



## The PeriWave Microfluidic Pump

Fluid delivery for microfluidics demands special attention. The PeriWave is a high-precision, closed-loop, programmable, pulse-free pump that will help make your microfluidic application a success.

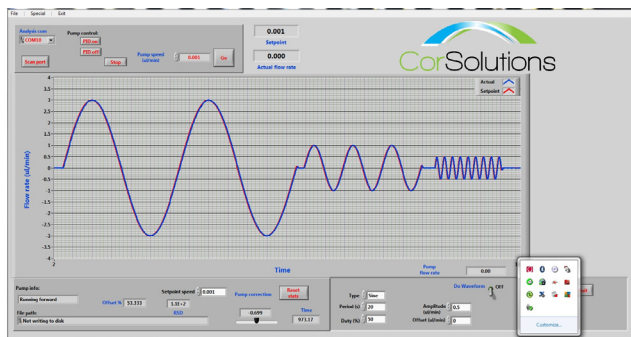


### A New Age of Fluid Delivery Pumps

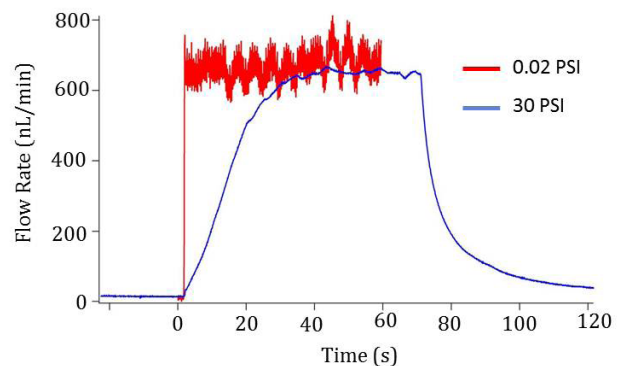
The PeriWave offers superior flow control, response and performance.

### Syringe Pumps Compromise Performance

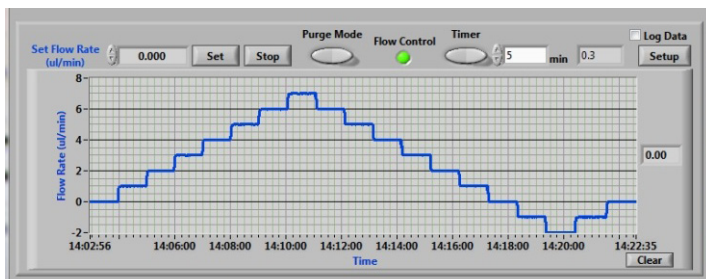
Syringe pumps are the most widely used means of fluid delivery for microfluidics. However these pumps suffer from drawbacks that severely compromise performance and can negatively impact your microfluidic application. These drawbacks include: pulsation, slow response time, refilling of syringes is required, increased chance of air bubble introduction during syringe refill, and backpressure variations significantly effect performance.



Fluid delivery in a programmed sine wave.

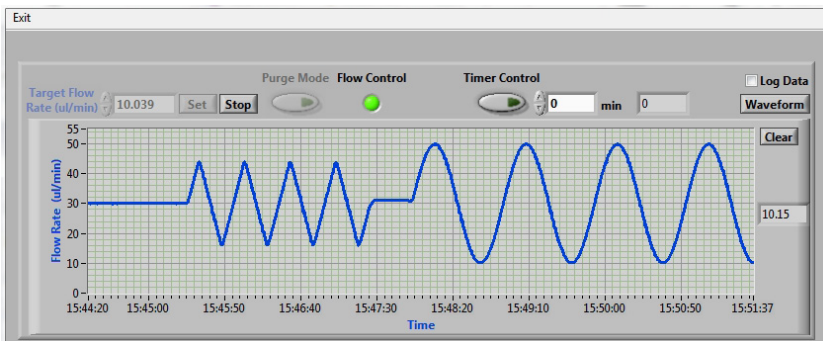


Fluid delivery using a syringe pump is undesirable. If backpressure is increased, the pulsation is reduced, but then the response time increases.



1 microliter/min step changes every 60 sec.

PeriWaves offer superior performance over pneumatic and syringe-based pumps. The PeriWave is a peristaltic-based pump with an integrated, in-line flow sensor. This flow sensor which measures the actual flow rate being delivered, allows for highly accurate flow control with nanoliter resolution. Additionally the pump offers programmable fluid delivery, and with its excellent precision, it can generate complex flow profile waveforms, such as that of a pumping heart. Furthermore the pump is pulse-free and can operate in both positive and negative flow modes, permitting a user to reverse flow direction. It is a closed-loop pump, allowing for users to conserve precious fluids. Two or more PeriWaves can be connected with a tee, and used together in concert. This allows for multiple fluid streams to be accurately manipulated simultaneously. This pump has a maximum operating pressure of 30 psi, is calibrated for aqueous solutions, and comes in three models to accommodate various flow rates.



PeriWaves come with user-friendly stand-alone or Lab View VI software. This software allows for programmable fluid delivery. A flow rate of 0 nL/min can also be programmed, allowing the user to stop the flow when desired.

### Models Offered

- PeriWave Nano                    20-7000 nanoliters/min
- PeriWave Micro                0.1-50 microliters/min
- PeriWave Milli                 30-1000 microliters/min
- PeriWave Milli +5            0.2-5.0 milliliters/min

### PeriWave Advantages

- Precise, accurate flow rate control
- Nanoliter resolution
- Pulse-free
- Superior performance to syringe pumps and traditional peristaltic pumps
- Forward and reverse flow modes
- Fast response
- Unlimited fluid reservoir volume
- Ability to recycle precious fluids
- Programmable fluid delivery controlled with user-friendly software
- Ability to multiplex two or more pumps



Two PeriWaves pumps connected via a tee fitting allowing for accurate delivery of two fluid streams.