Gas Leak Alarm Systems

Features

- Remote sensors for Natural Gas, LPG or CO
- Audio & visual alarms
- Adjustable alarm threshold
- Self-diagnosis fault system
- 2 x SPST relay outputs
- DIN rail, panel or wall mounting

Specification

Power supply:
        230Vac ±10% @ 50/60Hz
        12V ±10%

Power consumption	7VA
Radio disturbance	VDE0875/0871
Vibration test	with 2g (DIN 40046)
Relay outputs	2 x SPDT, 250V @ 5 (1) A
Housing dimensions	105 x 115 x 70mm

Housing materials:
        Cover   ABS
        Base   Nylon

Housing protection	IP40
Panel mount housing dim.	142 x 142 x 125mm
Sensor dimensions	77 x 77 x 44
Sensor material	Nylon
Sensor protection	IP44

Ambient:
        Storage temp.   -25 to + 60°C
        Operating temp. 0 to 45°C
        RH   Class F Din 40040
Country of origin   Italy

Product Codes

GL-CO-RFG651
        1 Channel gas leak alarm system (DIN rail mount)

GL-CO-RFG652
        2 Channel gas leak alarm system (DIN rail mount)

GL-CO-RFG653
        3 Channel gas leak alarm system (DIN rail mount)

GL-CO-WMK6
        Wall mounting kit

GL-CO-FMK6
        Panel mounting kit

GL-CO-SRS150
        Natural gas sensor

GL-CO-SRS250
        LPG, Propane sensor

GL-CO-SRS350
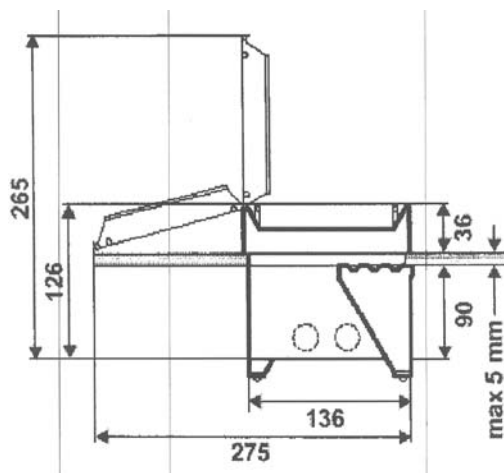   Carbon Monoxide sensor

Technical Overview

The CL-CO-RFG65x is a series of gas leak alarm systems, that are designed for the detection of gas leaks in spaces such as boiler plant rooms, workshops and other industrial gas installations, to provide safety alarm and shutdown facilities on detection of gas leakage. 1, 2 or 3 channel versions are available.

Installation

1. The GL-CO-RFG65x should only be installed by a competent, suitably trained technician, experienced in installation with hazardous voltages. (>50Vac & <1000Vac or >75Vdc & 1500Vdc)

2. Ensure that all power is disconnected before carrying out any work on the GL-CO-RFG365x.

3. Maximum cable is 2.5mm², care must be taken not to over tighten terminals.

4. Separate the base from the cover.

5. If DIN rail mounting clip onto the DIN rail.

6. Make connections as required (see page 4 & 5 for examples) and links as appropriate (see below). NB It is advised that no more than 2 cables be inserted into a single terminal. Use external junction boxes if necessary.

7. Replace the cover on the base using the 4 screws provided, if panel mounting fix to panel door, using the panel mounting kit.

Panel Mount Cut-Out

Panel cutout: 138 x 138 ±0.5%

Links

Link Functions:

M - F1
No link = Internal buzzer enabled
Linked = Internal buzzer disabled

F2 - F3
No link = Relay normally energised when no gas present
Linked = Relay normally de-energised when no gas present

F3 - F4
No link = Relay with latching alarm
Linked = Relay with non-latching alarm

B2 - H2
Linked = B2 sensor not connected

B3 - H3
Linked = B3 sensor not connected

Operational Relay Output:

When in alarm:
F2 - F3 linked   1 - 3 closes, 2 - 3 opens
F2 - F3 unlinked   1 - 3 opens, 2 - 3 closes

Latching alarm and Reset:

F3 - F4 linked:
Alarm ceases when the gas concentration falls below the threshold level and the ALARM LED blinks slowly. Press the RESET button to clear the LED status.

F3 - F4 unlinked:
Alarm continues even when the gas concentration falls below the threshold level. To deactivate press the RESET button for at least 5 seconds.

