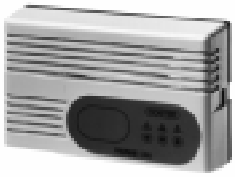
DOMESTIC GAS DETECTORS COMPLETE WITH SOLENOID VALVE

RGE 148 - 248 C1 Eng.

DISCONTINUED PRODUCT



- Power supply 220/240 V ac. Protection IP 42
- Includes internal monitoring sensor for methane (natural gas) or propane - LPG
- 20 V dc output with impulses to operate EVG 841 solenoid valve
- Alarm threshold below 25% LEL (lower explosive limit)
- Alarm and sensor fault LEDs
- Construction and operation according to BSI 7348, EN 50054 and CEI-UNI/ CIG 70028

CE

TO SEE A SUITABLE REPLACEMENT PRODUCT

APPLICATION

RGE 148 and 248 gas detectors are designed to guarantee the safe use, in non-industrial premises, of domestic gas appliances such as : cookers, boilers and calorifiers.
They are able to monitor, by means of an internal sensor, the concentration in the air of the most common types of combustible gas such as : methane (natural gas), propane - LPG.

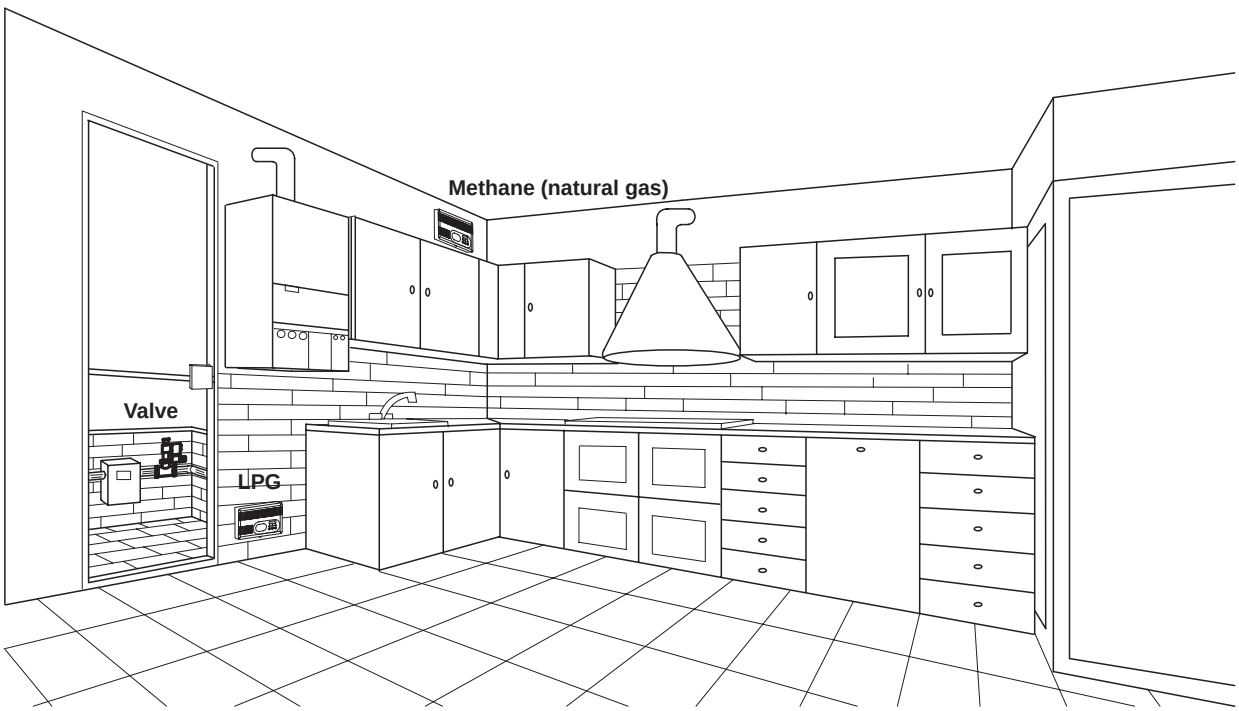
The 20 V dc output with impulses can operate only the EVG 841 gas shut-off valve supplied with the detector.

