

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.

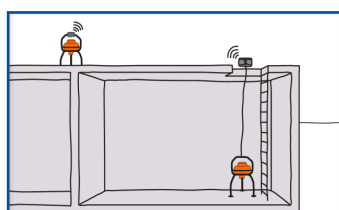
Detective Net 433 Specification:



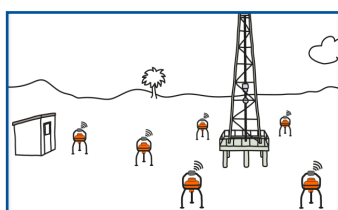
Detective Net

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° 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

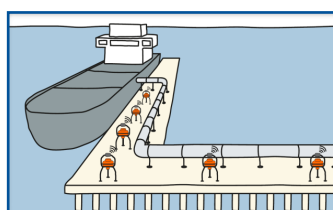
Set up scenarios:



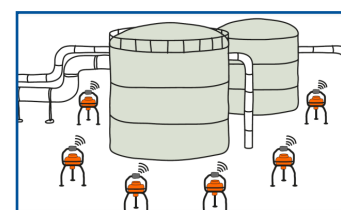
Repeater network



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 for specific operating humidities

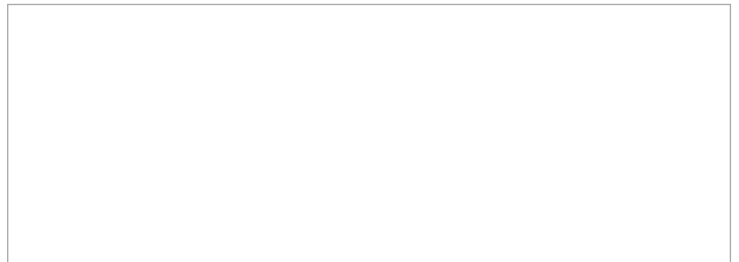
Infrared sensors

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%v/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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 **CROWCON**
Detecting Gas Saving Lives