



PRODUCTS

MEASUREMENTS

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Sampling Gallery

Optical measurement systems typically require that the sample undergo some conditioning to make it fit for the analyzer's method. Applied Analytics' systems are built for direct analysis without cooling/drying the sample. This allows us to build far simpler, more elegant sample conditioning systems that retain high sample integrity and optimal response time.

In our experience, applications can be similar but are rarely identical. That is why we always work from the process realities to the drawing board, building custom sample conditioning for each project.



Extractive
for optimal response time



Headspace
for opaque liquids such as crude oil



Close-Coupled
mounted directly on stack pipe



Multiplexed
monitor multiple streams with a single analyzer



Offshore
built for tough maritime environments



Sour Gas
samples from highly corrosive streams



Water
samples from sea, pond, waste, etc.



Teflon
wetted parts suited for high corrosion



Pyrolysis
for hydrocarbon fuels in the gas phase



Sampler
for sample transport from process to another destination



Natural Gas Sample Conditioning Systems
for all stages of natural gas production and distribution



Portable Sample Conditioning Systems
for a rugged and portable solution

Extractive Sample Conditioning Systems

[Technical Drawing](#)

The 'standard' extractive SCS is built for optimal response speed and automated sampling functionality.

- 24" x 24" x 8" NEMA 4 painted carbon steel enclosure (or 24" x 30" x 8" for flow cell lengths of 600mm and greater)
- Auto-zero feature (automatic introduction of nitrogen gas or zeroing liquid for liquid applications)
- Convenient method for manual introduction of span gas
- Bypass loop allows faster sampling flow rates; split via 3-way tee up to a 10:1 ratio through 2 flow meters
- Flow cell (sample/light interface) mounted inside the enclosure
- Backpressure regulator
- Pressure gauge
- Particulate filter
- Switching performed by one 3-way pneumatically-actuated valve and one 3-way manual valve
- Wetted parts include: SS316 tubings & fittings, Viton gaskets, and quartz optical windows

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System Gallery



Headspace Sample Conditioning Systems

[Technical Drawing](#) | [Brochure](#)

Designed to strip out the desired component from opaque liquid streams. N2 or air stripping gas enters from the bottom of an absorption column and carries away the measured component to the flow cell to be measured in the gas phase.

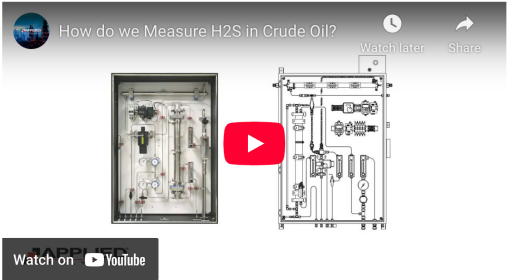
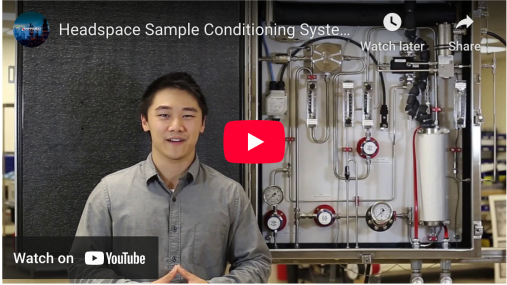
- A 2" diameter column with 5/8" "Pall" rings supported by a 1/2" high mesh.
- Two band heaters with thermocouple and controller to regulate temperature of absorption column.
- Four flow controllers for metering liquid and the nitrogen
- Two 3-way solenoid valves to control liquid sample flow and gas flow (including

System Gallery



the dry, sealed, heated sample loops and gas flow (purging blanking gas and span check gases)

- 1/4" stainless steel tubing and compression fittings
- GO (or equal) back pressure regulators to control the pressure of the gas flow.



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Close-Coupled Sample Conditioning Systems

[Technical Drawing](#)

This system is mounted directly onto a short-flanged stem welded to the stack. It uses a sintered metal probe (detailed in a separate line item) to draw the sample.

