



Gas detection and monitoring systems

Sampling Systems

Single Point Sample System

Multi Point Sample System

PGSi Programmable Sample System

Air Aspirated Sample System

Mill-Gard CO Detection System

Sampling Systems

Sampling systems provide the ideal solution for permanently monitoring toxic and/or flammable gases in environments where fixed-point detectors may prove impractical. Typical applications include:

- Landfill Borehole Monitoring
- Gas Monitoring in Biogas Pipelines
- Flammable Gas Detection in Printing and Painting Processes
- Coal Mill Fire Detection
- Building Protection
- Coal-Gas Monitoring
- CO₂ monitoring in Breweries/Distilleries
- Gas Turbine Protection
- CO Detection in Car Parks and Tunnels

All systems are designed to minimise purchase, installation, operating and maintenance costs:

- Low purchase cost: multiple points can be monitored using one gas sensor
- Low installation cost: sample pipes are inexpensive to buy and easy to install
- Low cost of ownership: minimal number of gas sensors to be maintained
- Self-cleaning operation: all systems contain dust/water filters, with auto-drain function on most models

Single Point Sample System

The single point system is designed to monitor gas samples from pipelines or processes. A powerful high-flow pump extracts and transports gas samples to the system where they are conditioned to remove dust and moisture. The conditioned sample gas is then passed across one and four gas sensors before being either exhausted to atmosphere or returned to the supply pipe/process.

System integrity is maintained at all times using flow-fail monitoring devices, sample line flame arrestors and an internal flammable gas detector which shuts the system down in the event of a gas leak within the system cabinet.

The system is controlled by a programmable timer which sequences sample and purge/drain cycles. The current operating mode is clearly displayed and sample/purge times are fully adjustable.

The gas sensors are monitored by a Gasmaster control panel which provides gas level display, alarm and fault indication, relay outputs and 4-20mA outputs for each sensor plus RS-485 Modbus communications. Alternatively the system can be supplied without the Gasmaster and provide a 4-20mA signal from each sensor plus a system fault contact.



Multi Point Sample System



The multi-point system uses the same sampling arrangement as the single point system, but can monitor up to 16 separate sample lines on a sequential basis.

The multi-point system provides a cost effective and low maintenance solution for monitoring gas hazards in buildings, pumping stations, storage areas etc.

Each sample line is monitored for one minute on a sequential basis, and the samples are passed across one to four gas sensors. Filters, flow-fail devices, internal gas leak detectors and flame arrestors are fitted to ensure safe and reliable operation at all times. Sample and purge times are fully adjustable, and a specific sample line can be selected and held at any time using buttons mounted on the front panel.

The gas sensors are monitored by a Gasmaster control panel which provides gas level display, alarm and fault indication, relay outputs and 4-20mA outputs for each sensor plus RS-485 Modbus communications. Alternatively the system can be supplied without the Gasmaster and provide a 4-20mA signal from each sensor plus a system fault contact.

Sampling Systems

PGSi Programmable Sample System

The PGSi is a highly versatile system that can monitor up to 32 separate sample lines on a sequential basis. Operating from Windows XP™ based software, the PGSi system is the ideal solution for monitoring landfill gas in boreholes, or for protecting buildings such as retail parks, hospitals and schools built on landfill sites. The system can be adapted to meet virtually any building or personnel protection needs.

The sample times for each point are individually adjustable, and can be sequenced in any order. A dual-pump arrangement ensures that samples are presented to the gas sensors as quickly as possible.

Filters, flow-fail devices, internal gas leak detectors and flame arrestors are fitted to ensure safe and reliable operation at all times.

The system is controlled by an industrial PC, which displays individual sample locations and gas levels, alarms, operates up to 16 relays and provides comprehensive datalogging facilities. Gas data can be displayed in tabular or graphical format. The system PC can be interrogated remotely via an optional modem to check status and upload datalog files. The system can be supplied complete with a PC fitted, or can operate from a PC supplied by the user.



Air Aspirated Sample System



Designed for use in Zone 1 or Zone 2 hazardous areas, the air aspirated system uses a compressed air driven vacuum generator to draw a gas sample from a single point. Explosion-proof gas detectors are fitted to monitor for flammable gases, toxic gases or oxygen. Each detector provides a 4-20mA output. An intrinsically safe flow-fail device warns if the sample flow is lost due to supply air failure or sample line blockage.

The system is ideally suited for monitoring flammable gas leaks within turbine enclosures, solvent detection in painting or printing processes or monitoring oxygen levels in industrial processes.

Mill-Gard CO Detection System

The Mill-Gard CO detection system provides early warning of a fire within coal pulverizers and silo's. Designed specifically for use in coal-fired power stations, the system uses powerful pumps to extract air samples from the coal mill via hardened sample probes. The air samples are conditioned and passed over industrial grade C.O. (carbon monoxide) sensors to quickly detect an increase in C.O. gas levels. Any increase in C.O. levels provides an early indication of the onset of fire.

