

# Precision Liquid Handling



## Modular Design...

**Miniature Flow control units are used in a variety of different applications:**

**Continuous media replenishment in temperature controlled miniature incubators**

**Regulated accurate inflow of test solutions and outflow during washout in valve controlled perfusion systems**

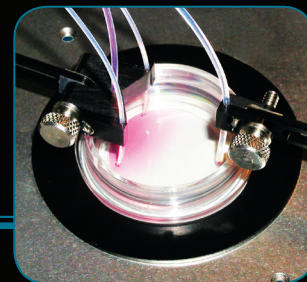
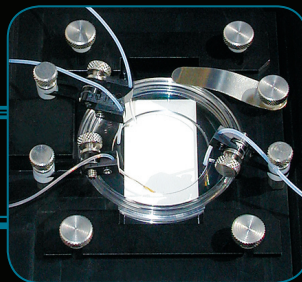
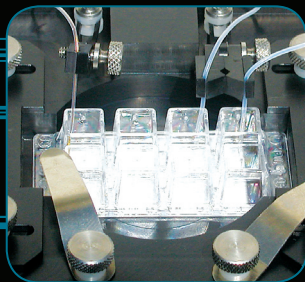
**Deliver micro-volumes of solution inside cells in intracellular perfusion systems**

**M**odular design of controlled flow systems provides not only an easy way to build up multi-channel systems, but also makes the systems compatible with temperature & valve controllers, data acquisition boards and imaging setups. Each unit comes with a set of different I.D. tubing to accommodate wide range of flow rates. Included luer connectors make the systems integration fast and straight forward.

Miniature size of solution drive units allows you to mount the systems next to your sample to minimize dead volume inside tubing. Computerized controllers provide means of software automation through RS232/USB, analog signal and digital I/O connection to data acquisition boards and computer ports.

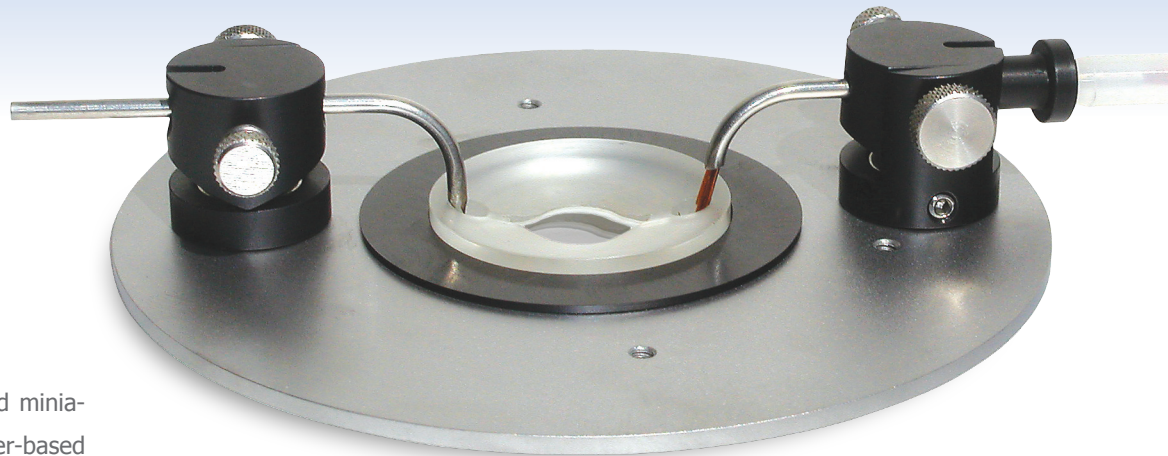
Multi-channel systems combined with software control provide extremely flexible and robust automation tools for accurate test solution application and mixing. The flow controllers can operate valve controllers to switch between multiple solutions, can read analog and digital signals to monitor environment, and can be linked to other controllers, including temperature controllers, to share the same computer port for software control.

Combined with a set of accessories, from miniature adjustable tubing holders to temperature controlled microscope stages, miniature incubators, and valve-based solution switches, controlled flow units make a complete environment to build an automated solution handling workstations suitable for a variety of applications from imaging and recording to unattended routine protocols execution.



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# Flow Control



Choose from manually operated miniature units to computerized controller-based systems to build your custom environment for accurate test solution application during imaging or recording.

Solution drive units mount directly on standard 0.5in. posts (included) and syringe holders, which are included with valve controller-based perfusion systems. Included luer connectors allow you to use the controlled flow systems with virtually any experimental setups.

Zero-dead volume multi-channel manifold ZMM and miniature holder with suction tubing MTH-S are arranged around a small volume chamber on a microscope adapter, MA. No mixing volume inside the manifold and adjustable tubing length facilitate non-contaminating accurate solution exchange. Suction tubing is connected to a flow control unit and provides solution outflow.

Features	Standard Configurations:
Flow Control	Flow rate ranges from 400nL/min up to 22mL/min
Modular Design	Connect units to each other to form multi-channel workstations
Miniature Size	Solution drive units mount next to your samples to minimize dead volume inside tubing
RS232/USB	UC-2 controller provides RS232 or USB computer connection for software control

Due to precise flow rate regulation, gentle micro-volume delivery is possible during intracellular perfusion and accurate solution mixing during chemical gradient formation. Low energy consumption makes battery powered units to work in closed sealed environment to continuously deliver media during long term experiments. Modular design provides easy integration and system upgrades.

Robust controllers make systems compatible with wide array of setups by taking inputs from computer ports, digital I/O and analog signals from data acquisition systems. Multiple controllers, including temperature and valve controllers, can be linked to the same computer.

