Gas Detection Specialists


# MINI GAS ALARM MK2

## USER MANUAL

# Contents

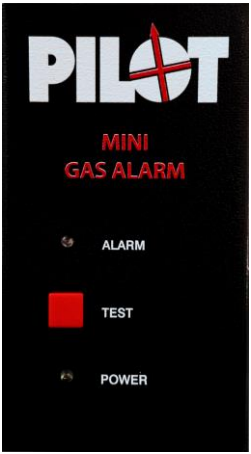
# 1. Introduction

Welcome to the user manual for your new Pilot Mini Gas Alarm! This document is designed to guide you through the installation, operation and initial testing of your device, as well provide information on any operational queries or troubleshooting issues you may have.

The Mini Gas Alarm is ideal for smaller vessels as it supports one LPG sensor.

This product range provides critical safety features against extremely dangerous or deadly gases. This responsibility requires maximum reliability which is why all our products endure an extensive testing procedure before leaving Envin Scientific.

# 2. Your Device




*Alarm Main Unit*

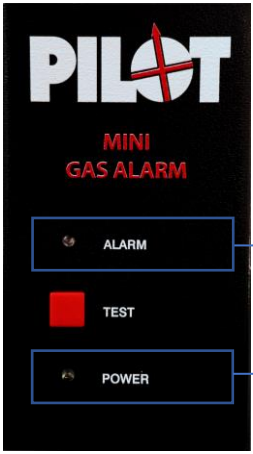
Your device is a Mini Gas Alarm. The device supports one Liquid Petroleum Gas (LPG) sensor and will work with 12V or 24V systems. This is the baseline product in the Pilot range, if you require a more complex system, please enquire using the contact details in section 9.

In the box you will have:

- 1 Mini Gas Alarm
- 1 LPG Sensor with 3.5m cable
- 1 User manual
- 1 Sensor Awareness Slip

*LPG Sensor*

## 2.1 Front Panel & LED Indicators

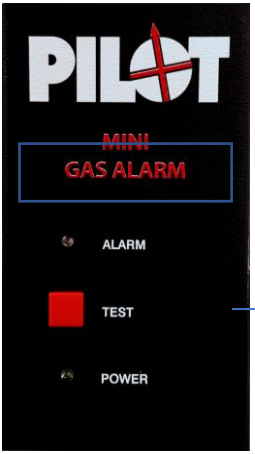




The top LED on the front panel of your Mini Gas Alarm is the ALARM LED. This LED will illuminate red when gas has been detected and the system is alarming.


| State | Power | Alarm |
|---|---|---|
| | The unit is power on correctly. | N/A. |
| | N/A. | Gas detected. System Alarming. |
| (off) | There is no power to the unit. Check wiring and that the device is switched on. | No gas detected. System is not alarming. |

The bottom LED is the power indicator LED, this will illuminate green when the unit is on.





The button on the front of your unit is the test button.

You should press this button to ensure the alarm is powered on and working correctly.

## 2.2 Liquid Petroleum Gas Sensor

The LPG sensors detect butane/propane and alarm at 25% LEL (lower explosive limit). LPG gases are heavier than air, this means that the LPG sensor must be located near to the floor.

## 2.3 Technical Specification

| Specification | Value | Description |
|---|---|---|
| Supply Voltage | 12/24V | Supply from your system battery |
| Current Draw (Standby) | ≈90mA | When alarm not sounding |
| Current Draw (Alarming) | ≈100mA | When alarm is sounding |
| Number of sensors | 1 | Supports 1 LPG sensor. |
| Dimensions | 55 x 100 x40 | (W) x (H) x (D) |

# 3. Installation

You will need a small flat head screwdriver and some cable to install your alarm.

**Power Supply**

- The power supplied to the unit must come from the vessel's master switch in order to activate the Gas Alarm whenever the power is on.
- The Multi-Channel Gas Alarm will work on a 12V 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 and the ventilation holes should **not** be covered up.
- The LPG sensors should be mounted as low as possible in a position **where they will remain dry** – locations near gas appliances at floor level or just underneath floorboards are ideal.
- There are cable routing and mounting holes on the rear and bottom of the casing.

