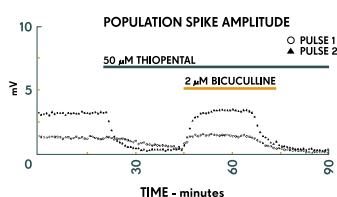


"I am writing to tell you how pleased I am with the ValveBank8 Perfusion System. It's great that I can load the reservoirs, press go, and start recording. I can read papers rather than fussing with solutions and switching valves every 10-15 minutes. Since solutions are switched at exactly the same time from one experiment to the next, I have been able to automate my data analysis protocols as well."

Brain Slice Field Recording

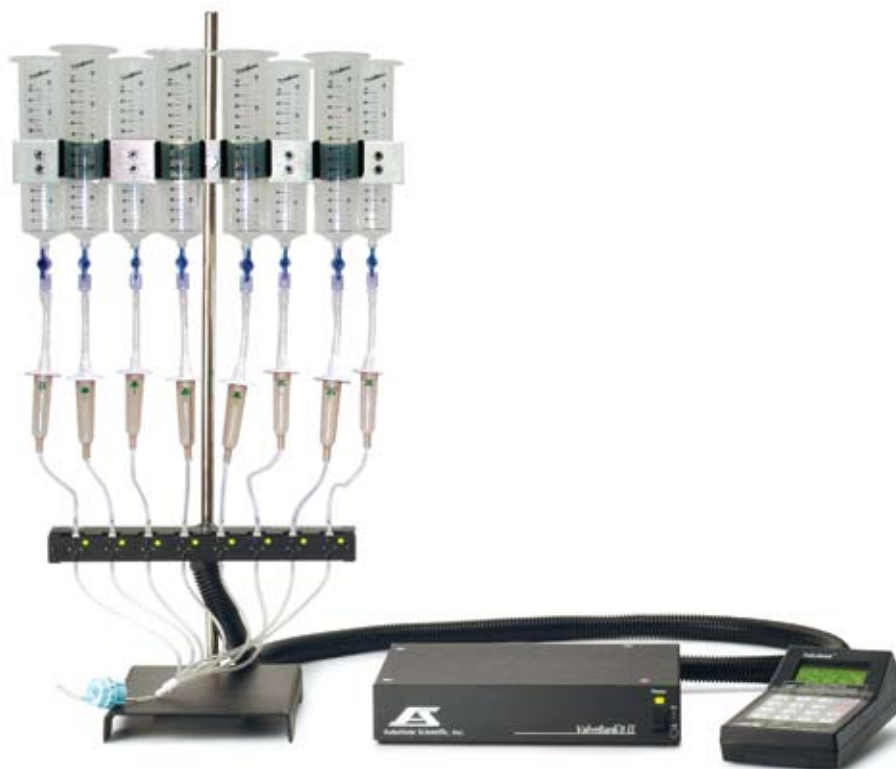


Unattended solution delivery using a ValveBank8 AutoPrime Perfusion System

Dr. M. Bruce MacIver,
M.Sc., Ph.D.

Department of Anesthesia
Stanford University
Medical Center

Increase reproducibility with fewer hours in lab.



Perfusion Systems

- Unattended solution switching**
 Avoid vibrations from switching valves by hand. The ValveBank® or ValveLink® controller handles all solution delivery so you can watch results – not switch stopcocks. Many special features are included for easy perfusion control. Low noise circuitry.
- Increased reproducibility**
 Valve switching is accurate to 0.01 seconds with programs up to 99 hours long under microprocessor control. Consistent liquid delivery means better data.
- Pinch, Teflon™ and Lee™ Valves**
 Choose between speed, cost, and ease of cleaning. Several options are available for fittings and reservoirs.
- Manual and external valve control**
 Flexible design. Easy cleaning and calibration. Slave mode valve operation controlled by your computer, pClamp, Pulse, Acquire, LabView, AxoGraph, etc.

Valve Choices:

- **Pinch Valves for Reduced Maintenance**

Easiest valves to clean and switch tubing. Liquids never touch the valves. Switches in 30-50 ms. 1/32" i.d. silicone tube passes through, and is pinched closed by solenoid activation. All AutoMate Scientific valves include an individual indicator LED. Our new aluminum enclosure keeps the valves dry from spills and offers luer lock ports for syringe reservoirs.

- **Teflon™ Valves for Fast Switching**

Required for fast kinetics applications. Excellent chemical and corrosion resistance. Non-stick surface resists particles and chemical deposits. Switches in less than 10 ms, with 20 µl of dead volume from port to port. Threaded female inlet and outlet ports accept Hose Barb, Luer Lock and Nut & Ferrule fittings (see diagrams next page).

- **Lee™ Mini Valves for Extremely Fast Switching and Minimal Pressure Pulse**

For the most demanding applications AutoMate Scientific offers tiny valves from the Lee Company. Enclosed in our new aluminum box with luer locks for syringe reservoirs, these valves can open and close in 1.5-4 ms with a ValveLink8.2 controller.

Perfusion Systems Include:

Controller, valves, 60 ml syringe reservoirs, 2-way stopcocks, (reservoir bracket and drippers in Teflon systems only), ringstand, 1/16" i.d. tubing and four-, eight- or sixteen-into-one micro-manifold with built-in flow control. 5, 15, 35, 60 or 140 ml syringe reservoirs available.

The Economy Pinch Valve System includes a ValveLink8 controller, four pinch valves, 35 ml syringes, 2-way stopcocks, ringstand, 1/16" i.d. tubing and four-into-one micro-manifold with built-in flow control.

