

(CH₄) METHANE GAS DETECTOR
AE09/GM , AE09/GM-12 , AE09/GM-24

Microprocessed gas detector, designed according to Regulation UNE-EN 50194, allows for METHANE gas detection (natural or town gas).

The detector is gauged in order to inform about a danger when gas concentration over 10% of the Explosive Lower Limit (L.I.E.)¹ is reached. When the concentration level is lower than 10% L.I.E. again, within a particular time, the detector will be reset automatically.

The detector is catalogued as "Type-A device", as a visual and sound alarm is produced and an outlet which can act directly or indirectly on a cutting device and/or other auxiliary devices.



It is provided with:

- Green light indicator for feeding and operation detector.
- Alarm red light indicator.
- Failure orange light indicator.
- Acoustic indicator for prealarm and alarm through piezoelectric buzzer.
- Relay output through tension-free NA, C and NC contacts.
- Internal push-button for operation test cycle.

The detector feeding tension may vary according to the selected model.

AE09/GM	230V AC
AE09/GM-12	12V DC
AE09/GM-24	24V DC

The detector needs to be fed for proper performance. When the detector is fed, 120 seconds are needed for warming and stabilization, during such time, the detector is not able to detect the presence of METHANE gas.

¹ L.I.E. Volumetric concentration of gas or flammable vapour in the air under which a gas explosive atmosphere can not be formed.

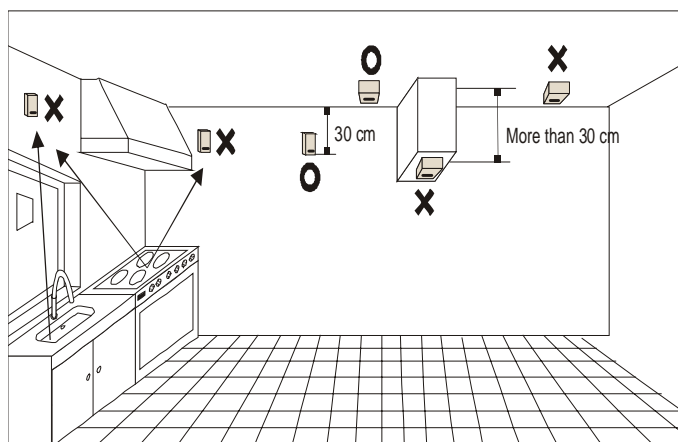
INSTALLATION.

WARNINGS.

- Installation and dismantling of these devices is to be made by authorized personnel.
- Do not manipulate or open the units as it may result in electrocution and wrong operation.
- Such devices are not to be used by persons (adults or children) with reduced physical, mental or sensorial capacity or by people who do not have the needed knowledge or experience unless they are supervised or trained on the use of the apparatus by a person responsible for their safety. Children must not play with the units.
- At the power supply connection to the fixed installation, a full disconnection system is to be incorporated in accordance with the regulations on installation currently in force.

The detector will be installed over the level of a possible gas exhaust, and near the ceiling, 30 cm. maximum, and in a place where air can flow without being stopped by the furniture.

The detector will be installed vertically, allowing for the air circulation through the air vents in the detector casing.



