

# Elster® GasLab Q2

## Improving Natural Gas Combustion Control

### The Need

In most high temperature manufacturing processes, thermal stability is critical to maximizing process yield, efficiency, and profitability. Thermal stability inside a furnace is directly related to consistency of the natural gas fueling the burners.

Today, most natural gas comes from the development of sources such as shale and other tight formations. These sources exhibit a much greater frequency and magnitude of variability than the traditional sources of the prior 100 years. Rapid, continuous natural gas quality shifts of  $\pm 10\%$  BTU are common in much of North America as seen in this 1-week chart from a transmission pipeline. Even regions with relatively stable gas quality are at risk from future supply shifts and unexpected shutdowns and operational changes in upstream gas processing facilities.



Most high temperature manufacturing processes depend upon feedback control systems that may be incapable of maintaining thermal stability when the natural gas' calorific content and density sharply and consistently varies. When feedback control systems are forced to deal with a continually moving input variable, the risk of losing thermal stability and control greatly increases. The resulting loss of thermal stability will result in more off-spec product, increased pollution, and higher operational costs.

### The Solution

Honeywell's Elster® GasLab Q2 Gas Quality Analyzer determines the calorific value, density, and Wobbe index of natural gas fuel *before it reaches your combustion control system and burners*. A feed-forward burner control system based upon the Gaslab's outputs can eliminate fuel-related process upsets while greatly improving thermal stability throughout the process.

This compact, comprehensive natural gas analyzer continuously monitors the quality of the natural gas updating its digital and analog outputs every second. With a built-in, user-adjustable, speed-loop bypass and a T90<6 seconds, the Gaslab Q2 provides accurate feed-forward fuel quality signals to your combustion control system.

The Gaslab Q2 is designed to meet the reliability and accuracy required by industrial consumers. Its operational performance is automatically validated using a simple calibration gas mixture of CO<sub>2</sub> in methane with maintenance recommended only once per year.

The GasLab Q2's design and capabilities can greatly simplify and lower your project's installation and operational costs. It can be placed close to the fuel line which shortens the sample transport delay time.



## BENEFITS

- Significantly improved thermal stability
- Improve furnace-atmosphere control
- Minimize process and emissions upsets
- Gain the ability to adjust air/fuel ratios for fuel quality going to the burners
- Cost savings: reduce project costs, ownership costs, improve fuel efficiency
- No weekly or monthly maintenance

## FEATURES

### Main Features

- Provides calorific value / Wobbe index / density / CO<sub>2</sub> / methane number
- 1 Hz update rate, T90<6 seconds
- Automatic calibration
- OIML R140 Class A uncertainty
- Commission & forget operation
- Annual recommended maintenance
- Passive analysis, no combustion
- No compressed air or carrier gas needed
- Field replaceable modules
- Touch-key screen display

### Applications

- Natural gas
- Feed-forward combustion control for glass, ceramics, metals, lime, cement, food, and other industries
- Fiscal metering / billing validation

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An integrated display with touch capability shows the measurement values and operating conditions. The Gaslab Q2 can be operated locally or remotely by using a web browser connected to the device.

The user-friendly Elster GasLab Q2 provides fast, accurate, and reliable gas quality measurements for a low capital investment and minimal ownership costs. It is an ideal solution for manufacturing processes that benefit from improved thermal stability and combustion control.

## ELSTER GASLAB Q2 TECHNICAL SPECIFICATIONS

Technical Data				
Measurements and Ranges	Measurement Name	Formula	Range	Output
	Gross Calorific Value*	H <sub>2</sub>	30 - 48 MJ/m <sup>3</sup> ** (800 - 1300 BTU/scf)	Yes
	Standard Density*	ρ(rho)	0.7 - 1.1 kg/m <sup>3</sup> ** (0.04370 - 0.06867 lb/scf)	Yes
	Wobbe Index*	W <sub>I</sub>	33 - 57 MJ/m <sup>3</sup> ** (885 - 2015 BTU/scf)	Yes
	Carbon Dioxide Concentration	CO <sub>2</sub>	0-20 mol%	Yes
	Dry/Wet/Saturated CV*			Yes
	Inferior CV and Wobbe*	H <sub>i</sub> , W <sub>I</sub>		Yes
	Methane Number	MZ		Yes
	Ethane Plus Higher Alkanes (Sum)	C <sub>2+</sub>	C <sub>2</sub> > C <sub>3</sub> > C <sub>4</sub> > C <sub>5</sub> > C <sub>6</sub>	Yes
Calculated Model Gas Composition	CH <sub>4</sub> -C <sub>8</sub> H <sub>18</sub> , N <sub>2</sub>			
Measurement Uncertainty	H <sub>2</sub> , W <sub>I</sub> , ρ: ±0.5%, xCO <sub>2</sub> : ±0.2mol%			
Repeatability	H <sub>2</sub> , W <sub>I</sub> , ρ: ±0.1%, xCO <sub>2</sub> : ±0.1mol%			
Range of Appropriate Gases	Generic Natural Gases			
	Component Name	Formula	Range	Available as Output?
	Methane	CH <sub>4</sub>	70-100 mol%	Yes
	Ethane and Higher Alkanes	C <sub>2+</sub>	0-20 mol%	Yes
	Carbon Dioxide	CO <sub>2</sub>	0-20 mol%	Yes
	Nitrogen	N <sub>2</sub>	0-30 mol%	Yes
	Oxygen	O <sub>2</sub>	±0.1 mol%	No
	Hydrogen & Helium	H <sub>2</sub> + He	±0.1 mol%	No
	Water (Gaseous)	H <sub>2</sub> O	±0.1 mol%	No
	Hydrogen Sulphide	H <sub>2</sub> S	10 ppmV (or 14 mg/m <sup>3</sup> ) 0.5 grains/100 scf (higher amounts on request)	No
Dust, Liquids		Technically Free		
Calibration Gas	Binary mixture (CH <sub>4</sub> /CO <sub>2</sub> ) with automatic calibration cycle			
Gas Manifold	Integrated 2-channel double-block and bleed gas manifold for process and calibration gas			
Operational Pressure/Consumption	Inlet pressure 150 - 300 kPa gauge (22 to 43 psi) lower pressures possible with limitations, please contact factory. Flow 20...300 l/h (0.7 to 1.1 scf/hr / total including adjustable bypass flow)			
Dynamics	Analysis rate f=1 Hz, reaction time T90≤6s (90% step response / Tested @ NMI)			
Power Supply	24VDC±15% (Including mains fluctuations), max. 96W, 60W nominal power			
Environment	IP64, -25 to +55°C (-13 to +131°F), 0-100%RH (non-condensing)			
Interfaces	1x TCP/IP, 2x RS485 interface, 4 digital outputs, 2 digital inputs, 4 analog outputs Modbus via TCP/IP and serial			
Data Logger	Integrated logging of measurements as mean values (e.g. on hourly basis) or current values. Integrated logging of measurement system status and external events			
Operational Interface	7-channel capacitive touch panel, internal web page accessible through web browser, PC software (enSuite) for configuration, data logging, display and archive retrieval			
Safety Approvals	Zone 1: Ex II 2G Ex d IIC T4 Gb / Class I Div 2 Groups ABCD T4			
Metrological Approvals	NMI: OIML R140 Class A			

\*according to ISO 6976, ASTM 3588, GPA 2172 at all known reference conditions  
\*\*according to ISO 6976 at T1=25°C/T2=0°C

### For more information

To learn more about Honeywell's Integrated Gas Solutions, visit [www.honeywellprocess.com](http://www.honeywellprocess.com) or contact your Honeywell account manager.

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