

LT Industries IsoPharm™ Fermentation Analyzer



Get In-Situ Fermentation Measurements Quick and Easy.

The Need for In-Situ Analysis:

The fermentation process varies greatly with organisms behaving differently and metabolizing at varying rates. With in-process measurements you can monitor the key parameters and optimize the fermentation process.

For R&D and Mass Production

For use in both R&D and mass production of fermentation based pharmaceutical products. On-line monitoring of fermentation provides fast results and can be incorporated into the process control system.

IsoPharm's full networking capability allows data to be accessed wherever needed. **OpCon-II** user interface provides customized screens, result reporting, and data-logging. **LTBus** software allows the system to interface with plant DCS, PLC, or other process control systems using Modbus, 4-20 mA, and other protocols.

IsoPharm™ fermentation analyzers from LT Industries are small, rugged analyzers designed for use in fermentation production and R&D laboratories. They can be used for both laboratory and in-situ measurement of many fermentation parameters. Get protein, glucose, acetate, and many other key fermentation process parameters in real-time.

Get benefits such as:

- Dramatic reduction in time and cost to get Lab results.
- Measures multiple properties in seconds
- Online integration for continuous readings of real-time process conditions
- Optimize the process to increase yield, reduce lost batches, and reduce processing time.
- Multiplexer allows for up to 20 reactors to be measured using a single analyzer.

What parameters can be monitored by the IsoPharm Fermentation Analyzer?

• Glucose	• Glucose
• Dry Cell Weight	• Glutamine
• Optical Density	• Ammonia
• Ethanol	• Lactate
• Protein	• and more
• Acetate	

Selected Measurements Using the IsoPharm™ Fermentation Analyzer

Fermentation processes in a closed vessel can benefit greatly from in-process chemical analysis. Large-scale fermenters can hold as many as 250,000 gallons of raw material, which may be in process for two weeks or more. The IsoPharm Fermentation Analyzer can monitor both the raw materials and emerging product on-line, despite the thick, soupy nature of the material.

Measure glucose (figure 1 shows +/- 2.4 across the range of 5 to 41.8), Optical Density (+/-3.5 OD units shown in figure 2), Product Titer/Protein (+/-23.8 units as shown in figure 3), and much more with the Fermentation Analyzer. These properties and more can be measured In-Situ or in the lab and one analyzer can monitor many fermenters, sending all the valuable data to your process control system automatically.

In mass production the electrical power savings alone can provide payback for an NIR analyzer within a few months. Added product yield from as little as two extra fermentation runs per year can generate enormous marginal profit addition.

In R&D settings, knowing the real-time conditions in-situ can greatly facilitate process optimization. Few if any other analytical techniques can provide these advantages.

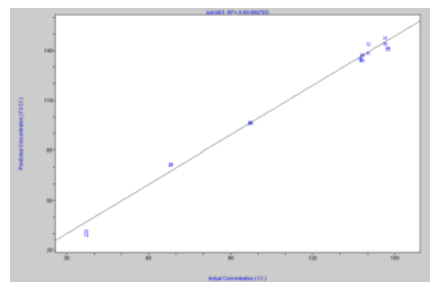


Figure 1 – Glucose Actual vs. Predicted

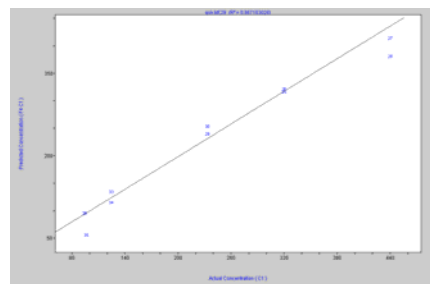


Figure 2 – OD Actual vs. Predicted

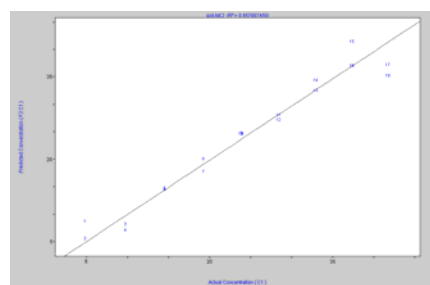


Figure 3 – Titer Actual vs. Predicted

IsoPharm Fermentation Analyzer

Reliability:	Designed for twenty-four hour operations without shut-down.
Spectral range:	1200 – 2400 nm (other ranges available from 400 – 2400 nm)
Scanning speed:	5 scans per second
Spectral addition:	Scans may be added under computer control
Measurement modes:	Reflectance, Transmittance, Transflectance
Data interval:	1 nm (1200 points over the spectral range)
Bandwidth:	10 nm
Photometric range:	5 Absorbance Units
Wavelength repeatability:	0.01 nm
Stray light:	0.1% or better
Light geometry:	Optimized for minimum specular reflectance and maximal S/N
Auxiliary port:	Computer controlled for alternative sampling
Possible signal output:	Multiple 4-20 mA, multiple voltages, MODBUS, and more
Power:	120V, 3.5 Amp, 60Hz or 220V, 1.8 Amp, 50 Hz
Power transients:	Filtered
Dimensions:	12" x 15" x 13" (HWD), 30.5 cm x 39.7 cm x 34.9 cm (HWD)