

PSNE4000 Double syringe pump

Also available as:

- PSNE4000D - Continuous infusion double syringe pump system
- PSNE4002X Microfluidics double syringe pump



PSNE4000 Features:

- Accepts 2 different syringes from the smallest size available up to 60 mL. A 140 mL syringe can be filled up to 120 mL.
- 2 different sized syringes can be used for proportional infusion.
- PSNE4000 & PSNE4000D pumping rate as low as 0.73 $\mu\text{L/hr}$ with a 1 mL syringe or as high as 35.33 mL/min with a 60 mL syringe.
- PSNE4002X pumping rate as low as 0.008 nL/hr with a 0.5 μL syringe or as high as 1555 $\mu\text{L/min}$ with a 60 mL syringe.

The PSNE4000 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:	Up to 60 mL (140 mL partially filled)
Number of syringes:	2
Motor type:	Step motor
Motor steps per revolution:	200
Micro-stepping:	1/8 to 1/2 depending on motor speed
Advance per step:	0.42522321 μm to 1.7009 μm depending on motor speed
Motor to drive screw ratio:	15/28
Drive screw pitch:	20 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:	22.86 cm x 14.605 cm x 11.43 cm
Weight:	1.63 kg

Operational

Maximum speed	18.36964 cm/min
Minimum speed	0.008409 cm/hr
Maximum pumping rate	6120 mL/hr with a B-D 60 mL syringe
Minimum pumping rate	1.459 $\mu\text{L/hr}$ with a B-D 1 mL syringe
Maximum force	100 lbs. at minimum speed, 18 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 (μL)	Inside diameter (mm)	Maximum rate ($\mu\text{L/hr}$)	Minimum rate ($\mu\text{L/hr}$)
SGE (Gas tight)	5	0.343	1002	0.008
	10	0.485	2004	0.016
	25	0.728	4515	0.035
	50	1.03	9039	0.069
	100	1.457	9999	0.141
Hamilton	0.5	0.103	90.39	0.001
	1	0.146	181.6	0.002
	2	0.206	361.5	0.003
	5	0.326	905.4	0.007

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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	188.1	1.436	3.135
	3	8.585	627.9	4.791	10.46
	5	11.99	1224	9.345	20.41
	10	14.43	1774	13.54	29.56
	20	19.05	3091	23.59	51.53
	30	21.59	3971	30.3	66.19
	60	26.59	6023	45.96	100.3
HSW Norm-Ject	1	4.69	187.4	1.43	3.123
	3	9.65	793.4	6.054	13.22
	5	12.45	1320	10.08	22.01
	10	15.9	2153	16.44	35.89
	20	20.05	3425	26.14	57.08
	30	22.9	4468	34.09	74.46
	50	29.2	7264	55.43	121
Monoject	1	5.74	280.7	2.142	4.678
	3	8.941	681.1	5.197	11.35
	6	12.7	1374	10.49	22.9
	12	15.72	2105	16.07	35.09
	20	20.12	3449	26.32	57.48
	35	23.52	4713	35.96	78.55
	60	26.64	6046	46.14	100.7
	140	38	9999	93.87	205
Terumo	1	4.7	188.2	1.436	3.136
	3	8.95	682.4	5.207	11.37
	5	13	1439	10.99	23.99
	10	15.8	2126	16.23	35.44
	20	20.15	3459	26.4	57.65
	30	23.1	4546	34.69	75.77
	60	29.7	7515	57.34	125.2
Poulten & Graf (Glass)	1	6.7	382.4	2.919	6.374
	2	8.91	676.3	5.161	11.27
	3	9.06	699.3	5.336	11.65
	5	11.75	1176	8.975	19.6
	10	14.67	1833	13.99	30.56
	20	19.62	3279	25.03	54.66
	30	22.69	4386	33.47	73.1
	50	26.96	6192	47.25	103.2
Steel Syringes	1	9.538	775.1	5.914	12.91
	3	9.538	775.1	5.914	12.91
	5	12.7	1374	10.49	22.9
	8	9.538	775.1	5.914	12.91
	20	19.13	3118	23.79	51.96
	50	28.6	6969	53.18	116.1
SGE (Gas tight)	0.25	2.303	45.18	0.345	0.753
	0.5	3.257	90.38	0.69	1.506
	1	4.606	180.7	1.38	3.012
	2.5	7.284	452	3.449	7.533
	5	10.3	903.9	6.897	15.07
	10	14.57	1808	13.8	30.13
	25	23.03	4518	34.48	75.3
	50	27.5	6443	49.16	107.4
	100	34.99	9999	79.59	

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