



Real-Time Measurement of Field Gas BTU

Introduction

Field gas, the raw natural gas produced from wells during drilling and fracking, is commonly used as a fuel source for the machinery and pumps powering the operations. As a low-cost, lower-carbon alternative to diesel fuel, field gas both saves money and reduces carbon emissions compared to refined fuels. Untreated field gas often manifests varying compositions and heating values. Due to this, unmanaged fluctuations in BTU content and variation of hydrocarbon ratios can damage the mechanical integrity of, or even destroy, the engines and machinery used in a frac fleet. Condensation in fuel gas results in premature combustion and component distress, and affects the reliability and availability for both dual fuel engines and e-fleet turbines. These factors can severely impact equipment performance and manufacturer warranties.

The Real-Time Measurement Solution

Field gas should be monitored as quality excursions can happen with little warning and revert just as quickly. Process analytical devices need to operate in real time to capture events, excursions, and spikes to protect equipment. Speed and uptime are of the utmost importance. Current technologies are typically limited in response time and require extensive maintenance to achieve acceptable reliability. JP3 has developed the solution for monitoring field gas quality in real time with near-100% uptime. Utilizing Near Infrared (NIR) spectroscopic technology, JP3 Verax is uniquely suited to assist operators in the monitoring and control of field gas variations. The Verax real-time response catches upsets, and its ability to deliver BTU, gas composition, and other properties in seconds allows operators to identify and deal with excursions with zero damage or downtime. ROI is commonly achieved within days through avoidance of equipment damage and downtime.



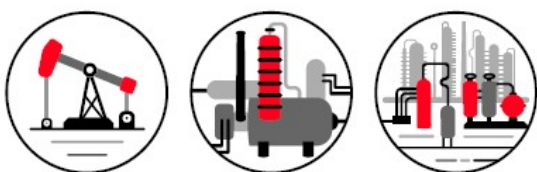
Verax SSG NIR Analyzer

Advanced Optical Technology in a Trailer-Mountable Analyzer

The JP3 Verax system uses NIR (Near Infrared) spectroscopy technology to measure gases or liquids in real time with absolutely no moving parts or consumables. Using chemometric models, the Verax system measures gas BTU, composition, and multiple other properties simultaneously. Built with a rugged steel enclosure, trailer-mounted Verax systems are designed to withstand the conditions and vibration inherent in operating with a frac fleet. Each analyzer has a cellular modem, allowing for remote monitoring and control. As requirements change, the Verax can be remotely reconfigured with minimal cost and downtime. System set-up and tear-down is simple; the only required utility is electrical power, and there is no need to calibrate or hook up gases or standards at a new site.



Verax SSG Mounted on a Trailer



Critical Data. Real Time.

