

Sonaer Inc. Syringe and Gear Pumps

SON00SP01 Programmable Microfluids Syringe Pump



Description:

- **The smoothest micro fluid syringe pump on the market.**
- Holds 1 syringe up to 60 mL*
- Advance Per Step: 4.252232 Nanometers
- Infusion rates from 0.008 nl/hr (0.5 mL syringe) to 2545 μ L/min (140 mL syringe)
- Easy-to-use keypad interface
- Space Saving Chassis: Foot print size of only 5 3/4" x 8 3/4"
Won't take up unnecessary space on your laboratory or production bench

Features:

- **Fully programmable**; automation capable
- Operates stand-alone or from a computer
- Infusion and withdrawal
- Set a single pumping rate and/or dispensing volume

- Program up to 41 pumping phases that change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, sound the buzzer
- Network, control, and monitor up to 100 pumps with one computer
- Worldwide power supplies available
- Motor stall detection
- Dispensing accuracy of +/-1%
- Unlimited lifetime technical support
- Two year warranty

Maximum syringe size:

Although a maximum of a 60 cc syringe is specified, the pump can hold up to a 140 cc syringe but can only open up to about 120 cc lengthwise.

Syringe Size	Maximum Rate	Minimum Rate
0.5 µl	18.7 nl/min	0.008 nL/hr
1 µl	37.57 nl/min	0.015 nL/hr
2 µl	74.81 nl/min	0.029 nL/hr
5 µl	2979 nl/min	1.117 nL/hr
10 mL	445.6 µL/min	167 nL/hr
20 mL	722.9 µL/min	270.9 nL/hr
30 mL	940.7 µL/min	352.5 nL/hr
60 mL	1555 µL/min	582.6 nL/hr

SON00SP02 Programmable Double Microfluids Syringe Pump



Description:

- Same description and all the features of the SON00SP01 plus...
- Holds 2 syringes up to 60 cc*

SON00SP03 Standard Syringe Pump



Description:

Just the features that you want, and none that you don't want to pay for.

- Holds small or big syringes up to 60 mL
- Pumps continuously until you stop the pump
- Rate can be changed while pumping
- Remembers previous settings on power up
- Power failure mode allows pump to continue pumping after a reset
- Syringe purge mode
- Displays total volume dispensed in mL or μL units
- Maximum pumping rate of 1500 mL/hr with a 60 mL syringe
- Precise reproducible flow rates
- Selectable rates units: mL/hr, $\mu\text{L/hr}$, mL/min, $\mu\text{L/min}$
-
- Does not withdraw, volume target, have computer interface or have programmability

SON00SP04 Six Channel Programmable Syringe Pump



Description:

- Holds 2, 4, or 6 syringes of up to 140 cc each (Glass or stainless steel syringes larger than 20mL may require Anti-siphon Modification Kit. Please inquire)
- Infusion rates from 0.452 μ L/hr (1 cc syringe) to 1451 ml/hr (60 cc syringe)
- Easy-to-use keypad interface
- Higher flow rate models available

Features:

- **Fully programmable**; automation capable
- Operates stand-alone or from a computer
- Infusion and withdrawal
- Set a single pumping rate and/or dispensing volume
- Program up to 41 pumping phases that change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, sound the buzzer
- Network, control, and monitor up to 100 pumps with one computer
- Worldwide power supplies available
- Motor stall detection
- Dispensing accuracy of +/-1%
- Unlimited lifetime technical support
- Two year warranty

Example Flow Rates

Syringe Size	Maximum Rate	Minimum Rate
0.5 μ L	17.45 μ L/hr	0.001 μ L/hr
1 mL	36.19 mL/hr	0.452 μ L/hr
3 mL	153.2 mL/hr	1.914 μ L/hr
5 mL	255 mL/hr	3.185 μ L/hr
10 mL	415.9 mL/hr	5.195 μ L/hr
20 mL	661.4 mL/hr	8.26 μ L/hr
30 mL	862.8 mL/hr	10.78 μ L/hr
60 mL	1451 mL/hr	18.1 μ L/hr
140 mL	2376 mL/hr	29.7 μ L/hr

