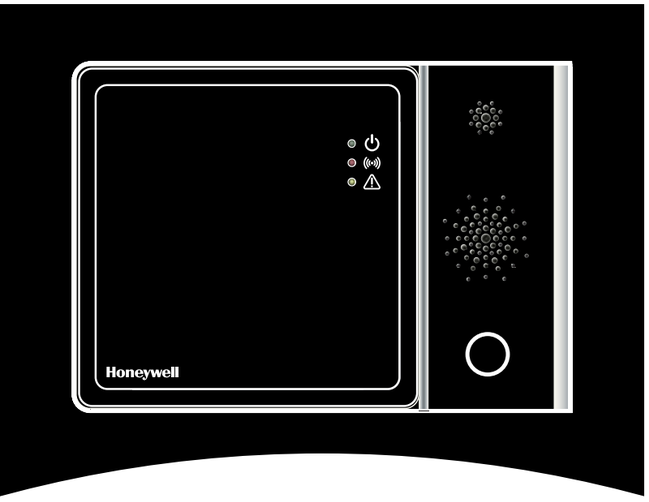
Operating and Installation Instructions

Honeywell



HF500NG / HF500LPG
Residential Flammable Gas Detector

NG - Natural Gas
LPG - Liquefied Petroleum Gas

Thank you for purchasing this gas detector, which is designed for use in domestic premises (including static caravan holiday homes) to detect leaks of flammable gas. The detector must be connected to mains power.

This manual contains important safety information about the installation and operation of the detector. Read the manual carefully and keep it in a safe place for future reference.

Warnings

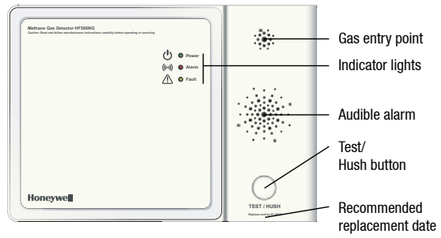
- **This gas detector must be installed by a competent person qualified to carry out electrical work according to current national wiring regulations. Additionally, any changes to the gas installation,e.g., fitting of an automatic gas shut-off valve, must be carried out by a person qualified to the national regulations for gas installations.**
- **The gas installation and shut-off device (where used) must comply with the appropriate national regulations.**

Description

The detector has three status indicator lights, an audible alarm and a test/hush button.

The **GREEN** light indicates that the power to the detector is **ON**.
The **RED** light indicates that **GAS** has been detected.
The **YELLOW** light indicates that there is a **FAULT** with the detector.

The detector has two relays, alarm and fault. The alarm relay can be used to activate an external device such as a gas shut down valve, or an automatic signal such as a call to the emergency services.
The fault relay can be used to activate a signal to an external device such as a supervisory panel.



About Flammable Gas

Flammable gas is dangerous if the concentration builds up enough to become explosive. This level is called the lower explosive limit (LEL). The HF500 detector will alarm if the gas concentration reaches 10 % of the lower explosive limit (10 %LEL).

Note: Natural Gas and LPG have additives which gives them a distinctive smell. Most people are able to smell Natural Gas or LPG at a lower concentration than the detector alarm setting. This does not mean that the detector is faulty.

- Natural Gas is primarily Methane
- Natural Gas is lighter than air, so any leak will result in a build up of gas at a high level within a room or enclosed area. (This is why the installer will place the detector near the ceiling)
- LPG (Liquefied Petroleum Gas) is a mixture of primarily propane, primarily butane or both.
- The gas is heavier than air, so any leak will result in a build up of gas at a low level. (This is why the installer will place the detector near the floor)

Detector Operation

If GAS is detected the RED ALARM light will flash and the audible alarm will sound.

If the detector is in **ALARM** and the gas clears, the detector will return to normal operation.

If the detector is in **ALARM**, the audible alarm can be silenced for 5 minutes by pressing the **TEST/HUSH** button (the **RED** light will continue to flash). If gas is still present after 5 minutes, the audible alarm will sound again.

If the detector is in **FAULT** (**YELLOW** light) it must not be used any more, and should be replaced. (The exception is if the detector signals a Power Fault indicated by an intermittent single chirp. In this case there may be a fault with the power supply and the electrical installation should be checked).

