

Application

Market: Medical Device

Product Line: Bubble/Occlusion

Ablation Cooling Pump

Application: Medical devices use RF ablation to treat many medical issues, including heart issues, tumors, and back pain. A typical ablation system is made up of an RF generator, control and monitoring equipment, the antenna, and a cooling pump.

Customer Challenge: In need of a sensor with the ability to detect bubbles that are passing through the device both upstream and downstream of the pump. In addition, the pump device also monitors the tubing for occlusions (ie., blockages) that may occur and is typically located downstream of the pump.

SMD Sensor Solution: Strain Measurement Devices designed a bubble and occlusion sensors for medical device pumps. Working to minimize the space required for each sensor offering a single sensor that can offer both a bubble sensor and an occlusion sensor in one small package.

Bubble Sensors work using ultrasonic sound and proprietary control board software to selectively recognize (and reject) a targeted bubble size. SMD has in-house bubble generators capable of producing (repeatably) bubbles sizes of ½ micron and larger. Therefore, we can calibrate the sensor to “ignore” certain smaller size “nuisance” bubbles and monitor those sizes considered critical to our customer. Sizes range from 1/16” OD tubing to ½” OD tubing.

Occlusions cause an increase in pressure downstream of the pump and this expands the tubing and presses down on our miniature and accurate load cell. Occlusion sensors can reliably sense an “occlusion event” by triggering when rapid increase in pressure exceeds the customers pre-determined value. SMD sensors use our proprietary “thin film sputtering” manufacturing process which is similar to how small semiconductors are made. This process has important benefits such as miniaturizing the sensor and offering excellent repeatability, accuracy, and long term stability.



Related Products:

- A130 Bubble Sensor
- A230 Bubble Sensor
- A240 Bubble Sensor
- Medical Occlusion Sensor
- Custom Integrated Bubble/Occlusion
- E110 Signal Conditioning Board
- E120 Signal Conditioning Board
- 4000 Panel Meter