Application Note

Pump Calibration

One can walk into a process development suite at most any pharmaceutical or biotech company and still find a stopwatch and a graduated cylinder used to calibrate one of our most critical bioprocess management tools, the pump.

Even though the introduction of bioprocess control systems use software to walk you through a pump calibration, all that has been done is the classic stopwatch has been replaced with a digital timer observed by a computer and a piece of animation written in software that gives the indication of flow even though the animation never changes speed. The graduated cylinder continues to be a key component of even the most capable of bioprocess control systems software solutions to calibration. The result has been that actual flow during the process itself is not known and there has been no improvement in accuracy, no increase in repeatability and no savings in time.

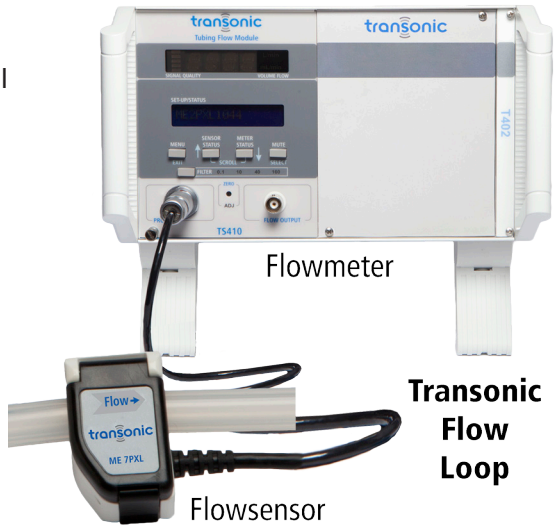

Fig. 1: Transonic Flow Loop consisting of non-invasive clamp-on Tubing Flowsensor and Flowmeter.

PUMP CALIBRATION TO NEXT LEVEL

Introduction of the Non-Invasive Flow Measurement Solution from Transonic Systems takes pump calibration to the next level. Improved accuracy and increased repeatability delivers on the promise of reduced operating costs, increased process performance and improved product quality.

FLOW MEASUREMENT LOOP (FIG. 1)

The Transonic Non-Invasive Flow Measurement solution provides high accuracy volume flow measurements. The Transonic Flow Loop has two state-of-the-art components. The first is a Transit-time Ultrasound Flow Sensor that simply clamps around your existing process tubing. It makes no contact with your process media and creates no pressure drop.

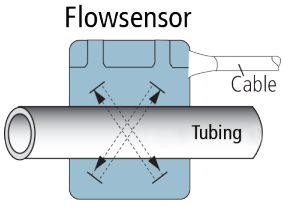

Fig. 2: Transit-time Ultrasound technology

The clamp-on Tubing Flowsensor utilizes proven transit-time ultrasound technology (Fig. 2). As media passes through the tubing, the sensor detects ultrasound signals. The ultrasound signals are collected and integrated as Flow Volume by the Flowmeter module. The Flow Module displays real time flow measurement on an integral LED display and/or transmits the measured flow value as an analog output to a bioprocess control system.

HOW IT WORKS

After calibration is completed, simply leave the Flowsensor in place to have a real-time, continuous, independent measure of volume flow throughout the process run to augment the flow indicated by your pump RPM.

Just as we no longer dip a piece of Litmus paper in our bioreactors to accurately measure pH or rely upon rotometers to precisely measure our gas flow, Transonic Non-Invasive Flow Measurement Solution allows us to take the stopwatch back to the track and place the graduated cylinder back on the shelf. As with any solution a superior one ultimately comes along, and for pump calibration a superior solution is now available.

LEARN MORE

To learn more about the Non-Invasive Flow Measurement solution from Transonic give us a call at (800) 353-3569 or visit us on the web at www.transonic.com/Bioprocess.

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THE MEASURE OF BETTER RESULTS.