

Crowcon Clip

Portable Gas Detection Equipment



- Easy to maintain
- User friendly
- Efficient



Crowcon Clip

Personal Maintenance Free Single Gas Monitor

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 40 years Crowcon has been developing and manufacturing high quality products with a reputation for reliability and technical innovation.

Crowcon provide both single gas and multigas monitors for personal safety and portable monitoring applications providing protection against a wide range of industrial gas hazards.



Choosing the portable gas detector for your needs

The Crowcon Clip is designed for use in hazardous areas and offers reliable and durable fixed life monitoring in a compact, lightweight and maintenance-free package. The Crowcon Clip has a 2-year life and is available for hydrogen sulphide (H_2S), carbon monoxide (CO) or oxygen (O_2).

The Crowcon Clip is designed to withstand the harshest industrial working conditions and delivers industry leading alarm time, changeable alarm levels and event logging as well as user-friendly bump test and calibration solutions.



Easy to maintain

Changeable alarm levels	Ensures compliance with changing regulations or company procedure
C-Test bump test solution with configuration update	Keeps monitors correctly configured without service or technician team
'Bump test due' indication LED	Alerts the user and team members that the monitor is not compliant

User friendly

Compact and lightweight	Non-intrusive and comfortable to wear
Single button operation	Delivers simplicity for users
	Reduces training time

Efficient

Wide operating temperature range	Effective in a wide variety of harsh environments
IP66 and IP67	
Hibernate feature for Clip+	Extends run time and reduces cost of ownership

C-Test

Bump testing portable monitors is becoming more and more recognised in the market. Ensuring the sensors are responding to a known concentration of gas remains the best way to verify the monitor has not become impeded. C-Test provides bump testing, event management and calibration from a simple to use wall mount station and gives fleet or safety managers the ability to update configurations on large fleets. It also maintains the all important event logs that demonstrate users are working within company requirements.

Gas usage controlled	Lowers the cost of bump testing
Manages calibration	C-Test runs the calibration and stores records of the event
Flexible	Can monitor a wide array of test parameters and detector settings, providing excellent traceability
All data is stored in a USB stick	Simple to transfer the data
Rechargeable battery or power	Ideal for in-vehicle use



Please see the back page for full technical specifications.



Crowcon Clip Specification:

Size		85 x 50 x 28mm (3.3 x 2.0 x 1.1ins)
Weight		76g (2.7oz)
Temperature	H ₂ S	-40°C to + 50°C (-40°F to +122°F)
	CO	-40°C to + 50°C (-40°F to +122°F)
	O ₂	-35°C to + 50°C (-31°F to +122°F)
Humidity		5% to 95% non-condensing RH
Alarms		Top, front and side visual LEDs 95 dB audible alert Vibrate
Event log		Last 25 events
Ingress Protection		IP66 and IP67
Tests		Full function self test of activation and every 20hrs: continuous automatic battery integrity tests
Operational life		2 years>2900 alarm minutes*
Shelf life		6-month shelf life prior to activation Shown on box label
Compliance		EMC Directive 2004/108/EC
Certification		UL-913 & CSA-C22.2 No.157 Class 1 Div 1 & 2, Groups A, B, C and D ATEX II 1G Ex ia IIC T4 Ga IECEX Ex ia IIC T4
Warranty	Clip	2 years from activation*
Sensor range	H ₂ S	0-100ppm
	CO	0-300ppm
	O ₂	0-30% vol.
Communication accessory		USB IR link for event download and configuration

*4 alarm minutes per day

Gases and ranges

Ordering options include a range of region specific alarm levels.

Crowcon Clip:

Gas	Part number	Alarm 1	Alarm 2
H ₂ S	CC-H-2	2ppm	5ppm
H ₂ S	CC-H-5	5ppm	10ppm
H ₂ S	CCH-10	10ppm	15ppm
CO	CC-C-25	25ppm	50ppm
CO	CC-C-30	30ppm	100ppm
CO	CC-C-35	35ppm	50ppm
O ₂	CC-O-19	19% vol.	23.5% vol.
O ₂	CC-O-19.5	19.5% vol.	23.5% vol.

Crowcon reserves the right to change the design or specification of the product without notice.
Check www.crowcon.com for updates.

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Gasman

Portable Gas Detection Equipment



- Robust
- Effective warning
- Flexible
- User friendly



Gasman

Personal single gas monitor

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 40 years Crowcon has been developing and manufacturing high quality products with a reputation for reliability and technical innovation.

Crowcon provide both single gas and multigas monitors for personal monitoring and portable safety applications providing protection against a wide range of industrial gas hazards.



Choosing the portable gas detector for your needs

Gasman is a range of rugged, compact single gas personal monitors designed for use in the toughest environments.

With rugged impact resistant construction and compliance to IP65, Gasman offers a wide range of gases, including six flammable calibration options. Gasman gives an unbeatable combination of powerful loud and bright alarms. Its stunningly compact and lightweight design makes it ideal for use in industries such as oil and gas, chemical, steel works and waste and water works.

