GSE-2

- Suitable for LPG and Methane
- Microprocessor control
- 4 to 20 mA signal
- IP65 enclosure
- Sintered head
- Catalytic sensor technology
- Sensor active indicator
- Auto calibration
- From -10°C to +60°C

According to
EN 60079-29-1
EN 50270-1 norms on gas detection

Application

NRG Tech Srl is recognised within the gas industry for providing a comprehensive range of high reliability gas detection for many applications. We have installed and commissioned natural gas, LPG and carbon monoxide sensors in applications such as boiler rooms, kitchens, car parks, aircraft hangers, factories and shopping centres. The GSE-2 is the gas sensor used with the complete range of NRG Tech Srl detector panels. Every NRG Tech Srl product is manufactured to meet relevant European Normatives and proposals for explosive and toxic gases.

Operation

When the GSE-2 senses the presence of gas, it sends a 4 - 20mA signal to the gas control panel proportional to the level of gas. The panel then operates a prealarm relay used for remote sirens or visual indicators. If the level of gas continues to rise then the main alarm relay is activated to break the electrical supply to a safety shut off valve.

CAUTION

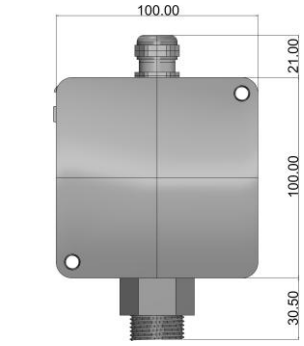
Carefully read the following instructions prior to installation of this device. Always keep this pamphlet for future reference.
Ensure that the gas detection system is wired correctly and is only used for the purpose for which it is intended.

Features

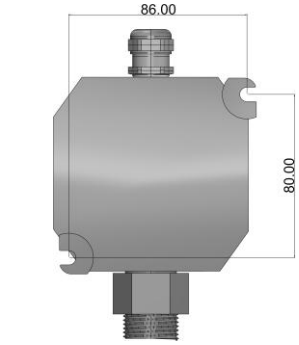
The GSE-2 is controlled by a microprocessor.
This conducts both self diagnostics and automatically calibrates the sensor when ambient conditions vary, thus avoiding false alarms. A PC based datalogger can be connected to the GSE-2 and information about the sensor can be read and printed out i.e.:

- the serial number
- the sensor condition
- how many times the sensor has been powered up
- how many alarms have occurred
- how many days of anticipated life remain
- how many auto adjusts have been made and
- the preset calibration state

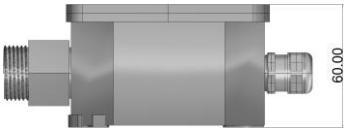
Overall dimensions



Top view



Bottom view



Side view

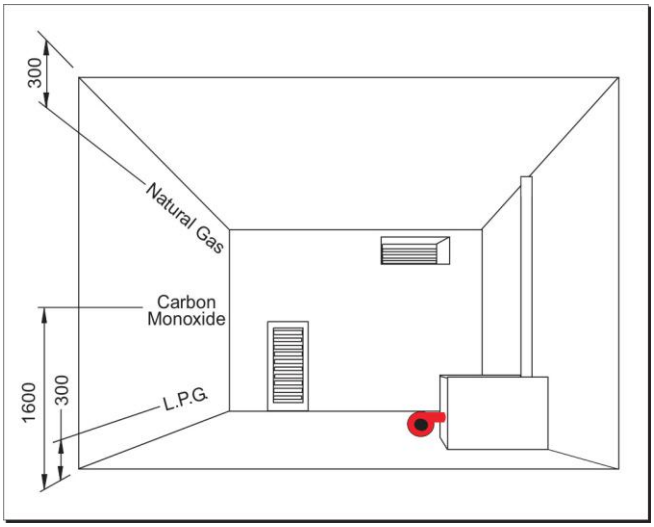
Diagrams

Installing a detector

The sensors must be mounted as shown below with the sintered head pointing vertically down.

Positioning Sensors

The GSE-2 sensor should be mounted in accordance with certain considerations. Do not position next to burners, heaters or ovens where temperatures above the room ambient may be experienced. It is, if possible, better to mount the sensors on the opposite wall. This is, of course, dependant on the size of the protected area. The following picture indicates installation heigh for various types of gases (dimensions in mm).

