

SEGFLOW[®]

Automated On-Line Bioprocess Sampling Solutions



For Sampling
From Up to 8 Streams

Automated On-Line Sampling Solutions

The Seg-Flow® Automated On-line Sampling System provides multiple bioprocess monitoring and control solutions for improving process performance. The Seg-Flow system's patented Segmented On-line Sampling™ technology allows rapid and accurate sampling for 8 vessels or process streams 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 FlowWeb software simultaneously acquires all integrated instrument data and can export the data to any OPC-enabled SCADA for enhanced process monitoring and control.



Sampling Solutions

- Rapid and accurate sampling
- Sample from 1-8 vessels
- Deliver samples to 4 analyzers/fraction collectors
- Withdraw cell-free or cell-containing samples
- On-line monitoring of nutrients, metabolites & cell growth
- Sample line is cleaned and/or sterilized after every sample

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

SCADA Integrations

- Sartorius BioPAT® MFCS
- DASGIP DASware
- New Brunswick BioCommand®
- Applikon BioXpert®
- Broadley-James BioNet®
- Emerson Delta V
- Other devices and SCADA available upon request

Communication Interfaces

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

SegMod Vessel Interface

- Segmented On-line Sampling™ module for minimal sample withdrawal
- 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



1200

Economical
Single-use fluid path
Sampling for 1-2 reactors
10.0" W x 7.0" H x 10.0" D
(25.4 cm x 17.8 cm x 25.0 cm)



4800

Single-use fluid path
Sampling for up to 8 reactors
11" W x 10 1/4" H x 14" D
(27.9 cm x 26.0 cm x 35.6 cm)



8000i

Chemically inert fluid path
Sampling for up to 8 reactors
11" W x 10 1/4" H x 14" D
(27.9 cm x 26.0 cm x 35.6 cm)



SEG-MOD™

Online Sample Preparation and Collection

SAMPLE-MOD™

Sample Module

- Delivers samples to 4 devices
- Allows sample delivery precision
- Enables sample dilution, including serial dilution
- Allows reagent addition for sample preparation
- Single-use fluid path



FLOW FRACTION™

FlowFraction™ Fraction Collector

- Multi-rack collection system
- Septum piercing
- Peltier or liquid temperature controlled plates from 4 - 40°C
- Sample volumes from 250 µl to 50 ml
- Accommodates a variety of tube and vial sizes



Instrument Integrations

- Agilent® Infinity 1200 Series HPLC
- Cedex Bio HT
- Cedex HiRes Cell Analyzer
- Mettler-Toledo Balances
- Nova® BioProfile® Flex (requires OPC),
- Basic, 100, 300, and 400 analyzers
- Vi-CELL® XR Cell Analyzer
- Waters Acquity UPLC
- YSI® 2700, 2900, 2950, & 7100 Biochemistry Analyzers

FLOWWEB™

Web Based Control Software

Internal Web Server

- Direct oversight and control of Seg-Flow system
- Integrates with existing lab network
- View and control system from any PC or smart-phone with internet access

Minimal Setup

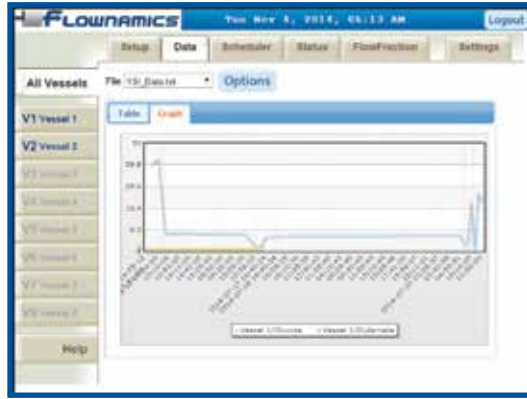
- Parameters programmed within minutes

Data Acquisition

- Data acquisition for up to 4 analyzers
- Simultaneous data table and graph formats
- Save data in Excel format or export the data to other programs

21CFR, Part 11 Compliant

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



Seamless Vessel Integration

FISP® In-situ Sampling Probe

- Industry standard for fermentation and cell culture vessel sampling
- Cell-free sampling of vessel contents
- Available for 12, 19, & 25mm ports - fits most vessels
- Scale independent – laboratory, pilot or production vessels
- Safe for use with autoclave, SIP, and CIP
- Adaptable for single-use bioreactors
- cGMP validated