Gasman is small, light and easy to use. Weighing just 130g, it is extremely durable, with high impact resistance and dust/water ingress protection to IP65. When potentially hazardous levels of gas are detected, the Gasman alerts the user with a loud 95 dB alarm, a vivid red/blue visual warning and also by vibrating.

Gasman features simple, single-button control and has an easy-to-read, backlit LCD display to ensure clear viewing of gas level readings, alarm conditions and battery life. Data and event logging are available as standard, and there is a built-in 30 day advance warning when calibration is due.



Robust

Tough polycarbonate housing	Protects you in the harshest environments
Water and dust resistant to IP65	
Full overmoulding	High impact resistance

Effective warning

2 levels of instantaneous alarm and TWA alarms for toxic versions	Ensures prompt evacuation from hazardous zone
95dB audible alarm	
Vivid twin red/blue visual alarm	If ambient noise is high, Gasman still alerts you by vibrating and with the high impact blue/red LED alarms
Internal vibrating alarm	



Flexible

Versions available for flammable gas, oxygen and toxic gases	Gas detector tailored to your requirements
Rechargeable versions for all gas types	
Non-rechargeable versions for oxygen and toxic gases	
Real time TWA and peak display options	
Fully interchangeable intelligent sensor modules	

User friendly

One button operation	Quick and easy to use
Backlit display for gas diagnostics and operating status	Easy to read
Ultra lightweight- just 85g for toxic versions	Comfortable to wear



Gas Test Kit

The Gas Test Kit provides a simple and convenient means of carrying out either bump test or a calibration.

Gases and Ranges

Required ranges and alarms vary by country and application and these can be configured as required. Each gas channel can have two instantaneous alarm levels set. Toxic units also have Time Weighted Average (TWA) alarms.

Flammable gas calibration is available for methane, propane, butane, pentane, hydrogen and ethylene as standard.

Gasman is also available in a safe area CO₂ version offering 0-5% carbon dioxide measurement.

Typical ranges and alarms:

Gas	Range	Standard Alarm (UK)
Carbon monoxide (CO, filtered)	0-500ppm	30ppm
Ammonia (NH ₃)	0-100ppm	25ppm
Carbon monoxide (CO)	0-500ppm	30ppm
Carbon dioxide (CO ₂)	0-5%	0.6%
Chlorine (Cl ₂)	0-20ppm	0.5ppm
Flammable	0-10% LEL	20% LEL
Fluorine (F ₂)	0-1ppm	0.1ppm
Hydrogen (H ₂)	0-200ppm	N/A
Hydrogen cyanide (HCN)	0-25ppm	1ppm

Gas	Range	Standard Alarm (UK)
Hydrogen fluoride (HF)	0-10 ppm	1ppm
Hydrogen sulphide (H ₂ S)	0-100 ppm	5ppm
Nitric oxide (NO)	0-100 ppm	25ppm
Nitrogen dioxide (NO ₂)	0-20 ppm	1ppm
Oxygen (O ₂)	0-25%	19/23%
Ozone (O ₃)	0-1 ppm	0.1ppm
Phosphine (PH ₃)	0-5 ppm	0.2ppm
Phosgene (CCL ₂)	0-1 ppm	0.1ppm
Sulphur dioxide (SO ₂)	0-20 ppm	1ppm

Please see the back page for full technical specifications.

0815 7477 4504

Gasman Specification:

Size		90 x 48 x 24 mm (3.5 x 1.9 x 0.95 ins)
Weight	Flammable	138g (4.9oz)
	Toxic	118g (4.1oz)
	Oxygen	129g (4.6oz)
	Carbon monoxide	139g (4.9oz)
Typical response times (T ₉₀)	Flammable	20s
	Toxic gas	20s
	Oxygen	10s
Alarms	Audible	95dB Multiple alarm options let you select distinctive tones for different alarm levels.
	Visible	Dual colours red/ blue flashing LEDs in a gas hazard
	Vibrating	Internal vibrating alarm
Display		Custom LCD with backlight, with display of gas concentration. Graphic symbols for battery (with proportional indication of remaining operation time), and display mode. Start up indication when calibration is due within 30 days, calibration overdue or service required.
Display modes	Normal display	Real time gas concentration levels
	Display recall	Peak readings and TWA
Datalogging		Full timed datalogging with adjustable sample rate, set to 1 min. data rate as default. 900 hours storage at 1 min. interval (54,000 logs), >4800 events
Battery	Rechargeable	Lithium battery for all gas types
	Non rechargeable	Lithium battery for toxics and oxygen (excluding CO ₂)
Operating time*	Rechargeable	12 hours minimum for flammable unit
	Non rechargeable	Up to 2 years
Sampling		Optional manual aspirator
Operating temperature range**		-20°C to + 65°C (-4°F to +149°F)
Humidity		20-90% RH
Ingress protection		IP65
Approval codes	Europe	Toxic or O ₂ : ATEX II 1G Ex ia IIC T4 Ga (-20OC ≤ Ta ≤ +65°C) BASEEFA04ATEX0384 Flammable: ATEX II 2G Ex ia d IIC T4 Gb (-20OC ≤ Ta ≤ +65°C) BASEEFA04ATEX0383
	International	Toxic or O ₂ : IECEx BAS05.0039 Flammable: IECEx BAS05.0038
	North America	CSA Class 1 Groups A,B,C,D Division 1
Standards safety	Europe	EN60079-0, EN60079-11, EN60079-1, 94/9/EC
	North America	CSA22.2, 152
Operation standards		EN50270, EN50271, IEC61508, EN61779, EN45544
PC interface		RS232 connection from interface module in charger RS232/USB converter available
Calibration		Gasman can be routinely calibrated using Portables PC software or by using Checkbox IMH
Accessories		Gasman is supplied with an integral alligator clip

