# Transportable Multi-gas area monitor

# Detective+

A transportable area monitor you can trust

- Loud and bright alarms
- Inherently rugged and reliable
- Wide sensor options including infra-red
- Built-in pump option
- Folding or fixed legs

Used singly or linked together, 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.

**Superb pedigree**
- Detective+ is based on the highly successful Triple Plus+ multi-gas monitor which has sold over 55,000 units worldwide

**Versatile and user friendly**
- Infra-red sensors available
  - allows sampling of potentially high flammable gas levels and $CO_2$
  - infra-red sensors are unaffected by poisoning
- Built-in pump option provides fast response and extra sensor protection
- Display provides clear information, allows identification of gas hazard
- Easy tracking of multiple hazards
- up to 60 hour battery operation
- Wide range of toxic gas sensors available

**Extremely loud and clear alarms**
- Wailing omni-directional siren, 104 dBA @1 metre
- High intensity red LED clusters provide visual alarm indication
- All linked Detective+ units indicate an alarm sensed by any one unit
- Units actually sensing alarm have faster LED flash
- Audible and visible confidence blip
- Time weighted average alarms for 8 hours and 15 minutes averages

**Uniquely rugged, tripod construction**
- Detectors are fully protected, even if device is overturned
- Raised detectors prevent water ingress
- Easy and quick to set up
- Folding or fixed leg options provide easy storage and transportation



**CROWCON**
Gas Detection You Can Trust

## Specification

| Weight | 7.5 kg (19lb) |
|---|---|
| Dimensions | 640 h x 455 w x 455 d mm (25.2 x 17.9 x 17.9 inches) |

| Typical measuring ranges and alarm settings (up to four gas measurement channels) | | Standard Range | Typical Alarm Levels |
|---|---|---|---|
| | Flammable gas | 0 – 100% LEL | 20% LEL |
| | Oxygen | 0 – 25% | 19% & 23% |
| | Hydrogen sulphide | 0 – 50 ppm | 10 ppm |
| | Carbon monoxide | 0 – 500 ppm | 35 ppm |
| | Sulphur dioxide | 0 – 10 ppm | 2 ppm |
| | Chlorine | 0 – 5 ppm | 0.5 ppm |
| | Nitrogen dioxide | 0 – 10 ppm | 2 ppm |
| | Phosphine | 0 – 5 ppm | 0.5 ppm |
| | Ammonia | 0 – 50 ppm | 25 ppm |
| | Ammonia | 0 – 1000 ppm | N/A |
| | Hydrogen (non-flammable levels) | 0 – 2000 ppm | N/A |
| | Hydrogen cyanide | 0 – 25 ppm | 10 ppm |
| | Hydrogen chloride | 0 – 10 ppm | 5 ppm |
| | Chlorine Dioxide | 0-1ppm | 0.1ppm |
| | Hydrogen Fluoride | 0-10ppm | 1pm |
| | Ethylene Oxide | 0-10ppm | 5ppm |
| | Volatile Organic | 0-100ppm | N/A |

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

| Infrared Sensors | Infrared 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 display channels. $CO_2$ 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 |
|---|---|

| | | Standard Range | Typical Alarm |
|---|---|---|---|
| | Flammable Gas | 0-100% LEL | 20% LEL |
| | Flammable Gas | 0-100% v/v | None |
| | Flammable Gas | available for methane, propane, butane or ethylene | |
| | $CO_2$ | 0-5.0% v/v | 0.5/1.5% v/v |

| Typical response times | Methane 20 s, Oxygen 10 s, typical toxic gas 20 s, IR 30 s |
|---|---|
| Expected sensor life | Flammable 5 years, Toxic 3 years, Oxygen 2 year minimum, IR >5 years |
| Audible alarms | Wailing, omni-directional siren, 104 dBA @ 1 metre. |
| Visible alarms | Three large, top-mounted red LED clusters and single red LED on control panel. In alarm mode LED clusters flash in quick succession LED clusters of linked Detectives repeating the alarm, flash more slowly than LED lights on those Detectives sensing the hazard. Slow flashing green LED indicates normal working. Rapid flashing green LED indicates low battery. |
| Display | High contrast LCD with back light  2 lines of 24 characters. 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 |
| Datalogging | Adjustable sample rate, 100 hours @ 1 minute sample rate (maximum 6000 data points per channel) Logging of events, user and site data |

| Menu | Operating menu allows access to setting up of instrument operation Log Menu allows selection of Users and Sites from predefined lists, marking the log file with an event, and start or stop of data logging Configuration Menu allows selection of display and alarm modes, setting of alarms, zero and calibration, and selection of flammable gas correction factors from predefined list . |
|---|---|
| Battery | 6 V, 7.2 Ah Sealed lead acid battery pack Optional 6V, 12Ah high capacity pack |
| Battery life | Standard instrument: Up to 36 hours assuming flammable/$CO_2$ sensor fitted with 7.2Ah battery. Up to 60 hours with optional 12Ah battery pack |
| Battery charging | Built-in battery charging circuit, dual rate 100 – 120 VAC and 200 - 250 V AC Input options available. (Safe Area operation only) Typical charge time: 12 hours |
| Operating Temp. range | -20°C to +40°C (-4°F to 104°F). |

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.

| Humidity | 0 – 95% RH non condensing |
|---|---|
| Approvals | Europe : ATEX II 2G EEx ib d IIC T4 USA and Canada : Class 1 Division 1 Groups A, B, C, D (Pending) |
| Standards | EN50014, EN50018, EN50020, EN50104, EN45544, UL913 (Pending) |
| Ingress protection | IP65 |
| EMC | EN 50270, FCC CFR47 Part 15, IC ICES03 |
| PC Interface | Detective+ has an in-built PC interface, which can be connected to the serial port of a computer using the optional RS232 lead. Portables PC software can be used to set alarms, clock, datalogging interval and password. Portables PC also controls datalogging, giving graphical display of instrument log file and allows file export to spreadsheet. |
| Calibration | Detective+ can be routinely calibrated quickly using its internal menu command, Portables PC or the Crowcon CheckBox IMH management system |
| Accessories | Baffle plate (to protect sensors) Interconnecting lead - 10 m standard, longer lengths up to 100m available Computer lead - RS232 serial link Portables PC software Aspirator Manual bulb and 2 m hose, both non-absorbent and hydrocarbon resistant Internal electric sampling pump option includes external water trap and 2m hose, longer lengths available on request |
| Linked Detectives | Up to 12 units can be linked to provide perimeter or area monitoring |

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