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INSTRUMENTS

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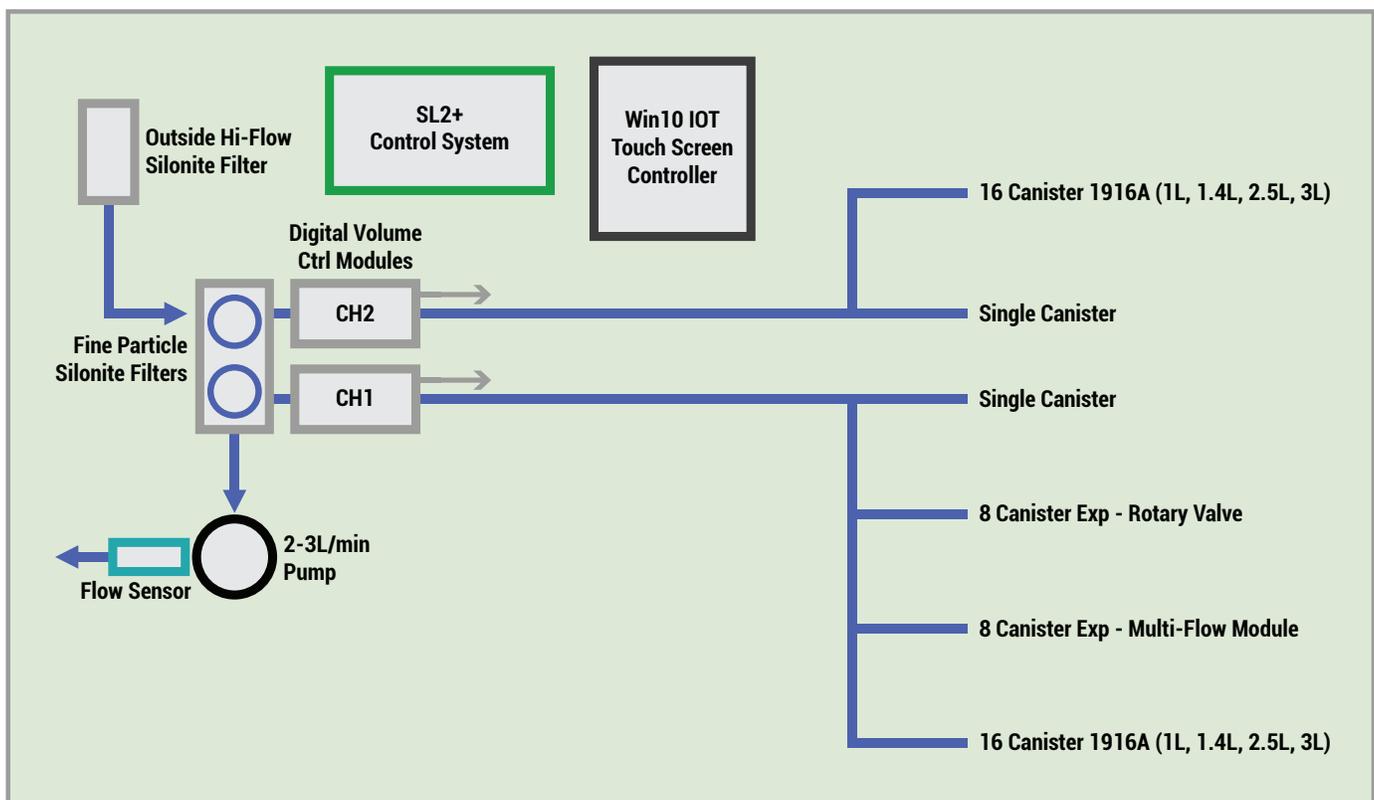
1900A

MULTI-CANISTER
SAMPLING SYSTEM

Next Generation Canister Sampler

Introducing the 1900A Dual Channel Canister Sampler - the ultimate solution for accurate and reliable remote air sampling. The 1900A's 3rd generation design has been engineered to meet the most stringent requirements of environmental monitoring, meeting or exceeding the requirements of US EPA Method TO15A. The 1900A dramatically simplifies and improves upon the 1900 framework to ensure field and remote operators can experience a robust solution where multiple canisters are filled properly every time, while minimizing contamination and/or loss of target analytes of interest.

