CROWCON

GASMAN II

PERSONAL SINGLE GAS MONITOR

INSTRUCTION MANUAL

Gasman II Flammable

Rechargeable Batteries

Upon receipt we recommend that Flammable instruments are fully charged for 16 hours prior to use, and kept topped up thereafter as described in section 6.1.

Non-Rechargeable Batteries

Flammable units with non-rechargeable batteries can be used with the charger/ interface for PC connection and communications but should never be left in the charger/interface for any longer than needed for this purpose.

ϵ **This product has been tested and found to comply with the European Directive 89/336/EEC**

WARNING: Substitution of components may impair Intrinsic Safety.

Contents   **Page**

1.Quick Operating Guide

Switch on:	Press large button; alarm test and LCD test occurs, followed by battery level display .
Normal condition:	Gas level displayed on LCD*. Intermittent 'confidence 'signal (if selected).
Alarm condition:	Fast flashing red LEDs and sounder.
Alarm reset:	Press large button when hazard has passed.
Activate backlight:	Press and hold large button.
Switch Instrument Off:	Press both buttons together & release.
Zero instrument:	When unit is off, press small button & hold. The ▼ symbol will appear. Keeping the small button pushed in, press the large button.

For oxygen models, the ◢ symbol appears, and pressing the large button sets the reading to 20.9%.

*reading may take a few seconds to settle after switch-on.

2. Unpacking

Check the shipment against the packing list and carton labels.Instruments and accessories may be packed separately. Smaller items may be located under cardboard partitions, so check carefully for contents. If you are missing any items please contact Crowcon immediately. Be prepared to quote the instrument's serial number which can be found at the bottom of the label on the rear of the instrument.

Ensure batteries are fresh/charged prior to use.
See 'Switch on Sequence' (Section 5.1) for details of
the battery level indicator.

3.Introduction

The Crowcon Gasman II is a personal gas detector
which can continuously monitor the level of oxygen
or the presence of a single toxic or flammable gas. It
is designed to be worn by individuals working in
hazardous environments such as confined spaces
and will give a loud audible and bright visual alarm
warning when pre-set concentrations of gas are
exceeded.

It is a simple instrument to use, designed to provide
reliable service for many years. The shape of the
instrument has been designed to fit comfortably
against the body and pose the least restriction to
movement. It can fit in a pocket or on a belt.

Datalogging is standard on all models providing
approximately 1 week capacity at a 1 minute
sampling rate. This capacity can be extended by
reducing the sampling rate (see Section 12).
Toxic and oxygen versions are fitted with alkaline
batteries which offer a life of 1 year*. Flammable
versions are normally fitted with re-chargeable nickel
metal hydride batteries which have a life of 10-12
hours* and up to 1000 charge/discharge cycles.

Flammable versions can also be supplied with non-
rechargeable batteries which provide up to 23 hours
of operation.

*depending on alarm incidence.

4. Specification

Weight	210g (7.4oz)
Dimensions	130h X 60w X 30d mm
	(5.1h X 2.4w X 1.2d inches)

Typical measuring ranges	0-100% LEL flammable gas,
	0-25% volume O_2 ,
	0-50ppm H_2S, NH_3 ,
	0-500ppm CO,
	0-5 ppm Cl_2, PH_3,
	0-10ppm SO_2, NO_2 ,
	0-25ppm HCN,
	0-999PPM H_2.

Typical alarm levels	20 & 40% LEL methane,
	19% and 23% oxygen,
	5 & 10ppm
	hydrogen sulphide,
	30 &100ppm
	carbon monoxide.

Typical TW A alarm levels for toxic gas version	15ppm STEL,10ppm L TEL (H_2S),
	300ppm STEL,50ppm L TEL (CO).
Typical response times (T_{90})	methane 20 seconds, oxygen 10 seconds, toxic gas 20 seconds
Visual alarm indicators	Ultra bright flashing red LED pair in alarm.

Audible alarms	Programmable from five different tones, 85dBA at 1 metre. (92dBA at 1 ft). Intermittent blip for discharged battery. Selectable 'confidence 'blip. Fault warning.

