FLOWNAMICS®

Your Bioprocess Sampling Solution

Patent Pending

PMR CONTROLLER

Small Scale Perfusion Control

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The PMR™ system utilizes the FISP® technology for aseptic media removal from any size bioreactor. FISP® probes combined with patent pending dual fluid sensor pump control offer the ideal in-situ perfusion system for small scale reactors. With this low cost perfusion option the cells never leave the bioreactor.

While other perfusion systems require large working volumes the PMR™ only requires 100ml of total working volume in the reactor thanks to the minimal dead volume in the FISP® probe.

The PMR™ system is perfect for microcarrier and stem cell applications that require daily media exchanges. The FISP® provides a means of in-situ filtration keeping cells in the reactor and attached to their microcarriers.

Features

- Web-Based User interface which can be accessed for each PMR system over an offline network. All units can be controlled from one SCADA PC
- OPC Compatible
- User interface controls all user defined parameters
- Independently controlled flow rates for media addition and removal
- Addition and removal pumps auto calibrate on user defined interval
- Patent pending dual fluid sensor flow meter for pump auto calibration. Flow rate is determined with introduction of sterile air bubble into fluid path.
- User defined addition/removal pump activity intervals
- Functionality with a variety of pump tubing
- Capable of flow rates from .1ml/min – 50 ml/min
- Back flush capabilities to mitigate membrane fouling
- Fully serializable and disposable fluid path
- Disposable fluid path can be welded into media bags and filtrate retention bags

Benefits

- Capable of running perfusion for vessels as low as 100ml working volume
- Increased control over pump and membrane flow rates and activity
- Increased ease of parallel bioreactor perfusion control
- Custom membrane variability for changing perfusion needs
- Small footprint
- No external vacuum pumps or process air requirements

FISP®

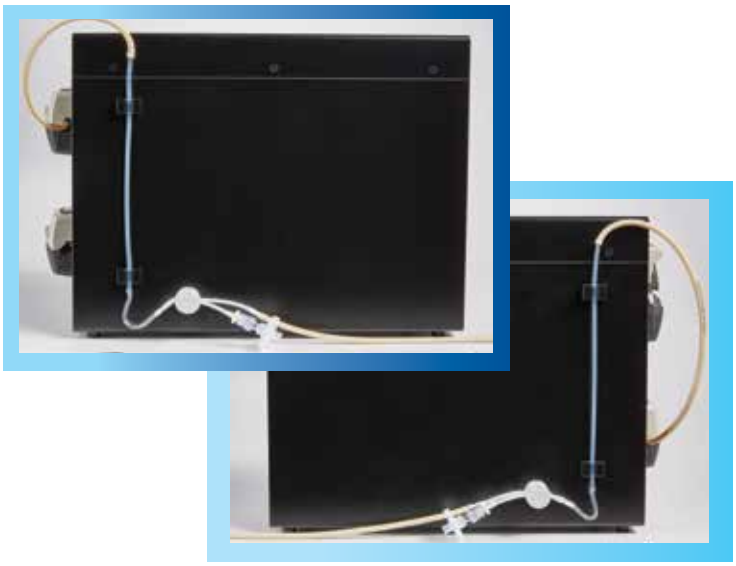
- Sterile, cell-free filtrate
- Autoclave, SIP, & CIP compatible
- Variable pore sizes, 0.2 micron to 70 micron
- Fits small reactor with any PG13.5 port
- Withstands the temperatures, pressures, viscosities, shear forces, and chemicals typical of fermentation environments
- Use with aerobic or anaerobic bacteria, yeast, fungi, algae, insect, and mammalian cell cultures
- Easy to use and maintain; no operator training required
- Interfaces with our *Seg-Flow® Sampling System* (additional information available)

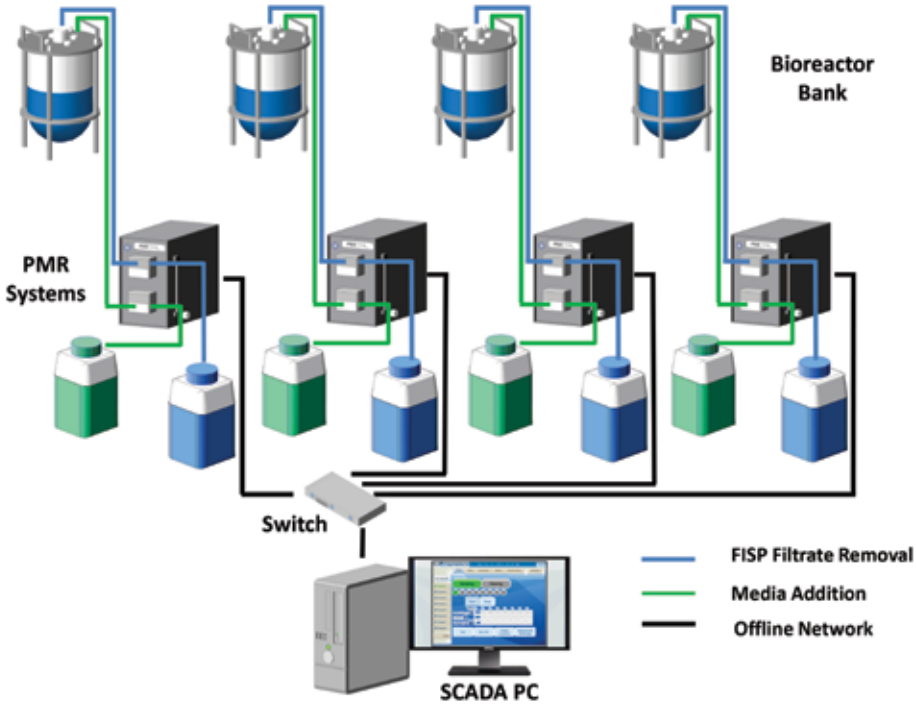
F-Series

Available For 12 & 19mm Ports
Fits Into the Fermenter / Bioreactor Top Port
Dead Volume: Approximately 0.24 to 0.44ml
Immersion Depths: 120, 200, 310, & 410mm

Dual Fluid Sensor Flow Meter Operation

The Dual fluid Sensor flow meter is used to auto-calibrate the media addition and filtrate removal pumps at user defined intervals. The flow meter works by introducing a sterile air bubble into the fluid path and tracking the leading edge of the fluid as it passes the two sensors. The distance between the two sensors contains a known volume of fluid; allowing the control unit to adjust the pumps to maintain user set point.





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