

***kdS* 310 Plus**

NEW! Nanoliter Syringe Pump



Remote Nano Injector for Maximum Flexibility

The new KDS 310 Plus is a Nanoliter syringe pump augmenting our broad line of syringe pumps. The new nanoliter pump works with syringes 0.5 μ l up to 250 μ l, with accurate flow delivery from 0.001 μ l/min to 363.7 μ l/hr. The KDS 310 is unsurpassed in delivering "pulseless" flow in small volumes.

The KDS 310 unique remote injector allows the user to deliver fluids without wasting precious fluids in excessively long tubing. The compact remote injector has dimensions of 7 X 1.7 X 2 in (17.8 X 4.4 X 5.1 cm) and can be placed up to 6 ft from the controller. A guide rod will mount on a clamp for positioning on a frame. Syringes fit snugly in a new mounting bracket design so the fluid is delivered precisely without movement of the syringe.

The Controller is easy to set up in 3 easy steps. The user can set the flow rate, dispense volume and syringe diameter. The syringe table is preprogrammed with the most popular syringes. Additionally, direct entry of the syringe diameter is available.

The KDS 310 is 2 pumps in one featuring a dispense/infuse mode and a withdraw mode. Loading the syringes with the fluid is easy using a fast forward or reverse mode. This simple operation allows you to focus on your test or process.

All pumps feature the power failure mode. The display will indicate a power failure and keep running or the unit can automatically stop and the unit can be manually restarted.

Optionally, the KDS 310 can be triggered remotely by a foot pedal or remote switch. This will offer the user true versatility in using the unit in a "hands-free" mode. (only available in the US)

NOTE: KDSscientific syringe pumps are for laboratory use only. They have not been approved by the FDA for clinical use.

Benefits

- Automatic dispensing of small volumes
- Consistent delivery of fluids
- Hands free operation
- Accurate fluid delivery
- 2 pumps in one unit – infuse and withdraw
- Works with many types of μ l syringes

Features

- Quick set up and installation
- Quick installation with easy to use syringe mount
- Typical Accuracy 1% or better
- Up to 2 lbs linear force
- Variety of syringes from 0.5 μ l to 250 μ l
- Wide plunger travel
- Quick fluid filling
- Volume dispense
- Variable flow rates 0.001 μ l/min to 363.7 μ l/min
- Remote injector up to 6 feet away
- Optional foot switch interface
- Power failure indication

Applications

- Continuous delivery of fluid
- Small dose dispensing
- Stereotaxic injections
- Microfluidic dispensing

Markets

- Pharmaceutical
- Biotech
- Chemical
- Petrochemical
- Neuroscience
- Research and Development
- Government
- Food and Beverage

