



New Instruments and
Research for Analysis

SAGITTARIUS SERIES 2000

MULTI-LINE FID LEL MONITORING SYSTEM

Our **FID LEL** proposes some innovative technical characteristics, which allow continuous measures of total hydrocarbon concentrations.

Nira Flame Ionization Detector

The detection of organic compounds is most effective done with **Flame Ionization Detectors**. As the name suggests, analysis involves the detection of ions. The source of these ions is a small hydrogen-air flame. In order to detect these ions, two electrodes are used to provide a potential difference.

The ions are attracted by the collector located on above the flame that induce a current. This current is measured with a high-impedance electrometer which amplifies and displays this current flow which is equal to the quantity of hydrocarbon analysed.

To avoid solvent condensation inside the analytical system, the detector is heated and thermo regulated. The inlet air and the inlet hydrogen gas are controlled by some pressure regulators. The stable temperature and pressure control systems eliminates inaccuracies during the solvent concentration reading. The NIRA FID LEL monitoring system is most suitable sensor to analyze a wide range of complex solvent mixtures.

BENEFITS

The NIRA FID LEL monitoring system allows some extraordinary extra advantages for the tobacco, pharmaceutical and food packaging industries:

- › **Low investment.**
- › **High LEL system performances.**
- › **High safety in printed area.**
- › **Fast response time.**
- › **Long term stability and high linearity.**
- › **Easy and fast installation.**
- › **Low maintenance effort due to its wear-resistant design.**
- › **Very robust and long life time.**
- › **Most suitable analyzer for a wide range of solvent.**



Mod. 2201



Mod. 2001

■ CERTIFICATION

The entire NIRA FID LEL monitoring system "Sagittarius series 2000" is EN 1539 (Oven and furnaces in which flammable substances are realized) TÜV Rheinland certified (Certification N: 281 10 269).

■ CONTROL SYSTEM

The control system is made by an embedded PC and monitor TFT which displays the solvent concentration in gr/m³ and % of LEL. Each analytical unit is able to control maximum 10 analytical lines in less than 20 sec. The response time (T₉₀) of each analytical line is lower than 2 sec. The control unit and the analytical unit are installed inside a standalone rack (IP55) suitable for continuous use in harsh environments.

■ SAMPLING SYSTEM

The sampling system is made by some ejectors which they are completely maintenance free and the sample flow inside each analytical line is constantly checked by a low sample flow sensor and flow vacuum control system.

■ TECHNICAL SPECIFICATIONS

DETECTOR	<i>Flame Ionization</i>
ANALYTICAL LINES(mod.2001)	<i>Maximum 10 analytical lines</i>
ANALYTICAL LINES(mod.2201)	<i>Maximum 4 analytical lines</i>
RESPONSE TIME	<i>< 2 sec. per each analytical line</i>
LOWER DETECTABLE LEVEL	<i>0,01 g/m³</i>
ACCURACY	<i>±1% FS</i>
LINEARITY	<i>±1% FS</i>
REPEATABILITY	<i>±1% FS</i>
LONG TERM STABILITY	<i>±1% FS</i>
ENVIRONMENTAL WORKING TEMPERATURE	<i>+ 5 + 40°C</i>
SAMPLE GAS TEMPERATURE	<i>+ 5 + 60°C</i>
HYDROGEN CONSUMPTION	<i>50 cc/min.</i>
HYDROGEN PRESSURE REQUIRED	<i>Minimum 40 psi (3 bar)</i>
FLAME IONIZATION DETECTOR AIR CONSUMPTION	<i>500 cc/min.</i>
SERVO AIR PRESSURE REQUIRED	<i>Minimum 60 psi (4 bar)</i>
ALARMS	<i>Normally close relay contacts free of tension</i>
ANALOGUE OUTPUTS	<i>0-10 Volt or 4-20 mA (Selectable)</i>
VISUALIZATION	<i>TFT Screen 6,5" (mod.2201) TFT Screen 10" (mod.2001)</i>
POWER SUPPLY	<i>230 Vac, 50/60 Hz, 500VA</i>
DIMENSIONS (mod.2001)	<i>600x800x1900 (L x W x H)</i>
WEIGHT (mod.2001)	<i>220 Kg</i>
DIMENSIONS (mod.2201- Rack Version)	<i>600x800x1900 (L x W x H)</i>
WEIGHT (mod.2201- Rack Version)	<i>210 Kg</i>
DIMENSIONS (mod.2201- Box Version)	<i>300x600x400 (L x W x H)</i>
WEIGHT (mod.2201- Box Version)	<i>35 Kg</i>

■ APPLICATION

During the manufacturing of coated, laminated and printing flexible packaging materials, solvent containing gas mixtures must be monitored (per European Directive EN 1539) in order to prevent any hazardous risk of explosions.

To ensure explosion prevention, the LEL percentage of the air must be measured and kept under certain limits.

The Flame Ionization Detection (FID) principle has proven its highly suitability in Lower Explosive Limit (LEL) determining. The main advantages of this analytical method are the rapid response time (T₉₀), its capability to analyze a wide range of solvent mixtures and its robust technology combined with high sensitivity.

This system can also be used to monitor the solvent concentration at the entrance of any air treating system (Incinerator - Regenerative Thermal Oxidizer and Recovery Solvent Plant).



NEW INSTRUMENTS and RESEARCH for ANALYSIS s.r.l.

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