O CORRECT POSITION

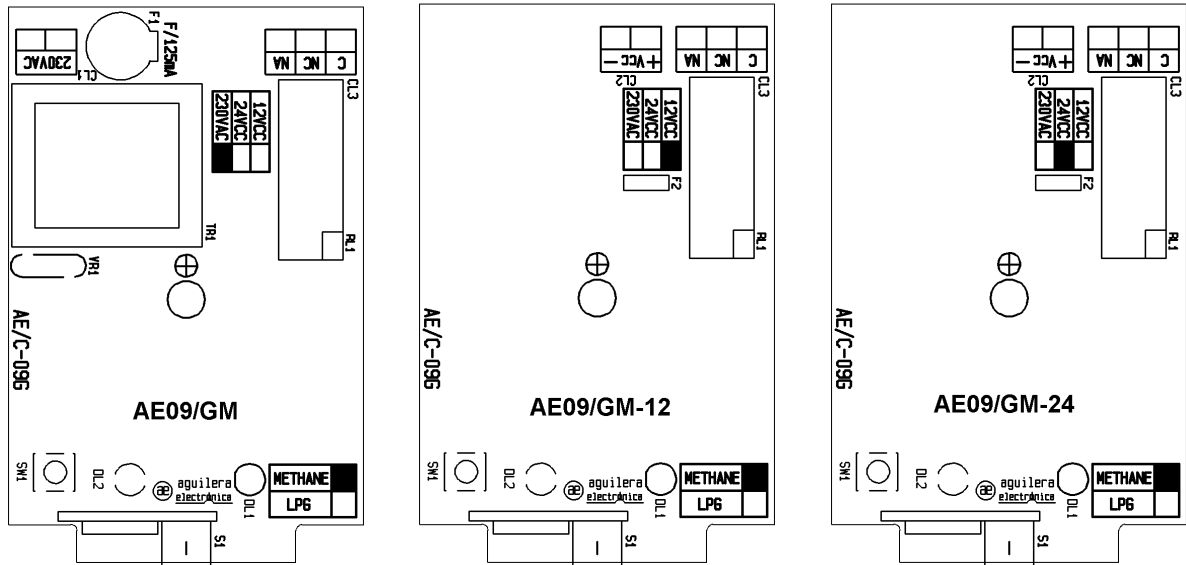
X INCORRECT POSITION

The detector should not be installed:

- In a closed space (for example in a cabinet or behind the curtains);
- directly over a sink;
- near a door or window;
- near an extractor fan;
- in an area where temperature may decrease below -10°C or over $+40^{\circ}\text{C}$.
- In places where dust and dirt may block the sensor;
- In a wet or humid place.

WIRING

For the detector wiring, it is necessary to open the detector by pushing on the side parts of the cover in order to access the connection terminals.



SUPPLY VOLTAGE

AE09/GM

Model AE09/GM needs to be feed at 230V AC for proper performance. The detector is provided together with a 1.8 m cable ready to be connected to a socket. Direct connection to CL1 terminal without using the cable is also possible.

AE09/GM-12

Model AE09/GM-12 needs to be feed at 12V DC for proper performance. Such tension, from a power supply, is to be directly connected to CL2 terminal.

AE09/GM-24

Model AE09/GM-24 needs to be feed at 24V DC for proper performance. Such tension, from a power supply, is to be directly connected to CL2 terminal.