If your detector is in ALARM, keep calm, and carry out the following actions, not necessarily in the order given:

- Extinguish all naked flames, including all smoking material
- Turn off all gas appliances
- Do not switch on or off any electrical equipment, including the gas detector
- Turn off the gas supply
- Open doors and windows to increase ventilation
- Do not use a telephone where gas may be present

If the alarm continues, and the cause of the leak cannot be found, vacate the premises and IMMEDIATELY NOTIFY the gas supplier or the gas emergency service.

Detector Operation - continued

If the alarm stops, check the following: -

1. Has the source of the gas leak been identified (for example a gas tap switched on with the burner unlit)?
2. Has the gas leak been stopped?

If the answer to either of these questions is no, then notify the gas supplier or the gas emergency service so that the installation may be tested and made safe, and any necessary repair carried out.

Summary Table

Condition	Power Light (Green)	Alarm Light (Red)	Fault Light (Yellow)	Audible Alarm	Meaning
Power on, no gas	⏻ ●	((•)) ○	⚠ ○	OFF	Normal operation
ALARM, gas detected	⏻ ●	((•)) ✳	⚠ ○	**ON**	Gas detected
Power Fault	⏻ ○	((•)) ○	⚠ ✳	Intermittent single chirp	There is a fault with the electrical installation
Sensor Fault	⏻ ●	((•)) ○	⚠ ✳	2 long chirps per minute	The detector must be replaced
Software Fault	⏻ ○	((•)) ○	⚠ ●	Continuous chirps	

If your Detector is in alarm

UK GAS EMERGENCY SERVICE TELEPHONE NUMBER

0800 111 999

Tell the operator that your flammable gas detector is in alarm and you suspect that there is a gas leak.

Gas appliances should be checked for safety annually by a Gas Safe registered engineer. To find a registered engineer in your area call Gas Safe Register on 0800 408 5500 or look on the website: www.gassaferegister.co.uk.

Precautions during use

Do not tamper with the detector – there is a risk of electric shock or damage to the detector.

If required, clean the surface of the detector with a lightly damped cloth. Do not use detergent as this may damage the internal sensor.

Some materials such as cleaning fluids, polishes, paints, cooking operations etc. may generate fumes which could cause false alarms from the detector or affect its long term reliability. Avoid using these substances close to the detector.

Warning

Silicones can permanently damage the detector. Avoid using silicone sealant or any household or cosmetic product containing silicone in the vicinity of the detector.

Monthly Detector test

The detector should be tested once per month. To test the detector, press and hold the **"TEST/HUSH"** button on the front cover for 1 second. The RED light will flash 4 times, and then the **YELLOW** light will flash 4 times, accompanied by the audible alarm sounding 8 times.

Caution: Testing the detector with an uncontrolled source of gas (for example a cigarette lighter) may give a misleading result and could damage the detector.

Conformance to European standards

The HF500NG Natural Gas detector and the HF500LPG Liquefied Petroleum Gas detector conform to EN50194-1, which is the European Standard for electrical apparatus for the detection of combustible gases in domestic premises. A full EC declaration of conformity is available at our website. Navigate to www.honeywellanalytics.com and select Resources, then EC Declarations.

KM 590203
BS EN50194-1: 2009

End of Life

The detector should operate for 5 years under normal use. The recommended replacement date is shown on the front of the detector.

When the unit has come to the end of its life, dispose of it in accordance with local regulations. It is classified as electronic waste and should be disposed of separately from household waste.

Disclaimer

This flammable gas detector is designed to alert you to a potentially dangerous build up of flammable gas. It is not designed to remedy a flammable gas problem nor to locate a specific leak of flammable gas. Honeywell shall not be liable to pay for any investigation or service call carried out or arranged in response to an alarm.

Warranty

Honeywell warrants your new gas detector for two years from the date of purchase by the end user or until the expiry date on the front of the unit, whichever occurs first, according to the specifications as set out in this instruction manual.

We will, at our discretion, repair or replace, with same or similar product, any part of the gas detector which is found to be defective in either materials or workmanship within the warranty period.

We shall be under no obligation to repair or replace units which are found to be defective in any way due to unreasonable use or neglect, improper storage, used or maintained not in accordance with the user manual or if the product has been tampered with or found to have been dismantled.

This warranty is instead of and excludes all warranties implied by law, and to the extent permitted by law, our liability under the warranty is capped at the price of the product.

In no event are we liable for (a) any direct, indirect, incidental, consequential loss; (b) any loss arising from business interruption; (c) loss of profits; (d) loss of revenue; (e) loss of use of any property or capital; (f) loss of anticipated savings or loss of data.

