

GasVac[®] 311

SINGLE LINE NETWORK GAS SAMPLE UNIT OPERATING HANDBOOK



This document is not contractual and the equipment specification may be modified at any time without prior notice.

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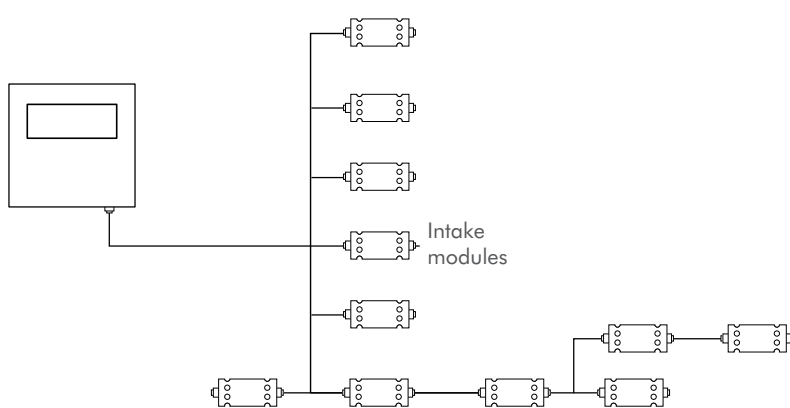
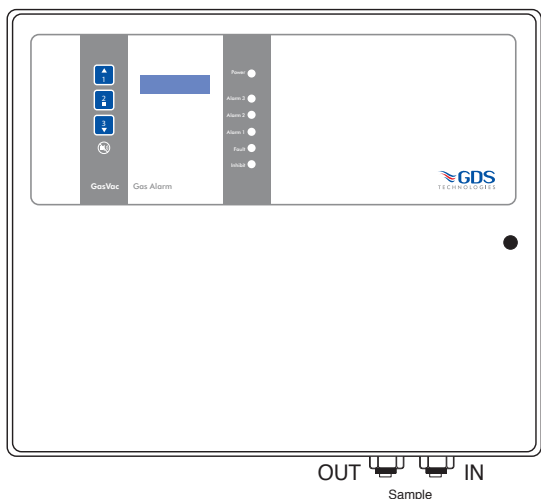
System Overview

The GasVac 311 system is designed to monitor gas levels in situations where the positioning of conventional gas sensors may not be practical. This may be due to equipment security, cable routing, access for detector head installation/maintenance, or harsh environment, or a cost effective means of monitoring plant rooms, supermarkets, cool stores and designated hazardous areas, such as tunnels, marine applications, or underground/high level voids.

A gas sample is continuously extracted via a unique micropore sample technique having a minimum of two and maximum of 30 intake modules along its sample line network. The sampling unit provides a gas level reading with three alarm trip points, and a range of signal outputs for annunciator or control functions.

The system is supplied factory programmed and pre-calibrated to enable immediate operation by connection of a power supply and attachment of the sample line and its intake module network.

Fig 1



Typical Arrangement



- 1 Sensor sample out → 1 litre / min
- 2 Draw pump out → 3 litre / min

Installation

The unit should be mounted in a position which is accessible and in the field of vision. Mains should be from a fused supply (2A) and connected to the mains input terminals of the power supply unit.

The vent port should be piped to atmosphere without reduction. This will prevent possible back pressure affecting the sensor reading.

A minimum of two intake modules should be located within the target area, their position will be dependant upon the type of gas to be monitored and its density with respect to air.

Heavy gases (LPG, Propane, Butane, Refrigerant Gases) – locate at 15 to 20 cm from the floor.

Lighter gases (Methane, Natural Gas, Town Gas) – locate at 5 to 10 cm from the ceiling.

Carbon Monoxide – locate at 1.5 to 2 metres from floor level.

The control panel should be mounted away from direct heat.