The 1900A efficiently manages canister filling, responding to predetermined sampling schedules or external trigger events. The 1900A is unique in that it monitors the temperature compensated canister pressure during filling to ensure that mass enters the canister at a constant rate, creating an impressive sampling error of less than 1%. The 1900A automatically calibrates to the local atmospheric pressure and ensures a linear, temperature-compensated pressure rise. This leads to the most precise time-weighted sampling system currently available for collecting VOCs in evacuated canisters. The potential for contamination has been reduced by decreasing the amount of surface area and seals present relative to any other dual channel canister sampling system. Featuring Silonite-coated pathways throughout, the system ensures the lowest possible carryover and the most effective recovery of target compounds. Whether conducting air quality studies for Air Toxics/Ozone Precursors/PFAS substances, monitoring industrial emissions, or performing continuous monitoring at remote sites, the 1900A is the ideal choice for accurate collection of samples into multiple evacuated canisters.





Dual Channel System for Project Compatibility

Central to the 1900A's design is its Dual Independent Fill Channels - CH1 and CH2. The channels provide a diverse array of triggering options, encompassing remote, local, and pre-scheduled modes. CH2 has an additional mode where it automatically advances the scheduling to provide a 24 hour canister collection "once every 6-days" to meet NATTS and other US EPA monitoring programs. This flexibility ensures that professionals can customize their sampling approach to fit the exact requirements of each study.

Eliminating Background Contamination & Carry Over

The essence of reliable air sampling lies in the integrity of the sample. The 1900A ensures this with its large Silonite coated prefilter, a barrier against any potential aerosol and particulate contaminants entering the air delivery line. To further ensure no background contamination or carry-over, the instrument utilizes Silonite D™ Coated pathways. This innovative feature minimizes risks of chemical reactions and outgassing, preserving the authenticity of each sample.

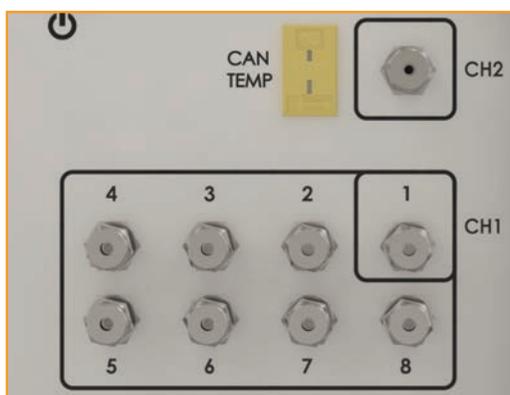
User-Friendly Experience & Advanced Compatibility

The 1900A is remarkably user friendly. Its intuitive software offers the ability to schedule sampling events up to weeks in advance. Software features in the 1900A meet or exceed the requirements of EPA Method TO-14A, TO-15, TO-15LL, TO-15A, ASTM D5466, and China Method HJ759-2023. The 1900A features a high-flow sample inlet using a 3-4L/min pump to quickly bring fresh sample to the sampling inlets. The pump is turned off when not sampling to reduce the unnecessary buildup of heavier semi-volatile compounds on the inlet filter over time. Canister connections are made using 1/8" Silonite coated stainless steel tubing, through one of Entech's unique, leak-tight solutions including Nickel ferrule compression fittings, FlowMate Adapters, or Micro QT Valves.

8-Channel Expansion Option Supporting Multiple “Event” Sampling or Continuous Monitoring

The 1900A offers multiple options for increasing the sampling capacity of the system. CH1 can incorporate an 8-Channel expansion option within the 1900A, with 8 output ports and a tray to hold canisters when multiple sampling events are needed. In addition, the advanced flow control of the 1900A allows a 24 hour fill time into 1.4-2.5L canisters, allowing 7 canisters a week to be collected when performing continuous monitoring, with an 8th position to allow scheduling options for sample retrieval. Each of the 8 channels has its own pressure sensor, allowing vacuum to be monitored on each position without first having to “select” positions by opening a valve. The remote accessibility of the 1900A ensures precise monitoring of all eight vacuum sensors, guaranteeing the accuracy of forthcoming sampling events and eliminating unnoticed leaks.

Two separate 8-Channel modules are offered, tailored to specific sampling needs. One option is a traditional 8-position rotary valve, functioning similarly to earlier models. Alternatively, a novel 8-channel micro seal valve module enables either individual canister sampling or concurrent collection into two canisters. This dual sampling feature is particularly useful for sending identical samples to two different laboratories, a practice essential for more rigorous quality assurance protocols.



CH1 and CH2 outputs to canisters, with internal modules available to fill up to 8 canisters through CH1. A thermocouple input allows temperature compensation of the canister pressure to improve mass fill rate accuracy.



Two separate 8-Channel expansion modules are available.

8-Position Rotary Valve - Traditional approach as found in the previous 1900 system.

8-Position Micro Solenoids - 8 individual, extremely small solenoid valves used to select the active channel. Allows 2 canisters to be filled at once to create duplicates as needed for QA purposes.

