

## PGC Analyzer

The next generation process gas chromatograph, the **FXI Series 5™** system was developed from a heritage of highly reliable and field proven systems. The FXI Series5 system continuously analyzes and reports component concentrations and physical properties of process gas streams in a variety of applications in the natural gas, refining, petrochemical, chemical and pharmaceutical industries.

- LAMS™ Windows® based FXI software operated by a touchscreen color graphical user interface.
- Seamless connectivity with DCS and LAN systems through Modbus®, OPC®, Ethernet and analog protocols.
- Large, easy to read display of real-time chromatograms with zoom and overlay features eliminates the need for strip chart recorders.
- Versatile detector and column options can be integrated with the FXI system to provide application flexibility. Detector options include Thermal Conductivity (TCD), Flame Ionization (FID), Flame Photometric (FPD) and Helium Ionization (HID). Column options include capillary, micro-packed, and packed columns.
- Highly stable, field proven and easily maintained analyzer oven provides outstanding chromatographic performance with a high level of uptime.
- New Carrier Gas Flow Control Regulator System or Electronic Pressure Regulator System are available as options.



### Foxboro® 931A, 931C & 931D Upgrade Kits

Enhance the useability of your existing Foxboro asset by taking a close look at our economical upgrade alternatives.

Field installed, the kits give you the benefits of the most current technology for a fraction of the cost of a full system replacement.

- **Easy to use LAMS™ Windows based software operated by touchscreen**
- **Real-time chromatograms**
- **Flexible communications**
- **Advanced analysis capability**

## FXI Series 5™

### Networking and Communications Capabilities

The FXI Series 5 system offers an open system architecture allowing a variety of connection options to a DCS system as well as supervisory connections to a plant Local Area Network.

#### DCS Communications

- Serial MODBUS® RTU as the primary DCS connection using Modicon data format. Dual port redundancy and Daniel data formats are offered as options.
- Modbus/TCP and Ethernet OPC are available as options for DCS communications.
- Fully configurable analog and digital I/O with data multiplexing are available.
- Seamless connection to the Foxboro-Invensys I/A Series DCS using Fieldbus for expanded communications capability.

#### Connectivity

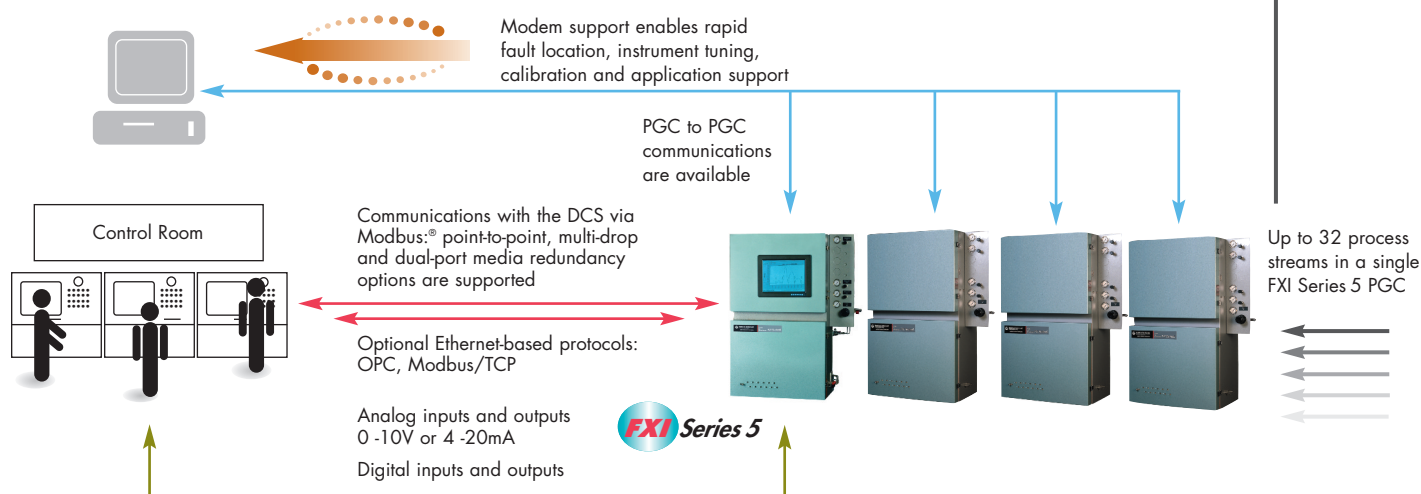
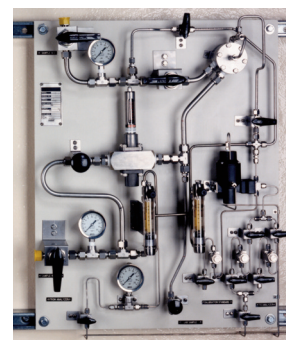
- TCP/IP Ethernet connection is available for networking several GCs together for central monitoring within a shelter for remote monitoring over a plant LAN.
- Optional modem and remote communication software for remote diagnostics and troubleshooting.

