

EnCal 3000 proChain

The Honeywell GC for Natural Gas

Accurate Online Natural Gas Heating Value Determination

Gas = Energy = Money

Natural Gas is one of the predominant energy resources across the world. For transparent and accurate custody transfer of natural gas, the determination of the energy content within the transported gas is key. Gas chromatography is the standard solution for this kind of measurement.

As the number of gas sources continues to grow, the amount of measuring points required, grow exponentially. Honeywell provides an affordable solution to measure natural gas.

With the new EnCal 3000 proChain, Honeywell sets a new standard in cost effective gas chromatography for natural gas. It provides accurate determination of all main natural gas parameters – heating value, Wobbe index, density, CO₂ concentration – while keeping CAPEX and OPEX to a minimum. Reducing the overall size of the measurement device results in the lowest carrier gas usage in the market, as low as 2 millilitres per minute. This means only one bottle of helium (50 litres @ 200 barg) every seven (!) years.

High performance, high speed and high accuracy, the EnCal 3000 proChain is simple to operate and maintain.

Easy Maintenance

The optional local display provides the user will all the information needed to make fast and accurate decisions. The display provides information on the concentration of the natural gas components and the status of the analyser itself.

The optional local USB can be used to quickly connect a laptop to run Honeywell's Service and Configuration tools. It is not required to open the analyzer, which saves time on service.

The single train, single injection C6+ backflush-to-detector configuration enables an analyzer design with a minimal number of moving parts allowing for easy troubleshooting. The measuring channel can be replaced by simply removing two screws.

Sample System

The integrated sample system ensures that only limited sample conditioning is needed. The EnCal 3000 proChain has a maximum of 6 streams out of which one or more can be addressed as a calibration stream. Each stream has an exchangeable inline 2-micron filter that prevents particles from entering the analytical part of the analyzer. The analyzer features a built-in fast loop valve that allows for fast purging of long lines if required. This ensures that a fresh sample is available to the analyzer at the correct time. These features massively simplify the installation of the GC. To complete the installation a pressure-reducing sample probe with a liquid filter is also required.



Installation

The EnCal 3000 proChain is an Ex-d type analyzer, designed for installation in hazardous areas. This makes it possible to install the analyzer near the sampling point and, if required, outdoors. With optional heater elements fitted, the EnCal 3000 proChain can operate in temperatures as low as -25°C (-13°F). High temperature environments are not a challenge for this analyser either as its maximum operating temperature is 55°C (130°F) for outside installations. Honeywell recommends the use of sun/rain shades. Should your application environment require operation outside these temperature range, please contact your Honeywell representative as alternative solutions are available.

Conclusion

The gas chromatograph that will measure your natural gas according to the latest standards, while keeping both CAPEX and OPEX to a minimum, will be the next best thing – the proChain.

