

Syringe Pumps



To Drive Your Microfluidic Systems

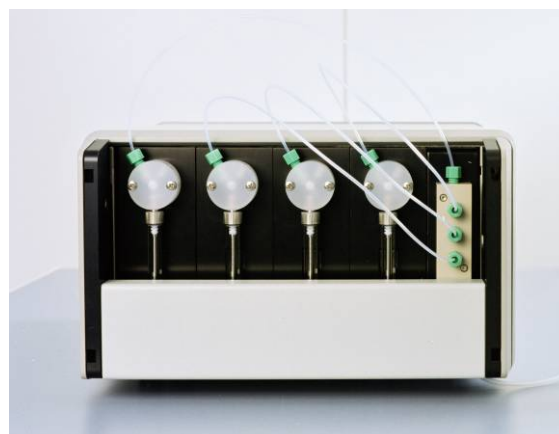
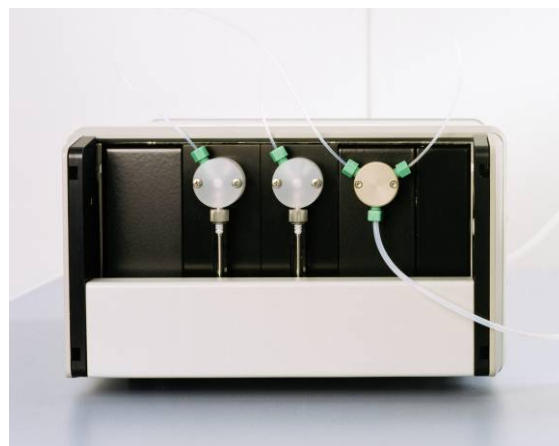
When it comes to the control of small flows, external pumps are the best choice, because they are more reliable than any integrated microfluidic pump. The extensive use of syringe pumps in the renowned Nano-Plotter™ ensures GeSiM's excellent knowledge how to drive these pumps.

The syringe pumps (also called dilutors) consist of a very precise syringe (with glass cylinder and gas-tight Teflon gaskets) and a three-way valve that can rotate into one of the following three positions:

- Syringe connected to the left inlet/outlet
- Syringe connected to the right inlet/outlet
- Bypass (left inlet/outlet connected to right inlet/outlet)

Reliable, precisely operating pump modules of the market leader are mounted in special housings and are thus ready to use upon delivery. They are controlled via a serial interface (RS-232) by using proprietary ASCII commands. You can also obtain a special Windows software to control the pump via a graphical user interface. This gives you access to additional steps of the stepping motor drive, which allows an extra slow flow. The fully automated operation of the pumps is possible by our programming interface.

Three types of housing are available: for a single pump, for 2 to 4, and for 5 to 8 pumps. If there is still room in the housing, additional distribution valves (with one inlet and several outlets) or other valves can be included. Up to 16 syringe pumps or valves can be controlled via the serial interface(s). If only a USB connection is available, a USB/RS-232 adapter can be used without problems.



One-channel, two-channel-, and four-channel dilutors

Technical Data

Syringes

Syringe volume: 50 μ l, 100 μ l, 250 μ l, 500 μ l, 1 ml, 2.5 ml, 5 ml

Travel: 30 mm

Resolution: 3000 increments

Extra slow mode: 24000 increments (if using microstep-enabled firmware in conjunction with GeSiM control software)

Speed: ca. 1.2 seconds to 10 min per full stroke (normal mode)

Accuracy: < 1.0 % deviation from expected at full stroke

Valve

Positions of the three-way valve: 3

Turn time: < 250 msec between adjacent ports

Material: Teflon and Kel-F, with overflow

Alternative valves: 4-port (90°), T-valve, Y-block, distribution valves (4/1- and 6/1-ports)

Programming

By ASCII strings via serial interface (RS-232), all modules in the housing accessible through one interface

Or: Windows control software with graphical user interface, programmable

Electric properties

Supply voltage: 24 V DC (produced by external or internal power supply included in the shipment)



GeSiM syringe pumps in real life: two-channel dilutor with selector valve for the fluidic control of the GeSiM mini-flowthrough cell for the microscope ("MicCell"), including Windows control software



Left: one-channel syringe pump with tubing

Below: micropipetting system Nano-Plotter™ NP 2 with 16 channels, connected with two 8-dilutor units that control the fluidics



Parts List

Article No.	Article
A072-102	Dilutor module, 1-channel, in 1-channel housing
A072-104	Dilutor modules, 2-channel, in 4-channel housing
A072-105	Dilutor modules, 3-channel, in 4-channel housing
A072-107	Dilutor module, 1-channel, in 4-channel housing
A072-108	Dilutor modules, 4-channel, in 4-channel housing
A072-109	Dilutor modules, 8-channel, in 8-channel housing
A072-111	Dilutor valve
A072-106	Dilutor syringe (250 μ l)
A072-401	Dilutor syringe (2.5 ml)
A072-402	Dilutor syringe (50 μ l)

Additional components (such as distribution valves) upon request

Note

with external power supply
power supply integrated, 2 slots free
power supply integrated, 1 slot free
power supply integrated, 3 slots free
power supply integrated, all slots occupied
power supply integrated, all slots occupied

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