*Operating time will depend on operating pattern and alarm occurrence. Frequent or long lasting alarms and use of the optional confidence beep will reduce battery life.
**Toxic and oxygen sensors are not rated for continuous operation at high temperatures. Consult Crowcon if operating temperatures are likely to exceed 40°C (104°F) for extended periods.

Crowcon reserves the right to change the design or specification of the product without notice.
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4-gas Personal Monitor

For oxygen, toxic
and flammable gases

TETRA:3

A personal monitor you can trust
3rd product in the proven Tetra family

1. One-button operation; simple even with a gloved hand
2. Rugged and weatherproof; suitable for today's arduous industrial environments
3. Rechargeable, lithium-ion battery gives over 16 hours operation with no memory effects
4. Intuitive menu and comprehensive full function data and event logging
5. Large, top-mounted 4-gas display; easily viewed from above while wearing instrument
6. Complete audible, visual and vibrating alarms
7. Top end performance in a small and lightweight package

Reliable

- Based on tried and tested Tetra instrument
- Proven sensor technology and software operation
- Simple indications of operating status can be viewed at a glance
- 30 day countdown warning of calibration due date

Performance

- Li-ion rechargeable battery gives >16 hours operation
- True single button operation – the most user friendly range available
- Easy to read backlit graphic display for gas readings and diagnostics

Robust

- Tough plastic construction to resist even the toughest shock and vibration
- Over-moulded rubber for added protection
- Water and dust resistant to IP65 and IP67

Alarms

- 95dBA audible alarm
- Piercingly bright dual red/blue visual alarm
- Internal vibrating alarm
- Two levels of instantaneous alarm
- Time weighted average alarm for 8 hours and 15 minute averages



Specification

Weight	269g (9.6oz)		
Dimensions	112x72x49 (tapers to 20mm) 4.4x2.8x1.9 inches		
Gas	<i>Range</i>	<i>Alarm UK/ROW</i>	<i>Alarm USA</i>
Flammable	0-100%LEL	20%LEL	10%LEL
Oxygen	0-25%	19/23.5%	19.5/23.5%
Hydrogen Sulphide	0-50ppm	5ppm	10ppm
Carbon Monoxide	0-500ppm	30ppm	35ppm

Other ranges and alarm levels are available on request.
Each gas channel can have two instantaneous alarm levels set.
Toxic channels also have Time Weighted Average alarms.

Flammable gas calibration is available for methane, propane, butane, pentane, hydrogen and ethylene as standard.

Typical response times	Flammable 20 s, Toxic gas 30 s, Oxygen 10 s
Audible Alarms	95dBa Multiple alarm sounds allow selection of distinctive tones for different alarm levels
Visible Alarms	Dual colour red/blue flashing LED pairs in gas hazard
Vibrating alarm	Internal vibrating alarm
Display	Graphic LCD with backlight, giving simultaneous display for all gas channels. Graphic symbols for battery (with proportional indication of remaining operation time), healthy operation or fault warning. Start up indication when calibration is due within 30 days, calibration overdue, or service required.
Display Mode	Normal display for real time gas concentration levels. Display recall for Peak readings and TWA
Datalogging (optional)	Timed datalogging: 50 hours at 1-minute data rate (3000 records) Threshold logging (starts after adjustable preset level) Event logging: >1500 events
Battery	Rechargeable Li-ion battery
Operating time	Based on four gas unit with flammable sensor >16 hours
Sampling	Diffusion or hand aspirator
Operating temp. range	-20°C to +55°C (-4°F to +131°F)
Humidity	0-99% RH
Ingress Protection	IP65 and IP67

Approval Codes Europe:	ATEX II 2G EEx iad IIC T4 (Tamb -20°C to +55°C) BASEEFA05ATEX0187
International:	IECEx Ex iad IIC T4 (Tamb -20°C to +55°C) BAS05.0059
USA	Class I Division 1 Groups A, B, C, D. pending
Safety Standards Europe	EN50014, EN50020, EN50018, 94/9/EC
USA & Canada	UL913, CSA22.2, 152
Operation Standards	EN50270, EN50271, IEC61508, EN61779
PC Interface	RS232 connection from interface module in charger RS232/USB converter available
Calibration	Tetra :3 can be routinely calibrated using Portable PC software or Crowcon Checkbox IMH.
Accessories	Tetra :3 is supplied with an integral alligator clip.
Charger options	Single way drop in charger with options of UK, European or US style plug-in mains supplies, or in-line 110, 230 or universal supply. Optional PC interface module within the single way charger. 5 way multicharger with universal power supply.

