

Cost-effective fermentation monitoring system for laboratory, pilot, and light industrial applications

**Fermentation Monitor INNOVA 1316-3**



- Oxygen, Carbon Dioxide, and Ethanol monitoring from a single sampling point
- Fast response time
- Cost-effective: low initial investment and cost of ownership
- Quick and easy installation



**The INNOVA 1316-3 Fermentation Multi-Gas Monitor** is a cost-effective 3-channel gas monitor designed for exhaust gas analysis in laboratory, pilot and light industrial applications. The 1316-3 provides continuous, simultaneous measurement of Oxygen, Carbon Dioxide, and Ethanol without the need for additional sensors. The 1316-3 contains its own sampling system suitable for single point monitoring. Additional sampling points can be added with a dedicated monitor installed close to the reactor vessels, without the need for expensive multipoint samplers.

Two measurement methods are employed in the INNOVA 1316-3 multi-gas monitor. Carbon Dioxide and Ethanol are measured using Non Dispersive Infrared (NDIR) technology. An Electrochemical

Sensor is used to measure the Oxygen concentration.

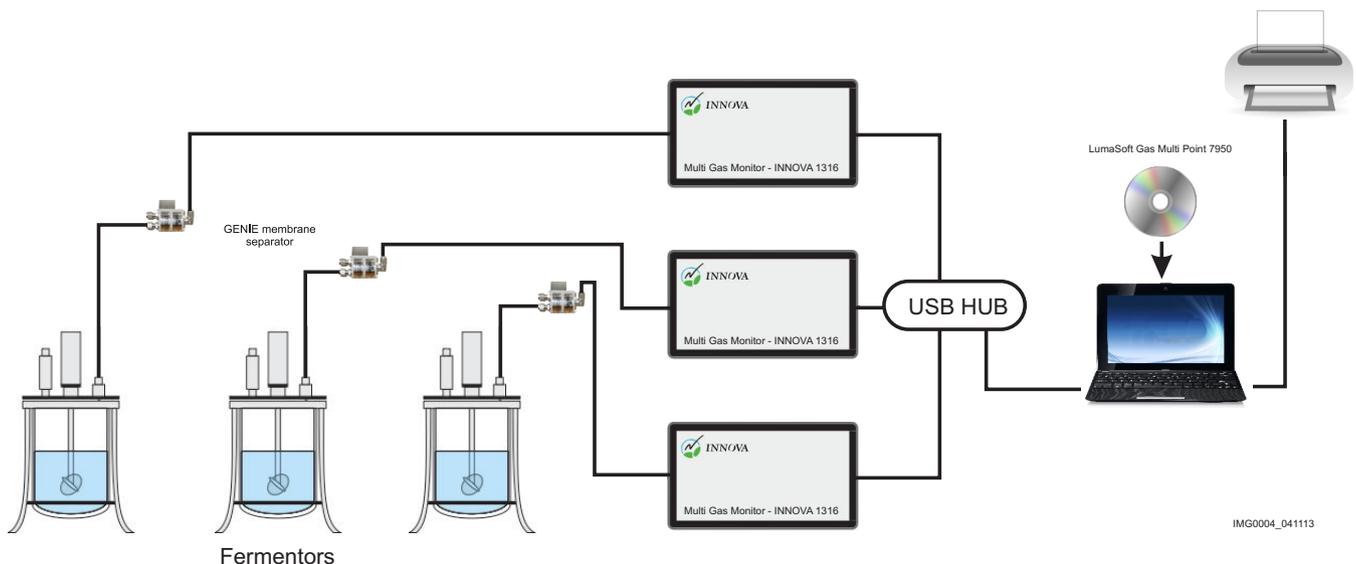
During the measurement cycle, a pump continuously draws air from the sampling point through the air filter to ensure real-time gas is in the measurement system. Gas concentrations from both modules are reported together via the RS-232 or USB interface to the user software BZ6014 (included) or to the optional LumaSoft Gas Multi Point 7950 remote control software (for applications with multiple sampling points).

