ABB MEASUREMENT & ANALYTICS

**VortexMaster**
The new generation of vortex flowmeters
VortexMaster FSV430/FSV450
Reliable and versatile

Maintenance-free, high-tech vortex flowmeter for your process

The robust VortexMaster flowmeters provide reliable measurements of liquid, gas and steam and are available in flange-mount and wafer-type designs.

- Digital signal processing for volume measurement and volume totalizing with analog and digital outputs
- Mass/energy flow or standard flow measurement without additional flow computer
- Up to 4 internal totalizers for highest transparency depending on the operation mode
- SensorMemory for easy replacement of components or entire transmitters for remote devices
- Removable display unit for simple parameterization
- Integrated 4 to 20 mA and/or HART input for external pressure, temperature, density or concentration information
- Available with 4 to 20 mA output with HART 7 or Modbus RTU communication
- Global approvals for explosion protection
# VortexMaster

**FSS430/FSS450**

Measurement made easy

## The most important data at a glance

<table>
<thead>
<tr>
<th>Description</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracies for liquids</td>
<td>± 0.65 % of rate</td>
</tr>
<tr>
<td>Accuracies for gases and steam</td>
<td>± 0.9 % of rate</td>
</tr>
<tr>
<td>Process connection/meter sizes</td>
<td></td>
</tr>
<tr>
<td>Flange design</td>
<td>DN 15 to DN 300 (1/2 in. to 12 in.)</td>
</tr>
<tr>
<td>Wafer type design</td>
<td>DN 25 to DN 150 (1 in. to 6 in.) (DIN type 65 mm installation length)</td>
</tr>
<tr>
<td>Media temperature</td>
<td>-55 to 280 °C / -55 to 400 °C (-67 to 536 °F / -67 to 752 °F)</td>
</tr>
<tr>
<td>Media viscosity</td>
<td>max. 7.5 cP</td>
</tr>
<tr>
<td>Upstream and downstream pipe runs (typical value after narrowing)</td>
<td></td>
</tr>
<tr>
<td>Upstream section</td>
<td>15 x DN</td>
</tr>
<tr>
<td>Downstream section</td>
<td>5 x DN</td>
</tr>
<tr>
<td>Transmitter housing</td>
<td>Aluminum, optional stainless steel 316</td>
</tr>
<tr>
<td>Ex approvals</td>
<td>IECEx, ATEX, NEPSI Zone 0/1/2/20/21, cFMus Class 1 Div 1/Zone 0/1</td>
</tr>
<tr>
<td>Communication</td>
<td>HART 7 or Modbus RTU-RS485 with 1200, 2400, 4800 or 9600 bps</td>
</tr>
<tr>
<td>Output</td>
<td>4 to 20 mA / HART or Modbus, binary output for pulses, frequency up to 10 kHz or contact output</td>
</tr>
<tr>
<td>Input signals from field</td>
<td>Pressure, temperature, density, methane content</td>
</tr>
</tbody>
</table>

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VortexMaster
FSV430/FSV450
Measurement made easy

Modern high-tech transmitter

Intuitive user interface
• Common operating concept across the measurement portfolio including Easy Set-up function for comfortable and easy configuration
• Intuitive operation through the glass via capacitive keys with plain-text operating menus
• Integrated online self-verification without process interruption or meter removal
• Status messages according to NAMUR NE107
• SensorMemory technology enabling plug and play electronics replacement for maximum data security
• Automated zero point adjustment for easy commissioning
VortexMaster FSV430/FSV450
More than just flow

Volume-, mass- or energy measurement, the right meter for every application

**VortexMaster FSV430**
The standard device with optional digital outputs, graphical display and excellent vibration immunity for your application. Available with integral or remote transmitter with up to 30 m (98 ft.) cable length. An integrated temperature sensor can be added as an option.

**VortexMaster FSV450**
The advanced vortex transmitter with integrated temperature sensor additionally offers an analog input for your mass or energy flow monitoring. The built-in calculation of mass and/or energy for steam and hot water in accordance with the IAPWS-IF97 standard replaces complex installations and separate flow computers in many applications.

VortexMaster for steam measurement with condensate backflow
VortexMaster FSV430/FSV450
For your applications

The vortex flowmeter for your versatile measurements

- Modern and fast digital signal processing with excellent vibration compensation and meter diagnostics for reliable flow measurement
- Shortest response time (200 ms)
- Special operation modes for hot water/condensate and steam gross or net energy flow in accordance with IAPWS-IF97
- Gas engine for natural gas measurement according to AGA/GERG standards
- Integrated vibration compensation
VortexMaster
FSV430/FSV450
No maintenance

With no moving parts, VortexMaster is wear-free and an ideal replacement for mechanical flowmeters.

The device features a long life and high long-term stability due to the proven design with a separate sensor unit behind the fixed bluff body. The VortexMaster is an ideal alternative to orifices or mechanical flowmeters because of the high measuring dynamics, high level of accuracy and insensitivity to deposits. The DIN wafer type version with 65 mm installation length is ideal for the replacement of compact orifices.

Your advantages
- Drift-free sensor design for maximum accuracy and long-term stability
- Simple, cost-saving installation
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