Optional accessories include: universal harness plate, shoulder strap, chest harness, aspirator assembly (flow plate bulb and 2m/6ft tubing), fixed and telescopic sample probes, and an in-line water trap.

Gas Test Kit

All Tetra :3 instruments are pre-programmed for use with the Gas Test Kit and need no special training or equipment to verify that the monitor is working within acceptable limits.

The Gas Test Kit provides a simple and convenient means of carrying out either a pre-use (bump) or a simultaneous four gas calibration for flammable gas, oxygen, carbon monoxide and hydrogen sulphide.

The kit includes a 34 litre gas bottle containing a multi-gas mix with a special 'Trigger' regulator, a magnet and a clip-on flow plate, all supplied in a convenient carry case.

Swiping the magnet past the Tetra :3 display initiates a special test mode, then the gas is applied. The Tetra :3 evaluates the response to the gas and if it is within defined limits the Tetra :3 signals a successful test. A test failure brings up an advisory calibration warning.

If the user performs a manually selected zero prior to test initiation Tetra :3 offers the option of running a simultaneous four-gas calibration rather than just a verification test.





Personal Monitor
For oxygen, toxic
and flammable gases

Tetra

A personal monitor you can trust

Designed using the latest technologies, Tetra is simple to use, reliable, robust and fully weather protected.

Single button operation and intelligent sensor modules guarantee simplicity and flexibility of use.

The shockproof internal construction and self checking software assure reliable gas detection in the most arduous of environments.

Tetra, a personal monitor you can trust.

Reliable

- True single button operation – the most user friendly product available
- Li-ion rechargeable battery gives full 12 hours operation
- Easy to read backlit graphic display for gas readings and diagnostics
- Simple indications of operating status can be viewed at a glance
- 30 day countdown warning of calibration due date

Flexible

- Fully interchangeable intelligent sensor modules
- Available with internal electric sampling pump
- Rechargeable and alkaline battery versions available

Robust

- Tough plastic construction with flexible internal assembly to resist shock and vibration
- Overmoulded rubber for added protection
- Water and dust resistant to IP65

Assurance

- 94dBA audible alarm (@30cm)
- Piercingly bright dual red/blue visual alarm
- Internal vibrating alarm
- Two levels of instantaneous alarm
- Time weighted average alarm for 8 hours and 15 minute averages



Tetra

Specification

Weight	498g (1.1lb)	Operating temp. range	-20°C to +55°C (-4°F to +131°F)
Dimensions	122x128x57mm (4 ³ / ₄ x5x2 ¹ / ₂ inches) rechargeable 134x128x57mm (5 ¹ / ₄ x5x2 ¹ / ₂ inches) non-rechargeable	Humidity	0-99% RH
		Ingress Protection	IP65
Gas	Range	Alarm UK/ROW	Alarm US
Flammable	0-100%LEL	20%LEL	10%LEL
Oxygen	0-25%	19/23.5%	19.5/23.5%
Hydrogen Sulphide	0-50ppm	5ppm	10ppm
Carbon Monoxide	0-500ppm	30ppm	35ppm
Sulphur Dioxide	0-20ppm	2ppm	2ppm
Chlorine	0-20ppm	0.5ppm	0.5ppm
Nitrogen Dioxide	0-10ppm	3ppm	3ppm
Ammonia	0-100ppm	25ppm	25ppm
Ozone	0-1ppm	0.1ppm	0.1ppm
Hydrogen	0-1000ppm	N/A	N/A
Hydrogen Cyanide	0-25ppm	5ppm	5ppm
Hydrogen Chloride	0-10ppm	1ppm	1ppm
Hydrogen Fluoride	0-10ppm	1ppm	1ppm
Phosphine	0-5ppm	0.2ppm	0.2ppm
Fluorine	0-1ppm	0.1ppm	0.1ppm
Phosgene	0-1ppm	0.1ppm	0.1ppm
Ethylene oxide	0-10ppm	1ppm	1ppm
Nitric oxide	0-100ppm	25ppm	50ppm
Other ranges and alarm levels are available on request. Each gas channel can have two instantaneous alarm levels set. Toxic channels also have Time Weighted Average alarms.			
Flammable gas calibration is available for methane, propane, butane, pentane, hydrogen and ethylene as standard.			
Typical response times	Flammable 20 s, Toxic gas 20 s, Oxygen 10s		
Audible Alarms	94dBA @ 30cm (1ft) Multiple alarm sounds allow selection of distinctive tones for different alarm levels		
Visible Alarms hazard	Dual colour red/blue flashing LED pair in gas		
Vibrating alarm	Internal vibrating alarm		
Display	128x64 graphic LCD with backlight, giving simultaneous display for all gas channels. Graphic symbols for battery (with proportional indication of remaining operation time), pump operation, healthy operation or fault warning. Start up indication when calibration is due within 30 days, calibration overdue, or service required.		
Display Mode	Normal display for real time gas concentration levels. Display recall for Peak readings and TWA		
Datalogging	Timed datalogging: 50 hours at 1-minute data rate Event logging: >1500 events		
Battery Types	Rechargeable Li-ion battery Non rechargeable pack 3xAAA Alkaline cells		
Operating time	Based on pumped four gas unit with flammable sensor Rechargeable 12 hours minimum Non-rechargeable 11 hours minimum		
Sampling	Hand aspirator or internal electric sampling pump		
Approval Codes	Europe: ATEX II 2G EEx iad IIC T4 (Tamb -20°C to +55°C) BASEEFA 03ATEX0193 USA: UL/cUL Class I Division 1 Groups A, B, C, D.		
Safety Standards	Europe: EN50014, EN50020, EN50018, 94/9/EC USA & Canada: UL913, CSA22.2, 152		
Operation Standards	EN50270, EN50271, IEC61508, EN61779		
PC Interface	IR link for RS232 connection. USB/RS232 Converter available. Portables PC software package provides full configuration control, calibration and access to the Data and Event files.		
Autocalibrator	Tetra can be routinely calibrated using the Crowcon Autocalibrator II in conjunction with the Portables PC software.		
Accessories	Tetra is supplied with an integral belt/pocket clip. Pumped units are supplied with a sampling kit (flowplate and 2m(6ft) tubing)		

