GAS MONITORING SYSTEM Mk2

USER MANUAL

Contents

Introduction 2
Technical Specification 3
Installation 4
    Power Supply 4
    Sensor Location 4
Procedure and Wiring 5
Operation 6
    Initialisation 6
    Testing 7
Sensor Replacements 8
Troubleshooting 9
Warnings 10
Envin Scientific Contact Details 11

Introduction

- This user manual will cover the Pilot Gas Monitoring System – Mk2.
- The Pilot range of gas alarms are important and cost effective items of safety equipment wherever LPG and other dangerous vapours may be present.
- However good a gas or engine installation may be, there is always a chance that a potential leak may occur. Many of the vapours present on boats and caravans such as butane, propane and petrol vapours are heavier than air. Even a small leak can soon build up to dangerous proportions in the bilges of a boat or an inadequately ventilated caravan.
- The Gas Monitoring system is ideal for medium sized vessels as it is a dual channel device.
- **User manuals for the full range of Pilot products are available for PDF download on the Envin Scientific website – www.envinsci.co.uk**

Technical Specifications

Specification	Value	Description
Supply Voltage	12-24V DC	Supply to Gas Monitoring System
Current Draw (Standby) Valve Open	<90mA (<50mA) <600mA (<350mA)	Current drawn in normal operation 12V, (24V)
Current Draw (Alarming)	<100mA (<70mA)	Current drawn while alarming 12V (24V)
Number of Sensors	2	Both sensors must be connected or the unit will fail to initialise.
Expected Sensor Life	2 years	May vary depending on sensor surroundings
Valve Specification	Power = 6W Voltage =12V/24V Current = 0.6A/0.3A	 The 12V is rated at 0.6A The 24V is rated at 0.3A
Dimensions	65 x 40 x 115 (mm)	(W) X (D) x (H)

Installation

Warning: Disconnect the power supply before proceeding with the installation!

Power Supply

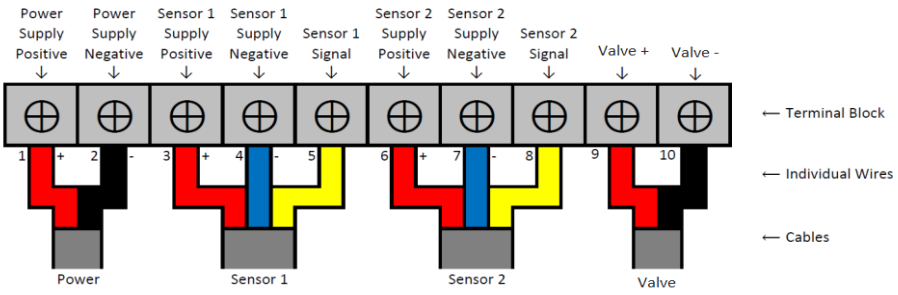
- The power supply must come from the vessel's Master Switch in order to activate the Gas Alarm whenever the power is on.
- The Gas Monitoring System Mk2 will work on a 12 or 24v supply.

Suitable Installation Locations

- The main unit should be in a location where the alarm is audible and the LEDs can be seen. It must be protected from the elements however and the ventilation holes should **not** be covered up.
- The gas sensors should be mounted as low as possible in a position where they will remain dry – near gas appliances at floor level or just underneath the floorboards is ideal.
- There are cable routing holes on the rear and bottom of the unit casing.
- The mounting holes are on the rear of the casing.

Procedure and Wiring

- Open the Gas Monitoring System by prizing apart each side of the front casing and sliding it off the rear portion.
- Mount the rear portion of the casing to a suitable vertical surface using the mounting holes.
- Pass the sensor head cables and suitable two-core supply and valve cabling, through the routing holes. Draw sufficient cable through the holes to enable connections to the PCB.
- Follow the wiring diagram below, depending on the sensor supplied the blue wire may be black.
- Double check wiring and slide the two casing halves together until they lock into place.
- Switch on the power at the master switch.
- Wiring of the valve is done by feeding 2 core cable through the connector and connecting the cores to the left and right pins of the solenoid, there is no ground and polarity is not important.



Operation

Initialisation:

- When the Gas Monitoring System is first switched on it will begin its stabilisation process. The Power LED (Green) will be on. The Alarm 1, Alarm 2 LEDs (RED) and the Fault LED (Yellow)will flash along with a beeping sound.
- The stabilisation process may take up to 8 minutes. However, after 30 seconds the beep will stop.
- When the unit has stabilised there will be two long beeps and then the Alarm LED flashing and the beeping will stop.
- If the alarm (constant tone and an Alarm LED) continues to sound after initialisation immediate action must be taken.
    1. Ensure nothing is used which could ignite gas (matches, engine ignition etc.) and shut off all gas
    2. Ventilate the area by opening doors and hatches
    3. Investigate and remove any source of dangerous vapour
    4. The alarm will stop one the vapour has been safely removed.
    5. If the unit still alarms, see troubleshooting and Sensor replacement.

Operation

Testing:

- The alarm may be tested at any time in two ways.
    1. By pressing the “TEST” button, which simulates a presence of gas and should immediately sound the alarm and light the red LEDs. This also shuts the off the valve.
    2. By allowing a small amount of lighter fluid vapour to pass by the sensors, which will test the sensors them selves.
- It is important to note that a failing or aged sensor will be detected by the main unit and will cause an alarm. Disconnecting the sensor will also cause an alarm.

Sensor Replacements

- The gas sensors have a lifespan of approximately 2 years, and their sensitivity can change over time.
- We recommend the sensors be changed **at least** every 2 years to ensure safe operation of the gas alarm.
- Replacement sensors are available on the Envin Scientific website – www.envinsci.co.uk/envin-shop/

To replace the sensors:

1. Switch off the power supply
2. Remove the top cap from the sensor housing
3. Remove the sensor from the housing
4. Gently insert the new sensor into the housing
5. Switch the power on

Troubleshooting

Symptom	Possible Cause	Action
Intermittent Alarm	Sensor may have become disconnected	Switch off supply, check connections, restart. Otherwise replace the sensor
Frequent false alarms	Contaminated Sensor or other gases present. Sensor over 2 years old	Replace the sensor
Regular beeping (not while initialising)	Low supply voltage	Check boat supply
Alarm after initialisation or failure to initialise	Sensor has become disconnected or has reached end of life	Check connections or replace sensor if necessary

⚠ Warnings ⚠

DO NOT:

- ✗ Expose sensors to silicone vapours, alkaline metals or a highly corrosive environment
- ✗ Use cleaning products around the sensors
- ✗ Allow the sensors to become damp or wet
- ✗ Expose the sensors to extreme temperatures (below 0°C or above 60°C)
- ✗ Handle sensors or unit internals while powered up
- ✗ Connect more than the max. number of sensors to the unit

DO:

- ✓ Replace the sensors **at least** every 2 years
- ✓ Test the alarm regularly
- ✓ Place the sensors into a clean sealable bag if the boat is to be out of use for long periods of time or if it is to undergo any maintenance work

Contact Details

Website	www.envinsci.co.uk
Online Shop	www.envinsci.co.uk/envin-shop
Email	info@envinsci.co.uk
Telephone	+44 (0)1829 771 792
Address	Envin Scientific Limited Technology House Chowley Oak Tattenhall Chester Cheshire CH3 9GA