Alarm Levels

Alarm thresholds
Natural gas alarm threshold:
    0.5% to 1.25%   (0.8% with sensitivity =0)
    (5000 to 12,500ppm)
LPG alarm threshold:
    0.22% to 0.56%   (0.35% with sensitivity =0)
    (2200 to 5600ppm)
CO alarm threshold:
    0.02% to 0.5%   (0.03% with sensitivity =0)
    (200 to 500ppm)

Alarm Levels (continued)

Pre-Alarm thresholds

Natural gas pre-alarm threshold:

0.3% to 0.8%   (0.5% with sensitivity =0)
(3000 to 8000ppm)

LPG pre-alarm threshold:

0.14% to 0.35%   (0.22% with sensitivity =0)
(1400 to 3500ppm)

CO pre-alarm threshold:

0.012% to 0.03%   (0.019% with sensitivity =0)
(120 to 300ppm)

The alarm threshold for Natural Gas is about 16% of the LEL. This is below the limit set by the manufacturing standards (20% LEL). The pre-alarm threshold is about 66.6% of the alarm threshold. Using the SENSITIVITY pot the thresholds can be adjusted within the limits established the manufacturing standards. Turning the pot towards + increases the sensitivity and turning towards - decreases the sensitivity.

Sensor Location

Natural gas	100 to 500mm from the ceiling
LPG	100 to 500mm from the floor
CO	1.5 to 2m from the floor

It is advisable to position sensors at a certain distance from gas appliances, so as to avoid nuisance triggering.

Boilers & DHW	1 to 2 meters
Gas cookers	2 to 3 meters

Cable types

Power & relay	1.5mm²
Sensor up to 40m	1.5mm²
Sensor up to 60m	2.5mm²

Operation

When the controller is switched on it remains inactive for 1.5 to 2 minutes with the FAULT and ALARM LEDs flashing, to allow the sensor to stabilise.

When the gas concentration exceeds the pre-alarm threshold the ALARM LED blinks.

When the gas concentration exceeds the alarm threshold, after a delay of about 20 seconds:

- The internal buzzer will sound (if enabled)
- The ALARM LED switches ON
- Activates the operational control

Self Diagnostics

Self diagnostics

In the event of a fault or incorrect connection of the sensor the following LED states will occur:

Type of Fault	Fault LED	Alarm LED
Sensor self-heating element broken	ON	OFF
No connection to terminal G	ON	OFF
No connection to terminal B	ON	OFF
No connection to terminal M	OFF	ON
Connections G & B reversed	ON	OFF
Connections G & M reversed	OFF	ON
Connections B & M reversed	OFF	ON

Commissioning

Apply power to controller - POWER LED lights.
Wait 2 minutes for sensor to stabilise.
Set SENSITIVITY pot to '0'

Simulate presence of gas (gas from a lighter should work).

When the alarm threshold is reached, after a 20 second delay the ALARM LED will light, the buzzer will sound (if enabled) and the relay operate.

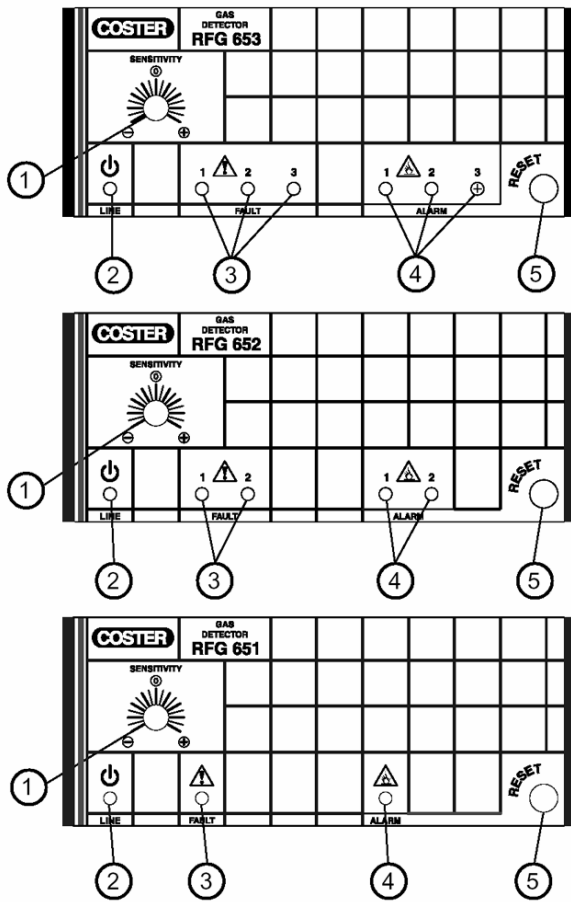**Without latching alarm** - buzzer ceases, ALARM LED blinks slowly

With latching alarm - buzzer continues until RESET button is pressed for at least 5 seconds.

