# GAS MONITORING SENSORS FOR DOMESTIC PREMISES

# SRC C1 Eng.

- Power supply 230 V ~ or 12 V Protection IP42
- For use connected to RGM or RGD detectors
- Supplied with internal sensing element for methane (natural gas) or propane LPG or carbon monoxide
- Output signal 0.5 to 5 V dc ; Pre-alarm threshold 1.5 V dc ; Alarm threshold 2.5 V dc
- Pre-alarm threshold (1.5 V): methane (nat. gas)=0.5% (5,000 ppm); propane LPG=0.2% (2,000 ppm); carbon monoxide= 0.03% (300 ppm)
- Alarm threshold (2.5 V): methane (nat. gas)=0.8% (8,000 ppm); propane-LPG=0.35% (3,500 ppm); carbon monoxide=0.05% (500 ppm)
  Power and sensor fault LEDs

LPG (heavy)

- Power and sensor fault LEDs
- Construction and operation according to BSI 7348, EN 50054 and CEI-UNI:CIG 70028 regulations

# APPLICATION

SRC gas monitoring sensors are designed to guarantee the safe use of domestic gas appliances such as : cookers, boilers and calorifiers.

They can control, by means of an internal sensing element, the concentration in air of dangerous gases which may be present in domestic premises eg : methane (natural gas), propane - LPG, carbon monoxide.

Connected to RGM or RGD detectors, they permit using one or two monitoring points in addition to the detector's internal sensor.

#### INSTALLATION

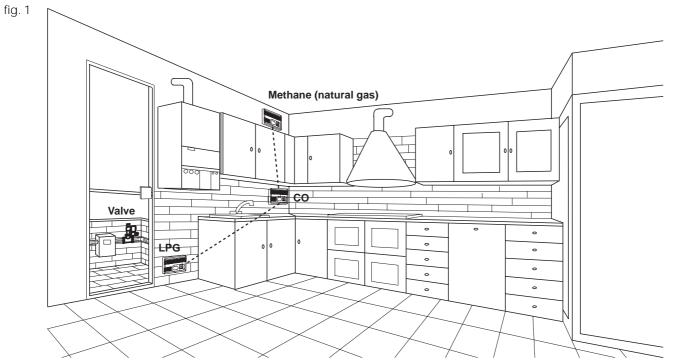
The exact siting of the monitoring sensor is essential for its correct functioning and depends on the type of gas to be monitored and its density in respect of air :

methane (natural gas) (light)	: 10 to 50 cm. from ceiling
MODELO	

#### MODELS

Code	Power supply	Type of gas	Internal sensor	% gas at 2.5 V –		onnections 4x1.5mm <sup>2</sup>	Suitable detectors RGM - RGD
SRC 158 SRC 152 SRC 258 SRC 252 SRC 358 SRC 352	230 V ~ 12 V – 230 V ~ 12 V – 230 V ~ 12 V –	methane (natural gas) methane (natural gas) propane - LPG propane - LPG carbon monoxide carbon monoxide	TGS 842 TGS 842 TGS 813 TGS 813 TGS 812 TGS 812	0.8 % 0.8 % 0.35 % 0.35 % 0.05 % 0.05 %	50 m 50 m 50 m 50 m 50 m 50 m	75 m 75 m 75 m 75 m 75 m 75 m	128 - 228 - 148 - 248 122 - 222 128 - 228 - 148 - 248 122 - 222 128 - 228 - 148 - 248 122 - 222 128 - 228 - 148 - 248 122 - 222

#### **TYPICAL INSTALLATION**



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: 10 to 50 cm. from floor : 150 to 200 cm. from floor

carbon monoxide: 150 to 200 cm. from floorIt is advisable to site the detector at a certain distance from the<br/>domestic appliances in order to avoid unnecessary alarms :Burners and calorifier:1 to 2 metres<br/>: 2 to 3 metres

### **ELECTRICAL CONNECTIONS**

The power lines for SRC... sensors can be in parallel with those of the detector or taken separately from another point of the mains network. The electric leads for signals (terminals 5 and 6 of sensors) must have a cross section of  $1 \text{ mm}^2$  for distances up to 50 metres and of 1.5 mm<sup>2</sup> for distances up to 70 metres.