MODELS

Code	Power supply	Type of gas	Internal sensor	Output	Valve supplied
RGE 148 **RGE 248**	220/240 V ac 220/240 Vac	methane (natural gas) propane - LPG	TGS 842 TGS 813	electric impulses of 20 V dc electric impulses of 20 V dc	**EVG 841** 3/4" **EVG 841** 3/4"

TYPICAL INSTALLATION

fig. 1



OPERATION

When powered the detector does not signal alarms for a period of two minutes so as to give time to the sensor to become stabilised.
Following this period it is ready to signal an alarm.
The internal sensor monitors the level of gas concentration in the surrounding air and the detector, in the event that alarm threshold is exceeded, causes the red alarm LED (fig. 2.4) to light up faintly and, after 30 seconds, to light up brightly; at this point the detector also switches on audible alarm and sends a signal to close EVG 841 valve.
To re-start normal functioning, the valve must be opened manually using the reset knob (fig. 2.6).
The alarm threshold is equal to a concentration of 0.8% (8,000 ppm) of methane (natural gas) in the air and 0.35% (3,500 ppm) of propane - LPG, which corresponds to about 16% of LEL (lower explosive limit). The regulations require that the alarm threshold is below 25% of LEL.
LEL methane (natural gas) = 5 % (50,000 ppM);
LEL propane LPG = 2.1 % (21,000 ppM).
Consequently,in the event of a gas leak, RGE detectors are able to intervene in conditions of maximum safety.

WARNING LEDS

- Green LED - Line (fig. 2.5) : When detector is powered, LED flashes for two minutes and then remains lit.
- Red LED - Alarm (fig. 2.4) : When gas concentration reaches alarm threshold LED lights up faintly and, after 30 seconds, lights up brightly.
- Yellow LED - Sensor fault (fig. 2.3) : Lights up when sensor is faulty.

CONSTRUCTION

DETECTORS

RGE 148-248 consist of two parts:

- Base module (fig. 2.1 and 3.1) in shockproof plastic material, suitable for wall mounting, which houses :
  – Printed circuit (fig. 3.2), constructed according to Italian Electrotechnical Committee (CEI) standards, on which are located : terminal block for electrical connections (fig. 3.8), alarm buzzer (fig. 3.10), sensing element (fig. 3.9) and transformer (fig. 3.7).
  – Cutout for passage of leads from rear (fig. 3.4)
  – Mounting holes (fig. 3.3) which are a standard distance apart and therefore suitable for fixing to a flush-mounting pattress if required.
  – Hinge elements (fig. 3.5)
- Cover module (fig. 2.2), in shockproof plastic material, on the facia of which are the fault, alarm and line LEDs (fig. 2. 3.4.5).

The two modules are attached to each other by engaging the corresponding hinge elements and by means of the securing clip on base module (fig. 3.6) and catch on cover module.

EVG 841 SOLENOID VALVE

This is of normally-open type with manual re-set.
The body is in OT 58 nickel-plated brass with 3/4" female screwed gas joints.
The closure mechanism is attached to the valve by means of a union and is sealed by a gasket. The mechanism itself consists of a brass plug with a thrust spring and rubber sealing gland. The release block is mounted perpendicularly to the plug and is operated by a coil (fig. 2.7) with direct current at very low voltage.

INSTALLATION

DETECTOR

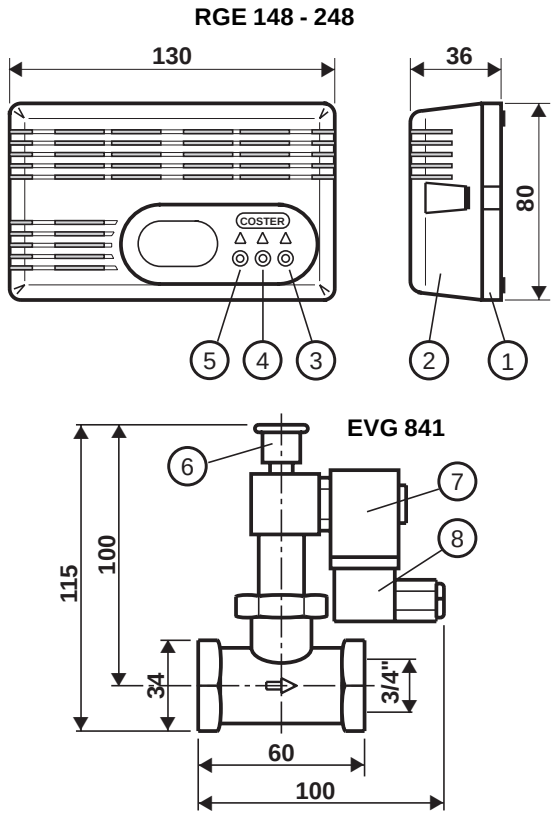
Exact siting of detector is essential for its correct functioning and depends on the type of gas to be monitored and its density in respect of air :

Methane (natural gas) (light) : 10 to 50 cm. from ceiling
LPG (heavy) : 10 to 50 cm. from floor

It is advisable to site detector at a certain distance from domestic appliances in order to avoid unnecessary alarms :

