Sensigas®

LPG and Methane gas detectors

for homes, recreational vehicles and similar sites

ESN.F.P..
for LPG

ESN.F.G..
for Methane

Conformity standard EN50194

LPG and Methane gas detectors for homes, recreational vehicles and similar sites.
Replaceable pre-calibrated sensor module prolongs the detector's life to 10 years or more.
230Vac, 12Vac/dc or 12…24Vac/dc power supply, depending on the model.
Solid state 12Vdc command output of max 13W suitable for ES.E.. Sensigas® solenoid valve (normally open) or of another manufacturer but having the same characteristics.
Relay command output with voltage free contact suitable for 230Vac solenoid valve or other command or alarm devices.
Possibility of parallel connection of more than one detector, also for monitoring different gases.

Use

The ESN.F.P/.G detectors can be used to provide a visual/audible alarm and to control a gas shut-off valve (and/or to control other alarm transmitters or actuating devices), where there are abnormal concentrations well below the LPG or Methane gas hazard threshold.

Operation

The detector will enter a warm-up phase after power-up; this will take about 60" and during this time the detector is inoperative. At the end of the warm-up phase, the detector enters normal operation mode, and will continue in this state until it detects gas.

Gas detection

When the gas concentration exceeds the threshold set-points, the detector senses its presence and goes into the alarm condition indicated by the red LED coming on, by the sound of the integrated buzzer and by the activation of the relay. After about 20s, it transmits a command to shut off the manual reset solenoid valve (transmitting a command pulse of 0.5s every 10s).
Once the alarm condition is normalised, the detector is restored to its normal operating status.
Depending on the type of system constructed, it may be necessary to manually reset the solenoid valve to restore gas flow.

Available models and ordering information

Power supply / Detector	230Vac	12Vac/dc	12…24Vac/dc
For LPG gas (type A)	ESN.F.P.A	ESN.F.P.A.D	ESN.F.P.A.E
For Methane gas (type A)	ESN.F.G.A	ESN.F.G.A.D	ESN.F.G.A.E
For LPG gas (type B)	ESN.F.P.B	ESN.F.P.B.D	ESN.F.P.B.E
For Methane gas (type B)	ESN.F.G.B	ESN.F.G.B.D	ESN.F.G.B.E

Type A = with direct command output for low voltage solenoid valve and auxiliary relay 8A / 250Vac
Type B = only visual/audible alarm (no command output)

Operational table

Outputs / Detector status	LED GREEN	LED YELLOW	LED RED	BUZZER	RELAY	SOLENOID VALVE
Off	OFF	OFF	OFF	OFF	OFF	OFF
Sensor warm-up (60s)	ON	ON	OFF	OFF	OFF	OFF
Normal operation	ON	OFF	OFF	OFF	OFF	OFF
Sensor fail	ON	ON	OFF	OFF	OFF	OFF
Gas alarm	ON	OFF	ON	ON	ON	PULSE
Operational test	like in alarm, for the time the test jumper is kept short circuited					

Key: **ON** = steady on / activated / switched **OFF** = off / deactivated / not switched
PULSE = 0.5s every 10s

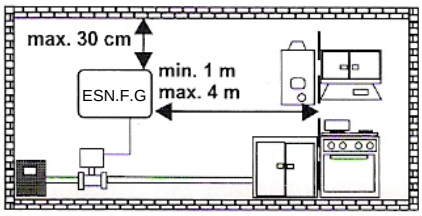
Installation and Commissioning

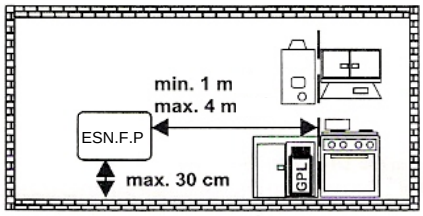
Ensure compliance with standards in force for electrical wiring. The devices must be connected to the mains and remain permanently powered. Omnipolar disconnection must be included in the mains.
Carefully read the instructions and electrical wiring diagrams in this document and follow them to the letter. Keep this document in a safe place for future consultation.

The device must be installed by qualified technicians.

