

Detective +

Transportable Multi-Gas Area Monitor

The Detective+ transportable area monitor is based on the highly successful Triple Plus+ and Detective models, building on the reputation, reliability and versatility of its forebears. Detective+ is inherently rugged and robust, with a sturdy fixed or folding leg protective frame options. Loud and clear alarms can be transmitted between Detective+ units while an optional built in pump allows faster gas response and better sensor protection. Detective+ may now be equipped with infra-red sensor technology, which provides CO₂ detection, allows higher flammable gas level monitoring and immunity to the poisoning effects which standard flammable gas sensors can suffer from. There are now two options for battery capacity, either 36 hours or 60 hours with standard configuration, providing remote sites with extended usage in-between charges. Couple these features with the wide range of toxic gas sensors available and it makes Detective+ one of the most versatile area monitors available. 55,000 Detective and TriplePlus+ users can't be wrong.



- Up to 4 gases monitored in a rugged and sturdy protective frame
- Ultra-loud 104 dBA sounder and red LED cluster alarms
- Wide range of sensor options including infra-red
- Long 36 or 60 hour battery life
- Raised detectors, coupled with IP65 specification provides excellent sensor protection
- Built-in pump option to provide faster gas response
- 12 Detective+ units may be linked together, up to 100m from adjacent units

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 CO₂
 - 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



vibration



noise



INVESTOR IN PEOPLE



Castle
advanced sound solutions



Castle Group Limited

Salter Road, Scarborough, North Yorkshire, YO11 3UZ, UK, Telephone +44(0)1723 584250, Fax: +44(0)1723 583728
email: sales@castlegroup.co.uk, internet: www.castlegroup.co.uk

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

Alarm	Standard		Typical
	Range	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	
Ozone	0 - 1 ppm	0.3 ppm	
Chlorine Dioxide	0-1ppm	0.1ppm	
Hydrogen Fluoride	0-10ppm	1ppm	
Ethylene Oxide	0-10ppm	5ppm	
Volatile Organic	0-100ppm	N/A	

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.
CO2 sensors are supplied as 0-2% volume. Only one IR sensor can be fitted, and IR sensors can only be used in combination with oxygen and toxic sensors

Alarm	Standard Range	
	0-100% LEL	20% LEL
Flammable Gas	0-100% v/v	None
Flammable Gas	available for methane, propane, butane or ethylene	
CO2	0-2.0% 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.
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

Display

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/CO2 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 Temperature range

-20°C to +40°C (-4°F to 104°F).

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, EN50020, 94/9/EC
UL913 and CSA 22.2

Ingress protection

IP65

EMC

EN 50270

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 nonabsorbent 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

Castle Group Limited

Salter Road, Scarborough, North Yorkshire, YO11 3UZ, UK, Telephone +44(0)1723 584250, Fax: +44(0)1723 583728
email: sales@castlegroup.co.uk, internet: www.castlegroup.co.uk