- 24" x 24" x 10" NEMA 4X stainless steel enclosure
- Enclosure is heated and insulated
- Two 3-way valves for control of sample flow, auto-blank, and span check
- One valve for auto-clean cycle (turns off aspirator and opens blank gas flow to blow back through sintered metal filter)
- Adjustable flow switch for monitoring pluggage of sintered metal filter
- Needle valve to control aspirator flow
- Suction gauge to monitor aspirator pressure
- Needle valve to control aspirator flow
- ANSI 2" class 150, 4 bolt pattern mating, raised face flange (2" mating nozzle by others)
- 3/8" insulation board
- 3/4" NPT connections for wiring
- 1/4" Compression bulkheads in bottom of enclosure for tubing sample, blank, span, exhaust and purge connections

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System Gallery



Multiplexed Sample Conditioning Systems

Multiplexed systems use automated stream switching to alternate which sample stream is entering the flow cell for analysis. This allows you to compound the value of the system by monitoring multiple analysis points with a single unit.

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Offshore Sample Conditioning Systems

Our systems destined for offshore environments are housed in rugged enclosures to withstand harsh maritime conditions.

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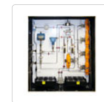


Sour Gas Sample Conditioning Systems

The sour gas system is designed to handle ultra-corrosive gas with up to 100% H₂S.

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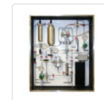


Water Sample Conditioning Systems

The water sampler is customized per the specification of the water, whether pondwater, cooling water, or otherwise.

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Teflon Sample Conditioning Systems

The Teflon system uses wetted parts suited to demanding applications where steel wetted parts are not suitable.

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Pyrolysis Sample Conditioning System

[Technical Drawing](#) | [Datasheet](#)

The total sulfur sample conditioning system is designed to pyrolyze incoming natural gas, converting all sulfur bearing compounds to SO₂. To effectively perform this task in a continuous, online manner, the sample conditioning system includes the following functionality; gas filtration, pressure regulation, auto zero gas introduction and manual span introduction. The sample conditioning system is designed with user safety in mind. As such, the control electronics are housed separately and kept way from the high temperature furnace.

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Process Sampler

[Datasheet](#)

The Process Sampler is designed to transport sample from the process to another destination such as a laboratory for further examination. The process sampler is designed with one valve handle to control the filling and venting of the sample cylinder to achieve the correct pressure for the sample. Quick connects on the top and bottom of the sample cylinder allow for easy removal of the cylinder from the panel.

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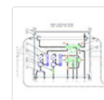


Natural Gas Sample Conditioning Systems

The Natural Gas Sample Conditioning System in conjunction with the OMA analyzer quantifies contaminants and odorants in natural gas at all stages of production and distribution.

- 24" x 24" x 8" NEMA 4 painted carbon steel enclosure (or 24" x 30" x 8" for flow cell lengths up to 600mm)
- Auto-zero feature (automatic introduction of nitrogen gas or zeroing liquid for liquid applications)
- Convenient method for manual introduction of span gas
- Bypass loop allows faster sampling flow rates; split via 3-way tee up to a 10:1 ratio through 2 flow meters

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pass through 2 flow meters

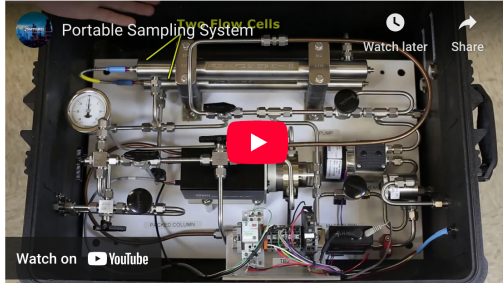
- Flow cell (sample/light interface) mounted inside the enclosure
- Pressure control, temperature control and filtration
- Aromatic Trap switching performed by one dual mount 4-way pneumatically-actuated valve
- Standard wetted parts include: SS316 tubing & fittings, Viton gaskets, and quartz optical windows

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Portable Sample Conditioning Systems

This portable sampling system is an example of the customized nature of AAI sampling systems which are built to the needs of the customer. Sample conditioning components were housed in a briefcase enclosure for a rugged and portable solution.

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