

**Introtek's BDS Series** pulsed ultrasonic strap-on sensor is designed for point liquid level sensing.

Introtek BDS Sensors are designed to work well with a wide range of tubing materials and sizes. When utilized with Introtek's circuitry they provide the most reliable strap-on liquid level detection. BDS sensors are typically used on tubing larger than one inch and can detect point level on containers up to four feet in diameter.

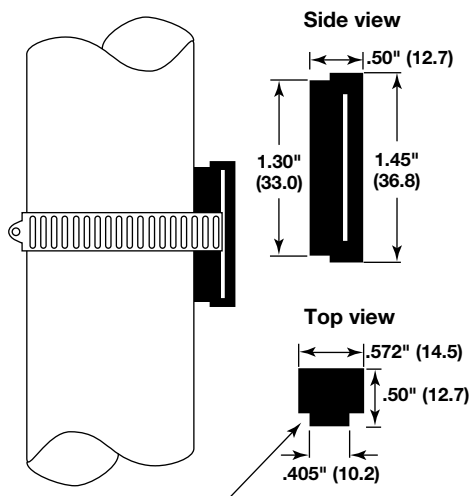
Introtek ultrasonic air bubble detectors and liquid level sensors utilize the characteristics of high-frequency acoustic energy to monitor tubing or vessels for the presence of air, foam, or liquid.

### PRODUCT HIGHLIGHTS

- BDS Strap-On sensor for larger diameter tubing and liquid level applications.
- Non-invasive technology does not contact the fluid or require a break in the tubing.
- Low cost, premium performance.
- Wide range of sizes and mounting options.
- Fastest air detection circuitry available.
- Not affected by fluid color or tubing material.
- High EMI and RFI noise immunity.
- Custom manufactured systems for OEM applications available.

### APPLICATIONS

- Air-in-line and liquid level sensing
- Patient-connected medical devices, including:
  - Apheresis
  - Heart-lung bypass
  - Auto-transfusion
  - Dialysis
  - Infusion pumps
  - Semi-Conductor
- Immunoassay and diagnostic equipment
- Liquid and chemical dispensing
- Blood processing equipment



**NOTE:** A curve is machined to the pipe diameter.

**BDS Sensor Dimensions**  
Non-invasive strap-on sensor  
inches (mm)

## The Introtek Advantage

provides products of unsurpassed quality, functionality and dependability that are manufactured to the highest medical device standards and backed by a three-year warranty.

### Certifications



## Functional Specifications

### Sensor

The BDS Sensor is cast of a rigid epoxy resin and works well with rigid or less pliable tubing. It can be machined to fit the face of storage containers up to four feet in diameter.

The strap-on style sensor must be sized to the exact tubing outside dimensions. It may be necessary to provide a tubing sample in order to provide an air detection system that meets application specifications.

Strap-on style sensors work well as a dry-line or point liquid level sensor for many types of metal tubing and containers one inch in diameter or above. Due to the widely varying acoustic ringing characteristics of metal tubing, we will require a tubing sample for all applications.

### Application

Since the strap-on style sensors are a rigid epoxy resin, and are typically used with a rigid, less pliable tubing and containers, it may be necessary to utilize the aid of a coupling agent to improve acoustic coupling. Typical coupling agents may include petroleum jelly and silicon grease.

### Liquid

Air will be detected in almost any liquid.

### Calibration

No field calibration is required.

### Temperature limits

Operating: +41 to +140 °F (+5 to +60 °C)

Storage: -4 to +185 °F (-20 to +85 °C)

### Humidity

0 to 95% Non-Condensing

### Electronics

Utilizes remote circuitry.

### Options

- Custom OEM designs
- Custom response times
- Open collector output
- Reverse logic output

# INTROTEK®

Excellence in Ultrasonic Technology™

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Performance specifications are effective with date of issue and are subject to change without notice

## Sensor Part Number

Please contact an Introtek Application Specialist to determine the optimal configuration for your application.

## Validation Testing

The Strap-on Sensor was designed to be tested in conjunction with the following specifications:

### Electrical Fast Transients

IEC 61000-4-4:2012

### Radiated Emissions, Group 1, Class B

CISPR 11

### Electrostatic Discharge

IEC 61000-4-2:2008

### Radiated Immunity

IEC 61000-4-3:2006

### Power Frequency Magnetic Fields

Performed per IEC 60601-1-2:2014 (4th Edition)

### General Safety Requirements

IEC 60601-1:2005+A1:2012 (E)

## Three-Year Warranty

All Introtek systems are warranted free of defects in materials or workmanship for three full years from the date of original factory shipment.

If returned within the warranty period, with no modifications to the sensor; the original manufacturing label intact; and, upon factory inspection of the unit, the cause of the malfunction is determined to be defective material or workmanship; Introtek will repair or replace the system at no cost to the purchaser (or owner) other than transportation. **If a unit is returned without an original label, the warranty is void.**

Introtek shall not be liable for misapplication, labor claims, direct or consequential damage or expense arising from the installation or use of the equipment. There are no other warranties expressed or implied except special written warranties covering some Introtek products.

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