SON00SP05 Twelve Channel Programmable Syringe Pump



Description:

- Holds 2, 4, 6, or 8 syringes of up to 10 cc each (Glass or stainless steel syringes larger than 20mL may require Anti-siphon Modification Kit.)
- Infusion rates from 0.568 μ L/hr (1 cc syringe) to 380 ml/hr (10 cc syringe)
- Easy-to-use keypad interface

Example Flow Rates

Syringe Size	Maximum Rate	Minimum Rate
0.5 μ L	17.45 μ L/hr	0.001 μ L/hr
1 mL	36.19 mL/hr	0.452 μ L/hr
3 mL	153.2 mL/hr	1.914 μ L/hr
5 mL	255 mL/hr	3.185 μ L/hr
10 mL	415.9 mL/hr	5.195 μ L/hr

SON00SP06 Twelve Channel Programmable Syringe Pump



Description:

- Holds 2, 4, 6, 8, 10 or 12 syringes of up to 3 cc each (Glass or stainless steel syringes larger than 20mL may require Anti-siphon Modification Kit.
- Infusion rates from 0.45 μ L/hr (1 cc syringe) to 153.2 ml/hr (3 cc syringe)
- Easy-to-use keypad interface
- Higher flow rate models available

Example Flow Rates:

Syringe Size	Maximum Rate	Minimum Rate
0.5 μ L	17.45 μ L/hr	0.001 μ L/hr
2 mL	69.82 mL/hr	0.001 μ L/hr
5 mL	174.8 mL/hr	0.003 μ L/hr
1 mL	36.19 mL/hr	0.452 μ L/hr
3 mL	153.2 mL/hr	1.914 μ L/hr

SON00SP07 Programmable Double Syringe Pump



Description:

- Holds 2 Syringes up to 60 cc each, can be different sizes (Glass or stainless steel syringes larger than 20mL may require Anti-siphon Modification Kit.
- Infusion rates from 1.459 $\mu\text{L/hr}$ (1 cc syringe) to 7635 ml/hr (60 cc syringe)
- Easy-to-use keypad interface
- Space Saving Chassis: Foot print size of only 5 3/4" x 8 3/4" Won't take up unnecessary space on your laboratory or production bench

Features:

- **Fully programmable**; automation capable
- Operates stand-alone or from a computer
- Infusion and withdrawal
- Available in microfluids version
- Set a single pumping rate and/or dispensing volume
- Program up to 41 pumping phases that change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, sound the buzzer
- Network, control, and monitor up to 100 pumps with one computer
- Worldwide power supplies available
- Motor stall detection
- Dispensing accuracy of +/-1%

High pressure notes:

The SON00SP07 produces about 15 lbs (7.5 lbs/syringe) of linear force at top speed and about 100 lbs (50 lbs/syringe) at slow speeds. 10 ml/hr is an example of slow speed. The pressure that can be generated is relative to the syringe size. On a 60 ml syringe, this would roughly produce about 30 psi.

SON00SP07 Double Syringe Pump

Syringe Size	Maximum Rate	Minimum Rate
0.5 μ L	91.83 μ L/hr	0.001 μ L/hr
1 mL	190.4 mL/hr	1.453 μ L/hr
3 mL	806.1 mL/hr	6.151 μ L/hr
5 mL	1341 mL/hr	10.24 μ L/hr
10 mL	2188 mL/hr	16.7 μ L/hr
20 mL	3479 mL/hr	26.55 μ L/hr
30 mL	4539 mL/hr	34.64 μ L/hr
60 mL	7635 mL/hr	58.3 μ L/hr

SON00SP08 Programmable Single Syringe Pump



Description:

- Holds 1 Syringe up to 60 cc
(Glass or stainless steel syringes larger than 20mL may require Anti-siphon Modification Kit.
- Rates from 0.73 $\mu\text{L/hr}$ (1 cc syringe) to 2100 ml/hr (60 cc syringe)
- Easy-to-use keypad interface
- Space Saving Chassis: Foot print size of only 5 3/4" x 8 3/4"
- Won't take up unnecessary space on your laboratory or production bench

