

**Benefits**

- Remote pump head – eliminates dead volume
- Smooth and accurate flow delivery
- Constant and variable flow rates
- User selectable volume delivery
- High precision fluid dosing

**Features**

- Accuracy  $\pm 0.5\%$
- Holds one syringe from 0.5  $\mu\text{l}$  to 1000  $\mu\text{l}$
- High resolution color touch screen
- 2 programs 50 steps each
- Unparallel ease of use
- Password protection for program configuration
- Run LED light on front panel
- Full metal chassis
- Built in syringe table
- 111 lbs (5 kg) linear force
- Built in RS485 interface to link multiple pumps
- USB interface
- Footswitch interface
- Protection with spill dam
- CE, UL, CSA, CB Scheme, EU RoHS

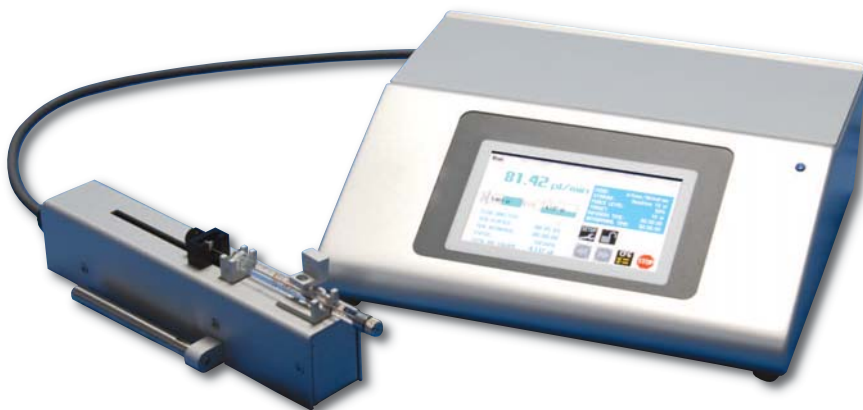
**Applications**

- Stereotaxic injections
- Microfluidics
- Drug Discovery
- Nanofluidics
- Flow Cytometry
- Mass Spec Calibrant
- Organic Synthesis
- Surface Plasma Resonance

**Markets**

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

# KDS Legato™ 130 Nanoliter Infuse Only Syringe Pump



## The NEW Legato™ 130 Nanoliter is ideal for stereotaxic and micro manipulator devices and other clamping devices

The KDS Legato 130 works exclusively with micro syringes from 0.5ul to 1000ul. It has a remote pump head which can be placed close to the experiment to eliminate dead volume with long tubing. The Legato 130 has a flow rate range from 3.66 pl/min to 3.818 ml/min depending on the syringe size. The remote pump head is ideal for use with a micromanipulator, stereotaxic and other clamping devices. The large color display allows the user to see all of the pumps operating parameters to ensure proper operation during the experiments. Syringe size and flow rate are easily displayed as well as the volume delivered and the elapsed time. Set up is easy using the icon driven software. The Legato 130 along with the Legato 110 and 180 offer the smoothest flow of all of the legato pumps.

The Legato 130 is an infuse/withdraw single syringe pump. It accommodates a single syringe from 0.5 ul to 1000 ul. Any type of syringe can be used including glass and plastic. The syringes are held securely in place by KD Scientific's new clamping mechanism. The run screen has all of the pump parameters, as well as, the pumps running conditions. The syringe plunger can be tightly secured with a movable mounting screw. The basic pump offers the same easy to use touch screen configuration and "run" screen as the more

advanced Legato 200. An LED light on the front panel makes it easy to see if the pump is running. Syringe size and flow rates are easily displayed as well as the volume delivered and the elapsed time.

The pumps are versatile and can be connected through the RS485 interface. Advanced micro stepping techniques are employed to further reduce the step angle to eliminate flow pulsation. The accuracy is  $\pm 0.5\%$ . A wide dynamic flow range from pico liters per minute to millimeters per minute can be programmed into the pump. Add the New Adagio software to maximize the use of the pumps functions and features. Adagio allows you to configure the pump through the software as well as operate one or multiple pumps. In addition, the National Instruments Labview drivers are available on their website.

KD Scientific pumps are acknowledged as the industry's highest values solution for delivering precise and smooth flow. KD Scientific is recognized worldwide for quality and reliability at an economical price and has the broadest line of syringe pumps to meet your specific application. KD Scientific is committed to delivering the highest level of customer satisfaction, as well as technical support for all their products.

