 | 1625 |
| DN40 | Qmin | 127.8 | 136.62 | 145.44 | 154.26 | 163.08 | 171.9 | 180 | 189 | 198 | 207 | 216 | 225 |
| | Qmax | 1278 | 1366.2 | 1454.4 | 1542.6 | 1630.8 | 1719 | 1800 | 1890 | 1980 | 2070 | 2160 | 2250 |
| DN50 | Qmin | 213 | 227.7 | 242.4 | 257.1 | 271.8 | 286.5 | 300 | 315 | 330 | 345 | 360 | 375 |
| | Qmax | 2130 | 2277 | 2424 | 2571 | 2718 | 2865 | 3000 | 3150 | 3300 | 3450 | 3600 | 3750 |
| DN65 | Qmin | 340.8 | 364.32 | 387.84 | 411.36 | 434.88 | 458.4 | 480 | 504 | 528 | 552 | 576 | 600 |


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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Qmax | 3408 | 3643.2 | 3878.4 | 4113.6 | 4348.8 | 4584 | 4800 | 5040 | 5280 | 5520 | 5760 | 6000 |
| **DN80** | Qmin | 532.5 | 569.25 | 606 | 642.75 | 679.5 | 716.25 | 750 | 787.5 | 825 | 862.5 | 900 | 937.5 |
| | Qmax | 5325 | 5692.5 | 6060 | 6427.5 | 6795 | 7162.5 | 7500 | 7875 | 8250 | 8625 | 9000 | 9375 |
| **DN100** | Qmin | 852 | 910.8 | 969.6 | 1028.4 | 1087.2 | 1146 | 1200 | 1260 | 1320 | 1380 | 1440 | 1500 |
| | Qmax | 8520 | 9108 | 9696 | 10284 | 10872 | 11460 | 12000 | 12600 | 13200 | 13800 | 14400 | 15000 |
| **DN125** | Qmin | 1065 | 1138.5 | 1212 | 1285.5 | 1359 | 1432.5 | 1500 | 1575 | 1650 | 1725 | 1800 | 1875 |
| | Qmax | 10650 | 11385 | 12120 | 12855 | 13590 | 14325 | 15000 | 15750 | 16500 | 17250 | 18000 | 18750 |
| **DN150** | Qmin | 1846 | 1973.4 | 2100.8 | 2228.2 | 2355.6 | 2483 | 2600 | 2730 | 2860 | 2990 | 3120 | 3250 |
| | Qmax | 18460 | 19734 | 21008 | 22282 | 23556 | 24830 | 26000 | 27300 | 28600 | 29900 | 31200 | 32500 |
| **DN200** | Qmin | 3195 | 3415.5 | 3636 | 3856.5 | 4077 | 4297.5 | 4500 | 4725 | 4950 | 5175 | 5400 | 5625 |
| | Qmax | 31950 | 34155 | 36360 | 38565 | 40770 | 42975 | 45000 | 47250 | 49500 | 51750 | 54000 | 56250 |
| **DN250** | Qmin | 4828 | 5161.2 | 5494.4 | 5827.6 | 6160.8 | 6494 | 6800 | 7140 | 7480 | 7820 | 8160 | 8500 |
| | Qmax | 48280 | 51612 | 54944 | 58276 | 61608 | 64940 | 68000 | 71400 | 74800 | 78200 | 81600 | 85000 |
| **DN300** | Qmin | 7100 | 7590 | 8080 | 8570 | 9060 | 9550 | 10000 | 10500 | 11000 | 11500 | 12000 | 12500 |
| | Qmax | 71000 | 75900 | 80800 | 85700 | 90600 | 95500 | 100000 | 105000 | 110000 | 115000 | 120000 | 125000 |

