

# Borehole Gas Monitor

## *Ion Science GasClam® 2*

The GasClam® 2 is the first in-situ borehole gas meter suitable for detecting a wide range of gasses commonly found in environmental boreholes. Intended for dedicated applications, measurements are logged at user-defined intervals and can be viewed within the GasClam software or exported for analysis in Excel or csv supported applications.

### FEATURES

- Quickly and securely installs in 2 inch monitoring wells
- Available Lithium battery for unattended monitoring up to 3 months
- Intrinsically Safe (ATEX, ITEX and CSA)
- IP-68 Rated
- Interval data logging and snap shot gas concentrations

### BENEFITS

- Optimize site management with projected gas concentration trends
- Improve site characterization
- Demonstrate regulatory compliance
- Recognized best practice approach to below-grade gas monitoring

### STANDARD SENSORS INCLUDE:

- Methane CH<sub>4</sub>
- Carbon Dioxide CO<sub>2</sub>
- Oxygen O<sub>2</sub>
- Temperature
- Barometric Pressure
- Borehole Pressure

### OPTIONAL SENSOR UPGRADES INCLUDE:

- Photo-ionization detector (PID) for detection of volatile organic compounds (VOCs)
- Carbon Monoxide (CO) sensor
- Hydrogen Sulfide (H<sub>2</sub>S) sensor
- Dual H<sub>2</sub>S/CO sensor
- Water Depth sensor



**CALL GEOTECH TODAY (800) 833-7958**

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## Ion Science GasClam® 2

### SPECIFICATIONS

#### GENERAL SPECIFICATIONS

<b>Material</b>	Outer case and frame: High Quality Stainless Steel Filter Cover: PP plastic
<b>Weight</b>	7.5 kg (16.8 lb.)
<b>Dimensions</b>	Overall length 90 cm, head $\varnothing$ 11 cm
<b>Ingress Protection</b>	IP-68 (continuous submersion, 20 cm above the GasClam 2 head for 7 days)
<b>Working Environment</b>	0 to +40°C (32 to 104°F) RH up to 95%
<b>Storage Environment</b>	+5 to +25°C dry conditions
<b>Power Supply Options</b>	2 x 1.5V Alkaline-Manganese Duracell - MN1300 (Alk-Mn) – LR20 2.6V Nickel Metal Hydride rechargeable battery pack (Ni-MH) – L1X2 7.2V Lithium primary battery pack (Li) – Li72-190F 12V External DC power supply (Ext) – 12V DC $\pm$ 10% max. 660 mA
<b>Power Consumption</b>	Sampling maximum 300 mA @ 12V Sleep 60 $\mu$ A @ 12V
<b>Logging Interval</b>	3 minutes to 24 hours (Lithium battery packs 15 minutes to 24 hours)
<b>Internal Memory</b>	Maximum 30,000 date/time stamped sample set, depending on configuration If errors are recorded maximum memory is reduced to 15,000 sample sets
<b>Internal Memory Mode</b>	Sampling will stop when the memory is full/non-volatile
<b>Date and Time</b>	Internal clock
<b>Sensors</b>	5x gas sensors (optional), 2x pressure, 1x temperature (built-in), water level (optional)
<b>Communication</b>	RS232 – 115200 baud
<b>Configuration and Setup</b>	GasClam 2 Software

#### BUILT-IN SENSORS

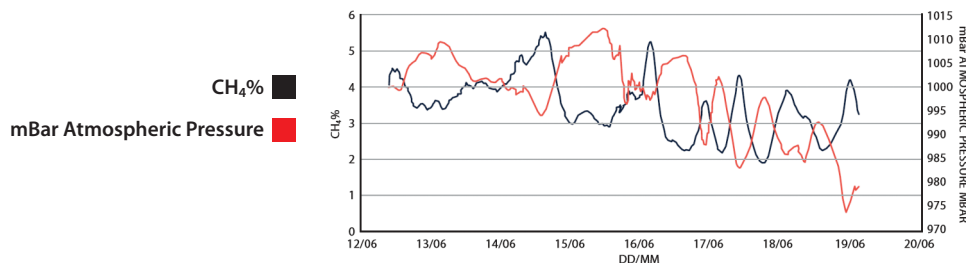
Sensor	Type	Range	Resolution
<b>Barometric Pressure</b>	Piezoelectric	800-1250 mBar	1 mBar
<b>Borehole Pressure</b>	Piezoelectric	800-1250 mBar	1 mBar
<b>Temperature</b>	Internal Chip	-20 to +50°C (-4 to 122°F)	0.1°C (1°F)
<b>Water Depth*</b>	Piezoelectric	0-27 m	0.01 m

\*Optional

#### GAS SENSOR SPECIFICATIONS

Select Sensor Range	Sensor Position	Sensor	Type	Range	Resolution	Accuracy
	5	CO <sub>2</sub>	Infrared	0-100%	1% above 50% 0.5% below 50%	$\pm$ 2% FSD
5	CO <sub>2</sub>	Infrared	0-5%	0.5%	$\pm$ 2% FSD	
4	CH <sub>4</sub>	Infrared	0-100%	1% above 50% 0.5% below 50%	$\pm$ 2% FSD	
4	CH <sub>4</sub>	Infrared	0-5%	0.5%	$\pm$ 2% FSD	
3	O <sub>2</sub>	Electrochem	0-25%	0.10%	$\pm$ 5% of reading $\pm$ 1 digit	
2	CO*	Electrochem	0-2000 ppm	1 ppm	< $\pm$ 3ppm at 0 $\pm$ 5% at 250 ppm $\pm$ 10% full scale	
2	H <sub>2</sub> S*	Electrochem	0-100 ppm	1 ppm	< $\pm$ 1 ppm at 0 $\pm$ 2.5% at 50 ppm	
2	Dual H <sub>2</sub> S/CO*	Electrochem	0-500 ppm	1 ppm	< $\pm$ 3ppm at 0 $\pm$ 3% at 250 ppm	
	H <sub>2</sub> S	Electrochem	0-200 ppm	1 ppm	< $\pm$ 1 ppm at 0 $\pm$ 2% at 100 ppm	
1	VOC*	PID	0-4000 ppm	1 ppm	$\pm$ 5% of reading $\pm$ 1 digit	

\*Optional Sensors



**Correlation of CH<sub>4</sub> concentrations with barometric pressure changes**

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