NEW PHD 4400 Hpsi High Force/High Pressure Programmable Syringe Pump

- Delivers >200 lbs (91 kg) linear pumping force across a wide flow rate range
- Accurate and smooth flow
- Ideally suited for stainless steel syringes
- Easy-to-use interface
- Control from your PC via serial interface
- 2 year warranty

The PHD 4400 Hpsi Programmable Syringe Pump is a single syringe infuse-withdraw pump equipped with all the functions of the PHD 22/2000 Programmable Model, but with a high-power stepper motor to provide up to 200 lbs. of linear force.

Pressure and Speed

The PHD 4400 Hpsi can deliver up to 220.82 ml/min with a single 140 ml syringe. Maximum pressure is dependent on syringe size. For stainless steel syringes, see page A70.

Flexibility and Easy Programmability

- Two standard infusion modes (continuous or volume dispense)
- Internal programmable pump control in all models
- In Program Mode, complex infuse and withdraw applications can be easily created, stored in the pumps nonvolatile memory and recalled for later use.
- Autofill Mode provides continuous delivery when the pump is used in conjunction with either a standard or high pressure valve box and a fluid reservoir.

Ease of Use

Setting the pump is quick and easy. Input the diameter of the syringe or use the internal Syringe Lookup Table to automatically input the syringe diameter based on the syringe manufacturer and size. Select a mode (continuous delivery or volume dispense) and a rate and you are ready to go.

Features

Universal Input Power Supply: No need to change AC line switches, fuses, or wires.

Nonvolatile Memory: Stores all operational data and program sequences.

Stall Detection: An optical detector verifies motor movement. Stalls due to jamming or excessive back pressure are reported.

Visual/Audible Alarms

Power-Up Options: Powers-up in Standby or Running Mode after power interruption.

RS-232 Connections: Allows daisy-chaining of multiple pumps for remote control. Also allows for scale and printer connections.

TTL Connections: Allows for synchronizing pump with external devices, controlling an external valve, changing direction of travel, etc.

Modes of Operation

Pump Runs continuously in the infuse or refill directions until stopped.

Volume Runs until specified volume has been pumped or refilled.

Program Pump operates according to specified sequence of instructions. (Note: All modes interact with Autofill feature.)

Specifications

Accuracy	±0.35%
Reproducibility	±0.05%
Syringes	0.5 µl min/140 ml max single syringe
Flow Rate:	
Minimum	0.0001 µl/hr (with 0.5 µl syringe)
Maximum	220.82 ml/min (with 140 ml syringe)
Calibration	Automatic
Display	2-line, 40 character fluorescent
Memory	Nonvolatile (stores all settings)
Interface	RS-232 multiplexed dual bidirectional ports
Connectors:	
RS-232	RJ-11 4-conductor telephone plug
TTL	9-pin D-SUB connector
Linear Force	>200 lbs (91 kg)*
Fluid Pressure*	>1,800 psi with an 8 ml stainless steel syringe, for example
Drive:	
Motor	1.8° stepper
Control	Microprocessor (from 1/2 to 1/32 microstepping)
Step/Rev.	From 800 to 12,800
Step Rate:	
Minimum	27.3 sec/step
Maximum	416.7 µsec/step
Pusher Travel Rate:	
Minimum	0.18 µm/min
Maximum	190.676 mm/min
Resolution	0.082 µm/step
Power	100-240 VAC, 50/60 Hz, 75 W, 0.75 A fuse
Dimensions, H x W x D	17 x 23 x 29 cm (6.7 x 9.0 x 11.4 in)
Weight	6.4 kg (14 lbs)
Remote Cable	9.1 m (30 ft) Length

* For work range, refer to User's Manual for details.

Catalog No.	$	Model
BS4 70-2200		PHD 4400 Hpsi Programmable Syringe Pump, Standard
BS4 70-2201		PHD 4400 Hpsi Programmable Syringe Pump, Remote