

Clip SGD

Portable Gas Detection Equipment



- | Easy to maintain
- | User friendly
- | Efficient



Clip SGD

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

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

Clip SGD 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
Clip SGD docking station	Keeps monitors correctly configured without service or technician team
'Bump test due' indication	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	

Accurate

Countdown and real time readings available	0.1 resolution for hydrogen sulphide
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Clip SGD docking station

Bump testing portable monitors is becoming more and more prevalent in the market. Ensuring sensors are responding to a known concentration of gas remains the best way to verify the monitor has not become impeded. The Clip SGD docking station provides bump testing, event management and calibration from a simple to use multi-unit 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	Manages 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 or multi-site use
Holds up to 4 Clips at once	Faster testing of larger fleets



Please see the back page for full technical specifications.

Clip SGD Specification:

Size		91 x 54 x 32mm (3.6 x 2.1 x 1.3ins)
Weight		93g (2.7oz) toxic, 104g (3.7oz) O ₂
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 90 dB audible alert at 10cm Vibrate
Event log		Most recent 30 events
Ingress Protection		IP66 and IP67
Tests		Self test on 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 2014/30/EC, FCC and IECES
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 SGD	2 years from activation*
Sensor range	H ₂ S CO O ₂	0-100ppm 0-300ppm 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.

Clip SGD:

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

Accessories

Part	Description
CL-Test	Clip SGD docking station
CL-IR-link	Clip SGD IR link

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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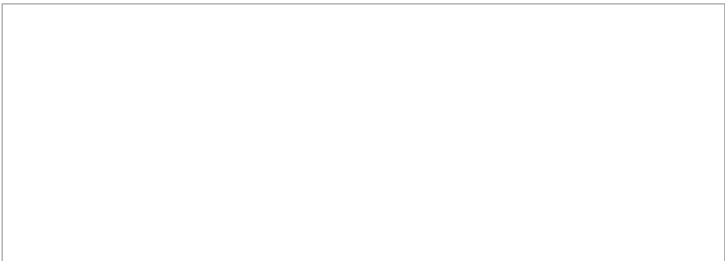
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Gasman

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 safety and portable monitoring 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. It's 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 field 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, pentane, hydrogen and ethylene as standard. Contact Crowcon for other target flammable gases and information on unfiltered sensors for alcohols, ketones, and general solvents.

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

Typical ranges and alarms:

Gas	Range	Standard Alarm (UK)
Ammonia (NH ₃)	0-1000ppm	25ppm
Carbon monoxide (CO)	0-1500ppm	30ppm
Carbon dioxide (CO ₂)	0-5%	0.5%
Carbon monoxide (H ₂ filtered)	0-500ppm	30ppm
Chlorine (Cl ₂)	0-20ppm	0.3ppm
Chlorine Dioxide (ClO ₂)	0-1ppm	0.1ppm
Ethylene Oxide (ETO)	0-10ppm	3ppm
Flammable	0-100% LEL	20% LEL
Fluorine (F ₂)	0-1ppm	0.5ppm
Hydrogen (H ₂)	0-2000ppm	N/A
Hydrogen cyanide (HCN)	0-25ppm	5ppm

Gas	Range	Standard Alarm (UK)
Hydrogen fluoride (HF)	0-10 ppm	1ppm
Hydrogen sulphide (H ₂ S)	0-250 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	0.1ppm
Phosgene (COCl ₂)	0-1 ppm	0.1ppm
Sulphur dioxide (SO ₂)	0-20 ppm	1ppm

Other gas ranges are available - please contact Crowcon for more information.

Please see the back page for full technical specifications.

Gasman Specification:

Size		90 x 48 x 24 mm (3.5 x 1.9 x 0.95 ins)
Weight	Flammable Toxic Oxygen Carbon dioxide	138g (4.9oz) 85g (3oz) 129g (4.6oz) 139g (4.9oz)
Typical response times (T₉₀)	Flammable Toxic gas Oxygen	20s 20s 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 and 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 Display recall	Real time gas concentration levels Peak readings and TWA
Datalogging		Full timed data logging 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		5-95% RH***
Ingress protection		IP65
Approval codes	Europe	Toxic or O ₂ : ATEX II 1G Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +65°C) BASEEFA04ATEX0384 Flammable: ATEX II 2G Ex ia d IIC T4 Gb (-20°C ≤ 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, 2014/34/EU
	North America	CSA22.2, 152
Operation standards		EN50270, EN50271, IEC61508, EN61779, EN45544
PC interface		RS232 connection from 'Charger/interface' variation RS232/USB converter available
Calibration		Gasman can be routinely calibrated using Portables Pro software
Accessories		Gasman is supplied with an integral alligator clip. Optional accessories: gas test kit, Gasman external filter, leather carry case, single way charger, charger interface software and communication kit (exluding PSU), 5 way multi-charger

*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.

*** Sensor humidity range varies by sensor type, consult Crowcon for further details

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Tetra 3

Portable Gas Detection Equipment



Tetra 3

Four Gas Personal Monitor

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 45 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. The Tetra 3 offers you compliance, robustness and a low cost of ownership in a simple to use solution.



Choosing the portable gas detector for your needs

Single button operation, small size and clear top-mounted display make the T3 a favourite in the market amongst those working in today's most arduous industrial environments.

Designed with the user in mind, the top mount display, full function data and event logs, audible, visual and vibrating alarms deliver top end performance in a small and lightweight package. Gases include the most common four (carbon monoxide, methane, oxygen and hydrogen sulphide), but also an expanded range: ammonia, ozone, sulphur dioxide, hydrogen filtered carbon monoxide (for steel plants), hydrogen cyanide, other flammable gases and IR carbon dioxide (for safe area use only).

Robust

Rugged impact resistant design provides extra shock and vibration protection

Water and Dust resistant to IP65 and IP67

Can be submerged in water

Provides protection in the harshest environments

Effective Warning

95 dB audible alarm

Vivid red/blue visual alarm

Vibrating alarm

Ensures prompt evacuation from hazard zone

Reliable

Proven sensor technology and software operation

Clear calibration-due warning

Lithium-ion battery provides 14 hours continuous operation from a single charge with no memory effects

Covers you over an extended shift

User friendly

Single button operation for all functions

Top mounted, backlit display of all gas readings, diagnostics and battery life

Can be operated with gloved hands

'At a glance' operating status

Please see the back page for full technical specifications.

T3 Gas Tester



With an increased focus on regular bump testing of gas detection instruments both through regulation and individual company requirements, bump testing has become even more important to ensure safety for users.

The T3 Gas Tester offers a solution that ensures compliance. By checking the sensors respond to a known concentration of gas and utilising the T3 instrument's internal functionality, it makes it a cost-effective, fast and simple solution.

Bump testing exposes each sensor to a known concentration of gas to confirm that it responds correctly and to ensure that the unit is working correctly. If it is found not to be working, then the T3 Gas Tester flags the need for the instrument to be re-calibrated or serviced.

The T3 Gas Tester allows bump testing of Tetra 3 instruments fitted with methane, oxygen, carbon monoxide and hydrogen sulphide sensors. The tester can bump all four gases in the instrument within 60 seconds. Using a fixed flow regulator reduces the cost of testing, allowing approximately 140 bumps per 34L cylinder of quad gas.

Fast and simple to use

Automatic detector recognition	Test indicated automatically
Automatic gas delivery	Confident the correct gas volume has been delivered

Reliable

Rugged and robust	Durability for harsh environments
Maintenance free	Low cost of ownership

Flexible

Wall, desk and DIN rail mountable	User configurable
Suitable for in-field and on-site gas testing	
Stand alone unit	
Fast and simple to use	

Part Ordering Information:

GT-T3-01	Gas Tester Kit 1 (includes tester and 1m inlet tubing)
GT-T3-02	Gas Tester Kit 2 (as Kit 1 plus fixed flow regulator)
GT-T3-03	Gas Tester Kit 3 (as Kit 2 plus gas cylinder holder)

C03052	Fixed flow regulator (0.5 l/min)
AC0510	Gas cylinder holder
AC0301	1m inlet tubing

T3 Product Specification:

Size		114 x 71 x 48mm (tapers to 20mm) (4.5 x 2.8 x 1.9ins)
Weight		295g (10.4oz)
Alarms	Audible	95dB multiple alarm sounds allow selection of distinctive tones for different alarm levels
	Vibrating	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, overdue, or service required.
Display mode	Normal display	Real time gas concentration levels
	Display recall	Peak readings and TWA
Data logging	Timed datalogging	50 hours at 1-min data rate (>12,000 data logs of 4 channels)
	Threshold logging	Starts after adjustable pre-set level
	Event logging	>5,000 events
Battery		Rechargeable Li-ion battery
Operating time		Based on four-gas instrument fitted with flammable sensor: A 5 hour charge from flat provides at least 12 hours of continuous use. A 12-hr charge provides 14 hours of continuous use
Sampling		Diffusion or hand aspirator
Operating temp range		-20°C to +55°C (-4°F to +131°F) *
Humidity		15-95% RH non-condensing **
Ingress protection		IP65 and IP67
Certification	Europe	ATEX II 2 G Ex ia d IIC T4 Gb (-20°C ≤ Ta ≤ +55°C)
	International	BASEEFA05ATEX0187
	North America	IECEx Ex ia d IIC T4 Gb (-20°C ≤ Ta ≤ +55°C)BAS05.0059 CSA Class I Division 1 Groups A, B, C and D
Safety standards	Europe	EN60079-0, EN60079-11, EN60079-1, 94/9/EC
	North America	CSA22.2, 152
	Operating standards	EN50270, EN50271, EN50104, EN45544, EN60079, IEC61508
PC interface		RS232 connection from interface module in charger RS232/USB converter available
Calibration		Can be routinely calibrated using Portables PC
Accessories		Integral alligator clip
Optional accessories		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
Charging options		Single way drop-in charger with multi-region power supply (UK, USA, EU & Australian plug adaptors included) or inline 110V/220V supply; Single way drop-in charger with options as above including PC interface; 5 way multi-charger with universal power supply; Vehicle adapter for in-vehicle charging; Universal charger with status indication for vehicle, wall or desk mounting; can be used with multi region power supply or vehicle charging lead.