1900A Multi Canister Sampling System and Accessories

Description	Unit	Part #
1900A - Multi Canister Sampling System	EA	1900A
8-CH Rotary Valve Select Option	EA	1900A-EXPAND8-RV
8 Micro-DC Valve Select Option	EA	1900A-EXPAND8-MDCV
Tray for 8 1.4L Canisters	EA	1900A-EXPAND8-14TRAY
Silonite Coated Lines for 1.4L Canisters	EA	1900A-EXPAND8-14LINES
Tray for 8 2.5L Canisters	EA	1900A-EXPAND8-25TRAY
Silonite Coated Lines for 2.5L Canisters	EA	1900A-EXPAND8-25LINES

Continuous Monitoring using 1 or 2 1916A, 16 Position Expansion Modules

Expand your capacity for collecting canister samples in continuous monitoring applications by integrating one or two 1916A, 16-position expansion modules into your setup. This addition allows for the collection of 24-hour samples daily for an entire month without the need for site visits. Alternatively, opt for higher resolution sampling by collecting every 8 hours, enabling the accumulation of 21 samples each week. This frequent sampling helps pinpoint specific times in the diurnal cycle when VOC concentrations peak. For an even finer temporal resolution, you can configure the system to collect samples every 3 hours over four full days.

Each canister connection point in the 1916A is meticulously welded to the 1/8" Silonite-coated stainless steel tubing, ensuring a leak-proof system. Additionally, the modules are designed with user convenience in mind, featuring fast and tool-free options for loading and unloading canisters. These options include simple mechanisms that allow canisters to be easily attached or detached with a straightforward "snap" or "twist" motion. This design not only enhances the system's efficiency but also minimizes the time and effort required for sample collection, making the entire process more streamlined and user-friendly.

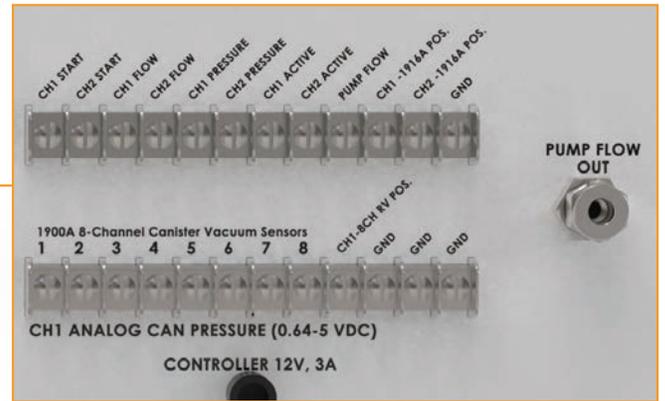


Two 1916As shown with Entech 2.5L Silonite Canisters.

Advantages over real time sampling and other canister sampling systems

- Can analyze samples multiple times if needed to monitor wider range of compounds or if first analysis fails – higher data capture rates provides more complete data to modelers.
- Keeps expensive analysts in the lab, reducing the need for travel to analytical sites and avoiding time lost in traffic.
- Much less expensive, even when combined with cost of lab analyzers.
- 1900A can fill canisters much more reliably up to "near" atmospheric pressure, making smaller canisters a viable option for continuous monitoring while still collecting enough sample to perform 2 analyses if needed. Canister collection every 1 or 3 hours is more logistically feasible when using smaller 1.4 to 2.5L canisters.
- All analyzers will have downtime. Canister collection can persist if real time analyzers shut down, resulting in no data loss.
- Can use common courier to send canisters to and from the lab, when sites are more remote.

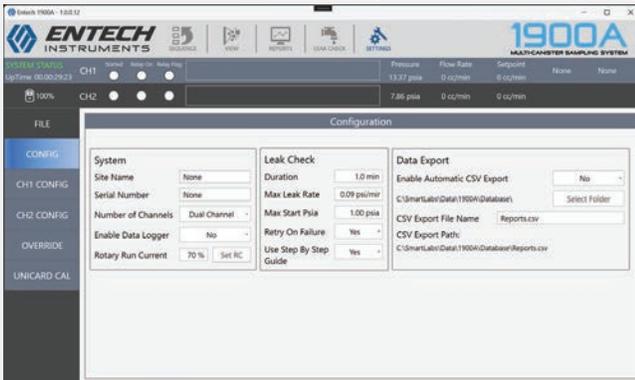
Support for External Triggering and Remote Data Loggers



The 1900A outputs all of the critical parameters to support monitoring stations with datalogging and remote access capabilities.

