

# ELSTER® GASLAB Q2

Real-time Natural Gas Analyser

## BRIEF INFORMATION

Growing energy needs, globalization and the liberalization of the gas trade are driving demand for efficient and innovative gas measuring equipment, particularly equipment for analysing gas quality. One aspect of this trend is the global distribution of gases from various sources and in various qualities.

A large number of processes relating to the use of gas, such as gas turbines, are very sensitive to varying gas parameters and must be adjusted or regulated accordingly. Alternatively the range of gas parameters can be limited by mixing gas in the transport network. Both cases require efficient process measuring equipment for gas quality.

While energy measurement in the distribution network is becoming more and more important, the need for simple and low maintenance analyzers is increasing. The billing to end customers needs to be made easy and more accurate. As opposed to the "classic" gas chromatograph solution, the Honeywell Elster® GasLab Q2 does not use carrier and mixed calibration gases or combustion air supply which means less cost of ownership for the user.

The Honeywell Elster® GasLab Q2 Gas Quality Analyzer determines the calorific value, Wobbe index and other parameters in natural gas. The applications of the device range from fiscal energy metering to measurement, control and regulation. One major application is control of the gas turbine of power plants to optimize efficiency, pollutant emissions and system load with fluctuating gas qualities. Another application is gas blending for managing the gas specifications in transportation.

The GasLab Q2 operates continuously and flameless in contrast to gas chromatographs or Wobbe-index analyzers. Therefore a safe, fast and continuous measurement is ensured. The measuring principle of the GasLab Q2 is based on the determination of the infrared absorption and the thermal conductivity of the measuring gas. This data is used in a correlative model to determine the gas quality.

The GasLab Q2 is designed to operate in many hazardous areas and wide ambient temperature ranges. This simplifies installation and allows the Analyzer to be placed close to the process supporting a short response time.

In measurement mode, the gas quality calculations are updated every second. To minimize gas transport delays between the sample tap and GasLab Q2, a bypass flow meter is integrated into the housing. Routine calibration is performed automatically at a user-programmed time and day, a simple binary mixture.

The analyzer has gas connections for sample gas, calibration gas, sensor vent and optional bypass outlet. Electrical connections for power and I/O communications are conveniently accessible in the top housing.

The measured values are communicated via Modbus protocol and analog outputs. Modbus is available through two serial ports and the Ethernet interface. Additionally it is possible to connect external signals to monitor contact closures, e.g. low pressure limit of calibration bottle or sampling system status.



## MAIN FEATURES

- Determination of main gas parameters: calorific value/Wobbe index/density/CO<sub>2</sub> concentration/methane number etc.
- Flameless, no air or carrier gas needed
- Fast, continuous measurement
- Easy operation
- Small footprint:  
Low investment and maintenance costs

## APPLICATIONS

- Fiscal metering
- Gas turbine control for power plants
- Feed forward burner control
- Biogas
- Gas blending

## BENEFITS

- Realtime update of gas parameters
- Installation, cost saving due to easy engineering and commissioning
- Less downtime for gas turbine installations
- More energy efficient turbine control because of quick response
- Less off-spec gas for blending stations
- Cleaner burner regulation
- Optimized emission of processes
- Better end product quality control

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The integrated display shows the measurement values and operating conditions of the analyzer. The analyzer can be operated via a touch panel connected to the device. ensuit for configuration, data display and recording.

The user-friendly Elster GasLab Q2 provides customers with fast, accurate gas quality measurements for a low capital investment and minimal ownership costs.