*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.

** Toxic and oxygen sensors RH specifications vary, consult Crowcon for specific operating humidities

T3 Gas Tester Specification:

Size	125 x 185 x 80mm (4.9 x 7.3 x 3.1ins)
Weight	250g (8.8oz)
Instrument supported	T3
Gases supported	CH ₄ , CO, H ₂ S and O ₂
Test time	Typically 30 seconds
Tests performed	Sensor response to gas Visual alarm Audible alarm General pass/fail indication
Automatic gas delivery	0.5 litres/minute (l/min)
Gas inlet/exhaust	1/1
Accessories	Tubing, gas cylinder holder, fixed flow regulator

Gases and ranges

Ranges and alarms vary by country and application; these can be configured as required. Each channel can have two instantaneous alarms. Toxic channels also have TWA alarms. Flammable gas calibration is available for methane, propane, butane, pentane, hydrogen and ethylene as standard.

Gas	Range	Typical Alarm (UK)
*Flammable	0- 100% LEL	20%
Oxygen (O₂)	0-25%	19/23.5%
Hydrogen sulphide (H₂S)	0-100ppm	5ppm
Carbon monoxide (CO)	0-500ppm	30ppm
Sulphur dioxide (SO₂)	0-20ppm	1ppm
Ozone (O₃)	0-1ppm	0.1ppm
Ammonia (NH₃)	0-100ppm	25ppm
**Carbon dioxide (CO₂)	0-5%	0.5%
Carbon monoxide (CO) H₂ compensated	0-500ppm	30ppm
Hydrogen Cyanide (HCN)	0-30ppm	10ppm

* Methane, Pentane, Propane, Butane, Ethylene, Hydrogen and others available, contact Crowcon for further options

** T3 is available in a safe area CO₂ version offering 0-5% carbon dioxide measurement. The CO₂ sensor replaces the flammable option and can be supplied with oxygen and toxic sensors.

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CROWCON
Detecting Gas Saving Lives

T4

Now with
improved detection
of pentane and
hexane

Portable Multigas Detector



- Carbon monoxide
- Hydrogen sulphide
- Oxygen
- Flammable gases



T4

Portable Multigas Detector

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 45 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. Models vary, but it is Crowcon's philosophy that each should be properly suited to its task.



Choosing the portable gas detector for your needs

T4 integrates innovative safety features and an intuitive, rugged design to provide advanced protection for those working in harsh environments. This portable multigas detector, which is exceptionally easy to use and service, protects against the four most prevalent gas hazards: **carbon monoxide** (CO), **hydrogen sulphide** (H₂S), **flammable** gases and **oxygen** (O₂) depletion.

Now with
improved detection
of pentane and
hexane



Confidence, however you look at it

T4 contains a wide range of features to make everyday use easier and safer:

TWA Resume function

Unique to T4, this innovative feature ensures toxic gas exposure is calculated accurately over an entire shift, even if T4 is switched off for a break or during travel to another site.

18 hour battery life

Safely work multiple or longer shifts between charges, covered by the 18 hour battery life.

Backlit display

Large, clear display with backlight and option to flip the screen 180° for easy viewing whilst worn.



Rugged design

With a thick anti-shock rubber casing and drop tested to 4 metres on concrete, T4 provides dependable operation under the most demanding use. Water & dust resistant to IP65 & IP67.

Positive Safety indicator

A simple 'traffic light' status indicator which, at a glance, provides visual assurance of operational and compliance status to both users and supervisors.

Green light - Working safely

Red light - Attention required



Intrinsically safe

ATEX approved and UL Class 1 Div 1 for operation in a wide range of hazardous environments.



Dedicated sensors

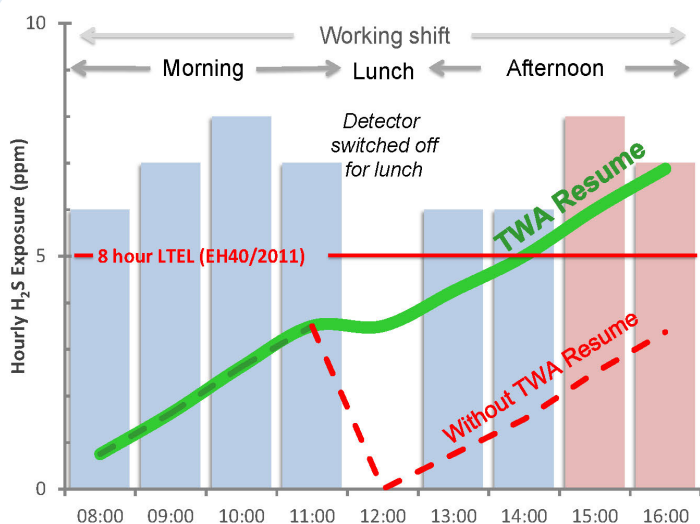
One sensor for every gas ensures effective, fast and reliable detection.

Multiple alarms

Audible 95dB alarm, bright red/blue LED's and vibrating alerts provide effective warning to gas hazards.

Easy operation

Large single button and intuitive menu system minimise training and allow easy operation whilst wearing gloves.



TWA Resume

TWA Resume* ensures time weighted average (TWA) toxic gas exposure is calculated accurately over an entire work shift.

The red line on the graph shows workers with other detectors risking overexposure to hydrogen sulphide (H₂S) by switching their detector off for a lunch break.

Only T4 provides the option to include previous measurements in the calculation when you switch your detector back on again and so prevent you exceeding your exposure limit. Because of TWA Resume (green line), T4 alarms at 14:00 when their 8 hour TWA reaches 5ppm.

* Patent pending - UK patent application number 1501699.1

Product Specification

Size		135 x 80 x 35mm (5.3 x 3.1 x 1.4in)
Weight		282g (9.9oz)
Durability		Drop tested 4m onto concrete
Alarms	Audible Vibrating Visible	95dB Integrated Bright red & blue LED's
Display		Front mounted, backlit, 180° flip for easy viewing while worn
Logging	Data Events	130 hours of data at 10s intervals 3,500
Battery	Rechargeable Li-ion	Up to 18 hour runtime; 5.5 hour recharge
Environment	Operating temp Humidity Ingress protection	-20 to +55°C (-4°F to +131°F)* 10-95% RH @ 40°C non-condensing Independently tested to IP65 and IP67
Compliance	EMC	Directive 2014/30/EU
Approvals	ATEX IECEX UL INMETRO MED	Ex II 2 G Ex d ia IIC T4 Gb Tamb -20°C to +55°C Ex d ia IIC T4 Gb Tamb -20°C to +55°C Use in hazardous locations Class 1 Div 1 groups A,B,C,D only as to intrinsic safety Ex d ia IIC T4 Gb Tamb -20°C to +55°C ⚙️
Accessories	Included with T4	Integrated alligator clip and tethering loop Bump/calibration plate
	Available separately	Single unit cradle charger; 10 unit cradle charger; Vehicle charger Clip on dust filter plate I-Test automated bump test and calibration station

*Toxic and oxygen sensors are not rated for continuous operation above 50°C (122°F)

Product variants and options:

	2 gas - Flammable	2 gas - CO	3 gas - H ₂ S	3 gas - CO	3 gas - CO (H ₂ immune)	4 gas	4 gas (H ₂ immune)
Oxygen (O ₂)	●	●	●	●	●	●	●
Flammable	●		●	●	●	●	●
Hydrogen sulphide (H ₂ S)			●			●	●
Carbon monoxide (CO)		●		●		●	
Carbon monoxide (CO) - H ₂ immune					●		●

Gases and Ranges:

Gas	Range	Resolution
Oxygen (O ₂)	0-30% vol.	0.1% vol.
Flammable	0-100% LEL	1% LEL
Hydrogen sulphide (H ₂ S)	0-100ppm	1ppm
Carbon monoxide (CO)	0-1000ppm	1ppm

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T4 Accessories:



Cradle charger
Docking station for easy charging



10 way charger
For charging and storing your T4 fleet
*Not available for UL certified products



Vehicle charger
Effective charging and storage whilst travelling



I-Test
Easy automated bump testing and calibration solution



NEW Portables Pro 2.0 Software
For easy configuration and servicing



External filter plate
Clip-on filter for dusty environments



Aspirator plate
Sample atmosphere prior to entry



Bump/calibration plate
To apply test gas to T4

Gas-Pro TK

Portable Detector for Tank Gas Monitoring



- Gas purge check specialist
- Auto-ranging dual IR
- Compact
- For methane, propane and butane

Gas-Pro TK

Dual Range Portable Monitor for Tank Gas Monitoring

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 45 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 to meet your needs

Gas-Pro TK – the Tank Gas specialist

Hydrocarbons stored in inerted environments create a particular flammable gas detection challenge, whether during transport at sea or storage on shore. Gas-Pro TK dual range portable monitor is designed for use in this specialist environment where standard gas detectors just won't work, whether tank purging or gas freeing.

