



# GIR6000 Biogas Analyser

## Multiparameter analysers for biogas applications

- **Intelligent modular sensors**
- **Measurement of up to 6 gases (incl. CH<sub>4</sub>, CO<sub>2</sub>, H<sub>2</sub>S & O<sub>2</sub>)**
- **Customised sensor options**
- **Intelligent sensors provide predictive diagnostic data**
- **Pre-calibrated, field replaceable sensor modules**
- **Robust, weatherproof design to IP65**
- **Suitable for ATEX Zone 2 mounting**
- **Digital Communication options**
- **Future upgrade potential by adding/changing sensors**
- **Sensor health and process event logging**

### Typical Applications include:

- **Anaerobic Digester gas analysis**
- **Gas-to-grid**
- **Flare stack monitoring**
- **CHP engine protection and efficiency**
- **CDM verification**
- **Landfill gas monitoring**



The **GIR6000 series Biogas analyser** is designed specifically to address the needs of measurement in biogas applications. Reliable and accurate measurement data is crucial to help control and optimise the production process.

**Biogas** consists of a mixture of Methane (CH<sub>4</sub>) and Carbon Dioxide (CO<sub>2</sub>). Oxygen (O<sub>2</sub>) and Hydrogen Sulphide (H<sub>2</sub>S) are usually present which have implications for gas quality, efficiency and safety. Dedicated modules for up to 6 gases are available for use in Zone 2 hazardous area applications. Other trace elements are also often present in low levels and may need measurement.

**Methane** is the desired component in fuel gas for CHP engines and gas-to-grid applications. MTL use long life NDIR sensors to measure Methane and Carbon Dioxide. These sensors are temperature compensated and designed to withstand the damp, corrosive nature of Biogas.

**Hydrogen Sulphide is present in digester gas** in varying amounts depending on the waste composition. Hydrogen Sulphide is highly toxic and can be extremely corrosive to engine generator sets. Accurate monitoring helps control scrubbing systems and prevent costly damage. MTL has developed a system which allows for continuous measurement of H<sub>2</sub>S, while still maximising sensor lifetime.

**Modular sensor design** is an innovative feature of the MTL GIR6000. Self-diagnostics on each sensor provides important preventative data, minimising regular service and maintenance

requirements. Replacement is quick and done on-site, without special tools or training and the modules are pre-configured to allow "plug-and-play" installation. All modules are replaceable in the field for minimum downtime.

**Intuitive user interface** features a large bright colour display. Simple to use menu's allow the user to configure and interrogate the system locally. The display indicates live gas composition values and sensor status in addition to important error or alarm messages. A rugged and robust keypad allows configuration data entry. Password and hardware protection ensures that unauthorised changes cannot be made to the analyser configuration.

**Sample conditioning is important** in the variable conditions encountered in this application. MTL GIR6000 has integral sample filters and pump, as standard, which are fitted as field-replaceable modules. A low-flow alarm ensures sample flow integrity. The enclosure contains a heater to avoid condensation forming in the analyser. An external coalescing filter option to further remove moisture can also be offered. MTL are ready to recommend complete systems on receipt of full gas stream specifications.

**These are hazardous area applications** by their very nature. All GIR6000 versions are designed for use in Zone 2 hazardous areas according to the Industry Code of Practice ESA ICoP Edition 2, a decision endorsed by the Health & Safety Executive in the UK.

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by **EATON**

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# GIR6000 Biogas Analyser

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## SPECIFICATION

### GAS sensor options:

#### Methane:

Range: 0-100%  
Resolution: 0.2%

#### Oxygen:

Range: 0-25%  
Resolution: 0.1%

#### Carbon Dioxide:

Range: 0-100%  
Resolution: 0.2%

#### Hydrogen Sulphide:

Range: 0 to 5000ppm  
Resolution: 1 ppm  
Range: 0 to 500ppm\*  
Resolution: 0.1 ppm\*

\* Available phase 2 release

### Stability (@ STP)

<2 % f.s.d./month

### Accuracy (@ STP)

H<sub>2</sub>S, CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>: 2% of f.s.

### Sample flow

100 to 300ml/min, 400ml/min max

### Sample temperature range

-20°C to +55°C (non-condensing)

### Sample pressure

Pump-off: Min. 20 mbarg Max. 1 barg

### Sample and Air connections

Inlet and outlet: bulkhead compression fittings suitable for 0.25inch (or 6mm) o.d. tube

### Analogue Outputs

Six channels, User assignable. When assigned to gas sensors the range is programmable up to 100% of span

### Digital Communication

RS485  
Modbus  
Profibus DP (Optional)  
Wireless (Optional)

### Maximum output load (Analogue Outputs)

700 Ohms for all outputs

### Alarm Outputs

Two supplied as standard. Optionally up to sixteen in blocks of two. All are volt-free contacts and are user-assignable.

### Ambient operating temperature range

-15°C to +50°C

### Power (Input Voltage range)

87 – 132 VAC/187 – 264VAC 50/60Hz Auto-select

### Enclosure details

Protection (IP rating) is IP65 with door closed.  
Net weight : approx. 30kgs  
External dimensions : 650mmh x 540mmw x 260mmd  
Standard digital communications interface is MODBUS on RS485

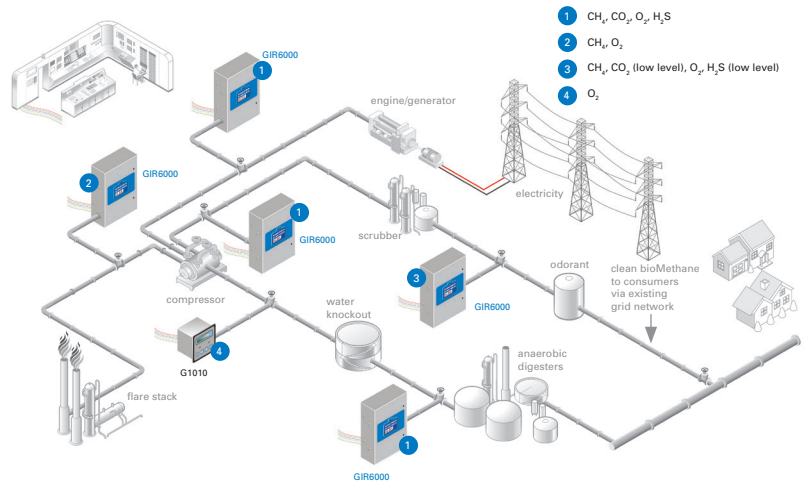
### Accessories supplied

Mounting brackets, bushes and screws  
Inner- and outer-cabinet door keys

## ORDERING INFORMATION

Please refer to MTL for selection and ordering information and support.

## APPLICATION EXAMPLES



## APPROVALS

Country (Authority)	ATEX Approval Standards	Certificate number	For
Europe (MTL)	EN60079-0:2012 EN60079-15:2010	Pending	Zone 2

## CERTIFICATION

II 3G  
Ex nA nC IIC T3 Gc -15°C ≤ T<sub>amb</sub> ≤ +50°C **Pending**

IECEX

Ex nA nC IIC T3 Gc -15°C ≤ T<sub>amb</sub> ≤ +50°C **Pending**

## COMPLIANCE

Electrical Safety standard (EN61010-1: 2010)  
EMC standard (EN61326-1:2006)

Consult MTL for other gas ranges, or installations at high altitude.

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