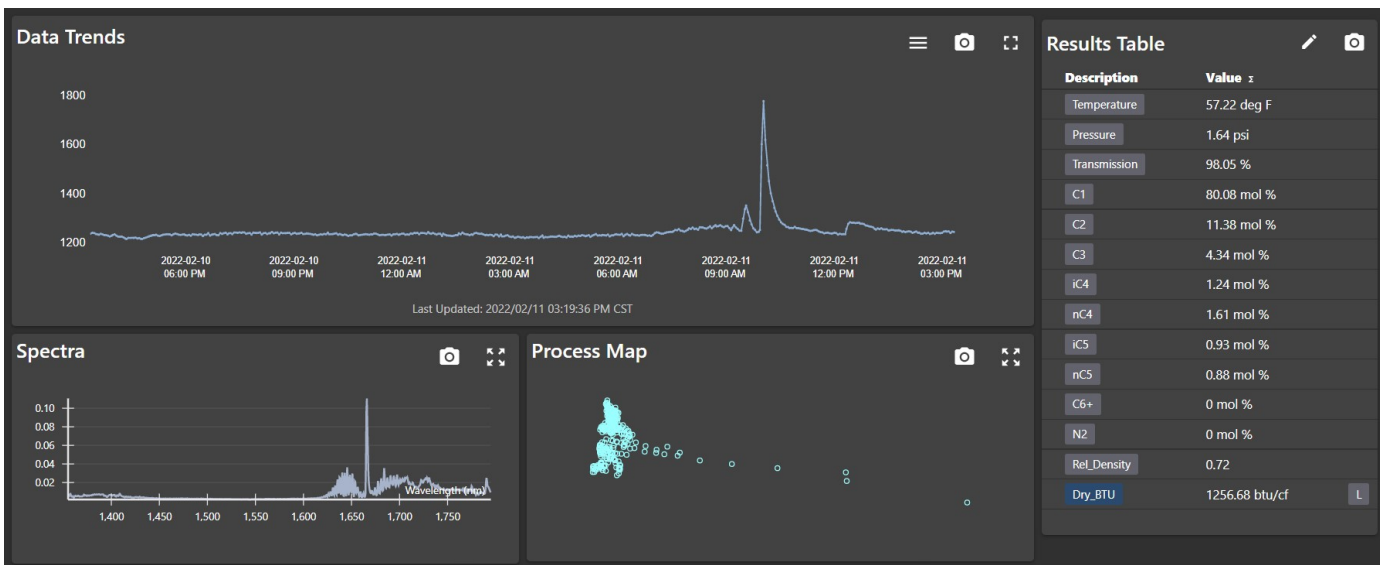
Application Note: Verax™ Field Gas Monitoring

Expert Service and Support, Tailored to Your Needs

Almost all optical-based systems will require chemometric models, which are developed by chemometricians using process samples. Most other optical analyzer manufacturers rely on the end user to create, develop and maintain these calibration models. JP3's in-house team of project managers and Ph.D. chemometricians offer a complete range of support options: from hardware-only sales to full-service model development and support.

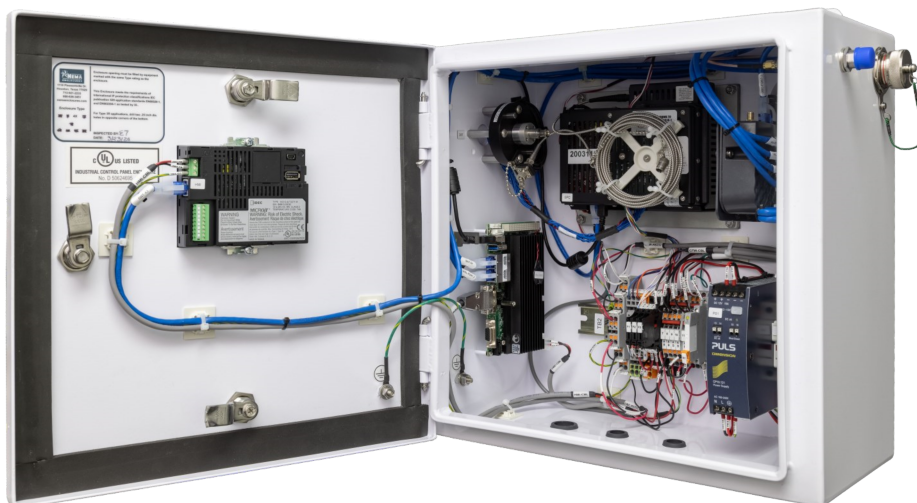
Designed for Speed and Reliability

The highly reliable Verax analyzer provides analysis for multiple primary methods within seconds. Utilizing a highly stable and repeatable laser optical source, and packaged to operate in harsh environments and withstand vibration, the Verax operates in-line at process pressure and temperature. Excellent spectrometer repeatability means that a single model can be deployed across a fleet, reducing maintenance and eliminating regular calibrations. The VeraSight™ flow cell uses sapphire windows that are highly damage-resistant do not require regular cleaning. All measured material is returned to the pipe, resulting in emissions-free operation. This means sample conditioning and transport systems are minimal and simple, which improves response time and safety.



Real-time web-based monitoring software: **JP3 Viper**

JP3 Verax Gas Analyzer Product Info Link: [Verax SSG](#)



Verax SSG NIR Spectrometer



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