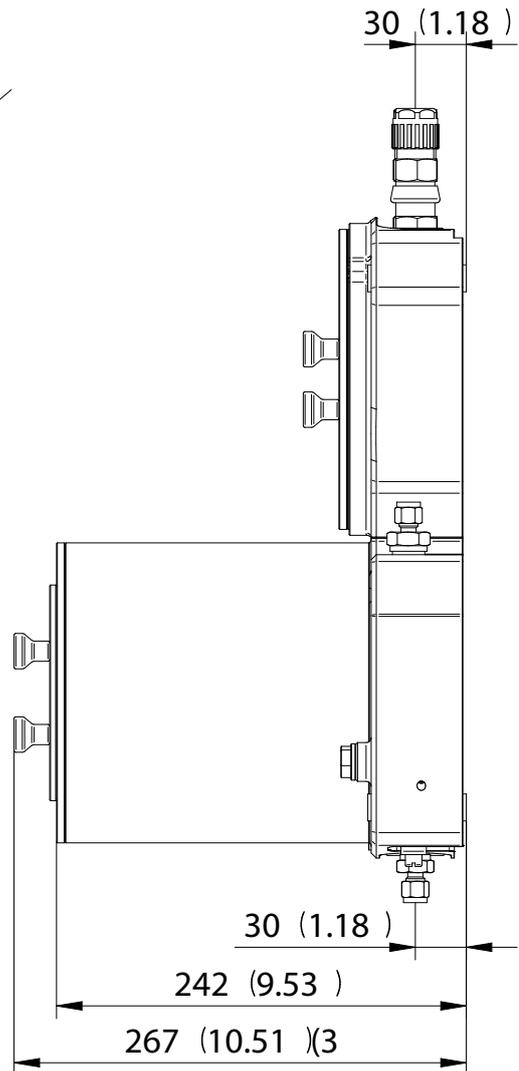
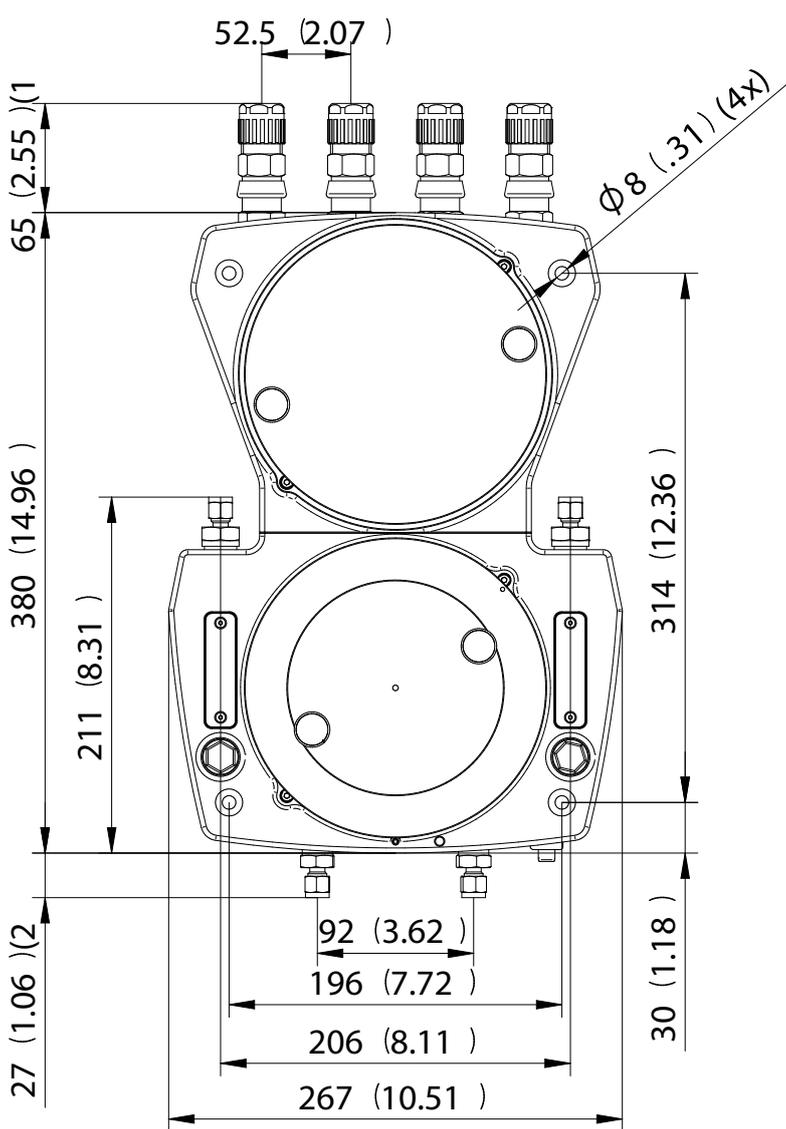
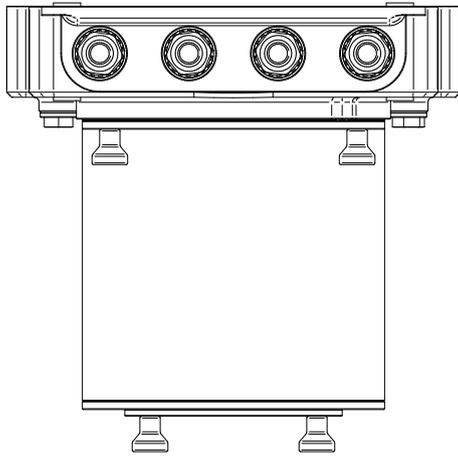
## ELSTER GASLAB Q2 TECHNICAL SPECIFICATIONS