Plug in charging power supplies are available in UK, European or US style. In line versions for 110V or 230V AC have flying lead for fitment of suitable mains plug. A vehicle lighter socket charger is available.

Optional accessories include: universal harness plate, shoulder strap, chest harness, carry case, aspirator assembly (flow plate bulb and 2m/6ft tubing), fixed and telescopic sample probes, and an in-line water trap.

Gas Test Kit

The Gas Test Kit provides a simple and convenient means of carrying out either a pre-use (bump) test to verify that a Tetra is working within acceptable limits, or a simultaneous four gas calibration for flammable gas, oxygen, carbon monoxide and hydrogen sulphide.

The kit includes a 34 litre gas bottle containing a multigas mix with a special 'Trigger' regulator, a magnet and a clip-on flow plate configured either for diffusion or pumped units, all supplied in a convenient carry case. Separate kits are available for diffusion and pumped instruments.

Swiping the magnet past the Tetra display initiates a special test mode, then the gas is applied. The Tetra evaluates the response to the gas components against values stored in its memory and if it is within defined limits the Tetra signals a successful test. A test failure brings up an advisory calibration warning.

If the user performs a manually selected zero prior to test initiation Tetra offers the option of running a simultaneous four-gas calibration rather than just a verification test



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Gas-Pro

Portable Gas Detection Equipment



- User friendly
- Reliable
- Adaptable



Gas-Pro

Portable 5 gas detector with optional pump

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 40 years Crowcon has been developing and manufacturing high quality products with a reputation for reliability and technical innovation.

Crowcon provide both single gas and multigas monitors for personal monitoring and portable safety applications providing protection against a wide range of industrial gas hazards.



Choosing the portable gas detector for your needs

Designed with industrial environments and fleet managers in mind, Gas-Pro offers detection of up to 5 gases in a compact and rugged solution capable of withstanding harsh environments and everyday use. Gas-Pro has an easy-to-read top mount display combining ease of use with user focused features. An optional internal pump, activated with the flow plate, takes the pain out of pre-entry testing and allows Gas-Pro to be worn either in pumped or diffusion modes.

User friendly

Top mount display	Makes it easy to read at a glance
Simple single button operation	Reduces training time
Intuitive functionality	Can be used whilst wearing gloves

Adaptable

Monitor 5 gases from many different options	Offers multiple uses within one compact detector
Pumped and diffusion solutions	
Multiple languages	
Automatic fail safe flow plate recognition	Takes away the pain of pre-entry testing
Specific and unique Pre-Entry Check (PEC) mode	

Reliable

Reliable lithium-ion battery	Provides over 14 hours use from a 7.5 hour charge
Water and dust resistant to IP65 and IP67	Capable of withstanding harsh environments
Bump and calibration reminders	Full compliance

Please see the back page for full technical specifications





Bump test solutions

With an increased focus on regular bump testing of gas detection through regulation and individual company requirements, bump testing has become even more important. Crowcon offer bump test solutions with I-Test and Q-Test.

I-Test

I-Test offers a full bump and calibration system which is easy to use and records the results of the test. With I-Test Manager you can run reports and look at the data that has been collected through the I-Test system making your site fully compliant. Calibration and Bump certificates can be printed easily at a few clicks of a button. Ideal for large fleet users, the I-Test will look after a fleet of hundreds of detectors making your life easier.