#### Workstation Option

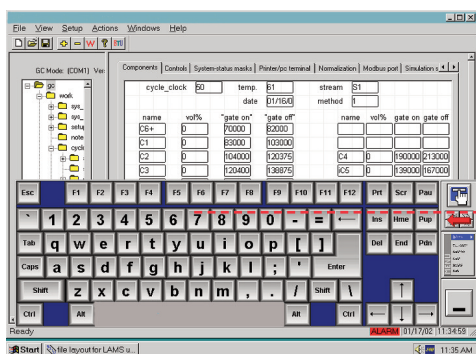
- Remote PC for interfacing to single or multiple PGCs as an Analyzer Management Workstation for functions such as real-time chromatograms, data analysis reports, printer ports and programming control.
- Multiple PGCs can be configured without the touchscreen and be interfaced to a single remote workstation for cost savings.

#### Sample Conditioning

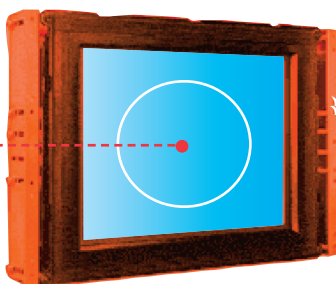
We can design and build single or multi-stream sample conditioning systems to optimize the performance of your FXI Series 5 analyzer.



## Local Analyzer Management System



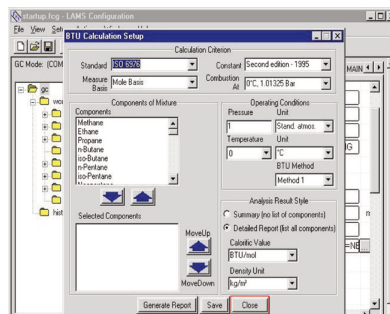
Virtual Keyboard



Front Panel Touchscreen

The FXI Series 5 analyzer has a built-in executive processor for standalone operation. The system is equipped with LAMS Software on a Windows-based front panel graphical user interface. It is presented in a touchscreen format that allows all control, status and maintenance functions to be easily accessed and changed. A powerful 12.1" color graphic display offers a user interface with an "on demand" pull-down virtual keyboard.

- One button "fast program" shortcuts for diagnostics / configuration.
- Real-time, last, or saved chromatograms readily displayed. Eliminate the need for strip chart recorders during maintenance and troubleshooting.
- Zoom windows for details of chromatogram, baseline and peak separation for true system diagnostics.
- Capable of storing months of chromatograms with cycle times and event markers for fast data analysis.
- The built-in menu tree structure can be customized to control your system.
- Programmable screen objects allow fast review and total control of status and functions.



Easy BTU Calculations

## FXI Applications

### Chemicals

Ammonia Plants  
Chlorine Plants  
Air Separation Plants

### Environmental

Ambient Air Monitoring  
VOC Monitoring in  
Waste/Cooling Water  
& Flare Stacks

### Natural Gas Processing

BTU Analysis  
H<sub>2</sub>S and Total Sulphur

### Natural Gas Sweetening

### Petrochemicals

Ethylene Plants  
Polymerization Processes  
Convert Control  
Reactor Control  
Distillation Control  
Purification Efficiency  
Product Purity  
Process Safety Monitoring  
Sterilization Analysis  
Aromatics Products  
Additive Product Analysis

### Petroleum Refining

Alkylation  
Catalytic Reformer  
Crude Distillation  
Catalytic Cracker  
Light Ends Recovery  
Hydrogen Reforming  
Vapor Recovery  
Isomerization

