FLUID MONITORING

SONOCHECK ABD

NON-INVASIVE AIR BUBBLE & LEVEL DETECTION

SONOTEC

TECHNOLOGY

The SONOCHECK air bubble sensors from SONOTEC incorporate intelligent ultrasonic transmission technology and innovative safety concepts in order to provide maximum sensor reliability. The non-invasive bubble sensors feature an asymmetrical algorithm, which provides a dynamic adjustment to set the optimal operating point at any condition.

With the help of the proprietary SONOTEC technology, the SONOCHECK air bubble sensors guarantee maximum patient safety and system integrity. Customers from all over the world value the constant high quality and reliability of our series products "Made in Germany".

UNIQUE FEATURES

- Compact design with integrated electronics

- Non-invasive clamp-on solution for a wide range of tubing sizes, materials and colors

- Self-adjusting sensor for constant sensitivity

- TUV approved advanced safety concepts

- Microbubble detection

- Optional software for easy parameterization and testing

- User-adaptable bubble sensitivity (by means of software)

- CE certified for industrial applications

- Modular design for easy & fast prototyping

- Dry coupled, no wear & tear

SELF-ADJUSTING SENSORS FOR CONSTANT SENSITIVITY

The acoustic coupling of the sensors depends on several ambient conditions, such as the in-line pressure, temperature, elasticity of the tubing or the moisture around the tubing, leading to tremendously differing signals. To overcome this issue, SONOTEC implemented a closed loop algorithm, which ensures a fast detection of even smallest bubbles and guarantees constant bubble sensitivity independent from the quality of the acoustic coupling. In contrast, sensors utilizing inflexible algorithms often fail to detect air bubbles reliably under changing conditions.

down to
0.3 µl bubbles

ABD05 • Advanced Fail-Safe Architecture for Patient-Connected Medical Devices

ABD06 • For 1.6 mm Outer Diameter Tubing

ABD03 • Miniaturized Sensor Housing with Separate Electronics

TUV APPROVED ADVANCED SAFETY CONCEPTS

Depending on the actual application and the related requirements, the customer can choose between different safety concepts. Whereas some customers request a redundant sensor with two receivers and electronics, others might prefer a single channel design, where the sensor performs cyclical self-tests. In addition to these well-known concepts, SONOTEC developed an advanced fail-safe architecture, where self test routines are continuously performed without any blind-time.

ready for 60601 3rd edition

MODULAR DESIGN FOR EASY & FAST PROTOTYPING

Besides numerous standard sensors for medical or industrial applications, SONOTEC offers customized solutions, which integrate particular features that are requested by the customer. The modular design of the SONOCHECK sensors allows for an easy and fast composition of individual solutions. The customers can choose between various options regarding housing design, safety concepts, power supply and output configurations.

SENSORS		ABD03	ABD05	ABD06	ABD07	ABD08	ALD
SAFETY CONCEPTS	Cyclical Self-Test	✓	✓	✓	✓	✓	✓
	Fail-Safe Architecture		✓				
	Redundant Design					✓	
INTEGRATED ELECTRONICS			✓	✓	✓	✓	✓
POWER SUPPLY		3.3 VDC	5 VDC	12 … 30 VDC	5 VDC	5 VDC	5 VDC
SOFTWARE			✓	✓	✓	✓	✓
OUTPUT	TTL Logic	✓	✓		✓	✓	✓
	Serial	✓	✓	✓	✓	✓	✓
	PWM	✓	✓	opt.	✓	✓	✓
	PNP			✓			
	0-10 VDC/4-20 mA			opt.			
	RS485			opt.			
CERTIFICATES	CE			✓			
	ATEX			opt.			
	RoHS/REACH	✓	✓	✓	✓	✓	✓