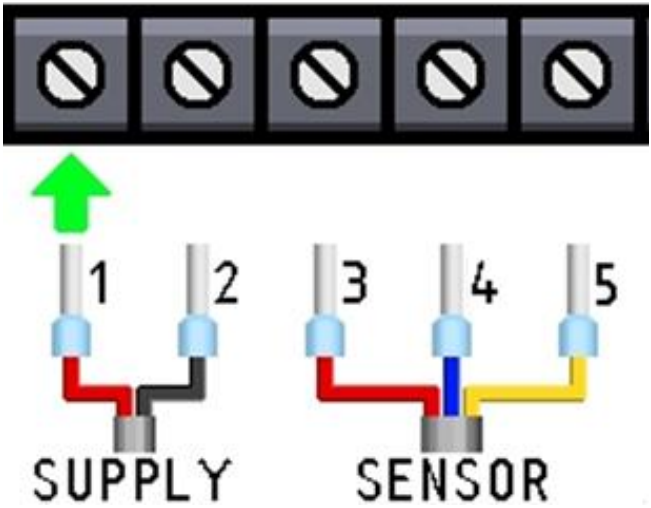
## 3.1 Wiring

**WARNING**

Disconnect the power supply before proceeding

- Using the wiring diagram on page 10, start from pin 1 and work your way along the terminal block inserting the wires into the block.
- Wires are secured using a flat head screwdriver.
- To avoid confusion, use wire colours that match the colours in the wiring diagram.

- Be sure to wire the cables through the cable routing holes on the bottom or rear of the case before attaching them to the terminal block.




*Wiring Diagram*

## 3.2 Pin Definitions

1. Positive power supply
2. Negative power supply (Common Ground)
3. Sensor Positive
4. Sensor Negative
5. Sensor Signal

# 4. Initialisation & Testing

This section will explain how the unit functions, what the initialization procedure is and how to test your device.

## 4.1 Initialisation

The initialisation process will occur every time your Mini-Gas Alarm is powered on. The green LED will illuminate, and the red LED will flash every second alongside a beeping sound. During this time the unit will check for an attached sensor and start the initialisation process. **The initialisation process can take up to 8 minutes**, however the beeping will be silenced after 30 seconds.

When a channel (sensor) has stabilised, there will be one long beep and the red LED will stop flashing.

## 4.2 Testing

The alarm may be tested at any time in two ways:

1. By pressing the “Test” button on the front of your unit. This simulates the presence of harmful gases and should immediately sound the alarm and illuminate the red LED.
2. By allowing a small amount of lighter fluid vapour to pass by the LPG sensors. This will test the sensor itself.

All Mini Gas Alarms and sensors are fully tested and calibrated before leaving Envin Scientific. It would good practice to regularly test your gas detection system using test method 2 for maximum safety.

# 5. Alarms

- Constant, high pitch alarm noise.
- “ALARM” LED will illuminate RED.

## ACTION

In the event of an alarm ensure that nothing is used which could ignite gas (matches, engine ignition etc.).
Ventilate the area by opening doors and hatches.
Vacate any interior cabins and remain outside until the alarm stops.
If the alarm continues to sound consult the troubleshooting section.

# 6. 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 your issue is not listed here, please use the contact details on the back of this manual to contact the manufacturer/supplier.

# 7. Sensor Replacement

We recommend that you replace your sensors every 2 years as their sensitivity can change over time.

**To replace the LPG 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 and replace the sensor cap.
5. Switch the power on

Replacement sensors are available on the Envin Scientific website – www.envinsci.co.uk/envin-shop/ , or through a Pilot supplier.

# 8. 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 after the recommended 2 year period
- ✓ 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

# 9. 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<br>Technology House<br>Chowley Oak<br>Tattenhall<br>Chester<br>CH3 9GA |