Features:

- **Fully programmable**; automation capable
- Operates stand-alone or from a computer
- Infusion and withdrawal
- Set a single pumping rate and/or dispensing volume
- Program up to 41 pumping phases that change pumping rates, set dispensing volumes, insert pauses, control and respond to external signals, sound the buzzer
- Network, control, and monitor up to 100 pumps with one computer
- Worldwide power supplies available
- Motor stall detection
- Dispensing accuracy of +/-1%
- Unlimited lifetime technical support
- Two year warranty

Model & Firmware Options:

- Available in Higher Pressure.
- Firmware Upgrades available to enable Linear Pumping and to increase Pumping Program Memory

Syringes

Disposable Plastic Syringes

NORM-JECT® inert syringes are latex free, contain no rubber, no silicone oil, styrene or DEHP and are DNA free. These syringes are the choice for any situation needing an inert, non-reactive syringe. They are more chemically resistant than rubber tipped syringes. Manufactured only from laboratory grade polypropylene and polyethylene. These unique plastic syringes have a positive safety stop to prevent accidental spills.

Description Individual Box Case

1 mL Norm-Ject® Luer Slip Tuberculin Inert SON00S01 SON00S01B
(100 per box) SON00S01C
(10 boxes per case)

1 mL Exel® Luer-Lock Non-Inert SON00S02 SON00S02B
(100 per box) SON00S02C
(10 boxes per case)

3 mL Norm-Ject® Luer Lock Inert SON00S03 SON00S03B
(100 per box) SON00S03C
(10 boxes per case)

5 mL Norm-Ject® Luer Lock Inert SON00S04 SON00S04B
(100 per box) SON00S04C
(10 boxes per case)

10 mL Norm-Ject® Luer Lock Inert SON00S05 SON00S05B
(100 per box) SON00S05C
(10 boxes per case)

20 mL Norm-Ject® Luer Lock Inert SON00S06 SON00S06B
(100 per box) SON00S06C
(10 boxes per case)

30 mL Norm-Ject® Luer Lock Inert SON00S07 SON00S07B
(50 per box) SON00S07C
(10 boxes per case)

50 mL Norm-Ject® Luer Lock Inert SON00S08 SON00S08B
(30 per box) SON00S08C
(10 boxes per case)

60 mL Terumo® Luer Lock Non-Inert SON00S09 SON00S09B
(25 per box) SON00S09C
(10 boxes per case)

140 mL Monoject® Luer Lock Non-Inert SON00S10 SON00S10B
(20 per box) SON00S10C
(10 boxes per case)

Large Syringe Kit



Model: SON00SK01

- (2) 20mL NormJect® Luer Lock Inert
- (2) 30mL NormJect® Luer Lock Inert
- (2) 60mL Terumo® Luer Lock Non-Inert
- (6) Female Luer Barbs
- (3) Male Luer Barbs
- (20 ft.) PVC Tubing .125"ID x .188"OD

Small Syringe Kit



Model: SON00SK02

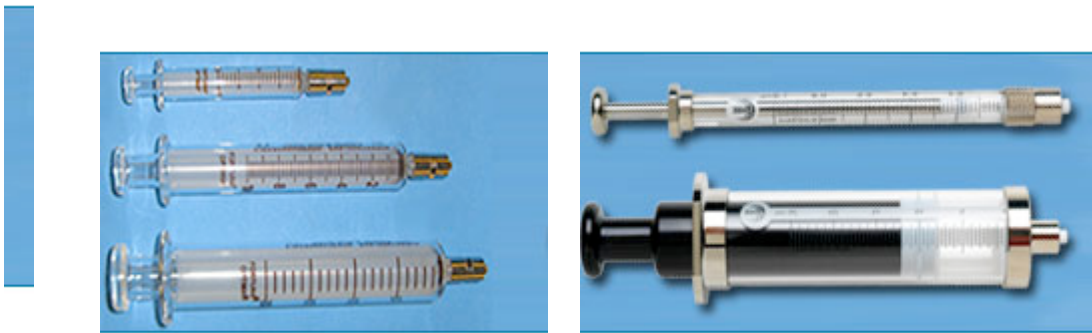
- (2) 1mL NormJect® Luer Lock Inert
- (2) 3mL NormJect® Luer Lock Inert
- (2) 5mL NormJect® Luer Lock Inert
- (2) 10mL NormJect® Luer Lock Inert
- (6) Female Luer Barbs
- (3) Male Luer Barbs
- (20 ft.) PVC Tubing .125"ID x .188"OD