ABD = air bubble detector, ALD = air level detector, opt. = optional

ABD06 • For a Wide Range of Tubing Diameters and Materials

ABD06.89 • Customized Sensor with Individual Housing and Output Configuration
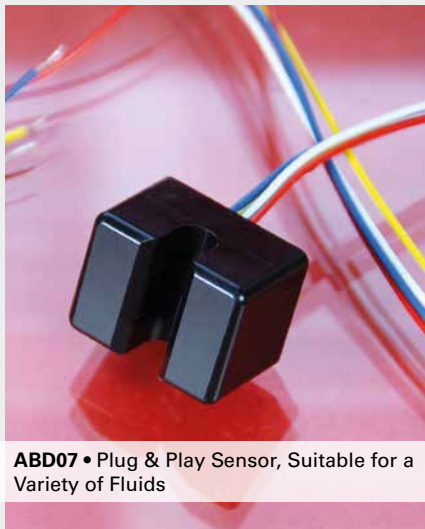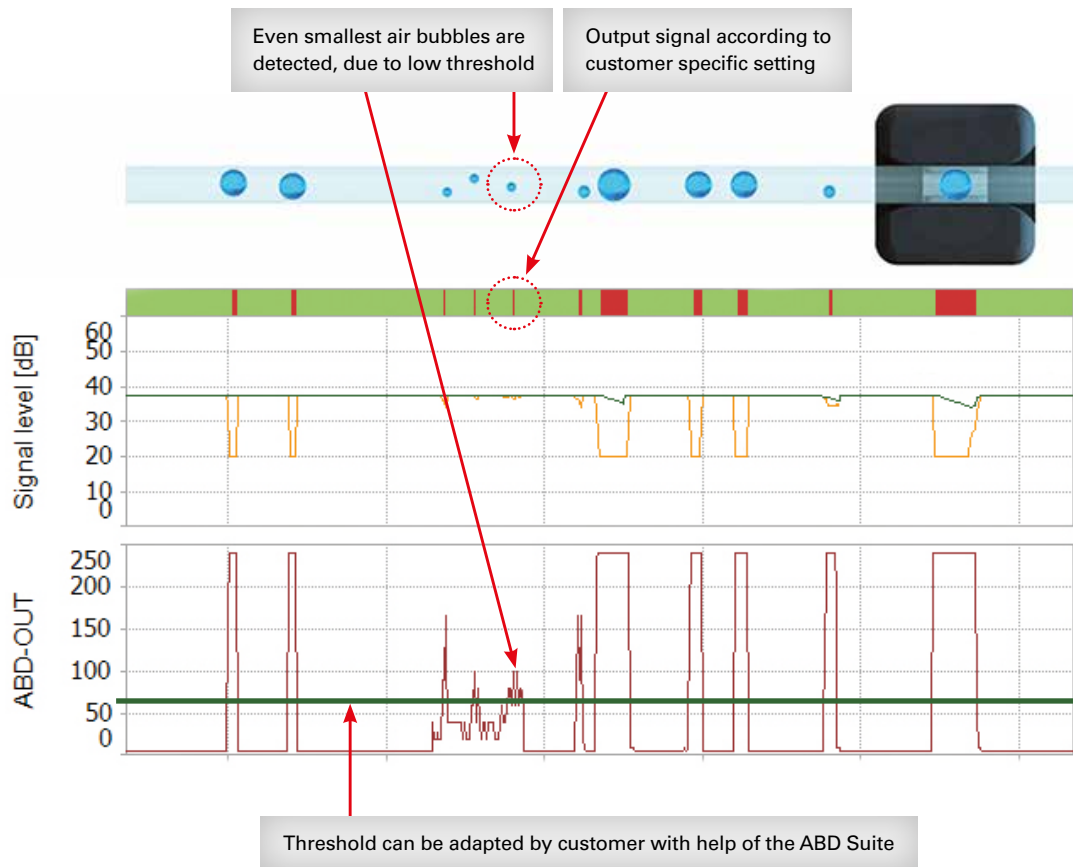
SOFTWARE FOR EASY PARAMETERIZATION AND TESTING

In the beginning of a project, the customer's requirements for bubble sensitivity or even the electrical interfaces are not always clearly specified. In order to allow a flexible reaction to potentially required changes, SONOTEC has developed an advanced, but easy to operate software – the ABD Suite – as an optional tool.

This software displays the measured data in real time, stores a predefined period and allows for a detailed analysis of the sensor performance. New parameter settings can be tested and assessed instantly. The integration of the sensor into the superior device, trouble shooting or even fine tuning are now a simple matter, even for those applications where standard settings do not fit.

Included in the scope of supply is a USB adapter to connect the sensor to any Windows PC or tablet. All sensor parameters, including thresholds, output settings, sensor type, revision and serial number, etc., can be read with the help of the software. In order to protect the sensor against unintended modifications, it is possible to activate a CRC check.

