The inline compact sensor SONOFLOW IL.52 V1.0 serves to detect smallest flow rates of liquids quickly.

Constructed as a built-in component for machines and apparatuses, the sensor could be easily mechanically installed and electrically integrated into the control system.

Two current outputs or pulse outputs respectively are available. The service interface allows an easy parameterization, calibration and readout of measuring values.

Specifically designed for the use in areas with rigorous hygiene requirements, the sensor is suitable for circulation cleaning and steam sterilization.

Technical Data

<table>
<thead>
<tr>
<th>SONOFLOW IL.52 V1.0</th>
<th>Ultrasonic Flow Sensor for Liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring method</td>
<td>Ultrasound</td>
</tr>
<tr>
<td>Measuring cycle</td>
<td>Typical 20 ms (4 ms min)</td>
</tr>
<tr>
<td>Specification</td>
<td>IL52/3 V1.0</td>
</tr>
<tr>
<td></td>
<td>IL52/4 V1.0</td>
</tr>
<tr>
<td>Order number</td>
<td>200010228</td>
</tr>
<tr>
<td></td>
<td>200010227</td>
</tr>
<tr>
<td>Diameter of the</td>
<td>3.0 mm</td>
</tr>
<tr>
<td>Measuring channel</td>
<td>4.0 mm</td>
</tr>
<tr>
<td>Upper range value</td>
<td>3 l/min</td>
</tr>
<tr>
<td></td>
<td>6 l/min</td>
</tr>
<tr>
<td>Accuracy for water</td>
<td>0 ... 0.03 l/min: ± 0.3 ml/min</td>
</tr>
<tr>
<td>At 23 °C ± 2 K and 1 bar</td>
<td>0 ... 0.06 l/min: ± 0.6 ml/min</td>
</tr>
<tr>
<td>Zero stability</td>
<td>0.375 ml/min</td>
</tr>
<tr>
<td></td>
<td>0.75 ml/min</td>
</tr>
<tr>
<td>Pressure drop at</td>
<td>0.95 bar</td>
</tr>
<tr>
<td>nominal flow rate</td>
<td>3.00 bar</td>
</tr>
<tr>
<td>Media</td>
<td>Sound transparent, low-viscosity liquids*</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>PN10</td>
</tr>
<tr>
<td>Calibration</td>
<td>Factory calibrated for water at 23 °C ±2 K, outlet of the tubes depressurized (0 bar)</td>
</tr>
</tbody>
</table>

* For industrial applications with high-viscosity liquids (e.g. fats/special paints), screening tests must be made.
## Dimensions L x W x H
122 x 64 x 46 mm

## Weight (without cable)
350 g

## Protection type
IP65

## Cleaning and sterilization
- Maximum liquid temperature: temporarily +145 °C;
- Resistant to cleaning agents (e.g. caustic soda or 3 percent nitric acid)

## Adaptor for tube connection
- Outer diameter 8 mm
- Inner diameter 4 mm

## Mounting
At any position; 4 x recessed M5 threaded holes, depth: 10 mm

## Material (In contact with fluid)
- Measuring channel and measuring cell: PEEK
- Seals: Viton (optional FFKM)

## Indirect temperature measurement
Integrated sensor at the inlet (accuracy of temperature sensor ±1 °C)

## Operating voltage
12 ... 30 VDC, ripple max. 10 %, protection against reverse polarity

## Power requirements
Max. 80 mA (current outputs open)

## Sensor connections
4-pin M12 connector, service: 9-pin D-Sub connector

## Outputs
2 outputs, configurable as:
- 0/4 ... 20 mA for flow rate (default assignment: output 1),
- 0/4 ... 20 mA for temperature (default assignment: output 2),
- Pulse output – flow rate (max. 22 mA)

---

**Diagram:**

```
CONTROL
+U_b

SENSOR
+U_b

Input

Current output

Load

Ground

Ground
```

## Media temperature
0 ... +100 °C (temporarily +145 °C)

## Ambient temperature
0 ... +70 °C

## Storage temperature
-20 ... +70 °C

## Directives/Standards/CE
CE certification based on EMC directive 2004/108/EG
Scope of delivery

- Sensor SONOFLOW IL.52 V1.0
- Operating manual

Accessories

SONOFLOW Monitor for parameterization and diagnosis, consisting of
- USB Data Converter, Type 002 for connection to the computer
- Power Supply Unit
- 4-pin M12 connector
- Terminal block
- CD with Software SONOFLOW Monitor and driver for Windows XP

Optional accessories

- M12 4-pin connecting cable (2 m or 5 m)
- Calibration protocol

Table 1: Technical Data SONOFLOW IL.52 V1.0

**Electrical connections**

### 4-pin M12 connector

<table>
<thead>
<tr>
<th>Contact</th>
<th>Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>Operating voltage +12 ... 30 VDC</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>Output 1: current output (0/4 ... 20 mA) and pulse output respectively</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>Output 2: current output (0/4 ... 20 mA) and pulse output respectively</td>
</tr>
</tbody>
</table>

**Shielding**

If available: ground on one side of the control

### 9-pin D-Sub connector

<table>
<thead>
<tr>
<th>Contact</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 2</td>
<td>Service interface (TTL-Output)</td>
</tr>
<tr>
<td>Pin 3</td>
<td>Service interface (TTL-Input)</td>
</tr>
<tr>
<td>Pin 5</td>
<td>Ground</td>
</tr>
</tbody>
</table>
Technical Drawings

Figure 1: Dimensions SONOFLOW IL.52 V1.0 – Side view

Figure 2: Rear side with drill holes for mounting

Should you have any questions, please do not hesitate to contact us.

Information is subject to change without notice!