Display	Custom 7 segment high contrast LCD giving gas reading. Symbols for low battery, peak hold,zero mode, cal mode and alarm annunciation. LED backlight.
Operating temperature range	-20° to 50°C (-4° to 122°F)
Humidity	0-95% RH, non-condensing.
Expected sensor life	Pellistor 5 years, toxic gas 3 years,oxygen 1 year.
Batteries	1.1Ah nickel metal hydride rechargeable:10-12 hours between recharge. AA size alkaline replaceable:Typical life for toxic and oxygen units 1 year.
Aspirator	Manual bulb type with 2m of hose, non-absorbent, hydrocarbon resistant.

Approval code (Europe)	Rechargeable Flammable $C\epsilon$ 1180 $\langle \epsilon_x \rangle$ II 2G EEx ia IIC T3 (T_{amb}=40°C) Non rechargeable Flammable: $C\epsilon$ 1180 $\langle \epsilon_x \rangle$ II 2G EEx ia IIC T4 (T_{amb}=50°C) Toxic/oxygen: $C\epsilon$ 1180 $\langle \epsilon_x \rangle$ II 2G EEx ia IIC T4 (T_{amb}=50°C) All Units DEMKO 02 ATEX 132169X
(USA &Canada)	Class 1, Division 1, Groups A B,C &D.
Standards (Europe)	EN50014, EN50020, EN50018
(USA & Canada)	UL913
RF Immunity	Tested to IEC801-3 and meets EN50082-2
RF Radiation	Tested to EN55022 Class B and meets EN50081-2
Battery charging	Standard charge rate 16 hours, trickle charge will not damage batteries. Charger Input 1 1-29V DC. Mains adaptors have 1 10 or 230V AC inputs. Batteries must be charged in an ambient temperature between 0°C and 40°C.

4.1 Instrument Settings

Unless otherwise specified, instruments will be shipped from the factory with default settings. These cover alarm tones, logging period, and detailed operation of each alarm point. Full details are printed on the Configuration Report supplied with each instrument. Those settings which are changeable from the instrument's keypad are described in section 8.
All configuration settings may be viewed and changed using a PC running the **SetPortable** interface program (Section 12).

4.2 Battery Lifetime

- Rechargeable flammable instruments ' batteries last 12 hours on a full charge.

- Non-rechargeable flammable instruments using alkaline batteries last 23 hours.

- Toxic and Oxygen instruments last 1 year using alkaline batteries, under normal usage conditions.

4.3
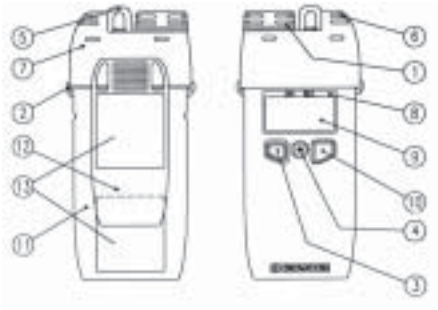
General Assembl

Key:

1   Gas Sensor
2   Fixing screw/charging contact
3   Small button
4   Calibration adjuster cover
5   Alarm LED lens
6   Alarm sounder
7   Top moulding
8   Gas legend
9   Display window
10   Large button
11   Base moulding
12   Universal clip
13   Certification label

5. Operation

5.1 Switch-on Sequence

Make sure you are in clean air, then switch on the instrument by pressing the large button. The instrument tests all LCD segments, red alarm LEDs and sounder for 5 seconds, then displays the battery condition for 5 seconds before entering monitoring mode. The battery condition is indicated by the battery symbol and a number representing the percentage battery capacity remaining.

NOTE: A reading below 20 indicates that replacement or recharging is due. For the first 3-4 charge cycles, rechargeable batteries cannot hold a full charge. Initial operation time is therefore around $7^1/_2$ hours.

The instrument is now ready to be used:
- The gas level will be shown numerically on the display.
- The instrument may be configured to display nothing (alarm only application).
- The display backlight is activated by pressing and holding the large button.
- If the display shows an E code (e.g. E2) instead of the gas level, this indicates a fault condition as defined in Section 11.1.
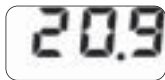

Figure 5.1 Typical monitoring display.

NOTE: It is possible that the instrument may display an alarm condition upon entering the monitoring mode (indicated by a flashing alarm symbol). This is

due to the sensor taking time to settle after switch on. It is NOT a fault. Press the large button to cancel the alarm after a few seconds.

