

## Multi syringe programmable pumps

**PSNE1200**



**PSNE1600**



**PSNE1800**



### Also available as:

PSNE1200D – Dual pump  
PSNE1260 – High Speed

PSNE1600D – Dual pump  
PSNE1660 – High Speed

PSNE1800D – Dual pump  
PSNE1860 – High Speed

### Features:

- Holds 2, 4, 6, 8, 10 or 12 syringes of up to 3cc each
- Infusion rates from 0.454  $\mu\text{L/hr}$  (1cc syringe) to 121.2 mL/hr
- Higher flow rate models available
- Easy-to-use keypad interface
- Holds 2, 4 or 6 syringes of up to 60cc each, or 2 or 4 syringes up to 140cc each
- Infusion rates from 0.454  $\mu\text{L/hr}$  (1cc syringe) to 2376 mL/hr (140cc syringe)
- Higher flow rate models available
- Easy-to-use keypad interface
- Holds 2, 4, 6 or 8 syringes of up to 10cc each
- Infusion rates from 0.454  $\mu\text{L/hr}$  (1cc syringe) to 342.6 mL/hr (10cc syringe)
- Higher flow rate models available
- Easy-to-use keypad interface

### The PSNE1000 family of syringe pumps features:

- Built for automation
- Operates stand-alone or from a computer
- Infuses and withdraws
- Applications range from simple infusions to complex pumping programs
- Programmable preset protocols
- Program up to 41 pumping phases: change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, sound the buzzer.
- RS-232 and TTL logic control interfaces

Two pumps connected with a dual cable create a Dual Pump System allowing for continuous infusion or emulsification. Network, control, and monitor up to 100 pumps with one computer. Worldwide power supplies available. Motor stall detection. Non-volatile memory of all parameters and programming. Upgradeable to the X and X2 advanced firmware versions for gradient pumping and increased program memory. Dispensing accuracy of +/-1%. Unlimited lifetime technical support. Two year warranty. Plus many, many more features!

### Custom Applications

For specialized and OEM applications, contact us!

Custom modifications can be made to the mechanics and/or the firmware.

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# Specifications

## Mechanical & electrical

Syringe sizes:	PSNE1200 Up to 3 mL PSNE1600 Up to 140 mL (4 channels), 60 mL (6 channels) PSNE1800 Up to 10 mL
Number of syringes:	PSNE1200 12 PSNE1600 6 PSNE1800 8
Motor type:	Step motor
Motor steps per revolution:	200
Micro-stepping:	1/8 to 1/2 depending on motor speed
Advance per step:	0.132291667 $\mu\text{m}$ to 0.264583333 $\mu\text{m}$ depending on motor speed
Motor to drive screw ratio:	5/1
Drive screw pitch:	24 revolutions/inch
DC connector:	2.5 mm, center positive
Voltage at DC connector:	12V DC at full load
Amperage:	1000 mA at full load
Power supply type:	Unregulated linear external wall adapter, country and power source specific
Power supply output rating:	12V DC @ 1000 mA
Dimensions:	26.035 cm x 38.1 cm x 12.7 cm
Weight:	4.595 kg
Allen wrench	3/32 hex

## Operational

Maximum speed	3.4917 cm/min
Minimum speed	0.0026 cm/hr
Maximum pumping rate	1163 mL/hr with a B-D 60 mL syringe
Minimum pumping rate	0.454 $\mu\text{L/hr}$ with a B-D 1 mL syringe
Maximum force	160 lbs. at minimum speed, 30 lbs. at maximum speed
Number of program phases	41
RS-232 pump network	100 pumps maximum
PS-232 selectable baud rates	300, 1200, 2400, 9600, 19200
Syringe inside diameter range:	0.100 to 50.00 mm

Syringe manufacturer	Syringe ( $\mu\text{L}$ )	Inside diameter (mm)	Maximum rate ( $\mu\text{L/hr}$ )	Minimum rate ( $\mu\text{L/hr}$ )
SGE (Gas tight)	5	0.343	193.5	0.003
	10	0.485	387	0.005
	25	0.728	872	0.011
	50	1.03	1745	0.022
	100	1.457	3492	0.044
Hamilton	0.5	0.103	17.45	0.001
	1	0.146	35.07	0.001
	2	0.206	69.82	0.001
	5	0.326	174.8	0.003

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Syringe manufacturer	Syringe (mL)	Inside diameter (mm)	Maximum rate (mL/hr)	Minimum rate (µL/hr)	Maximum rate (mL/min)
B-D	1	4.699	36.33	0.454	0.606
	3	8.585	121.2	1.515	2.02
	5	11.99	236.5	2.954	3.942
	10	14.43	342.6	4.279	5.71
	20	19.05	597.1	7.457	9.952
	30	21.59	766.9	9.578	12.78
	60	26.59	1163	14.53	19.38
HSW Norm-Ject	1	4.69	36.19	0.452	0.603
	3	9.65	153.2	1.914	2.553
	5	12.45	255	3.185	4.25
	10	15.9	415.9	5.195	6.931
	20	20.05	661.4	8.26	11.02
	30	22.9	862.8	10.78	14.38
	50	29.2	1402	17.52	23.37
Monoject	1	5.74	54.21	0.677	0.904
	3	8.941	131.5	1.643	2.192
	6	12.7	265.3	3.314	4.422
	12	15.72	406.6	5.078	6.777
	20	20.12	666	8.318	11.1
	35	23.52	910.2	11.37	15.17
	60	26.64	1167	14.59	19.45
	140	38	2373	29.67	39.60
Terumo	1	4.7	36.34	0.454	0.606
	3	8.95	131.8	1.646	2.196
	5	13	278	3.473	4.633
	10	15.8	410.7	5.13	6.845
	20	20.15	668	8.343	11.13
	30	23.1	878	10.97	14.63
	60	29.7	1451	18.13	24.18
Poulten & Graf (Glass)	1	6.7	73.86	0.923	1.231
	2	8.91	130.6	1.632	2.177
	3	9.06	135	1.687	2.251
	5	11.75	227.1	2.837	3.786
	10	14.67	354.1	4.422	5.901
	20	19.62	633.3	7.91	10.55
	30	22.69	847.1	10.58	14.11
	50	26.96	1195	14.94	19.93
Steel Syringes	1	9.538	149.6	1.87	2.494
	3	9.538	149.6	1.87	2.494
	5	12.7	265.3	3.314	4.423
	8	9.538	149.6	1.87	2.494
	20	19.13	602.1	7.52	10.03
	50	28.6	1345	16.81	22.43
SGE (Glass - Gas tight)	0.25	2.303	8.727	0.109	0.145
	0.5	3.257	17.45	0.218	0.291
	1	4.606	34.9	0.436	0.582
	2.5	7.284	87.3	1.091	1.455
	5	10.3	174.5	2.18	2.908
	10	14.57	349.2	4.362	5.82
	25	23.03	872.7	10.9	14.55
	50	27.5	1244	15.54	20.73
	100	34.99	2014	25.16	33.57

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