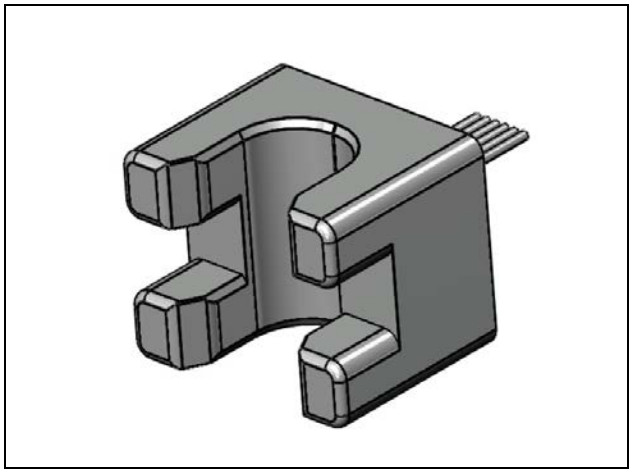
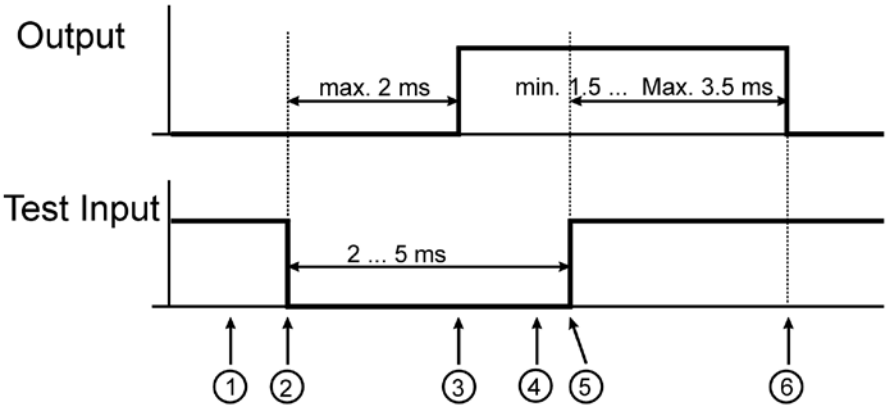


The detector SONOCHECK **ALD02.xxx** is a dual channel level detector for drip chambers.

Without contact to the liquid the clamp-on sensor is suitable for drip chambers in medical devices. It is dry coupled, wear and tear free and highly reliable. It provides 2 TEST input lines for separate self-test of each channel.

Technical Data

Dual Channel Level Detector		
Measuring method	Ultrasound	
Measuring cycle	200 µs	
Response time, Holding time	Minimum < 1 ms, typical 2 ms On request: Delays or holding times for bubble events	
Operating temperature	+5 °C to +60 °C	
Storage temperature	-20 °C to +85 °C	
Materials	Transducer and electronics molded in plastic housing	
Drip Chamber	**Parameter**	**Property**
	Outer diameter	To be defined
	Material	Plastic, e.g. PVC, PE, silicone, PUR Other materials on request or after test only
	Drip Chamber is inserted into sensor in dry condition	
Requirements for liquid	Water, blood, solutions or other low-viscosity liquids containing no or few solids	
Mounting	On the rear side of the sensor are 2 recessed holes (Ø 2.5, depth 9 mm) for self-tapping screws; type: „Plastite Nr.4“; Ø 3 mm, length: 9.5 mm	
Protection	IP67	
Operating voltage	+5 ± 0.2 VDC	
Current consumption	≤ 40 mA	
Connecting cable	6 x stranded wires; firmly connected to the sensor; length: 50 ± 2 cm	

<table>
<tr><td rowspan="8">Inputs and outputs</td><td>Connection</td><td>Color</td></tr>
<tr><td>Power Supply +5 V ±0.2 V</td><td>red</td></tr>
<tr><td>Output LOW level (5 V logic, TTL)</td><td>white</td></tr>
<tr><td>Output HIGH level (5 V logic, TTL)</td><td>rose</td></tr>
<tr><td>Input TEST LOW level (5 V logic, TTL)</td><td>yellow</td></tr>
<tr><td>Input TEST HIGH level (5 V logic, TTL)</td><td>gray</td></tr>
<tr><td>Ground (GND)</td><td>blue</td></tr>
<tr><td rowspan="5">Output LOW / HIGH level</td><td colspan="2">Standard configuration</td></tr>
<tr><td>Condition</td><td>Signal at output (H/L: TTL output)</td></tr>
<tr><td>Air</td><td>H</td></tr>
<tr><td>Liquid</td><td>L</td></tr>
<tr><td>Internal error (self-test)</td><td>L</td></tr>
<tr><td>TEST LOW / HIGH inputs</td><td colspan="2">Simulation of air, time typically needed for complete test: 6 … 10 ms.
Test Input is L-active. If TEST input is not used the line has to be connected to +5V. Recommended duration of pulse: ca. 2 … 5 ms.
 