Dual Pump Plumbing Kit Model: SON00SK03

The kit is used with the continuous/dual infusion system. Provides a dual check valve for two syringes, the withdraw will pull fluid from a reservoir and infusion will output into a separate line. The kit is pre-assembled and all you need to do is plug in the syringes. Each dual check valve uses 6" of 1/8" tubing to connect to a Y connector, one for reservoir and one for output; each Y-connector has 5' of tubing to make connections to your application. Two 60cc Terumo® Syringes are included. Individual parts are also available.



Glass Syringes



Standard Glass Syringes Gas Tight Glass Syringes

Glass syringes from 1mL to 100 mL standard and 50 µl to 100 mL in gas tight syringes. Standard glass can handle between 22 to 43 psi and the gas tight can handle from 100 psi to upwards of 400 psi depending on the syringe.

Standard Glass Syringes

For Laboratory & Veterinary use only. Manufactured under ISO9001 standards in Germany from the finest Borosilicate Glass. Individually boxed. Pistons and barrels are interchangeable.

Description PSI Model

1 mL Fixed Metal Luer Lock	43.5	SON00S11
2 mL Fixed Metal Luer Lock	43.5	SON00S12
3 mL Fixed Metal Luer Lock	43.5	SON00S13
5 mL Fixed Metal Luer Lock	43.5	SON00S14
10 mL Fixed Metal Luer Lock	29	SON00S15
20 mL Fixed Metal Luer Lock	29	SON00S16
30 mL Fixed Metal Luer Lock	29	SON00S17
50 mL Fixed Metal Luer Lock	21.8	SON00S18
100 mL Fixed Metal Luer Lock	21.8	SON00S19

SGE PTFE Tipped Plunger Gas Tight Glass Syringes

A PTFE tip plunger minimizes carryover and prevents particulate matter from getting between the plunger and barrel by effectively wiping the barrel inner diameter during the plunger stroke. PTFE tipped plungers are suitable for both liquid and gas samples. Individually boxed. Pistons and barrels are interchangeable.

Description PSI Model # Lead Time

50 µL Fixed Metal Luer Lock	400	SON00S20	1 Week
100 µL Fixed Metal Luer Lock	400	SON00S21	1 Week
250 µL Fixed Metal Luer Lock	400	SON00S22	1 Week
500 µL Fixed Metal Luer Lock	400	SON00S23	1 Week
1 mL Fixed Metal Luer Lock	400	SON00S24	1 Week
2.5 mL Fixed Metal Luer Lock	400	SON00S25	1 Week
5 mL Fixed Metal Luer Lock	400	SON00S26	1 Week
10 mL Fixed Metal Luer Lock	200	SON00S27	1 Week
25 mL Fixed Metal Luer Lock	100	SON00S28	1 Week
50 mL Removable Metal Luer Lock	100	SON00S29	1 Week
100 mL Removable Metal Luer Lock	100	SON00S30	1 Week

Stainless Steel Syringes & Parts

Stainless Steel Syringes

Stainless Steel Syringes

These syringes are intended for high pressure applications with good resistance to most aggressive liquids. All syringe barrels and plungers are manufactured with #316 stainless steel. Syringes are fully autoclavable. **Syringes are guaranteed to be leak free to pressures in excess of 750 psi. 8 mL stainless steel syringes are guaranteed to be leak free to pressures in excess of 1500 psi.** Replacement O'Rings in Viton® or Chemraz® materials are available for all stainless steel syringes. Viton® O'Rings are included with stainless steel syringes.

