



Technical Note

ExiGo™ Pump

ExiGo iPad mini or LabVIEW Microfluidic Pump: accurate and pulse-free flow rates for microfluidic applications

ExiGo microfluidic pump is a patented, precision, microfluidic, syringe pump for a variety of microfluidic applications, where accurate and stable flow rate delivery is required. The combination of a high-resolution stepper motor drive mechanism, patented pulse damping method and active feedback via a flow sensor has produced a microfluidic pump with superior performance.

Our SmartFlo application executed on the iPad mini or LabVIEW based interface communicates with up to 4 ExiGo pumps docked together allowing simultaneous control and independent programming of each pump's flow profile.

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



ExiGo microfluidic pumps: up to 4 pumps can be controlled independently via Apple iPad mini

IMPORTANT: Please note that hot-plugging ExiGo 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 ExiGos, 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.



ExiGo pump

Performance and Technical Specifications:

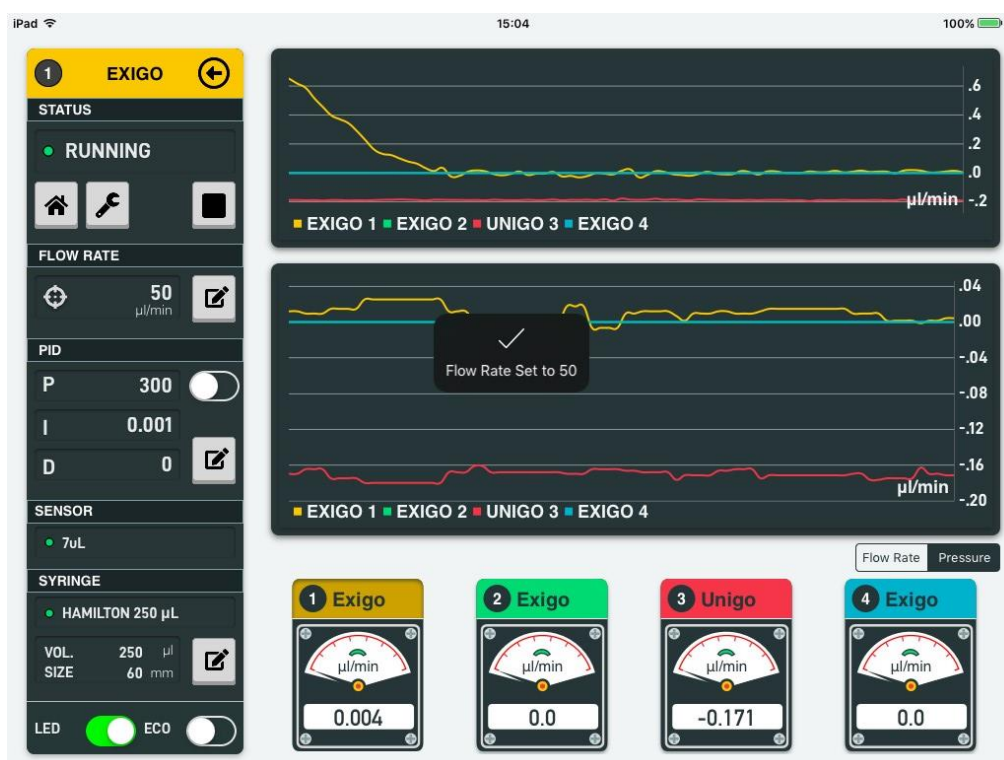
Performance specifications	
General specifications	Each ExiGo microfluidic pump incorporates: 2 modes of pumping: manual flow rate set or pre-programmed flow rate operation
	Pre-programmed mode includes: constant, ramp, step, sine functions
	Side port connections to integrate up to 4 ExiGo pumps into 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
Flow direction	Reversible – push/pull
Microsteps per one revolution of lead screw	250,000
Step resolution	0.008 µm
Pulse-free flow rate for microfluidic applications*	10 nL/min–1 mL/min ± 20 nL/min @ 250µL glass syringe
	100 nL/min–13 mL/min ± 40 nL/min @ 5mL plastic syringe
Flow rate stability for microfluidic applications*	±0.25% of full scale @ 250 µL syringe and 7,000 nL/min ExiGo flow sensor
Dynamic response	50 ms max (recorded at flow rate change from 0 to 10,000 nL/min)
Compatible syringes	100µL–5mL (glass and plastic syringes**)
Working pressure	30 psi–2 bars maximum

*Measured with ExiGo flow sensor and active PID feedback.

