

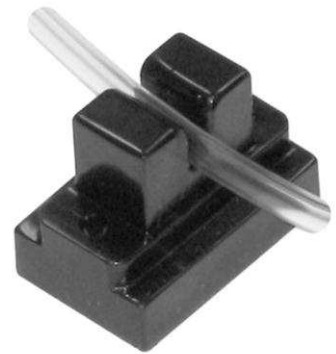
# MEAS AD-101

## AIR BUBBLE DETECTOR

### APPLICATION NOTE

#### Technology Overview

Bubble detection is critical in applications such as infusion pumps, hemodialysis and blood flow monitoring. TE Sensor Solutions has recently developed the new compact AD-101 for non-invasive continuous monitoring of fluid for air bubble detection. Using ultrasonic technology the AD-101 is capable of positively identifying the presence of a break in flow of any type of liquid.



#### Key Features

- Detects bubble size as small as 1  $\mu$ L
- Sensor can be customized to fit tube or pipe
- Size from 0.5 mm to 100 mm
- Non-invasive design eliminates sterility and fluid compatibility concerns
- High noise immunity to EMI/RFI
- Acoustic coupling agent not required
- Integral Electronics

#### Operating Parameters & Specifications

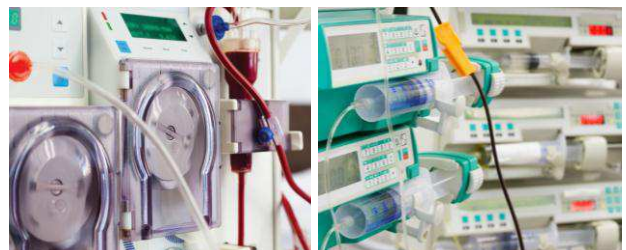
- Temperature range: 0°C - 65°C
- Response time: 2ms
- Input: 5VDC-20VDC
- Output: TTL Logic

#### Electrical Connections

To power the ABD simply use a standard DC power supply. Ideal operating voltage is between 5VDC and 20VDC. The ABD is wired with a 3 pin configuration with red wire (pin 3) designating the input and black wire (pin 1) designating the ground connection. The output can be measured by using a multi-meter between the white wire (pin 2) and the negative connection of the DC power supply. The output signal is based on TTL logic therefore open collector NPN logic level low represents the presence of liquid and open when bubble or break in liquid flow is detected

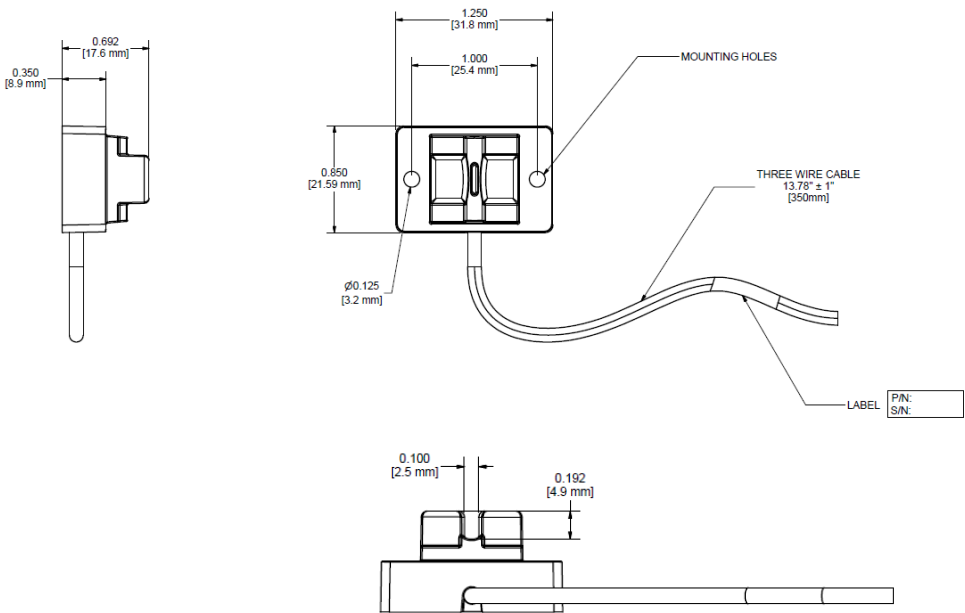
#### Applications

- Infusion Pump
- Apheresis/Auto-transfusion
- Biotech/DNA Analysis
- Blood Processing
- Immunoassay
- Chemical Analysis
- Hemodialysis
- IN-VIVO Detection of Gas



**MEAS AD-101 AIR BUBBLE DETECTOR**  
APPLICATION NOTE

**Dimensions**



**Wiring**

<b>Input</b>	Red = 5 VDC Black = GND
<b>Output</b>	White = Output Open Collection NPN, Low When Liquid Present, Open When Bubble Present
<b>Response Time</b>	2 Milliseconds
<b>Temp. Spec</b>	65°C Maximum
<b>Material</b>	ABS/PC (55/45) Plastic Blend, Injection Molded Parts, UL 94 V-2 Rated
<b>Cable</b>	3 Conductor 28AWG, 350MM Long UL Style Number 2725
<b>Electronics</b>	Integral

**Pin Out**

Pin	Color	Function
1	Black	GND
2	White	Output
3	Red	5 VDC

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