Q-Test

The Q-Test requires no power and is therefore ideally suited to remote users. Crews can now complete their functional check immediately prior to entry ensuring they are compliant. The power enabled option allows users to charge Gas-Pro on the move. Multiple mounting options and cylinder holder will ensure that Gas-Pro is ready to protect workers when needed.



Please refer to the I-Test data sheets for more information and full technical specifications.



Gas-Pro Specifications:

Size	43 x 130 x 84mm (1.7 x 5.1 x 3.3ins)
Weight	308g 4 gas (10.8oz)/ 340g pumped (11.9oz) 333g 5 gas (11.7oz)/ 362g pumped (12.7oz)
Alarms	Audible >95dB @ 30cm (98dB @30cm in loud mode) Visual - all angle dual red/blue LEDs Vibrating alert
Display	Top mount for ease of view with dual colour backlight (green/red)
Data logging	125hrs at 10 second intervals (45,000 logs)
Event logging	Alarm, over range, calibration, bump, on/off, TWA, 1000 events
Battery	Rechargeable Li-ion, >14 hours (13 hours pumped operation) based on CH ₄ , O ₂ , H ₂ S, CO Typical charge time 7.5 hours
Sampling	Internal pump as option
Operating temperature	-20°C to +55°C (-4°F to +131°F)
Storage	-25°C to +65°C (-13°F to +149°F)
Humidity	10 to 95% RH+
Ingress protection	Independently tested to IP65 and IP67
Approvals	IECEX: Ex d ia IIC T4 Gb Tamb -20°C to +55°C ATEX: II 2 G Ex d ia IIC T4 Gb Tamb -20°C to +55°C UL: Gas detector use in hazardous locations Class 1, Division 1, Groups A, B, C, and D only as to intrinsic safety INMETRO
Compliance	FCC and CE Complies with EMC Directive 2004/108/EC EN50270 and ICES-003
Interface	Data connection for gas test solutions and direct to PC
Charging	Direct connect to multiregion power supply Vehicle charger adaptor Desk top cradle USB power and communications lead

Gas-Pro Accessories:



Multiregion power supply



Chest harness straps



Charger cradle



Pumped flow plate



USB communications lead

Gases and Ranges:

Gas	Range	Typical Alarms	Resolution
Ammonia (NH₃)	0-100ppm	25ppm	1ppm
Carbon dioxide (CO₂)	0-5% vol.	0.5% vol.	0.01% vol.
Carbon monoxide (CO)	0-2000ppm	30ppm	1ppm
Carbon monoxide (CO)	0-500ppm	30ppm	1ppm
Carbon monoxide (hydrogen filtered)	0-2000ppm	30ppm	1ppm
Chlorine (Cl₂)	0-5ppm	0.5ppm	0.1ppm
Dual toxic (CO-H₂S)	H ₂ S 0-100ppm CO 0-500ppm	5ppm 30ppm	1ppm 1ppm
Flammable	0-100% LEL	20% LEL	1% LEL
Hydrogen sulphide (H₂S)	0-100ppm	5ppm	1ppm
Nitrogen dioxide (NO₂)	0-20ppm	1ppm	0.5ppm
Oxygen (O₂)	0-25% vol.	19%/ 23% vol.	0.1% vol.
Ozone (O₃)	0-1ppm	0.1ppm	0.01ppm
Sulphur dioxide (SO₂)	0-20ppm	1ppm	0.1ppm
Chlorine dioxide (ClO₂)	0-1ppm	0.1ppm	0.1ppm
Nitric oxide (NO)	0-100ppm	25ppm	1ppm

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Triple Plus+ & Triple Plus+ IR

Portable Gas Detection Equipment



- Clear and unambiguous
- Simple to customise
- Durable
- Easy to maintain
- IR option available



Triple Plus+ & Triple Plus+ IR

Oxygen, toxic and flammable gases detector

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 40 years Crowcon has been developing and manufacturing high quality products with a reputation for reliability and technical innovation.

Crowcon provide both single gas and multigas monitors for personal monitoring and portable safety applications providing protection against a wide range of industrial gas hazards.



Choosing the portable gas detector for your needs

Triple Plus+ is a market leading multigas detector providing triple protection, against toxic, oxygen and flammable gas hazards.

Intrinsically safe, the Triple Plus+ provides enhanced capabilities for safety and detector fleet managers including selection of flammable gas correction factors (so one unit can be used in several locations across a site) and annotation of the data file with user names and site names selected from pre-configured files in the unit.

Triple Plus+

Triple Plus+ is the third generation of the respected "Triple" family of toxic, oxygen and flammable gas detectors. With units used in oil and gas, chemical, utility and manufacturing companies worldwide, their combination of ruggedness, reliability, ease of use and sensor flexibility has set the standard for multigas portables.

Today's TriplePlus+ builds on this pedigree by inclusion of unique LIBRA lithium-ion battery technology and the option of infra-red (IR) sensors for the measurement of flammable hydrocarbons or carbon dioxide.