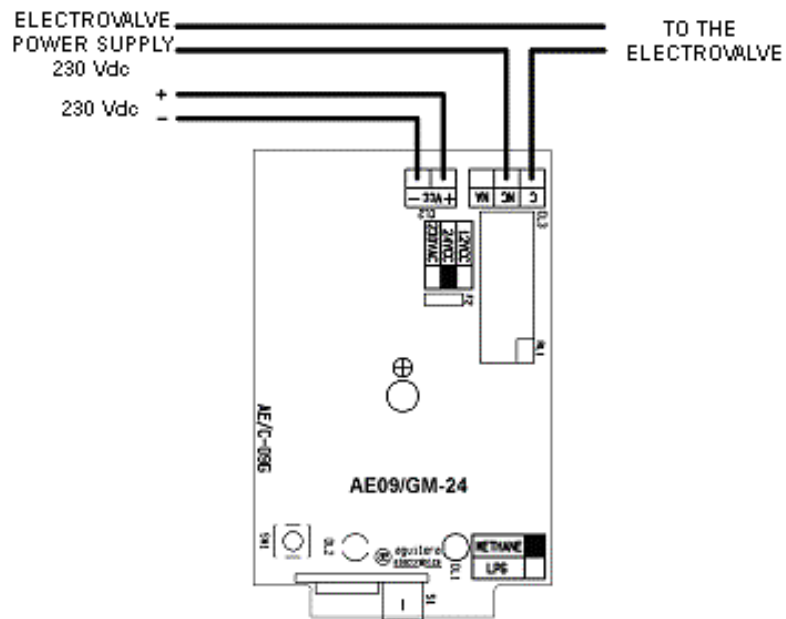
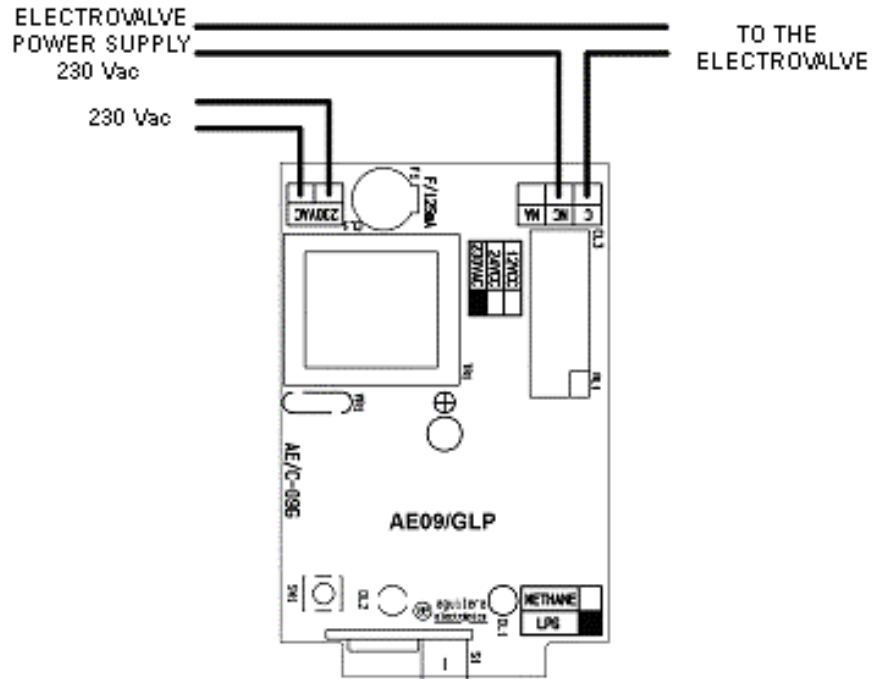
OPERATION RELAY.

All models of detectors are provided with a relay outlet through tension-free contacts, that tilts 10 seconds after the detector goes to alarm state. This outlet may be used to connect an electrovalve for the gas supply cut-off or to repeat the detector state in a centralized alarm system.

Terminal assignment is as follows:

C	Common contact
NC	Closed contact, in standby
NA	Open contact, in standby

Feeding examples for normally fed electrovalves.



Electrovalves are usually open when being fed. When cutting-off the power supply blocks the gas flow and manual reset is required.

OPERATION

HEATING PERIOD

When the detector is fed, a heating period for the sensor starts, necessary for it to stabilize and carry out the correct measure of the METHANE level in the environment. This cycle takes 120 seconds and it is shown through the flashing and alternate activation of red light indicators for ALARM and orange indicators for FAILURE.

When this cycle is finished, for correct operation of the detector, only the red indicator for FEEDING should be lit continuously.

STANDBY STATE.

This state is shown through fixed lighting of the feeding green indicator. The detector analyses the METHANE gas concentration in the environment every 100 milliseconds, its state is updated when modifications are produced.

FAILURE STATE.

If the detector shows any type of anomaly, stopping correct operation, the orange indicator for FAILURES is activated in a continuous way.

PRE-ALARM STATE.

When the level of METHANE gas concentration is over 10% L.I.E., the detector activates (1 time per second) the acoustic alarm and the red indicator for ALARM in an intermittent way.

ALARM STATE.

If the pre-alarm state is confirmed for 10 consecutive seconds, the detector goes to alarm state, activating the acoustic alarm and the red indicator for ALARM in a continuous way.

In case of ALARM.

1. Extinguish the flames.
2. Cut off the gas supply from the gas main control.
3. Do not turn the lights on or off, or any electric unit.