**NOTE: KD Scientific syringe pumps are for laboratory use only.**

# kdScientific

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Rev A

## Intuitive Run Screen

Combining multiple parameters simultaneously with internationally recognizable icons allow the Legato™ Series to provide a new level of intuitive syringe pump operation.

**Run**

**190.8  $\mu$ l/min**

MODE: Infuse Only  
 SYRINGE: Hamilton 50  $\mu$ l  
 FORCE LEVEL: 100%  
 TARGET: 50  $\mu$ l  
 INFUSION TIME: 00:00:15

50  $\mu$ l 0 ml

FLOW DIRECTION: →  
 TIME ELAPSED: 00:00:03  
 TIME REMAINING: 00:00:15  
 STATUS: READY TO INFUSE  
 TOTAL INF VOLUME: 0 ml

SETUP [Icon] RESET [Icon]  
 [Left Arrow] [Right Arrow] CFG [Icon] RUN [Icon]

## Flow Rates

Syringe	Diameter	Minimum	Maximum
0.5 $\mu$ l	0.103 mm	3.66 pL/min	1.908 $\mu$ l/min
1 $\mu$ l	0.146 mm	7.32 pL/min	3.818 $\mu$ l/min
2 $\mu$ l	0.206 mm	14.64 pL/min	7.631 $\mu$ l/min
5 $\mu$ l	0.343 mm	40.74 pL/min	21.16 $\mu$ l/min
10 $\mu$ l	0.485 mm	81.42 pL/min	42.3 $\mu$ l/min
25 $\mu$ l	0.729 mm	184.0 pL/min	95.57 $\mu$ l/min
50 $\mu$ l	1.03 mm	367.4 pL/min	190.8 $\mu$ l/min
100 $\mu$ l	1.457 mm	735.2 pL/min	381.8 $\mu$ l/min
250 $\mu$ l	2.304 mm	1.838 nL/min	954.6 $\mu$ l/min
500 $\mu$ l	3.256 mm	3.672 nL/min	1.906 mL/min
1000 $\mu$ l	4.608 mm	7.354 nL/min	3.818 mL/min

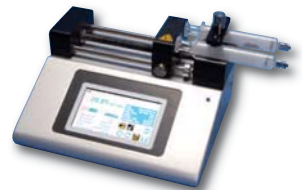
## Specifications

Model	KDS Legato 130
Syringe Size	0.5 $\mu$ l to 1000 $\mu$ l
Power	100-240 VAC: 50/60 Hz, 50 W, 0.5 A fuse
Motor Drive Control	Microprocessor with 1/16 microstepping
Linear Force (Maximum)	5 kg (11 lbs) @ 100% Force Selection
Number of Microsteps per One Revolution of Lead Screw	3,200
Step rate (Minimum)	27.5 sec/ $\mu$ step
Step rate (Maximum)	52 $\mu$ sec/ $\mu$ step
Drive Motor	1/8" Stepper Motor
Pusher Travel Rate - (Minimum)	0.433 $\mu$ m/min
Pusher Travel Rate - (Maximum)	228.87 mm/min
Flow Rate (Minimum)	3.66 pL/min (0.5 $\mu$ l syringe)
Flow Rate (Maximum)	3.818 mL/min (1 mL syringe)
Dimensions	9 x 19.05 x 7.62 cm (9 x 7.5 x 5 in)
Weight	2.05 kg (4.32 lbs)
Connectors	RS-232 - 9 Pin D-Sub Connector, RS485 - IEEE-1394 6 pos, USB - Type B

## KDS Legato™ 100 Family of Syringe Pumps



**Legato 100**  
Infuse Only  
Single Syringe



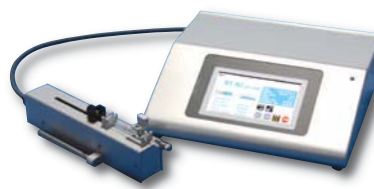
**Legato 101**  
Infuse Only  
Dual Syringe



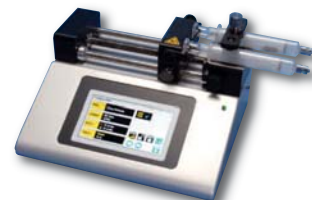
**Legato 110**  
Infuse/Withdraw  
Single Syringe



**Legato 111**  
Infuse/Withdraw  
Dual Syringe



**Legato 130**  
Infuse/Withdraw  
Remote Control Nanoliter



**Legato 180**  
Infuse Withdraw  
Picoliter

Recommended for microfluidic applications

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