

GAS EXTRACTION MANAGER



PROFESSIONAL LANDFILL GAS EXTRACTION MANAGEMENT WITH INTELLIGENT MODULAR DESIGN

Geotech GEM instruments are designed to stay in the field and on the job longer. Featuring QED's unique intelligent modular architecture, GEM Pro users can replace or add gas modules in the field. A high-definition touch screen display makes user interface easier, reducing fatigue and potential errors.

FEATURES

- Pre-calibrated Modular design
- 1-7 gases configured
- Records static, differential and system pressures
- Calculates gas flow and heat value
- Live editing and addition of well IDs in the field
- GPS location tracking and tagging
- Hydrogen compensated CO measurement
- Field replaceable battery pack
- Utilises GAMSoft software
- Zone 1 hazardous area certification
- 3-year warranty

BENEFITS

- No requirement for back-to-base service to replace modules
- Modules have individual calibration certificates
- Configuration and functional flexibility
- Accurate balancing of gas field with maximised LFG output from site
- Real time gas field adjustments
- Effective borehole management
- Over 8 hours of field operation between battery charges
- Compliance and monitoring reporting and over the air firmware updates
- Module Care Packs available for easy maintenance

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GEM PRO

WiFi and Bluetooth Communication with GPS

Four Gas Connection Ports with Serviceable Filters

High Definition IPS Touchscreen

Fast Navigation buttons

Large, Positive Click Hard Keys

Hot Swappable Battery Pack



TECHNICAL SPECIFICATIONS

POWER SUPPLY								
Battery Type	Rechargeable nickel metal hydride battery pack (user replaceable in Zone 1 hazardous areas)							
Battery Life	Typical use 8-10 hours from full charge							
Battery Charger	Battery charger powered from mains supply (100-240V), Battery packs can be charged separately from the instrument							
Charge Time	Approximately 3 hours from complete discharge to full charge							
GAS RANGES								
Gases measured	Gas	Sensor	Range	Typical Accuracy*	Resolution	T90		
	CH4	Dual Wave Infrared	0- 100%	± 0.5%	0.1%	≤ 10 seconds		
	CH4 CO2	Dual Wave Infrared	0- 100%	± 0.5% (0-70%)	0.1%	≤ 10 seconds		
			0- 100%	± 0.5% (0-60%)	0.1%	≤ 10 seconds		
	O2	Electrochemical Cell	0- 21%	± 1.0% Volume	0.1%	≤ 20 seconds		
	H2S	Electrochemical Cell	0- 50 ppm	± 1.5% range	0.1 ppm	≤ 30 seconds		
			0- 200 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds		
			0- 500 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds		
			0- 1,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds		
			0- 5,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds		
			0- 10,000 ppm	± 5.0% range	2.0 ppm	≤ 30 seconds		
			0- 40,000 ppm	± 5.0% range	5.0 ppm	≤ 30 seconds		
			CO	Electrochemical Cell	0- 500 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
					0- 1,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	0- 2,000 ppm	± 2.0% range			1.0 ppm	≤ 30 seconds		
	CO(H2)**	0- 2,000 ppm			± 1.0% range	1.0 ppm	≤ 30 seconds	
	H2	Electrochemical Cell	0- 1,000 ppm	± 2.5% range	1.0 ppm	≤ 90 seconds		
NH3	Electrochemical Cell	0- 1,000 ppm	± 10.0% range	1.0 ppm	≤ 90 seconds			
*Typical Accuracy	All accuracies quoted are after calibration plus accuracy of calibration gas used							
**Hydrogen compensated carbon monoxide	Hydrogen cross gas effect on carbon monoxide approximately 1% Do not use where hydrogen is in excess of 10,000ppm							

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TECHNICAL SPECIFICATIONS CONTINUED

PUMP	
Flow	700 ml/min typically
Flow Fail Point	-200 mbar vacuum- user settable
Maximum Vacuum Restart	-375 mbar approximately with flow rate of approx 200 ml/min
FACILITIES	
Temperature measurement / accuracy *	(-10°C to +75°C (14°F to 165°F) with optional probe / ±0.5°C (1°F)
Flow (anemometer) accuracy *	0.7 to 40 m/s / ±1.0% full scale plus ±3.0% reading
Alarms and targets	User defined alarm and target levels through GAMSoft
Communications	WIFI or Bluetooth to GAMSoft and Affinity
Relative pressure measurement / accuracy	±200 "H ₂ O / ±1.5" H ₂ O / ±500 mbar / ±4 mbar to ±15 mbar max (should be zeroed before reading)
Barometric pressure measurement / accuracy	±5 14.765" to 44" Hg/ ± 0.15" Hg accuracy / 500 to 1500 mbar / ±5 mbar accuracy
GPS sensor	Location and positioning
Memory	2,000 IDs, 4000 readings
ENVIRONMENT CONDITIONS	
Ambient Range	700 to 1200 mbar / -10° C to +45° C (15° F to 120°F)
Relative Humidity	0-95% non-condensing
IP rating	IP65
PHYSICAL	
Case material	High impact ABS composite with rubber over-moulding 260 x 170 x 65mm / 1.9 kg
Display	HD 5" touchscreen LCD
Gas sample filters	Internal user changeable 2.0µm PTFE moisture and dust filter
AFFINITY WIRELESS COMMUNICATOR*	
Bluetooth Connectivity	Type (range) Temperature Probe / Anemometer (range) / RH probe (range)
CERTIFICATION RATING	
UKEX/ATEX / IECEx	(Ta = -10°C to +50°C) II 2G Ex ib IIA T1 Gb
SGS	Ex ib opis IIA T1 (Ta=-10°C to +50°C) (Canada), AEx ib IIA T1 (Ta=-10°C to +50°C) (USA)

