

# SEG-FLOW®

## 4800

*Segmented On-line  
Sampling*

### Automated On-line Sampling Solutions

- Automated sampling for up to 8 vessels
- Integrated analysis for up to 4 analyzers
- Multiple fraction collection options available
- On-line monitoring of nutrients, metabolites & cell growth
- Centralized data acquisition for integrated analyzers
- Exports analytical data to any OPC-enabled SCADA system
- Various feed control options for up to 2 pumps per vessel
- Rapid and accurate sampling



### What can Seg-Flow® automated sampling do for you?

- Transform off-line analytics into an on-line PAT tool
- Enhance process monitoring through integrated analytical approach
- Increase process knowledge through real-time analysis
- Improve process control and performance
- Increase product quantity and quality consistency
- Eliminate operator sampling errors
- Eliminate weekend and evening manual sampling
- Reduce process development time

The Seg-Flow® Automated On-line Sampling System provides multiple bioprocess monitoring and control solutions for improving process performance. The Seg-Flow system's patent pending Segmented On-line Sampling™ technology allows rapid and accurate sampling for 8 vessels and sample delivery to 4 analyzers and/or fraction collectors. Several feed control options are available with the Seg-Flow system, which can control 2 pumps per vessel. Existing off-line and at-line analytics are seamlessly integrated into a multi-functional on-line PAT tool through the Seg-Flow system's communication interface and FlowWeb™ control software. The Flow-Web software simultaneously acquires all integrated instrument data and can export the data to any OPC-enabled SCADA for enhanced process monitoring and control.

## Seg-Flow Flexibility



### Sampling Solutions

- Minimal sample withdrawal
- Rapid and accurate sampling
- Sample from 1-8 vessels
- Deliver samples to 4 analyzers/fraction collectors
- Withdraw cell-free or cell-containing samples

### Instrument & SCADA Integrations

- YSI® 7100 & 2700 Biochemistry Analyzers
- Nova BioProfile® Basic, 100, 300 & 400 Analyzers
- Waters Acquity UPLC
- ViCELL® XR Cell Analyzer
- Cedex HiRes Cell Analyzer
- Mettler-Toledo Balances
- Sartorius BioPAT® MFCS SCADA
- NBS BioCommand® SCADA
- DASGIP DASware SCADA
- Other devices and SCADA available upon request

### Feed Control Options

- Control 2 feed pumps per vessel
- Setpoint control, gravimetric feed control
- Other feed algorithms can be programmed
- Pump interfaces include Watson-Marlow, Cole-Parmer® MasterFlex®, SciLog® ACCU Digital & Ivek
- Other pump interfaces available upon request

### Communication Interfaces

- TCP/IP
- Serial – RS-232
- Analog I/O
- OPC



## Seg-Flow Simplicity

- Minimal setup required
- Vessel and device interface established within minutes
- Automated sample and cleaning cycles easily programmed
- Single-use fluid path
- Compact design – 11"W x 10 ¼"H x 14"D (27.9 cm x 26.0 cm x 35.6 cm)

# FLOWWEB™

Web based control software

## Internal Web Server

- Direct oversight and control of Seg-Flow system
- Integrates with existing lab network

## Minimal Setup

- Touch Screen HMI
- Parameters programmed within minutes
- Many sample and feed control options available

## Maintenance and Task Reminders

- System will e-mail individuals with warning or error messages
- E-mail technical support directly from system

## Automated Rinse/Sterilization Cycle

- Sample line is cleaned and/or sterilized after every sample

## Software updates through website

- Easy upgrades and custom solutions over the internet

## Flexibility

- View and control system from any PC or smartphone with internet access
- Save data in Excel format or export the data to other programs
- Software can be modified for custom applications