EnCal 3000 proChain Technical data

TECHNICAL DATA																																																					
ANALYTICAL HARDWARE	2 MEMS Columns / single column train in backflush to detector configuration / analytical column temperature ramped during analysis.																																																				
MEASUREMENTS & CALCULATIONS	Natural Gas analysis up to C ₆ ⁺ / Calculation of Heating value, density, Wobbe index. According to ISO 6976, GPA 21.72 or ASTM D3588.																																																				
GAS COMPOSITION RANGE	<table border="1"> <thead> <tr> <th colspan="2">Component</th> <th>Range</th> <th colspan="2">Component</th> <th>Range</th> </tr> <tr> <th>Name</th> <th>Formula</th> <th>min - max</th> <th>Name</th> <th>Formula</th> <th>min - max</th> </tr> </thead> <tbody> <tr> <td>Methane</td> <td>CH₄</td> <td>60 - 100</td> <td>i-Butane</td> <td>i-C₄H₁₀</td> <td>0 - 3</td> </tr> <tr> <td>Nitrogen</td> <td>N₂</td> <td>0 - 20</td> <td>n-Butane</td> <td>n-C₄H₁₀</td> <td>0 - 3</td> </tr> <tr> <td>Carbon dioxide</td> <td>CO₂</td> <td>0 - 12</td> <td>neo-Pentane</td> <td>neo-C₅</td> <td>0 - 0.1</td> </tr> <tr> <td>Ethane</td> <td>C₂H₆</td> <td>0 - 14</td> <td>i-Pentane</td> <td>i-C₅H₁₂</td> <td>0 - 0.3</td> </tr> <tr> <td>Propane</td> <td>C₃H₈</td> <td>0 - 6</td> <td>n-Pentane</td> <td>i-C₅H₁₂</td> <td>0 - 0.3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Hexane plus</td> <td>C₆⁺</td> <td>0 - 0.3</td> </tr> </tbody> </table> <p>Other ranges on demand; please contact factory</p>					Component		Range	Component		Range	Name	Formula	min - max	Name	Formula	min - max	Methane	CH ₄	60 - 100	i-Butane	i-C ₄ H ₁₀	0 - 3	Nitrogen	N ₂	0 - 20	n-Butane	n-C ₄ H ₁₀	0 - 3	Carbon dioxide	CO ₂	0 - 12	neo-Pentane	neo-C ₅	0 - 0.1	Ethane	C ₂ H ₆	0 - 14	i-Pentane	i-C ₅ H ₁₂	0 - 0.3	Propane	C ₃ H ₈	0 - 6	n-Pentane	i-C ₅ H ₁₂	0 - 0.3				Hexane plus	C ₆ ⁺	0 - 0.3
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ANALYTICAL PERFORMANCE	Repeatability < 0.025 % for all calculated properties @ steady temperature. Analysis time: max 4 min. for C ₆ ⁺ analysis.																																																				
AMBIENT CONDITIONS	Safety temperature approval : -40 °C to +60 °C. Metrological temperature approval : -25 °C to +55 °C.																																																				
DIMENSIONS	Base Ø 37 cm x height 37 cm (Ø 14" x height 14")																																																				
WEIGHT	< 29 kg (1 channel)																																																				
APPROVALS	ATEX / IECEx : Exd Zone 1 IIC T6 cCSAus : Class I / Div 1 gas groups C / D IP 66, Vibration and shock test in acc. with IEC 60068-2-31 and 64 EMC according to EN 61000-6-2 and EN 61000-6-4																																																				
POWER SUPPLY	No heating 24VDC/3A (16W typical, 30W max, 60W peak) With housing heaters: 24VDC/5A (max. 120W)*																																																				
INTERFACES	Internal and (optional) external USB for device configuration Ethernet for ModBus and / or configuration of device 2 x Serial RS485 for ModBus communication Digital I/O																																																				
PC REQUIREMENT	Minimal Microsoft® Windows™ 7 or higher • A graphics board with a resolution of at least 1024 x 768 pixel • 10 GB free space on harddisk / 1 GB RAM • Minimum Java SE 8 (32-bit or 64-bit)																																																				
DATA LOGGING	Exceeds API 21.1 : local storage of last 100 days of all analytical data (analysis, events, alarms, averages, calibration data) in accordance with API Report 21.1. Last 2000 chromatograms are stored (ca. 4 days).																																																				
SAMPLE GAS INLETS	Input pressure range 1.0 – 1.5 BarG, sample gas must be free from particles and liquid. Sample gas temperature < 100°C. Double block and bleed stream selection for up to 5 streams and 1 calibration gas. Integrated fast loop system with bypass flow of 20 – 30 NL/hr. (software selectable)																																																				
CARRIER GAS	Helium** (minimum quality N5.0). Supply pressure 3,25 ± 0,25 BarG, consumption approx. 2 ml/min. Pressure regulator should contain a safety relief set at 4.0 BarG																																																				
CALIBRATION GAS	Supply pressure 1.0 – 1.5 BarG. Consumption ± 600 ml/day (at atm. pressure). Composition depending on application.																																																				
	*When ambient temperature is below 0 degrees, heaters are added in the housing. Total power consumption will be maximum 120W **Other Carrier gas types on request																																																				

For more information

To learn more about Honeywell Elster's Gas Solutions, visit www.honeywellprocess.com or contact your Honeywell account manager.

Honeywell Process Solutions

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