

System	SONOCONTROL 15, SONOCONTROL 15 Ex		
Function	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		
Measuring principle	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		
Material of the sensor	Stainless steel 1.4301, PEEK		
Mounting	PVDF-clamp, coupling medium		
Liquids	Water and watery liquids, liquids of low viscosity; Less suitable for emulsions, dispersions, suspensions, liquids with a lot of bubbles or solids		
Material of the pipe	Steel, Stainless steel, plastics, glass, ceramics		
Coatings of the pipe	Without coating, galvanized, lacquering, plastic coating, and the like		
Teach-in	The sensor takes the characteristics of the pipe in the empty and in the filled condition (in this order), triggered by an operating magnet.		
Mounting at the pipe / dimensions	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 <sub>max</sub> applies for the corresponding maximum possible pipe diameter.		
	Size	Outer pipe diameter	Dimensions of the PVDF-fastening element L <sub>max</sub> x W x H
	1 2 3 4	10 mm 23 mm > 23 mm 36 mm > 36 mm 54 mm > 54 mm 63,5 mm	42 x 50 x 40 mm 58 x 65 x 40 mm 77 x 80 x 40 mm 82 x 86 x 40 mm
Temperature range	Storage temperature: -40 85 °C Pipe temperature: -40 140 °C Ambient temperature: -40 80 °C (the acceptable pipe temperature and ambient temperature are interdependent)		
Time response / switching delay	Full → empty: 0,5 s Empty → full: 0,5 s		



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 (420 mA concept) The switching status is represented by the current consumption of the sensor. There is no additional switching output. Current consumption: empty: $8 \text{ mA} \pm 2 \%$ full: $16 \text{ mA} \pm 2 \%$ error: approx. 22 mA failed teach-in: approx. 0,2 mA Display: 2 LED (operating state, switching status)		
Scope of delivery	SONOCONTROL 15 Operating manual Magnet		
Accessories	Sensor connector M12x1 Mounting set (coupling medium included)		