Gas-Pro TK is ideal at any flammable gas concentration, and it uses the best sensor technology to reliably monitor inerted tank environments - dual IR.

- not inhibited by high hydrocarbon concentrations, unlike catalytic bead sensors
- measures gas in high %vol as well as %LEL concentration, which single IR sensors can't
- auto-ranges, switching between %vol and %LEL measurement to always measure against the correct parameter



Gas-Pro TK keeps you up to speed with oxygen levels in the tank; telling you when they are

- low enough to load and store fuel safely
- high enough for safe tank entry

Tanks can be sampled quickly from their top, middle or base, due to an integrated pump which draws samples through a line up to 30 metres long.

At 340g, it is light enough to clip to your belt, overalls, or a Gas-Pro harness, so it's easy for the technician to keep with them during their working day.

Tank check functionality summary	
Tank specialist	• Designed to perform in the challenging inerted tank environments
Dual IR sensor	• Detects the spectrum of possible flammable gas concentrations from high %vol to low %LEL • Auto-ranges, switching between %LEL and %vol as gas concentration demands • Notifies you of auto-ranging as it happens
Monitors oxygen	• Know when it's safe to load fuel • Know when it's safe for operators to enter
High H ₂ S sensor option	• Understand possible risks if gases vent during purging • Helps inform you of potential risk from pyrophores
Alarms disabled (only in tank check mode)	• High gas levels are to be expected, so alarms can be misleading and annoying
Automatic flow plate recognition	• Integrated pump turns on as soon as the flow plate is applied • Tank samples can be drawn from up to 30m long



Personal protection monitor


Gas-Pro TK is an extension of the Crowcon Gas-Pro range. Therefore, in addition to its superb Tank Check capabilities, it also offers the full personal gas detection and confined space pre-entry check functionalities provided by other Gas-Pro units. Gas-Pro TK units are black, so you can easily tell them apart from other Gas-Pro in your detector fleet.

As an additional, important safety feature, before it can be returned to Tank Check mode, Gas-Pro TK demands confirmation that the user understands that by doing so, they have disabled the alarms.

Safety	
Mode indication	• clearly indicates when in Tank Check mode, avoiding potential confusion
Confirmed alarm status	• In Tank Check mode, alarms are disabled. You must acknowledge this before you can proceed.
Simple single button operation	• Simple one-handed operation • Easy to learn and remember • Easy to use while wearing gloves
Black	• Part of the Gas-Pro range of detectors, Gas-Pro TK units are black to avoid any possible confusion

Personal monitor functional summary	
Personal gas detector	• Gas-Pro TK has full Gas-Pro functionality, so can double up as a personal detector, as required • Full range of alarms is enabled; audible (>95dB); visual (red and blue flashing LED; tactile (vibrating)
Confined space pre-entry check function	• Assists you through the pre-entry check process

Specifications

Size		43 x 130 x 84mm (1.7 x 5.1 x 3.3in)
Weight		340 g (11.9 oz)
Alarms	Audible	95 db
	Vibrating	Integrated
	Visible	Red and Blue LEDs
Display		Bright top mounted display can be viewed while worn
Logging	Data	125h data @ 10s intervals
	Events	1000
Battery	Rechargeable Li-ion	13 hour typical runtime (4 sensors, pump running) 7.5 hour recharge
Sampling		Internal pump with 30m draw
Environment	Operating temperature	-20 to +55°C (-4°F to +131°F)*
	Humidity	10-95% RH non-condensing
	Ingress protection	Independently tested to IP65 and IP67
Compliance		EMC 2014/30/EU ATEX 2014/34/EU
Approvals	ATEX	Ex II 2 G Ex d ia IIC T4 Gb Tamb -20°C to +55°C
	IECEX	Ex d ia IIC T4 Gb Tamb -20°C to +55°C
	UL	Gas detector use in hazardous locations Class 1 Div 1 groups A,B,C,D only as to intrinsic safety
	INMETRO	Ex d ia IIC T4 Ga Tamb -20°C to +55°C
	MED	
Accessories included		Integrated Alligator clip and tethering loop Calibration plate

* The CO, H S and O sensors are not rated for continuous operation at high temperatures. Consult Crowcon if operating temperatures are likely to exceed 50°C (122°F) for extended periods.

Gas	Range	Resolution
Oxygen (O₂)	0-25% vol.	0.1% vol.
Methane	0-100% LEL / 0-100% vol	1% LEL / 1% vol
Propane	0-100% LEL / 0-100% vol	1% LEL / 1% vol
Butane	0-100% LEL / 0-100% vol	1% LEL / 1% vol
Hydrogen sulphide (H₂S)	0-100ppm 0-1000ppm	1ppm
Carbon monoxide (CO)	0-500ppm 0-2000ppm 0-2000ppm (H ₂ filtered)	1ppm

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Accessories



Water trap



Ball float probe



Charger cradle



Pumped flow plate



USB communications lead

CROWCON
Detecting Gas Saving Lives

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	309g 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

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

Gas-Pro Accessories:



Multiregion power supply



Chest harness straps



Charger cradle



Pumped flow plate



USB communications lead

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Check www.crowcon.com for updates.

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CROWCON
Detecting Gas Saving Lives

Gas-Pro PID

Personal Gas Detection Equipment



Gas-Pro PID

Personal 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 safety and portable monitoring 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 PID offers detection of up to 5 gases in a compact and rugged solution capable of withstanding harsh environments and everyday use. Gas-Pro PID 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 PID to be worn either in pumped or diffusion modes.

User friendly

Top mount display	Makes it easy to read at a glance for quick decision-making
Simple single button operation	Limited training required
Ergonomically designed	Sits well when worn and fits easily in the hand

Flexibility

Monitors 5 gases from many different options	Hundreds of variants to choose from
Pumped and diffusion solutions	Offers multiple uses within one compact detector
Multiple languages	Regionally configurable
Automatic fail safe flow pump plate recognition	Simple to use and no tools required
Specific and unique Pre-Entry Check (PEC) mode	Takes away the pain of pre-entry testing
PID correction factor	Set to target VOC's

Reliability

Broad range PID	Hundreds of gases detected
Water and dust resistant to IP65 and IP66	Capable of withstanding harsh environments
Bump and calibration reminders	Full compliance
Positive/+ve Safety	Full site compliance
Strong pump	Up to 30m sampling

Please see the back page for full technical specifications.

Gas-Pro PID



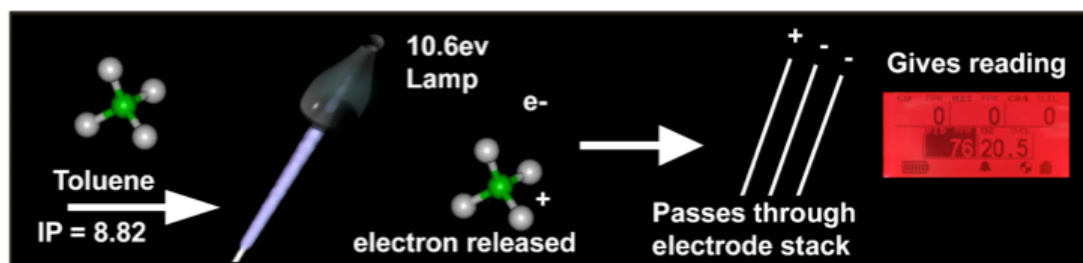
PID Technology

Volatile Organic Compounds are organic compounds characterised by their tendency to evaporate easily at room temperature. Familiar substances containing VOCs include solvents, paint thinners and glues, as well as the vapours associated with fuels such as gasoline, diesel, heating oil, kerosene and jet fuel. This category also includes many specific toxic substances such as benzene, butadiene, hexane, toluene, xylene, and many others.

Solvents, fuels and many other VOC vapours are extremely common in many workplace environments. Most have surprisingly low occupational exposure limits. For most VOCs, long before you reach a concentration sufficient to register on a combustible gas indicator, you will have easily exceeded the toxic exposure limits for the contaminant.

The amount of energy needed to remove an electron from the target molecule is called the Ionisation Potential (IP). The PID sensor Crowcon use in the Gas-Pro PID is a 10.6ev (Electron Volt) and emits a UV light source. The target gas will pass through the light source and if the gas has an ionisation potential of less than 10.6 an electron will be released from the gas compound. The gas will then pass through the electrode stack that will capture any moisture that is released during this chemical reaction and, more importantly, give a reading. The output will be converted into the PPM readings shown on the screen.

Example:



Key markets are Hazmat teams such as fire fighters and quick responders, shipping containers, industrial such as pharmaceutical or plastics production. Aviation is also a key market with wing tank entry requiring a PID sensor. For more information on this technology please contact your local supplier.

Gas-Pro PID Specifications:

Size	43 x 130 x 84mm (1.7 x 5.1 x 3.3ins)
Weight	309g 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
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 connection to multiregional power supply Vehicle charger adaptor Desktop cradle USB power and communications lead

Gases and Ranges:

Gas	Range	Typical Alarms	Resolution
PID	0-1000ppm	50ppm	1ppm
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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Check www.crowcon.com for updates.

