GAS LEAK DETECTOR FOR DOMESTIC USE WITH *INTERCHANGEABLE SENSOR*

series ***Beta*** model **SE330K**
series ***Beta*** model **SE333K**

Model	Detected gas	Logic	Power supply
SE330KM	Methane	Neg.	230Vac 50Hz / 12Vdc
SE330KG	L.P.G.	Neg.	
SE333KM	Methane	Pos.	
SE333KG	L.P.G.	Pos.	

Sensor module

Code	Detected gas	***Beta***
ZSDM1	METHANE	SE330KM/SE333KM
ZSDG1	L.P.G.	SE330KG/SE333KG

GENERAL DESCRIPTION

The ***Beta*** SE330K and SE333K gas detectors are methane or LPG control units with LEDs and a buzzer that warn of the presence of gas in the room. They are designed to be operated either directly or in remote mode.
The ***Beta*** detectors are calibrated to detect gas at 10% of the LEL (Lower Explosive Limit); this threshold can vary according to environmental conditions but will not exceed 15% of the LEL within the first five years of use. The Sensor module must be replaced at the end of these five years or if the "FAULT" LED turns on.
There is a label on the cover that should state the expiry date (5 years after the date of installation); this label must be compiled by the person who installs the detector, at the time of installation.

LEDS AND BUZZER

There are three LEDs on the front of each detector:

- GREEN LED (ON): indicates the instrument is powered.

- YELLOW LED (FAULT) + BUZZER: Indicates the sensor is broken.
- YELLOW LED (FAULT) blinking only: indicates the CO sensor needs to be replaced.

- RED LED (ALARM): indicates the concentration of gas in the air is above the alarm threshold.

If the gas sensor is defective, the buzzer will make a noise at a rate of every two seconds, turning on the yellow LED and relay output.
In the event of an alarm, the red LED turns on and the buzzer and relay are activated twenty seconds later.

LIGHTING DELAYS

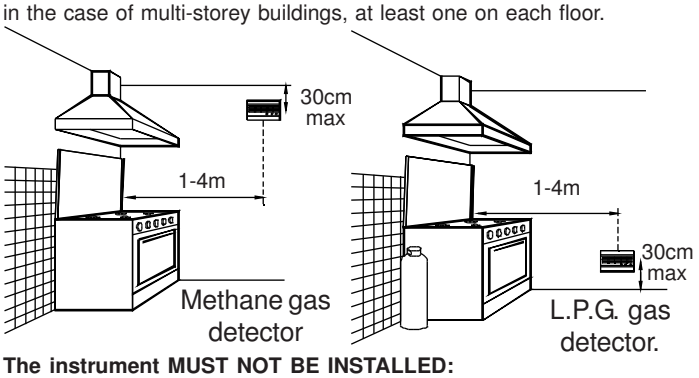
After the detector is turned on, the catalytic sensor in the detector takes about a minute to warm up, during which time the green LED blinks to indicate the alarm is disabled.

INSTALLATION

Attention: the instrument must be installed and put out of service by a specialized technician.
Your gas supply and any shut-off devices must be installed in conformity with the domestic laws in force.

INSTALLING THE INSTRUMENT

The instrument MUST BE INSTALLED:
- In the case of ***Beta*** SE330KM and ***Beta*** SE333KM methane gas detectors, at a maximum distance of 30 cm from the ceiling; in the case of ***Beta*** SE330KG and ***Beta*** SE333KG LPG gas detectors, at a maximum height of 30 cm above the floor.
- At a distance of between 1 and 4 metres from the gas appliance (cooker, boiler, etc.). If possible, in every room where there is a gas appliance and, in the case of multi-storey buildings, at least one on each floor.



The instrument MUST NOT BE INSTALLED:
- Directly above the sink or gas appliance.
- In small rooms where alcohol, ammonia, spray cylinders or other substances based on volatile solvents might be used.
- In closed environments or corners where there is no free circulation of air.
- Near walls or other obstacles that could prevent the flow of gas from the appliance to the detector, or extractors and fans that could divert the flow of air.
- In environments where the temperature could exceed 40°C or fall below –5°C.

INSTALLATION INSTRUCTIONS

Use a screwdriver to undo the screw on the right-hand side of the instrument and lift the cover (Fig 1).

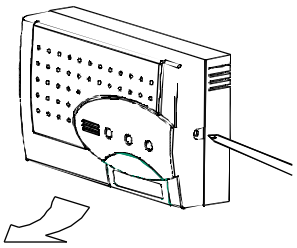


Fig.1

Position the base correctly and fasten it on the built-in 3-module box or on the wall, using the screws and dowels provided.

