



# UltraMicroPump III

*Versatile injector for sub-microliter volumes*

*Perfect for a wide range of applications including intracellular injection, micro delivery of biochemical agents or dyes, cell separation, and in vitro fertilization.*

filled while mounted in the pump. Fluids injected or withdrawn are held entirely within the micro syringe to maintain a low fluid dead volume.

For positioning, the **UltraMicroPump III** may be attached to any of several WPI micropositioners such as the **M3301** (manual), **DC3001** (motorized), or any manual stereotaxic manipulator.

## Smart Controller

An Integral component in the UMPIII system is a microprocessor-based controller, **Micro4**, which provides an "intelligent" and easy-to-use interface to up to four syringe pumps. Operating parameters are set with the membrane keypad and LCD display. From the keypad the user can select the following functions: set pump to infusion or withdrawal mode, enter the volume to be infused or withdrawn, rate of delivery, and syringe type as well as synchronize the starting and stopping of any combination of syringe pumps.

User parameters can be stored in the device's "non-volatile" memory for instant recall when the unit is powered on.

An optional footswitch can be plugged into a connector on the rear of the controller for "hands free" start-/stop operation.

**Computer Control**—An RS-232 port on the rear of the controller can be used to connect it to a computer for use with computer control programs.



*UMP3 accepts a range of micro-syringes from 0.5  $\mu$ L to 1 mL. (Manipulator not included.)*

With its digital controller, **UltraMicroPump III** can dispense as little as 600 picoliters per incremental advance of the syringe piston (using a 5  $\mu$ L syringe). Syringes may be filled externally and then inserted into the pump or

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## ULTRAMICROPUMP SPECIFICATIONS

(based on 10 µL syringe)

### NORMAL MODE

TRAVEL ..... 62 mm  
 MINIMUM DISPENSING VOLUME..... 0.58 nL / step (10 µL syringe)  
 LINEAR MOTION PER STEP ..... 3.175 microns  
 WEIGHT..... 325 g (11.5 oz)  
 MOUNTING ROD DIAMETERS..... 7.9 mm (0.31 in.)  
 MAINS POWER SUPPLY ..... 90-264VAC @ 47-63Hz  
 DIMENSIONS ..... Ø 32 mm x 190 mm  
 ..... (Ø 1.3 in. x 7.5 in.)

### MICROSTEPPING MODE

Precision is increased eight-fold

## Microvolume Syringes

### Syringes with Luer Fitting (no needle)

Order No.	Volume	Description	O.D.	SCALE LENGTH	UMP3	UMP2
ILS005LT	5 µL	ILS 5 µL Gas-tight Luer tip	6.5 mm	54.1 mm	Y	Y
ILS010LT	10 µL	ILS 10 µL Gas-tight Luer tip	6.5 mm	54.1 mm	Y	Y
ILS025LT	25 µL	ILS 25 µL Gas-tight Luer tip	8.0 mm	60 mm	Y	Y
SGE050TLL	50 µL	SGE 50 µL Gas-tight Teflon Luer Lock	8.0 mm	60 mm	Y	Y
SGE100TLL	100 µL	SGE 100 µL Gas-tight Teflon Luer Lock	8.0 mm	60 mm	Y	Y
SGE250TLL	250 µL	SGE 250 µL Gas-tight Teflon Luer Lock	8.0 mm	60 mm	Y	N

### Syringes with Replaceable Beveled Needles

Order No.	Volume	Description	O.D.	SCALE LENGTH	UMP3	UMP2
SGE0005RN*	0.5 µL	SGE 0.5 µL 23 ga (0.63 mm), 70 mm long needle	8.0 mm	54.1 mm	Y	Y
SGE001RN*	1.0 µL	SGE 1.0 µL 26 ga (0.47 mm), 70 mm long needle	8.0 mm	54.1 mm	Y	Y
SGE005RN	5 µL	SGE 5 µL 23 ga (0.63 mm), 50 mm long needle	8.0 mm	54.1 mm	Y	Y
SGE010RNS	10 µL	SGE 10 µL 26 ga (0.47 mm), 50 mm long needle	8.0 mm	54.1 mm	Y	Y
SGE025RN	25 µL	SGE 25 µL 25 ga (0.50 mm), 50 mm long needle	8.0 mm	60 mm	Y	Y
SGE050RN	50 µL	SGE 50 µL 25 ga (0.50 mm), 50 mm long needle	8.0 mm	60 mm	Y	Y
SGE100RN	100 µL	SGE 100 µL 25 ga (0.50 mm), 50 mm long needle	8.0 mm	60 mm	Y	Y

\* The capacity of this syringe is so small that the entire sample is contained within the needle. The plunger extends to the tip of the needle, displacing the full sample during injection — which gives the syringe zero dead volume.

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### Replacement Needles

RN0005	For syringe SGE0005RN, 23 ga (0.63 mm) 70 mm long
RN001	For syringe SGE001RN, 26 ga (0.47 mm) 70 mm long
RN005	For syringe SGE005RN, 23 ga (0.63 mm) 50 mm long
RN010	For syringe SGE010RN(S), 26 ga (0.47 mm) 50 mm long, 5-pack
RN025	For syringes SGE025RN, SGE050RN, SGE0100RN, 26 ga (0.47 mm) 50 mm long, 5-pack



## WORLD PRECISION INSTRUMENTS

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