Gas Monitoring System & Twin Channel Gas Alarm

Operation and Maintenance Manual

Envin
SCIENTIFIC LIMITED

Contents

Introduction

This user manual will cover the 12 and 24v version of both the Pilot Gas Monitoring System and the Twin Channel Gas Alarm.

The Pilot range of gas monitoring alarms are important and cost effective items of safety equipment wherever LPG may be present.

However good a gas installation may be, there is always a chance that a potentially lethal leak may occur. Vapours present on boats such as butane, propane and petrol vapour are heavier than air. Even a small leak can build up to dangerous proportions in the bilges of a boat.

Gas Monitoring System

The Gas Monitoring System (GMS) is designed to work with two LPG sensors. This allows a greater coverage of gas detection for your boat. The GMS is also supplied with a solenoid valve which is installed in your gas supply. Your gas supply will then be controlled by the GMS which has a button to open/close the valve. In the event of an alarm, the GMS will automatically close the valve to switch off the gas supply.

Twin Channel Gas Alarm

The Twin Channel Gas Alarm is supplied with two sensors. It has all of the features of the Gas Monitoring System, however, is not compatible with the solenoid gas valve.

A Gas Valve Controller may be purchased as an add-on to convert a Twin Channel Gas Alarm into a Gas Monitoring System.

User manuals for the full range of Pilot products are available in PDF format on the Envin Scientific website – www.envinsci.co.uk

Technical Specifications

12v Gas Monitoring System – 2011319/716/12

Spec.	Value	Description
Supply Voltage	12v DC	
Current	650mA	Standby – ¼" BSP Valve open
	750mA	Standby – ½" BSP Valve open
	185mA	Standby – Valve closed
	200mA	Alarm Mode
Max. Sensors	2	
Dimensions	120x65x35mm	

24v Gas Monitoring System – 2011319/716/24

Spec.	Value	Description
Supply Voltage	24v DC	
Current	190mA	Standby – ¼" BSP Valve open
	350mA	Standby – ½" BSP Valve open
	45mA	Standby – Valve closed
	65mA	Alarm Mode
Max. Sensors	2	
Dimensions	120x65x35mm	

12v Twin Channel Gas Alarm – 2011112/716/12

Spec.	Value	Description
Supply Voltage	12v DC	
Current	180mA	Standby
	200mA	Alarm Mode
Max. Sensors	2	
Dimensions	120x65x35mm	

24v Twin Channel Gas Alarm – 2011112/716/24

Spec.	Value	Description
Supply Voltage	12v DC	
Current	55mA	Standby
	90mA	Alarm Mode
Max. Sensors	2	
Dimensions	120x65x35mm	

Installation

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

Power Supply

- The power supply will be either 12v or 24v depending on the version of gas monitor that you have purchased (See Technical Specifications to check supply voltage).
- The power supply must come from the vessel's Master Switch in order to activate the Gas Monitoring System whenever the power is on.

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 in a location that is protected from the elements and the ventilation holes should not be covered up.
- The gas detectors should be mounted in the lowest possible position where they will remain dry. The most suitable location for the detector is near any gas appliance at floor level or just under the floorboards.
- There are four holes in the bottom of the case for routing the supply, detector, and valve cables. There is also a larger hole in the back of the system if needed.

Valve – Gas Monitoring System Only

- The solenoid valve should be connected down stream of the regulator and as close to it as possible.
- The base of the valve is marked “1” and “2” for gas in and gas out, respectively, as shown below (Diagram 1).

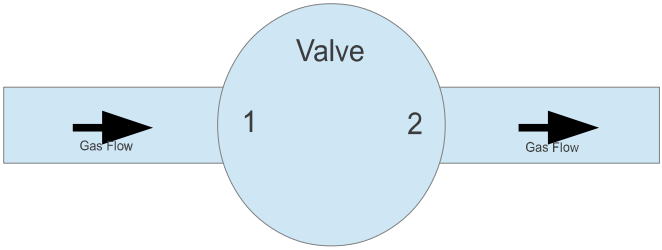

Diagram 1: Direction of gas flow

Procedure

1. Open the unit by removing the side screws and separating the two halves of the case.
2. Mount the back half of the case to a vertical surface using the mounting holes.
3. Pass the two detector head cables and a suitable two-core power supply cable through the routing holes. Draw sufficient cable through the holes to enable connections to the PCB in the front half of the case.