Gas shut off valve

This must be installed on the gas feed pipe, possibly outside the space controlled, in a place which is easily accessible and is protected from bad weather.
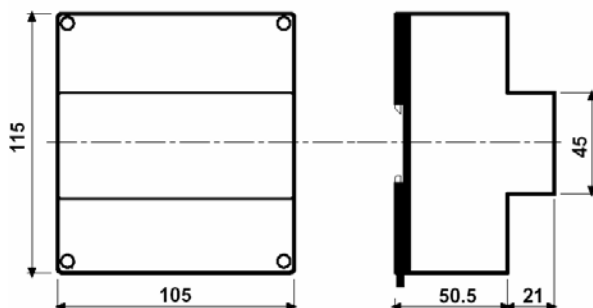
NB In LPG installations the valve must be installed downstream of the pressure reducing valve.
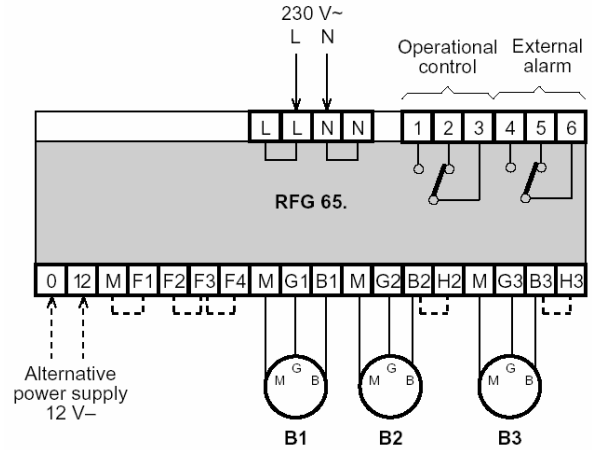
Front Panels

1   Sensitivity potentiometer
2   Power supply LED
3   Fault LED
4   Alarm LED
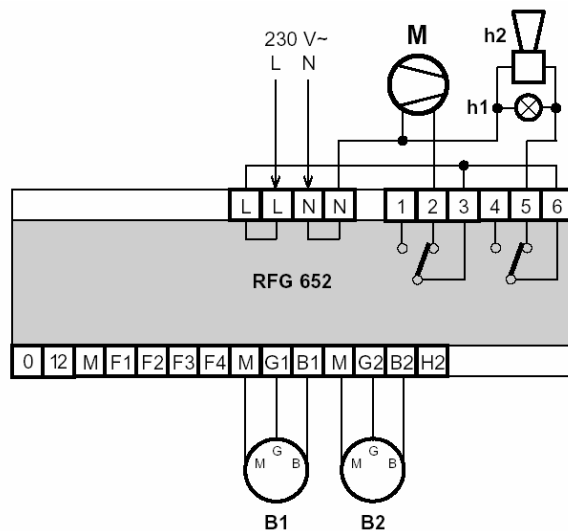5   Reset button

Dimensions

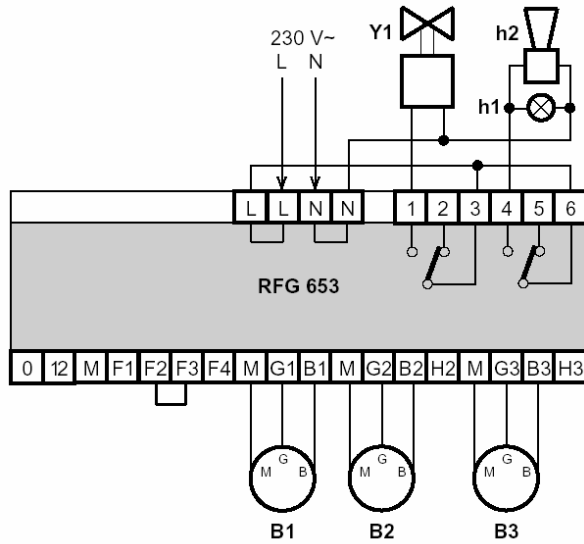## Example Connections

Basic operation:

GL-CO-RFG652, 230Vac Supply:

Example Connections (continued)

GL-CO-RFG653, 230Vac Supply:

GL-CO-RFG653, 12V Supply:

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