VA 500 - Flow meter for compressed air and gases

**Special advantages:**
- Incl. temperature measurement
- RS 485 interface, Modbus-RTU as a standard
- Integrated display for m³/h and m³
- Usable from 1/2" to DN 1000
- Easy installation under pressure
- 4...20 mA analog output for m³/h resp. m³/min
- Pulse output for m³ or M-Bus (optional)
- Inner diameter adjustable via keypad
- Total counter resettable
- Adjustable via keys at the display: Reference conditions, °C and mbar, 4...20 mA scaling, pulse weight

**TECHNICAL DATA VA 500**

**Parameters:**
- m³/h, l/min (1000 mbar, 20 °C) in case of compressed air resp. Nm³/h, Nl/min (1013 mbar, 0 °C) in case of gases

**Units adjustable via keys at display:**
- m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h

**Operating temperature:**
- -30...110 °C probe tube
- -30...80 °C housing

**Operating pressure:**
- -1...50 bar

**Digital output:**
- RS 485 interface (Modbus-RTU), Optional: Ethernet-Interface PoE, M-Bus

**Analog output:**
- 4...20 mA for m³/h e. g. l/min;

**Pulse output:**
- 1 Pulse per m³ or per liter galvanically isolated. Pulse value can be set on the display. Alternatively, the pulse output can be used as an alarm relay

**Supply:**
- 18...36 VDC, 5 W

**Burden:**
- < 500 Ω

**Housing:**
- Polycarbonate (IP 65)

**Probe tube:**
- Stainless steel, 1.4301

**Mounting length:**
- 220 mm, Ø 10 mm

**Mounting position:**
- any

**Gas types are adjustable over CS service software or CS data logger:**
- Air, nitrogen, argon, helium, CO₂, oxygen, vacuum

**Accuracy:**
- (m.v.: of meas. value)
- ± 1.5 % of m.v. ± 0.3 % of f.s. on request
- ± 1.0 % of m.v. ± 0.3 % of f.s.

**ISO calibration certificate (5 calibration points) for VA sensors:**
- 3200 0011

**Gas type: ___ (specify type of gas when ordering):**
- Z695 5009

**Gas mixture: ___ (specify gas mixture when ordering):**
- Z695 5010

**Real gas calibration:**
- 3200 0015

**Special cleaning oil and grease-free (e. g. oxygen application):**
- 0699 4005

**Silicone-free version incl. cleaning free of oil and grease:**
- 0699 4007

**Additional calibration curve stored in the sensor (selectable via display):**
- Z695 5011

**Certificate of origin:**
- Z695 5012

Further accessories see pages 82 to 86
Easy installation and removal under pressure

1) Even under pressure, the flow sensor VA 500 is mounted by means of a standard 1/2” ball valve. During mounting and dismounting the circlip ring avoids an uncontrolled ejection of the probe which may be caused by the operating pressure.

For the mounting into different pipe diameters VA 500 is available in the following probe lengths: 120, 160, 220, 300, 400 mm. So the flow sensors are being mounted into existing pipelines with inner diameters of 1/2” upwards.

The exact positioning of the sensor in the middle of the pipe is granted by means of the engraved depth scale. The maximum mounting depth corresponds with the respective probe length. Example: VA 500 with probe length 220 mm has a maximum mounting depth of 220 mm.

2) If there is no suitable measuring point with 1/2 “ball valve, there are two easy ways to set up a measuring point:

A. Weld on a 1/2” screw neck and screw on a 1/2” ball valve

B. Mount spot drilling collar incl. ball valve (see accessories)

Drill holes can be drilled through the 1/2” ball valve into the existing tubing with the help of the drilling device, the drill chips are collected in a filter, then the probe is installed as described under 1).

3) Due to the large measuring range of the probe even extreme requirements to the flow measurement (high volume flow in small pipe diameters) can be met.

The measuring range is depending on the pipe diameter - see table on the right hand side.

### Measuring ranges Flow VA 500 for compressed air (ISO 1217: 1000 mbar, 20°C)

<table>
<thead>
<tr>
<th>Inner diameter of pipe</th>
<th>VA 500 Standard (92,7 m/s)</th>
<th>VA 500 Max. (185,0 m/s)</th>
<th>VA 500 High Speed (224,0 m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inch</strong></td>
<td><strong>mm</strong></td>
<td><strong>Measuring range</strong> m³/h</td>
<td><strong>(cfm)</strong></td>
</tr>
<tr>
<td>1/2”</td>
<td>16,1</td>
<td>DN 15</td>
<td>759 l/min</td>
</tr>
<tr>
<td>3/4”</td>
<td>21,7</td>
<td>DN 20</td>
<td>89 m³/h</td>
</tr>
<tr>
<td>1”</td>
<td>27,3</td>
<td>DN 25</td>
<td>148 m³/h</td>
</tr>
<tr>
<td>1 1/4”</td>
<td>36,0</td>
<td>DN 32</td>
<td>266 m³/h</td>
</tr>
<tr>
<td>1 1/2”</td>
<td>41,9</td>
<td>DN 40</td>
<td>366 m³/h</td>
</tr>
<tr>
<td>2”</td>
<td>53,1</td>
<td>DN 50</td>
<td>600 m³/h</td>
</tr>
<tr>
<td>2 1/2”</td>
<td>68,9</td>
<td>DN 65</td>
<td>1028 m³/h</td>
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<tr>
<td>3”</td>
<td>80,9</td>
<td>DN 80</td>
<td>1424 m³/h</td>
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<tr>
<td>4”</td>
<td>110,0</td>
<td>DN 100</td>
<td>2644 m³/h</td>
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<tr>
<td>5”</td>
<td>133,7</td>
<td>DN 125</td>
<td>3912 m³/h</td>
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<tr>
<td>6”</td>
<td>159,3</td>
<td>DN 150</td>
<td>5560 m³/h</td>
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<tr>
<td>8”</td>
<td>200,0</td>
<td>DN 200</td>
<td>8785 m³/h</td>
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<tr>
<td>10”</td>
<td>250,0</td>
<td>DN 250</td>
<td>13744 m³/h</td>
</tr>
<tr>
<td>12”</td>
<td>300,0</td>
<td>DN 300</td>
<td>19814 m³/h</td>
</tr>
</tbody>
</table>