GEM5000

Geotech

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GAS EXTRACTION MONITOR | GAS EXTRACTION SITES

The GEM5000 landfill gas extraction monitor for measuring CH_4, CO_2 and O_2. It's an easy to use analyser designed to aid balancing the gas field, maximise power output and ultimately maximise revenue from CH_4 extraction.

FEATURES

- Certified: ATEX, IECEx, CSA, MCERTS and UKAS calibration (ISO17025)
- Measures % CH_4, CO_2, O_2
- Records static and differential pressure
- Choice of user settings and simple gas reading function
- Calculates gas flow (m3 / h) and calorific value (KW or BTU) (external flow device and Gas Analyser Manager software required)
- CH_4 and CO_2 accuracy ±0.5% after calibration
- Modular and upgradeable
- 3 year warranty
- Robust design for market leading reliability
- Datalogging and profiling function
- Up to 6 gases monitored

BENEFITS

- Aids balancing of gas field
- Real time adjustments can be made
- Maximise power output from site
- Easy to read
- No need for self-certification of anemometer
- Maximise revenue from CH_4

SECTOR

Landfill

APPLICATIONS

- Landfill gas field optimisation
- Landfill gas energy calculation
- Flare / engine output estimation

OPTIONS (AVAILABLE AT PURCHASE OR LATER)

- H_2 compensated CO
- Choice of additional gases including H_2S to 10,000ppm
- GPS / field navigator
- Gas Analyser Manager software for data download
- External gas flow devices: anemometer (ATEX) / Pitot tubes

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TECHNICAL SPECIFICATIONS

POWER SUPPLY				
Battery type	Rechargeable nickel metal hydride battery pack (not user replaceable)			
Battery life	Typical use 8 hours from fully charged			
Battery charger	Separate intelligent 3A battery charger powered from mains supply (100-240V)			
Charge time	Approximately 4 hours from complete discharge			
GAS RANGES				
Gases measured	CO_2 and CH_4	By dual wavelength infrared sensor with reference channel		
	O_2	By internal electrochemical sensor		
	CO (H_2 compensated), H_2S, NH_3 and H_2 (optional)	By internal electrochemical sensor		
	A full range of internal gas cells can be specified at the time of manufacture			
Standard gas cells	Cell	Range	Typical accuracy (range : accuracy)	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	
	CO	0-500ppm	±2.0% FS	
	CO	0-1,000ppm	±2.0% FS	
	CO	0-2,000ppm	±2.0% FS	
	CO (H_2) +	0-2,000ppm	±1.0% FS	
	H_2S	0-50ppm	±1.5% FS	
	H_2S	0-200ppm	±2.0% FS	
	H_2S	0-500ppm	±2.0% FS	
	H_2S	0-1,000ppm	±2.0% FS	
	H_2S	0-5,000ppm	±2.0% FS	
	H_2S	0-10,000ppm	±5.0% FS	
	NH_3	0-1,000ppm	±10.0% FS	
	H_2	0-1,000ppm	±2.5% FS	
Typical accuracies	All typical accuracies quoted are after calibration			
*Hydrogen compensated carbon monoxide measurement	Hydrogen cross gas effect on carbon monoxide approximately 1%. Do not use where hydrogen is in excess of 10,000ppm			
Response time, T90	Range	Response time		
	CH_4	≤10 seconds		
	CO_2	≤10 seconds		
	O_2	≤20 seconds		
	CO	≤30 seconds		
	H_2S	≤30 seconds		
	NH_3	≤90 seconds		
	H_2	≤90 seconds		
PUMP				
Flow	550 ml / min typically			
Flow fail point	-200 mbar vacuum- user settable			
Maximum vacuum restart	-375 mbar approximately with flow rate of approx 80ml / min			

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TECHNICAL SPECIFICATIONS CONTINUED

FACILITIES	
Temperature measurement	-10°C to +75°C with optional probe
Temperature accuracy	±0.5°C with optional probe
Flow measurement	Via Pitot tube, orifice plate, or anemometer
Energy measurement	Calculated using gas concentrations, flow, and temperature readings
Alarm	User selectable alarms
Communications	Via USB lead or wireless Bluetooth*
Relative pressure measurement	±500 mbar
Relative pressure accuracy	±4 mbar typically (should be zeroed before reading) to ±15 mbar max
Barometric pressure measurement	500 to 1500 mbar, ±5 mbar accuracy
GPS sensor	Location and positioning
Available memory	2,000 IDs *, 4000 readings, 2,000 events *
ENVIRONMENTAL CONDITIONS	
Operating temperature range	-10°C to +50°C
Atmospheric pressure range	700 to 1200 mbar
Relative humidity	0-95% non condensing
Case seal	IP65
PHYSICAL	
Weight	1.6kg
Size	L 220mm, W 155mm, D 60mm
Case material	High impact ABS composite with rubber over-moulding.
Keys	Alpha-numeric keypad with “tactile” membrane
Display	Ultra-clear high resolution 4.3” full colour TFT
Connections	Colour coded gas inlet, outlet and pressure ports. Waterproof USB port, anemometer and charger / temperature probe connections.
Gas sample filters	External user changeable 2.0µm ptfe water traps
CERTIFICATION RATING	
ATEX	II 2G Ex ib IIA T1 Gb (Ta =-10°C to +50°C)
MCERTS	MC / 130239
ISO17025	Calibration to UKAS certificate number 4533
CSA	Ex ib IIA T1 (Ta=-10°C to +50°C) (Canada), AEx ib IIA T1 (Ta=-10°C to +50°C) (USA)
* Gas Analyser Manager software required.	
Important note: The information in this document is correct at the time of generation. We do however, reserve the right to change the specification without prior notice as a result of continuing development.	

MCERTS MC130239 UKAS CALIBRATION 4533 Ex C SA US M.C. #243446 IEC Ex SIR 002