DISCONTINUED PRODUCT

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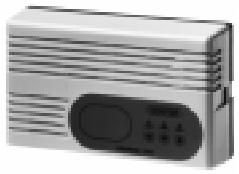
DOMESTIC GAS DETECTORS WITH RELAY OUTPUT

RGE 128 - 228 C1 Eng.



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

CE

APPLICATION

RGE 128 and 228 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 air of the most common types of combustible gas such as : methane (natural gas), propane - LPG.

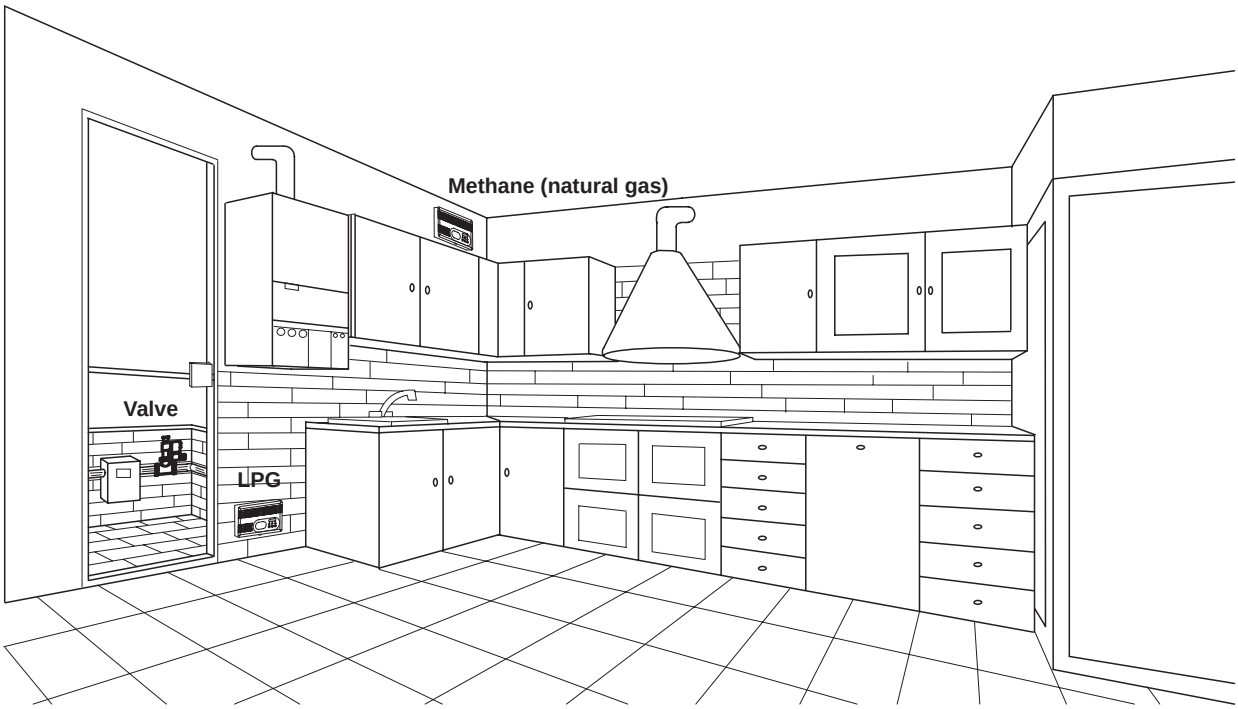
The output relay can control a gas shut-off valve, an aeration fan, etc.

MODELS

Code	Power supply	Type of gas	Internal sensor	Output
RGE 128 **RGE 228**	220/240 V ac 220/240 V ac	methane (natural gas) propane - LPG	TGS 842 TGS 813	SPDT relay SPDT relay

TYPICAL INSTALLATION

fig. 1



OPERATION

When it is 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, in the event that the alarm threshold is exceeded, the detector causes the red alarm LED (fig. 2.4) to light up faintly, and, after about 30 seconds, to light up brightly ; at the same time the detector switches on the audible alarm and activates the output relay.
The alarm threshold is equal to a concentration in air of 0.8% (8,000 ppm) of methane (natural gas) and 0.35% (3,500 ppm) of propane - LPG, which corresponds to about 16% of LEL (lower explosive limit). The regulations require that alarm threshold is below 25% of LEL.
LEL methane (natural gas) = 5% (50,000 ppm);
LEL propane = 2.1% (21,000 ppm).
Accordingly, 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.