Key features:

- Can monitor 1 to 15 separate mill sampling probes
- High flow pumps provide fast response
- Conditions the mill samples to remove coal dust and contaminants
- Adjustable sample and purge times
- Sample line back-purge facility
- Gas level display for all sample points
- 3 adjustable levels of alarm
- Can be fitted with up to 24 programmable relays
- Dual sensor option
- RS-485 Modbus communications
- Can be tailored to suit any application



Specifications

Model	Single Point	Multi-Point	PGSi	Air Aspirator	Mill-Gard
Sample lines	1	1-16	1-32	1 or 2	1-15
Gas sensors	1-4	1-4	1-4	1 per sample line	1 per sample line
Dimensions (excluding pipe fittings)	760 x 600 x 350mm (30 x 23.5 x 14 inches)	1000 x 600 x 400mm (39.3 x 23.5 x 16 inches)	1000 x 600 x 400mm (39.3 x 23.5 x 16 inches)	1010 x 712 x 285mm (40 x 28 x 11 inches)	2100 x 800* x 800mm (83 x 31.5 x 31.5 inches) <small>*1600mm for 5-15 point systems</small>
Ingress protection	Indoor use only	Indoor use only	Indoor use only	IP65	Indoor use only
Sample Pipe Specification	10mm o/d, 8mm i/d (1/2" o/d optional) HDPE or PTFE	10mm o/d, 8mm i/d (1/2" o/d optional) HDPE or PTFE	10mm o/d, 8mm i/d (1/2" o/d optional) HDPE or PTFE	6mm o/d, 4mm i/d (1/4" o/d optional) Stainless Steel	10mm o/d, 8mm i/d (1/2" o/d optional) Stainless Steel
Max. line length	1Km (0.62 mile)	1Km (0.62 mile)	1Km (0.62 mile)	100m (110yds)	1Km (0.62 mile)
Sensor type	Electrochemical, Pellistor, IR, TC	Electrochemical, Pellistor, IR, TC	Electrochemical, Pellistor, IR, TC	Electrochemical, Pellistor	Electrochemical
System operating temperature	0 to +35°C (32 to 95°F)	0 to +35°C (32 to 95°F)	0 to +35°C (32 to 95°F)	0 to +55°C (32 to 131°F)	0 to +35°C (32 to 95°F)
Sampling performance	Suitable for sampling from -600mbar(g) to +250mbar(g)	Suitable for sampling from -600mbar(g) to +250mbar(g)	Suitable for sampling from -600mbar(g) to +250mbar(g)	Suitable for sampling from -350mbar(g) to +250mbar(g)	Suitable for sampling from -600mbar(g) to +250mbar(g)
Operating Voltage	110V or 230Vac	110V or 230Vac	110V or 230Vac	24Vdc to sensors	110V or 230Vac
Outputs	System only: 4-20mA for each sensor plus a fault contact With Gasmaster control system: High and Low alarm relays per sensor, Fault relay, 4-20mA per sensor plus RS-485 Modbus communications. Relays rated 8A 250Vac	System only: 4-20mA for each sensor plus a fault contact With Gasmaster control system: High and Low alarm relays per sensor, Fault relay, 4-20mA per sensor plus RS-485 Modbus communications. Relays rated 8A 250Vac	8-32 DPCO Relays rated at 5A 250Vac. Can be set for any alarm level from any sensor or sample line. Fault relay also provided. Unit can be interrogated remotely via a modem.	4-20mA from each sensor plus a flow-fail contact.	8-32 SPCO Relays rated at 5A 250Vac. Can be set for any alarm level from any sensor. Fault relay also provided. RS-485 Modbus communications. Remote display/datalogging software available.
Display	LCD for pneumatic functions. Optional Gasmaster shows gas levels, alarms and sensor status via a large LCD display.	LCD for pneumatic functions. Optional Gasmaster shows gas levels, alarms and sensor status via a large LCD display.	Operating PC displays gas levels in tabular or graphical format, alarms, faults, plus historical gas readings from datalog files.	Dependant on detector fitted; LCD gas level display available	LCD for pneumatic functions. LED display for gas levels, alarms and faults. Comprehensive remote display software available with site mimic option.
Sensor options	H2, CH4 & HC's: 0-100%LEL or 100% vol. CO: 0-100, 250, 500 or 1000ppm CO2: 0-3, 5, 10, 30 or 100% vol. H2S: 0-10, 25, 50, 100, 250*, 1000*ppm (*high range H2S at additional cost) O2: 0-25% vol. Other gases may be available on request.			H2, CH4 & HC's: 0-100%LEL CO: 0-100, 250, 500 or 1000ppm H2S: 0-10, 25, 50ppm O2: 0-25% vol.	CO: 0-100, 250, 500 or 1000ppm
Approvals	Safe area use only	Safe area use only	Safe area use only	Certified for use in Zone 1 or Zone 2 hazardous areas	Safe area use only

Note: systems can be engineered to suit virtually any application. Crowcon require that a Sample System Questionnaire is completed prior quotation to ensure the specified system meets site requirements. Contact Crowcon for details.

Accessories

- Borehole probe: End of line filter for wet or dusty environments
- Cooling Coil: To reduce sample gas temperature from hot processes
- 10mm HDPE Sample tube: Available by the metre

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