## C — Superheated Steam Density Table (kg/m³)

| Abs. Pressure (MPa) \ Temp. (°C) | 150 | 170 | 190 | 210 | 230 | 250 | 270 | 290 | 310 | 330 | 350 | 370 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.1** | 0.52 | 0.49 | 0.47 | 0.45 | 0.43 | 0.42 | 0.40 | 0.39 | 0.37 | 0.36 | 0.35 | 0.34 |
| **0.15** | 0.78 | 0.74 | 0.71 | 0.68 | 0.65 | 0.62 | 0.60 | 0.58 | 0.56 | 0.54 | 0.52 | 0.51 |
| **0.2** | 1.04 | 0.99 | 0.95 | 0.91 | 0.87 | 0.83 | 0.80 | 0.77 | 0.75 | 0.72 | 0.70 | 0.68 |
| **0.25** | 1.31 | 1.24 | 1.19 | 1.13 | 1.08 | 1.04 | 1.00 | 0.97 | 0.93 | 0.90 | 0.87 | 0.85 |
| **0.3** | 1.58 | 1.50 | 1.43 | 1.37 | 1.31 | 1.25 | 1.21 | 1.16 | 1.12 | 1.08 | 1.05 | 1.02 |
| **0.4** | 2.12 | 2.01 | 1.92 | 1.83 | 1.75 | 1.65 | 1.62 | 1.56 | 1.50 | 1.47 | 1.40 | 1.36 |
| **0.5** | 2.67 | 2.54 | 2.41 | 2.30 | 2.20 | 2.11 | 2.03 | 1.95 | 1.88 | 1.81 | 1.75 | 1.70 |
| **0.8** | 4.40 | 4.17 | 3.94 | 3.74 | 3.57 | 3.41 | 3.27 | 3.15 | 3.03 | 2.92 | 2.82 | 2.73 |
| **1.1** | 6.13 | 5.83 | 5.53 | 5.24 | 4.97 | 4.75 | 4.54 | 4.36 | 4.19 | 4.04 | 3.90 | 3.77 |
| **1.4** | 7.88 | 7.52 | 7.15 | 6.79 | 6.43 | 6.11 | 5.84 | 5.60 | 5.38 | 5.18 | 4.99 | 4.83 |
| **1.7** | 9.85 | 9.37 | 9.25 | 8.41 | 7.94 | 7.52 | 7.17 | 6.86 | 6.58 | 6.33 | 6.10 | 5.78 |
| **2** | 11.63 | 11.10 | 10.57 | 10.04 | 9.51 | 8.97 | 8.54 | 8.14 | 7.81 | 7.50 | 7.22 | 6.96 |
| **2.5** | 15.19 | 14.45 | 13.72 | 12.98 | 12.24 | 11.50 | 10.88 | 10.35 | 9.89 | 9.48 | 9.11 | 8.78 |
| **3** | 18.42 | 17.57 | 16.72 | 15.88 | 15.04 | 14.18 | 13.34 | 12.64 | 12.00 | 11.51 | 11.05 | 10.63 |
| **3.5** | 22.70 | 21.57 | 20.44 | 19.31 | 18.23 | 17.05 | 15.92 | 15.02 | 14.26 | 13.85 | 13.03 | 12.62 |
| **4** | 27.16 | 25.75 | 24.33 | 22.91 | 21.50 | 20.08 | 18.66 | 17.50 | 16.55 | 15.75 | 15.05 | 14.44 |
| **4.5** | 30.39 | 28.92 | 27.45 | 25.98 | 24.51 | 23.04 | 21.57 | 20.10 | 18.93 | 17.96 | 17.13 | 16.40 |
| **5** | 35.42 | 33.63 | 31.83 | 30.04 | 28.24 | 26.45 | 24.65 | 22.86 | 21.42 | 20.25 | 19.26 | 18.41 |
| **6** | 43.90 | 41.75 | 39.60 | 37.45 | 35.30 | 33.15 | 31.01 | 28.86 | 26.71 | 25.05 | 23.70 | 22.56 |