**Description PSI Model # Lead
Time**

1 mL Syringe 750 SON00S31 3 Weeks
1 mL Syringe with 1/8 SwageLok Fitting 750 SON00S32 3 Weeks
1 mL Syringe with 1/16 SwageLok Fitting 750 SON00S33 3 Weeks
1 mL Syringe with Luer-Lok Fitting 750 SON00S34 3 Weeks
3 mL Syringe 750 SON00S35 3 Weeks
3 mL Syringe with 1/8 SwageLok Fitting 750 SON00S36 3 Weeks
3 mL Syringe with 1/16 SwageLok Fitting 750 SON00S37 3 Weeks
3 mL Syringe with Luer-Lok Fitting 750 SON00S38 3 Weeks
5 mL Syringe 750 SON00S39 3 Weeks
5 mL Syringe with 1/8 SwageLok Fitting 750 SON00S40 3 Weeks
5 mL Syringe with 1/16 SwageLok Fitting 750 SON00S41 3 Weeks
5 mL Syringe with Luer-Lok Fitting 750 SON00S42 3 Weeks
8 mL Syringe 1500 SON00S43 3 Weeks
8 mL Syringe with 1/8 SwageLok Fitting 1500 SON00S44 3 Weeks
8 mL Syringe with 1/16 SwageLok Fitting 1500 SON00S45 3 Weeks
8 mL Syringe with Luer-Lok Fitting 1500 SON00S46 3 Weeks
20 mL Syringe 750 SON00S47 3 Weeks
20 mL Syringe with 1/4 SwageLok Fitting 750 SON00S48 3 Weeks
20 mL Syringe with 1/8 SwageLok Fitting 750 SON00S49 3 Weeks
20 mL Syringe with 1/16 SwageLok Fitting 750 SON00S50 3 Weeks
20 mL Syringe with Luer-Lok Fitting 750 SON00S51 3 Weeks
50 mL Syringe 750 SON00S52 3 Weeks
50 mL Syringe with 1/4 SwageLok Fitting 750 SON00S53 3 Weeks
50 mL Syringe with 1/8 SwageLok Fitting 750 SON00S54 3 Weeks
50 mL Syringe with 1/16 SwageLok Fitting 750 SON00S55 3 Weeks
50 mL Syringe with Luer-Lok Fitting 750 SON00S56 3 Weeks
100 mL Syringe 750 SON00S57 3 Weeks
100 mL Syringe with 1/4 SwageLok Fitting 750 SON00S58 3 Weeks
100 mL Syringe with 1/8 SwageLok Fitting 750 SON00S59 3 Weeks
100 mL Syringe with 1/16 SwageLok Fitting 750 SON00S60 3 Weeks
100 mL Syringe with Luer-Lok Fitting 750 SON00S61 3 Weeks
200 mL Syringe 750 SON00S62 3 Weeks
200 mL Syringe with 1/4 SwageLok Fitting 750 SON00S63 3 Weeks
200 mL Syringe with 1/8 SwageLok Fitting 750 SON00S64 3 Weeks
200 mL Syringe with 1/16 SwageLok Fitting 750 SON00S65 3 Weeks
200 mL Syringe with Luer-Lok Fitting 750 SON00S66 3 Weeks

Fittings for Stainless Steel Syringes

All tips are interchangeable with all Stainless Steel syringes. Made from #316 stainless steel construction.

Interchangeable Fittings for 1, 3, 5 & 8 mL Stainless Steel Syringes

- 1/16" SwageLok Fitting, 1/4-28 Thread
 - 1/8" SwageLok Fitting, 1/4-28 Thread
 - Luer-Lok Fitting, 1/4-28 Thread
- Interchangeable Fittings for
20, 50, 100 & 200 mL Stainless Steel Syringes**

- 1/16" SwageLok Fitting, 3/8-24 Thread
- 1/8" SwageLok Fitting, 3/8-24 Thread
- 1/4" SwageLok Fitting, 3/8-24 Thread
- Luer-Lok Fitting, 3/8-24 Thread