ELECTRICAL CONNECTION: POWER SUPPLY

Attention: undertrack cables are required to connect the instrument to the mains.
The gas detector must be powered at 230 Vac using terminals 1 and 2, or at 12Vdc using terminals 3 (+) and 4 (-). (Fig. 2).

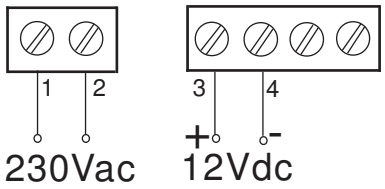


Fig.2

A circuit breaker must be fitted that is able to disconnect the detector from the power supply, with a contact distance of at least 3 mm, in accordance with the European standard IEC EN 60335-1.

CHARACTERISTICS OF THE OUTPUT SIGNAL

The ***Beta*** SE330K and SE333K control units have an output relay with voltage-free contacts; the rating of the contacts is 8A 250Vac/30Vdc.

GENERAL TERMS OF THE GUARANTEE
THIS CERTIFICATE IS THE ONLY DOCUMENT THAT ENTITLES YOU TO REPAIR OF THE PRODUCT UNDER THE TERMS OF THE GUARANTEE.

- The product is GUARANTEED for a period of 24 months from the date of purchase.
- The GUARANTEE does not cover damage caused by tampering, incorrect or improper use and installation.
- The GUARANTEE is valid only if it is duly compiled.
- In the event of defects covered by the GUARANTEE, the manufacturer will repair or substitute the product free of charge.

SERVICING AFTER THE GUARANTEE PERIOD:
Any repairs after the period of the GUARANTEE will be charged on the basis of the parts substituted and the cost of labour.

CONNECTION OF THE ELECTRIC VALVE AND REMOTE SENSORS

The ***Beta*** SE330K and SE333K control units each have two terminals (5-6) active when closed, for connecting the following remote detectors (Fig. 3):
for METHANE gas: model SE195KM or model SE396KM.
for LPG gas: model SE195KG or model SE306KG.
If the remote sensors are not connected to terminals 5 and 6, these must not be modified, and therefore kept disconnected at all times.
Do not forget that the electric valve must be installed on the gas pipe outside the room to be controlled as it cannot protect against leaks upstream.
The ***Beta*** SE330/SE333 + ***Beta*** SE330/SE333 configuration is IMQ certified.
The other configurations, ***Beta*** SE330/SE333 + SE195 K and ***Beta*** SE330/SE333 + SE396K are not IMQ certified.

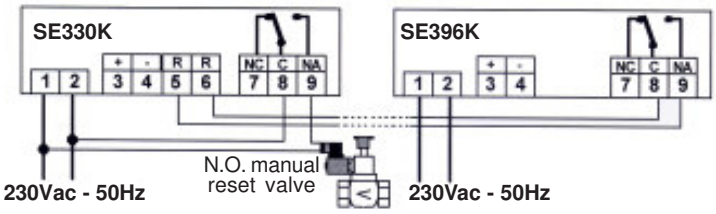


Fig. 3 Example of connection of a remote sensor.

The ***Beta*** SE396K detector is not IMQ certified but complies fully with standard IEC UNI EN 50194.

POSITIVE LOGIC – NEGATIVE LOGIC

The ***Beta*** SE330K and SE333K gas detector can control an electric valve using two different logics:
1 – POSITIVE LOGIC (SE333K)
2 – NEGATIVE LOGIC (SE330K)
The **J2 JUMPER** allows you to select the one required.
N.B. The J2 JUMPER is set by default to NEGATIVE LOGIC (SE330K).

POSITIVE LOGIC (SE333K): in this case, the coil of the relay is always live (Fig. 4) to ensure the **inherent safety** of the relay.
It is perfect for N.C. (normally closed) electric valves (Fig. 5).
In the event of an alarm, contacts 7 and 8 remain closed until the alarm stops.