Troubleshooting and getting assistance

After you have carefully read all instructions and your alarm still fails to work, contact the nearest Customer Service listed in the "Contact Us" section, which might be able to resolve your problem quickly. Alternatively contact your local supplier.

If the product needs to be returned for repair or replacement, put it in a padded box with a letter describing the fault and postage paid. For battery powered devices, ensure that the alarm has been switched-off.

A proof of purchase must be provided to claim repair under warranty.

Specification

Calibration Gas	Methane (Natural Gas Version), Butane (LPG Version)
Calibration Level	10% LEL (Lower Explosive Limit)
Sensor Technology	Catalytic combustion
Accuracy Tolerance	± 2.5% LEL
Dimensions	150mm x 104 mm x 40 mm
Weight	< 400 g
Installation	Surface mounting
Power	110 - 230 Vac 50/60 Hz
Power Consumption	< 6.5 W
Alarm Relay	5 A 250 Vac SPDT (single pole changeover)
Fault Relay	0.25A 250VAC SPST NO (single pole)
Temperature	-10 °C to +55 °C
Humidity	0-95% RH (non-condensing)
Test Facility	Yes
Self Check Function	Yes

Contact Us

www.honeywellanalytics.com
www.hf500gasalarm.com
www.honeywell.com

UK customer service centre

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Acts for and on behalf of Life Safety Distribution AG, Javastrasse 2, 8604 Hegnau, Switzerland by its Authorised Representative Honeywell Inc.

Honeywell

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Installer Section - Introduction

Warnings

- **This gas detector must be installed by a competent person qualified to carry out electrical work according to current national wiring regulations. Additionally, any changes to the gas installation, e.g., fitting of an automatic gas shut-off valve, must be carried out by a person qualified to the national regulations for gas installations.**
- **The gas installation and shut-off device (where used) must comply with the appropriate national regulations.**

The installer should refer to the current edition of the European Standard EN 50244 "Electrical apparatus for the detection of combustible gases in domestic premises – Guide on the selection, installation, use and maintenance."

Caution: The installation must include some form of isolation switch.

Note: It is recommended that flexible cable is used, e.g. 1.0 mm² core. For a surface mount installation, the use of mini-trunking is recommended.

Relay Description

The HF500NG / HF500LPG has two output relays, one for Fault and one for Alarm. The relays provide a means of signalling an alarm condition to an external warning device such as control panel or remote audible buzzer. They can also be used to shut off a gas valve in the event of a detected leak.

The Alarm relay is a single pole changeover type that allows contacts to be either open or closed when gas is detected. The Fault relay is a single pole single throw type, which is closed when a fault occurs.

Where to put the Detector

The detector should be installed in the room where a gas escape is most likely to occur. For most installations the most likely source of a gas leak will be the cooker in the kitchen

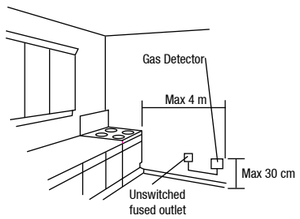
Natural Gas

- Natural Gas is lighter than air, so a leak of gas will build up at a high level. The detector should be placed above the level of a possible gas escape and near the ceiling
- The detector should be placed above the highest window or door opening, usually not more than 30 cm from the ceiling
- The detector should be located between 1 m and 5 m from the gas appliance.

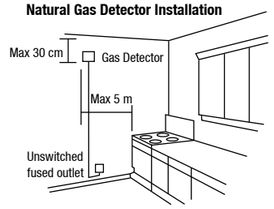
LPG

- LPG is heavier than air, so a leak of gas will build up at a low level. The detector should be placed below the level of a possible gas escape and near the floor level.
- The detector should be located not more than 30 cm from the floor and not more than 4 m from the gas appliance.

LPG Gas Detector Installation



Natural Gas Detector Installation



Where not to put the Detector

- In or below a cupboard, or in any enclosed space
- Where the air flow to the unit would be obstructed by curtains or furniture
- Where dirt or dust could collect and block the sensor and stop it working
- In a damp or humid area
- Directly above cooking appliances
- Directly above a sink
- Next to a door or window or anywhere that would be affected by draughts e.g. extractor fan or air vent
- In any outside location
- In an area where the temperature may drop below -10 °C or exceed 55 °C
- Where it is likely to be knocked or damaged.

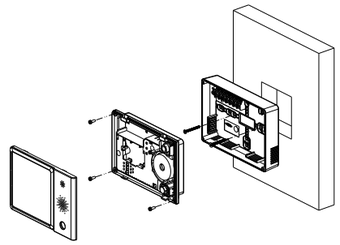
Caution: The detector must be tested regularly. Ensure that the user is able to access the TEST/HUSH button.

