SONOFLOW® IL.52
Inline Ultra-Low Flow Sensors

SONOTEC

SENTINEL PROCESS SYSTEMS, INC

The highly accurate ultrasonic inline sensors SONOFLOW IL.52 perfectly measure ultra-low flow rates in liquid filled tubes and pipes. The sensors can be integrated into multi-product manufacturing or hybrid platforms around single-use technologies for quick dosing processes and measuring pulsating flows. The sensors are resistant to high temperatures and enable a variety of cleaning methods to reduce the risk of product holdover and cross contamination.

→ Highly accurate ultra-low flow measurement as low as 0.5 ml / min

→ CIP, SIP and autoclave compatible

→ Compact flow meter for minimal equipment footprint

→ Sustainable and reusable to minimize waste and costs

→ No moving parts to reduce shear stress on cells

→ Onsite configuration and calibration via optional C³ software

Key Features

→ Accuracy of 1% and repeatability of 1%

→ Instantaneous response time

→ Independent of colour and electromagnetic characteristics of the liquid

→ Measurement channel made of high-grade PEEK material

→ Volume totalizing and dosing output switch for precise delivery

→ Integrated electronics, no external transmitter required
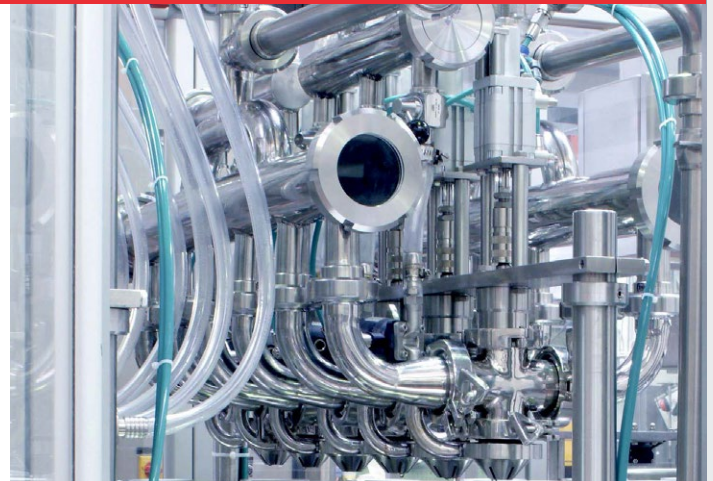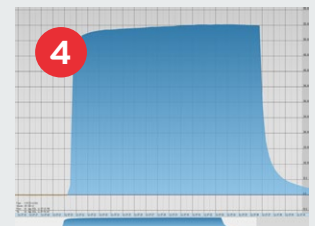
Intuitive and Easy to Handle

1 Sensor Selection

2 Parameter Setting

3 System Integration

4 Flow Measurement

Technical Data

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Measuring Principle	Ultrasonic transit-time		**Interfaces**	0/4...20 mA, 0...20 kHz, PNP/NPN, RS-485 Modbus, digital input
Response Time	10 ms or faster on request			
Hold-up Volume	1.6 ml		**Operating Voltage**	12...30 VDC
Measuring Channel	Ø 3.0 mm		**Current Consumption**	50 mA max
Mounting	Fixed installation		**Electrical Connection**	8-pin M12 connector
Tube Connection	IL.52/3 PEEK / Viton® IL.52/3 PEEK / FFKM Outer Ø 8 mm / Inner Ø 4 mm Material: PEEK		**Ambient / Media Temperature**	0...+70 °C / 0...+100 °C T > 70 °C without voltage, temporarily +145 °C
Cleaning / Sterilization	Autoclavable: for max. 5 cycles of 30 minutes at 121 °C		**Storage Temperature**	-20...+70 °C
			Protection Class	IP65

C³ Software | Configure, Control, Collect

The use of the optional C³ Software allows for customer specific parameterization and testing.

→ Configure sensors for different applications

→ Control sensor performance and set outputs/inputs

→ Collect measurement and sensor data

→ Real-time flow monitoring & volume totalizing

→ Convenient onsite sensor calibration

→ Connection of up to 12 sensors simultaneously

Measurement Principle
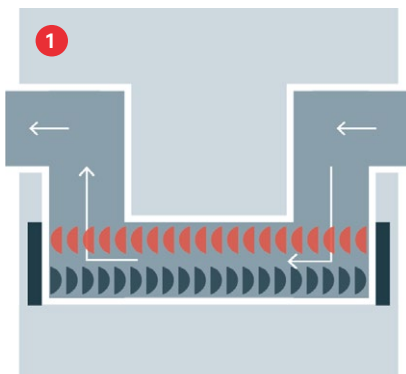
SONOFLOW flow meters use the transit-time ultrasound method to accurately determine the flow rate. The sensor measures the time of flight of the ultrasonic wave with and against the streaming liquid.

The time difference between both signals is a measure of the velocity of the streaming liquid. Measurements are taken in picoseconds and averaged to readings of 10 ms cycle. The specific flow volume is calculated from the fluid velocity and the known area of the measurement channel.

1 Ultrasound waves with and against flow direction