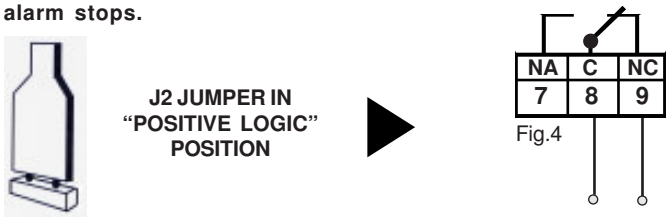


Fig.4

EXAMPLE OF APPLICATION WITH N.C. ELECTRIC VALVE SE333

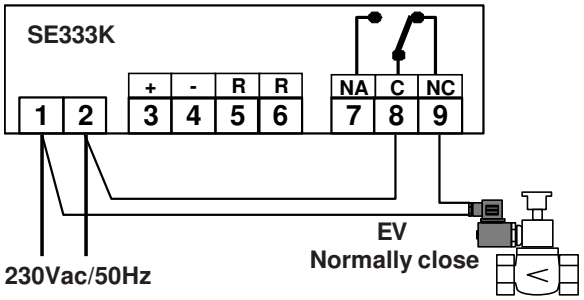


Fig.5

ATTENTION: If there is a temporary loss of power during operation with positive logic, the N.C. valve closes automatically and will need to be reset manually when power is restored.

NEGATIVE LOGIC (SE330K): in this case, the coil of the relay is kept deactivated (Fig. 6).
It is perfect for N.O. (**normally open**) electric valves (Fig. 7) or N.C. (**normally closed**) electric valves (Fig. 8).
In the event of an alarm, contacts 8 and 9 remain closed until the alarm stops.

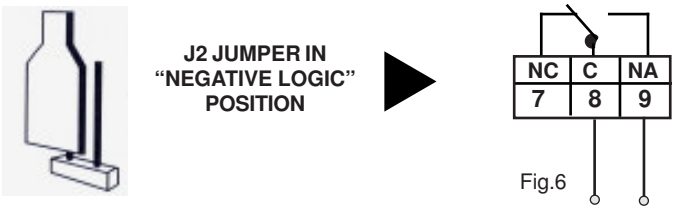


Fig.6

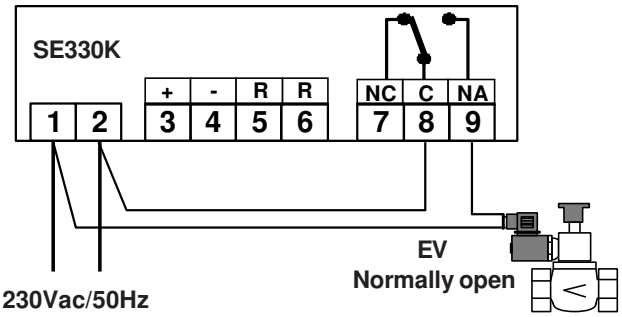


Fig.7

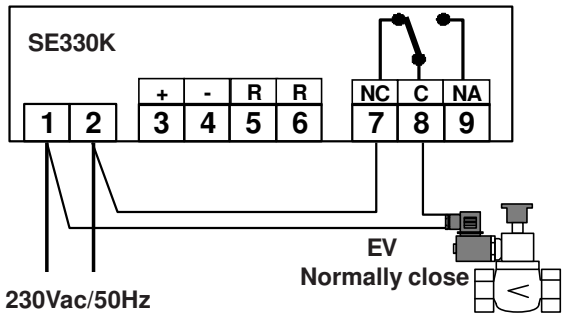


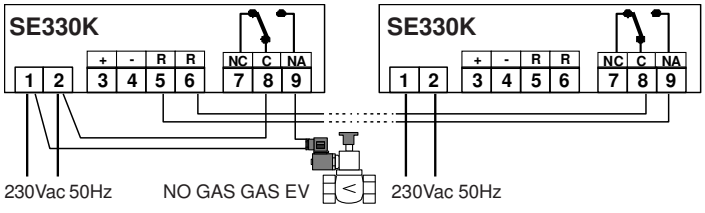
Fig.8

ELECTRICAL CONNECTION WITH SEVERAL DETECTORS:

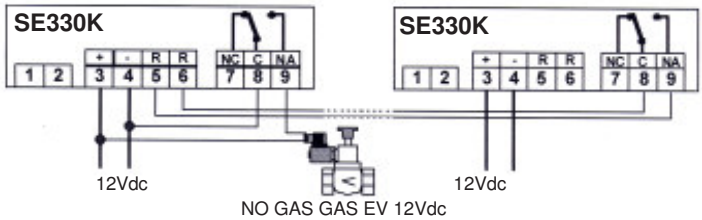
Connection of two detectors with a single electric valve is shown in the diagrams below. It is possible to connect more than two detectors, repeating the same connections.

SE330K

Connection with Normally Open manual reset electric valve (with relay normally deactivated) and a second SE330K detector.



Connection with 12 Vdc Normally Open manual reset electric valve (with relay normally deactivated) and a second SE330K detector.