OUTPUT RELAY

The output relay can be used in two different ways :
- Normally not energised :
  – Link (fig. 3.14) positioned on the left (L);
  – Under normal conditions (detector powered and not in alarm state) relay is not energised with contact 5-6 closed and 4-5 open;
  – Under alarm conditions, the relay is energised with contact 5-6 open and 4-5 closed;
- Normally energised (BSI 7348 requirement) :
  – Link (fig. 3.14) positioned on the right (R);
  – Under normal conditions (detector powered and not in alarm state), relay is energised with contact 5-6 open and 4-5 closed;
  – Under alarm conditions, relay is not energised with contact 5-6 closed and 4-5 open.

LATCHING ALARM

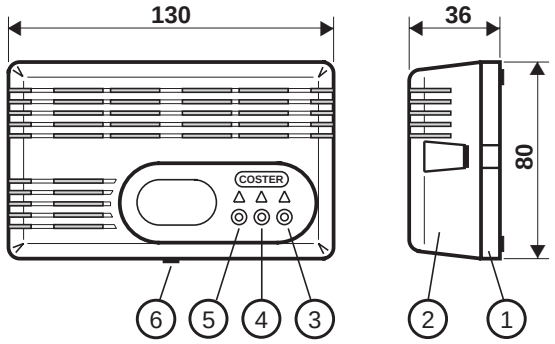
Once in alarm state, if internal link (fig. 3.13) is positioned on the left (L - with Latching Alarm), this state remains even when gas concentration returns below threshold level; to return relay to normal position it is necessary to press reset button (fig. 2.6). If link is positioned on right (R - without Latching Alarm), when gas concentration returns below threshold level relay returns automatically to its normal position.

CONSTRUCTION

RGE 128-228 consist of two parts :
- Base module (fig. 2.1 and fig. 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. 3.9), output relay link (fig. 3.14), Latching Alarm link (fig. 3.13), reset button (fig. 3.12), alarm buzzer (fig. 3.11), sensing element (fig.3.10), transformer (fig. 3.7) and airtight output relay containing inert gas (fig. 3.8).
  – 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 facia of which are 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 the base module (fig. 3.6) and the catch on the cover module.

COVER MODULE/OVERALL DIMENSIONS

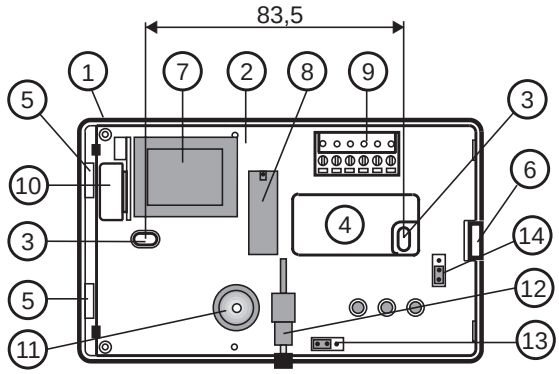
fig. 2

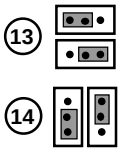


1 – Base module
2 – Cover module
3 – Sensor fault LED
4 – Alarm LED
5 – Line LED
6 – Reset button

BASE MODULE

fig. 3





L – With Latching Alarm
R – Without Latching Alarm

L – Relay normally not energised
R – Relay normally energised

1 – Base module
2 – Printed circuit
3 – Mounting holes
4 – Cutout for leads
5 – Hinge elements
6 – Securing clip
7 – Transformer
8 – Output relay
9 –Terminal block
10 – Sensing element
11 – Alarm buzzer
12 – Reset button
13 – Latching Alarm link
14 – Relay link