Triple Plus+ IR

Incorporating infrared detection technology, the Triple Plus+ IR extends the capability of the Triple Plus+ allowing extended detection of hydrocarbons and carbon dioxide.

IR sensors have high resistance to interference or inhibition by other gases and are suitable for both high gas concentrations and use in inert (oxygen free) backgrounds.

The unique design of the Crowcon IR sensor module used in Triple Plus+ IR allows measurement of hydrocarbons at both % LEL and % vol. ranges making this instrument ideal for tank and line purging applications within oil and gas and industrial applications.



Clear and unambiguous

Piercing 85dB at 1m	Gives you confidence in the status of your Triple Plus+, and the environment you're working in
Vivid LED alarms with top visibility	
Confidence blip, low battery and TWA warnings	
Timed datalogging with 100 hour capacity	

Simple to customise

Wide range of electrochemical oxygen and toxic gas sensors	Allows you to create your optimum 4 gas Triple Plus+
Available for diffusion, manual aspiration or pumped sampling	
Interchangeable sensor modules	
Comprehensive datalogging with site and user names	

Durable

Triax™ casing will not crack or shatter when dropped	System integrity and operation assured
Unique internal design will resist the harshest treatment	
Full buoyancy	Makes recovery from water possible

Easy to maintain

Simple Windows™ Software interface	User menus allow calibration with or without connecting to a PC
QuickCal, rapid calibration	

IR Option

No poisoning effects	Works well where catalytic pellistors would perform poorly
Long life sensor and no burnout	Reduced cost of ownership
% vol measurement for poisoning applications	Offers flexibility
% LEL measurement in air or inert backgrounds	
Single or dual range measurement	
1% CO ₂ detection 0-5%	

See the back page for full technical specifications.



Triple Plus+ & Triple Plus+ IR Specification:

Size	118 x 200 x 73mm (4.65 x 7.8 x 2.9ins)
Weight	880g (31oz)
Approval codes	Europe: ATEX II 2G: Ex ib d IIC T4 Gb North America: Class I Division 1, Groups A, B, C and D
Safety standards	Europe: EN50014, EN50020, 94/9/EC, EN50081-2, EN50270, EN50082-2 North America: UL 913, CSA 22.2 No.157 (SFA3009 Triple Plus+)
Ingress protection	IP65
Typical response times	Methane 20s (Triple Plus+) IR 20s (Triple Plus+IR), Oxygen 10s, typical Toxic Gas 20s
Expected sensor life	Flammable: 5 years (Triple Plus+), IR: 5 years (Triple Plus+ IR) Toxic: 3 years, Oxygen: 2 years
Audible alarms	Piercing, rapid intermittent, piezo-electric tone 85 dB at 1 m Confidence blip (selectable) Distinctive double blip for low battery with user accept
Visible alarms	Gas hazard: vivid flashing red LED Instrument is working: slow flashing green LED Low battery: distinctive double flash of green LED
Display	2 lines of 24 characters, dot matrix high contrast LCD with back light operating for 30 minutes Values and units for up to 4 gases displayed simultaneously at current, TWA or peak levels Low battery, pump failure, real time and elapsed time, calibration and configuration data also displayed
Datalogging	Adjustable sample rate, 100 hours at 1 minute sample rate (maximum 6000 data points per channel), logging of events, user and site
LIBRA	Li-Ion rechargeable battery pack Battery Life: standard instrument >12 hours Battery Life: pumped instrument >10 hours
Battery Charging	Dual rate drop-in charger Dual rate charger/PC interface
Electric pump	Optional internal pump with on/off button
Operating temperature range	-20°C to +50°C (-4°F to 122°F)
Humidity	20-90% RH non-condensing
PC interface	RS232 connection via the interface charger RS232/USB converter available Portables PC also controls datalogging, giving the user a choice of direct graphical output or a datafile compatible with all leading spreadsheets
Calibration	Triple Plus+ can be routinely calibrated using Portables PC software or Crowcon Checkbox IMH
Standard accessories	Manual, shoulder strap and allen keys (pumped units include additional flow plate, 2m hose and pouch)
Optional accessories	Leather carry case, straight and telescopic probes, water trap, baffle plate, aspirator, calibration flow adaptor and hose

The Triple Plus+ has two dual rate charging solutions supplied with UK, EU, US plug and without plug configurations. A vehicle adapter for in-vehicle charging is also available.