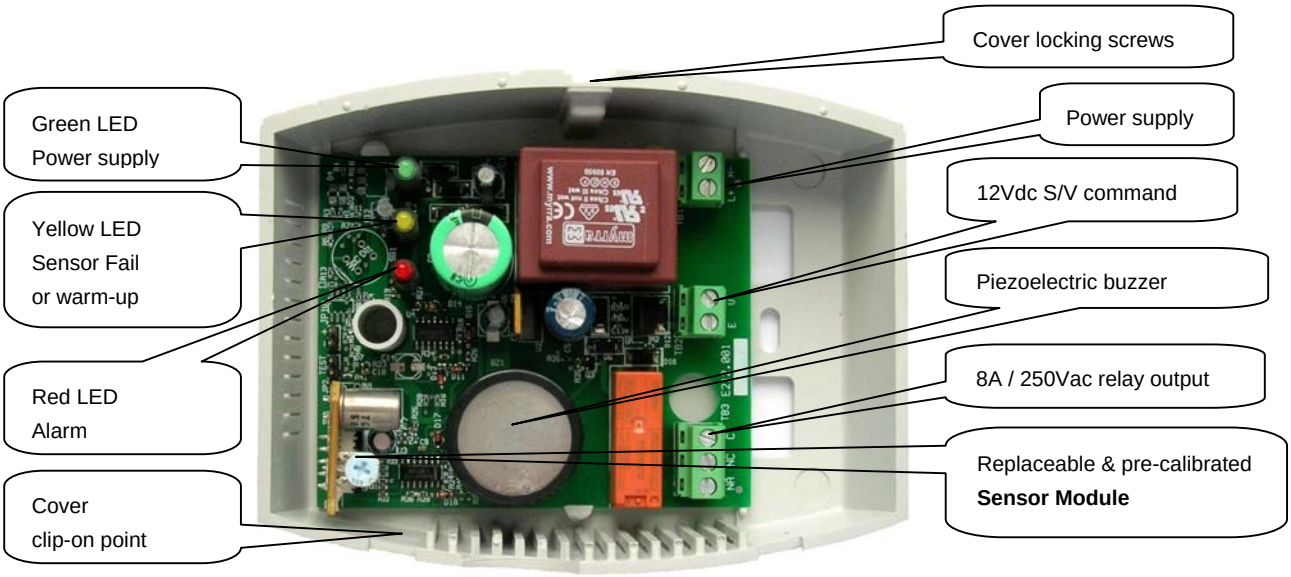
Installation

The detector **must** be installed:
Methane Gas: since this gas is lighter than air, it will be concentrated close to the ceiling. Install it about two metres from the gas device and about 30 cm from the ceiling.
For LPG (liquid gas in cylinders): since this gas is heavier than air, it will be concentrated close to the floor. Install it about two metres from the gas device and about 30 cm from the floor.





The detector **must not** be installed:
- outdoors
- near stoves and cooking appliances
- near sinks and taps
- near exhaust hoods, windows, fans etc.
- in areas where dirt and/or dust can clog the bottom and side grille of the detector
- where the temperature or humidity exceeds the detector's operating limits
- in closed spaces (behind curtains, inside cupboards etc.).



Blocking the front cover:

After the wiring is completed and the operational checks have been made, tilt the front cover slightly downwards to fasten it onto the two clip-on points shown in the figure.
Rotate the cover upwards, making sure that all three LEDs are centred.
Press down firmly on the top of the cover and tighten the locking screws.

Commissioning

Power up the detector and check that all the warm-up and normal operation phases are executed.

Carry out an operational response test by short-circuiting the test jumper located inside (or use a dedicated LPG calibration canister with dosing valve and release a small amount of gas near the grille at the bottom) to check the correct engagement of the solenoid valve and other command and/or alarm device connected to the relay; it is advisable to repeat the operational test at least once a year, or after a prolonged period of stoppage. If other test methods are used instead of the one described the detector may generate different, unexpected responses. In particular, the use of inappropriate substances or vapours (alcohol or silicon-based solvents etc.) or in any case, high concentrations of test gases could cause permanent damage to the sensing element and may cause the detector to operate incorrectly.

The detector needs no periodic maintenance, with the exception of the periodic operational test and replacement of the sensor module after 5 years. **It is possible to replace the sensor module once only: 10 years (or more) after the date it was first installed, the whole detector needs to be replaced.**

Use a permanent marker to write the replacement date of the sensor module or detector on the plate provided and place it in a visible position (after installation is completed).

Refer to the technical datasheet provided with the replaceable sensor module for replacement instructions.

Use a wet cloth and mild detergent to periodically clean the device.

Do not use aggressive detergents like alcohol, ammonia, solvents etc.

Before cleaning the detector, switch off the system power supply to avoid the risk of electric shock.

Warning

The detector and its sensing element have been designed for ongoing use in areas where there is permanent occupation by people, so normally pollution-free.

The presence of gases or vapours from some substances such as alcohol, silicon or solvents found in some detergents or polishes, or from the fumes generated by cooking may cause inappropriate action of the detector and in the long term could affect the reliability of the device. The particular Methane and LPG odorization made by the distributor, together with the high sensitivity of the human olfactory apparatus, make it possible to smell the presence of these gases already at extremely low concentrations, so a lot earlier than the detector. For operational and regulatory reasons, the detector is calibrated to take action at a higher threshold which is still very far below the hazard threshold.

In the event of alarm

If an alarm goes off, stay calm, put out flames, switch off the gas or LPG cylinder at the meter, do not switch on or off lights or any electrical appliances or equipment, open doors and windows to increase the flow of fresh air.

If the alarm stops, it is necessary to find out what set it off and take consequent action.

If the alarm continues and the reason for the presence of gas cannot be determined or eliminated, leave the building and contact emergency services.

