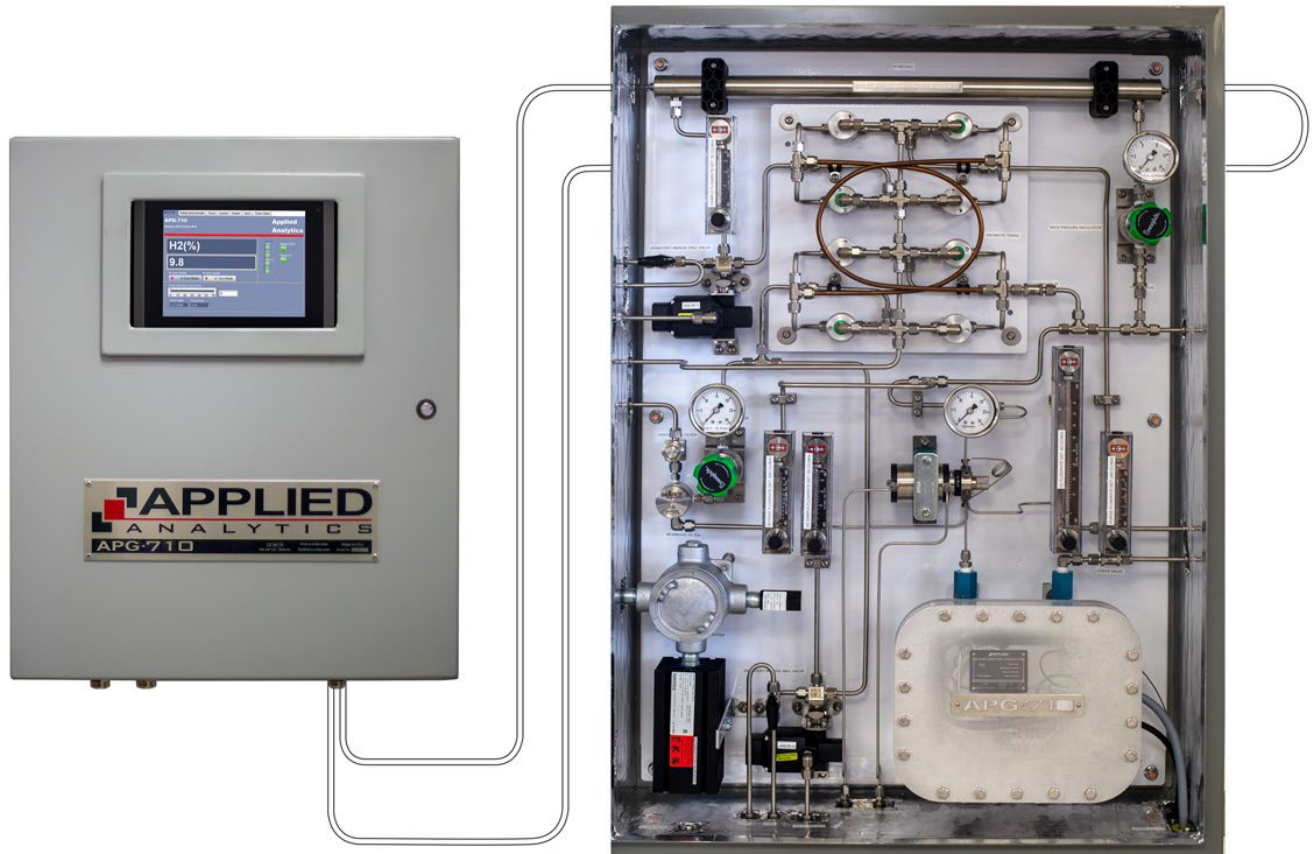


APG-710 Hydrogen Analyzer

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Features

- » Compact form factor
- » Seamless integration with other AAI analyzers
- » Low noise
- » Low maintenance

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APG Control Module

The APG-710 is an analysis module that operates based on the principle of thermal conductivity. It is optimized for the measurement of Hydrogen gas in a wide variety of applications and stream compositions.

It can be operated in two ways:

- » Binary gases: Thermal Conductivity Detector (TCD) with Wheatstone Bridge in a continuous method.
- » Multicomponent gases: TCD with Wheatstone Bridge, coupled with a mol-sieve column in an automatic injection method.

Principle of Operation

Gases have a defined thermal conductivity property based on their molecular structure. For the most part, the thermal conductivity of gases is between 0.01 and 0.03 W/mK. Notable exceptions to this are Helium (0.15 W/mK) and Hydrogen (0.18 W/mK).

This significant difference of an order of magnitude between the thermal conductivity of Hydrogen and most other gases can be exploited for measurement purposes by a TCD.

A TCD is comprised of a wheatstone bridge circuit with two equal legs. One leg is exposed to the sample and one leg is utilized as a reference gas. If the gas is a binary gas, then the reference gas that is utilized is the non-Hydrogen gas that makes up the balance of stream composition. If the gas is a multicomponent gas, then reference that is utilized is the same as the carrier gas.

When Hydrogen is present in the sample stream, the difference in thermal conductivity between the sample gas and the reference gas will cause a net imbalance in the wheatstone bridge, which in turn produces a measurable voltage.

The integral of the magnitude of this voltage with respect to time is proportional to the concentration of Hydrogen in the sample stream. This calculation is performed by the APG-710-H2 controller, which then outputs a 4-20mA signal proportional to the Hydrogen concentration.

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Technical Data	
Detector Type	Thermal Conductivity Detector (TCD) with wheatstone bridge
Sample Phase	Gas
Analyte	Hydrogen
Typical Ranges	0-5%, 0-10%, 0-25%, 0-50%, 0-100%
Modes	Continuous or Injection Valve w/ Mol-Sieve Column
Communication	4-20mA Signal

Subject to modifications. Specified product characteristics and technical data do not serve as guarantee declarations.



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