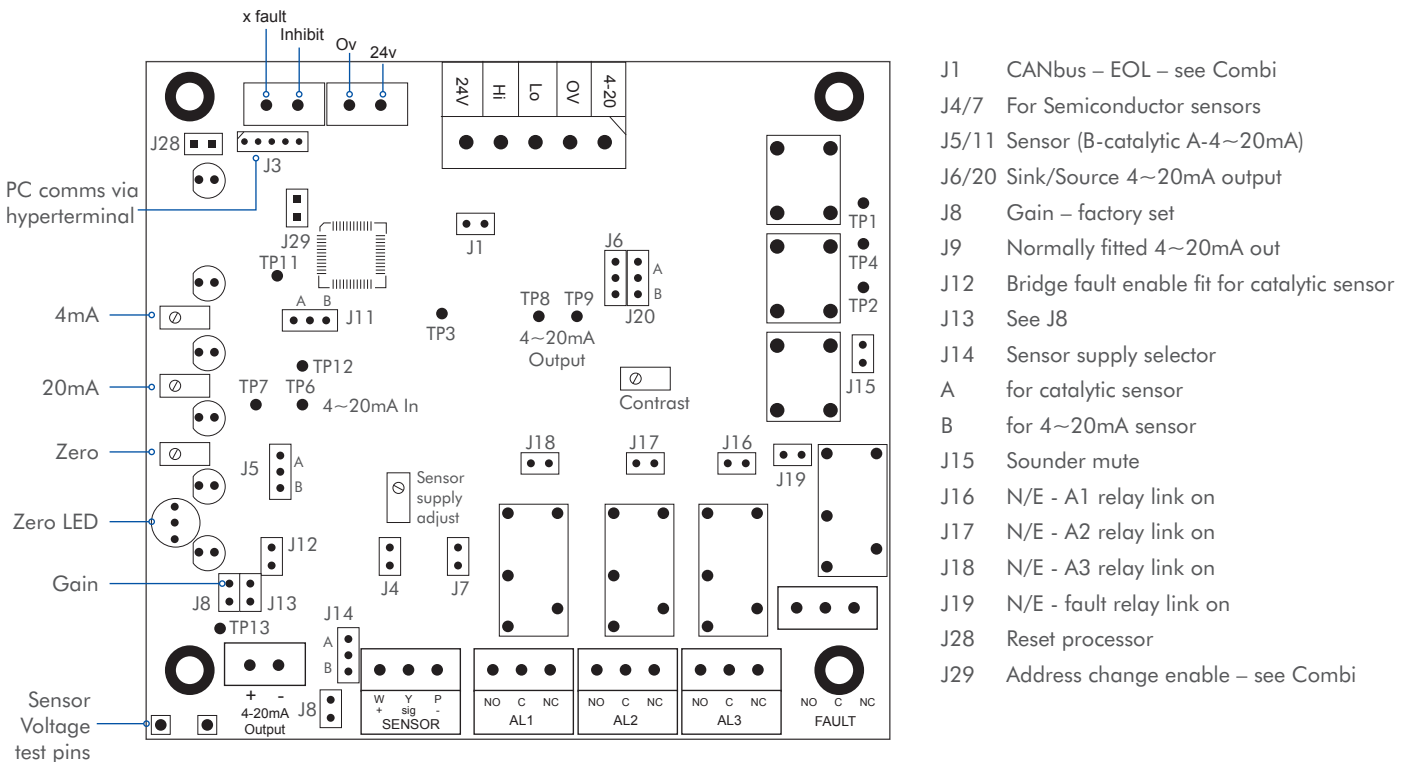


Fig 2

Operation

On power up the green power indicator will flash for 60 seconds indicating that the system is stabilising. During this period all alarms are held in the off position.

After the stabilisation period any gas detected by the sensor will be indicated on the display, with any alarm level being exceeded resulting in the sounder and appropriate red alarm LED and relay activating.

Pressing the reset pad will result in the sounder being silenced. Alarm indicators and relays may only be reset when the indicated gas level has reduced to below that of the alarm trip points.

A reduced power mode feature is activated one hour after any operator activity. This state is indicated by a screen power reduction of approximately 50%. Pressing any button will return the screen to full display.

Access to the Menu

Press 2 to access the menu followed by 231. Menu entry will be at level 5 (Exit). Pressing 1 or 3 will enable travel through the sub menus 1-9 and adjustment of settings. Pressing 2 enables access into each sub menu and on completion pressing 2 will confirm your selection and move to the next setting.

1. Zero/Span – in clean air Zero display – apply test gas at the peak reading and adjust the span.
2. Alarm Levels – 3 alarm levels. Pressing 1+3 together will cycle through rising and falling alarms and latched (L) or unlatched (U) (auto reset) relays in the following order:
(↑) L, (↑) U, (↓) U, (↓) L. Default setting latched.
3. Alarm Delay – time to alarm in seconds (default setting 2 seconds) maximum 255 seconds.
4. Inhibit Alarm – isolate alarm functions – maintenance and test periods.
5. Exit Press 2 – entry and exit point of menu.
6. L.C.D Brightness – adjustment of display brightness.
7. L.E.D/Relay Test – turns indicators and relays ON.
8. Auto Zero – use only when very low alarm levels are required (<10% of scale).
9. Sensor Address – used when connecting to a GDS Combi system.
- A. 4~20mA output adjust (Tox/O₂ only). Pressing 1 or 3 will allow for output to be adjusted to 4mA and 20mA as measured on test pins 8+9.

Changes to gas type and range can be made by connecting GDS RS232 pod Part No. 160-510 to J3 and using a PC running hyper terminal at 4800 baud.

The hyper terminal output screen shows continuous data output/commands and allows input from the PC keyboard. Pressing 'C' enters calibration mode, press 'G' to change the gas type to match the cell being used. Note – the range of the new gas has a default value but can be adjusted by pressing 'R'.

For catalytic sensors course zero adjustment is achieved by turning the zero potentiometer (10 turn) until the zero LED just turns off – see fig 2 on page 4.