Technical specifications

Power supply (see available models)	230Vac ± 10% or 12Vac/dc ± 10% or 12…24Vac/dc
Frequency / Consumption	50/60Hz / 2 VA
Command outputs	• Solenoid valve at maximum 12Vdc / 13W • SPDT relay - capacity of the contact 250Vac 8A (2000VA)
Alarm threshold	9% of L.E.L[(1)] of the Methane or LPG, depending on the model
Operational lifetime of a detector	5 years from installation, extendable to 10 years with replacement of the sensor module
Max detectable area	approx.. 40 m^2
Visual warnings	Green LED (power is on) Yellow LED (warm-up / sensor abnormality) Red LED (gas alarm)
Audible alarms:	Piezoelectric buzzer 85dB at 1m
Protection Rating	IP42 when correctly installed
Product conformity standard	EN50194
CE EMC Electromagnetic Compatibility Low voltage (LVD)	EMC 2004/108/EC – EN50270 LV 2006/95/EC – EN60335-1
Operating ambient temperature / humidity	-10...+40 °C / 30... 90% RH (non condensing)
Dimensions	Mounting holes compatible with 503 type recessed mounting box Maximum dimensions: 138 x 104 x 40 mm
Enclosure	ABS/PC UL94-V0 flame retardant

(1) LEL = Lower Explosive Limit

Connection diagrams

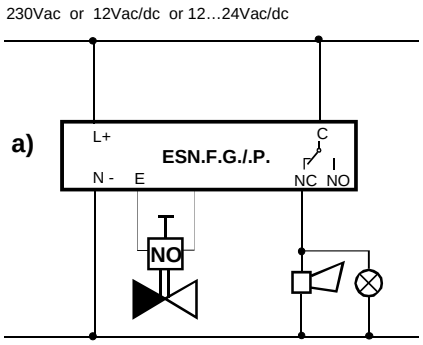
Wiring diagrams:

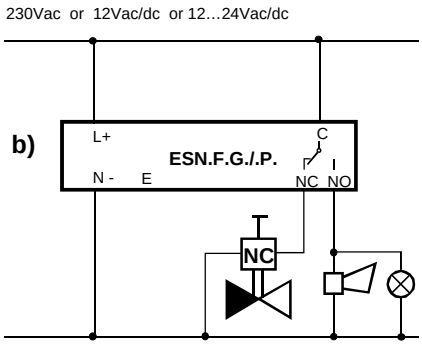
Example a): - Command of a solenoid valve (Normally Open); in this mode, when the alarm threshold is exceeded, the solenoid valve will close and therefore the gas supply will be cut-off.

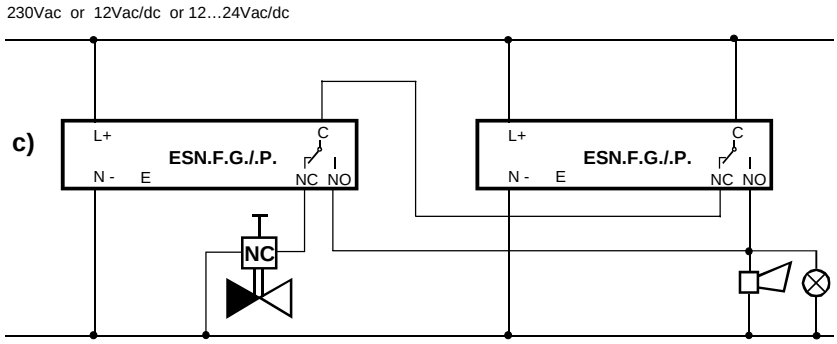
Example b): - Command of a solenoid valve (Normally Closed); in this mode the solenoid valve will close and therefore the gas supply will be cut-off when: the alarm threshold is exceeded, if there is a power failure and if the actual solenoid valve is disconnected.

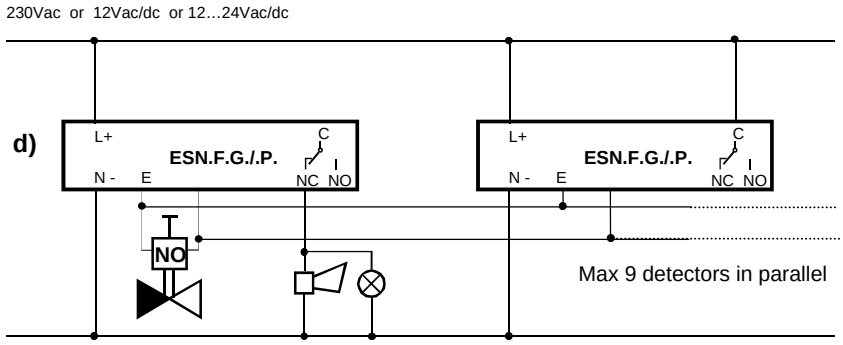
Example c): - Command of a solenoid valve (Normally Closed) and of visual and audible alarms from several locations. The contacts must be connected in series.

Example d): - Command of a solenoid valve (Normally Open) from several locations.
The outputs (up to 9) must be connected in parallel, respecting the polarities.









Installation data

To be filled in by Installer		*Installer's stamp*
Installation site		
Product order number		
Part number		
Installation date		