Installation

The detector should be wired to the mains power supply using a flexible cable appropriately rated via a fused connection outlet and fitted with a 3A fuse to BS1363-4 and BS1362 respectively, or according to local regulations.

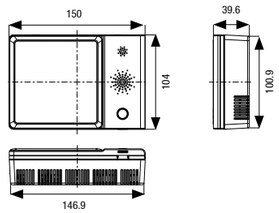
Unpack the detector and check the contents: -

- Detector
- Mounting Plate
- User Manual
- Wood screws x 2 to attach the Mounting Plate to a wooden surface
- Anchor plugs (6 mm) and masonry screws x 2 to attach the Mounting Plate to a masonry surface
- Electrical screws x 2 to attach the Mounting Plate to an electrical outlet box
- Assembly screws x 4 to attach the Detector to the Mounting Plate.



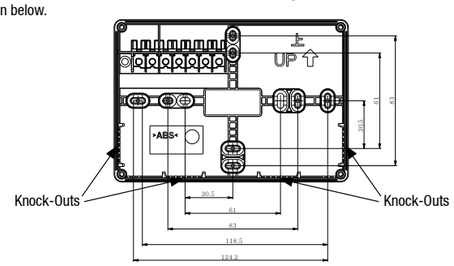
The Mounting Plate contains the terminals for connecting the power supply and relay outputs. Once the connections are made, the detector simply plugs into the Mounting Plate.

The dimensions shown below are for the detector including the Mounting Plate.



Installation - continued

The power supply cabling and connections for the relays (if used) can be routed through the back of the Mounting Plate, or through knock-out holes (25 mm x 16 mm, quantity 4) at the bottom and the sides. If the knock-out holes are used, ensure that the IP2XD rating is maintained by using the correct size trunking, or a suitable ferrule. The dimensions of the mounting hole locations within the Mounting Plate are shown below.



Caution: Isolate the mains power before starting work.

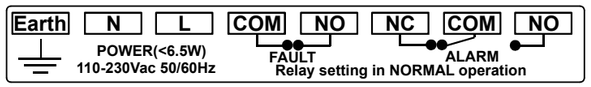
1. Select an appropriate mounting point for the detector.
2. Decide on the cable entry point and which mounting holes will be used. Knock out the appropriate sections of the Mounting Plate, using a blunt instrument. It is recommended that surface cables are run in mini-trunking.
3. Feed the power supply and relay connection (if used) cables through the Mounting Plate from behind or through one of the knock-out holes.
4. Fix the Mounting Plate to the wall, ensuring that it is in the correct orientation (check the arrow and UP mark). Use the screws provided and any two convenient mounting holes. The appropriate size drill bit for the supplied anchor plugs (if used) is 6 mm.
5. Remove the front cover of the detector by pushing with a flat bladed screwdriver on the tab located at the bottom right. Lift the cover out and up to remove from the detector.

Warning

DO NOT apply power to the detector when the front cover is open

Installation - continued

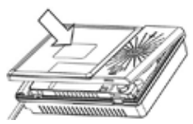
6. Locate and identify the connection terminals towards the top left of the Mounting Plate.



Terminal marking	EARTH	Power		Fault		Alarm		
		N	L	COM	NO	NC	COM	NO
Connection	Termination of mains earth	Mains voltage neutral	Mains voltage live	Fault relay Common contact	Fault relay Normally Open contact	Alarm relay Normally Closed contact	Alarm relay Common contact	Alarm relay Normally Open contact

Note: The Earth terminal is provided for cable termination only, and not for safety protection. The Relay contacts are shown in their normal state with the detector unit powered, no gas present and no fault present. Further information on relay states can be found in the summary table below.

7. Connect the power supply and relay outputs (if used) according to the above diagram. Refer to the section "Wiring examples with Solenoid valve" for further information.
8. Plug the main detector assembly into the Mounting Plate, ensuring that the connections are correctly aligned. Screw it in place using the assembly screws provided.
9. Fit the front cover (hook the top edge onto the main assembly and press the bottom edge to snap into place).