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Gas-Pro PID Accessories:



Q-Test



Portables Pro software



Charger cradle



PID-A1 sensor



Cleaning kit



Calibration gas



Pumped flow plate



USB communications lead

CROWCON
Detecting Gas Saving Lives

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 safety and portable monitoring 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 Triple Plus+ builds on this pedigree by inclusion of unique LIBRA lithium-ion battery technology and the option of infrared (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 life 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 the 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 data logging 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 data logging 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 purging applications	Offers flexibility
% LEL measurement in air or inert backgrounds	
Single or dual range measurement	
IR CO ₂ detection, 0–5%	

Please 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 IECEx Ex ib d IIC T4 (Ta = -20°C to +50°C) SIR06.0084X
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	15-95% RH non-condensing**
PC interface	RS232 connection via the interface charger RS232/USB converter available Portables PC also controls data logging, giving the user a choice of direct graphical output or a data file compatible with all leading spreadsheets
Calibration	Triple Plus+ can be routinely calibrated using Portables PC software
Standard accessories***	Manual, shoulder strap and allen keys (pumped units include additional flow plate, 2m hose and pouch)
Optional accessories	Straight and telescopic probes, water trap, baffle plate, aspirator, calibration flow adaptor and hose

* 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.
** Toxic and oxygen sensors RH specifications vary, consult Crowcon for specific operating humidities
*** Leather case is sold as an integral part of the unit and is not an accessory.

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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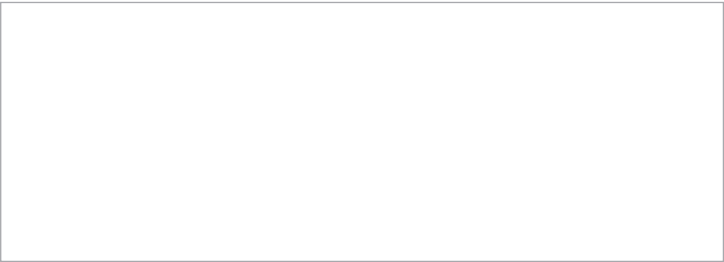
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Gas	Range	Typical Alarm (UK)
Triple Plus+ & Triple Plus+ IR		
Flammable	0-100% LEL	20% LEL
Oxygen (O ₂)	0-25% vol.	19/23.5%
Hydrogen sulphide (H ₂ S)	0-50ppm	5ppm
Carbon monoxide (CO)	0-500ppm	30ppm
Sulphur dioxide (SO ₂)	0-10ppm	1ppm
Chlorine (CL ₂)*	0-5ppm	0.5ppm
Nitrogen dioxide (NO ₂)	0-10ppm	1ppm
Phosphine (PH ₃)	0-2ppm	0.1ppm
Ammonia (NH ₃)	0-50ppm	25ppm
Non-flammable hydrogen (H ₂)	0-2000ppm	N/A
Hydrogen cyanide (HCN)	0-25ppm	10ppm
Hydrogen chloride (HCL)	0-10ppm	1ppm
Triple Plus+		
Electrochem hydrogen (H ₂)	0-100% LEL	20% LEL
Methane (CH ₄)	0-100% vol.	N/A
Flourine (F ₂)	0-10ppm	1ppm
Hydrogen flouride (HF)	0-10ppm	2ppm
Ethylene oxide (ETO)	0-10ppm	5ppm
Chlorine dioxide (CLO ₂)	0-1ppm	0.1ppm
Nitric oxide (NO)	0-100ppm	25ppm
Triple Plus+ IR		
Flammable	0-100% vol.	No alarm
Carbon dioxide (CO ₂)	0-5%	0.5/ 1.5%

* Unpumped units only



Detective+

Temporary Area Monitor



- | Versatile and user friendly
- | Rugged, tripod design
- | Loud and clear alarms
- | Wireless capabilities



Detective+

Transportable Multigas Area Monitor

When lives and property are at risk and you need gas detection equipment that is totally reliable, you need Crowcon. For over 45 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

Detective+ is based on the highly successful Triple Plus+ multigas monitor for use in utility, oil and gas applications. Singly, or interconnecting leads or wireless Detective Net, Detective+ gives a loud and clear alarm providing effective warning of gas hazards. The rugged, water and impact resistant design and clear display make Detective+ the ideal choice for your transportable gas detection needs.

Versatile and user friendly

Infrared sensors available	Allows sampling of highly flammable gas levels and carbon dioxide Unaffected by poisoning
Built in pump option	Provides fast response and extra sensor protection Provides sampling versatility
Clear display	Provides clear information, allows identification of gas hazard

Rugged, tripod design

Raised sensor apertures	Prevents water ingress
Folding or fixed leg options	Allows stacking for easier storage and transportation
IP65 specifications	Provides excellent sensor protection

Loud and clear alarms

25 Detective Net or 12 Detective+ units may be linked together, up to 100m from adjacent units	All linked Detective+ units indicate an alarm sensed by any one unit
Units sending an alarm flash faster	Provides effective warning of gas hazards
Audible and visible confidence blip	
Vivid red LED clusters for visual alarm	
Multiple beacons	Ensures 360° visibility

Please see the back page for full technical specifications.

Detective Net 433



Detective Net is a wireless module that can replace interconnecting cable for Detective+. Detective Net will transmit gas alert signals and other alarms wirelessly between Detective + using a 433MHz signal up to 100 metres in distance.

Detective Net uses the proven RICOCHET mesh network. When establishing a mesh network, Detective Net automatically selects the best line to give strongest interconnections. Should wireless connection between two devices weaken, the network will 'self-heal' and automatically re-route communications via alternate RICOCHET enabled devices, creating a mesh type network that provides a more robust and efficient wireless network.

When Detective+ goes into alarm, the signal will be sent to other units alerting the user to gas being present in the area. Detective Net will also transmit other faults, including loss of signal and battery low alarm. If the signal is weak due to heavy metal work being present the Detective Net can be used as a repeater to boost the signal between units. In a confined space the Detective Net unit can use up to 20 metres of cable to position the unit in a position that will increase signal. For more ideas see the suggestions below or visit our website.

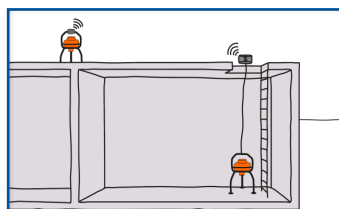
Detective Net 433 Specification:



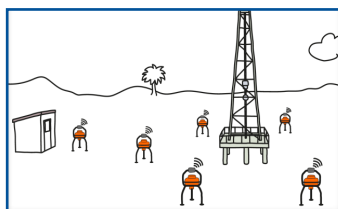
Detective Net

Size	140 x 76 x 37mm (5.5 x 3 x 1.5ins) (excluding mounting clip)
Weight	7.5kg (16lbs) (excluding mounting clip)
Battery	Non-rechargeable, 1 year plus battery life. Shelf life: 2 years
Operating temperature range	-20°C to +55°C (-4°F to 131°F)
Humidity	0% and 95% relative humidity (non-condensing) at +40°C
Ingress protection	IP65 & IP67
Wireless range	Typically 70m dependent upon physical location and environmental conditions but up to 100m possible
Maximum devices	Maximum number of devices in a network is 25
Approvals	IECEX: Ex ia IIC T4 Ga Tamb -20°C to +55°C CATEX: II 1 G Ex ia IIC T4 Ga Tamb -20°C to +55°C
Compliance	EN 300220-2 V2.3.3 (2010-02) EN301489-3v1.4.1 EN301489-1v1.9.2 EN50270:2006 (Type 1) EN60950-1:2006+A12:2011 IEC60950-1:2005 2nd Edition: A1:2009
Available frequencies	433MHz
Country Approvals (wide range available, speak to your local crowcon representative)	IDA Approval EQUIPMENT REGISTRATION UNDER TELECOMMUNICATIONS (DEALERS) REGULATIONS Registration Number: N2177-13 IDA Spec. No.: IDA TS SRD

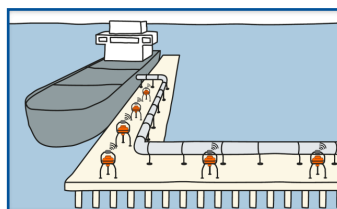
Set up scenarios:



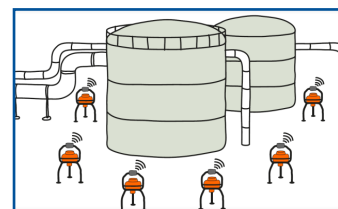
Repeater network



Mesh network



Network hopping



Ring network

For full set up scenarios visit www.crowcon.com/uk/products/portables/detective-net

Detective+ Specification:

