



ABB MEASUREMENT & ANALYTICS

# SwirlMaster

The new generation of  
swirl flowmeters



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# SwirlMaster

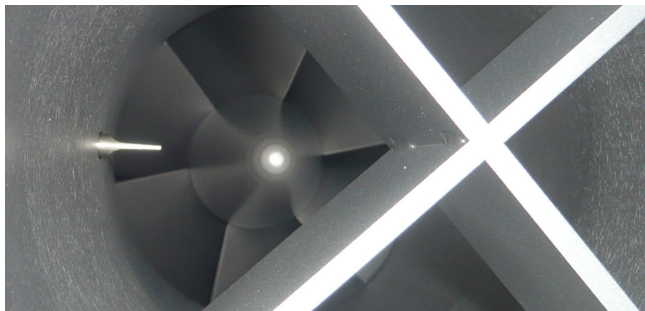
## FSS430/FSS450

### Reliable and versatile

Drift-free sensor for high long-term stability

The robust and versatile SwirlMaster enables the reliable measurement of liquids, gases and steam in units of volume, mass and energy.

- 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
- Plug-in display unit for simple parameterization
- Integrated 4 to 20 mA and/or HART input for external pressure, temperature, density or concentration input
- Global approvals for explosion protection
- Shortest up- and downstream sections for compact, space saving installation
- Significantly lower pressure loss than Vortex flowmeters with a reduced bore
- Sensor exchange possible without recalibration



# SwirlMaster

## FSS430/FSS450

### Measurement made easy

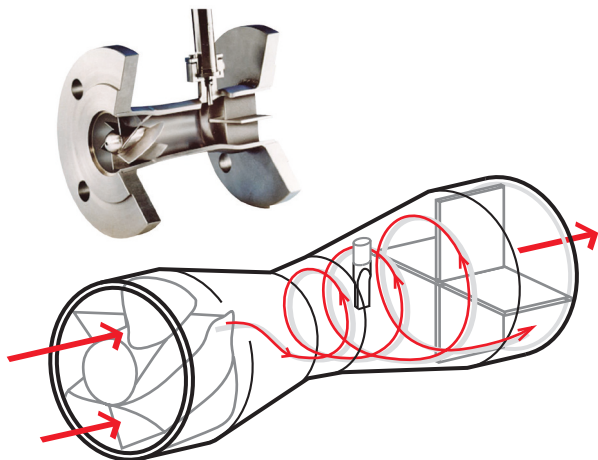
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#### The most important data at a glance

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Accuracies for liquids	± 0.50 % of rate
Accuracies for gases and steam	± 0.50 % of rate
Process connection	Flange design
Meter sizes	DN 15 to DN 400 (1/2 in. to 16 in.)
Media temperature	-55 to 280°C / 350°C (-67 to 536 / 662°F)
Media viscosity	max. 30 cP
Upstream and downstream pipe runs (typical value after narrowing)	
Upstream section	3 x DN
Downstream section	1 x DN
Ex approvals	IECEX, ATEX, NEPSI, EAC Zone 0/1/2/20/21/22 certificates, (UKCA in preparation), cFMus Class 1 Div.1, Zone 0/1
Communication	HART 7, Modbus RTU-RS485, Profibus PA or FOUNDATION Fieldbus
Output	4 to 20 mA, binary output up to 10 kHz or contact output
Input signals from external sensors	Pressure, temperature, density

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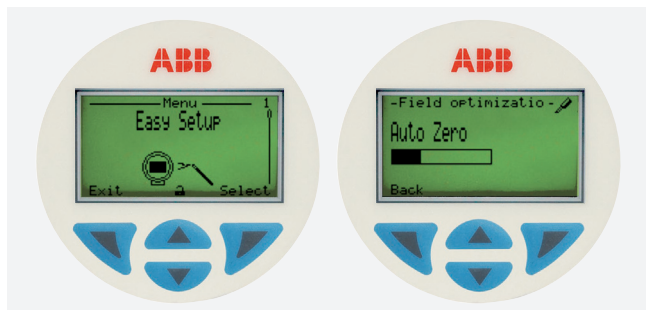
## FSS430/FSS450

Easy to operate

Fast and reliable commissioning

### 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
- Advanced filters for noisy applications



# SwirlMaster

## FSS430/FSS450

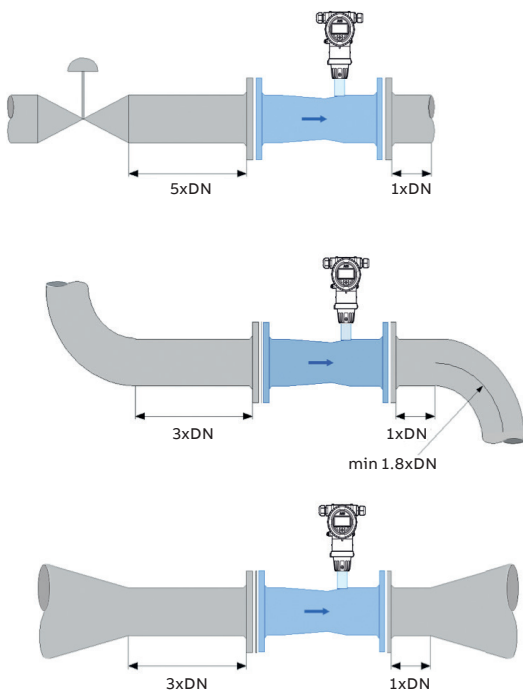
### Shortest inlet sections

Lowest inlet- and outlet section requirements enable many applications

#### Immune to turbulence

Depending on the integration within the process:

- Pipeline reduction not necessary
- No additional flow straightener needed
- After elbow and/or reduction only 3 diameters inlet section and 1 diameter outlet section needed
- After control valve only 5 diameters inlet section needed



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# SwirlMaster FSS430/FSS450

## Excellent performance

Broad range of applications due to the latest transmitter technology and a proven sensor

### Latest transmitter technology

- Wide flow range up to 50:1 flow turn down
- Highest accuracy in liquid, gas and steam 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
- SIL2-certified in accordance with IEC 61508



# SwirlMaster

## FSS430/FSS450

### Flow computer functions

Extensive flow calculations for standard volume, mass or energy units

#### With integrated flow computer

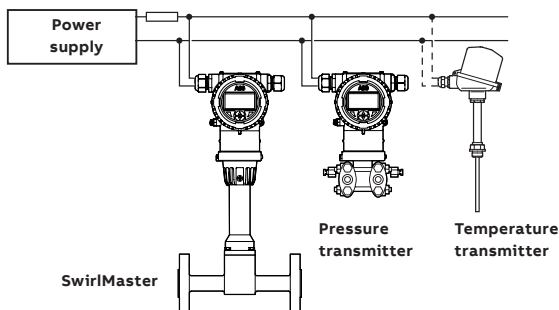
- Integrated interfaces, analog or HART, for the connection of external instruments such as: pressure, temperature, density or gas analysis
- Internal calculation and output of standard volume, mass or energy flows

#### SwirlMaster FSS430

The standard device with optional digital outputs and, graphical display for your application. Available in an integral mount design or in a separate version with up to 30 m cable length. Optionally with an integrated temperature sensor.

#### SwirlMaster FSS450

The SwirlMaster transmitter with integrated temperature sensor additionally offers 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.





# Contact

## **ABB Measurement & Analytics**

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