Technical Specification

POWER SUPPLY

Input 230/115v AC – 50/60 Hz - 24v DC

CONSUMPTION

70W full alarm

INDICATORS

Gas level readout – two line alpha numeric back lit display

Power – green L.E.D

Low, High, Over-range alarm – red L.E.D

System fault / Flow fail – amber L.E.D (Pump fail/line blockage)

USER INTERFACE

Panel mounted push buttons (three)

Reset – mute sounder, reset alarms

Menu – see page 5

ALARM SETTINGS

Normally latched – option auto reset – see relays

OUTPUTS

Alarm 1, 2, 3 relays S.P.C.O. N/D (N/E option)

Fault relay S.P.C.O. N/D (N/E option)

All relays latched (unlatched option – select before power up – see fig 2)

Relay – flow fail S.P.C.O. – flow fail alarm board

All contacts rated 3A 230v AC

All relay contacts used to switch inductive loads (relays etc) should have suppressors fitted, typical device Farnell 772-756

Output – 24v DC @ 100mA - Available for auxiliary equipment

4~20mA analogue output

CANbus – see Combi alarm systems

Logging – variable time, rollover/stop

Storage 2,800 readings.

AUDIBLE ALARM

Lo, hi, fault flow fail alarms 85dB @ 10cm

DIMENSIONS

H 265mm x W 315mm x D 75mm

CABLE ENTRY

Base – Rear

FIELD TERMINALS

Screw Type – accepting up to 2.5 mm cable

WEIGHT

3.7 kg

FINISH

Epoxy coated steel – Ash Grey BSA01

Plastic push on fascia – Grey/White Ral 9002

INGRESS PROTECTION

IP 52 Standard IP66 option (overhousing)

PUMP

Sample pump – 24v DC brushless-diaphragm

OPERATING TEMPERATURE

-10 to +45°C

SAMPLE TEMPERATURE

-10 to +50°C – high temperature versions available

RESPONSE TIME

20 to 80 seconds

INTAKE MODULES (part No. 008-556 Design Reg 6009030)

All weather

Orientation – any

Size – 100mm L 32mm D

Connections – push fit 6mm

SAMPLE LINE

Material – Nylon, Stainless Steel, Copper

Size – 6 mm OD, 4 mm ID – push fit coupling

SAMPLE NETWORK LENGTH

100m total

SAMPLE VENT PIPE

6-8 mm – push fit

OPTIONS

Catch pot

Water auto drain

Waterproof over housing IP66

Sample line flame arrestor

Snorkel valve water trap

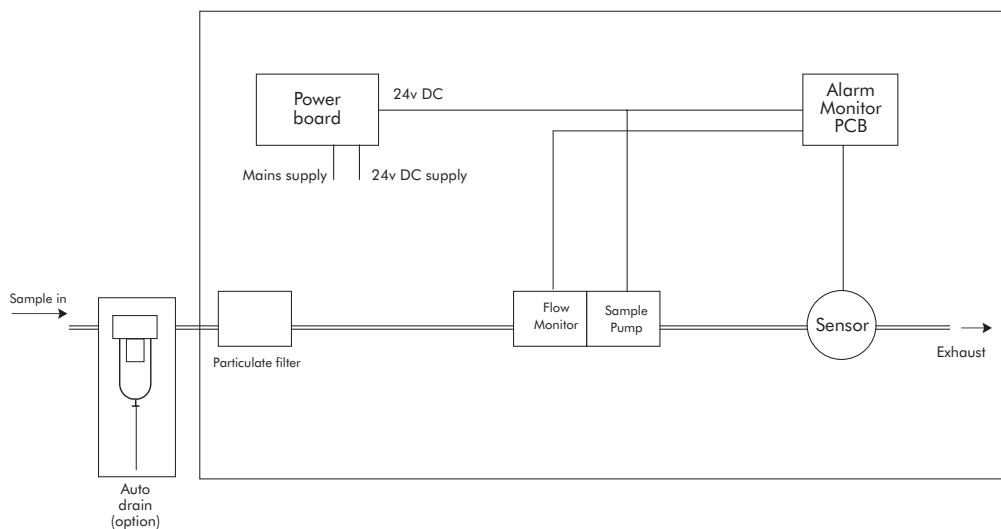


Fig 3

Service Routine Attention

The owner or occupier of the site should place the supervision of the system in the charge of a responsible executive, whose duty it should be to ensure the day to day operation of the system and to lay down the procedure for dealing with a gas alarm or fault warning.

The operating instructions should be kept available, preferably with the control unit. All faults, service test and routine attention given should be recorded.

DAILY: A check should be made that any fault condition which may be indicated is in fact being attended to and that all other indicators are normal.

WEEKLY: Check the catch pot (where fitted) for high levels of particulate or water contamination, replace filters as necessary.

Twice yearly maintenance schedule

1. Zero check to sensor
2. Sensor to be gas tested and calibrated
3. Test gas applied to all intake modules
4. Field indicators to be tested
5. Alarm trip points checked and re-aligned
6. All faulty parts replaced where required
7. All filter elements checked and replaced as necessary (catch pot filter)
8. Power supply – voltage check
9. Visual inspection made to confirm that the sample line fittings and equipment are secure, undamaged and adequately protected

12 monthly maintenance schedule

1. Twice yearly schedule
2. Draw pump overhaul (diaphragm replacement)
3. Auto drain – pressure tube replacement (if fitted)

36 monthly maintenance schedule

1. Pump replacement

RECOMMENDED TEST GAS:

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