- Standard drop-in charging cradle
- PC interface charger

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Gas	Range	Typical Alarm (UK)
Triple Plus+ & Triple Plus+ IR		
Flammable	0-100% LEL	20% LEL
Oxygen (O₂)	0-25% vol.	19/23.5%
Hydrogen sulphide (H₂S)	0-50ppm	5ppm
Carbon monoxide (CO)	0-500ppm	30ppm
Sulphur dioxide (SO₂)	0-10ppm	1ppm
Chlorine (Cl₂)*	0-5ppm	0.5ppm
Nitrogen dioxide (NO₂)	0-10ppm	1ppm
Phosphine (PH₃)	0-2ppm	0.1ppm
Ammonia (NH₃)	0-50ppm	25ppm
Non-flammable hydrogen (H₂)	0-2000ppm	N/A
Hydrogen cyanide (HCN)	0-25ppm	10ppm
Hydrogen chloride (HCL)	0-10ppm	1ppm
Triple Plus+		
Electrochem hydrogen (H₂)	0-100% LEL	20% LEL
Methane (CH₄)	0-100% vol.	N/A
Flourine (F₂)	0-10ppm	1ppm
Hydrogen flouride (HF)	0-10ppm	2ppm
Ethylene oxide (ETO)	0-10ppm	5ppm
Chlorine dioxide (ClO₂)	0-1ppm	0.1ppm
Nitric oxide (NO)	0-100ppm	25ppm
Triple Plus+ IR		
Flammable	0-100% vol.	No alarm
Carbon dioxide (CO₂)	0-5%	0.5/ 1.5%

* Unpumped units only



Laser Methane Mini

Methane Detection at a Distance



- Visual and audible alarms
- Lightweight and portable
- Bluetooth connection
- Data logging capabilities



Laser Methane Mini

Remote Methane Gas Detection

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 40 years Crowcon has been developing and manufacturing high quality products with a reputation for reliability and technical innovation.

Crowcon provides both single gas and multigas monitors for personal and portable safety applications providing protection against a wide range of industrial gas hazards.



Choosing a portable gas detector for your needs

Laser Methane mini (LMm) is a compact handheld detector that can detect methane gas from a safe distance. Utilising laser technology, methane leaks can be quickly confirmed by pointing the laser beam towards the suspected leak, or along the survey line. This revolutionary technology removes the need to access elevated places, under floor or other hard to reach areas. It is also ideal for surveying large open spaces e.g. landfills or along pipelines.

NEW! LMm is now available with a green laser guide light, which is more visible especially under strong sunlight. The Laser Methane Mini-Green (LMm-G) combines the benefit of LMm with additional data storage functions and comes with Bluetooth capability, which can be connected to any android device (through the Gasviewer app) for a variety of data storage functions. Important data like location, gas levels and time can also be saved or emailed to a central point.

LMm and LMm-G are easy to operate and require little maintenance. An automatic self check and calibration ensures consistent performance and reliability every time the units are turned on.

User friendly

Point and shoot technology	Requires little or no training and is easy to use
Compact and lightweight	Truly portable
Green/Red guide laser light	Clear visibility of where you are surveying
Wide organic electroluminescence display	Clear and bright readout on screen

Reliability

No moving parts	Little maintenance required
Self-check and automatic calibration start up	Ensure accurate and reliable reading

Records

Data storage	Full data logging capabilities
Bluetooth and Gasviewer app	Connectivity to android devices
Location service in Gasviewer app	Display and save value as well as location and time on map





LMm



LMm-G



Gasviewer App

Measurement principles:

Methane absorbs a specific wavelength of infrared rays. The laser diode emits infrared laser, receives the diffused light back and measures the absorption of the light. A reflective surface is required for proper measurement of methane gas. The laser beam from LMm can penetrate opaque surfaces, for example, glass or perspex.

The LMm and LMm-G measure the average methane gas density between the detector and target readings are reported in ppm-m as it is the product of concentration of methane cloud (ppm) and path length (m).

LMm:

LMm-G:

Size	70 x 179 x 42mm, (2.8 x 7 x 1.6 inches) WxDxH	70 x 179 x 42mm, (2.8 x 7 x 1.6 inches) WxDxH
Weight	600g (including Ni-MH battery pack)	530g (including Ni-MH battery pack)
Operating time	Approx. 6 hours	Approx. 4.5 hours
Operating temperature range	-17 - +50°C	-10 - +50°C
Target gas	Methane (CH ₄) and methane -containing gases	Methane (CH ₄) and methane-containing gases
Detection limits	1-50,000 ppm-m (%LEL or % Vol available)	1-50,000 ppm-m (%LEL or % Vol available)
Accuracy of detection	±10%	±10%
Detection distance (standard)	0.5m - 30m	0.5m - 100m (using an optional reflect sheet)
Ingress protection	IP65	IP65
Guide laser light colour	Red	Green
Certificate	Class 2:1mW CE (ATEX & EMC)	Class 3R: 5mW CE (R&TTE)
Best Application	Hazardous areas	Outdoors under strong sunshine

Applications:

- Industrial and commercial property surveys
- Emergency call out
- Gas plants
- Landfill gas monitoring
- Road surface survey
- Pipeline survey



New products available within the fixed and portable range are:



Crowcon F-Gas Detector
Refrigerant Gas and SF₆ Detector



Gasmaster
1-4 channel
control system



Detective+ and Detective Net
Transportable wireless area
gas monitor



Gas-Pro PID
5 gas VOC monitor

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