

MTL GIR6000 Biogas Analyser

Multiparameter analysers for biogas applications

- **Intelligent modular sensors**
- **Measurement of up to 4 gases (incl. CH₄, CO₂, H₂S & O₂)**
- **Selectable system configuration**
- **Intelligent sensors provide predictive diagnostic data**
- **Pre-calibrated, field replaceable sensor modules**
- **Robust, weatherproof design**
- **Suitable for ATEX Zone 2 mounting**
- **Future upgrade potential by adding/changing sensors**
- **Sensor health and process event logging**

Typical Applications include:

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



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

Biogas consists of a mixture of Methane (CH₄) and Carbon Dioxide (CO₂). Oxygen (O₂) and Hydrogen Sulphide (H₂S) are usually present in small quantities which have implications for gas quality, efficiency and safety. Dedicated modules for up to 4 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. We 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. Eaton has developed a system which allows for measurement of H₂S, while still maximising sensor lifetime by automatically purging the analyser which rejuvenates the sensor.

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 for CO₂ and CH₄ values and sensor status in addition to important error or alarm messages. The analyser automatically goes through a purge cycle every 45 minutes which rejuvenates both the H₂S and the O₂ sensors. 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 and we are equipped to recommend complete systems on receipt of full gas stream specifications.

These are hazardous area applications by their very nature. All MTL 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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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 350ppm
Resolution: 0.1 ppm

Stability (@ STP)

<2 % f.s.d./month

Accuracy (@ STP)

H₂S, CH₄, CO₂, O₂: 2% of f.s.

Sample flow

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

Sample temperature range

-15°C to +50°C (clean, dry gas)

Sample pressure

Pump-off: Min. 20 mbar 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.

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 +40°C

Power (Input Voltage range)

85 – 132 VAC/187 – 264VAC 50/60Hz

Enclosure details

Net weight : approx. 30kgs
External dimensions : 650mmh x 540mmw x 260mmd

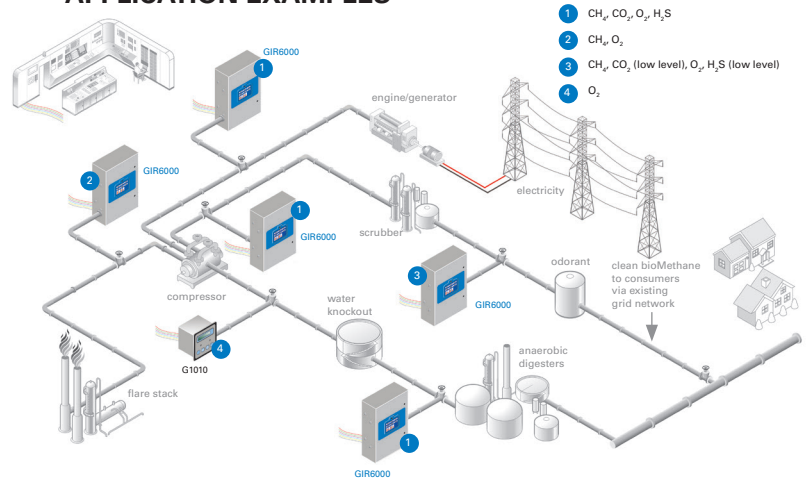
Accessories supplied

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

ORDERING INFORMATION

Consult Eaton's MTL gas product line for selection and ordering information and support.

APPLICATION EXAMPLES



APPROVALS

Country (Authority)	ATEX Approval Standards	Certificate number	For
Europe (MTL)	BS EN 60079-0:2012 BS EN 60079-15:2010	MTL14ATEXGIR6000X	Zone 2

CERTIFICATION

Ex II 3G

Ex d e nA nC IICT3 Gc -15°C ≤ T_{amb} ≤ +40°C

IECEX

Ex d e nA nC IICT3 Gc -15°C ≤ T_{amb} ≤ +40°C Pending

COMPLIANCE

EMC:

BS EN 61326-1:2013

Electrical Safety:

BS EN 61010-1:2010

ATEX:

BS EN 60079-0:2012 + A11:2013

BS EN 60079-1:2014

BS EN 60079-7:2007 and 2014

BS EN 60079-15:2010



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