



CARFIL QUALITY
YOUR SUPPLIER FOR ALL LABORATORY NEEDS

Speciality

Pump customization is now easier with the new OEM modules. Integrate these modules into your systems or work with our engineering staff to design different syringe mechanisms or controllers. We offer the technology and engineering expertise to meet your demanding applications. It is possible to customize modules to meet your application requirements. With our technical expertise in syringe pump design, we can meet even the most demanding applications at an affordable price. OEM pumps can be modified with different mechanisms and configurations. The basic models are shown below:

Microliter & Milliliter Syringe Pump Modules are Highly Precise:

- Constant Current Drive offers more consistent force delivery over the entire dynamic flow rate range.
- Independent infuse and withdraw limit switches
- Emergency stop switch at pump
- Start/stop at pump
- Encoder for stall detection
- Power and run LED on the PC Board
- Supports external run LED
- Network multiple pumps
- Pump setting retained in NVRAM
- Adjustable force control
- Easily mounts to panel openings
- Customizable syringe mechanisms available
- Customizable chassis designs available
- Lead Free Design, RoHS compliant
- CE approved
- Advanced microstepping techniques

900 Customizable μ l OEM Module

- 0.5 μ l to 1 ml syringe
- Minimum flow rate 0.001 μ l/hr (0.5 μ l syringe)
- < $\pm 0.35\%$ Accuracy
- Maximum flow rate 1.330 ml/min (1 ml syringe)
- RS-232 Interface
- Linear Force 7 lbs.



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910 Customizable Milliliter OEM Module

- 0.5 µl to 50/60 ml syringes
- Minimum flow rate 0.001 µl/hr (0.5 µl syringe)
- < ±0.35% Accuracy
- Maximum flow rate 44.28 ml/min (50/60 ml syringe)
- RS-232 Interface
- Linear Force 25 lbs

Legato OEM 950 Single Syringe Infuse/Withdraw OEM Module

Based on the Legato® 100 series syringe pump design, the NEW Legato® 950 is ideal for applications interfacing to a computer.

Accommodates syringes 0.5 µl to 60 ml. User definable flow rates with selectable target volume or time values to control the total infusion volume.

- ± 0.5% Accuracy
- 0.5 µl to 60 ml syringes
- Continuous mode of operation
- Programmable with ASCII commands
- Encoder stall detection
- USB Interface
- TTL Interface
- Customizable syringe mechanisms available
- Customizable chassis designs available
- Advanced micostepping techniques
- Linear force 30 lbs (13.6 kg)
- CE, CB Scheme, EU RoHS compliant

Legato 380 Emulsifier/Homogenizer

The NEW Legato® 380 emulsifying system is based on the Legato® Series of syringe pumps. It utilizes a modified Legato®

210P and Legato® 270P. All the standard features of the Legato® products are still available, but a custom emulsification

program has been added to the software. This program is only available with the Legato® 380 system. The Legato® 210P and

Legato 270P can also be used as stand alone syringe pumps. The emulsifying system mimics the same action as in manually



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pushing fluid back and forth between syringes, but does it automatically. You select the volume and the emulsifying rate. The pumps will automatically move the fluid back and forth between the syringes for a user determined time or number of cycles.

- Eliminate fatigue associated with manual emulsification
- Automatically move solutions between two syringes
- Multiple functionality – use as independent syringe pump units
- Selectable emulsifying rates
- Selectable volumes
- Adjustable duration – Enter the number of cycles or the total time
- Adjustable force makes it ideal for viscous fluids – up to 75 lbs (34 kg) of linear force
- Flexible syringe sizes and types

Gemini 88

Dual Rate Pump

This unique pump is really two pumps in one. Each side of the Gemini 88 has its own syringe rack, motor and leadscrew. The pump can infuse simultaneously at different rates, or infuse with one syringe and withdraw with the other. When combined with a valve box it provides continuous delivery.

