Volume

1.3

SCHAUENBURG FLEXADUX (PTY) LTD

Gas Detection Instrumentation GDI

Instrumentation Users Guide

GAS DETECTION INSTRUMENTATION

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Introduction

This manual contains information on the working operation of the gas-measuring instrument that must be understood and adhered to. The reliability and safe working operation of the instrument is dependant on the correct handling and care taken.

The G.D.I. Enviro is a handheld continuous two-gas monitor with three seven-segment display units for readouts of gas samples being measured. The levels being measured are saved every minute and can be analysed at a later stage. The instrument is programmable with predefined alarm levels. If a predefined level of gas and/or vapour is measured the instrument will alarm whit an indication of the type of gas and/or vapour that caused the alarm. (Flammable and/or Toxic)

GDI instruments have adequate protection against dust, moisture, shock and sensor poisoning vapours.

This instrument is a battery operated electronic device and should be charged and discharged at regular intervals. If proper battery management procedures are followed the maximum life can be expected from the battery.

The safety of the person using the instrument is dependant on the condition and serviceability of the instrument. TAKE CARE WITH THE HANDLING OF INSTRUMENTS, THEY SAVE LIFES.

All GDI instruments are submitted for batch testing after a type test was passed. The working and intrinsic safety of the instrument is evaluated and on passing a certificate of compliance is issued.

All users of GDI equipment must be trained and/or educated on the use and service of the OEM (Original Equipment Manufacturer) supplied instruments.

Specification

GAS TYPES	FLAMMABLE	TOXIC
Measuring ranges	Dependant on type	Dependant on type
	(I.e. CH_4 0.0-5.0% VOL)	(I.e. CO 0-999ppm)
Measuring principal	Catalytic Combustion	Electro-chemical
Calibration gasses	% = up to 50% full-scale	ppm = 100-400
Response time T90	Less than 15 seconds	less than 35 seconds
(DME/SABS T80)	Within 15-20 seconds	Within 45 seconds
Resolution	0.1 %	1 ppm
Long term drift	$^{+}/_{-}$ 0.1 %	2 % F.S / month
Max relative humidity	95 % Non condensing	
Min & max pressure	- 10 KPA to + 50KPA {Ambient}	Ambient $^{+}/_{-}$ 10%
Sample velocity	20-40 litres per hour	
Operating temperature	-5 to +40 ºC	
Storage temperature	0 – 20 ºC	
Battery pack	7.2 Volt 1800mA/hour	
Battery life	> 12 hours	
Dimensions	134mm x 77mm x 35mm	
Housing	Polycarbonate	
Guaranty	1 (one) year on all electronic parts and workmanship	
	6 (six) months on sensors fitted by OEM	
	6 (six) months on battery pack if charged and used as specified by OEM	

User information	Instrument Display	User Action

Before any attempt is made to operate ENVIRO instrumentation batteries must be fully charged. The charger unit flashing a RED indication light will give indication that the charge cycle is complete. While the instrument is charging the display on the unit will alternate between the following displays.

CHR chr

When fully charged and the instrument is removed from the charging unit the instrument will display the version number of the operating firmware.

EnU 1.00

After displaying the firmware version the instrument will do a diagnostic check and display an error code depending on the fault found.

SCH Testing

F-1 Battery failed/not charged

F-2 Eeprom 1 failed read/write test

F-3 Eeprom 2 failed read/write test

F-4 CH_4 bridge voltage failed

F-5 CH_4 sensor failed zero tests

After doing the diagnostic test the instrument will prompt for a calibration to be done if needed. If the ENT key is pressed the unit will go into calibration mode only if not protected by a password to prevent non-qualified users from calibrating instruments and causing a fault condition. (Calibrating to the wrong concentration or with no test gas.)

CAL PAS

000

Pressing the ENT and the instrument is protected by a password scroll to the correct password using the UP and DWN keys. Press ENT to accept the password. If no key is pressed for 10 seconds the instrument will revert to the normal mode of operation.

Calibration sequence.

First the instrument will do an auto zero calibration of the sensors connected.

A-2

The instrument will now wait for the user to select the sensor and calibration value to calibrate the sensor span.

--- Use UP and DWN to select

NOTE: Place instrument into calibration mask.

Calibration of the CO sensor is preformed as follows.

CO PRESS ENT 412 This is the previous concentration calibrated with. Using the UP and DWN keys select a new value or press ENT to start calibration. The unit under calibration will flash the selected value until calibration is complete.

Calibration of the CH_4 sensor is preformed as follows.

CH4 PRESS ENT 2.4 This is the previous concentration calibrated with. Using the UP and DWN keys select a new value or press ENT to start calibration. The unit under calibration will flash the selected value until calibration is complete.

If any of the sensors does not have an adequate span value the instrument will indicate this with an error code.

F-6 CO sensor failed.

F-7 CH_4 sensor failed.

Still in the menu options the user can clear the download eeproms if needed. Select the RDL option to clear the eeproms.

RDL After clearing CLR

The last menu item is END. This option takes the user to the normal mode of operation.

End

Instrument normal operation display options.

In normal mode the instrument will at all times monitor both sensors (if fitted) and switch on the alarm condition if a reading above the pre-programmed alarm level is measured.

Pressing and holding the ENT key for at least 1 second and then releasing the ENT key will alternate the display between the sensor readings.

1.2% OR 102 ppm

Pressing and holding the UP key for at least 1 second and then releasing the UP key will display the peak flammable reading for the day for 30 seconds.

PC4 2.8

Pressing and holding the DWN key for at least 1 second and then releasing the DWN key will display the peak toxic reading for the day for 30 seconds. After displaying the peak reading the average reading will be calculated and displayed.

PCO 037

AUR

024

If the instrument at any time measures a flammable reading of more than 5% the sensor will be switched off. The instrument will indicate this condition by displaying OR (over range) and indicating an alarm condition.

OR

This condition MUST ONLY be reset in an acceptable area where it is known to be safe for the user as resetting in an area where this has happened could result in an explosion. Press the ENT key to reset and the instrument will start-up by displaying CZA (calculate zero adjust). If a high level of flammable gas was measured re-calibrate instrument as soon as possible.

C2A