**Application areas:**

- Exhaust Gas analysis for Fermenters
- Online process optimization in Pharmaceutical industry
- Bench top Fermenters in Bio process

## Monitoring for Applications with More than One Fermenter

Additional 1316-3 monitors can be used with the LumaSoft Gas Multipoint 7950 remote control software to increase the number of dedicated continuous monitoring in up to 24 locations. The software supports up to 24 monitors performing all three gas-monitoring tasks, all linked to a single computer via USB-hub(s).



### Getting Started

The user decides where the gas measurements should be taken. The 4 m PTFE tubing, Inlet filter and interface cables are all included with the delivery of each 1316-3 Multi Gas Monitor.

Air-samples are then drawn from the locations and analyzed by the gas monitors.

The monitors are connected to the computer via the USB or the RS-232 interface cables. Standard USB-hub(s) can be used to connect multiple monitors to a single computer (USB HUB 7 ports: VH1002A). A USB extension kit for longer distance between monitor and USB-hub is also available (USB extension 30m: UA0995A).

The user software (BZ6014) and the LumaSoft Gas Multi Point 7950 remote control software are both user-friendly and do not require highly skilled operators.

The installation of the Multipoint 7950-based system is simple and can be done by the end-user. The measurement technology ensures that calibrations are seldom, if ever, required.

### Multi-Point and Multi-Gas Monitor Benefits

- Very attractively priced system for facilities with two to six fermenters
- Fermentation process optimization with simultaneous measurement on all fermenters without need of additional sensors
- High flexibility with total control of your investment
- Saves the complex installation cost of long gas sample lines
- No contamination risk between Fermenters
- Reduced downtime in the production process in case of maintenance task

# Easy Set Up With an Intuitive Interface

The LumaSoft Gas 7950 enables easy and cost-effective deployment of multipoint fermenter exhaust gas monitoring systems

- Easy configuration of multipoint sampling
- Online access while instrument is running
- Alarm reporting for each gas on each channel
- Flexible and scalable up to 24 locations
- Full OPC server connectivity

- Measurement data storage in an SQL Server 2005 database
- Online access to measurement data from Microsoft Excel
- Compatible with Windows XP, Vista and Windows 7

## Graphical Window

Graphical view allows monitoring the exhaust gas for each channel individually. Display absolute value moving the cursor on the gas concentration curves. Statistics Data will be performed automatically and displayed beside measurement data.

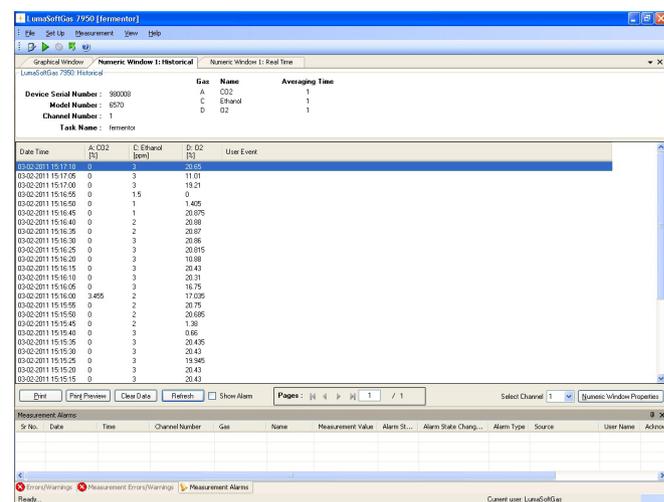
You can easily customize and scale the graph properties and indicate relevant User Event message according to your process.



## Process Information in Real Time

The Numeric window features both Real Time display for online monitoring of gas concentrations and Historical display intended for offline measurement views or display of older measurements while being online. Data can also be exported to Excel for tailor made report during a measurement task.

Get online access to all information (Gas Concentration, Alarms, User Event, etc.) from a foreign PC anywhere in your plant connected to the SQL Database server.