## Data Acquisition

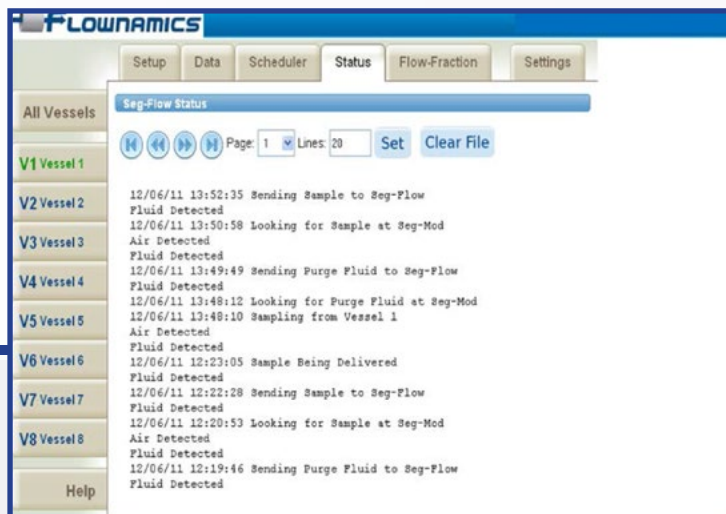
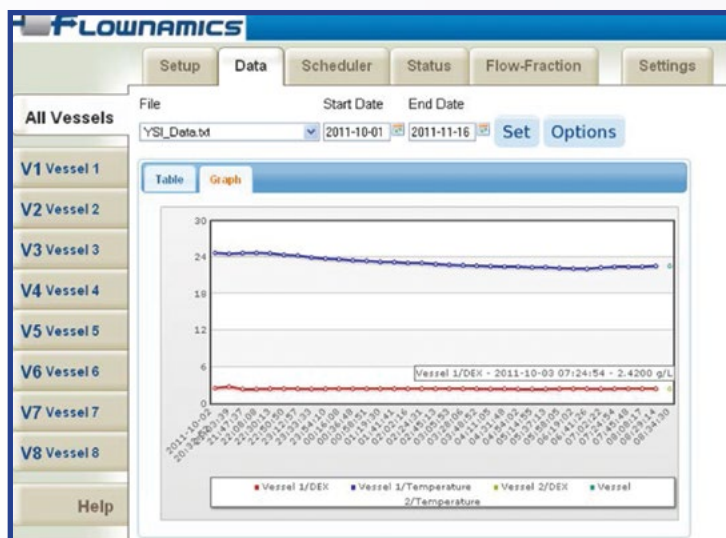
- Data acquisition for up to 4 analyzers
- Simultaneous data table and graph formats

## OPC Connectivity

- OPC Server package available
- Exports analytical data to any OPC-enabled SCADA or data historian
- Enhances process monitoring and control

## 21CFR, Part 11 Compliant

- Every event monitored and time-stamped
- Administrative and technical controls easily programmed





## FlowFraction™ Fraction Collector:

- Multi-rack collection system
- Septum piercing
- Peltier or liquid cooled racks
- Temperature control from 4 - 40°C
- Sample volumes from 250 µl to 15 ml
- Accommodates a variety of tube and vial sizes

## Sample Module

- Delivers samples to 4 devices
- Allows sample delivery precision
- Enables sample dilution and reagent addition
- Single-use fluid path



## Seamless Vessel Integration



## FISP® In-situ Sampling Probe

- Industry standard for fermentation and cell culture vessel sampling
- Cell-free sampling of vessel contents
- Micro-porous membrane provides aseptic barrier between vessel and Seg-Flow system
- Available for 12, 19 & 25mm ports - fits most vessel types and sizes
- Scale independent – use with laboratory, pilot or production vessels
- Safe for use with autoclave, SIP and CIP
- Adaptable for single-use bioreactors
- cGMP validated

## SegMod Vessel Interface

- Segmented On-line Sampling™ module
- Compatible with any vessel size or design
- Mounts easily on FISP or other in-situ sampling probe
- Scale independent – use with laboratory, pilot or production vessels

