BIOGAS 3000

Geotech

FIXED BIOGAS AND LANDFILL GAS ANALYSER | ANAEROBIC DIGESTION

The ATEX and IECEx certified BIOGAS 3000 builds on field proven, robust gas analysis technology to offer cost effective online monitoring with local data outputs.



SECTOR

Biogas

🌚 Landfill gas

APPLICATIONS

- Agricultural waste
- Biogas upgrading
- Landfill gas monitoring
- Farm waste AD (small scale)
- Gas flaring
- Mixed food waste AD
- Sewage/waste water treatment AD



FEATURES

- CH₄ CO₂ & O₂- standard measurements
- H₂S, H₂ and CO choice of up to two optional measurements
- Modular design enabling hot-swap for serviceability and onsite maintenance
- User calibration function to maintain accuracy & ensure data reliability in extreme temperatures
- ATEX, IECEx and CSA certified for use in potentially explosive gas atmospheres zone 2
- ISO / IEC 17025 calibration for optimal accuracy
- Ability to monitor the gas control process before and after desulphurisation
- Continuous monitoring option
- Up to 4 sample points to monitor the complete gas control process
- IP65 rated for weather proofing
- Built in liquid level monitoring with a dedicated alarm to inform the user that the contents of the catchpot requires emptying or an optional automated moisture removal drain
- Gas alarms & fault notifications
- 6 x 4-20mA outputs
- Modbus RTU communication
- Optional Profibus and Profinet communication
- Clear, visual and informative colour display
- Optional heater to extend operating temperature range to -20°C
- Extended Warranty & Service pack options through approved global service centres

BENEFITS

- Customisable to site requirements
- Zero operational downtime for servicing
- Product reliability and longevity
- Protect expensive capital equipment from damaging gases
- 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
- Multi-lingual product available in English, German and Chinese

