

The air bubble detector **SONOCHECK ABD05** is used to detect air and gas bubbles in plastic tubes filled with liquid and is intended to prevent air infusions. However, it can also be used as a wet/dry sensor in tubes. The sensor has no contact with the liquid and is suitable for applications in medical and food technology. The sensor is best suited for disposable tubes.

The sensor is designed as a component for fixed installation in machines.

## Technical data

SONOCHECK type ABD05		
Air Bubble Detector		
Measuring method	Ultrasound	
Bubble sensitivity	Bubbles larger than 1/3 of internal tube diameter are detected	
Measuring cycle	200 µs	
Response time; Holding time	Minimum < 0.5 ms, typical 1 ms; On request: Delays or holding times for bubble events	
Operating temperature	+5 °C to +60 °C	
Storage temperature	-20 °C to +70 °C	
Materials	Housing: Plastic/POM; Measuring cell: PMMA; Potting: PUR	
Versions / Designs	The sensor version depends on the tube diameter, the hardness of the tube and its wall thickness. If possible, provide us with a sample of the tube so that we can select an optimum design.	
Requirements for tube	Parameter	Property
	Outer diameter	2.4 to 10.5 mm
	Wall thickness	Optimum 10 to 20% of outer diameter
	Material	Plastic, e.g. PVC, PE, silicone, PUR Other materials on request or after test only
	Special features	Tube must be smooth on outside, no fabric tube
	Elasticity	Tube must be able to adjust flexibly
	Tube is inserted into sensor dry	

Requirements for liquid	Low-viscosity liquids containing no or few solids		
Mounting	Rectangular design	2 x recessed M4 threaded holes on rear of sensor	
	Circular design	Appropriate clamping fixture	
Protection	IP67		
Operating voltage	+5 ± 0.2 VDC		
Current consumption	≤ 60 mA		
Connecting cable	Standard: 1 m (other lengths on request), fixed connection to sensor		
Inputs and outputs	Color	Connection	
	Red	Operating voltage +5 ± 0.2 VDC	
	Yellow	Control input (e.g. for reset / LED activation)	
	White	Output (5 V logic, TTL)	
	Blue	Ground (GND)	
	Screening	Connect to ground (blue) at terminal	
Output specification (default)	Condition	Signal at output (H/L: TTL output)	LED
	Air/bubble	H	Red
	Liquid	L	Green
	Internal error (self test)	H	Blue
Configuration (optional)	Serial interface		
Directives / Standards	The sensors were developed to be tested with respect to the following standards: <ul style="list-style-type: none"><li>• Safety Requirements: IEC 60601-1:2005 (3rd edition)</li><li>• EMC: EN 60601-1-2:2007 (3rd edition)</li><li>• Acoustic Output (Ultrasonic): IEC 61157:2007</li></ul>		
Scope of delivery	Air bubble detector type ABD05,channel width and design adapted to tube diameter; Operating manual		
Accessories / Options	ABD Monitor for configuration and diagnostics, consisting of: <ul style="list-style-type: none"><li>• USB data converter (type 007_V001)</li><li>• USB cable, type A-B, length 1.5 m</li><li>• CD with ABD Monitor software</li></ul>		
	“Failsafe” version available as an option for use in medical products, in compliance with EN 60601.		

Table 1: Technical data for SONOCHECK sensor type ABD05

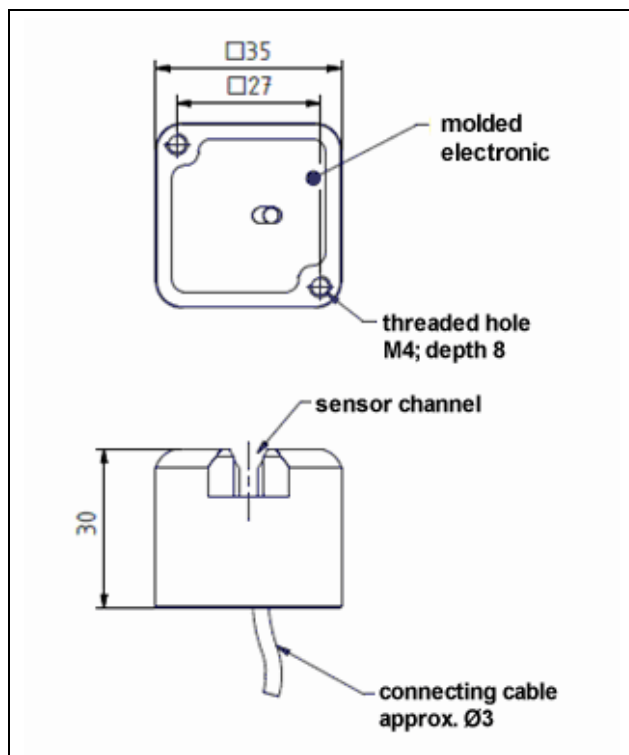
Technical drawings

Fig. 1: Version with rectangular design

(The drawings are not to scale)

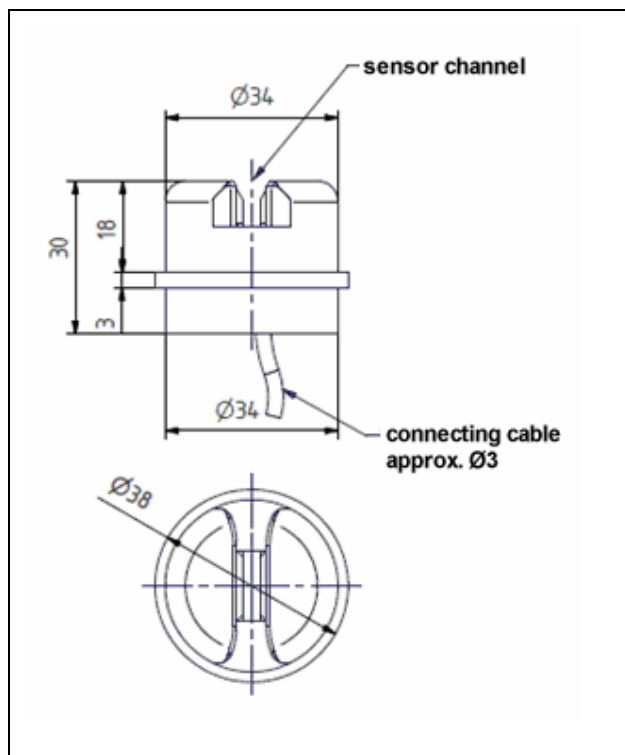


Fig. 2: Version with circular design

Information for ordering

Specification	Design version	Channel width	Outer diameter tube (typical)	Order number
ABD05.50	Circular	3.4 mm	4.2 mm	200 02 0050
ABD05.51	Rectangular	3.4 mm	4.2 mm	200 02 0051
ABD05.52	Circular	5.2 mm	6.8 mm	200 02 0052
ABD05.53	Rectangular	5.2 mm	6.8 mm	200 02 0053
ABD05.54	Rectangular	2.2 mm	3.0 mm	200 02 0054
ABD05.55	Circular	2.2 mm	3.0 mm	200 02 0055
ABD05.56	Rectangular	1.8 mm	2.4 mm	200 02 0057
ABD05.57	Circular	4.4 mm	5.5 mm	200 02 0107