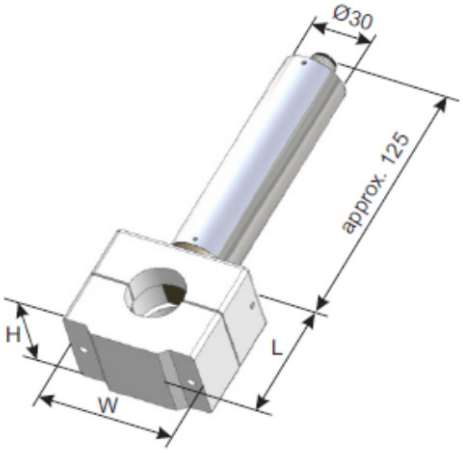
<table>
<tr><td>System</td><td>SONOCONTROL 15, SONOCONTROL 15 Ex</td></tr>
<tr><td>Function</td><td>Non-intrusive full/empty limit switch at pipes with smaller nominal diameters (DN8 ... DN50)
Application examples: Low level control in chromatography plant systems (HPLC)
Protection against dry running for ultrapure / deionized water supply
Overflow indication at ultrafiltration systems</td></tr>
<tr><td>Measuring principle</td><td>Ultrasound through the pipe wall, detected is the complete filling with liquids in the sensor axis; no direct contact between sensor and liquids; no need for constructional changes mounting the sensor at the pipe</td></tr>
<tr><td>Material of the sensor</td><td>Stainless steel 1.4301, PEEK</td></tr>
<tr><td>Mounting</td><td>PVDF-clamp, coupling medium</td></tr>
<tr><td>Liquids</td><td>Water and watery liquids, liquids of low viscosity;
Less suitable for emulsions, dispersions, suspensions, liquids with a lot of bubbles or solids</td></tr>
<tr><td>Material of the pipe</td><td>Steel, Stainless steel, plastics, glass, ceramics</td></tr>
<tr><td>Coatings of the pipe</td><td>Without coating, galvanized, lacquering, plastic coating, and the like</td></tr>
<tr><td>Teach-in</td><td>The sensor takes the characteristics of the pipe in the empty and in the filled condition (in this order), triggered by an operating magnet.</td></tr>
<tr><td>Mounting at the pipe / dimensions</td><td>Together with a coupling medium the sensor is mounted laterally at the pipe.
The fastening element consists of two parts. Together with the coupling medium, the sensor forms a complex connection around the pipe.
 

The sensor is available in 4 sizes, which correspond to the different outer pipe diameters. The pipe clamp is delivered in a customized version adapted to the outer pipe diameter (when ordering quote the exact diameter). The given dimension L_{max} applies for the corresponding maximum possible pipe diameter.
<table>
<tr><th>Size</th><th>Outer pipe diameter</th><th>Dimensions of the PVDF-fastening element L_{max} x W x H</th></tr>
<tr><td>1
2
3
4</td><td>10 mm ... 23 mm
> 23 mm ... 36 mm
> 36 mm ... 54 mm
> 54 mm ... 63,5 mm</td><td>42 x 50 x 40 mm
58 x 65 x 40 mm
77 x 80 x 40 mm
82 x 86 x 40 mm</td></tr>
</table></td></tr>
<tr><td>Temperature range</td><td>Storage temperature: -40 ... 85 °C
Pipe temperature: -40 ... 140 °C
Ambient temperature: -40 ... 80 °C
(the acceptable pipe temperature and ambient temperature are interdependent)</td></tr>
<tr><td>Time response / switching delay</td><td>Full → empty: 0,5 s
Empty → full: 0,5 s</td></tr>
</table>

Connection / power supply	4-pole M12 sensor connector (2 contacts connected) Direct current 12 - 40 V (non-Ex), 12 - 33 V (Ex) Ripple max. 5 % (peak value: min. 12 V, max. 40V (non-Ex), 33 V (Ex))
Output / switching display	2-wire system (4...20 mA concept) The switching status is represented by the current consumption of the sensor. There is no additional switching output. Current consumption: empty: 8 mA ± 2 % full: 16 mA ± 2 % error: approx. 22 mA failed teach-in: approx. 0,2 mA Display: 2 LED (operating state, switching status)
Explosion protection	II2G Ex ib IIC T6 Gb
Scope of delivery	SONOCONTROL 15 Operating manual Magnet
Accessories	Sensor connector M12x1 Mounting set (coupling medium included)