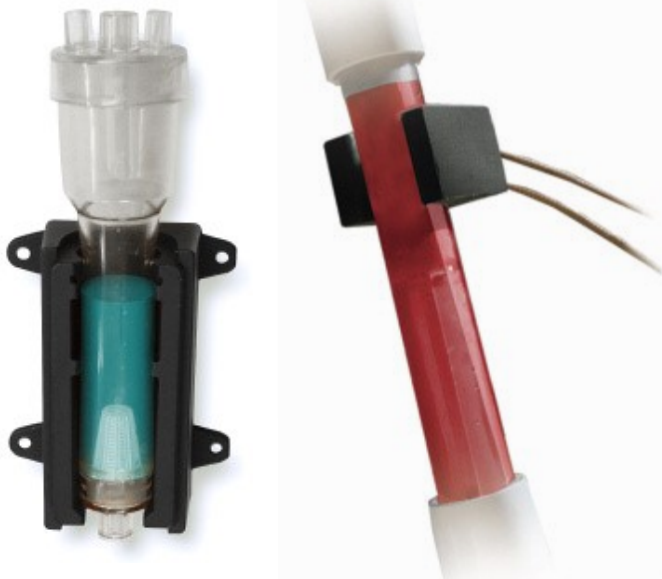




The Introtek Advantage provides products of unsurpassed quality, functionality and dependability that are manufactured to the highest medical device standards and backed by a three-year warranty.

Drip Chamber Liquid Level Sensor

A pulsed ultrasonic level sensor designed for use with soft-bodied drip chambers or larger OD tubing



Introtek[®] Drip Chamber Level Sensors are custom designed for use with soft-bodied drip chamber or larger OD tubing to overcome conditions such as tubing relaxation, slippage or vibration which would normally cause false air alarms. These sensors are designed to meet OEM form, fit and functional specifications.

TECHNOLOGY

INTROTEK patented pulse-type ultrasonic technology provides highly reliable, non-invasive liquid level or air detection capabilities in the most critical applications where patient or process safety is mandatory. Many of the variables which affect the accuracy of amplitude based or continuous wave ultrasound are greatly reduced if not eliminated by pulse-type technology.

HIGHLIGHTS

- ◆ For use with soft chambers and tubing in a wide range of diameters and tapers
- ◆ Simple uni-body construction with no moving parts
- ◆ Reliable pulse-type, non-invasive technology with electronics options available per your specifications
- ◆ Dry coupled; no coupling gel required
- ◆ Provides constant visual confirmation of liquid level
- ◆ Not affected by fluid color or tubing material. Will detect foam as air.
- ◆ Resists the effects of drip chamber relaxation, slippage and vibration.
- ◆ High noise immunity to EMI and RFI. High immunity to false alarms

INTROTEK CERTIFICATIONS



APPLICATIONS

- ◆ Air bubble, air-in-line and liquid level sensing
- ◆ Patient-connected medical devices, including:
 - Apheresis
 - Auto-transfusion
 - Infusion pumps
 - Perfusion-based "life support" devices
 - Heart-lung bypass
 - Dialysis
 - Cardiac assist pumps
- ◆ Immunoassay and diagnostic equipment
- ◆ Liquid and chemical dispensing
- ◆ Blood processing equipment

Drip Chamber Level Sensor

FUNCTIONAL SPECIFICATIONS

Supply Voltage:

5.0, 12.0, 15.0, 24.0 VDC

Supply Current:

15 mA without LED (per channel, typ.)
24 mA with LED (per channel, typ.)

LED Indicator (optional):

Bi-color LED indicates power on and liquid state.
Green color for Wet; Red color for Dry.
Other options possible.

Output Signal:

CMOS Logic. Open collector, as per customer requirement.
Output levels to within 0.5 V of power rails with 5 mA loading.

Self-test Input:

Provides an electronic check for false wet output signals.

Response time:

Wet-to-Dry in 215 μ S maximum
Dry-to-Wet in 46 mS maximum
Real-time output available

Operating Temperature:

+41° to +140° F (+5° to +60° C)

Humidity:

0% to 95% Non-Condensing

OPTIONS

- ◆ Custom OEM designs
- ◆ Custom response times
- ◆ Reverse logic output
- ◆ Open collector output
- ◆ LED
- ◆ Molex® connectors (w/BD3)
- ◆ Phono connectors (w/BD2)
- ◆ Quick connectors (w/BD2 and BD3)
- ◆ Mounting base

VALIDATION TESTING

The Drip Chamber Level Sensor was designed to be tested in conjunction with the following specifications:

Electrical Fast Transients:

IEC 61000-4-4:2004

Radiated Emissions, Group 1, Class B:

CISPR 11

Electrostatic Discharge:

IEC 61000-4-2:2002

Radiated Immunity:

IEC 61000-4-3:2002

Power Frequency Magnetic Fields:

IEC 60601-1-2:2007 (3rd 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.

INTROTEK®

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

BULLETIN: DCS.2
EFFECTIVE: January 2016
SUPERSEDES: January 2009