4. Connections to Circuit Board:

    - All of the connections for the PCB terminals are shown at the bottom of this section (Diagram 2). The terminals are also labelled on the PCB.

    - Terminals 9 and 10 are not used for the Twin Channel Gas Alarm

    - Terminal 11 can be used to link together two or more Pilot Gas Alarms. It may also be used to add a Gas Valve Controller to a Twin Channel Gas Alarm.

5. Ensure that the all of the wiring is correct.

6. Fit the two halves of the casing back together.

7. Switch on the power at the Master Switch.

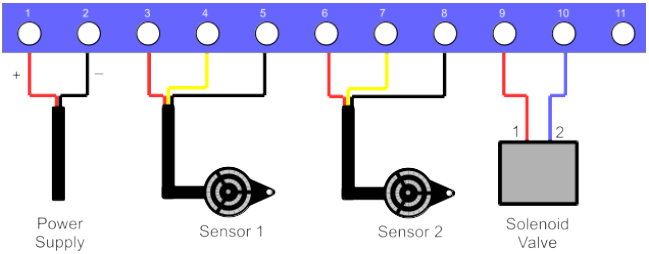

Diagram 2: Wiring Diagram (Ignore Valve for Twin Channel)

Operation

Initialisation Process

- When the unit is powered on, the green LED will illuminate.
- The remaining three lights will flash and an intermittent audible alarm will sound for approximately 30 seconds.
- The initialisation process may take up to 8 minutes. However, after the 30 seconds the intermittent alarm will stop.
- If one or both of the sensors have not stabilised yet, the LEDs will continue to flash.
- During the stabilisation process, the sounder will do a longer beep once for each sensor when it has completed stabilisation.
- If the number of beeps does not correspond to the number of sensors connected, switch off the system and check all connections.
- If the audible alarm continues to sound after the initialisation process immediate action must be taken:

    1. Ensure that nothing is used which could ignite gas e.g. matches, engine ignition etc.
    2. Ventilate the area by opening doors and hatches
    3. Investigate and remove any source of dangerous vapour.
    4. The Pilot Gas Alarm will stop alarming once the vapour has been safely removed.

Valve and Testing

- To open the valve, push the gas on/off button.
- Note: The valve can only be opened once the sensors have stabilised and will also automatically close if the alarm goes off.
- To reconnect the gas supply after the alarm has stopped, press the gas on/off button.
- The alarm may be tested at any time by pressing the “test” button. This simulates the presence of gas which should immediately sound the alarm and close the gas valve.

Sensor Replacement

The gas sensors will lose sensitivity over time. Therefore, it is recommended to replace the gas sensors every two years. Replacement sensors available on the Envin Scientific online shop and part numbers are listed in the Spares section on page 11.

To replace the sensor:

1. Switch the power off
2. Remove the top of the sensor housing
3. Remove the old sensor from the socket
4. Install the new sensor and push the top of the sensor housing back on until it clicks shut.
5. Switch the power on

Warnings

DO NOT:

- Expose sensors to silicone vapours, alkaline metals or a highly corrosive environment.
- Use cleaning products around the sensors.
- Submerge the sensors in water.
- Expose the sensors to extreme temperatures. (Between -10°C and 60°C is the recommended operating temperature)

DO:

- Replace the sensors every 2 years.
- Test the alarm regularly.
- Place the sensors into a clean, sealable bag if the boat is to undergo any maintenance work.

Troubleshooting

Symptom	Possible Cause	Action
Yellow LED with intermittent alarm	A red or yellow sensor wire may be disconnected	Switch off, check connections, restart. Otherwise, replace the sensor
Alarm LED with Alarm	A black sensor wire may be disconnected	See above
Frequent false alarms	Contaminated sensor / other gas vapours in the air.	Replace sensor

Spares

Replacement sensors and valves are available from the Envin Scientific online shop. See Contact on page 12 for website and online shop information.

Sensors

Part No.	Description
201115	Sensor only
201115-3.5	Sensor with housing and 3.5 meter cable
201115-C	Sensor with housing, 150mm cable and connector block. This can be used to replace just the sensor and housing so that any routed cables can remain in place.

Valves (Not for use with the Twin Channel Gas Alarm)

Part No.	Description
18252/12-1/4	12v ¼" BSP Solenoid Valve
18252/12-1/2	12v ½" BSP Solenoid Valve
18252/24-1/4	24v ¼" BSP Solenoid Valve
18252/24-1/2	24v ¼" BSP Solenoid Valve

Contact

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