



# FlowCytoPrep5000

*Micro Technologies, Big Ideas.*



# MSP: FlowCytoPrep5000

*A biological sample preparation system allowing for combined automated sampling, sample preparation, and truly automated real-time flow cytometric analysis. The system is ideal for advanced cell culture monitoring and control, for high-throughput screening and for handling multiple samples without the need for manual sample preparation.*

## HIGHLIGHTS

The *FlowCytoPrep™* is a revolutionary new instrument that automates the tediously laborious and time consuming steps of manual sampling, sample preparation and sample injection in flow cytometry. When interfaced with a flow cytometer, it allows for truly automated flow cytometer operation including sampling, washing, fixing, staining, diluting and injecting. It allows for highly accurate, reproducible and detailed analysis of cell populations without the need for direct operator intervention. It is ideal for sample handling and bioreactor monitoring without the need for extensive operator training.

The *FlowCytoPrep™* combines the latest advances in automation, fluid handling technology and digital electronics to provide one of the most advanced and user-friendly turn-key devices ever developed to make truly automated flow cytometry possible. The *FlowCytoPrep™* is a compact bench-top instrument that is easy to transport and set up in the laboratory or in the field. It is a must-have instrument for any biotechnology laboratory using flow cytometry for cell and cell culture studies.

## FEATURES

- Allows for truly automated flow cytometry operation including:
  - Automated, sterile cell sampling from the cultivation vessel
  - Patented micro-reactor for automated cell washing, fixing, staining and dilution steps
- Seamlessly interfaces with existing commercially available flow cytometers
- Automated sample preparation
- Multiplexed operation for increased sampling frequency

- User-selectable sample preparation protocols
- Configured for automated protocol optimization
- Powerful, on-board computer
- Easy-to-use software for system control

## APPLICATIONS

- Cell concentration and cell viability determination
- DNA, cell cycle and size distribution analysis
- Apoptosis measurements
- Immunofluorescence staining
- Expanding range of new protocols
- Monitoring and controlling bioreactors to increase process productivity
- Environmental monitoring
- Quality control

## DESCRIPTION

The *FlowCytoPrep™* further extends conventional flow cytometry by automating all steps that conventionally are carried out manually. The result is increased accuracy and reproducibility of cell population data. Because no immediate supervision is needed, the instrument is ideal for monitoring processes such as cell culture growth over extended time periods. Extensively tested cell staining protocols can be selected from a menu of basic protocols or recipes that do not require further manual optimization, while users may also easily create their own custom protocols as desired. The *FlowCytoPrep™* enables detailed flow cytometry analysis of cell populations with the ease of use of a turn-key laboratory instrument that can be operated with little training or supervision.



FlowCytoPrep™ Micro-Reactor



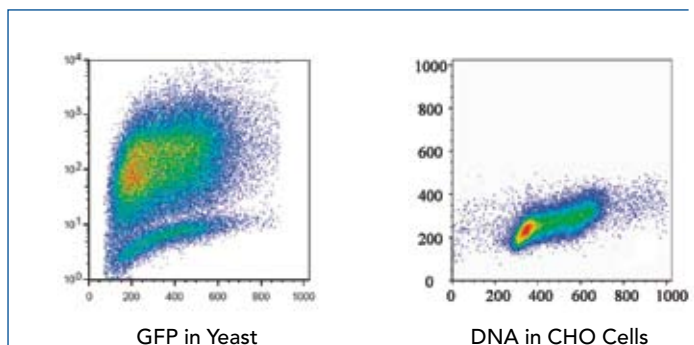
# FlowCytoPrep 5000

The *FlowCytoPrep™* can take samples at a frequency of up to one every two minutes, depending on the protocol used. Samples are then diluted and processed in a micro-reactor in which the surrounding fluid can be arbitrarily exchanged while retaining the cells. This permits cells to be fixed and exposed to reagents in precisely controlled and highly reproducible reactions. After washing, the cells are injected into and analyzed in the flow cytometer. Between samples, the fluid lines can be flushed and sterilized to prevent cross-contamination of samples.

Depending on the flow cytometer configuration used, up to 16 parameters can be measured for each biological sample. The results can be displayed in several different modes depending on the application and system configuration. Several different system configurations are available.

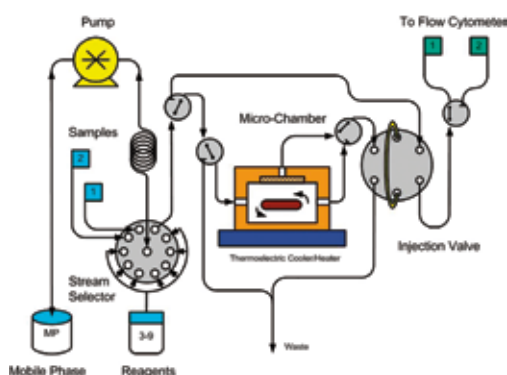
The instrument can operate as a stand-alone unit useful for processing multiple samples using either the same cell preparation protocol or a combination of selectable staining protocols. It can be configured to sample from 96 well plates. Or it can be directly interfaced with one or several cell culture vessels to sample the reactor contents in a sterile way. The samples are then processed and analyzed according to any combination of pre-selected protocols over extended periods of time. The versatile design permits easy implementation of customized design specifications. It can handle spores, bacteria, yeasts and mammalian cells.

be remotely monitored and controlled. The menu of protocols can be easily expanded as new protocols become available. As with the specific hardware configuration, the specific software set-up can be tailored to specific needs. The system offers flexible options to increase productivity in an R&D setting by saving valuable technician time that can be used for more demanding tasks.



Current sample preparation protocols include basic dilutions to adjust the sample concentration to the optimum levels for processing and analysis, dye exclusions for determining cell viability, and propidium iodide staining to quantify DNA content. The flexible, user-friendly design of the *FlowCytoPrep™* system offers implementation of most protocols that have been developed for manual sample preparation.

Simplified FlowCytoPrep™ Flow Schematic Diagram



The *FlowCytoPrep™* is completely automated and is controlled by an integrated microcomputer. It uses a Windows XP Embedded operating system which can also run the data acquisition and analysis software. The system can be connected to a network via Ethernet connectivity and can

### FlowCytoPrep™ Specifications

Sample Flow Rate	From 10 nL/min up to 5.0 mL/min
Cell Size Range	Up to 100 µm
Stir Rate Range	0 to 250 rpm
Sample Interval Time	Typically 2 to 20 min depending on complexity of sample preparation protocol
Micro-Reactor Temperature Range	2 to 40 °C
Ambient Pressure Range	800 to 1050 mbar absolute pressure
Ambient Temperature Range	10 to 35 °C
Ambient Humidity Range	0-90% RH, non-condensing
Power	110 VAC, 3A, 180 W steady state (360 W start-up)
Dimensions	15.5" (394 mm) W, 20.8" (528 mm) D, 12.2" (310 mm) H
Weight	50 lbs (22.7 kg)

Subject to change without notice



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