

## Fuel Gas Measurement



### Introduction

Fuel gas has become a very common fuel to power large compressors, industrial heaters and furnaces, power generation plants, and other large rotating equipment due to its competitive price and widespread availability. Fuel gas fired heaters, turbines, and compressors are powering operations and heating process fluids nationwide. Fuel gas is used in industries from oil and gas, to power generation, specialty metals, and refining.

Untreated fuel gas often manifests varying compositions and BTU values. Depending on the use, unmanaged fluctuations in BTU values and variation of hydrocarbon ratios can damage the mechanical integrity of fired heaters, damage compressors and turbines, and negatively affect the quality and purity of various industrial products. Condensation in fuel gas results in premature combustion, component distress, and affects the reliability and availability for all types of combustion systems. All of which can severely impact rotating equipment performance and manufacturer warranties.

Fuel gas should be monitored as quality excursions can happen quickly while lasting only for short periods of time. Process analytical devices need to operate in real time to capture events, excursions, and spikes to protect equipment, processes, and products. Speed and uptime are of the utmost importance. Current technologies are typically limited in response time and require extensive maintenance to achieve acceptable reliability.

### Solutions

The solution for monitoring fuel gas quality is real time analysis with 99+% uptime. Utilizing Near Infrared spectroscopic technology, the Verax is uniquely suited to assist operators in the monitoring and control of fuel gas variations. The Verax real time response catches upsets, and its ability to deliver composition, BTU, and other properties in seconds allows operations to identify and deal with common causes of fuel gas excursions.

The Verax operates at line pressure (0-1500 PSI) and process temperature (-10 to 150 F) with no sampling system or sample lines required. Since the Verax determines BTU directly from the process spectroscopic signature, no compressibility or Z factor calculations are required. Verax requires no consumables such as carrier gas, columns, filters, or rebuild kits which means a dramatic increase in reliability and marked reduction in maintenance time and costs. The control unit requires no environmentally controlled enclosure and is designed to operate outside with no environmental shelter.

The Verax can be easily configured to report different combinations of measurements depending on application requirements. BTU, specific gravity, and C1 to C6+ component analysis can all be delivered in seconds. As requirements change, the Verax can be easily reconfigured with minimal cost and downtime.



Gas pipeline compressor

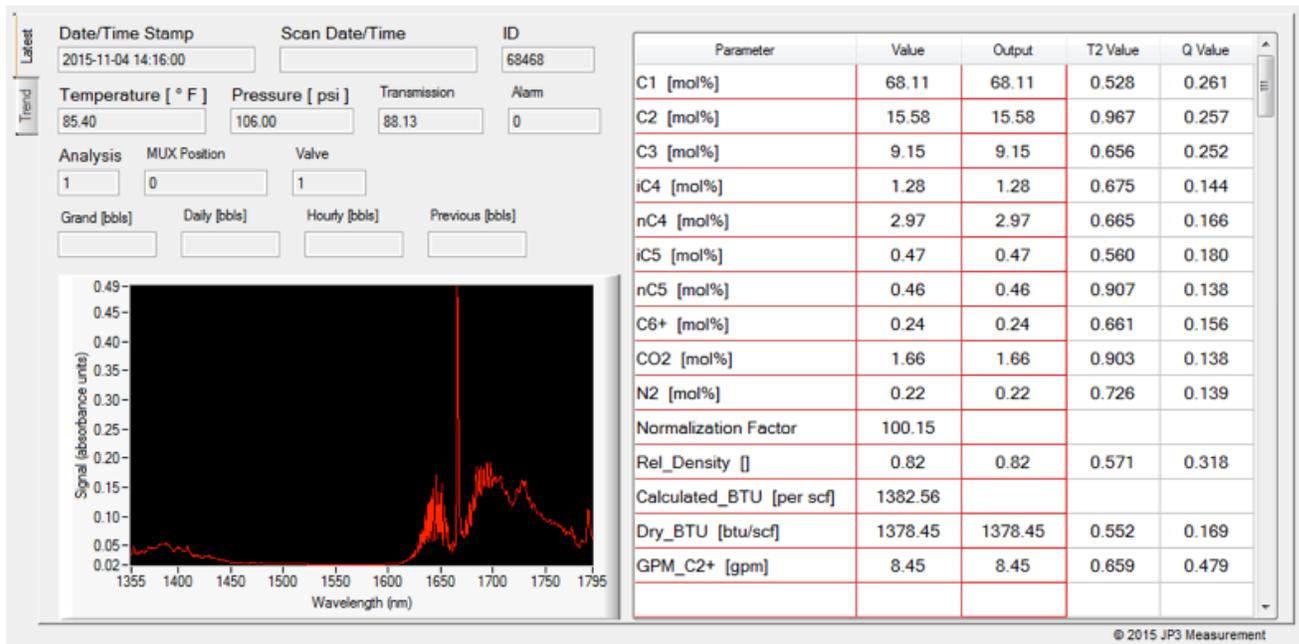


Furnace towers



Power plant

## Typical Fuel Gas Analysis Output



## Verax Cost Advantage Calculator

	Verax™	VP Analyzer	Verax \$\$ Benefit
Response Time	Seconds	7.5 Minutes	
Sample System	None	Required	
Analyzer House	None	Required	
Maintenance Costs	Very Low	High	
Consumables	None	Yes	
Uptime	99%		
Waste Product	None	Yes	
<b>Net Verax Advantage</b>			

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