## Data exchange capability, built in OPC server.

The 7950 software collects data every second from each 1316-3 monitor, all gas concentrations, alarms and user events will be saved in an SQL Database in real time (each channel having its own table).

Sends current measurement data to any OPC client in your network using the built in OPC server.



## INNOVA 1316-3 Technical Specifications

Sensor	CO <sub>2</sub>	O <sub>2</sub>	Ethanol
Range	0.01 to 16%	0.01 to 25%	12 to 10,000 ppm
Accuracy	±3% relative	±3% relative	12 ppm
Resolution	0.01%	0.01%	1 ppm
Response Time (T90)	5 sec	17 sec	5 sec
Measurement technique	Infra Red Absorption(NDIR)	Electrochemical	Infra Red Absorption(NDIR)
Drift (in % / month)	<3% of reading	<1% of reading	<3% of reading
Temperature Compensation	Included	automatically with temp. change >4 °C	Included
Calibration Interval	yearly	automatically	yearly
Life time sensor element	7-10 years	12 months	7-10 years

### General

Gas Inlet Flow Rate	150 ml/min
Zero Reference Inlet Flow	700 ml/min
Power Requirements	Voltage: 100-240 VAC / Power Consumption 40 VA
Dimensions (H x W x D)	Height: 140 mm (5.5 in) x Width: 236 mm (9.3 in) x Depth: 260 mm (10.2 in)
Weight	3.5 kg
Compliance with Standards	CE
Safety	EN61010-1 Safety requirements for electrical equipment for measurement control and laboratory use.
EMC	EN 61326-1
Environment	Altitude up to 3,000 m (10,000 ft) Operating Temperature: + 5 °C to + 40 °C Storage Temperature: + 0 °C to + 50 °C Pollution Degree II
Enclosure	IP20

### Ordering Information

The Multi Gas Monitor – INNOVA 1316-3 is delivered with all calibrations.

The LumaSoft Gas Multi Point 7950 software enables remote control of up to 24 Gas Monitors – INNOVA 1316

### Accessories Include

WL0816	RS-232 interface cable
AM0001	1.8 m USB cable
UD5091	Inlet filter assembly
AT2177	PFTE tubing 4 meters
BE6024	Instruction Manual for 1316
BZ6014	User Software

### Optional Accessories

AF0614	PFTE tubing per meter
UA1365	Inline Genie Membrane separator
UA1357	Genie Membrane separator
UD5091	Inlet filter assembling
DS2306	Inlet filter
DS0790	Zero ref. filter

## LumaSoft Gas MultiPoint 7950 Specifications

### Hardware Requirements:

Pentium processor or better  
Min. 512 MB RAM (min. 2 GB on Windows 7)  
Min. 500 MB hard-disc space available  
One USB port for the license dongle  
One USB port for each 1316 Monitor (system expandable via USB Hub)  
License Dongle

### Software Requirements

Windows® XP, Vista or Windows 7

### Accessories

From computer to monitor (alternatives):

USB cable 5 m	AM0002
USB-HUB 7-PORTS <sup>1</sup>	VH1002
USB extension 30 m <sup>2</sup>	UA0995

<sup>1</sup> Including external power supply

<sup>2</sup> Kit for distance up to 35m, including external power supply

## LumaSense Technologies

**Americas, Australia, India, China  
Sales & Service  
Santa Clara, CA  
Tel: +1 800 631 0176  
Fax: +1 408 727 1677**

[info@lumasenseinc.com](mailto:info@lumasenseinc.com)

LumaSense Technologies, Inc., reserves the right to change the information in this publication at any time.

## Awakening Your 6th Sense

**INNOVA Gas Products Sales & Service  
LumaSense Technologies A/S  
Energivej 30, DK- 2750 Ballerup  
Tel:+45 44 20 01 00  
Fax:+45 44 20 01 01**

[www.lumasenseinc.com](http://www.lumasenseinc.com)

©2013 LumaSense Technologies. All rights reserved.  
Innova-1316-3\_Datasheet\_EN - Rev. 11/05/2013