COVER MODULE/OVERALL DIMENSIONS

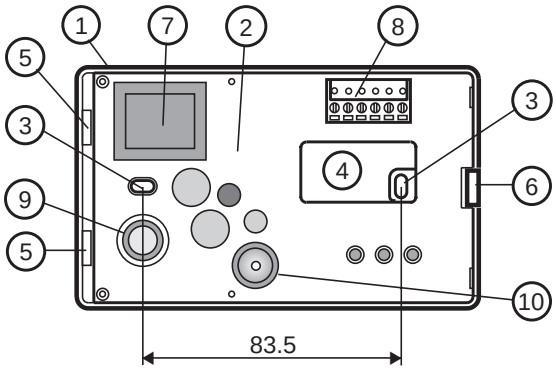
fig. 2



1 – Base module
2 – Cover module
3 – Fault sensor LED
4 – Alarm LED
5 – Line LED
6 – Valve reset knob
7 – Coil
8 – Union

BASE MODULE

fig. 3



1 – Base module
2 – Printed circuit
3 – Mounting holes
4 – Cutout for leads
5 – Hinge elements
6 – Securing clip
7 – Transformer
8 – Terminal block
9 – Sensing element
10 – Alarm buzzer

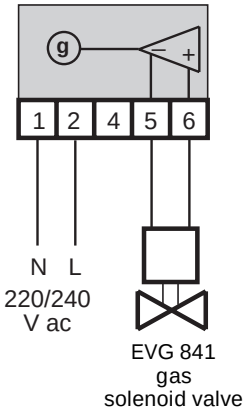
Burners and calorifiers : 1 to 2 metres
Cookers : 2 to 3 metres

EVG 841 SOLENOID VALVE

This must be installed on the gas inlet pipe, if possible **outside the premises to be controlled, in an easily accessible place protected from the weather.**
In LPG installations with an external tank, it must be installed downstream of the low pressure reducing valve (30 to 40 mbar).
In LPG installations with cylinders, it must be installed downstream of the pressure reducing valve and, if possible, connected directly to the latter by means of a screwed connector.

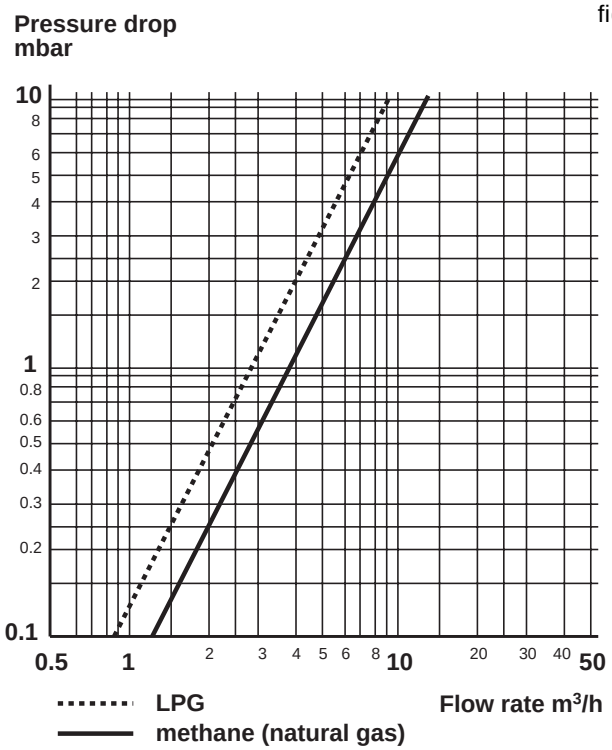
WIRING DIAGRAM

fig. 4



EVG 841 SOLENOID VALVE - PRESSURE DROP

fig. 5



1 mbar = 10 mmWG = 100 Pa

TECHNICAL DATA

DETECTOR

Power supply	220 /240 V ac
Frequency	50 to 60 Hz
Consumption	2.5 VA
Electromagnetic compatibility	EEC 93/68
Output:	
– type	by impulses
– voltage	~ 20 V dc
– rated capacity	1 EVG 841 solenoid valve
Audible warning	85 db
Sensing element :	
– methane (natural gas) (RGE 148)	Figaro TGS 842
– propane - LPG (RGE 248)	Figaro TGS 813
Sensor heating time	120 sec.
Alarm threshold:	
– methane (natural gas) (RGE 148)	0.8 % (8,000 ppM)
– propane - LPG (RGE 248)	0.35 % (3,500 ppM)
Room temperature :	
– operating	0 to 40 °C
– storage	– 20 to + 60 °C
Relative humidity operating	20 to 80 % a 35 °C
Protection	IP 42
Weight	250 g
Dimensions	130x80x37 mm

EVG 841 SOLENOID VALVE

Test pressure	240 mbar
Maximum working pressure	200 mbar
Body	OT58 nickel plated
Plug	OT58 nickel plated
Seal	Rubber
Plug seal	O–Ring rubber
Protection	IP 54
Weight	400 g

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