

PROCESS RAMAN

Using process Raman as a Gas Chromatograph (AGA8) replacement in the analysis of NATURAL GAS

WHAT IS RAMAN?

Raman spectroscopy is an optical analysis technique. It relies on the measurement of the vibrational properties of molecules. Raman has revolutionized process analysis with its high-resolution compositional data, linear response to concentration, non-destructive nature, ability to measure samples in real-time, and NO sampling system or carrier gasses.

WHY RAMAN?

The natural gas pipeline industry has relied on an analyzer package of a natural gas chromatograph, laser analyzers (CO₂, H₂S, H₂O) and fluorometric O₂ to measure natural gas composition and perform all required energy calculations. Associated costs are a constant requirement for carrier gases, as is the need for experienced analyzer technicians to keep the gas chromatograph running to specification.

A MarqMetrix® Raman spectrometer can be used as a "plug-and-play" replacement for the above total (AGA8) analyzer package while offering superior analysis that requires NO calibration – ever.



[REQUEST A DEMO](#)

MarqMetrix® All-In-One Raman System

RAMAN VS. GAS CHROMATOGRAPHY

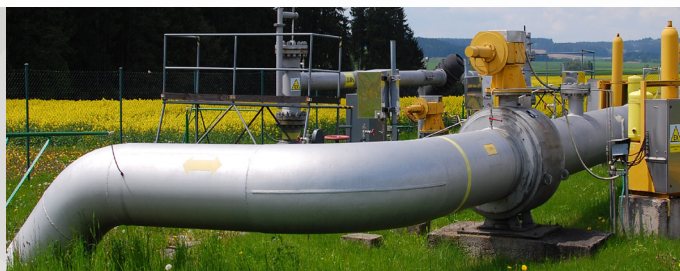
	RAMAN SPECTROSCOPY	GAS CHROMATOGRAPHY
Analysis Time	Seconds	Minutes
Ease of Use	Yes	No
Sample Prep Required	None	Sample prep is required
Calibration	No; Factory-calibrated	Yes; Weekly maintenance
Setup Time	15 mins	Days
Scientist Required	No	Yes
Cost of Ownership / 10 years	\$100,000	\$1,000,000

TAKEAWAYS

- **A Raman spectrometer is easy to install:**
NO sophisticated sampling system, carrier gas or consumables required
- **Life cycle cost is dramatically reduced**
 - NO analyzer calibrations
 - NO sample system maintenance
 - NO regulators, filters, and analyzer cells
- **Improved process control**
 - Superior analysis data every 6 seconds
 - More accurate data than gas chromatograph or dual-source laser analyzers
- **Zero ongoing operating expenses:**
 - NO yearly planned maintenance by the vendor
 - NO weekly/monthly/quarterly/yearly maintenance by an analyzer technician
 - Ultra-stable solid-state device with NO moving parts

For more information contact:

206-971-3625



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RAMAN IN ACTION: NATURAL GAS (AGA8) PACKAGE APPLICATION NOTE

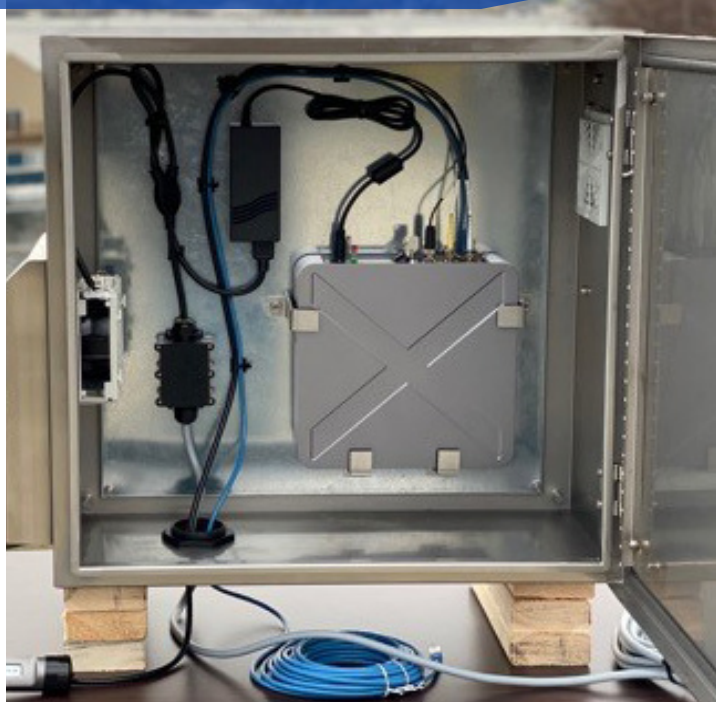
A manufacturer is currently using a MarqMetrix All-In-One (AIO) Raman System as a replacement for a multi-analyzer package for AGA8 total energy measurement on a natural gas pipeline.

Requirements:

- Replace the existing natural gas chromatograph sample extraction probe with a simple MarqMetrix stainless steel sheath fiber BallProbe®
- Replace existing sample transfer tubing with flexible fiber-optic armored weather-resistant signal transfer cable
- Remove the sample conditioning system and calibration system (neither are required for the MarqMetrix AIO Raman System)
- Remove the natural gas chromatograph (and possibly three laser analyzers)

Solution:

A single MarqMetrix AIO Raman spectrometer [mounted inside of a NEMA 4X welded 304 SS enclosure (24in x 24in x 16in), heated and cooled with thermostatic-control, certified to ANSI/ISA-12.12.01-2000 for use in Hazardous (Classified) Locations Class I Groups A - D Div. 2 (outdoor)] can economically replace a natural gas chromatograph analyzer composition and energy measurement package.



MarqMetrix All-In-One Raman System in SS Enclosure
NO Sampling System

LEARN MORE ABOUT THE ALL-IN-ONE >



MARQMETRIX®



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