

gasclam®

CONTINUOUS GROUND-GAS MONITORING

GasClam® is a unique in-borehole gas monitoring system developed for the unattended collection of long-term, real-trend ground-gas data in the mining, energy, contaminated land, landfill and petroleum industries.

GasClam® is able to continuously collect key data enabling asset managers to better understand their assets, more fully report to regulators and better manage and predict the risks associated with ground-gas emission and migration.



KEY FEATURES

- Continuous gas (methane, carbon dioxide, oxygen, hydrogen sulphide and total VOCs) and environmental monitoring
- Battery powered for extended unattended deployment (up to 3 months or external power options available).
- Easy to use - fits in a standard 50mm or 2" borehole
- Robust stainless steel and water proof design
- Intrinsically safe for use in explosive atmospheres
- Programmable borehole venting
- Optional telemetry for remote monitoring

KEY BENEFITS

- Optimised site management through continuous monitoring
- Reduced risk based upon improved site characterisation and event flagging

- Provides complete data for site assessments
- Demonstrates due diligence and regulatory compliance
- Supports a best practice approach to ground-gas monitoring
- Enables site base lining prior to monitoring, as well as during and post operations allowing impact to be understood, managed and reported

APPLICATIONS INCLUDE

- Shale and Coal Bed Methane/Seam Gas site monitoring
- Vapour intrusion studies
- Waste Management
- Landfill perimeter monitoring and control
- Brownfield site investigation
- Refineries and petroleum storage monitoring



SALAMANDER
GROUP

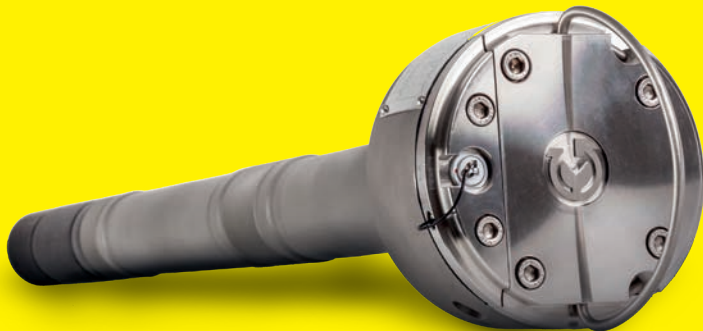
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TECHNICAL SPECIFICATIONS

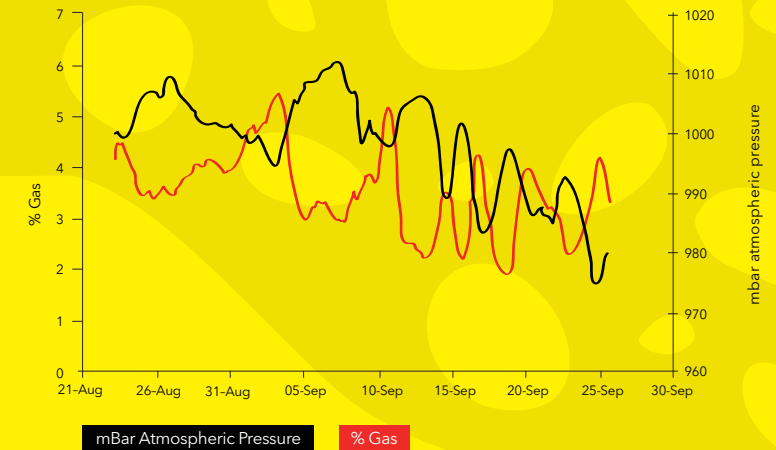
GAS	METHOD/TYPE	RANGE	RESOLUTION	ACCURACY	LINEARITY
CH ₄ **	Infrared	0-100% or 0-5%	1% of FSD above 50% 0.5% below 50%	+/- 2% FSD	+/- 2% FSD or 10% reading
CO ₂ **	Infrared	0-100% or 0-5%	1% of FSD above 50% 0.5% below 50%	+/- 2% FSD	+/- 2% FSD or 10% reading
O ₂	Electrochemical	0-25%	0.1% vol	+/-5% of reading +/- 1 digit	>1% O ₂ deviations @ 10% O ₂
DUAL CO/H2S					
CO*	Electrochemical	0-500ppm	1ppm	+/- 3ppm at 0 +/- 5% at 250ppm	Linear at 0 and 400ppm Error at full scale < 15ppm
H2S*	Electrochemical	0-100ppm	1ppm	+/- 1ppm at 0 +/- 2.5% at 50ppm	Linear at 0 and 100ppm Error at full scale 0 to +/- 4ppm
SINGLE					
VOC*	PID	0-4000ppm	1ppm	+/- 5% of reading +/- 1 digit	+/- 5% to 100ppm

* OPTIONAL ** CHOICE OF TWO IR SENSORS

ENVIRONMENTAL	METHOD/TYPE	RANGE	RESOLUTION
Barometric Pressure	Piezoelectric	800 to 1200 mBar	1 mBar
Borehole Pressure	Piezoelectric	800 to 1200 mBar	1 mBar
Temperature	Internal Chip	-5°C to +50°C or 22°F to 122°F	0.1°C or 1°F
Water Depth*	Piezoelectric	0 – 25m (various available)	0.01 m



CONTINUOUS MONITORING DATA



Power Options	Internal: Option of Lithium primary cells or Duracell Alkaline D-Cells or Rechargeable battery pack External: Accepts intrinsically safe external power supply for extended and/or rapid monitoring	
Typical Battery Life (hourly sampling)	Lithium primary cells Alkaline cells Rechargeable battery pack	3 months 1 month 3 weeks
Case	High quality stainless steel	
Weight	7.5 kg (16.8 lbs)	
Dimensions	Overall length: 85cm (33 ½ in) – Borehole tube length: 78cm (30 ¾ in) Head diameter: 10.9cm (4 ¼ in) – Borehole tube diameter: 4.5cm (1.77 in)	
Protection	IP68 rated (continuous submersion)	
Operation Temp.	0°C to +40°C (32°F to 104°F)	
Approvals	EMC, ATEX 0105 X CE Ex II 2G Ex d ib [ib] IIB T4 IECEx Ex d ib [ib] IIB T4 Gb CSA C (US & Canadian approvals) Class 1, Zone 1 (A)Ex d id IIB T4	
Patents	European and World-wide Patented	

* OPTIONAL; ** CHOICE OF 2 IR SENSORS, SPECIFY ON ORDER; ^ OTHER SENSORS AVAILABLE ON REQUEST