



## Technical Note

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UniGo™ Pump

## UniGo Microfluidic Pump: accurate and pulse-free flow rates for microfluidic applications

UniGo microfluidic pump is a precision, microfluidic, single-channel pressure pump for a variety of microfluidic applications, where accurate and stable flow rate delivery is required. The pressure pump component is based on controlled air injection. The UniGo pump requires a plug-and-play flow sensor for active feedback and increased flow control. SmartFlo application executed on the iPad mini or LabVIEW based interface communicates with up to 4 UniGo microfluidic pumps racked together allowing simultaneous control and independent programming of each pump's flow profile.

Uniquely, the UniGo pressure pump may be docked together with the ExiGo microfluidic syringe pump combining the best features of both UniGo and ExiGo in one microfluidic set-up.



*UniGo microfluidic pump: up to 4 pumps may be controlled independently via Apple iPad mini or LabVIEW*



*UniGo and ExiGo microfluidic pumps docked together: up to 4 pumps (interchangeable) may be controlled independently via Apple iPad mini or LabVIEW*

**IMPORTANT:** Please note that hot-plugging UniGo pumps is extremely damaging to the equipment. This means any installation or removal of pumps to a set-up must be done when the system is off. Removing the pumps while the system is running can cause electrostatic discharge which can severely damage the electrical components of the pump including the PCB and will likely result in your pump requiring repair at Cellix. When docking or un-docking two pumps together the system must be off, and the residual electrostatic discharge cleared by pressing the power button in one short movement. Only then can pumps be docked. If you are buying a two or more UniGos, you must purchase a clamp base made of aluminium. This holds the pumps in place and reduces risk of damage to electrical components by ensuring they do not separate.

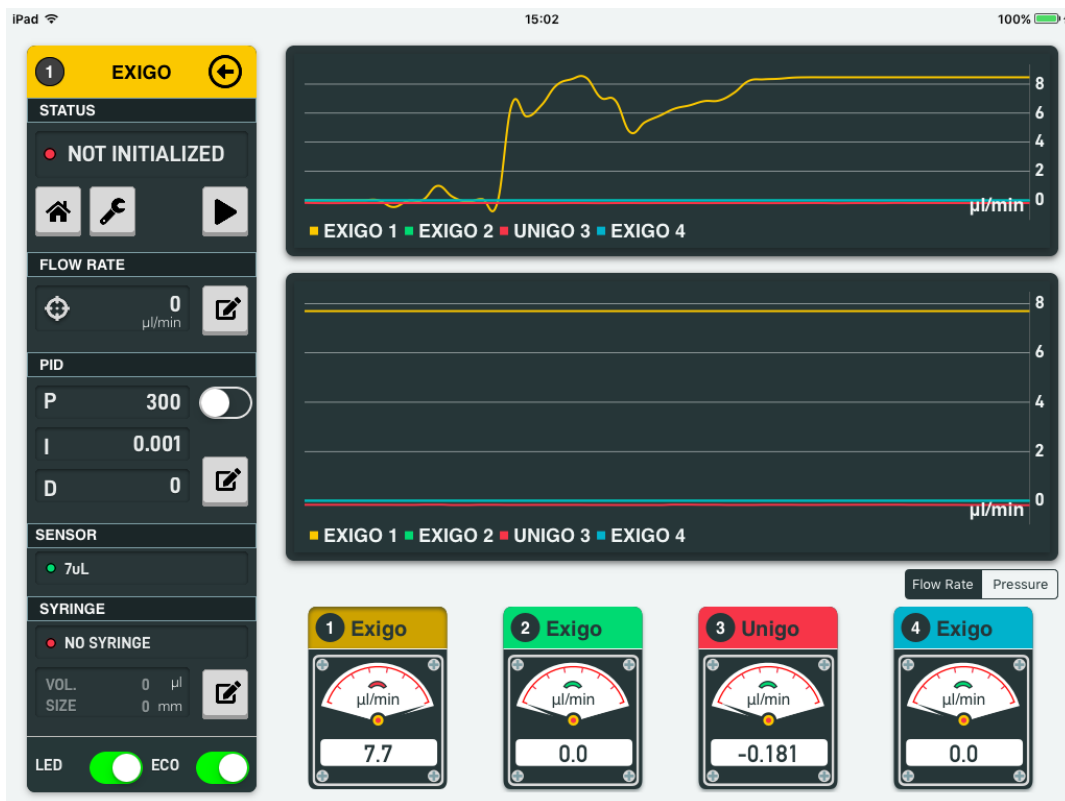
### Performance and Technical Specifications