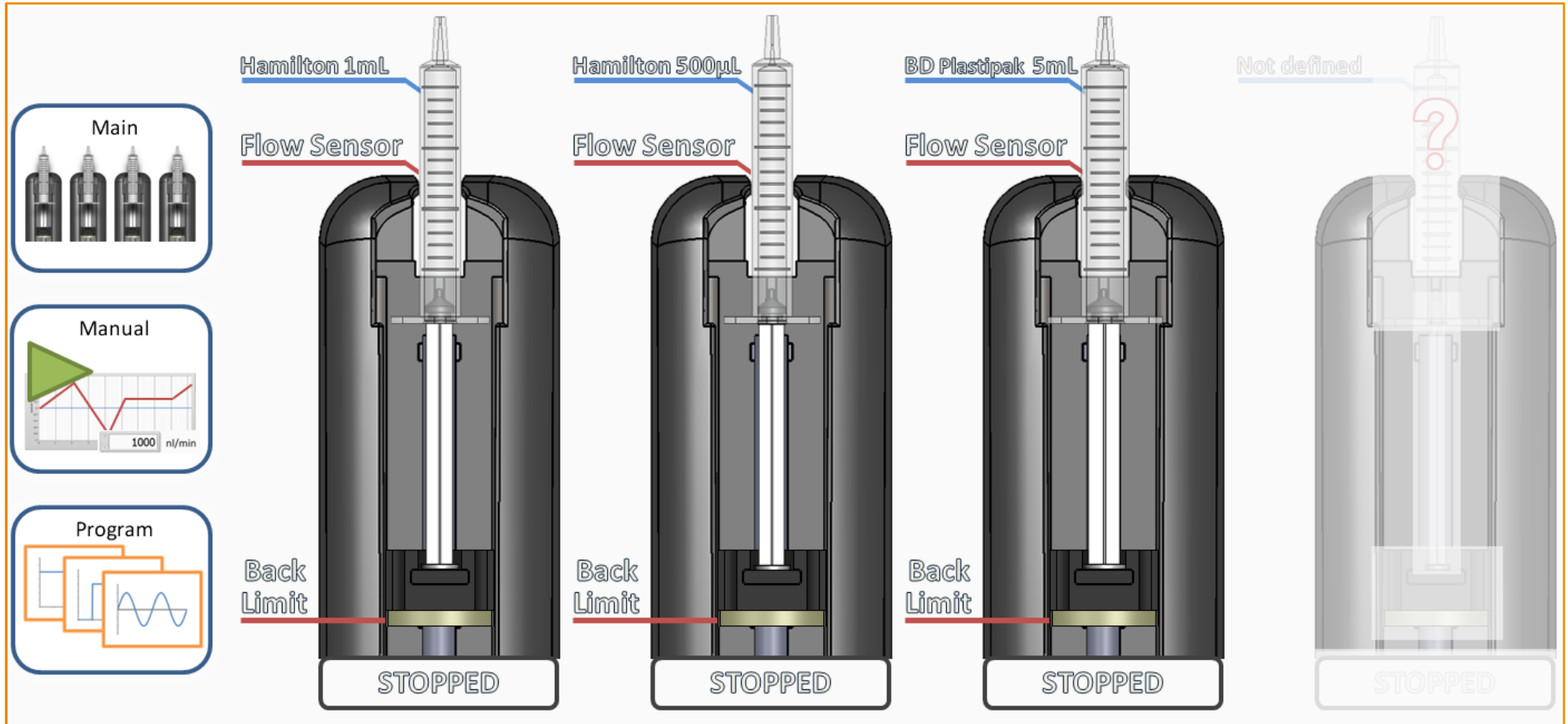
**Refer to ExiGo supported syringes.

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	~1.3 kg
Power requirements	110 / 220 V – 50 / 60 Hz – 60 W

Technical specifications of ExiGo flow sensor (optional add-on, purchased separately)	
Operation	Plug and play connection to the ExiGo microfluidic pump
Features	Allows monitoring of ExiGo pump flow rate and active PID (proportional, integral, differential) feedback of pump flow rate
Dead volume	1–25 μ L depending on flow sensor
Measured flow rate ranges	See technical note on flow sensors
Max pressure	30 psi–2 bars maximum
Dimension	60 mm (L) x 51 mm (W) x 21 mm (H)
Weight	<0.1 kg
Power requirements	Via cable to ExiGo microfluidic pump



SmartFlo App running three ExiGo pumps and a UniGo microfluidic pump on Apple iPad mini



LabVIEW interface