



Introtek's ADU Series Sensor is the solution for non-standard, soft tube sizes between 1/8" and 3/8" OD where standard **AD9** Air Bubble Detector housings are not available. The **ADU** can eliminate tooling costs for low volume requirements for some odd-sized tubes.

The **ADU** incorporates many of the features of the **AD9** including the latest generation "MEC" pulse-type ultrasonic circuitry. The micro-controller based circuitry is located integrally in the sensor assembly. Custom algorithms to control functionality, such as response times, time delays and more can be designed at Introtek based on customer requirements.

#### PRODUCT HIGHLIGHTS / CUSTOMIZED OPTIONS

- Adjusted at the factory for optimum tube fit
- Can eliminate tooling costs for low volume requirements.
- Non-invasive ultrasonic
- Dry Coupled
- Air detection threshold or bubble size can be set to customer's requirements
- Optional self test safety features
- Accuracy not affected by fluid or tubing color
- Output options: CMOS Logic, Open collector, Analog
- Integrated electronics
- Compact, free-entry design
- Redundant safety designs
- Lower power input (3.3V, 5V, 12V)
- High EMI & RFI noise immunity
- Wide range of tubing sizes

#### GENERAL CHARACTERISTICS / TECHNICAL DATA

Medium / Liquid	Saline, Blood, Water-based solutions, Low-viscosity liquids
Measurement Technology	Ultrasonic
Sensor Housing	ABS plastics (other materials upon request)
Mounting	Fixed installation
LED Indicator	Bi-color LED indicates power on and liquid state. Green color for Wet; Red color for Dry. Other options available.
Input Voltage	3.3V, 5V & 12V
Response Time	Air Detection (Wet to Dry): 215 µS typical Liquid Detection (Dry to Wet): 46 mS typical
Input Current	15 mA without LED, 24 mA with LED
Operating Temperature	+41 to +140 °F (+5 to +60 °C)
Humidity	0 – 95% Non-condensing
Output signal	CMOS levels yield high on wet, low on dry. Other output options available.
Self-test Input	Self-Test Input Provides an electronic check for false wet output signals. Cyclical Self Test features available.

## 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

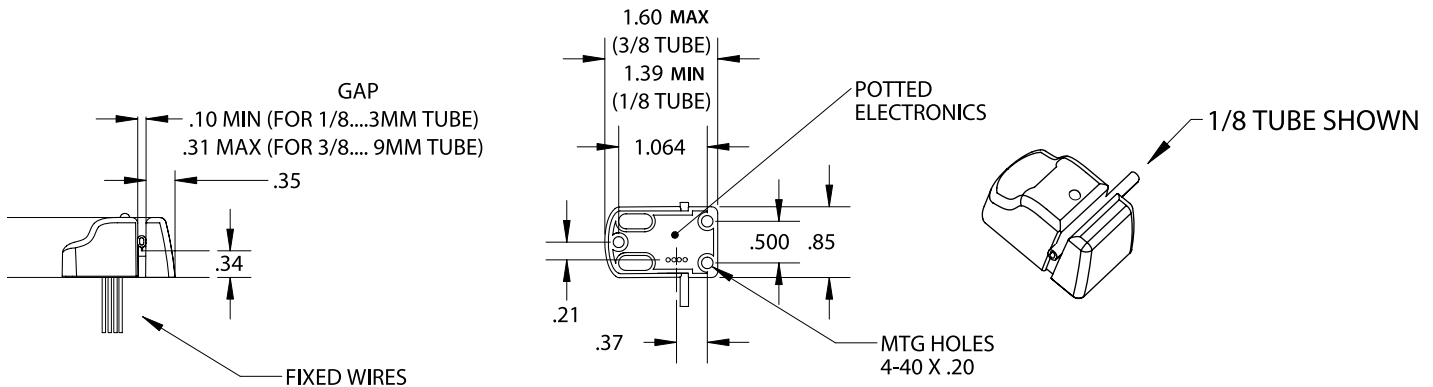


## Series ADU Sensor

### THE GLOBAL LEADER IN NON-INVASIVE SENSING SOLUTIONS FOR MEDICAL APPLICATIONS SUCH AS:

- Hemodialysis
- Auto Transfusion
- Apheresis
- Chromatography
- Blood Processing
- DNA Analysis Machines
- Contrast Media
- Ablation
- Heart/Lung Machines
- Drug Delivery

### SERIES ADU™ Sensor Dimensions – inches (mm)



### VALIDATION TESTING

The ADU 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+AMD1:2007+AMD2:2010 CSV

#### Power Frequency Magnetic Fields:

Performed per

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

#### General Safety Requirements:

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

### DETECTOR PART NUMBER

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

### THREE-YEAR WARRANTY

All Intratek 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; Intratek 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.**

Intratek 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 Intratek products.



150 Executive Drive • Edgewood, New York 11717-9998  
631-242-5425 • [www.intratek.com](http://www.intratek.com) • [info.intratek@ametek.com](mailto:info.intratek@ametek.com)

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



Bulletin: 90-167.0  
Effective: July 2019

[commercial@alcyonelectronique.fr](mailto:commercial@alcyonelectronique.fr)