1 Filled Tube: Sensor indicates Signal “Liquid”
2 Air Test active
3 Sensor simulates Air and indicates Signal “Air”
4 External Control checkes proper Signal “Air” of Sensor
5 Air Test inactive
6 Sensor indicates Signal “Liquid”

Test Input is configured after power on for a short time of 1s as serial input. Inside this period the sensors acts to commands of serial interface. Such a way settings of sensor can be changed or verified.
ABD Monitor in combination with USB Data Converter Type 007 supports setting operating and the required time management.</td></tr>
<tr><td>Directives / standards</td><td colspan="2">• EMC under consideration of IEC 60601-1-2
• Safety requirements under consideration of IEC 60601-1
• Biological compatibility under consideration of DIN EN 61157</td></tr>
</table>

Technical Drawings

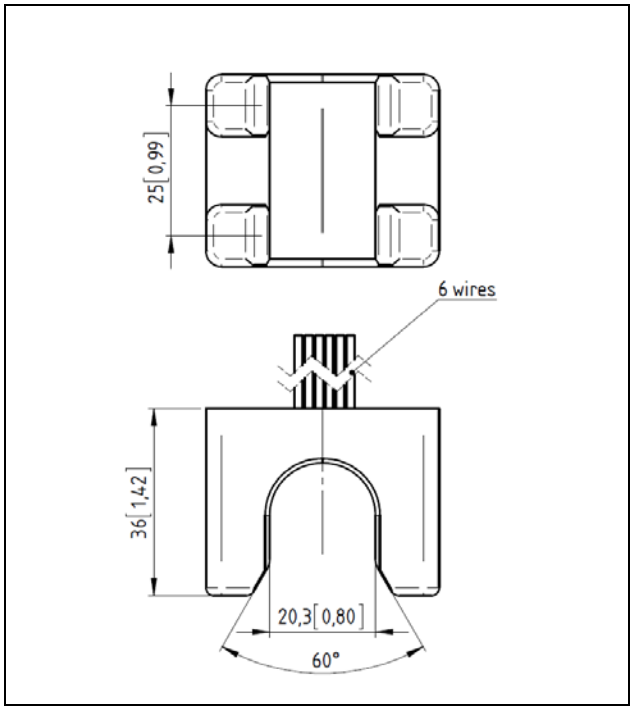


Fig. 1: Sensor dimensions in mm [inch]

(The drawings are not to scale)

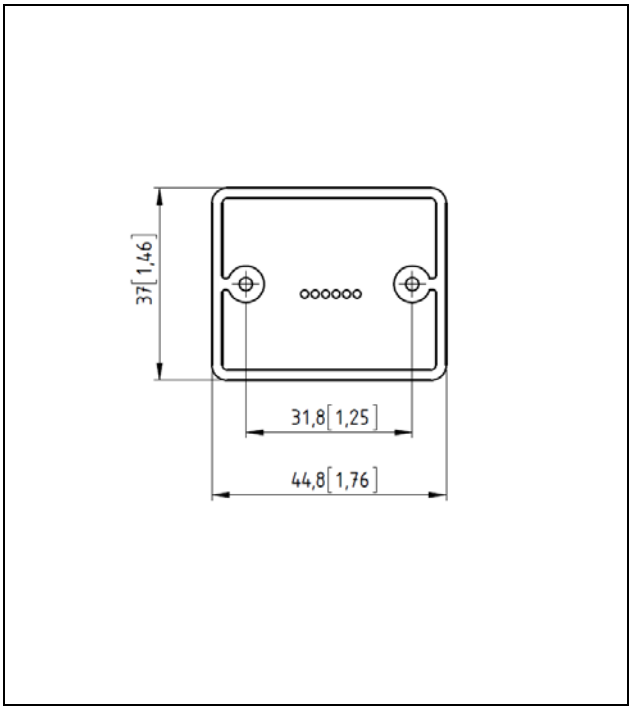


Fig. 2: Back view