If configured to do so, the instrument will give an intermittent audible blip and/or visual red flash to indicate correct functioning of the instrument. Selection of these 'confidence 'signals will af ect battery life according to the table in Section 4.2.

Pressing both buttons together will switch the instrument off. The instrument may be configured in such a way that it is not possible to turn it off via the push buttons. In this case, only a supervisor with a computer link can switch the instrument off.

5.2 Display Symbol Guide

Figure 5.2 Display symbols

The gas level is continuously shown on the display. The surrounding symbols will only be displayed when the appropriate function or warning is active.

Peak hold

Indicates that the reading displayed is the highest level recorded since the instrument was switched on or reset.For oxygen, Peak Hold records the lowest value encountered. Peak Hold value can be displayed by a single press of the small button when the unit is switched on. For toxic units a second press of this button will display the 8 hour TWA, with a third press restoring instantaneous value display.

For flammable and oxygen units the button simply toggles Peak hold on and off. The symbol will come on if Peak Hold is operational. The large button is used to reset the peak value when the symbol is displayed.

Battery low

When this symbol flashes and the sounder emits an intermittent blip, it is an indication that there is less than 10% of battery life remaining. A toxic/oxygen instrument may run for weeks in this condition allowing time to schedule a battery replacement service. A flammable instrument will run for $1/2$ hour at most and should therefore be recharged immediately.

Zero

Indicates unit is in adjust zero mode. See Section 8.3.

Calibrate

Indicates unit is in adjust calibration mode. See Section 8.4.

Alarm 1

When the first alarm level is reached, this symbol will flash and the visual and audible alarms will be activated. See Section 7, Alarm types.

Alarm 2

When the second alarm level is reached, this symbol will flash and the visual and audible alarms will be activated. See Section 7, Alarm types.

15 Minute TW A Alarm (STEL)

Toxic versions have TW A alarms in addition to the two levels of instantaneous alarm. If the 15 minute exposure level is reached, this symbol will flash and

the visual and audible alarms will be activated. The minimum averaging time before a STEL alarm can be triggered is 1 minute.

🕑 8 hour TW A Alarm (LTEL)

8 hour exposure level is reached, this symbol will flash and the visual and audible alarms will be activated. The minimum averaging time before a LTEL alarm can be triggered is 15 minutes. Personnel should not continue to work after a TWA alarm occurs as this indicates the maximum safe cumulative exposure has been reached. Workers should remove themselves to safety or use breathing apparatus. The calculated 8 hour TWA can be displayed on toxic units by pressing the small button twice when the unit is switched on. The TWA symbol will be displayed on the screen together with the value. Pressing the button again will return the display to instantaneous values. (The first button press brings up the peak reading - see above under Peak hold.)

6. Batteries

WARNING - Battery charging or replacement should only take place in a SAFE AREA, i.e. no explosive risk.
WARNING - to ensure Intrinsic Safety, the charger must only be used with DC supplies as specified in Section 6.3.

6.1 Recharging

Flammable gas versions are normally supplied with re-chargeable batteries.

To recharge, connect power to the charger and place the instrument in the cradle.The charger's red LED will light while the instrument is being charged. Full recharge from flat takes 15 hours, with the instrument switched off. When fully charged, the green LED will illuminate on the charger.

Once the charge cycle is complete, the red LED will occassionally light for a minute or so to ensure the batteries are kept topped up.

If the instrument is not in use, it should be charged once per fortnight,or it can be stored permanently in its charger without damage. If it is left uncharged for 3 weeks or more, the batteries may self-discharge to a point where the battery charger cannot supply enough charge current to restore the batteries to a fully charged state. If this occurs,the charger will automatically attempt to boost-charge the instrument. (This can cause the alarm LED'S to flicker on and off.)

The charger also acts as a comms interface for all instrument types. Non-rechargeable units will not be recharged in this instance.

The charger makes contact with the instrument via the two side fixing screws. As these are electronically protected, no harm will come from these contacts being short circuited during use.

6.2 Changing the batteries

Toxic gas and oxygen versions are supplied with alkaline batteries which should power the instrument for a year .
Non rechargeable flammable versions also use alkaline batteries.