Computer Interfacing:

Perfusion systems can be controlled by a computer using data acquisition hardware (i.e., DigjData, ITC-16, or National Instruments board) and software (i.e., pCLAMP, Pulse, or LabView). Both ValveBanks and ValveLinks accept real-time TTL inputs to control valves. Most acquisition software already being used in your experiments can talk to our controllers. AutoMate Scientific offers an optional program called EasyCode® for the Macintosh and PC/Windows to program ValveBanks (not ValveLinks). This software is used before an experiment – valve sequences are downloaded into the memory of the ValveBank where they are run. An article by AutoMate Scientific can be found in Axon Instrument's AxoBits 17 newsletter outlining these strategies – accessible on our web site.

Pinch Valves



Teflon™ Valves



Lee™ Valves



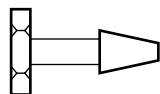
Luer-lock Fittings in Teflon Valves



Luer-lock fittings in Teflon™ valves allow direct connection of syringe reservoirs for minimal dead volume.

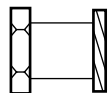
Teflon™ Valve Fitting Choices

Hose Barb



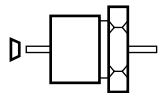
- Standard
- Available for 1/8" and 1/16" i.d. soft tubing

Lure-Lock



- For direct attachment of syringes
- Eliminates extra tubing between reservoirs and valves
- Includes 2-way stopcocks and 35 ml syringes

Nut & Ferrule



- HPLC-like, screw-in fittings for rigid, small-diameter (1/16" o.d.) tubing



Perfusion Systems Ordering Information

Part No.	Product Description	Price
17-21-20	ValveLink®4.2 Economy Pinch Valve Perfusion System	\$ 1,395
13-01-23	ValveBank®4 Teflon Perfusion System	\$ 2,395
13-pp-24	ValveBank4 Pinch Valve Perfusion System - 1/32" i.d. silicone tube	\$ 1,895
13-21-27	ValveBank4 Lee Mini Valve Perfusion System	\$ 2,595
17-01-23	ValveLink4.2 Teflon Perfusion System	\$ 2,295
17-pp-24	ValveLink4.2 Pinch Valve Perfusion System - 1/32" i.d. silicone tube	\$ 1,795
17-21-27	ValveLink4.2 Lee Mini Valve 1.5 to 4 ms Perfusion System	\$ 2,495
13-01-53	ValveBank8 Teflon Perfusion System	\$ 3,995
13-pp-54	ValveBank8 Pinch Valve Perfusion System - 1/32" i.d. silicone tube	\$ 3,195
13-21-57	ValveBank8 Lee Mini Valve Perfusion System	\$ 4,385
17-01-53	ValveLink8.2 Teflon Perfusion System	\$ 3,295
17-pp-54	ValveLink8.2 Pinch Valve Perfusion System - 1/32" i.d. silicone tube	\$ 2,495
17-21-57	ValveLink8.2 Lee Mini Valve 1.5 to 4 ms Perfusion System	\$ 3,685
17-01-83	ValveLink16.2 Teflon Perfusion System	\$ 5,995
17-pp-84	ValveLink16.2 Pinch Valve Perfusion System - 1/32" i.d. silicone tube	\$ 4,695
17-11-87	ValveLink16.2 Lee Mini Valve 1.5 to 4 ms Perfusion System	\$ 7,995

U.S./Canada prices shown. International prices add 15%. Email or visit web store for latest prices.

xx-[TB]-xx Indicate [T]op inflow and [B]ottom outflow Teflon valve fittings:
 [0]=1/8" i.d. hose barb, [1]=1/16" i.d. hose barb, [2]=Luer-lock female with stopcocks and 35 ml syringes,
 [3]=10-32 threaded nut & ferrules for 1/16" o.d. tubing (add \$30/set of 4), [p]=Pinch valves have no fittings

Systems include: Controller, user manual, valves, 35 ml or 60 ml syringes, stopcocks, (reservoir bracket and drippers in Teflon systems only), ringstand, 1/16" i.d. Tygon tubing, and 4-, 8- or 16-into-1 micro-manifold with flow control. 5, 15, 35, 60 or 140 ml syringe reservoirs available.

Visit www.autom8.com/build_your_own.html to configure a perfusion system and quote.

Valves & Fittings Ordering Information

Part No.	Product Description	Price
	Each pair of 4 valves ordered together will be mounted in a case of 8.	
02-01-02	Set of 4 Teflon™ valves - cabled and mounted	\$ 895
02-pp-04	Set of 4 Pinch valves - cabled and mounted, 1/32" i.d. silicone tube	\$ 545
02-21-07	Set of 4 Lee mini valves - cabled and mounted	\$ 1,095
02-01-02i	Individual Teflon replacement valve	\$ 125
02-pp-04i	Individual Pinch replacement valve	\$ 90
02-21-07i	Individual Lee mini replacement valve	\$ 165
01-05	Low-noise, valve and case grounding package (per 4 valves) A grounding wire attached to all valves extending back to the controller. This item is recommended for electrophysiology and required for CE conformity.	\$ 55
02-06	Valve extension cables - 3 meter RCA M/F (set of 4 cables)	\$ 15
05-01	Luer-lock fittings - with 2-way stopcocks (set of 4)	\$ 10
05-02	Nut & ferrule fittings - for 1/16" o.d. tubing (set of 4)	\$ 30

U.S./Canada prices shown. International prices add 15%. Email or visit web store for latest prices.

02-[TB]-02 Indicate [T]op inflow and [B]ottom outflow Teflon valve fittings:
 [0]=1/8" i.d. hose barb, [1]=1/16" i.d. hose barb, [2]=Luer-lock female with stopcocks,
 [3]=10-32 threaded nut & ferrules for 1/16" o.d. tubing (add \$30/set of 4),
 [p]=Pinch valves have no fittings