TECHNICAL DATA							
Reported values (SI Units)		Formula	Calculation standard	Range		Unit	Output available?
				Normal	OIML R140		
Reported values (Imperial Units)	Heating Value superior	Hs	ISO 6976-1995	27.9 - 48.5	29.9 - 45.6	MJ/m <sup>3</sup>	Yes
	Wobbe index (superior)	WIs	ISO 6976-1995	33.8 - 58.0	36.0 - 55.3	MJ/m <sup>3</sup>	Yes
	Density	ρ(rho)	ISO 6976-1995	0.7168 - 1.063	0.7175 - 1.005	kg/m <sup>3</sup>	Yes
	Gross Heating Value	GHV / GCV	GPA 2172-2009	707.9 - 1237.3	707.9 - 1237.3	BTU/ft <sup>3</sup>	Yes
	Wobbe index (superior)	WIs	GPA 2172-2009	859.4 - 1479.8	914.5 - 1403.9	BTU/ft <sup>3</sup>	Yes
	Density	ρ(rho)	GPA 2172-2009	0.04232 - 0.06277	0.04236 - 0.05931	lbm/ft <sup>3</sup>	Yes
Other reported values	Methanenumber	MN	Simplified method			-	Yes
	Wobbe index	WIs / Wli	Dry / Wet / Saturated			MJ/m <sup>3</sup> or BTU/ft <sup>3</sup>	Yes
	lower heating Value	LHV / NCV / Hi					Yes
	relative density or specific gravity	RD / SG				-	Yes
	Calculated Model Gas Composition	CH <sub>4</sub> ...C <sub>8</sub> H <sub>18</sub> , N <sub>2</sub>				%	Yes
Analytical performance	Uncertainty	Hs, Ws, p: ≤0.5%, xCO <sub>2</sub> : ≤0.2mol%					
	repeatability	Hs, Ws, p: ≤0.1%, xCO <sub>2</sub> : ≤0.1mol%					
List of suitable gases	Generic natural gases						
	Methanenumber	CH <sub>4</sub>		70 - 100		mol%	Yes
	Ethane and higher alkanes	C <sub>2</sub> +	C <sub>2</sub> >C <sub>3</sub> >C <sub>4</sub> >C <sub>5</sub> >C <sub>6</sub>	0 - 20	0 - 15	mol%	Yes
	Carbon dioxide	CO <sub>2</sub>		0-20		mol%	Yes
	Nitrogen	N <sub>2</sub>		0-30	0-20	mol%	Yes
	sum of Water, Oxygen, Hydrogen, Helium	H <sub>2</sub> O + O <sub>2</sub> + H <sub>2</sub> + He		< 0.1		mol%	No
	Hydrogen Sulfide	H <sub>2</sub> S	10 ppmV (or 14 mg/m <sup>3</sup> or 0.5 grains/100 scf) (higher amounts on request)			N/A	No
	Dust / liquids	technically free				N/A	No
	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 your local Honeywell office. 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≤2s (90% step response)						
Power Supply	24VDC±15% (Including mains fluctuations), max. 96W, 60W nominal power (ambient temperature dependant)						
Environment	IP64, -25 to +55°C (-13 to +131°F), 0-95%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, 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 KC Mark (Korea) & TS Mark (Taiwan) available TIIS (Japan) Pending						
Metrological Approvals	NMI: OIML R140 Class A (C <sub>2</sub> + <15% & N <sub>2</sub> < 25%)						

all calculated values according :

- ISO 6976-1995 T1: 25°C; T2: 0°C; P1, P2: 1013.25 mbar

- GPA 2172-2009 : T1, T2: 60°F; P1, P2: 14.696 psi (using GPA 2145 - 2009 tables)



(1 Depending on the type of cable connection and excluding cable clearance

(2 Excluding any clearance for tubing

(3 Including window dust cover

Germany  
Elster GmbH  
Steinern Str. 19 - 21  
55252 Mainz-Kastel  
T +49 6134 605 0  
F +49 6134 605 223  
[www.elster-instromet.com](http://www.elster-instromet.com)  
[info@elster-instromet.com](mailto:info@elster-instromet.com)

USA  
Honeywell Process Solutions  
Honeywell 1250 West Sam Houston  
Parkway South Houston, TX 77042  
[www.honeywellprocess.com](http://www.honeywellprocess.com)

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