Size	640 x 455 x 455mm (25.2 x 17.9 x 17.9ins)
Weight	7.5kg (19lbs)
Visible alarms	Three large, top mounted red LED clusters and a single red LED on control panel. Alarm mode: LED clusters flash in quick succession. LED clusters of linked Detective + repeating the alarm, flash slower than LED lights on those Detective + sensing the hazard Normal working: Slow flashing green LED Battery low: Rapid flashing green LED
Audible alarms	Wailing, omni-direction siren, 104 dBA at 1m
Display	High contrast LCD with backlight. Values and units for up to 4 gases displayed simultaneously at current, TWA or peak levels, low battery, real time and elapsed time calibration and configuration data also displayed
Battery	Standard 6V, 7.2Ah, sealed lead acid battery pack Optional 6V, 12Ah high capacity pack
Battery life	Up to 36 hours with flammable/ CO ₂ sensor fitted with 7.2Ah battery Up to 60 hours with optional 12Ah battery pack
Typical response times	Methane <20s, oxygen <10s, typical toxic gas <20s, IR <20s
Expected sensor life	Flammable 5 years, toxic 3 years (dependent on sensor type), oxygen 2 years minimum, IR>5 years
Operating temperature range	-20°C to +50°C (-4°F to 122°F)**
Humidity	15-95% RH non-condensing***
Approvals	Europe: ATEX II 2G EEx ib d IIC T4 International: IECEx EEx ib d IIC T4
Standards	EN50014, EN50018, EN50020, EN50104, EN45544, IEC60079-0/-1 IEC60079-11
Ingress protection	IP65
EMC	EN 50270, FCC CFR47 Part 15
PC interface	Via RS232 lead. Portables PC software can be used to set alarms, clock, data logging interval and password, manages data logging giving graphical display of instrument log file and allows to export to spreadsheet
Calibration	Quick calibration using internal menu command, Portables PC software
Accessories	Baffle plate, interconnecting leads, RS232 communications lead
Sampling	Internal electric sampling pump option, manual aspiration
Linked Detectives	Up to 12 units can be linked to provide perimeter or area monitoring

** 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
***Toxic and oxygen sensors RH specifications vary, consult Crowcon fo specific operating humidities

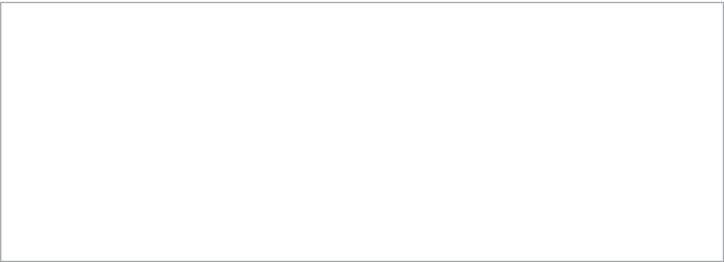
Infrared sensors

Infrared (IR) sensors for flammable gas can be supplied as a single range, 0-100% LEL, utilising a single display channel, or as a dual range, 0-100% LEL/0-100% volume, which then occupies two sensor locations, one display location.

Carbon dioxide sensors are supplied as 0-5% volume. Only one IR sensor can be fitted, and IR sensors can only be used in combination with oxygen and toxic sensors.

Radio frequency 433 MHz certified in:

Australia	UK	Iceland	New Zealand	Spain
Austria	Estonia	Ireland	Norway	Sweden
Belgium	Finland	Italy	Poland	Switzerland
Brunei	France	Latvia	Portugal	Singapore
Bulgaria	Georgia	Lithuania	Qatar	Trinidad and Tobago
Cyprus	Germany	Malaysia	Romania	United Arab Emirates
Czech Republic	Greece	Malta	Slovakia	
Denmark	Hungary	Netherlands	Slovenia	



Gases and Ranges:

Gas	Range	Typical alarm
Flammable (catalytic gas)		
Methane	0-100% LEL	20% LEL
Butane	0-100%LEL	20% LEL
Ethylene	0-100%LEL	20% LEL
Hydrogen	0-100%LEL	20% LEL
Pentane	0-100%LEL	20% LEL
Proprane	0-100%LEL	20% LEL
Flammable (electrochemical gas)		
Hydrogen (electrochemical 4%)	0-100% LEL	20% LEL
Flammable (IR) gas (single or dual range)		
Methane IR	0-100% LEL / 0-100% v/v	20% LEL
Acetylene IR	0-100% LEL / 0-100% v/v	20% LEL
Butane IR	0-100% LEL / 0-100% v/v	20% LEL
Ethylene IR	0-100% LEL / 0-100% v/v	20% LEL
Pentane IR	0-100% LEL / 0-100% v/v	20% LEL
Propane IR	0-100% LEL / 0-100% v/v	20% LEL
Flammable (thermal conductivity gas)		
Methane	0-100% LEL / 0-100% v/v	20% LEL
Hydrogen	0-10% v/v	N/A
Toxic (electrochemical gas)		
Ammonia (NH ₃)	0-50ppm	25ppm
Ammonia (NH ₃)	0-1000ppm	N/A
Arsine (ASH ₃)	0-1ppm	0.05ppm
Carbon monoxide (CO) (H ₂ compensated)	0-500ppm	30ppm
Chlorine (Cl ₂)	0-5ppm	0.5ppm
Chlorine dioxide (ClO ₂)+	0-1ppm	0.1ppm
Ethylene oxide (C ₂ H ₄ O)	0-10ppm	5ppm
Flourine (F ₂)+	0-1ppm	0.1ppm
Hydrogen (H ₂)	0-2000ppm	N/A
Hydrogen chloride (HCl)*/+	0-10ppm	1ppm
Hydrogen cyanide (HCN)	0-25ppm	10ppm
Hydrogen flouride (HF)+	0-10ppm	1ppm
Hydrogen sulphide (H ₂ S)+	0-50ppm	10ppm
Hydrogen sulphide (H ₂ S)	0-1000ppm	10ppm
Nitric Oxide (NO)+	0-100ppm	25ppm
Nitrogen dioxide (NO ₂)*/+	0-10ppm	2ppm
Phosphine (PH ₃)+	0-5ppm	0.1ppm
Sulphur dioxide (SO ₂)+	0-10ppm	2ppm
Volatile organic (VOC)*/+	0-100ppm	N/A
Toxic (IR gas)		
Carbon dioxide IR	0-5% v/v	0.5% v/v
Oxygen		
Oxygen (O ₂)	0-25% v/v	19% v/v and 23%w/v

Required ranges and alarms may vary by country and application and these can be configured as required.

* One biased sensor per Detective+

+ Reactive gas, care required during sampling, contact Crowcon for details.

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an ecotec company



Personal protection

for hazardous environments



μ GAZTOX™

Oxygen and toxic gas detector



Easy to use – single control key

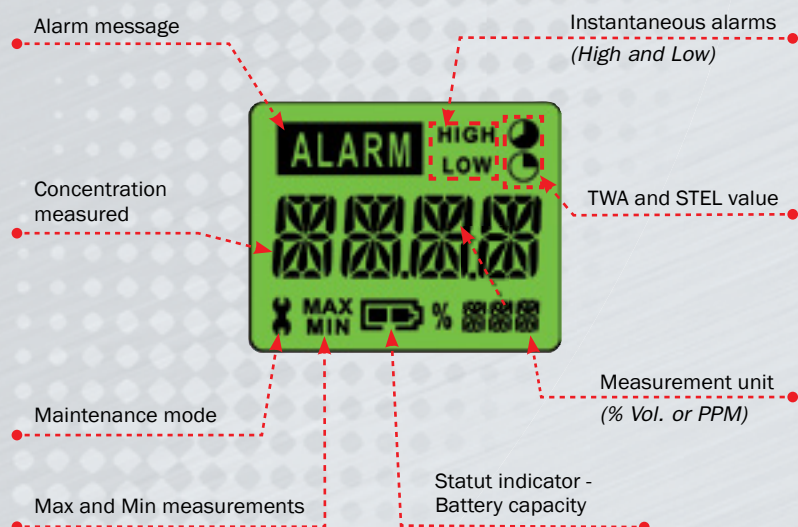
Maintainable

ATEX certification

Resistant to water - IP 67

The μ GAZTOX™ detector is a personal protection device designed for use by operators who may be exposed to hazardous gas concentrations in their workplace. Depending on the type of sensor fitted this single gas detector measures hazardous concentrations of oxygen (O_2) or toxic gases such as hydrogen sulphide (H_2S), carbon monoxide (CO) or other gases (THT, TBM). The μ GAZTOX™ is an essential tool for on-site safety of professionals.

View of μ GAZTOX™ (real size)



Easy to use

- Single control key
- Self-test at start-up
- Displays gas concentrations and status indicators.

Robust and compact design

- Elastomer housing which is resistant to extreme conditions
- High protection index - IP 67
- Fastening clips for hands-free utilisation - can be clipped onto pockets, belts, straps or safety helmets.

Powerful alarms

- Visual (red flashing LEDs)
- Audio (95 dB)
- Vibration.

Alarm Thresholds

- TWA and STEL alarms
- High and low instantaneous alarms for oxygen
- High instantaneous alarm for toxic gases.

Maintainable equipment

- 2 years warranty ⁽¹⁾
- Sensor and disposable Lithium battery are replaceable.