Description Thread Model # Lead Time

1/16" SwageLok Fitting for 1, 3, 5 & 8 mL	1/4-28	SON00S67	3 Weeks
1/8" SwageLok Fitting for 1, 3, 5 & 8 mL	1/4-28	SON00S68	3 Weeks
Luer-Lock Fitting for 1, 3, 5 & 8 mL	1/4-28	SON00S69	3 Weeks
1/16" SwageLok Fitting for 20, 50, 100 & 200 mL	3/8-24	SON00S70	3 Weeks
1/8" SwageLok Fitting for 20, 50, 100 & 200 mL	3/8-24	SON00S71	3 Weeks
1/4" SwageLok Fitting for 20, 50, 100 & 200 mL	3/8-24	SON00S72	3 Weeks
Luer-Lock Fitting for 20, 50, 100 & 200 mL	3/8-24	SON00S73	3 Weeks

O'Rings for Stainless Steel Syringes

An O'Ring insures against leakage. Syringes are guaranteed to be leak free to pressure in excess of 700 PSI. Stainless Steel Syringes come standard with a Viton® O'Rings. Chemraz® O'Rings are ordered separately and are for applications requiring higher chemical resistance.

Description Model # Lead Time

Viton® Replacement O'Rings for 1, 3 & 8 mL Stainless Steel Syringes	SON00S74	3 Weeks
Viton® Replacement O'Rings for 5 mL Stainless Steel Syringes	SON00S75	3 Weeks
Viton® Replacement O'Rings for 20 mL Stainless Steel Syringes	SON00S76	3 Weeks
Viton® Replacement O'Rings for 50 mL Stainless Steel Syringes	SON00S77	3 Weeks
Viton® Replacement O'Rings for 100 mL Stainless Steel Syringes	SON00S78	3 Weeks
Viton® Replacement O'Rings for 200 mL Stainless Steel Syringes	SON00S79	3 Weeks
Chemraz® O'Rings for 1, 3 & 8 mL Stainless Steel Syringes	SON00S80	3 Weeks
Chemraz® O'Rings for 5 mL Stainless Steel Syringes	SON00S81	3 Weeks
Chemraz® O'Rings for 20 mL Stainless Steel Syringes	SON00S82	3 Weeks
Chemraz® O'Rings for 50 mL Stainless Steel Syringes	SON00S83	3 Weeks
Chemraz® O'Rings for 100 mL Stainless Steel Syringes	SON00S84	3 Weeks
Chemraz® O'Rings for 200 mL Stainless Steel Syringes	SON00S85	3 Weeks

Digital Gear Pumps

A digital gear pump is used where precise flow is needed at higher flow rates than that of a syringe pump. The pump is able to digitally increase or decrease the flow rate on the front of the unit. A gear pump is pulse less smooth flow and able to pump very thick liquids. Please make sure your liquid is compatible with the pump gears, and the correct flow rates.

Part Number	Min Flow Rate	Max Flow Rate	Input Voltage	Gear Material
SON00GP170	70.2	4212	110	316SS, VITON, PPS
SON00GP270	70.2	4212	220	316SS, VITON, PPS
SON00GP154	54.6	3276	110	316SS, VITON, PPS
SON00GP254	54.6	3276	220	316SS, VITON, PPS
SON00GP138	38.4	2304	110	316SS, VITON, PPS
SON00GP238	38.4	2304	220	316SS, VITON, PPS
SON00GP118	18.96	1137.6	110	316SS, VITON, PPS
SON00GP218	18.96	1137.6	220	316SS, VITON, PPS
SON00GP115	15.66	939.6	110	316SS, VITON, PEEK
SON00GP215	15.66	939.6	220	316SS, VITON, PEEK
SON00GP15	5.52	331.2	110	316SS, PPS (or PTFE), PPS

SON00GP25	5.52	331.2	220	316SS, PPS (or PTFE), PPS
SON00GP11	1.02	61.2	110	316SS, PTFE, PPS
SON00GP21	1.02	61.2	220	316SS, PTFE, PPS

Gear pump tubing at fitting kits are also available, please ask for details.