



GEM2000 Plus Technical Specification

POWER SUPPLY					
Battery type	Rechargeable Nickel Metal Hydride battery pack containing six 4AH cells (not user replaceable)				
Battery life	Typical use 10 hours from fully charged				
Battery lifetime	Up to 1000 charge/discharge cycles				
Battery charger	Separate intelligent 2A battery charger powered from mains supply (100-240V 47-63Hz)				
Charge time	Approximately 2 hours from complete discharge				
Alternative power	Can be powered externally for fixed in place applications. Contact Geotechnical Instruments (UK) Ltd for further information				
Memory backup battery	Lithium Manganese for data retention.				
GAS RANGES					
Gases measured	CO ₂ and CH ₄	By dual wavelength infrared cell with reference channel			
	O ₂	By internal electrochemical cell			
	CO (hydrogen compensated)	By internal electrochemical cell			
	H ₂ S 0-500ppm	By internal electrochemical cell			
	H ₂ S 0-5000ppm	By external gas pod (option)			
	NH ₃ 0-1000ppm	By internal electrochemical cell (non standard option)			
	H ₂ 0-1000ppm	By internal electrochemical cell (non standard option)			
	A full range of gas pods can be used as well as the two internal cell positions.				
Range	CH ₄	0 -70% to specification, 0-100% reading			
	CO ₂	0 -60% to specification, 0-100% reading			
	O ₂	0 -25%			
	CO	0 -2000ppm			
	H ₂ S	0 -500ppm internal or 0 - 5000ppm external pod			
Typical accuracy	Gas	0-5% vol	5-15% vol	15%-FS	FS
	CH ₄	±0.5% (vol)	±1.0% (vol)	±3.0% (vol)	70%
	CO ₂	±0.5% (vol)	±1.0% (vol)	±3.0% (vol)	60%
	O ₂	±1.0% (vol)	±1.0% (vol)	±1.0% (vol)	25%
	Gas	Range	0-FS		
	CO	0 -2000ppm	±10.0% of reading or 15ppm, whichever is greater		
	H ₂ S	0 -500ppm	±10.0% FS		
Response time, T90	CH ₄	≤20 seconds			
	CO ₂	≤20 seconds			
	O ₂	≤20 seconds			
	CO	≤60 seconds			
	H ₂ S	≤60 seconds			
CO measurement	Compensated for interference from hydrogen up to 1% hydrogen. Cross sensitivity approx 1%.				
Oxygen cell lifetime	Approximately 3 years in air				
Other Electrochemical cells lifetime	Approximately 2 years in air				

GEM2000 Plus

Technical Specification

FACILITIES

Temperature measurement	-10°C to +75 °C with optional probe
Temperature accuracy	±1.0 °C with optional probe
Visual and audible alarm	User selectable CO2, CH4 and O2 alarm levels*
Communications	Via USB lead to 7 pin Lemo connector*
Relative pressure	±500 mbar from calibration pressure
Relative pressure accuracy	±4mbar typically (should be zeroed before reading) to ±15mbar max
Available Memory	1000 IDs* 2000 Readings 1000 Events*

PUMP

Flow	350 to 400 ml/min typical flow rate in free air
Flow fail point	50 ml/min approximately – user settable*


ENVIRONMENTAL CONDITIONS

Operating temperature range	0°C -40 °C
Relative humidity	0 -95% non condensing
Case seal	IP65
Barometric pressure	± 200mbar from calibration pressure
Barometric pressure accuracy	± 5mbar typically

PHYSICAL

Weight	2 Kilograms
Size	L 63mm, W 190mm, D 252mm
Case material	ABS
Keys	Membrane panel
Display	Liquid crystal display, 40 x 16 characters Fibre optic woven back-light for low light conditions
Gas sample filters	User replaceable integral fibre filter at inlet port and an external PTFE water trap filter

CERTIFICATION RATING

ATEX	 II 2G EEx ib d IIA T1 (Ta = 0°C to +40°C)
MCerts	Sira MC 080127/00 Compatible to instrument serial number 10,000 and above

* Gas Analyser Manager software required.

Important Note

This specification is for GEM2000 Plus units Serial Numbers 10,000 and above.

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.