Landfill and biogas monitoring

Renewable energy from landfill and biogas

Landfill and biogas sites recover large quantities of gas (methane, carbon dioxide, oxygen, nitrogen) along with other trace constituents. Methane as renewable energy is consumed as a fuel to generate electricity while also reducing the carbon footprint.

A gas fired generator in continuous operation consumes the recovered gas stream for fuel to produce the electricity and must be operated at optimum efficiency. In order to monitor the concentration of methane, carbon dioxide, and oxygen in the recovered gas stream an analyzer instrument is utilized. The methane concentration in the gas stream can vary and this measurement is critical to the generator control system so that adjustments to speed and air/fuel ratio set points can be updated in order to minimize emissions and optimize electricity generated. For these reasons it often is required and makes sense to monitor the gas in a continuous fashion and therefore an analyzer is needed that requires minimal operation and maintenance attention, and that it is reliable through long periods of unmanned plant operation. The Ultramat 23 continuous gas analyzer capable of (real-time) measuring up to (4) gas components at once is the right choice for the task at hand.

Integrated into a NEMA 4 enclosure with a sample handling system, data acquisition module, and freeze protection, provides a simple and yet complete gas concentration measurement solution for landfill and biogas analysis.

Process Instrumentation and Analytics

Answers for industry.

SIEMENS

Ultramat 23 Continuous Gas Analyzer

The Ultramat 23 NDIR continuous gas analyzer can measure up to (4) gas components at once. Up to (3) infrared active gas measurements are possible, and in addition oxygen is measured with an electrochemical cell.

Applications: Landfill gas monitoring, biogas sites for continuous measurement of (CH_4, CO_2), methane, carbon dioxide, and (O_2) oxygen in recovered gases from landfill and biogas sites.

Gas analyzer systems for landfill and biogas sites
Need a simple integrated system solution for landfill gas or biogas monitoring? Siemens has that answer for industry!

LFG-M **Base Model Includes:** NEMA 3R enclosure, Ultramat 23 NDIR Gas Analyzer, Thermo electric chiller, flow monitoring, pressure monitoring, sample pump, water carryover sensor, peristaltic drain pump, power and utilities: 120 Volt A.C. * Options available : NEMA 4, purge package, LEL sensor **Calibration** • Zero - Ambient air for O_2 span and CO_2 & CH_4 • Span - Calibration standard gas mixture of CH_4, CO_2, in N2 balance.	
Ultramat 23	Simple menu driven interface via HMI, Per component 4-20ma outputs, (8) freely programmable relay outputs, (3) binary inputs, RS-485 Serial communication port. 0-100Vol% CH_4, 0-100Vol% CO_2, 0-25Vol% O_2. Repeatability: ±≤ 1% of measuring range for (CH_4,CO_2). ±≤ 0.05% for O_2. Zero Drift": Negligible with AUTOCAL enabled. < 2% of measuring range/week. Span Drift:
Sample Chiller	Thermoelectric dual impinger type lowers sample dew point to 4°C, includes (WCO) water carryover sensor, dual stack peristaltic pumps, digital display of temperature, onboard diagnostics.
Data Acquisition Module - Optional	HOBO® U12: 4 channel logging unit designed for use in harsh outdoor and industrial applications. The logger stores up to 43,000 samples, high accuracy, 1 year user re-placeable battery and USB connectivity to the PC for data download. Stores CH_4, CO_2, and O_2. Requires HOBOware software kit.

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