### Pharmaceuticals

Sterilization  
Solvent Analysis  
Purity

## Gas Chromatograph Standard Specifications

### Performance – Repeatability Measurement by Area Intergration\*

Range	TCD packed Column	FID Packed Column	TCD/FID Capillary Column
0 to 100%	± 1%	± 1%	± 1%
0 to 10%	± 1%	± 1%	± 1%
0 to 1%	± 1%	± 1%	± 1%
0 to 0.5%	± 1.5%	± 1%	± 1.5%
0 to .1%	± 2%	± 1%	± 2%
0 to 500 ppm	± 3%	± 1.5%	± 2%
0 to 100 ppm	± 4%	± 2%	± 2%
0 to 50 ppm	N/A	± 2%	± 3%
0 to 10 ppm	N/A	± 2%	± 4%
0 to 5 ppm	N/A	± 3%	N/A
0 to 1 ppm	N/A	± 4%	N/A

\*Note: Specifications stated here are typical and must be confirmed based on specific applications.

### Environmental and Oven Specifications

- Oven Temperature Range: 40° to 150°C (104° to 302°F)
- Temperature Control: ±0.02°C (± 0.036°F)
- Ambient Temperature Limits: - 15° and +50°C (5° and 122°F)
- Relative Humidity Limits: 0 - 95%, noncondensing
- Inside Oven Wall Material: AISI Type 316 stainless steel
- Power Requirements: 120 Vac, ±10%, 50/60 Hz, or 220 Vac, ±10%, 50/60 Hz, or 240 Vac, ±10%, 50/60 Hz
- Power Consumption: 1100 VA

### Area Classification / Safety

- Electrical Safety Specifications: Suitable for use in USA, Class I, Groups B, C, & D, Division 2. and general purpose areas
- Certified ATEX as EEx pd [ia] IIB + H2 T3 with air or nitrogen purge

### Process Control interface

- Up to 32 stream switching relays – solid state 240 Vac, 3A
- Digital Inputs–16 digital inputs for monitoring the PGC and sample conditioning system are provided as standard
- Digital Outputs–Up to 32 solid state rated at 3 A @ 240 Vac or voltage free contacts rated at 0.5 A at 50 Vac or DC
- Analog Inputs–Two analog input channels or two 0 - 10 Vdc signals can be integrated into data reports and analysis system
- Analog Outputs–Up to 24 isolated 4-20 mA signals proportional to measured range are optionally available for trending
- Modbus RTU (RS232, RS485) is offered as standard
- Redundant Modbus, Ethernet OPC, and Modbus TCP are available as options

### Expansion Capabilities

- RS232 serial port, parallel printer port, floppy disk drive port, 10/100 BaseT Ethernet interface
- Internal memory for archiving data: 30GB

### Gas Requirements

- Operating Air: dry and oil-free air at 345 kPa (50 psi) minimum and 3.4 to 5.1 m³/h (2 to 3 ft³/min) at standard conditions. Maximum supply pressure is 690 kPa (100 psi)
- Carrier Gas: per application (e.g., He, N₂, H₂). Chromatographic grade (CG) required. Max. supply pressure is 414 kPa (60psi)
- Zero Air: CG hydrocarbon-free, dry air at 400 cm³/min (0.85 ft³/h) required for FID. Maximum supply pressure is 414 kPa (60psi)
- Zero Hydrogen: CG hydrocarbon-free, dry hydrogen at 40 cm³/min (2.4 in³/min) required for FID. Maximum supply pressure is 414 kPa (60 psi)

### Detectors

- Thermal Conductivity, Flame Ionization, Flame Photometric, Helium Ionization; application dependent.
- Automatic safety shut-off protection for each detector

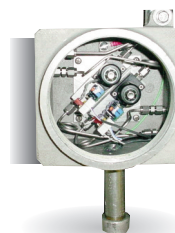
### Instrument Dimensions

- Inside Dimensions of Oven (WxHxD): 457x356x254 mm (18x14x10 in)
- Overall Dimensions (WxHxD): 584x1067x385 mm (23x42x15.3 in)
- Approximate Mass: 118 kg (260 lb)



### FXI Series 5 with HID Detector

The Helium Ionization Detector allows for trace level measurements such as moisture in ethylene applications.



### Electronic Pressure Regulator

Provides control of carrier gas supply. Set points are easily displayed as well as controlled on the front panel.



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**International locations—see our website for your authorized representative** **AIT Applied Instrument Technologies, Inc.®**

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