(1) Excluding sensor and battery and provided the equipment is not operating continuously

Measurement characteristics

Sensor*	Measurement range	Resolution	Instantaneous alarms		Limit values	
			High	Low	VLE (STEL)	VME (TWA)
Oxygen (O ₂)	0 – 30 % Vol.	0.5 % Vol.	23% Vol.	19% Vol.	-	-
Carbon monoxide (CO)	0 – 1000 ppm	1 ppm	200 ppm	50 ppm	100 ppm	50 ppm
Hydrogen sulphide (H ₂ S)	0 – 100 ppm	1 ppm	30 ppm	15 ppm	10 ppm	5 ppm
Ozone (O ₃)	0 – 3 ppm	0.03 ppm	1 ppm	0.5 ppm	0.2 ppm	0.1 ppm
Tetra-Hydrothiophene (THT - C ₄ H ₈ S)	0 – 50 mg/m ³	0,1 mg/m ³	30 mg/m ³	10 mg/m ³	30 mg/m ³	10 mg/m ³
Mercaptan (TBM – C ₄ H ₁₀ S)	0 – 50 mg/m ³	0,1 mg/m ³	30 mg/m ³	10 mg/m ³	1,8 mg/m ³	1,5 mg/m ³

* This list of sensors is not exhaustive - please contact us for any specific requirements



Extended Applications

- Refineries
- Petrochemical industry
- Miscellaneous work sites
- Industrial maintenance
- Chemical industry
- Fire and rescue brigades
- Industrial safety
- Paper pulp industry
- Water treatment industries
- Shipyards
- Silos, tank-cars
- Power stations, nuclear power plants, etc.

Standard Accessories

The µGAZTOX™ is supplied ready-to-use with the following accessories:

1. Calibration cap-adaptor
2. Neck strap
3. Crocodile clip
4. Fastening clip for belts, pockets or safety helmets
5. T8 screwdriver
6. Disposable 3.6V Lithium battery (not shown)
7. User manual (not shown).

Optional test kit



The test kit is made up of:

8. Gas cylinder
9. Connecting hose.



TECHNICAL SPECIFICATIONS

μ GAZTOX™

Measurement principle	<ul style="list-style-type: none"> • Electrochemical cell
Measurement unit	<ul style="list-style-type: none"> • ppm for toxic gases and % vol. for oxygen • Automatic zero-setting
Response time	<ul style="list-style-type: none"> • < 20 seconds (may vary depending on the type of sensor)
Display	<ul style="list-style-type: none"> • Liquid crystal digital display with icons and backlighting • Continuous display of type of gas detected, gas concentration and battery capacity • Max. and min. instantaneous measured values, TWA (Time Weighted Average over 8 hours) and STEL (Short Time Exposure Limit - average over 15 minutes), max. and min. measured values. • Alarms : Max, Min, TWA, STEL
Keypad	<ul style="list-style-type: none"> • Single control key (three-direction joystick)
Power supply	<ul style="list-style-type: none"> • Disposable Lithium battery, 3.6V 1/2AA, 1200mAh • 2 years operational life (provided the equipment is not operating continuously)
Alarms	<ul style="list-style-type: none"> • Visual: <ul style="list-style-type: none"> - flashing red LEDs which are visible from all 4 angles. - display of ALARM message, alarm type and alarm threshold • Audible, dual-tone alarm, < 95 dB at a distance of 30 cm • Vibro alarm : powerful, suitable for noisy environments
Alarm thresholds	<ul style="list-style-type: none"> • Adjustable High and Low instantaneous alarms for oxygen • Adjustable High instantaneous alarm for toxic gases • Alarms for TWA value (Time Weighted Average over 8 hours) and STEL value (Short Time Exposure Limit - average over 15 minutes)
Tests :	<ul style="list-style-type: none"> • Self-test at start-up of all key functions (circuit board, sensor, battery) • Continuous battery test
Housing	<ul style="list-style-type: none"> • Rugged, watertight and impact resistant elastomer housing
Dimensions	<ul style="list-style-type: none"> • H 94 mm x W 48 mm x 28 mm
Weight	<ul style="list-style-type: none"> • 91 g with fastening clip
Conditions for use	<ul style="list-style-type: none"> • Humidity: from 15% to 95 % RH • Temperature: from - 20 °C to + 50 °C
Protection index	<ul style="list-style-type: none"> • IP 67 (protection against dust and effects of brief immersion in water)
Warranty	<ul style="list-style-type: none"> • 2 years, (excluding sensor and battery and provided the equipment is not operating continuously)
Maintenance	<ul style="list-style-type: none"> • Sensor and battery replaceable by authorized personnel only
Certifications	<ul style="list-style-type: none"> •  0080 marking • EMC : Directive 2004/108/CE • ATEX : II 1 G  Ex ia IIC T4, -20 °C ≤ Ta ≤ +50 °C, in compliance with Europeans standards of use in explosive atmospheres.



After-sales service

GAZOMAT provides all customers with comprehensive product assistance and maintenance through its global service teams.

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Personal protection **in explosive zones**



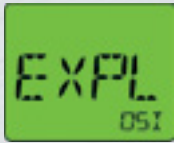
μ GAZEXTM

Multi-function
Pocket Explosimeter

-  Easy to use - single key operation
-  Ultra-light and ultra-compact format
-  Intrinsically safe - ATEX certification

The μ GAZEX™ device provides users with personal protection against explosion hazards in hazardous environments. This pocket explosimeter is certified to ATEX Group 1 (Mines) and Group 2 standards and is available in four versions:

- | | |
|------------------------------|--|
| 1) Explosimeter | - 1 measurement scale : 0-100% LEL |
| 2) Explosimeter-catharometer | - 2 measurement scales : 0-100% LEL - 0-100% Vol. Gas |
| 3) Explosimeter | - 3 measurement scales : 0-10.000 ppm - 0-100% LEL - 0-100% Vol. Gas |
| 4) Methanometer | - 1 measurement scale : 0-6% CH ₄ |



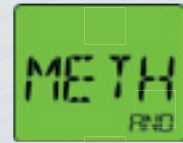
Explosimeter
1 scale : % LEL



Explosimeter-catharometer
2 scales : % LEL & % Vol. gas



Explosimeter
3 scales : PPM, % LEL, % Vol. gas



Methanometer
1 scale : % CH₄

Full scale view of the μ GAZEX™ device



Easy to use

- Single control key
- Simple user interface
- Gas library.

Maintainable equipment

- Quick and easy sensor replacement.

Robust and fully tested design

- Double-protection elastomeric housing
- Multi-support fastening clip.

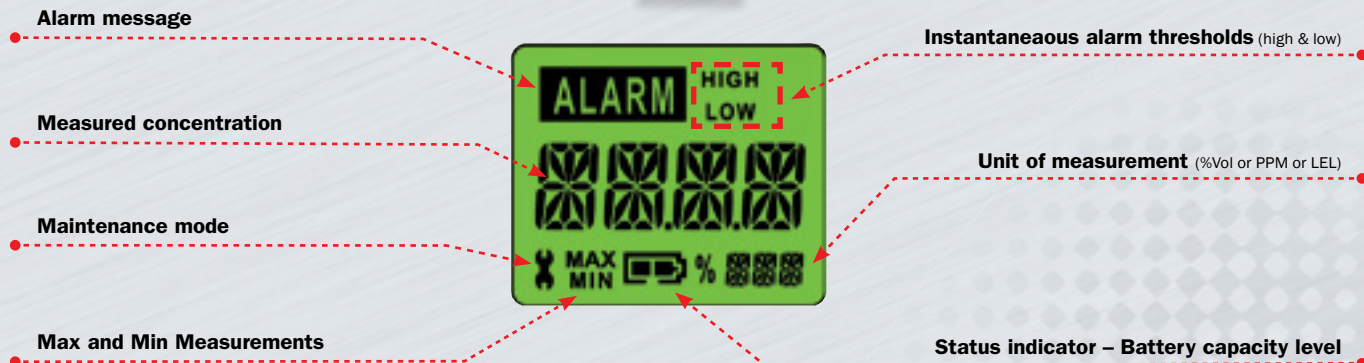
Powerful alarms

- Visual flashing red LED alarms
- 95 dB Audible alarm
- Vibration alarm.

High levels of performance and reliability

- High sensor stability on extended exposure to gas
- Self-test at start-up
- Regulated charger/test station, compatible with Gazomat calibration unit
- Minimum 15 hr operating time between recharges
- 2 audible, visual and vibration alarm thresholds and a continuous default alarm.

Display



Wide range of applications

- Gas transmission
- Refineries
- Gas distribution
- LPG storage
- Coal mines
- Fire and rescue brigades, etc.

The equipment

The **μGAZEX™** unit is supplied fully calibrated, ready-to-use and complete with the following accessories:

1. Charger
2. Supply unit
3. Fastening clip (not shown).

Optional accessories

4. Multi-point charger assembly (up to ten stations)
5. Sampling system with suction bulb
6. Sampling adaptor.




Optional test accessories

7. Test and calibration accessories
 - 7a. Test kit comprising a gas cylinder and a gas supply regulator
 - 7b. USB cable
 - 7c. Test box
 - 7d. Calibration software (not shown).