GUARANTEE CERTIFICATE

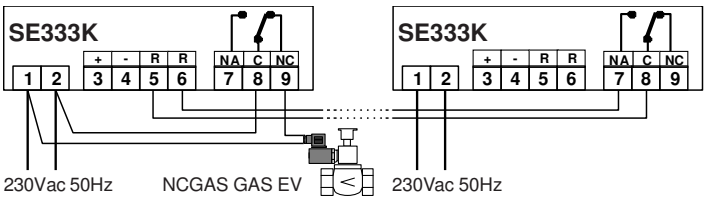
TO COMPILE AND SEND IN CASE OF DAMAGE

DEVICE: ☐ SE330KM ☐ SE330KG ☐ SE333KM ☐ SE333KG
Serial number (s.n.)_____
DEALER
Stamp: Date of purchase: _____/_____/_____

USER
Surname and name _____
Address _____ n°_____
Postcode _____ Town/city _____
Telephone_____

SE333K

Connection with Normally Closed manual reset electric valve (with relay normally activated) and a second SE333K detector.



Connection with 12 Vdc Normally Closed manual reset electric valve (with relay normally activated) and a second SE333K detector.

SE333K **SE333K**

12Vdc 12Vdc

NC GAS GAS EV 12Vdc N.C.

OPERATION TEST

In the case of the ***Beta*** SE330K and SE333K models, before carrying out the operation test, open the cover under the three LED lights (Fig. 9) with a flat-headed screwdriver.

Fig.9

When this is done, it is possible to test operation of the instrument by pressing and holding the little TEST button on the **Sensor module** (Fig. 10) of the ***Beta*** SE330K and SE333K control unit for at least 2 seconds, or the button on the card of the ***Beta*** SE396K remote detector, if connected, for at least 30 seconds.
All the LEDs turn on and the buzzer and relay output are activated for 5 seconds.

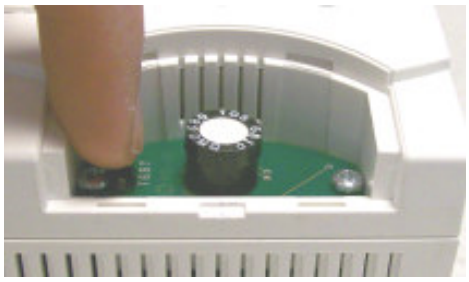


Fig.10

You will then need to re-engage the electric valve connected to the output of the gas detector (if present).

ROUTINE TESTING

You are advised to ask the installer to give the detector a general test at least once a year.
IMPORTANT: Do not use pure gas, such as that in a lighter, directly on the sensor since the sensor could be irremediably damaged.

LOWER EXPLOSIVE LEVEL (L.E.L.)

You need to use a calibration cylinder with sample gas to test correct operation of the sensor.

If you wish to recreate the dangerous conditions the gas sensor is meant to protect against, do not use the gas of normal domestic appliances. Our detectors are calibrated at 10% of the LEL (lower explosive level).

Here is a simple explanation: as an example, a kitchen measures 3 metres in width, 4 metres in length and 3 metres in height.

- The volume of the kitchen is equivalent to 4 x 3 x 3, and therefore 36 m^3 or 36,000 litres.

There is a dangerous mix when methane accounts for 5% of the volume of the kitchen.

- This 5% is called the LEL (lower explosive limit).

- In this case, 5% of 36,000 litres is 1800 litres (LEL).

- Our detectors, being IMQ certified, are activated at 10% of the LEL and therefore at 10% of 1800 litres which, in this case, is 180 litres, AT ONE TENTH OF THE LOWER EXPLOSIVE LIMIT (LEL).

Taking into account the fact that a domestic hob has a nozzle a few tenths of a millimetre in length and that the pressure is just a few millibars, it would take several hours to produce 180 litres of methane (and trigger the sensor).

Even if the nozzle is larger, the very particular and strong odour of methane would make it impossible for anyone in the room not to notice and realise the serious danger, even when the amount of methane in the room is too little to cause an explosion.

REPLACING THE SENSOR

N.B. The Sensor module must be replaced by a specialized technician.
The sensor module should be replaced no more than TWICE, for a total product life-span of 15 years.

Replace the Sensor module if the “FAULT” LED starts blinking, or by the expiry date on the label on the cover.
Replace the label on the cover stating the expiry date (5 years after the date of installing the new sensor module); this label must be compiled by the person who installs the detector at the time of replacing the sensor module.

SENSOR MODULE

Code	Detected gas	Model
ZSDM1	Methane	SE330/SE333KM
ZSDG1	L.P.G.	SE330/SE333KG

N.B. Make sure the ***code*** of the new ***Sensor module*** matches the **code** on the ***Sensor module*** to be replaced.

