# 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.


## FEATURES

- $CH_4$ $CO_2$ & $O_2$ - standard measurements
- $H_2S$, $H_2$ 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

## 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

## 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

# BIOGAS 3000

## TECHNICAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **GENERAL SPECIFICATION** | | | | |
| Number of sampling points | 1-4 | | | |
| Gases to be monitored | $CH_4$, $CO_2$ and $O_2$ with optional $H_2S$, $H_2$ and CO (choice of up to 5) | | | |
| Reading intervals | User definable, with a continuous[1] $CH_4$, $CO_2$ and $O_2$ option available | | | |
| Operating temperature range | 0°C to +50°C without heater,-20°C to +50°C with heater | | | |
| **POWER** | | | | |
| Mains options | 110-230 VAC 50/60 Hz | | | |
| Consumption | 155W max. | | | |
| 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 internal / external electrochemical cell | | |
| Standard gas cells | Cell | Range | Typical accuracy (range : accuracy)* | |
| | $CH_4$ | 0-100% | 0-70% : ±0.5% (vol) | 70-100% : ±1.5% (vol) |
| | $CO_2$ | 0-100% | 0-60% : ±0.5% (vol) | 60-100% : ±1.5% (vol) |
| | $O_2$ | 0-25% | 0-25% : ±1.0% (vol) | |
| Optional gas cells | Cell | Range | Typical accuracy (range : accuracy)* | |
| | | | Internal accuracy | External accuracy |
| | $H_2S$ | 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% FS |
| | $H_2S$ | 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) |
| | $H_2S$ | 0-39,999ppm | ±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% FS |
| *Typical accuracies | All typical accuracies quoted are after calibration plus accuracy of calibration gas used. | | | |
| Response time, T90** | Range | Response time | Range | Response time |
| | $CH_4$ | ≤10 seconds | $H_2S$ (0-200ppm) | ≤35 seconds |
| | $CO_2$ | ≤10 seconds | $H_2S$ (0-500ppm) | ≤35 seconds |
| | $O_2$ | ≤20 seconds | $H_2S$ (0-1,000ppm) | ≤35 seconds |
| | $H_2$ | <90 seconds | $H_2S$ (0-5,000ppm) | ≤40 seconds |
| | CO | <30 seconds | $H_2S$ (0-10,000ppm) | ≤40 seconds |
| | $H_2S$ (0-50ppm) | ≤30 seconds | $H_2S$ (0-39,999ppm) | ≤40 seconds |
| ** Times are taken from the point gas enters the BIOGAS 3000 module. Sample times will vary depending on length of sample pipe | | | | |
| Cell lifetime | $O_2$ cell is 3 years in air, all other cells 2 years in air | | | |

# 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 CONDITIONS** | |
| 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** | |
| ISO17025 | Calibrated under UKAS accreditation (certificate number 4533) |
| ATEX / IECEx | Ex 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)<br>Class 1, Zone 2, AEx nA nC IIA T1 Gc (USA) |

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