Drill-Gas 1000

Total Gas Detection

Drill-Gas 1000, Oilfield Instrumentation's total gas detection system, is designed with the accuracy and reliability of our infrared gas sensor along with a user-friendly office interface. The driller has a daylight viewable numeric LCD display with alarm set points. The office user has a PC-based acquisition program to view a real-time numeric and graphical display. Users also have the option of viewing and/or printing historical data and each user can set individual alarm points.

This total gas detection system consists of:

- Laptop or PC-based remote with PDF Document Writer
- Simrad infrared gas sensor (with five-year factory warranty against everything except lightning)
- Hydrocarbon filters, which help keep the lens clean on the inertia of the flow cell chamber

Drill-Gas 1000 is the only kind of infrared gas sensor that contains a self-purging blowback sample mode (regulated blow-back system). No other portable IR gas detector contains this function. Our gas trap style is based off of the Exxon patent release version from the mid 1980s. It creates high vertex effect which allows for a greater expulsion rate of gas from the drilling fluid. The airflow regulator on the front panel indicates the rate of gas flow though the IR flow cell (which is calibrated at 2.5 [SCFH] standard cubic feet per hour).

Drill Floor Gas Detector

Our Drill-Gas 1000 System can also be used as a small basic system. It has eight analog input channels and five digital input channels. It can monitor parameters such as total gas, hookload, up to 4 pits, flow line sensor, and one trip tank probe. On the digital side of things: four pump stroke counters and one encoder.

The Drill-Gas 1000 System can calculate parameters such ROP/1, ROP/5, block position, hole depth, bit depth, in/out of slips, WOB, active PVT, total PVT, individual pump strokes, total pump strokes, barrels per minute, gallons per minute and also total gallons per minute.

The System's data outputs include: ASCII CSV, W.I.T.S. Level Zero, Ethernet and RS-485.

Technical Specifications
Drill-Gas 1000 Gas Sensor

General	
Detection method	IR-absorption, dual wavelength, dual path
IR-Source	Solid state IR source, 50Hz flash
Gases detected	C-1, C-2, C-3, iC-4, & nC-4
Self-test	Continuous
Calibration	Factory set, no field recalibration
PERFORMANCE Lifetime stability *)	±5% of full scale (FS) reading
Accuracy *)	±3% FS between 0-50 % reading ±5% FS between 50-100 % reading
Response time	T20 = 1 sec. (Option 0.3 sec) T50 = 2.5 sec. (Option 0.7 sec) T90 = 6 sec. (Option 1.6 sec)
Start-up time *)	Less than 60 sec. *) Refers to -20°C to + 45°C
DETECTOR WARNINGS Early clean optics	30% signal attenuation
Clean optics	45% signal attenuation
Detector failure	Main function fault or blocked optics
OUTPUT SIGNAL Standard	Current source 4 – 20 mA, max. load impedance 500 Ohm
ELECTRICAL Power supply	24 V DC, range18-32 V DC
TEMPERATURE RANGE Storage	-40°C to + 70°C (-40°F to +158°F)
Operating	-40°C to + 65°C (-40°F to +149°F)
Humidity (operation)	100% RH

The Bloodhound™

Infrared Gas Detection and Chromatograph System

Non-dispersive Infrared Sensors

- Accuracy ±1% … 0 to 10,000 gas units
- Mud log software compatible
- Rugged packaging
- GPRS/edge data radio system
- DSP (digital processing & memory)
- Wireline & wireless communication
- Triple redundancy of data
- WITS compatible via RS-422
- Failure rate less than 3.8 % per year
- Two-year warranty

The Bloodhound™ is the most advanced mud logging gas detection system available. Gone are the days of drifting and zero adjustments due to temperature changes and the carbonizing of hot-wire elements or catalytic beads (pellistors).

The Bloodhound™ is:
• immune to saturation and can detect 0 to 10,000 gas units without manual intervention.
• calibrated at 2.5% and 100% methane utilizing National Institute of Standards Technology (NIST) calibration gases. Linear detection with accuracy to 1% or less from 0% to 100% methane guaranteed. (Recalibration is recommended every 18 months.)

View real-time logging data via the Internet anytime, anywhere. The Bloodhound™ connects via Ethernet, satellite or GPRS wireless radio for instant access world-wide.

Data is stored in a comma-delimited unencrypted form for compatibility with the industry standard Microsoft ACCESS database management and EXCEL. Further, all data is compatible with Well Sight Systems, MainLog and other mud logging software via LAS and XLS files.

Triple redundancy of data is provided through Internet storage, a USB memory flash drive and the hard drive of any personal computer or laptop connected to the integrated USB or RS-232 serial port.

Bloodhound™ Specifications

Item	Normal	Range	Detail / Notes
VOC DETECTION	C1 – C4	0 - 10,000 gas units	Non-dispersive Infrared Sensor detection of C-1 Methane, C-2 Ethane, C-3 Propane, iC-4 iso Butane and nC-4 normal-Butane
O_2 DETECTION	+/- 1%	0 - 21%	Electro-Chemical O_2 Sensor
CO_2 DETECTION	+/- 1%	0 - 5%	Non-dispersive Infrared CO_2 Sensor
H_2S DETECTION	+/- 1 PPM	0 – 500 PPM	Highly accurate 0.00 to 100.00 PPM range
VOC DETECTION ACCURACY	+/- 1%	0 -10,000 gas units	Every six (6) seconds of detection data is recorded
DATA COLLECTION AND RETRIEVAL	All data applications included Upgrades provided at no charge	Application backward compatible to Windows 98	User access options: iBall Raw Data Viewer (Internet and local access) iBall Gas Chart (Internet and local access) iBall Web Page (no software required)
DATA TRANSFER	RS-232 serial	115,200 bps	Serial port speeds are configurable to allow connection to computer devices or other external hardware
	USB 2.0 type B		Reprogramming and communications via RS-232 or USB ports for software upgrades and future functionality
DATA BACKUP	USB	512 MB to 4 GB	Removable USB Memory Flash Drive on front panel
DISPLAY	Graphical LCD		Back lit transflective LCD
DATA COMPATIBILITY	File Format		Stored file format is compatible with Windows and Linux
	Applications		All file formats are compatible with Microsoft Access & EXCEL
EXTERNAL CHART RECORDER INTERFACE	Analog output for Recorders	10mv, 100mv, 1v	Used to connect the bloodhound to external analog monitors including analog chart recorders, data loggers or geolograph.
RF MODEM	115 Kbs	GSM 3G/Edge	GPRS compatible Quad Band; 3Watt Booster available
POWER	110 VAC or 220 VAC or 12 VDC	90-260 VAC 9.5 -13.5 VDC	Designed to work with drilling rig power generation. Protection against over voltage, under voltage, unstable frequencies, high voltage spike protection and power surges.
	2,500 mA DC	100-500 mA AC	Efficient, Low-Current design
	Backup Battery	Up to 30 minutes	Gel Cell Battery Backup powers the Bloodhound™ System in the event of an AC Power failure.
	External Device	12 Volts DC	Powers external Cavitator or DC Powered Systems
ENVIRONMENT CONTROL		-20° to150° F	Internal Case Temperature Sensor and Alarm
	2 mmHg (constant)	Positive Case Pressure, Automatic Cooling Fan and Air Filtration (disposable filters)	
PHYSICAL	Pelican™ reinforced Engineered Resin Case Dimensions: 22.06" x 17.93" x 10.43" (56 x 45.5 x 26.5 cm), Weight: 29 lbs (13.18 kg)		