Battery replacement is as follows:

- Disassemble in a clean, dry environment and observe anti-static handling precautions.
- Remove side fixing screws
- Remove calibration adjuster cover .
- Slide lower case section from top section.
- Remove batteries from clips.
- Replace batteries using only approved types* ensuring correct polarity orientation.
- Refit to lower case section.
- Check the sounder O ring is properly in position.
- Replace the lid ensuring the LEDs are correctly aligned before finally pushing into place. If the sensor has been retained in the lid on disassembly there is no need to remove and plug in, it will seat in it's socket correctly on re-assembly.
- Ensure the lid is correctly aligned before replacing side fixing screws.
- Fasten lid with screws and replace calibration adjuster cover.

*Duracell MN1500 LR6
 Ever Ready Energizer LR6BA

6.3 Charger Supplies

These must not exceed 29 volts DC (1 1 to 16V is ideal). They can be either:-
(a) a mains DC power supply such as those in Section 14.2,"Spare Parts "meeting EN60742 insulation class II (Europe) or UL1310 insulation class II (United States)or
(b) a battery or other isolated DC source.

7. Alarm Types

There are two instantaneous alarms; level 1 and 2. For toxic gas instruments, there are also two time weighted average (TW A) alarms which operate at short term (15 minute) and long term (8 hour) exposure limits. All alarm thresholds can be adjusted from the instrument keypad (see Section 8) by means of a screwdriver. Alarm thresholds may also be set via the computer interface (see Section 12) and the following parameters may be set for instantaneous alarms:

- Normally triggered on a rising level, alarms may be set to trigger on a falling level as with oxygen deficiency alarms.
- Alarms may be latching, requiring manual reset, or self clearing when the hazard has passed.
- Normal alarms cannot be cleared whilst the gas hazard persists. It is possible to set level 1 so it may be silenced (the red LEDs will continue to flash). This allows the user to set a 'pre-alarm 'warning at a low gas level and a non-silenceable alarm at a higher level.
- Unused alarms may be deactivated.
- The level 1 alarm may be set to be visual only (not oxygen units).

If any alarm event is triggered, the red LEDs will flash and the sounder will emit a loud tone. Each alarm type has a different tone sequence which can be selected from a menu if using **SetPortable** software (Section 12). Alarm 2's tone takes precedence over alarm 1's tone.The alarm type will be indicated by a flashing symbol on the LCD (see Section 5.2). If either of the TWA (time weighted average) symbols appear on the display, this

indicates that the cumulative exposure to toxic gas has been reached for an 8-hour shift or a 15 minute 'window'. UK Health & Safety regulations require that workers should leave the hazardous area once they have exceeded this dose. ATWA alarm cannot be manually reset. The 15 minute TWA alarm will self clear when the average exposure over the previous 15 minutes falls below the set threshold.

The 8 hour TWA alarm will self clear when the average exposure over the previous 8 hours falls below the set threshold. Average exposure values are cleared when the instrument is switched off.

A worker should not resume work where the risk of gas exposure persists until the Safety Officer declares it safe.

The large button may be used to silence or clear certain instantaneous alarms as the configuration permits.

8. Keypad Adjustments

When the instrument is off, calibration and alarm settings can be viewed and adjusted if required.

8.1 Viewing settings

- Press both buttons to turn instrument off.

- Press and hold small button to view the zero level.The symbol ▼ appears. The numbers will flash until the reading has stabilised. The reading cannot be adjusted until the digits stop flashing. Note: The zeroing facility is not available on oxygen units.

- Release small button then press and hold again to view the calibration level. The ◢ symbol appears. Unless calibration gas is being applied to the sensor, the display should read zero, or 20.9 for oxygen.

- Release small button then press and hold again to view Alarm 1. The ▶ symbol appears and the Alarm 1 level is displayed.

- Release small button then press and hold again to view Alarm 2. The ▶ symbol appears and the Alarm 2 level is displayed.

- Release small button, then press and hold again to view the 15 minute STEL. The ◯ symbol appears and the 15 minute STEL alarm level is displayed.

- Release small button then press and hold again to view the 8 hour TWA. The ◉ symbol appears and the 8 hour TW A alarm level is displayed.

- Release small button, then press and hold again to bring the display back to zero mode. If the small button is released and not pressed again for 1 minute or more the sequence automatically starts back to zero.

8.2 Adjusting Settings

- Rotate the calibration adjuster cover to line up the mark with the mark on the case.

- Unplug the cover. It is held captive and should not be fully removed.

- Insert the small screwdriver supplied into the

adjustment potentiometer .