Industrial Windows Controller with Intuitive User Interface:

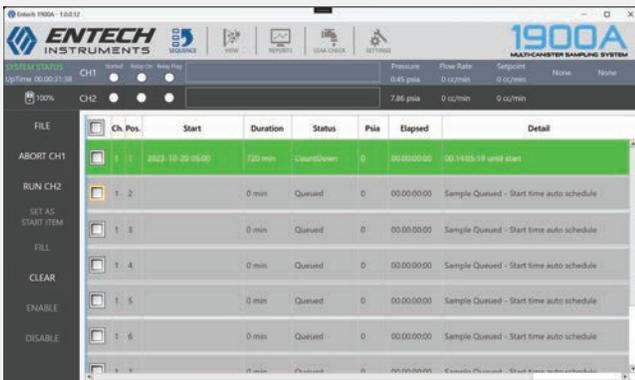
Advanced Configuration and Leak Check Options



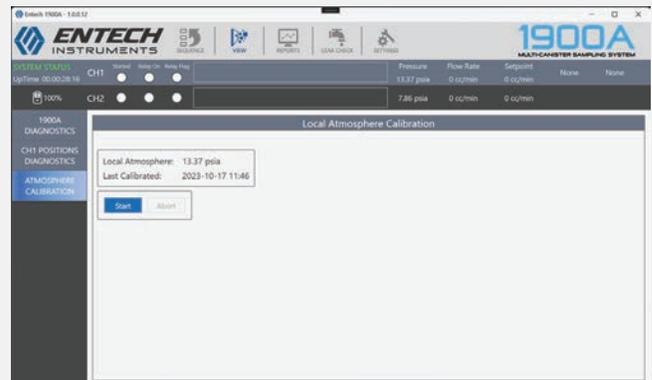
Advanced Configuration and Diagnostics



Advanced Scheduling Options with Remote Programming Capabilities



Automatic Calibration Tools to Adjust to Local Conditions





1900A Avoids Pressurized Sampling for Sample Integrity Reasons

The 1900A uses strictly vacuum sampling to collect samples. Although the use of a pump to pressurize samples into canisters to provide more sample for analysis may sound like a good idea, this creates a lot of problems that can change the concentrations of VOCs collected.

- Pumps that “push” air samples into canisters will have large elastomeric seals in them that will outgas impurities, adding VOCs to the canisters that were not in the original air sample.
- Pressuring air into canisters will cause water to condense, resulting in enhanced reaction rates which can decrease concentrations of some compounds while increasing concentrations of others. It's important to keep all collected compounds in the gas phase where very high energies are required for reactions to occur.
- Today's analyzers don't need any more than about 250-400cc of sample to achieve required detection limits. The 1900A can reliably fill right up to but not at or over local atmospheric pressure, ensuring maximum sample collected to allow multiple analyses, while substantially preventing any water condensation inside of the canister.

Dual Independent Fill Channels

- CH1: Supports Remote/Local/Scheduled Trigger.
- CH2: Enables Remote/Local/Scheduled Trigger and an option for a 24-hour sample every six days.
- CH1: Two different 8-Channel expansion modules for scheduled or externally triggered sampling.
- 16-position expansion module (1916A) for filling 1.4L, 2.5L, or 3.2L Silonite canisters with no external tubing required.

Advanced Temperature Compensated Pressure Ramp Algorithm

- High mass flow accuracy with less than 1% flow rate deviations.
- Ensures final target pressure accuracy within ± 0.2 psi to maximize amount of sample collected.

Dynamic Range & Efficiency

- Extremely wide flow control range, accommodating canister fill times from 15 minutes to 7 days without internal adjustment. No flow restrictors to exchange.
- An internal vacuum pump draws 3-4 liters/minute, bringing outside air almost immediately to the CH1/CH2 inlets.

Precision & Purity in Sampling

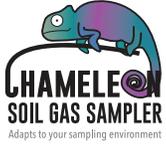
- A large Silonite coated prefilter at the intake prevents particle or aerosol buildup in the delivery line.
- Silonite D™ Coated pathways prevent chemical reactions and outgassing.
- Individual pressure sensors on CH1, CH2, and 8 expansion modules, providing real-time readings to confirm proper sampling rates and leak-tight conditions.
- Advanced leak checking procedures.
- Comprehensive flow and pressure profiles are stored to prove sampling occurred accurately.

User-Friendly Software

- Allows scheduling of sampling events, even weeks ahead.

Wide Compatibility

- Designed in line with EPA Methods TO14A, TO15, LL-TO15, TO-15A, ASTM D5466, and China Method HJ759-2023.



CHAMELEON
Soil Gas Sampling



MICRO-QT™
Valves



SILONITE™
Coating Advantages



MCCTS TRAPS
Multi-Capillary Column Trap



FLOW PROFESSOR
Calibration System

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