Warning

DO NOT apply power to the detector when the front cover is open

First time switch on

1. Apply Power to the detector.
2. When the detector is switched on, check that it follows this sequence: -
   1) All three indicator lights will be lit and the audible alarm will give a single chirp
   2) The three indicator lights will light in turn and cycle four times
   3) The unit will revert to normal operation, indicated by the **Power** (Green) light.
3. Once the detector has initialised, press and hold the **"TEST/HUSH"** button on the front cover for 1 second. The **RED** light will flash 4 times, and then the **YELLOW** light will flash 4 times, accompanied by the audible alarm sounding 8 times.

Fault Relay Test

Note: The Fault Relay is energised during normal operation.

1. Press and hold the **"TEST/HUSH"** button on the front cover for more than 10 seconds but less than 20 seconds.
2. The yellow and green lights will flash.
3. The Fault relay will be de-energised (open circuit).
4. After 5 seconds the Fault relay will be energised (closed circuit).
5. The yellow and green lights will stop flashing and the detector will return to normal operation (green light on).

Alarm Relay Test

Note: The Alarm relay is de-energised during normal operation.

1. Press and hold the **"TEST/HUSH"** button on the front cover for more than 20 seconds.
2. The red and green lights will flash.
3. The Alarm relay will be energised (contact between COM and NO).
4. After 5 seconds the Alarm relay will be de-energised (contact between COM and NC).
5. The red and green lights will stop flashing and the detector will return to normal operation (green light on).

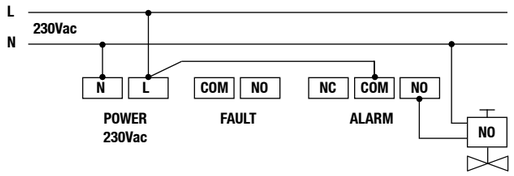
Summary Table - LED and Relay conditions

Operation	Description	LED			Relay		Audible Alarm	Summary
		Power (Green)	Alarm (Red)	Fault (Yellow)	Alarm	Fault		
NORMAL	Power on, no gas	Y	N	N	D	E	N	Green LED on
ALARM	Gas detected	Y	Y	N	E	E	Y	Red LED flashing, audible alarm chirping, alarm relay energised
SILENCE ALARM	Gas detected	Y	Y	N	E	E	N	Red LED flashing, alarm relay energised
SUCCESSFUL OPERATOR TEST	TEST/HUSH button pressed for 1 second	Y	Y	Y	D	E	Y	Red LED flashes 4 times, then Yellow LED flashes 4 times, accompanied by 8 chirps on audible alarm
SUCCESSFUL FAULT RELAY TEST	TEST/HUSH button pressed for 10 seconds	Y	N	Y	D	D	N	Yellow and Green LEDs flash, fault relay de-energised
SUCCESSFUL ALARM RELAY TEST	TEST/HUSH button pressed for 20 seconds	Y	Y	N	E	E	N	Red and Green LEDs flash, alarm relay energised
UNSUCCESS-FUL TEST	Test has de-tected a fault	Y	N	Y	D	D	N	Yellow and Green LEDs on, fault relay de-energised
FAULT	Sensor FAULT	Y	N	Y	D/E	D	Y	Yellow LED flashing and Green LED on, 2 long chirps per minute, fault relay de-energised , alarm relay energised or de-energised dependent on the nature of fault
FAULT	Power FAULT	N	N	Y	D	D	Y	Yellow LED flashing, 1 long chirp per minute, fault relay de-energised
FAULT	Software FAULT	N	N	Y	D	D	Y	Yellow LED on, continuous chirps, fault relay de-energised

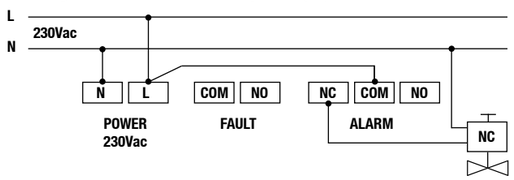
Y = LED / Alarm on, N = LED / Alarm off, D = relay de-energised, E = relay energised

Wiring examples with Solenoid valve

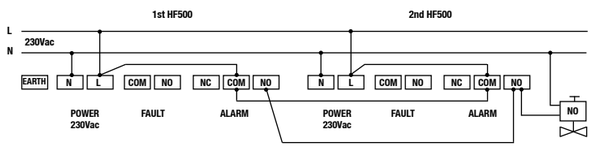
Wiring with one HF500 and a normally open (NO) solenoid valve



Wiring with one HF500 and a normally closed (NC) solenoid valve



Wiring with two HF500 and a normally open (NO) solenoid valve:



Wiring with two HF500 and a normally closed (NC) solenoid valve: