



Gas extraction sites

Applications

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

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 CH4

Features

- Certified: ATEX, IECEx, MCERTS (applied for), CSA and UKAS calibration (ISO17025)
- Measures % CH4, CO2, O2
- Records static and differential pressure
- Calculates gas flow (m³/h) and calorific value (KW or BTU) (external flow device and Gas Analyser Manager software required)
- CH4 and CO2 accuracy $\pm 0.5\%$ after calibration
- Modular and upgradeable
- 3 year warranty
- Robust design for market leading reliability
- Event log

Options (available at purchase or later)

- H2 compensated CO
- Choice of additional gases including H2S to 10,000ppm
- GPS / field navigator
- Gas Analyser Manager software for data download
- External gas flow devices: anemometer (ATEX) / Pitot tubes



Technical specifications

GEM5000

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 3 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 (hydrogen compensated), H ₂ S, 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.			
Oxygen cell lifetime	Approximately 3 years in air			
Other chemical cell lifetime	Suitable for sampling applications - not for continuous use			
Range	CH ₄ CO ₂ O ₂ CO H ₂ S	0-100% 0-100% 0-25% 0-2000ppm 0-5000ppm or 0-10,000ppm		
Typical accuracy after calibration	CH ₄	0-70%	±0.5% (vol)	70-100% ±1.5% FS
	CO ₂	0-60%	±0.5% (vol)	60-100% ±1.5% FS
	O ₂	0-25%	±1.0% (vol)	
	CO	0-500ppm	± 2.0% FS	
	CO(H2)*	0-2000ppm	± 1.0% FS	
Response time, T90	H ₂ S	0-500ppm 0-1000ppm 0-5,000ppm 0-10,000ppm	± 2.0% FS ± 2.0% FS ± 2.0% FS ± 5.0% FS	
	CH ₄	≤10 seconds		
	CO ₂	≤10 seconds		
	O ₂	≤20 seconds		
	CO	≤30 seconds		
H ₂ S	≤30 seconds			
*Hydrogen compensated carbon monoxide measurement	Compensated for interference from up to 2,000ppm hydrogen. Hydrogen cross gas effect on CO approximately 1%			

PUMP

Flow	550 ml/min typically
Flow fail point	-200 mbar vacuum - user settable
Maximum vacuum restart	-375 mbar approximately with flow rate of approximately 80ml/ min

Technical specifications

GEM5000 cont'd.

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 and flow 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*

ENVIRONMENT 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	1.6 kilograms
Size	L 220mm, W 155mm, D 60mm
Case material	ABS/ polypropylene 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 ptfе water traps

CERTIFICATION RATING

ATEX	II 2G Ex ib IIA T1 Gb (Ta = -10°C to +50°C)
MCERTS	Applied for
ISO17025	Optional 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.