*With optional Affinity wireless communicator and optional probes



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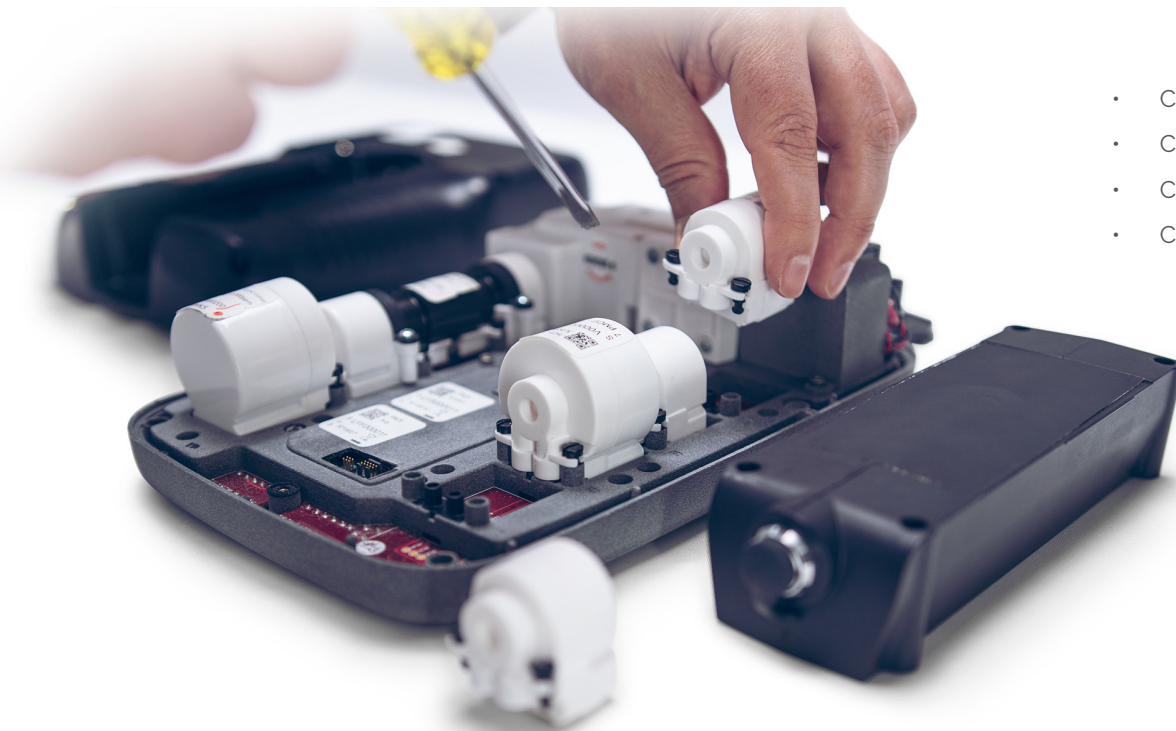


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Intelligent, factory calibrated and user replaceable modules for the measurement of gas or pressure



- Completely configurable
- Completely scalable
- Completely user-upgradeable
- Completely user-maintainable

GEM Pro instruments with modular architecture give users complete control of instrument configuration

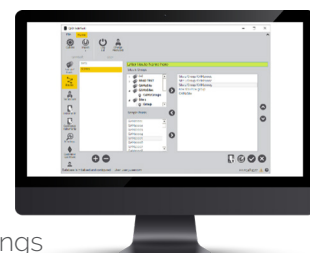
- Gas cells are designed to be serviced by the customer, and fully supported with factory inventory
- Replacement gas cells arrive with a certificate of calibration, maintaining compliance in between yearly inspection and service
- The GEM Pro can be converted to any other configuration (up to seven gases) in the field
- Affinity wireless communications module allows for Bluetooth connection between the GEM Pro and temperature probe or anemometer
- Long battery life and hot swap battery capability means less interruption for recharging with optional spare battery pack



GAMSoft™ Control and Compliance Software

GAMSoft is a single software package which manages data collection and reporting

- Proprietary gas extraction management software
- Report generation for compliance
- Upload existing field data to new software to speed up adoption
- Interfaces with GEM PRO via WIFI or Bluetooth for fast and secure data updates
- Secure data stream uploads to customer database and allows enterprise specific security protocols to be applied as required by users
- Over the air firmware updates support keeping the new GEM Pro in the field where it belongs



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