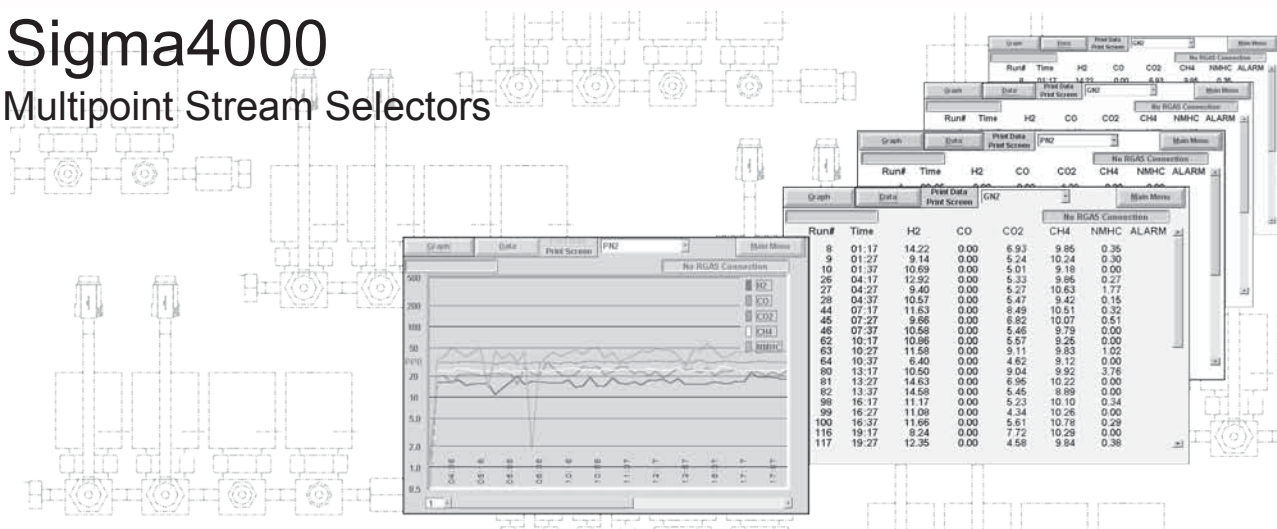


Sigma4000

Multipoint Stream Selectors

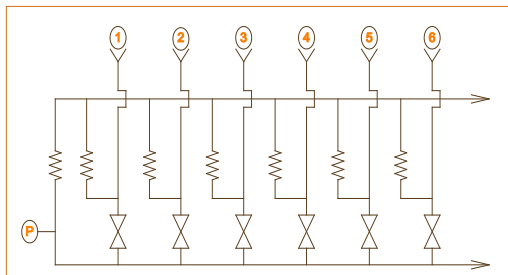


The Trace Analytical™ Sigma4000 multipoint stream selectors from AMETEK Process Instruments can dramatically reduce the cost of ultra high purity (UHP) gas monitoring. By multiplexing several sampling points up to two ta3000, ta5000 or ta7000 Process Gas Analyzers, a gas manager can ensure that UHP quality product is supplied to process tools without dedicating an instrument to each gas stream. Controlled by the Process Gas Analyzer, a Sigma4000 stream selector can poll several gas streams in sequence, or can be programmed to switch between the inlets and outlets of large scale purifiers to verify their performance.

Designed for UHP

The rear panel of the stream selector is equipped with ¼-inch VCR gas ports for sample inlet lines. Internally, each sample gas is routed to a dedicated UHP shut-off valve which is welded into a common flow manifold. It is here that the high velocity sample flow is split into separate vent and analyzer flow paths. This unique pressure-controlled splitter provides the low flowrate required by the ta3000/ta5000/ta7000 without reducing flow velocity in external sample lines. To ensure proper operation, manifold pressure is digitally displayed on the selector front panel using pressure sensors and flow restrictors which are situated in vent lines downstream from the

critical analyzer flow path. To meet safety requirements, gas handling components are located in an electrically-isolated purge housing.



Flow Diagram, Sigma4000 Stream Selector

Get the Most Out of your Analyzer

Sigma4000 multipoint stream selectors improve the confidence in your gas supply by making it practical to monitor impurity concentrations such as H₂, CO, CO₂, CH₄ and non-methane hydrocarbons in all of your most critical gas streams.

Technical Excellence

Rapid sequencing between gas streams requires high flow velocity and low dead volume in each sample flow path. To meet this challenge, Sigma4000 stream selectors incorporate a specialized purge assembly and bypass network that totally eliminates dead volume upstream of each shut-off valve while maintaining sample flow at all times. Sample cross-contamination is prevented by eliminating dead volume downstream of each valve and by rapidly purging the common flow channel to the analyzer via a precisely designed bi-flow manifold. Only orbitally-welded or vacuum brazed joints are used in the analyzer flow path.

Data Archiving/Presentation

The Data Collection Viewer Software from Trace Analytical organizes data from the Process Gas Analyzer, both in tabular form and on 24-hour trend reports. Sample stream I.D. number, time of day, analytical data and any alarm conditions are readily available for local viewing or for sharing over networks.

Sigma4000 has sample inlet positions for sequential or "on demand" analysis of up to four separate oxygen or inert gas streams. In addition, two separate sampling positions are reserved for permanent connection of zero and span gases. The sequence and frequency of analysis can be specified via the Stream

Sequencer program in the Process Gas Analyzer. Designed to maintain high flow velocities, Sigma4000 is free of dead volume and uses only UHP wetted components.

Compatible with all Trace Analytical Models.

SPECIFICATIONS

Gas Inlets

Sigma4000: 4 samples, 1/4-inch face seal fitting, female, S.S.
Zero gas, Span gas: 1/4-inch face seal fitting, female, S.S.
Purge gas: 1/4-inch face seal fitting, female, S.S.

Sample Requirements

Supply Pressure: 15 to 40 psig (1.03 to 2.76 bar)
Continuous Flow: 0.35 L/min. N₂ @ 15 psig (1.03 bar)

Gas Outlets

Selected stream outlet: 1/16-inch compression fitting
Sample vent: 1/4-inch face seal fitting, female, S.S.
Purge vent: 1/4-inch face seal fitting, female, S.S.

Front Panel

Stream ID number
Pressure, selected stream

Electrical

Mains: 115 VAC / 50 - 60 Hz,
230 VAC / 50 - 60 Hz, or
100 VAC / 50 - 60 Hz
Operating current: 3 amps, max.

Materials of Construction

Manifold: Orbitally welded UHP branch valves;
<1x10⁻⁹ cc-atm/sec He leak rate
Sample Inlets: Orbitally welded EP tubing

Control/Communication

Serial RS-232 communication link from ta3000/ta5000/ta7000 Sequencer program to stream selector. Stream ID number and data reported to optional host computer by ta3000/ta5000/ta7000.

Dimensions Sigma4000

5.2" H x 16.8" W x 18" D (133 cm x 427 cm x 457 cm)

Weight Sigma4000

Net: 38.0 lb (17.3 kg)
Shipping: 41.5 lb (18.9 kg)



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One of a family of innovative process analyzer solutions from AMETEK Process Instruments.
Specifications subject to change without notice.

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