- Select the setting to be adjusted with the small button as described in Section 8.1. The current value is displayed and can be adjusted by rotating the screwdriver.

- Only one potentiometer covers all functions - adjustments are stored by the instrument.

- Potentiometer is only active while small button is held down.

- If the potentiometer is turned to one of its end stops, the reading continues to advance in the relevant direction until backed off. It is advisable to set the pot back to its central position after releasing the small button in readiness for the next adjustment.

8.3 Zeroing

The reading cannot be adjusted until the digits stop flashing. This is to allow the sensor to stabilise after energising. A 'short-cut' zero is provided by pressing the large button whilst the small button is held down in zero mode. Only perform this operation in fresh air. Note: The zeroing facility is not provided on oxygen units as the reading should be calibrated to 20.9% in fresh air.

8.4 Calibration

As with zeroing, the reading will flash until the sensor has stabilised. Additionally, time must be allowed for the reading to level off once calibration gas has been applied. The final reading can then be adjusted. A

'short-cut' calibration to 20.9% on oxygen units is provided by pressing the large button whilst the small button is held down in calibrate mode.

Gas connection for calibration requires the use of the Calibration Adaptor (Section 9.1).

The sample tube should be connected to a gas bag filled with calibration gas. Use the hand bulb to draw the gas over the sensor. If using a cylinder of calibration gas, connect it via a pressure regulator and flowmeter to the adaptor inlet. Disconnect the hand bulb and allow waste gas to vent to atmosphere or a collection bag. A flow rate of 0.5 ~1 l/min is required for an accurate calibration. Gas readings can be adjusted via the keypad (Section 8.4) or with the **SetPortable** computer interface (Section 12).

9. Accessories

9.1 Calibration Adaptor

The calibration adaptor is a push-fit device for connecting calibration gas or a remote gas sample to the sensor. It is supplied with a 2m length of sample tubing and a rubber hand bulb. The sample tube can be lowered into a manhole, for example, to enable pre-entry checks to be made.

The hand bulb should be squeezed in a consistent manner (every 2-3 seconds) for at least a minute to draw a reliable sample up to the sensor .

9.2 Universal Clip

The combined belt and pocket clip can be used with

a trouser belt or clipped onto a pocket. The
instrument may be worn inside the pocket, providing
the sensor protrudes. A shoulder strap is available
for fixing to the top of this clip.

9.3 Rubber Boot

This is a protective cover for use in the most arduous
environments. It can remain in place for battery
charging.

10. Routine checking & Maintenance

Gasman II is designed to operate with little
maintenance under most conditions. The following
routine maintenance is recommended.

**WARNING -Substitution of components may
impair intrinsic safety.**

10.1 General

If used in dirty conditions, a regular wipe with a
damp cloth will help in viewing the display and
maintaining operation of the pushbuttons. This is
also recommended for the side fixing screws to
maintain good contact for battery charging or data
communication.

10.2 Sensor Filter

Dirt should be removed from the sensor apertures as
this may impede diffusion. For access to the sensor
filter, remove the fixing screws and top moulding
(Section 10.4).

10.3 Zero and Calibration

Because all gas sensors change their performance characteristics over time, the following checks are recommended:

- Zero Every 1 month
- Gas response *Every 1 month
- Calibration Every 6 months

Instructions on how to make zero and calibration adjustments from the instrument keypad are in Section 8. Refer to the manual supplied with **SetPortable** software for use of a PC to make adjustments (see Section 12).

*Due to the safety nature of gas detection instruments, it is recommended that sensors are regularly gas checked. Instrument sensors may be adversely affected by certain environments (Section 13). A monthly test with a known gas mixture will ensure that the instrument responds with appropriate indications and alarms.

10.4 Sensor Replacement

Required when instrument fails to calibrate due to low sensor output.

Key:
1 T op moulding
2 Fixing screw
3 Gas sensor
4 Sealing ring
5 Sounder 'O' ring
6 Main 'O' rings
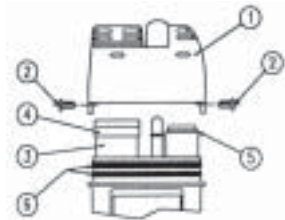
Figure 10.1

On toxic and oxygen instruments, it is practical to replace the alkaline batteries at the same time (Section 6.2).