**Continued:**

| Abs. Pressure (MPa) \ Temp. (°C) | 390 | 410 | 430 | 450 | 470 | 490 | 510 | 530 | 550 | 570 | 590 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.1** | 0.33 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.28 | 0.27 | 0.26 | 0.26 | 0.25 |
| **0.15** | 0.49 | 0.48 | 0.46 | 0.45 | 0.44 | 0.43 | 0.42 | 0.41 | 0.40 | 0.39 | 0.38 |
| **0.2** | 0.66 | 0.64 | 0.62 | 0.60 | 0.58 | 0.57 | 0.55 | 0.54 | 0.53 | 0.51 | 0.50 |
| **0.25** | 0.82 | 0.80 | 0.77 | 0.75 | 0.73 | 0.71 | 0.69 | 0.68 | 0.66 | 0.76 | 0.63 |
| **0.3** | 0.98 | 0.96 | 0.93 | 0.90 | 0.89 | 0.85 | 0.83 | 0.81 | 0.79 | 0.77 | 0.75 |
| **0.4** | 1.31 | 1.28 | 1.24 | 1.20 | 1.17 | 1.14 | 1.11 | 1.08 | 1.06 | 1.03 | 1.01 |
| **0.5** | 1.65 | 1.60 | 1.55 | 1.51 | 1.46 | 1.43 | 1.39 | 1.35 | 1.32 | 1.29 | 1.26 |
| **0.8** | 2.64 | 2.56 | 2.49 | 2.42 | 2.35 | 2.29 | 2.23 | 2.17 | 2.12 | 2.07 | 2.02 |
| **1.1** | 3.65 | 3.54 | 3.43 | 3.33 | 3.24 | 3.15 | 3.07 | 2.99 | 2.92 | 2.84 | 2.78 |
| **1.4** | 4.67 | 4.52 | 4.39 | 4.26 | 4.35 | 4.23 | 3.92 | 3.81 | 3.72 | 3.63 | 3.54 |
| **1.7** | 5.69 | 5.51 | 5.34 | 5.19 | 5.04 | 4.90 | 4.77 | 4.64 | 4.52 | 4.41 | 4.31 |
| **2** | 6.73 | 6.51 | 6.31 | 6.12 | 5.94 | 5.78 | 5.62 | 5.47 | 5.33 | 5.20 | 5.07 |
| **2.5** | 8.48 | 8.19 | 7.93 | 7.69 | 7.46 | 7.25 | 7.05 | 6.86 | 6.69 | 6.52 | 6.36 |
| **3** | 10.25 | 9.90 | 9.58 | 9.28 | 9.00 | 8.74 | 8.49 | 8.27 | 8.05 | 7.84 | 7.65 |
| **3.5** | 12.05 | 11.63 | 11.24 | 10.88 | 10.55 | 10.24 | 9.95 | 9.68 | 9.42 | 9.18 | 8.95 |
| **4** | 13.89 | 13.31 | 13.00 | 12.51 | 12.18 | 11.75 | 11.42 | 11.10 | 10.80 | 10.52 | 10.25 |
| **4.5** | 15.75 | 14.76 | 14.67 | 14.15 | 13.70 | 13.28 | 12.90 | 12.53 | 12.19 | 11.87 | 11.57 |
| **5** | 17.66 | 16.98 | 16.37 | 15.81 | 15.30 | 14.82 | 14.39 | 13.97 | 13.59 | 13.23 | 12.89 |
| **6** | 21.56 | 20.69 | 19.91 | 19.20 | 18.55 | 17.95 | 17.40 | 16.89 | 16.41 | 15.97 | 15.54 |

## ■ ORDERING INFORMATION — SX-FVNB SERIES


*The information in this document is subject to change without notice. SensorsX Technology Inc. assumes no responsibility for errors or omissions.*

**Complete model number example: SX-FVNB-BC100AABAAAAA**

| | |
|---|---|
| **Connection Type** | |
| **A** | Wafer (Clamp) Type |
| **B** | Flanged connection; flange standard to be specified when ordering |
| **Measured Medium** | |
| **A** | Liquid |
| **B** | Gas |
| **C** | Steam |
| **Nominal Diameter (DN)** | |
| **15** | DN15 mm |
| **20** | DN20 mm |
| **25** | DN25 mm |
| **32** | DN32 mm |
| **40** | DN40 mm |
| **50** | DN50 mm |
| **65** | DN65 mm |
| **80** | DN80 mm |
| **100** | DN100 mm |
| **125** | DN125 mm |
| **150** | DN150 mm |
| **200** | DN200 mm |
| **250** | DN250 mm |
| **300** | DN300 mm |
| **Power Supply** | |
| **A** | Dual power supply (24 VDC / 12 VDC + 3.6 V lithium battery) |
| **B** | 3.6 V lithium battery only |
| **C** | 24 VDC / 12 VDC |
| **Display** | |
| **A** | With LCD display |
| **B** | Without display |
| **Output Signal** | |
| **A** | Without output |
| **B** | Pulse output |
| **C** | 4–20 mA |
| **D** | RS485 |
| **Sensor Material** | |
| **A** | 304 Stainless Steel |
| **B** | 316L Stainless Steel |
| **Fluid Temperature** | |
| **A** | ≤ 280 °C (≤ 536 °F) |
| **B** | ≤ 350 °C (≤ 662 °F) |
| **Rated Pressure Class** | |
| **A** | 4.0 MPa (580 psi) |
| **B** | 2.5 MPa (363 psi) |
| **C** | 1.6 MPa (232 psi) |


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| | |
|---|---|
| **Ingress Protection** | |
| **A** | IP65 (IEC 60529) |
| **Explosion Protection** | |
| **A** | Without (Standard) |
| **E** | With |
| **Customized** | |
| **D** | Customized —specify requirements when ordering |

**Ordering Example:**
*SX-FVNB-BC100AABAAAAA → Vortex Flowmeter, Flanged connection, Steam, DN100, Dual Power (24VDC/12VDC + Lithium Battery), With LCD, Pulse Output, 304 Stainless Steel, Fluid Temp ≤ 280 °C (≤ 536 °F), 4.0 MPa (580 psi), IP65, No Explosion Protection*


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