INSTALLATION

DETECTOR

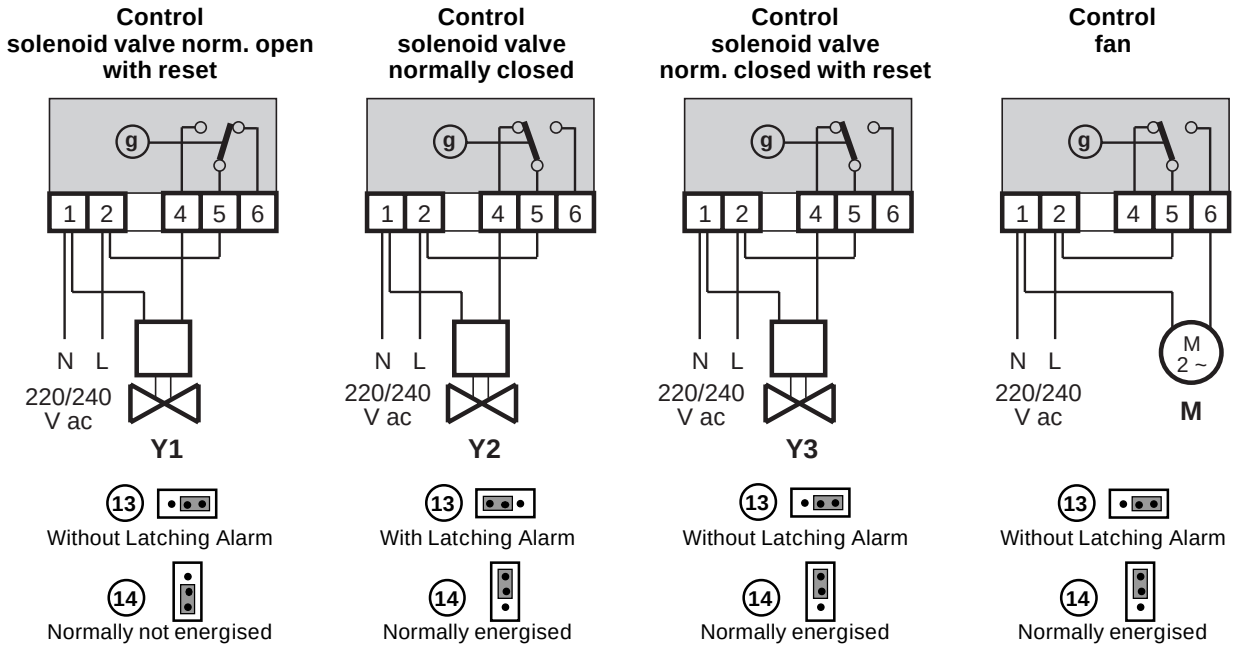
The exact siting of detector is essential for its correct functioning and depends on the type of gas to be monitored and its density in respect of air :
Methane (natural gas) (light) : 10 to 50 cm. from ceiling
LPG (heavy) : 10 to 50 cm. fropm floor
It is advisble to site detector at a certain distance from domestic appliances in order to avoid unnecessary alarms :
Burners and calorifiers : 1 to 2 metres
Cookers : 2 to 3 metres

SHUT-OFF 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 DIAGRAMS

fig. 4



Relay contact is shown in condition of detector powered and not in alarm

Y1 – Solenoid valve N.O. with reset
Y2 – Solenoid valve N.C.
Y3 – Solenoid valve N.C. with reset
M – Aeration fan

TECHNICAL DATA

Power supply	220/240 V ac
Frequency	50 to 60 Hz
Consumption	2.5 VA
Electromagnetic compatibility	EEC 93/68
Output relay :	
– type	airtight with inert gas
– contacts	SPDT voltage-free
– rated voltage	250 V
– rated capacity	5 (1) A
Audible warning	85 db
Sensing element :	
– methane (natural gas) (RGE 128)	Figaro TGS 842
– propane - LPG (RGE 228)	Figaro TGS 813
Sensor heating time	120 s
Alarm threshold :	
– methane (natural gas) (RGE 128)	0.8 % (8,000 ppM)
– propane - LPG (RGE 228)	0.35 % (3,500 ppM)
Room temperature :	
– operation	0 to 40 °C
– storage	– 20 to + 60 °C
Relative humidity operating	20 to 80 % to 35 °C
Protection	IP 42
Weight	250 g
Dimensions	130x80x37

COSTER
CONTROLLI TEMPERATURA ENERGIA

20132 Milan	Head Office & Sales
Via San G.B. De La Salle, 4/a	Tel. +39.02.2722121 (TI) Tel. +39.02.45476193 (FW) Fax +39.02.2593645
00146 Rome	Reg. Off. Central & Southern
Viale G. Marconi, 437	Tel. +39.06.5573330 Fax +39.06.5566517
25048 Edolo (BS)	Orders and Shipping
Via Gen. Treboldi 190/192	Tel. +39.0364.7732.00/02 Fax +39.0364.770016
Web: www.coster.info	E-mail: info@coster.info

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