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BIOGAS 3000

TECHNICAL SPECIFICATIONS

Gases to be monitored CH_{u} , CO_{2} and O_{2} with optional H_{2} S, H_{2} and CO (choice σ up to Reading intervals User definable, with a continuous ¹ CH_{u} , CO_{2} and O_{2} option as Operating temperature range 0°C to +50°C without heater, -20°C to +50°C with heater POWER I10-230 VAC 50/60 Hz Consumption 155W max. Backup memory Lithium manganese dioxide backup battery for memory rete GAS RANCES ECH_4 and CO_2 By dual wavelength infrare cell w Gases measured O_2 By internal electrochemical cell M,S / H_2 / CO By internal electrochemical cell H,S / H_2 / CO Standard gas cells Cell Range Typical (Co, 0.100% 0-60% 0,2 0-25% 0-25% Optional gas cells Cell Range Typical (H_S 0-500ppm 1.5% H H,S 0-500ppm 1.5% H (Ditonal gas cells H_2S 0-500ppm 1.5% H H,S 0-10,000ppm 2.0% H (Ditonal gas cells H_2S 0-1,000ppm 1.5% H H,S 0-1,000ppm 1.5% H				
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Operating temperature range 0°C to +50°C without heater,-20°C to +50°C with heater POWER Interval				
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Consumption 155W max. Backup memory Lithium manganese dioxide backup battery for memory rete GAS RANCES O_2 By dual wavelength infrared cell w Gases measured O_2 By dual wavelength infrared cell w O_2 By internal electrochemical cell H25 / H2 / CO $H_2S / H_2 / CO$ By internal / external electrochemical cell H25 / H2 / CO $H_2S / H_2 / CO$ By internal / external electrochemical cell H25 / H2 / CO GH Range Typical CH_4 0-100% 0-60% O_2 0-25% 0-25% O_2 0-25% 0-25% O_2 0-200pm $\pm 2.0\%1$ H_2S 0-500pm $\pm 2.0\%1$ H_2S 0-500pm $\pm 2.0\%1$ H_2S 0-10,000pm $\pm 2.0\%1$ H_2S 0-10,000pm $\pm 5.0\%1$ H_2S 0-10,000pm $\pm 5.0\%1$ H_2S 0-10,000pm $\pm 5.0\%1$ H_2S 0-10,000pm $\pm 5.0\%1$ H_2S 0-10,00				
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GAS RANGESCH4 and CO2By dual wavelength infrared cell w O2Gases measured O_2 By internal electrochemical cellH25 / H2 / COBy internal electrochemical cellH25 / H2 / COBy internal electrochemical cellCellRangeTypicalCH4O-100%O-60%O2O-100%O-60%O2O-25%O-25%C2O-100%O-60%O2O-25%O-25%CellRangeTypicalH25O-500pmH25O-500pmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH25O-1000ppmH26O-1000ppmH2O-1000ppmTypical accuraciesAll typical accuracies quoted are after calibration plus accuraciesRangeResponse timeRangeCH4<10 seconds	155W max.			
Gases measured CH _a and CO ₂ By dual wavelength infrared cell with a set of the set	Lithium manganese dioxide backup battery for memory retention			
Gases measured O_2 By internal electrochemical cell $H_2S / H_2 / CO$ By internal / external electrochemical cell $H_2S / H_2 / CO$ By internal / external electrochemical cell Standard gas cells Cell Range Typical CO_2 0-100% 0-60% O_2 0-25% 0-25% O_2 0-25% 0-25% P_2 Cell Range Typical H_2S 0-500ppm ±1.5% 1 H_2S 0-200ppm ±2.0% 1 H_2S 0-500ppm ±2.0% 1 H_2S 0-10,000ppm ±2.0% 1 H_2 0-1,000ppm ±2.0				
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Cell Range Typical CA 0-100% 0-70% CO2 0-100% 0-60% O2 0-25% 0-25% O2 0-25% 0-25% Cell Range Typical H2S 0-500pm ±1.5% H2S 0-500pm ±2.0% H2S 0-500pm ±2.0% H2S 0-10,000pm ±2.0% H2 0-1,000ppm ±2.0% H2 0-1,000ppm ±2.0% H2 0-1,0000ppm ±2.0% <td colspan="3">By internal electrochemical cell</td>	By internal electrochemical cell			
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Standard gas cells CO_2 0-100% 0-60% O_2 0-25% 0-25% O_2 0-25% 0-25% $Cell$ $Range$ $Typical$ H_2S 0-50ppm ±1.5% H_2S 0-200ppm ±2.0% H_2S 0-500ppm ±2.0% H_2S 0-10,000ppm ±2.0% H_2 0-1,000ppm ±2.0% H_2 G_2 </td <td></td> <td>Typical accuracy (range : accuracy)*</td> <td colspan="2">/pical accuracy (range : accuracy)*</td>		Typical accuracy (range : accuracy)*	/pical accuracy (range : accuracy)*	
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*Typical accuracies All typical accuracies quoted are after calibration plus accura Response time, T90** O_2	m	±2.0% FS ±2.0% FS		
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H_2 0-1,000ppm $\pm 2.5\%$ H*Typical accuraciesAll typical accuracies quoted are after calibration plus accurationRangeResponse timeRangeCH_4 ≤ 10 seconds H_2S (0-2)CO_2 ≤ 10 seconds H_2S (0-2)O_2 ≤ 20 seconds H_2S (0-2)	pm	±5.0% FS ±200ppm c reading (if		
*Typical accuracies All typical accuracies quoted are after calibration plus accuration Range Response time Range CH4 <10 seconds	m	±2.0% FS ±3.0% FS		
RangeResponse timeRange CH_4 ≤ 10 seconds H_2S (0-1) CO_2 ≤ 10 seconds H_2S (0-1) O_2 ≤ 20 seconds H_2S (0-1)	om	±2.5% FS ±1.5% FS		
CH_4 $\leq 10 \text{ seconds}$ H_2S (0-2) CO_2 $\leq 10 \text{ seconds}$ H_2S (0-2) O_2 $\leq 20 \text{ seconds}$ H_2S (0-2)	All typical accuracies quoted are after calibration plus accuracy of calibration gas used.			
CO2 ≤ 10 seconds H_2S (0-1)Response time, T90**O2 ≤ 20 seconds H_2S (0-1)	time	Range Response t	ime	
Response time, T90** $O_2 \leq 20$ seconds H_2S (0-2)	ds	H₂S (0-200ppm) ≤35 second	ls	
	ds	H ₂ S (0-500ppm) ≤35 second	ls	
	ds	H ₂ S (0-1,000ppm) ≤35 second	ls	
	ds	H ₂ S (0-5,000ppm) ≤40 second	ls	
	ds	H ₂ S (0-10,000ppm) ≤40 second	ls	
		$H_{3}S(0-39,999ppm) \leq 40 \text{ second}$		
** Times are taken from the point gas enters the BIOGAS 3000 module. Sample times will vary of		2		

BIOGAS 3000

TECHNICAL SPECIFICATIONS CONTINUED

PUMP				
Flow	300ml / min typically			
Flow-fail point	Flow rate less than 75ml / min or vacuum greater than 350mbar			
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 digital output.			
	Optional Profibus module			
	Optional Profinet module			
Alarm notifications	1 x fault relay			
	7 x user-configurable alarms that can trigger a relay when above or below a set value. 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 CONDIT	IONS			
Operating pressures	-350 mbar to +350 mbar			
IP rating	IP65			
Humidity	0-95% non-condensing humidity			
PHYSICAL				
Weight	36.5kg			
Size	650 x 600 x 210mm (with supplied wall mounting brackets)			
Enclosure	Stainless steel, 600 x 600 x 210mm, IP65 rated			
Operation keys	Alpha-numeric keypad with 'tactile' membrane			
Display	Ultra-clear high resolution 4.3" full colour TFT			
Moisture removal filters	User replaceable microfibre filter and 2.0µm ptfe water traps			
Heater option	Optional 100W mains powered ATEX certified heater for 110V or 230V mains supply			
CERTIFICATION RATING	5			
ISO17025	Calibrated under UKAS accreditation (certificate number 4533)			
ATEX / IECEx	€ II 3G Ex nA nC IIA T1 Gc (-20°C ≤ Ta ≤ +50°C)			
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			
CSA	Ex nA nC IIA T1 Gc (Canada) Class 1, Zone 2, AEx nA nC IIA T1 Gc (USA)			

¹ Continuous option will include a minimum 3 minute daily air purge



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