TECHNICAL SPECIFICATIONS

μ GAZEX™

- Measurement principles**
 - Catalytic combustion (explosimeter)
 - Thermal conductivity (catharometer)
- 4 versions**
 - Single measurement scale explosimeter :
 - from 0 to 100% LEL. The value displayed corresponds to the relative concentration in relation to the Lower Explosive Limit. 100% LEL is the threshold at which the gas can explode or ignite in the presence of oxygen.
 - Explosimeter-catharometer with two measurement scales :
 - from 0 to 100% LEL.
 - from 0 to 100% Vol. Gas. This scale is adjusted for the reference gas that is present in the distribution network (generally methane).
 - Explosimeter with three measurement scales :
 - from 0 to 10,000 ppm. The value displayed corresponds to the actual concentration of methane in the volume of air that is being tested.
 - from 0 to 100% LEL
 - from 0 to 100% Vol. Gas.
 - Methanometer:
 - from 0% to 6% CH₄.
- Display**
 - Back-lit liquid crystal digital and pictogram screen.
 - Permanent display of gas concentration and battery charge level.
 - Instantaneous min and max measured values.
 - Alarms: Max and Min.
- Key pad**
 - Three-direction joystick button
- Power supply**
 - Uses 1 set of GAZOMAT™ rechargeable batteries (Li-Ion 3.7 V)
- Battery life**
 - More than 15 hours
- Charging time**
 - 4.5 hours
- Alarms**
 - Visual alarm :
 - by means of flashing red LEDs which are visible from all 4 angles
 - display of ALARM message, type of alarm and alarm threshold
 - Dual-tone audible alarm, < 95 dB at 30 cm
 - Powerful vibration alarm suitable for noisy environments
- Alarm thresholds**
 - Instantaneous high and low alarms
- Tests**
 - Full self-test at start-up (electronic circuits, sensor and batteries)
 - Continuous battery test
- Housing**
 - Robust impact-resistant waterproof elastomer case
- Dimensions**
 - Height 139 mm x width 50 mm x depth 28.2 mm
- Weight**
 - 119 g without fastening clip
- Conditions of use**
 - Humidity : from 15% to 95% RH
 - Temperature : from -20 °C to +40 °C
- Conditions of storage**
 - Temperature : from -30 °C to +50 °C
- Protection index**
 - IP 54 (Protection against dust and water sprayed from all directions)
- Maintenance**
 - Rapid cell replacement
- Certifications**
 - EMC Directive 2004/108/EC - EN 50270
 - ATEX in accordance with standards EN 60079-0, EN 60079-11, EN 60079-26 and EN 50303
 - Marking  0080 INERIS 11ATEX0055 -  II 1 G - Ex ia IIC T4 Ga and  I M1 - Ex ia I Ma



After-sales service

GAZOMAT provides all customers with comprehensive product assistance and maintenance through its global service teams.

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Gas Concentration Measurement, Work Zone Safety



GAZOTRACK™

Multifunction Gas Leak Detector

- Simultaneous detection of up to four gases – CH₄ with infrared sensor, CO, O₂, THT/TBM/H₂S with electrochemical sensors
- Reliable measurements in spite of temperature variations, no condensation formation
- Personalised, intuitive and user-friendly interface
- Event logging and transfer via Bluetooth® connection

GAZOMAT™ has extended its range of optical (NDIR) gas detectors with its new **GAZOTRACK™ 4** device, which is a multigas detector with intelligent IR sensors for hydrocarbons and electrochemical sensors for toxic and odorant gases. This new-generation handheld device is capable of detecting up to four gases at the same time.

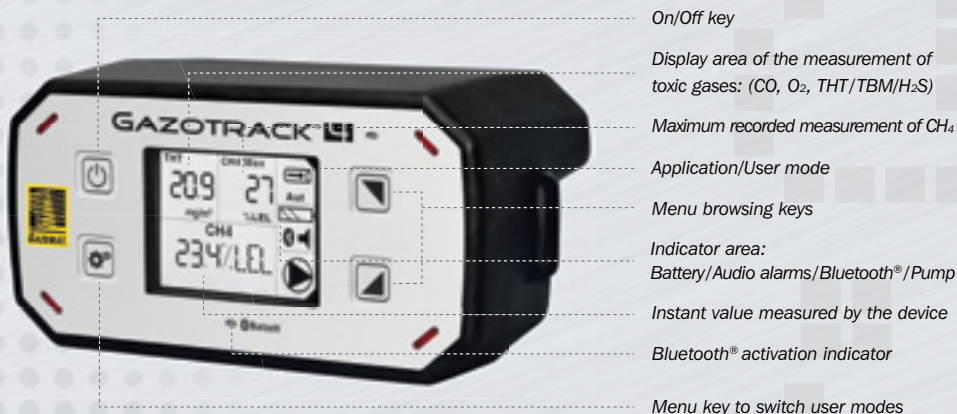
It offers an all-in-one solution that is extremely flexible and easy to use, meeting the safety and performance requirements of a large range of applications – emergency and safety interventions, bore holes, pipeline purging and filling, monitoring of networks in gas storage and transport installations, measurement of odorant gases, testing for toxic gases in potentially hazardous work zones.



Measurement reliability

A smart sensor using non-dispersive infrared (NDIR) technology to guarantee measurement efficiency:

- Repeatable and reliable measurements
- Sensor immune to toxic compounds
- Very quick response time, under 4 seconds
- Temperature regulation system integrated into the sensor for protection from high temperature and humidity variations - no condensation
- Lifespan above five years



User friendly

- Immediate operation:
 - Start-up time below 30 seconds
 - No need for preliminary adjustment or setup
- Simplified interface with four control buttons
- Intuitive use with integrated applications*
- Automatic event logging and transfer via Bluetooth® connection**
- Visual alarms with flashing red LEDs accompanied by an audio signal
- Charger base for use in the office or in a vehicle
- Up to 16-hour operating time

Convenience and safety in ATEX/IECEx/CSA/UL zones

- Safe use in zones at risk of explosion - certification pending for ATEX / IECEx zones 0, 1 and 2 and CSA / UL Class 1 DIV 1
- Rugged design for use in extreme conditions
- Large display of measurements in values and bars on back-lit LCD screen
- Compact and lightweight design

Failsafe Design

- Continuous self-testing
- Display of error messages with audio signal
- Device shutdown message in the event of a major fault

Simplified maintenance and reduced costs






- Quick replacement of sensors and filters, with no need for recalibration (maintenance by GAZOMAT™-approved personnel only)
- Simple annual verification using the test kit
- Operating time before maintenance approximately 5,000 h.
- Two-year guarantee (electrochemical sensors not included)

Detection and Localization of Gas Leaks



CATEX™ 3

Explosimeter-catharometer
New generation

-  Easy-to-use
-  Reliability and speed of detection
-  3 measurement scales : PPM – LEL – Gas
-  Explosion-proof to ATEX certification
-  Robust design in compliance with the most severe industry standards

Benefiting from the latest technological evolutions with current European explosion-proof and metrological certification standards, the CATEX™3 detector, the latest generation of explosimeter-catharometer from GAZOMAT™, makes it possible to pinpoint the exact location of a leak while ensuring optimal safety for operation in hazardous atmospheres.



Precise and reliable measurements

- **3 measurement scales**
 - PPM scale : 0 ppm to 10.000 ppm (CH₄)
 - LEL scale (explosimetry): 0% to 100% LEL (CH₄)
 - Gas scale (catharometry) : 0% to 100% gas volume (CH₄).
- **Two scales displayed on a large LCD screen:**
 - Constant display of the gas volume scale (*)
 - Automatic switching between PPM and LEL scales:
 - o PPM mode, up to 10,000 ppm
 - o LEL mode, from 10,000 ppm to 4.4% gas volume (*).
- **Start-up of the unit away from the explosive atmosphere either in PPM/Gas mode or in LEL/Gas mode**, depending on the nature of the area investigated and the explosion hazard level.
- **Automatic zero-setting of the three scales at start-up** away from any explosive atmosphere and outdoors.
- **Manual zero setting possible** while the unit is in operation.

Easy-to-use

- Simple and intuitive interface
- Self-test at start-up of all key functions
- Visual and audio alarms for selection
- Status indicators for key components
- Dialog window for messages
- 12 hour operating time
- Complete set of accessories.

Compact and Robust Design

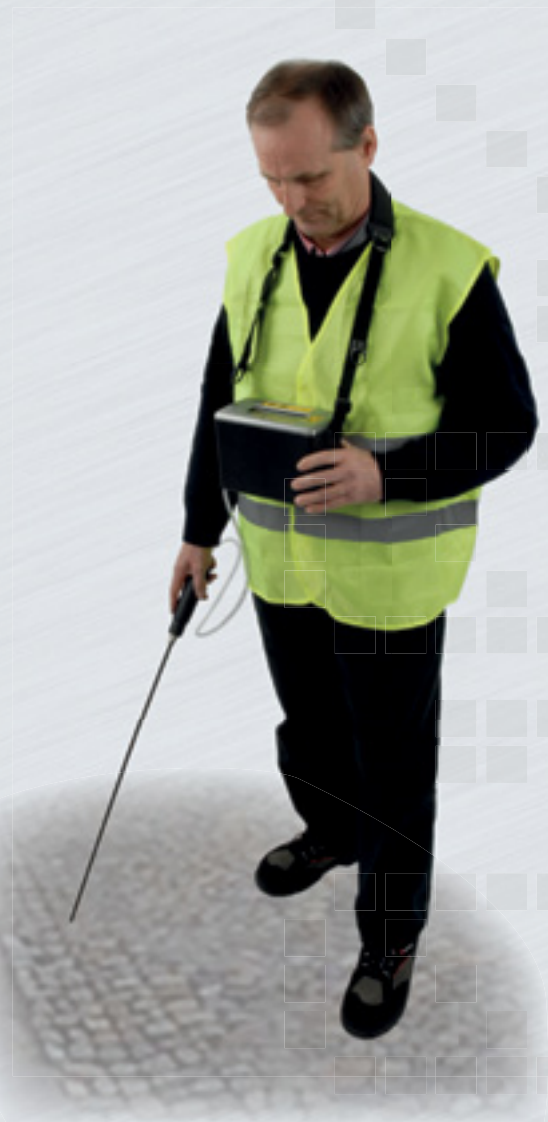
- High performance material provide ultimate protection for both the apparatus and the operator
- A high protection degree (IP 55) for superior resistance to extreme environmental conditions
- A reduced size and weight for the operator's greater comfort.

