Ultrasound Particle / Bubble Detector UBD100

Dosing, casting or other processing methods with liquids are often interfered by particles or gas bubbles. "Real-Time" detection of such contaminations can help in a significant way to optimize production yield and costs during start-up or running process.

inoson now offers a new sensor which is capable to detect such particles or bubbles inside of fluids even if they represent single events. The physical principle of the sensor is based on ultrasonic waves, scattered by inclusions which pass the sensor elements. The sensors resolution is based on the difference of elastic properties between fluid and particle.
The ultrasonic waves are transmitted and received by two independent ultrasonic transducers arranged around a PTFE-tube to maintain continuous survey. The contact less application of these ultrasonic elements, combined with the not squeezed cross-section and the application specific scalable diameter of the measuring section allow manifold applications in medical and technical applications.

To match the sensors "real-time" output to time constants of existing process-control systems, integration and peak hold features are selectable.

Features:

- Standalone mode and/or interfacing to a process-control system.
- Detection of particles/bubbles up to a size of 30 μm (depending on properties of liquid).
- IP67 sensors, chemical resistant, smooth and piggable.
- Self test and failure detection.
- 4..20 mA signal output for quantification.
- configurable alarm outputs and thresholds.
- application specific modification of hard- and software is possible.

The calibration data and the transducer parameters are stored in a sensor internal non-volatile memory

Technical data

Key specifications:

Ultrasonic frequency:	2 MHz
min. particle size:	approximately 30µm
parameterization:	PC through serial interface (RS-232)

Output:

quantified events:	Current-Loop with galvanic isolation
	realtime events (max. 2 kHz data refresh)
	or
	mean events (average in selectable time intervals)
	or
	peak events (maximum amplitude in selectable time intervals)
alarm 1	relay (sensor error)
alarm 2	relay (pass of selectable threshold)

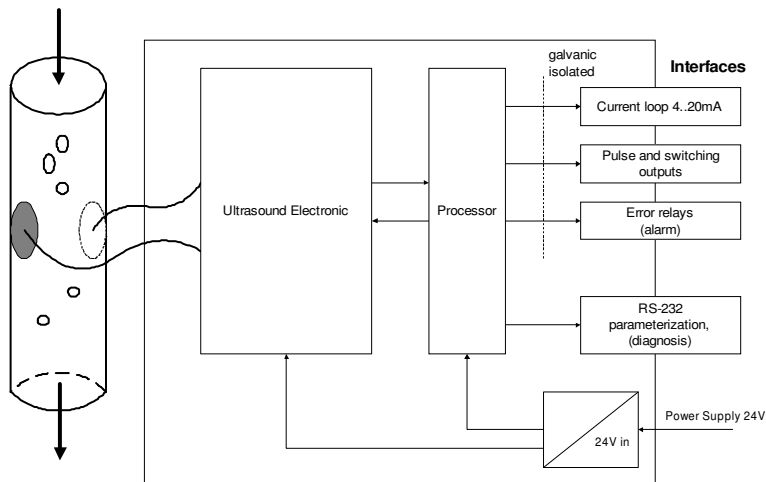Measuring section:

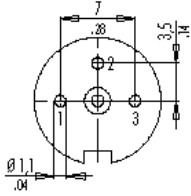|	
dimensions:	DN10/15/20/25 or according to users specification
flanges:	according to users specification
material:	PTFE / stainless steel
maximum operating pressure	*4bar*
test pressure	*6bar*
Power requirements:	24V nom. (18-30Vdc)
Mechanical specificatons:	16 x 10 x 12 cm, 4 kg, Operating temperature 0 - 70°C

Delivery

- Transmitter with built-in sensor
- Interface cable for connection with PC (RS232)
- Optional control software for PC (All Windows™ versions 98 and newer versions) for up-/download of data, threshold values and for graphical presentation of events

order number	Description
UBD100	Sensor
UBD_SER_3	Serial Cable UBD100 <-> PC
UBD_MON	PC Configuration and Measuring Software

Pin Assignment:

Connector (RS232)

3 pol (DIN 41524) *(connector diagram)* BINDER Serie 680 round connector	PIN 1: RS232 RX PIN 2: RS232 TX PIN 3: RS232 GND

Contact arrangements with view on the solder termination side of male inserts

cable harness
6 wires, AWG22

Color	Connection	Description	Raiting
brown	UB	Power Supply	+ 18..36 Vdc (Nom. 24Vdc), inverse polarity protected
blue	GND	Power Supply	Ground
gray	OUT+	currentloop in	Voltage: 12 Vdc...36 Vdc load resistance: < 600 Ohms
white	OUT-	currentloop out	
rosa	relay 1	sensor error	max. 200 V, max. 0,5 A
yellow	relay 2	event	max. 10 W
green	relay 1/2	common relays	