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Instrumenting scientific ideas

AL-4000

Programmable Double Syringe Pump



- Accepts two different syringes from the smallest size available up to 60mL
- Infuses and withdraws
- Pumping rates: 1.459mL/hr.- 127.2mL/min.
- Operates stand-alone or from a computer
- Programmable preset protocols
- RS-232 and TTL logic control interfaces
- Motor stall detection
- Non-volatile memory of all parameters and programming
- Upgradeable memory
- Dispensing accuracy of $\pm 1\%$

AL-4000

Programmable Double Syringe Pump

The **AL-4000** Programmable Syringe Pump is perfect for situations requiring flexibility or automation. With dual syringes, you can use two syringes of different size for proportional infusion. The pump accepts syringes that range from the smallest available to 60mL.

With a variety of pumping rates (1.459mL/hr. – 127.2mL/min.), infusion and withdraw capability, and pumping phases that can be programmed, the **AL-4000** was designed for automation. This pump can handle applications like simple infusions,

as well as complex pumping programs.

You can program up to 41 pumping phases that change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, or sound an alarm. Connect two pumps with a dual cable (WPI **#GN-TTL**) to create a dual pump system that allows for continuous infusion or emulsification. If required, you can network, control and monitor up to 100 pumps with a single computer.

NOTE: This product is not approved for clinical use on humans.

SPECIFICATIONS

Mechanical & Electrical

Syringe sizes	Up to 60mL (140mL partially filled)
Number of syringes	2
Motor type	Step motor
Motor steps per revolution	200
Microstepping	1/8 to 1/2 depending on motor speed
Advance per step	0.42522321µM to 1.7009µM depending on motor speed
Motor to drive screw ratio	15/28
Drive screw pitch	20 revolutions/inch
Power supply	Wall adapter 12V DC @ 1000mA
DC connector	2.5mm, center positive
Power supply type	Unregulated linear external wall adapter, country and power source specific
Dimensions	8.75"x5.75"x4.5" High (22.86x14.605x11.43cm)
Weight	3.6 lbs. (1.63kg)

Operational

Maximum speed	18.36964cm/min.
Minimum speed	0.008409cm/hr.
Maximum pumping rate	6120mL/hr. with a B-D 60cc syringe
Minimum pumping rate	1.459µL/hr. with a B-D 1cc syringe
Maximum force	100 lbs. at minimum speed, 18 lbs. at maximum speed



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