

User Manual : <http://www.chromtech.net.au/pdf2/ne-4000-usermanual.pdf> (53 pages)

NE-4000 Double Syringe Pump

Continuous Infusion
Double Syringe Pump System
DUAL-NE-4000

Microfluidics Double
Syringe Pump
NE-4002X



BUILT FOR AUTOMATION

NE-4000 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. NE-4000 & Dual-NE-4000 pumping rate as low as 1.459 $\mu\text{L/hr}$ with a 1 mL syringe or as high as 127.2 mL/min with a 60 mL syringe. NE-4002X pumping rate as low as .008 nL/hr with a 0.5 μL syringe or as high as 1555 $\mu\text{L/min}$ with a 60 mL syringe.

The NE-1000 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!

****Not For Clinical Use On Humans****



NE-4000 & NE-4500 Programmable Double Syringe Pumps Maximum and Minimum Flow Rates

Mfgr.	Syringe (cc)	ID (mm)	Max Rate (mL/hr)	Min Rate (µL/hr)	Max Rate (mL/min)
B-D	1	4.699	191.1	1.459	3.185
	3	8.585	637.9	4.868	10.63
	5	11.99	1244	9.495	20.74
	10	14.43	1802	13.76	30.04
	20	19.05	3141	23.97	52.35
	30	21.59	4035	30.79	67.25
	60	26.59	6120	46.7	102
HSW Norm-Ject	1	4.69	190.4	1.453	3.173
	3	9.65	806.1	6.151	13.43
	5	12.45	1341	10.24	22.36
	10	15.9	2188	16.7	36.47
	20	20.05	3479	26.55	57.99
	30	22.9	4539	34.64	75.65
	50	29.2	7380	56.32	123
Monoject	1	5.74	285.2	2.176	4.753
	3	8.941	692	5.28	11.53
	6	12.7	1396	10.66	23.26
	12	15.72	2139	16.33	35.65
	20	20.12	3504	26.74	58.4
	35	23.52	4788	36.54	79.81
	60	26.64	6143	46.88	102.3
	140	38.00	9999	95.37	208.3
Terumo	1	4.7	191.2	1.459	3.187
	3	8.95	693.4	5.291	11.55
	5	13	1462	11.17	24.38
	10	15.8	2160	16.49	36.01
	20	20.15	3514	26.82	58.57
	30	23.1	4619	35.25	76.98
	60	29.7	7635	58.26	127.2
Poulten & Graf (Glass)	1	6.7	388.5	2.965	6.476
	2	8.91	687.2	5.244	11.45
	3	9.06	710.5	5.422	11.84
	5	11.75	1195	9.119	19.91
	10	14.67	1862	14.22	31.04
	20	19.62	3332	25.43	55.53
	30	22.69	4456	34.01	74.27
	50	26.96	6291	48.01	104.8
	100	34.21	9999	77.3	168.8

	Syringe (µl)	ID (mm)	Max Rate (µl/hr)	Min Rate (µl/hr)	SGE Syringe (mL)	ID (mm)	Max Rate (ml/hr)	Min Rate (µl/hr)
SGE (Glass - Gas Tight)	5	0.343	1081	0.008	.25	2.303	45.91	0.351
	10	0.485	2036	0.016	.5	3.257	91.82	0.701
	25	0.728	4587	0.036	1	4.606	183.6	1.402
	50	1.03	9183	0.071	2.5	7.284	459.2	3.505
	100	1.457	9999	0.141	5	10.3	918.3	7.007
Hamilton Micro- litre (Glass)	0.5	0.103	91.83	0.001	10	14.57	1837	14.03
	1	0.146	184.5	0.002	25	23.03	4591	35.03
	2	0.206	367.3	0.003	50	27.5	6546	49.95
	5	0.326	919.9	0.008	100	34.99	9999	80.86

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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

Microstepping: 1/8 to 1/2 depending on motor speed

Advance per step: 0.42522321 uM to 1.7009 uM depending on motor speed

Motor to drive screw ratio: 15/28

Drive screw pitch: 20 revolutions/”

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: 8 3/4” x 5 3/4” x 4 1/2” High

(22.86 cm x 14.605 cm x 11.43 cm)

Weight: 3.6 lbs. (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 cc syringe

Minimum pumping rate: 1.459 µL/hr with a B-D 1 cc 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

RS-232 selectable baud rates: 300, 1200, 2400, 9600, 19200

Syringe inside diameter range: 0.100 to 50.00 mm

Custom Applications

For specialized and OEM applications, contact your dealer or New Era Pump Systems Inc. Custom modifications can be made to the mechanics or the firmware.

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