- Disassemble in a clean, dry environment and observe anti-static handling precautions.
- Switch off instrument
- Remove side fixing screws
- Remove top moulding
- Unplug sensor
- Replace sensor with same type only item 2
- Ensure sounder 'O' ring and LEDs are correctly positioned prior to replacing the lid
- Re-use sensor sealing ring
- Ensure main body 'O' rings and sounder 'O' ring are in place before refitting top moulding.
- Secure with screws ensuring alignment between lid and lower case to prevent cross threading
- Zero and calibrate instrument

11. Troubleshooting Guide

Instrument may be customer configured such that:

- display is blanked
- no 'confidence 'signals given
- cannot switch off
- adjustment potentiometer not active

These features may be individually re-enabled if required (Section 12).

If the instrument is reading low levels of gas in fresh air, it needs to be zeroed (Section 8.3).

Replace or recharge batteries if unit will not switch

on. If rechargeable instruments do not seem to be charging, force some charge into them by using the hidden button at the back of the charger, then reset the instrument by removing and re-inserting a battery. (If rechargeable batteries are left uncharged for many weeks, they gradually self-discharge until the normal charging methods do not work).

11.1 Error codes

The instrument may display the following warning codes:

E0: Calibration due: (accept by pressing large button). Do not ignore because in 4 weeks it will become...

E01: Calibration Expired: The period between regular calibrations has elapsed. Re-zero and calibrate (Section 8).

E02: Zero Failed: Results from attempting to Zero a channel exposed to gas (including an oxygen channel in air). The function request is aborted without effect.Re-zero (Section 8).

E03: Calibration Failed: The gain is being set out of range indicating sensor failure or incorrect calibration gas. Re-zero and calibrate (Section 8). Change sensor if necessary (Section 10.4)

E04: Sensor Overrange: Warning will clear when restored to fresh air. Gas response should be re-checked.

E05: High/low Temperature: Gas readings may not be reliable at these extremes. Warning will clear when temperature is in range.

E06: Electronic Hardware Failure: The instrument should be sent for repair .

E07: Configuration Invalid: Down load original configuration (see Section 12) or return for service.

If a FATAL error is rectified, a lower priority error code may then be displayed. E0, E01, E02, E03 are normally non fatal but may be configured as fatal using **SetPortable**.

An instrument with a FATAL error may not be used but may only be switched off or rectified. The instrument will raise an audible alarm in the event of a fault.

12. Datalogging and Datacommunications

Gasman II has an integral datalogging feature which takes regular readings and stores them in memory. When the memory is full, oldest data is overwritten so the instrument will always contain the most recently accumulated data.
As standard, a reading is taken every minute which will give a minimum logging capacity of 30 hours. If gas readings are zero or unchanging, this capacity is extended by compression software to as much as 3000 hours. The basic capacity can be altered by changing the sample rate.
Note: If batteries fully discharge, logged data may be lost.
To change sample rate, upload the log, clear the log or alter any other instrument settings, it is necessary to use a PC running **SetPortable** software. To view the log, use **Logmanager**. Historical time is calculated relative to current PC time, so ensure the date and time are set correctly on your computer before uploading logged data.

SetPortable and **Logmanager** software is supplied with its own manual, Crowcon stock number M07-1 19.

12.1 Hardware Interface

Connection to the PC is via the charger unit which has a computer 'D' socket at the rear.

- Use the Crowcon supplied cable to connect between the charger and the PC serial port. Check the labelling of this lead as it only works one way round.
- Ensure power is connected to the charger unit.
- The instrument should be switched on if it is to be zeroed or calibrated.

13. Sensor Limitations

Gasman II uses a catalytic flammable gas sensor which operates in the presence of oxygen. Prior to entering a confined space, it is advisable to check oxygen concentration in addition to combustible gas concentration. Oxygen levels below 10% will reduce a flammable gas reading.

The performance of catalytic sensors may be permanently degraded if exposed to silicones, sulphur containing gases (such as H_2S), lead or chlorine compounds (including chlorinated hydrocarbons).

The unit is not suitable for use in ambient temperatures above 50°C (122°F)and electro-chemical toxic gas sensors may be degraded at these levels. Water should not be allowed to collect on the sensor as this may impede gas diffusion. Use with care in wet or humid environments, and check response after use.