- Reciprocal/Parallel Mode - Syringe mechanisms can run in the same or opposite directions (i.e. both infusing/withdrawing at the same time or one infusing and the other withdrawing)
- Proportional Mode - Different flow rates and syringe diameters can be set for each syringe mechanism
- AutoStop Mode - Pump stops operation when a limit switch is activated.
- Continuous Run Mode - When a limit switch is activated each syringe mechanism reverses direction.
- 57 lbs (25.8 kg) of linear force

Specifications

	900	910	Legato 950	Gemini 88	Legato 380
Model	Microliter OEM	Milliliter OEM	Legato OEM	Independant Rate Control	Emilsifier
Mode	Infuse/Withdraw	Infuse/Withdraw	Infuse/Withdraw	Infuse/Withdraw/Continuous	Infuse/Withdraw/Push-Pull Emulsify
Number of Syringes	One	One	One	Two Independent	Four
Syringe Size	0,5µl to 1 ml	0,5µl to 60 ml	0,5µl to 60 ml	0,5µl to 140 ml	0,5µl to 140 ml
User Interface	Computer	Computer	Computer	Keypad with Numerics	Touch screen
Display	N/A	N/A	N/A	Backlit LCD	4,3" QVGA



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Accuracy	+/- ≤ 0,35%	+/- ≤ 0,35%	+/- ≤ 0,5%	+/- ≤ 0,5%	+/- ≤ 0,35%
Repeatability	+/- 0,1%	+/- 0,1%	+/- 0,05%	+/- 0,1%	+/- 0,05%
Linear Force (Max)	7lbs Peak Min Adjustable	25 lbs Peak Min Adjustable	13,6 kg @ 100% Force selection	28,5 kg	34 kg @ 100% Force selection
Minimum Flowrate 10µl Syringe	216 pl/hr	216 pl/hr	28,26 pl/min	6600 pl/hr	/
Maximum Flowrate 10 ml Syringe	1330 µ/min (1ml-syringe)	13,286 ml/min	25,99 ml/min	15,733 ml/min	31,190 ml/min
Maximum Flowrate 60 ml Syringe	/	44,283 ml/min	88,28 ml/min	53,346 ml/min	105 ml/min
Maximum Flowrate 140 ml Syringe	/	/	/	106,6 ml/min	220,97 ml/min
Drive Motor	0,9° stepper motor	0,9° stepper motor	0,9° stepper motor	0,9° stepper motor	1,8° stepper motor
Microprocessor Motor Drive Control	1/4 and 1/16 Microstepping	1/4 and 1/16 Microstepping	1/16 Microstepping	1/2 and 1/4 Microstepping	1/16 Microstepping
#microsteps/one revolution of lead screw	/	/	15360	1600 steps ar 1/2 stepping or 3200 steps at 1/4 stepping	6400
Advance per microstep	/	/	/	0,33 µm/µstep	0,1656 µm/µstep
Minimum Step Rate	3,8 s/µstep	3,8 s/µstep	27,5 s/µstep	27,3 s/µstep	27,5 s/µstep
Maximum Step Rate	250 µs/µstep	250 µs/µstep	26 µs/µstep	416,7 µs/µstep	26 µs/µstep
Pusher Travel Rate					
Minimum	1,3 µm/min	1,3 µm/min	0,15 µm/min	0,726699 µm/min	0,3 µm/min
Maximum	83,4 mm/min	83,4 mm/min	159 mm/min	95,25 mm/min	190,80 mm/min
Multi-step programming	No	No	No	No	Custom Emulsifying Program
Constant rate	/	/	/	/	Yes
Ramp	/	/	/	/	Yes
Pulsed	/	/	/	/	Yes
Stepped	/	/	/	/	Yes
Program Export/Import	No	No	No	No	Yes
Pusher Block stall Detection	No	Yes	Yes	Yes	Yes
Computer Interface	RS-232	RS-232	USB	RS-232	USB/RS-232
TTL	No	No	Yes	Yes	Yes



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Networking	Yes	Yes	RS-485	Yes	RS-485
Real time Clock	No	No	No	No	Yes
External triggers	No	No	One	No	Two
Analog Output	No	No	No	No	Yes (optional)
Footswitch Interface	Yes	Yes	Yes	No	Yes
Maintenance Reminder	No	No	Yes	No	Yes
Calibration Reminder	No	No	Yes	No	Yes
Password Lock	No	No	Yes	No	Yes
Audible Alarm Indication	No	No	End of run (optional)	End of run (optional)	End of run, Near end of run, Stall detection, Power-up, Keypad-clicks, Calibration reminder
Display Rotation	N/A	N/A	No	No	Automatic
Multisyringe Rack Accesories	No	No	No	No	No
Run LED	No	No	No	No	Yes
Weight	0,8 kg	1,23 kg	3,62 kg	9,8 kg	9,8 kg each
Dimensions (cm) HxWxL	18,4*19,2*11,4	23*15,25*13	15,25*10,16*24,13	31,75*28,57*15,25	Dependet on syringe size
Certification	/	/	Yes	/	/
CE, ETL, UL, CSA, CB, Scheme	CE	CE	Yes	CE	Yes
EN61010, EN61326	CE	CE	Yes	CE	Yes



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