Performance specifications	
General specifications	Each UniGo pump has 2 modes of pumping: manual flow rate set or pre-programmed flow rate operation
	Pre-programmed mode includes: constant, ramp, step, sine functions
	Side port connections to integrate up to 4 pumps (combination of UniGo and ExiGo pumps) into one setup
	Wi-Fi communication with iPad mini software
	USB communication with LabVIEW based PC control software
	Tactile power switch
	LEDs for power / status information
Volumetric flow rates	1 $\mu$ L/min–1 mL/min
Flow direction	Unidirectional (push)
Pulse-free flow rate for microfluidic applications*	1 $\mu$ L/min–80 $\mu$ L/min $\pm$ 120 nL/min with 80.0 $\mu$ L/min flow sensor (FS-80.0)
	10 $\mu$ L/min–1 mL/min $\pm$ 2 $\mu$ L /min with 1.0 mL/min flow sensor (FS-1000)
Working pressure	Up to 145 psi or 10 bars

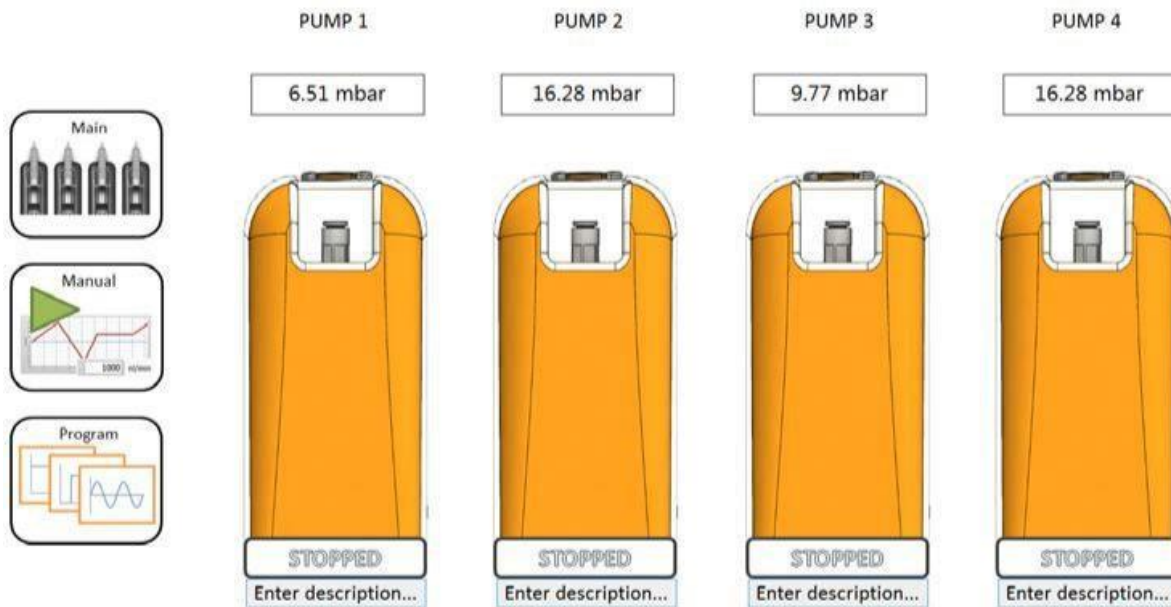
Technical specifications	
Software control	SmartFlow app running on iPad mini
	LabVIEW based PC software
Dimensions	225 mm (L) x 69 mm (W) x 122 mm (H)
Weight	$\sim$ 1.3 kg
Power requirements	110 / 220 V – 50 / 60 Hz – 60 W

Flow sensor overview	
Operation	Plug and play connection to the UniGo microfluidic pump
Features	Allows monitoring of UniGo pump flow rate and active PID (proportional, integral, differential) feedback of pump flow rate
Dead volume	1–25 $\mu$ L depending on flow sensor
Measured flow rate ranges	See technical note on flow sensors
Max pressure	30 psi–2 bars maximum
Dimensions	60 mm (L) x 51 mm (W) x 21 mm (H)
Weight	<0.1 kg
Power requirements	Via cable to UniGo microfluidic pump

\*Measured with flow sensor and active PID feedback.



SmartFlo app running three ExiGo™ pumps and one UniGo™ microfluidic pump on iPad mini



LabVIEW interface