Although all SONOCHECK sensors are plug & play devices, this additional tool provides a unique flexibility to adapt the sensor to different customer requirements.
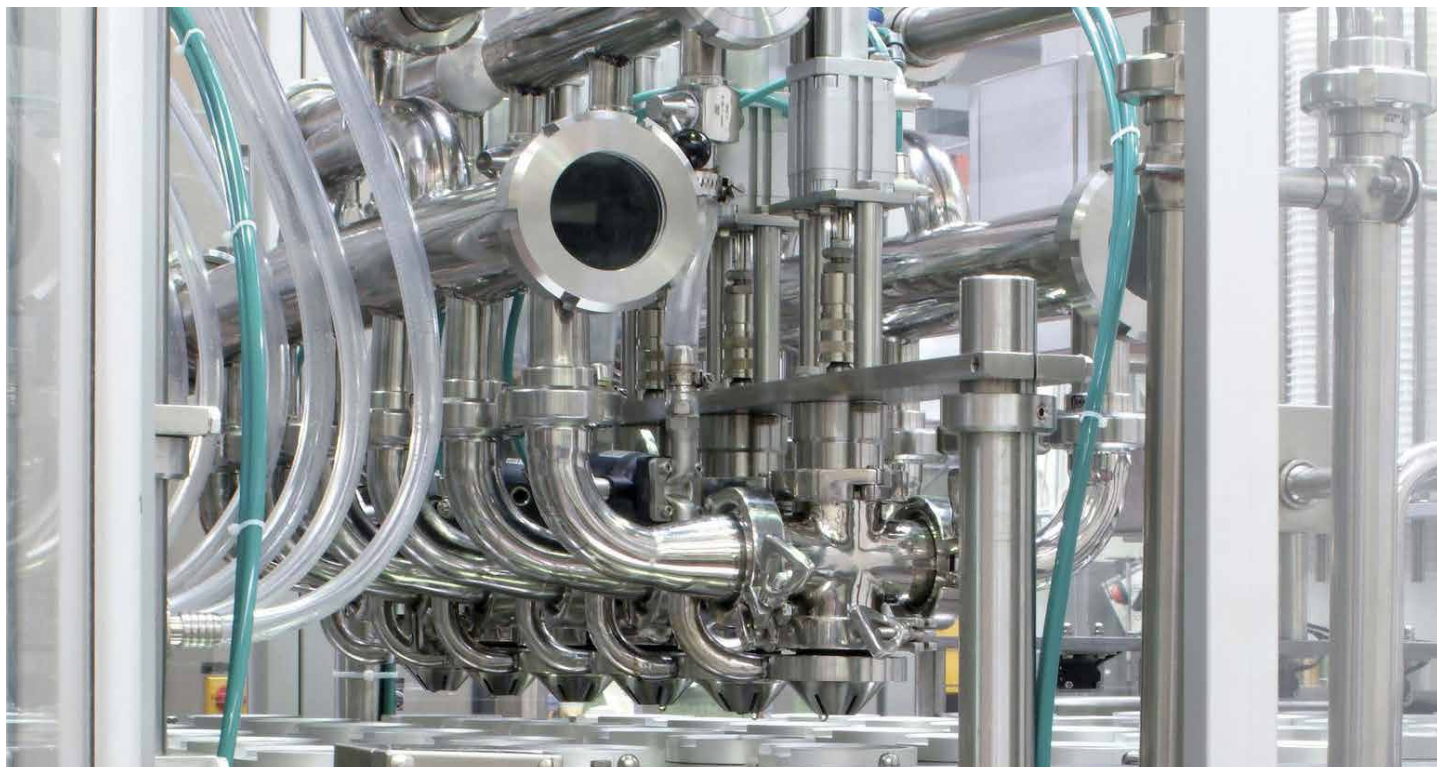

Even smallest air bubbles are detected, due to low threshold

Output signal according to customer specific setting

Threshold can be adapted by customer with help of the ABD Suite

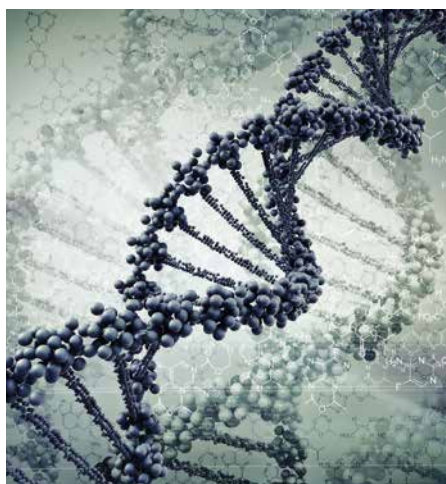**ABD07** • Plug & Play Sensor, Suitable for a Variety of Fluids