Persistent exposure to high levels of toxic gas will

shorten the life of the sensor. If the gas is corrosive (e.g. hydrogen sulphide) damage may occur to metal components.

Sensors may be cross sensitive to other gases. If unsure, contact Crowcon or your local agent.

Use of high power radio transmitters in close proximity to the instrument may exceed rated RFI immunity levels and cause erroneous indications. If such problems are experienced, remove antennae to a reasonable separation from the instrument (e.g. 30cm).

14. Accessories & Spare Parts

14.1 Accessories List

C01613	Gasman II Charger 12V DC input
C01628	Gasman II Charger with 230V UK power supply
C01629	Gasman II Charger with 230V European power supply
C01630	Gasman II Charger with 110V US power supply
C01631	Gasman II Charger with 230V power supply - no plug
C01632	Gasman II Charger with 110V power supply - no plug
C01647	Multi-charger ribbon cable
C01327	Comms lead
C01315	SetPortable software 3 1/2" diskette
C01296	Vehicle charging lead
C01394	Shoulder strap
C01451	Waist belt
C01614	Aspirator complete with flow adaptor, tubing, bulb & pouch

C01097   Aspirator probe
C01511   Alarm earphone with 1.5m of tubing
C01552   Autocalibrator II (requires PC &charger)

14.2. Spare Parts List

C01009   2.5mm Allen key
C01347   2mm Allen key
DE0102   Rechargeable battery (3 required) -
             Flammable instrument
E01451   AA size alkaline battery, 3 required -
             toxic &oxygen instruments
DE0111   Oxygen sensor
DE0112   Carbon monoxide sensor
DE0113   Hydrogen sulphide sensor
E01631   Flammable gas sensor
M04427   Moulding set
M04428   Universal pocket/belt clip
M01558   Pocket clip spring
M03603   Fixing screw - (2 per instrument)
M04429   Sensor sealing ring
M04451   Calibration cover (requires 'O' ring)
M04337   Calibration cover 'O' ring
M04430   Main 'O' ring (2 per inst.)
M04461   Sounder 'O' ring
M04437   Rubber protective boot
S01708   Oxygen pcb assembly
S01707   Toxic pcb assembly
S01709   Flammable pcb assembly
S01710   Display pcb assembly

14.3 Vibrating alarm accessory

This is a separate, intrinsically safe unit powered by two AA cells, about half the size of a Gasman II. It is designed to be kept in a pocket or clipped on or under clothing in noisy environments. It is triggered by a radio signal from Gasman II fitted with

transmitters,avoiding the need for interconnecting wires. Transmitter power is a few mW, which gives a range of a couple of metres. The transmitter is powered when the Gasman II' s alarm LED's flash, i.e. during gas alarms and at startup as a confidence check. If your Gasman II is fitted with a transmitter, it will be fitted with a label including the words "Complies with FCC part 15" , and "FCC ID:OXOGASMANII". It will also have a model/serial number in the range 25009/00001 to 25011/99999.

Preparation for use
Use of the device must be in accordance with the recognised standards of the appropriate authority in the company concerned. Prior to use please ensure local regulations and site procedures are followed. Use of the Gasman II gas detector is unaffected by the presence of the transmitter facility.

Operation
Checking the transmitter function. In addition to the normal checks in this manual, the following check must be made at start-up to ensure the vibrator unit is detecting the Gasman II's transmitter: The vibrator unit vibrates at switch on as a self test.Turn the vibrator on before the Gasman II and wait for it to stop vibrating before switching on the Gasman II. When the Gasman II is switched on, the vibration should be detected once again to show the correct operation of the Gasman II transmitter and vibrating accessory as a system.

Failure to carry out this test may result in an alarm not being detected by the vibrating accessory and hence the vibration version of alarm being unavailable to the user, in the event of gas being detected.

FCC notice
This device complies with part 15 of the US Federal Communications Commission (FCC) Rules. Operation is subject to two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning
Modifications to the Gasman II transmitter version, not expressly approved by Crowcon could void the user's authority to operate the equipment.

SERVICE RECORD

Ser. No:		Location:		
Date Due	Cal. Date	Zero	Span	Comments

Crowcon may also be relied upon for :

- Portable multi-gas monitors for simultaneous detection of up to four gases.

- Fixed equipment for continuous plant monitoring.

- Calibration and repair at our instrument workshops.

- On site service and maintenance.

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