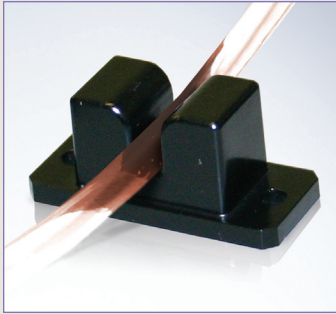


# LifeGuard™ Ultrasonic Air Bubble Detector

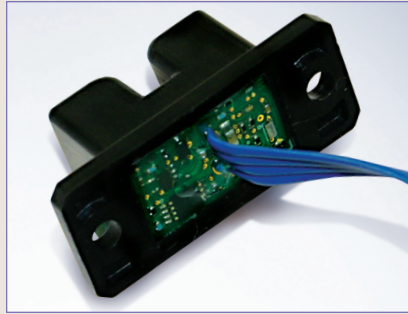
Extremely accurate and non-invasive ultrasonic air-in-line sensors that integrate application flexibility with proven, reliable performance.

LifeGuard ultrasonic air bubble detectors feature proprietary swept frequency technology, making these sensors more reliable and accurate than those utilizing fixed frequency or pulse-type circuitry.

LifeGuard air-in-line sensors offer the most flexibility in air bubble sensor sizes, with three standard configurations for common tubing sizes and a factory adjustable Universal Air Bubble Detector for use with any tubing diameter from .100" to .450" (2.5 mm to 11.4 mm). All LifeGuard electronics are integrated into the sensor housing, ready to interface with the user's system.



Top view of LifeGuard Air Bubble Detector showing 1) air bubble detector housing, 2) tubing channel, and 3) mounting holes.



Bottom view of LifeGuard Air Bubble Detector showing 1) air bubble detector housing, 2) integrated circuit, 3) mounting holes, and 4) power connector cable.

## Features of all LifeGuard Air Bubble Detectors:

- ▶ Detectors maintain precise sensitivity without calibration
- ▶ Extremely reliable swept-frequency technology prevents sensor performance from drifting with temperature, age, or environmental conditions
- ▶ Integrated self-test function provides 100% single fault coverage
- ▶ Dry-couples to PVC, silicone, and many other tubing types with thick, thin, or reinforced walls
- ▶ Sensor sensitivity can be changed at the factory with minor PCB modification
- ▶ Output pulse width is proportional to bubble size, allowing user's system to monitor sub-critical bubbles
- ▶ Power: 5 volt, <50 mA



Moog recently published a white paper titled: *Reliability Analysis of Moog Ultrasonic Air Bubble Detectors*. This paper is available as a free download at [www.moog.com/medical/oem](http://www.moog.com/medical/oem).

	Channel Size:	Nominal Tubing Size*:	Air Detection Threshold:	Mounting:	Footprint Size:	Hole Spacing:
<b>LifeGuard 100</b> Order No: 28678-001	.100" (2.5 mm)	.125" (3.2 mm)	> 10 microliter	Any orientation	1.25" x .5" (31.8 mm x 12.7 mm)	1.00" (25.4 mm)
<b>LifeGuard 130</b> Order No: 28679-001	.130" (3.3 mm)	.155" (3.9 mm)	> 20 microliter	Any orientation	1.25" x .5" (31.8 mm x 12.7 mm)	1.00" (25.4 mm)
<b>LifeGuard 200</b> Order No: 28680-001	.200" (5.1 mm)	.250" (6.4 mm)	> 40 microliter	Any orientation	1.25" x .5" (31.8 mm x 12.7 mm)	1.00" (25.4 mm)
<b>Factory Adjustable Air Bubble Detector</b>	.080" - .400" (2.0 mm - 10.2 mm)	.100" - .450" (2.5 mm - 11.4 mm)	Variable, depending on configuration	Any orientation	Variable	Variable
<b>Custom-Built Air Bubble Detector</b>	Specifications are custom designed to meet customer's specific project requirements.					