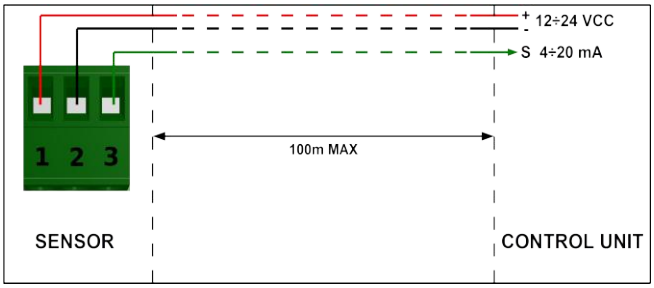


Important Notes

The installation of this gas sensor does not release the user from observing all the regulations concerning the characteristics, installation and the use of gas appliances; the ventilation of the environment and the elimination of combustion products in accordance with local recommendations, regulations and byelaws.
For any damage caused to people, property or animals resulting from incorrect connection, installation or application of this gas detector NRG Tech Srl will not be held responsible or liable.

Wiring Diagrams

Before connecting to the mains power, ensure the voltage is correct.
Carefully follow the instructions and the connections according to Regulations in force, keeping in mind that the signal cables should be laid separate from the power cables.



Warranty

The warranty term is 2 years from manufacturing date, in agreement with the following conditions. The components acknowledged as faulty will be replaced free of charge, excluding the replacement of plastic or aluminium cases, bags, packing, batteries and technical reports. The device must arrive free of shipment charges to the NRG Tech company. Defects caused by unauthorized personnel's tampering, incorrect installation and negligence resulting from phenomena outside normal functioning shall be excluded from the warranty.
The NRG Tech company is not liable for possible damage, direct or indirect, to people, animals or things, from product faults and from its enforced suspension of use.

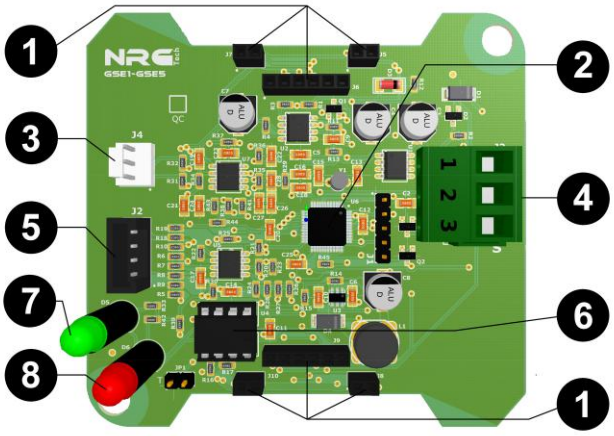
Maintenance

The detector must be checked and eventually recalibrated every 6 months. It is advisable to use the calibration/test kit provided by NRG Tech as it is specifically designed to interface with these devices. Calibration instructions are provided with the calibration kit.

Replacing Sensors

When replacing the sensing element, perform the first calibration in clean air as per the instructions in the manual of the new sensing element. Do not exchange the head containing the sensitive element between the detectors without performing the calibration procedure.

PCB Layout



1- Optional daughterboard connections.
2- 32bit microcontroller unit. Controls the whole system.
3- Verification tester connection.
4- Main connection with the control unit. It receives power from pin 1 (positive) and pin 2 (negative) and send a current signal through pin 3.
5- Gas sensor connector.
6- EEPROM for datalogger purposes (Not implemented for this release).
7- Green LED. Lights when supply voltage is applied. This light flashes during self diagnostics start up.
8- Red LED. Illuminate when the pre or main alarm gas threshold has been reached.

Technical Specifications

Supply	12÷24 VCC +/- 10%
Current consumption	90 mA Max @12V
Sensor technology	Catalytic
Sensor working range	0÷100% of L.E.L.
Detector range	0÷100% L.E.L.
Typical lifetime of sensing element	5 years
Output signal	4÷20 mA
Detector accuracy	+/- 1 % FS
Response time	< 30s
Functioning humidity	0-80% non condensed
Functioning temperature	from -10°C to +60°C
Max distance from control panel	100 m
Cable diameter	1 mm
Cable type	Shielded
Body material	Aluminium
External degree of protection	IP65

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