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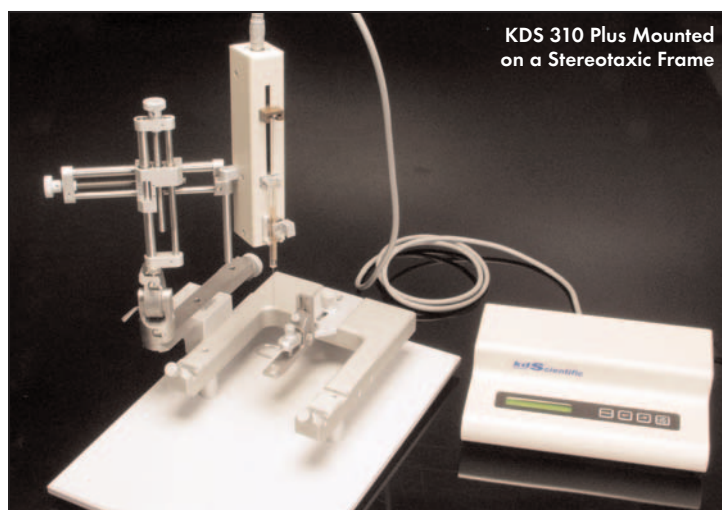
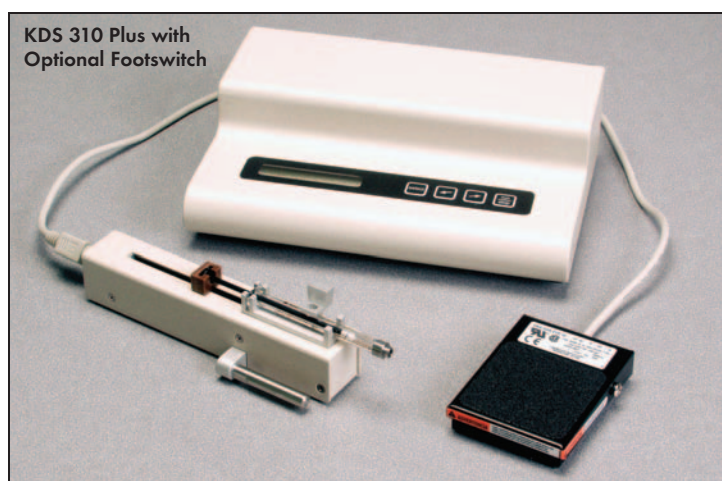
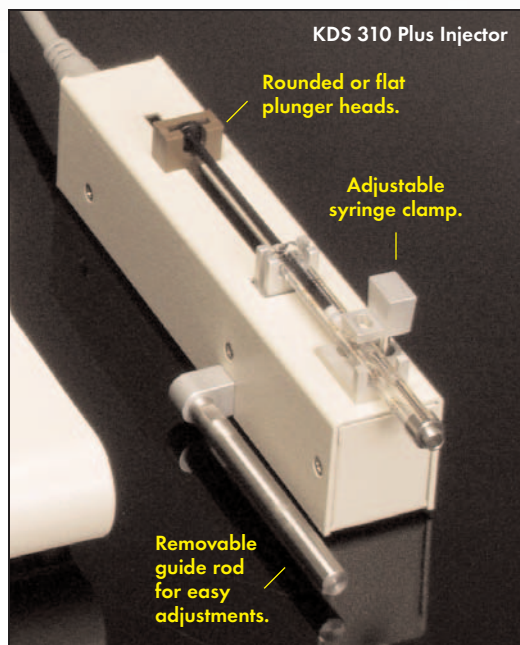
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All specifications subject to change at anytime.

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Flow Rates

Syringe	Minimum $\mu\text{l}/\text{min}$	Maximum $\mu\text{l}/\text{min}$	700 Series Hamilton ID mm	1700 Series Hamilton ID mm
0.5 μl	0.001	0.726	0.103	N/A
1.0 μl	0.001	1.46	0.146	N/A
2.0 μl	0.01	2.907	0.206	N/A
5.0 μl	0.01	7.282	0.343	N/A
10.0 μl	0.01	14.56	0.485	0.46
25 μl	0.01	36.41	0.729	N/A
50 μl	0.1	72.60	1.03	N/A
100 μl	0.1	145.6	1.458	N/A
250 μl	0.1	363.7	2.304	N/A

Specifications

Model	Model 310 Plus
Syringe Size	0.5–250 microliter
Electrical Rating	US model 115V \sim , 0.125A CE model 230V \sim , 0.05A
Fuse	5x20 mm, 250V \sim slow blow 0.1A @115 Volt ; 0.05A @ 230Volt
Voltage Operating Range	Model 110-130V \sim , 50/60Hz Model 220-260 V \sim , 50/60Hz
Drive Mechanism	Microprocessor controlled stepper motor (1/2 microstep), leadscrew
Force	2 lbs (minimum)N
Pusher Advance Per Half Step	1.58 microns
Minimum Stepping Rate	One 1/2 step every 4 seconds
Maximum Stepping Rate	916 1/2 steps/second
Flowrate Range	0.001–363.7 $\mu\text{l}/\text{min}$ [0.5–250 μl syringes]
Dimensions	9x6x3 inch (23x15.25x8 cm) controller 7x1.7x2 inch (17.8x4.4x5.1 cm) injector
(Syringes NOT included)	

Options

- KDS 310 Plus with Footswitch Interface
- Footswitch
- Injector Only (one included in system)

