BIOMETHANE 3000 Geotech

CH_4 CO_2 O_2 H_2S H_2 CO

FIXED BIOMETHANE ANALYSER | BIOGAS UPGRADING

The BIOMETHANE 3000 is designed for high accuracy methane and oxygen readings for biomethane applications, providing customers with the peace of mind that at first stage production, they will have quality readings above the 95% methane level and below the 1% oxygen level.

FEATURES

- CH_4 - improved accuracy 90-100%
- O_2 - improved accuracy below 1% to 2 d.p
- Modular design enabling hot-swap for serviceability and onsite maintenance
- Fully automated calibration function to maintain CH_4 accuracy and ensure data reliability in extreme temperatures
- ATEX and IECEx certified* for use in potentially explosive gas atmospheres - zone 2
- ISO / IEC 17025 calibration for optimal accuracy
- Continuous monitoring of 1 sample point
- IP65 rated for weather proofing
- Built in liquid level monitoring with a dedicated alarm
- Optional automated moisture removal drain
- Dedicated alarm to inform the user that the auto calibration needs attention
- Gas alarms & fault notifications
- 6 x 4-20mA outputs
- Modbus RTU communication
- Optional Profibus, Profinet and Ethernet communication
- Clear, visual and informative colour display
- Wide operating temperature range
- Extended Warranty & Service pack options through approved global service centres
- Heater as standard

SECTOR

Biogas upgrading

APPLICATIONS

- Biogas upgrading
- Agricultural waste
- Farm waste AD
- Mixed food waste AD
- Sewage/waste water treatment AD
- Vehicle fuel
- Biomethane productions

BENEFITS

- Customisable to site requirements
- Protects against O_2 issues
- Zero operational downtime for servicing
- Product reliability and longevity
- Prevents the risk of injecting poor quality gas into the grid network
- Maximise operational efficiency through optimising the AD process
- Operational within hazardous areas
- Ease of operation, integration and installation
- Minimal through-life costs
- Local support for peace of mind

*Does not apply to auto calibration section.

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BIOMETHANE 3000

TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATION				
Number of sampling points	1			
Gases to be monitored	CH_4, CO_2 and O_2 with optional H_2S, H_2 and CO (choice of up to 4)			
Reading intervals	Continuous[1] CH_4, CO_2 and O_2 measurement with user definable fourth gas reading			
Operating temperature range	-20°C to +50°C			
POWER				
Mains options	110-230 Vac 50/60 Hz			
Consumption	155W maximum			
Backup memory	Lithium manganese dioxide backup battery for memory retention			
GAS RANGES				
Gases measured	CH_4 and CO_2	By dual wavelength infrared cell with reference channel		
	O_2	By internal electrochemical cell		
	H_2S / H_2 / CO	By external electrochemical cell		
	Cell	Range	Typical accuracy (range : accuracy)*	
Standard gas cells	CH_4	0-100%	0-100% : ±0.5% (vol)	
	CO_2	0-100%	0-60% : ±0.5% (vol)	60-100% : ±1.5% (vol)
	O_2	0-25%	0-1% : ±0.05% (vol)	1-2% : ±0.10% (vol) / 2-25% : ±1.0% (vol)
	Cell	Range	Typical accuracy (range : accuracy)*	
			Module cell	System cell
Optional gas cells	H_2S	0-50ppm	±1.5% FS	±1.5% FS
	H_2S	0-200ppm	±2.0% FS	±1.5% FS
	H_2S	0-500ppm	±2.0% FS	±2.0% FS
	H_2S	0-1,000ppm	±2.0% FS	±2.0%
	H_2S	0-5,000ppm	±2.0% FS	±100ppm or 5% of reading (if greater)
	H_2S	0-10,000ppm	±5.0% FS	±200ppm or 5% of reading (if greater)
	CO	0-1,000ppm	±2.0% FS	±3.0% FS
	H_2	0-1,000ppm	±2.5% FS	±1.5%
	Range	Response time	Range	Response time
Response time, T90**	CH_4	≤10 seconds	H_2S (0-50ppm)	≤30 seconds
	CO_2	≤10 seconds	H_2S (0-200ppm)	≤35 seconds
	O_2	≤10 seconds	H_2S (0-500ppm)	≤35 seconds
	H_2	<90 seconds	H_2S (0-1,000ppm)	≤35 seconds
	CO	<30 seconds	H_2S (0-5,000ppm)	≤40 seconds
			H_2S (0-10,000ppm)	≤40 seconds
Cell lifetime	O_2 cell is 3 years in air, all other cells 2 years in air			

*Plus accuracy of calibration gas used

**Times are taken from the point gas enters the BIOMETHANE 3000 module. Sample times will vary depending on length of sample pipe

[1] The process will be paused during an auto calibration

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TECHNICAL SPECIFICATIONS CONTINUED

PUMP	
Flow	300ml / minute typically. Please note that the default operation of the pump is always off and uses the positive pressure of the gas at the sample point
Flow-fail point	Flow rate less than 75ml / minute or vacuum greater than 350 mbar
Maximum vacuum restart	-375 mbar
COMMUNICATIONS	
Output channels	Up to six analogue 4-20mA output channels that are user configurable for current sink or source inputs plus Modbus RTU over RS-485
	Optional Profibus, Profinet or Ethernet module
Alarm notifications	1 x fault relay
	7 x user-configurable alarms that can trigger a relay when above or below a set value and one to inform the operator of the results of the autocalibration. In addition, one can be used to indicate to the operator when the catchpot is full and requires emptying
Relay outputs	Single pole changeover 6A 24Vdc relay volt free
ENVIRONMENT CONDITIONS	
Operating pressures	-350 mbar to +350 mbar*
IP rating	IP65
Humidity	0-95% non-condensing humidity
PHYSICAL	
Size	650 x 600 x 210mm (with supplied wall mounting brackets) per enclosure (2 enclosures)
Weight	Maximum 36.5kg per enclosure
Enclosure	Stainless steel, 600 x 600 x 210mm, IP65 rated
Operation keys	Alpha-numeric keypad with ‘tactile’ membrane
Display	480 x 272 pixel RGB TFT display, 96mm x 55mm
Moisture removal filters	User replaceable microfibre filter and 2.0µm PTFE water traps
Heater	100W mains powered ATEX certified heater for 110V or 230V mains supply
CERTIFICATION RATING	
ISO17025	Calibrated under UKAS accreditation (certificate number 4533)
ATEX / IECEx marking	Ⓔx II 3G Ex nA nC IIA T1 Gc (-20°C ≤ Ta ≤ +50°C) (main system only)
BS EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use
BS EN 50270:2006	Electromagnetic compatibility - electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen

*Pressures will need regulating in order not to damage the system. This is the responsibility of the user.

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