Open the windows for ventilation. When the alarm stops, the reason for the alarm to be activated is to be determined and measures are to be taken. If the alarm continues on, and there is no apparent cause for the leak and/or it can not be repaired, vacate the place and IMMEDIATELY NOTIFY the emergency service from a safe place. Gas detectors are accuracy instruments.

If required, the acoustic alarm can be silenced by pressing the SW1 pushbutton placed inside the detector.

OPERATION RELAY ACTIVATION

Operation relay activation is produced 8 seconds after confirming the alarm state.

DETECTOR REPLACEMENT.

The detector is automatically replaced when the level of METHANE gas concentration is reduced under 10% L.I.E., and such level is maintained for 5 consecutive seconds. The acoustic alarm, the ALARM red indicator and the operation relay are off.

MANUAL OPERATION TEST.

A test for the detector correct operation can be carried out by pressing the SW1 pushbutton. To access this pushbutton, the alarm casing needs to be opened. While the pushbutton is pressed, the acoustic alarm, the alarm red indicator and the operation relay are activated.

MAINTENANCE

Visual inspection is the minimum recommended maintenance work, checking that there are no elements stopping the air circulation through the air vents. Periodical operation test is also recommended.

For gas presence to be noticed in a place, LPG and methane gases contain a smelly substance. This smell can be noticed before the detector starts working that, in any case, it has been calibrated below the level of gas explosion.

The detector should be installed between 1 and 4 metres from gas appliances.

The detector should not be installed in a closed place, for example in a cabinet or behind a curtain, directly under a sink, near a door or window, near an extractor fan, in places where dust and dirt may block the sensor or in wet or humid places.

For cleaning, use a slightly wet cloth. Do not use cleaning products as well as solvents, alcohol, bitumen, varnish or paint on the detector or near it as such products may affect the unit reliability.

Periodic tests of operation are recommended by pressing the TEST key, in order to check correct operation of the light and acoustic indicators and the outlet, as well as the electrovalve if connected, and checking that the detector air inlets are dust and dirt-free. Do not use another test method, such as the use of gas from lighters or from other devices that could damage the detector sensor beyond repair.

The use of a suction device for the cleaning of the air inlets is recommended.

The detector outlet may be used for the activation of a cut-off valve on the incoming gas pipe.

Such valve will need a manual action for being reset in open position. The valve installation and use is to be in accordance with Regulation EN1775 and domestic regulations.

LIFETIME

In order to verify the detector lifetime, the installation date is to be marked on the detector side label.

The sensor is to be replaced every **6 years** from the installation date.

TECHNICAL CHARACTERISTICS

	AE09/GM	AE09/GM-12	AE09/GM-24
Supply voltage:	230V AC	12V DC	24V DC
Heating cycle consumption:	13 mA	31 mA	110 mA
Standby consumption:	12 mA	13 mA	70 mA
Alarm consumption:	14 mA	56 mA	122 mA
Classification:	Type-A device		
Relay contacts:	C, NC and NA voltage-free.		
Relay contact maximum current:	8A 250VAC/30VDC		
Operation indicator	Green, fixed activation		
Heating cycle indicator	Activation of Failure (orange) and Alarm (red) indicators alternatively		
Failure state indicator	Orange, fixed activation		
Pre-alarm state indicator	Red and acoustic indication, intermittent activation		
Alarm state indicator.	Red and acoustic indication, fixed activation		
Acoustic alarm:	piezoelectric buzzer, 3300Hz, 85 dB		
Alarm level:	10% L.I.E. METHANE gas(CH ₄)		
Alarm confirmation:	10 seconds		
Relay activation delay:	8 seconds		
Initial heating period:	120 seconds		
Temperature range:	0° - +50° C (room temperature).		
Humidity range:	Relative humidity 10% - 90% with no condensation		
Casing material	White ABS		
Dimensions:	130 x 70 x 52 mm		
Weight	300 gr	133 gr	137 gr



For environment preservation, the electric or electronic unit is not to be treated as domestic waste at the end of its lifetime. Please, make selective collection taking it to specific collecting points for the recycling of electric and electronic units in your town/city.

Please, keep these instructions in a safe place.



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