

Automated On-Line Analysis

By Flownamics and YSI Inc.



The Flownamics SEGFLOW® 4800 coupled with the YSI 2700 SELECT™ Biochemistry Analyzer provides automated on-line analytical solutions for bioprocess monitoring and control. The SEGFLOW draws samples from 1 to 8 bioreactor vessels using the FISP® Cell-free Sampling Probe(s) and delivers each to the YSI 2700, or up to 4 analyzers in all. The SEGFLOW system acquires and processes the YSI 2700 data to provide feed control options for each vessel. These feed control options include controlling a feed pump directly or sending the YSI 2700 data to any OPC-enabled SCADA for activating its own feed control system.

SEGFLOW® Features

Versatility

- User-defined sample size (250 ul - 15 ml), rapid and accurate sampling
- Sample from 1 to 8 vessels (streams) at a time
- Withdraw sample using FISP® Cell-Free Sampling Probes
- 8 analog inputs, 21 analog outputs, 4 RS-232 ports, TCP/IP

Internal Web Server

- Flow-Web™ controls system internally
- Log data and information for each vessel or stream
- View and control from any PC or smart phone

Low Maintenance and Operating Cost

- Single-use fluid path from vessel to analyzer

Small Footprint

- SEG-FLOW® – 11"W x 14"D x 10 1/4"H
(27.9W x 35.6D x 26.0H cm)
- YSI 2700 – 14"W x 10"D x 14"H
(35.6W x 25.4D x 35.6H cm)

Simple Setup, Interface and Startup

YSI 2700 Chemistries

- | | | |
|-------------|---------------------|------------|
| • Glucose | • Lactose | • Starch |
| • Lactate | • Sucrose | • Choline |
| • Glutamine | • Galactose | • Xylose |
| • Glutamate | • Hydrogen Peroxide | • Glycerol |
| • Ethanol | • Methanol | |

YSI 2700 Popular Chemistry Combinations

- | | |
|-----------------------|-------------------|
| • Glucose/Lactate | • Xylose/Glucose |
| • Glutamine/Glutamate | • Glucose/Ethanol |
| • Sucrose/Glucose | • Lactate/Ethanol |

SEGFLOW/YSI 7100 Interface

Analyze 6 Analytes Simultaneously



YSI 7100 Chemistries

- Glucose
- Lactate
- Glutamine
- Glutamate
- Ammonium
- Potassium
- Xylose
- Ethanol
- Methanol
- Sucrose
- Galactose
- Glycerol

FlowWeb™

User friendly with minimal training needed

Minimal Setup

- Assign vessel or stream ID numbers
- Assign system and vessel settings

Logs and Plots Data

- Data logged in a spreadsheet
- Present data in chart or trend format

Maintenance and Task Reminders

- System can e-mail warnings and error messages
- E-mail Technical Support directly from system

Automatic Rinse/Sterilization Cycle

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

Software Updates Through Website

- Easy upgrades and customer solutions over Internet

Flexibility

- Check system status from any PC or smart phone with Internet access and a Web browser
- Save data in spreadsheet format or export the data to other programs
- Software can be modified for customer applications

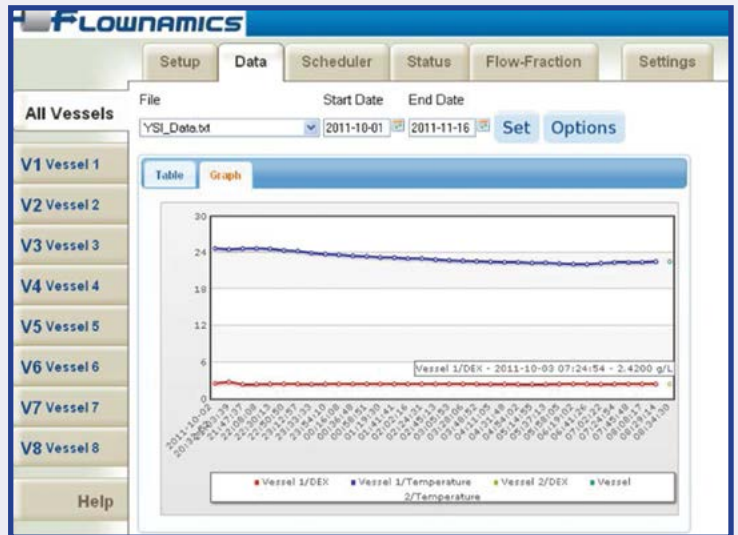
OPC Connectivity

- 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

NOTE: Product literature is available for Flownamics® In-situ Sampling Probe [FISP®] which is used for withdrawing a cell-free sample from a fermentation vessel or bioreactor. FISP® fits into the vessel's side or top port and is sterilized in-situ. Models are available for bench top up to large production scale vessels. See our Website for more info or call to request literature.



Vessel	Date/Time	Event Description
V1 Vessel 1	12/06/11 13:52:35	Sending Sample to Seg-Flow
V2 Vessel 2	12/06/11 13:50:58	Fluid Detected
V3 Vessel 3	12/06/11 13:50:58	Looking for Sample at Seg-Mod
V4 Vessel 4	12/06/11 13:49:49	Air Detected
V5 Vessel 5	12/06/11 13:49:49	Fluid Detected
V6 Vessel 6	12/06/11 13:49:49	Sending Purge Fluid to Seg-Flow
V7 Vessel 7	12/06/11 13:48:12	Fluid Detected
V8 Vessel 8	12/06/11 13:48:12	Looking for Purge Fluid at Seg-Mod
V1 Vessel 1	12/06/11 13:48:10	Sampling from Vessel 1
V2 Vessel 2	12/06/11 12:23:05	Air Detected
V3 Vessel 3	12/06/11 12:23:05	Sample Being Delivered
V4 Vessel 4	12/06/11 12:22:28	Fluid Detected
V5 Vessel 5	12/06/11 12:22:28	Sending Sample to Seg-Flow
V6 Vessel 6	12/06/11 12:20:53	Fluid Detected
V7 Vessel 7	12/06/11 12:20:53	Looking for Sample at Seg-Mod
V8 Vessel 8	12/06/11 12:19:46	Fluid Detected
V1 Vessel 1	12/06/11 12:19:46	Sending Purge Fluid to Seg-Flow
V2 Vessel 2	12/06/11 12:19:46	Fluid Detected