ALD • For Reliable Level Detection at Drip Chambers

ABD06 • CE Certified Sensor with Various Lid Solutions

The intelligent SONOCHECK sensors are applied in various fields within the medical industry, the biotech and pharmaceutical sector, food and beverage, semiconductor industry or process control and automation. Which particular sensor to choose, depends on the actual application. The sensors can detect bubbles, air in line, microbubbles or foam, but can also be applied as level detectors.

- Dialysis machines
- Heart-lung and ECMO machines
- Infusion and transfusion pumps
- Contrast medium injectors
- Blood separators and chromatographers
- Organ transport systems

- Lithography
- Pipette and filling systems
- Mixing, dispensing and dosing systems
- Surface refinement
- Adhering processes
- Painting systems

SONOTEC – ULTRASOUND IS OUR STRENGTH

Headquartered in Halle (Saale), Germany, SONOTEC focuses on the worldwide distribution of ultrasonic solutions. With a strong R&D department, consisting of experienced engineers and scientists, SONOTEC is capable to react fast to customer needs and stands for top quality "Made in Germany".
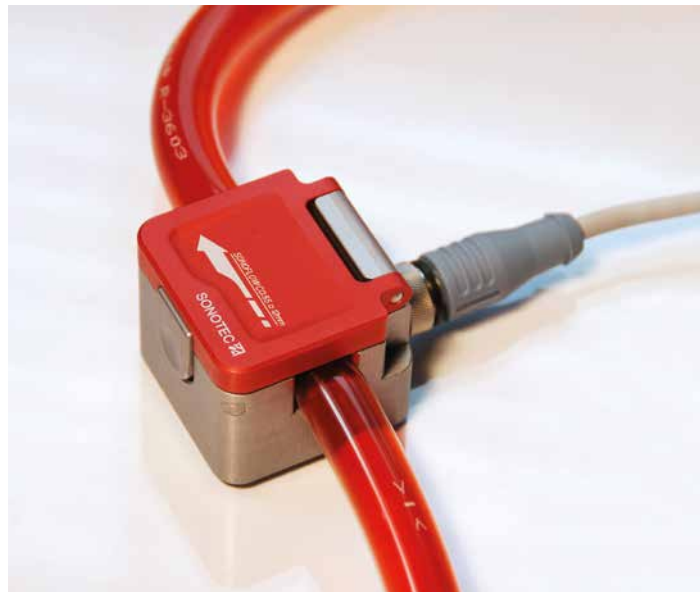
1991	1995	2000	2010	2011	2013
Founded by 2 physicists	ISO 9001 certified	1st air bubble sensor	1st clamp-on flow sensor	More than 100 employees	EN ISO 13485 certified

MORE PRODUCTS

SONOFLOW CO.55
Clamp-on sensor for flow measurement on flexible tubes:

- Non-invasive ultrasonic technology
- Compact sensor with integrated electronics
- Not affected by medium color, tube color or electromagnetic properties of liquids
- Plug & play device for easy implementation

Blood Leak Detector BLD01
Clamp-on sensor for blood detection in clear fluids:

- Non-invasive optical measurement
- To detect smallest amounts of blood
- Blood sensitivity complies with IEC 60601-2-16:2008

SONOTEC preserves the right to change technical specifications without further notice. (Rev. 1 / 2014-10-23)

SALES & SUPPORT

SONOTEC

SONOTEC Ultraschallsensorik Halle GmbH
Nauendorfer Str. 2
06112 Halle (Saale)
Germany

phone	+49 (0)345 / 133 17-0
fax	+49 (0)345 / 133 17-99
e-mail	sonotec@sonotec.de
web	www.sonotec.eu

SONOTEC US Inc.
15 2nd ave
Central Islip, New York 11722
United States

phone	+1 631 / 415 4758
e-mail	sales@sonotecusa.com
web	www.sonotecusa.com

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