Extended applications

- **Leak confirmation and localization in bored holes**
- **Leak detection either indoors or outdoors**
 - Risers inside buildings
 - Gas boxes
- **Safety checks before re-pressurizing or after de-pressurizing gas pipelines** (measurement of gas concentration level in gas pipelines with or without the presence of Nitrogen)
- **Control of the atmosphere:** monitoring of the Lower Explosive Limit to secure a working area.

ATEX certification - the guarantee of a high level of security

In compliance with the European directive **ATEX 94/9/CE** dated **23 March 1994**, the CATEX™3 can be used in category 2 explosive zones in confined spaces.



(*) Gas Volume scale available upon request for other gases than methane (butane or propane).

The CATEX™ 3 unit is available with a large set of accessories for efficient detection activities.



Accessories and complementary tools

- 1) A sample handle with water-repellent and dust filters
- 2) A special end piece for fitting the long sampling rod
- 3) A special end piece for fitting the short sampling rod
- 4) A long, semi-rigid sampling rod
- 5) A short, flexible sampling rod
- 6) 1 meter of flexible sampling tubing
- 7) A 230 V charger unit with mains cord
- 8) A charging base
- 9) A 12 V vehicle charger
- 10) A gas check kit comprising a flow regulator and a 34 litre canister containing a 2% concentration methane mixture
- 11) A storage case with dedicated formed locations for the above listed items plus 1 set of dust filters and 1 set of water-repellent filters.

GAZOMAT™ Calibration Bench

This complementary instrument is designed for the verification and adjustment of the CATEX™ 3 (at least one a year). The procedure is automatic for the GAZOMAT™ detectors and semi-automatic for detectors from other manufacturers*.

- Provided with gas reference bottles, a laptop PC and GAZOCAL™ ** software for data processing and verification/adjustment (used with Microsoft® Windows® XP and Windows® 7 operating systems)
- Multi-language system
- Provides verification/adjustment reports and test reports authenticating the complete calibration and testing procedure
- Maintains history files for each detector being adjusted or verified
- Provides traceability of the reference gases
- 230 V power supply (or 115 V upon request)
- Sizes with gas bottles : 560 x 460 x 370 mm (22.1 x 18.1 x 14.6 inches)
- Weight with no gas bottle : 14.7 kg (32.3 lbs)
- Unit weight of a gas bottle: 2.9 kg (6.4 lbs).



* Subject to unlocking the protected-access calibration procedure.

** GAZOCAL™ is GAZOMAT™ proprietary software.

TECHNICAL SPECIFICATIONS

CATEX™ 3

Measurement principle	<ul style="list-style-type: none">• Catalytic combustion (explosimetry)• Thermal conductivity (catharometry)
3 measurement scales	<ul style="list-style-type: none">• PPM scale: from 0 ppm to 10,000 ppm – minimum threshold : 50 ppm. Values displayed correspond to the actual methane concentration.• LEL scale (explosimetry): from 0% to 100% LEL – minimum threshold : 0.1% Values displayed correspond to gas concentration in relation to the Lower Explosive Limit. Beyond 100% LEL, the gas becomes explosive in the presence of oxygen.• GAS scale (catharometry) : from 0% to 100% gas volume. – minimum threshold : 0,2 % - The scale corresponds to the reference gas present in the distribution network (methane in general).
Measurement accuracy	<ul style="list-style-type: none">• PPM scale: +/- 100 ppm• LEL scale (explosimetry):<ul style="list-style-type: none">- Reference gas<ul style="list-style-type: none">o from 0% to 50% LEL : +/- 5%LELo from 50% à 100% LEL : +/- 10% relative• GAS scale (catharometry) :<ul style="list-style-type: none">- Reference gas<ul style="list-style-type: none">o from 0% to 50% v/v : +/- 5%v/vo from 50% to 100% v/v : +/- 10% relative
Calibration	<ul style="list-style-type: none">• to methane is standard (calibration to butane or propane is optional)
Display	<ul style="list-style-type: none">• Digital LCD alpha-numeric display with pictograms and back-lighting
Keyboard	<ul style="list-style-type: none">• 3 waterproof touch keys on front panel
Visual indicator	<ul style="list-style-type: none">• 1 red LED alarm on front panel
Conditions of use	<ul style="list-style-type: none">• Humidity : from 30% to 70% relative humidity• Temperature : from -20°C to +40°C
Storage conditions	<ul style="list-style-type: none">• Humidity : <95% relative humidity, no condensate• Temperature : from -20°C to +50°C
Power supply	<ul style="list-style-type: none">• NiCd rechargeable batteries
Autonomy	<ul style="list-style-type: none">• 12 hour operating time.
Electric pump	<ul style="list-style-type: none">• flowrate : 35 liters/hour
Case	<ul style="list-style-type: none">• 4 mm thick shock-resistant carbon-embedded polyamide case• 10 mm thick anodic aluminum front• Display window in high-resistance ceramic glass
Sizes	<ul style="list-style-type: none">• 190 x 95 x 130 mm (7.5 x 3.75 x 5.1 inches)
Weight (with battery)	<ul style="list-style-type: none">• 1.96 kg (4.32 lbs) with batteries and carry strap
Protection degree	<ul style="list-style-type: none">• IP 55
Certifications	<ul style="list-style-type: none">• Marking : CE 0080• ATEX Directive 94/9/CE dated 23 March 1994• EMC Directive 2004/108/CE dated 21 may 2007: Electromagnetic compatibility• Metrological standards : EN 60079-1 of 2007• European Standards for use in explosive atmospheres: EN 60079-0, EN 60079-1 and EN 60079-11



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- Russian Standards GOST



After-sales service

GAZOMAT provides all customers with comprehensive product assistance and maintenance through its global service teams.

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*Authorized
agent*



an ecotec company

Gas Leak Detection and Natural Gas Network Survey



GAZOSCAN™

Handheld Remote Methane Leak detector
with Laser Spectroscopy Technology

- Methane selective – no false alarm
- Quick response time (0.1s)
- Lightweight and easy to use
- Can detect through glass
- 50m (164ft) distance detection

Using the powerful Laser Spectroscopy technology, the GAZOSCAN™ from GAZOMAT™ is a handheld remote methane leak detector (RMLD) offering methane selectivity. Ultra-portable and very easy to use, this device detects leaks at 50m (164ft) distance on outside gas pipelines along buildings, bridges or within gas and industrial sites. Its capacity to detect gas through glass also makes it an essential tool for conducting inspections within cities, safely and efficiently.

How it works

- The laser beam of the GAZOSCAN™ detector is transmitted towards the target. Once reached, the beam is then reflected back to the detector for analysis. The results will show on the display screen immediately.

Easy to use, quick to respond

- 0.1s response time
- Large LCD screen (2.8 inches)
- Configurable alarm threshold
- Visual and audio alarms
- Rechargeable battery (second battery is optional).

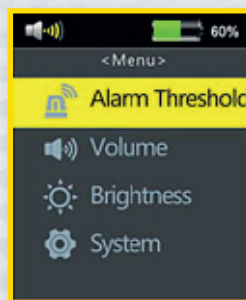
Extended applications

With a detection distance of 50m (164ft) and a capacity to detect through glass, the GAZOSCAN™ detector is suited to any situations where field technicians cannot operate close to the inspection zone:

- Natural gas inspection of residential buildings and properties
- Gas leak inspection of natural gas pipelines
- Methane leak inspection on gas containers.

GAZOSCAN™ kit includes

- ① Handheld remote methane leak detector
- ② Power adapter
- ③ Charging base
- ④ Screen cover
- ⑤ Carrying case
- ⑥ Battery



GAZOSCAN™ TECHNICAL SPECIFICATIONS

Measurement method: Tunable Diode Laser Absorption Spectroscopy (TDLAS)

Sensitivity: 5ppm*m

Detection range: 0 - 50,000ppm*m

Measurement accuracy: ±10%

False alarm: No false alarm to other hydrocarbons

Response time: 0.1s

Detection distance: 50m (164ft) and greater distances

Weight: 0.7kg (1.5lbs)

Size: 160mm x 210mm x 80mm (6.3" x 8.3" x 3.1")

Operating temperature: -20°C to +50°C (-4°F to +122°F)

Operating humidity: 30% to 90% RH, non-condensing

Enclosure level: IP54

Certification: II2G Ex ib IIA T3 Gb

Laser classes: IR Laser emitter: 1654nm, Class 1 eye safety

Green guide laser light: 520nm, Class 3R

Battery: Rechargeable Lithium battery, capacity: 19240mW

Battery operating life: >9 hours at 25°C (77°F)

Threshold alarm: Alarm: Can be set by customer, Buzz with LCD turning red

Self-test: Built-in self test while turning on the instrument, <10s

System False Alarm: Corresponding error message while there is any hardware issue



After-sales service

GAZOMAT provides all customers with comprehensive product assistance and maintenance through its global service teams.

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