# **OPERATION**

When powered the detector remains inactive for a period of two minutes so as to give time to the sensing element to become stabilised. This condition is indicated by the green LED (fig. 2.3) flashing

The internal sensing element (fig. 3.9) monitors the gas concentration level in the surrounding air and converts it into an output signal of 0.5 to 5 V dc which it trasmits to the detector (RGM or RGD).

When the gas concentration reaches the pre-alarm threshold, the sensor transmits a 1.5 V dc signal to the RGM or RGD detector; when the alarm threshold is reached, transmits a 2.5 V dc signal. The detector indicates the pre-alarm or alarm state according to the signal received.

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 = 2.1 % (21,000 ppm)

The danger of carbon monoxide depends on the level of concentration and on the time of exposure to it :

Concentration	Time	Effect
0.01 % (100 ppm)		Irrelevant
0.03 % (200 ppm)	60 min.	Lethargy
0.05 % (300 ppm)	90 min.	Headache, nausea
0.06 % (500 ppm)	90 min.	Loss of senses
0.07 % (600 ppm)	120 min.	Coma, death
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The alarm threshold is equal to a concentration of 0.05 % (500 ppm) of carbon monoxide in the air and the pre-alarm threshold is 0.03 % (300 ppm).

#### WARNING LEDS

- Green LED Line (fig. 2.3) : When sensor receives power, LED flashes for two minutes and then remains lit.
- Yellow LED Sensor fault (fig. 2.4): Lights up when sensing element is faulty.

# CONSTRUCTION

Sensors 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. 3.8), sensing element (fig. 3.9) and transformer (fig. 3.7)
  - Cutout for passage of leads from rear (fig. 3.4).
  - Mountig 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 line and fault LEDs (fig. 2. 3.4). The two modules are attached to each other by engaging the corresponding hinge elements and by means of securing clip on base module (fig. 3.6) and catch on cover module.

# **TECHNICAL DATA**

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ENERGIA

TEMPERATURA

Power supply : - SRC 158 - 258 - 358 - SRC 152 - 252 - 352 Consumption Electromagnetic compatibility Output signal	230 V ~; 50 to 60 Hz 12 V – 2.5 VA EEC 93/68 0.5 to 5 V dc
Pre-alarm threshold (1.5 V dc) :	
- methane (natural gas) (SRC 152 - 158)	0.5 % (5,000 ppm)
<ul> <li>propane - LPG (SRC 252 - 258)</li> <li>carbon monoxide (SRC 352 - 358)</li> </ul>	0.2 % (2,000 ppm) 0.03 % (300 ppm)
Alarm threshold (2.5 V dc) :	0.00 % (000 ppm)
<ul> <li>methane (natural gas) (SRC 152 - 158)</li> <li>propane - LPG (SRC 252 - 258)</li> </ul>	0.8 % (8,000 ppm) 0.35 % (3,500 ppm)

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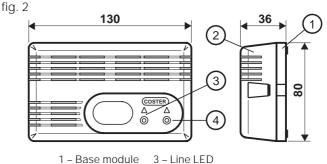
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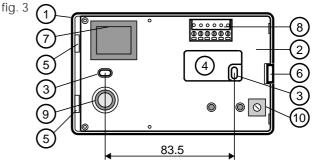
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# **COVER MODULE/OVERALL DIMENSIONS**



4 - Sensor fault LED 2 – Cover module

**BASE MODULE** 



1 - Base module 2 - Printed circuit 3 – Mounting holes

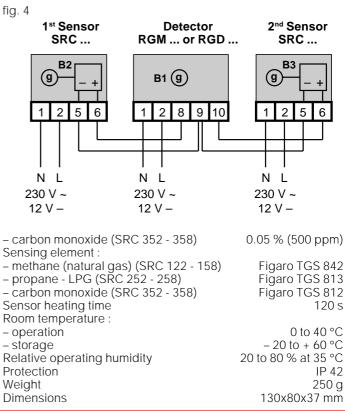
4 - Cutout for leads

- 7 Transformer
  - 8 Terminal block
    - 9 Sensing element
- 5 Hinge elements

6 - Securing clip

10 - Setting potentiometer

## WIRING DIAGRAMS



**UNI EN ISO 9002** 

CISQ/CSQ cert.n°9115.COEE

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