

GAS EXTRACTION MANAGER



PROFESSIONAL LANDFILL GAS EXTRACTION MANAGEMENT WITH INTELLIGENT MODULAR DESIGN

Landtec 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
- Select from 1 to 7 gases measured
- Records static, differential and system pressures
- Calculates gas flow and heat value
- Live editing and addition of well IDs in the field
- GPS location recording and tagging
- Hydrogen compensated CO measurement
- Field replaceable battery pack
- WIFI and Bluetooth communications
- Utilizes GAMSoft software
- Zone 1 hazardous area certification
- 3-year warranty

BENEFITS

- Customer decides on back-to-base service to replace modules
- Modules have individual calibration certificates
- Configuration and functional flexibility
- Accurate balancing of gas field to maximize LFG output
- Real time gas field adjustments
- Effective borehole management
- Over 8 hours of field operation between battery charges and longer days with optional hot swap battery
- Secure, wireless communication
- Compliance and monitoring reporting and over the air firmware updates

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GEM PRO

WiFi and Bluetooth Communication

Four Gas Connection Ports
with Serviceable Filters

High Definition IPS Touchscreen

Fast Navigation buttons

Large, Backlit 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% (0-70%) Volume	0.1%	≤ 10 seconds
	CH4 CO2	Dual Wave Infrared	0- 100%	± 0.5% (0-70%) Volume	0.1%	≤ 10 seconds
			0- 100%	± 0.5% (0-60%) Volume	0.1%	≤ 10 seconds
	O2	Electrochemical Cell	0- 21%	± 0.3% Volume	0.1%	≤ 20 seconds
	H2S	Electrochemical Cell	0- 50 ppm	± 1.5% range	0.1 ppm	≤ 30 seconds
	H2S		0- 200 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	H2S		0- 500 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	H2S		0- 1,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	H2S		0- 5,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	H2S		0- 10,000 ppm	± 5.0% range	2.0 ppm	≤ 30 seconds
	H2S		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
	CO		0- 1,000 ppm	± 2.0% range	1.0 ppm	≤ 30 seconds
	CO		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	550ml/min typically
Flow Fail Point	-3" to -11" Hg (-100 to -375 mbar)- user settable
Maximum Vacuum Restart	-11" Hg (-375 mbar) approximately with flow rate of approx 200 ml/min
FACILITIES	
Temperature measurement / accuracy *	15°F to 212°F (-10°C to 100°C) with optional probe / ±1°F (0.5°C)
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"(±500 mbar / ±4 mbar to ±15 mbar max) (should be zeroed before reading)
Barometric pressure measurement / accuracy	±14.765" to 44" Hg / ± 0.15" Hg (500 to 1500 mbar / ±5 mbar)
GPS sensor	Location and positioning
Memory	2,000 IDs, 4000 readings
ENVIRONMENT CONDITIONS	
Ambient Range	21" to 25" Hg(700 to 1200 mbar) / 15° to 150°F(-100 C to +450 C)
Relative Humidity	0-95% non-condensing
IP rating	IP65
PHYSICAL	
Case material	High impact ABS composite with rubber over-moulding 10.2" x 6.7" x 2.6" (260 x 170 x 65mm)/ 4.2 lb (1.9 kg)
Display	HD 5" touchscreen LCD
Gas sample filters	Internal user changeable 2.0µm PTFE moisture and dust filter
AFFINITY WIRELESS COMMUNICATOR	
	Temperature Probe-5° to 140°F(-20° to +60°C)/ Anemometer (0.7 to 40 m/sec)
CERTIFICATION RATING	
UKEX / ATEX / IECEx	Ex ib op is IIA T1 Gb (Ta =-10°C to +45°C)
SGS	CLASS 1, ZONE 1, AEx ib op is IIA T1 (Ta=-10°C to +45°C) (USA) CLASS 1, ZONE 1, EX ib op is IIA T1 (Ta=-10°C to +45°C) (Canada)

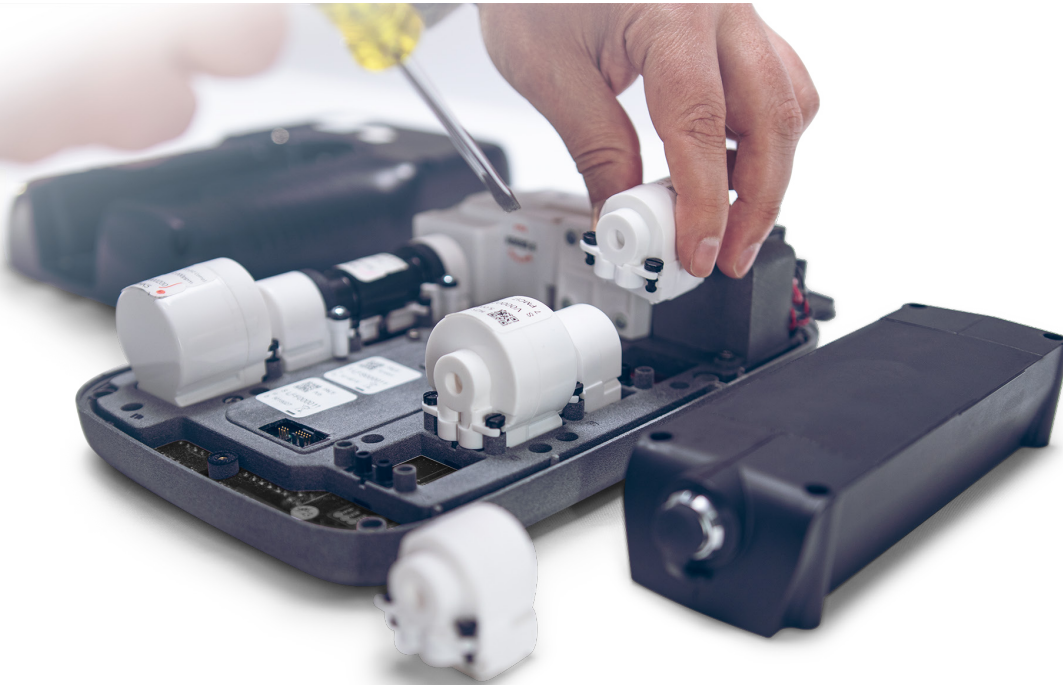


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- Completely configurable
- Completely scalable
- Completely user-upgradeable
- Completely user-maintainable

GEM PRO instruments with modular architecture give users complete control of instrument

- Gas and pressure modules are designed to be serviced by the customer, and fully supported with factory inventory
- Pre-calibrated replacement modules come from QED ready to be installed with the ability to download the certificate of calibration through GAMSsoft software.
- 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 and anemometer
- Long battery life and field swappable battery capability means less interruption for recharging with optional spare battery pack



GAMSsoft™ Control and Compliance Software

GAMSsoft 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
- Manage instrument module configuration and calibration records

