

Multi-Zone Furnace Multi-gas Process Analyzer System

Product Description

The Multi-gas Process Analyzer System is designed to monitor the gas processes in large multi-zone furnaces for gas composition with optional temperature and pressure measurements. The system includes electrically powered equipment to sample toxic, flammable, possibly explosive gases and uses high-pressure gas cylinders for calibration. The system is housed within a NEMA 4 electrical enclosure that is permanently mounted near the process. The heart of the system is ARI's Laser Gas Analyzer (LGA), which is a self-contained gas sampler/analyzer that uses the principles of Raman spectroscopy to simultaneously identify and quantify eight (8) gaseous compounds. The system connects the analyzer to 8 to 16 gas-sampling ports via a unique valve manifold. Sample scheduling, which is user configurable, is generally set to continuously cycle through the ports, one after another. Sample time at each port is typically 10 to 15 seconds.

The system includes ARI's multi-port-purge system that uses an auxiliary pump to simultaneously pre-purge one or more sample lines while simultaneously analyzing gas in a specified line. This shortens the time between port-gas measurements by keeping the sample lines filled with fresh sample gas. The system also includes ARI's nitrogen back flush system. Should any of the sampling lines become restricted or plugged, pressurized nitrogen can be forced backwards down the line to clean it.



Application Areas

Heat treating of metals
Metal refining
Petrochemical processes
Bio-pharma fermentation
Fuel cell manufacturing

Glass manufacturing
Food processing
Semiconductor production
Natural gas combustion
Fertilizer production

**"Optimize energy use,
product quality, and
environmental emissions"**

Analyzer System (16
different gases) with 16
port sampling system
and 16 pressure ports



General Specifications

Physical Dimensions

8-16 port analyzer NEMA 4 enclosure

40" x 36" x 12" to 80" x 72" x 12"

Power

120/230v , 7/3.5 amp, 50/60 Hz ,
1 phase

Gas sensor

Raman scattering Inter-cavity
Spectroscopy using a Helium-Neon
laser

Standard gases

O₂, CO₂, CO, H₂, N₂, NH₃, H₂O,
C_xH_y, (over 100 additional gases
are available)

Detection range

0-100%

Typical resolution

0.1% of full scale

Typical accuracy

+/-0.25% of full scale

Sample flow rate

200-800 ml/min

Typical response time

1-15 sec (distance dependant)

Control computer

Windows based PC

Interfaces available

Touch screen, Keyboard, mouse,
printer, RS232 (2), USB, 10/100
MPS network

Sampling system

Integrated 8, 12, or 16 port
multiplexed valving system with pre-
purge and back flush

Options

8-16 points pressure monitoring
8-32 points temperature monitoring
Analog output (0-5v, 4-20ma)

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