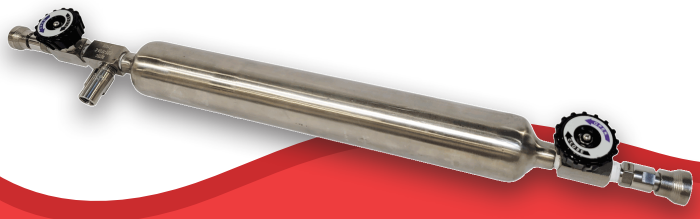
Liquid Hydrocarbon Automatic Sampling Panel

Product Overview

The Insight Analytical Liquid Hydrocarbon Automatic Sampling Panel is an automated, self-contained measurement system that isolates and extracts representative liquid samples based on user-defined triggers. Designed for truck loading racks, pipeline custody transfer, and unattended sites, the system ensures consistent, high-quality sampling regardless of operator presence. By eliminating manual procedures, it removes variability, improves safety, and enhances measurement accuracy. Its rugged, compact panel design supports continuous operation across refining, petrochemical, and NGL applications. Automated controls help enforce standardization, while API 8.1-compliant fill rates and time-stamped sampling ensure audit-readiness and fiscal accountability.



Field of Application

The Liquid Hydrocarbon Automatic Sampling Panel is designed for continuous and unattended sampling of truck loading, custody transfer, and pipeline operations where representative samples must be collected without manual involvement. It is well-suited for unmanned or remote facilities where consistent sampling is critical.

Available in configurations with two or four sample cylinders per panel, the system supports up to 20 cylinders in a building. Samples are collected automatically based on user-defined triggers such as analyzer alarms, pipeline control signals, system validation, or high vapor pressure/ C4 content. Samples are captured without interrupting operations, and each fill event can be recorded to the data historian with date and time stamping to ensure full chain of custody and compliance tracking.

Maximum Pressure Rating:
Process: 1440 psig (9,928 kPag)
Instrument Air: 100 psig (689 kPag)

Temperature Range: -5°C to 38°C (23°F to 100°F)

Inlet and Outlet Connection Size: 1/4" Swagelok Tube Fittings

Vent Connection Size: 1/8" Swagelok Tube Fitting

Wetted Materials: 316L Stainless Steel

Area Classification:
Automatic Sampling Panel: Class I Division 1 / Zone 1
PLC Control Panel: Class I Division 2 / Zone 2

Power Requirements: 120 VAC, 60 Hz, 24 VDC

Dimensions:
Automatic Sampling Panel: 96"H x 60"W (2438 x 1524 mm)
PLC Control Panel: 30"H x 20"W (762 x 508 mm)

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Scan the QR Code to Learn More!

See more details on our website, or feel free to contact us with any questions!

Principle of Operation

The Automatic Sample Panel contains all equipment necessary to isolate and extract liquid hydrocarbon samples. During normal operation, the stream will be constantly flowing through the automatic sampling panel. When a signal is received from an analyzer or other interface, the panel will automatically siphon off a sample and fill the cylinder to 80% capacity using magnetic position switches, with the sample date, time, and reasoning logged in the PLC and local HMI. The sample can then be collected at the technician's leisure and sent for off-site analysis.

Glycol displacement cylinders are commonly used for crude oil, condensate and NGL samples. They can be filled under pressure, ensuring that volatile components like ethane, propane or butane are not lost from the sample or allowed to flash. Glycol filled sampling is not suitable when water or BS&W are required measurements. Glycol filled cylinders are available in 500cc or 1000cc sizes and are suitable for maximum working pressures of 1800 psig (12,410 kPag).

Floating piston cylinders (also referred to as constant pressure cylinders) are more costly but suitable for all liquid hydro-carbons samples including water in oil or condensate. Nitrogen is allowed to bleed off from one end of the cylinder allowing sample to enter at the other. This maintains pressure while liquid sample enters the cylinder. A slow bleed of the nitrogen ensures the piston fills under constant pressure and no components are allowed to flash. Piston cylinders are available in 300cc, 500cc and 1000cc sizes and are suitable for ANSI 600# and maximum working pressures of 1440 psig (9,928 kPag).

Advantages

- Reduces safety risks and operator exposure associated with manual sample handling.
- Ensures consistent, repeatable sampling across operators, shifts, and truck arrival times.
- Eliminates human error and supports 24/7 unattended operation.
- Configurable triggers allow automated sampling based on analyzers, alarms, or control system input.
- Compliant with API 8.1 fill rate guidelines for accurate, representative sampling.
- Built-in timestamping and historian integration for full chain of custody.
- Supports two or four cylinders per panel and up to 20 total cylinders per building.
- Ideal for crude oil, condensate, NGL, and refined product sampling.
- Compact, modular design enables seamless installation in analyzer shelters or sample buildings.
- Enhances fiscal measurement accuracy by enforcing standardized sampling procedures.
- Reduces reliance on operations staff for sample collection at remote or low-traffic sites.