1_Turn off the detector, unplug it from the mains and use a screwdriver to lever off the little cover under the three LEDs (Fig. 11).

Fig.11

2_Undo the two screw fasteners on the Sensor module to be replaced (Fig. 12).

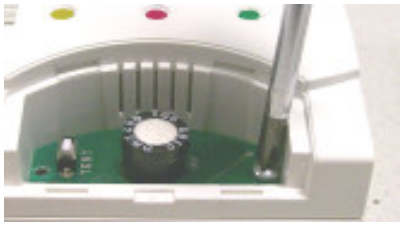
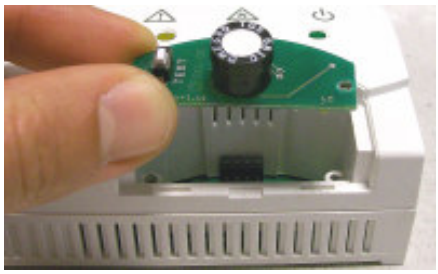


Fig.12



3_Remove the ***Sensor module*** to be replaced (Fig. 13).

Fig.13

4_Check the new ***Sensor module*** is compatible with the one to be replaced (**if the sensor module is not compatible, the YELLOW LED and BUZZER turn on**) and carefully insert the 4 connectors in the correct place.

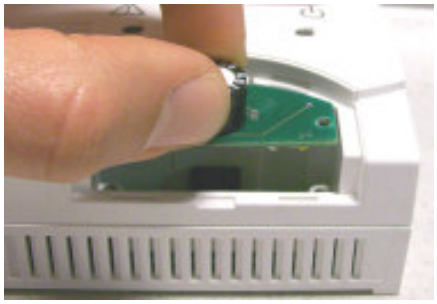


Fig.14

5_Fasten the ***Sensor module*** with the two screws and close the cover, first inserting the two tabs at the bottom (Fig. 15). The instrument can now be turned on.

Fig.15

After the instrument is turned on, the catalytic sensor in the detector takes about a minute to 'warm up', during which time the green LED blinks to indicate the sensor is warming up and the detector is not operational.

ATTENTION! In the event of an alarm:

1) Put out all naked flames.
2) Close the valve on the gas meter or LPG cylinder.
3) Do not turn any of the lights on or off; do not use any electrical appliances or devices.
4) Open the doors and windows to increase ventilation in the room.
If the alarm stops, find the cause and take appropriate action.
If the alarm continues and you cannot find and eliminate the cause of the leak, vacate the premises and, when you are outside, contact the gas emergency service.

WARNING

Remove any dust on the surface of the instrument with a cloth. Do not attempt to open or dismount the gas detector since this could result in electric shock and damage to the product. Bear in mind that the sensor is also sensitive to commonly used products such as sprays, detergents, alcohol, glue and paint. These products can contain substances which, in high quantities, could trigger the sensor and cause false alarms.
It is advisable to ventilate the room when using these products.
Do not forget that the detector cannot detect leaks outside the room in which it is installed or leaks in the walls or under the floor. The gas (methane or LPG) contains an additive that gives it an unpleasant odour, to make it easy to detect by smell. If a ring on a gas hob is left on without being lit, even for several minutes, the amount of gas will not be sufficient to trigger the alarm of the detector (even though it can be clearly smelt). In fact, the amount of gas in the room could be under the alarm threshold.
The detector does not work when there is a power cut.

TECHNICAL CHARACTERISTICS

- Power supply 230Vac, 50 Hz / 12 Vcc 2.5W
- Power consumption 20mA max
- Operation temperature -10°C…. +40°C
- Relative humidity 30%…. 90% RH
- Alarm threshold at 10% of the LEL (lower explosive limit) of the gas.
- Warming up period after the instrument is switched on: about 1 minute
- Acoustic level of buzzer: 85 dB (A) at 1 metre
- Electronic self-diagnosis with signal to indicate malfunction.
- Rated to IP42
- Remote unit input
- Conforms to standard IEC UNI EN 50194

TO BE COMPILED BY THE INSTALLER:

Date of installation _____

Date of replacement _____

Attention: the detector must be replaced 15 years after the date of installation on this voucher

Site of installation _____

Serial number (s.n.) _____
(Written on the inside of the plastic container).

Date of initial replacement of sensor module:_____

Date of second replacement of sensor module:_____

Attention: the entire detector must be replaced five years after second replacement of the sensor module.

Stamp

Signed _____

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