

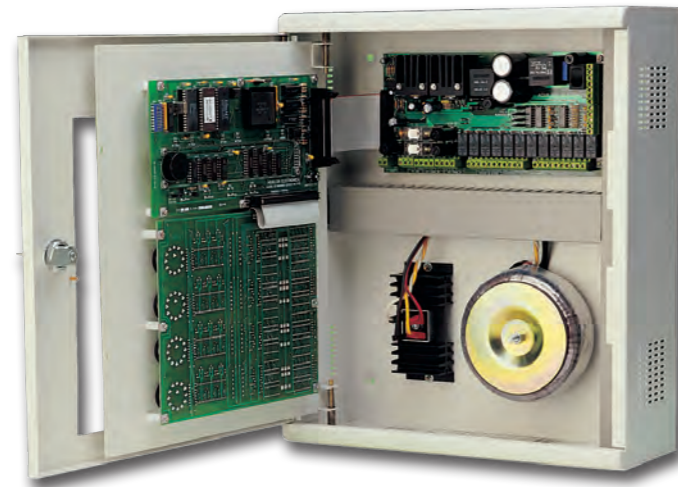
Analysis and control of carbon monoxide

System designed to measure the concentration of carbon monoxide in garages and similar places, start ventilation systems when preset levels are reached, activate evacuation sirens if levels of risk to people are reached, and stop fans when the concentration drops to permissible parameters.

The system has been developed by Aguilera Electrónica in accordance with the specifications of the UNE 23-300-84 Standard and is manufactured in compliance with the ISO-9001 quality controls implemented. The system is approved by the Ministry of Industry and Energy with registration CDM-0009.

Analog technology has been applied in its configuration, which allows the plants to individually analyze the concentration of monoxide existing in the area of influence of each detector.

The system is made up of AE/COD model addressable analog detectors and four control panel models.



ANALYSIS AND CONTROL OF CARBON MONOXIDE



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Control Panels what do they consist of?

Features

- They incorporate **3 alarm levels**:
 Level 1: Activates the first ventilation group.
 Level 2: Activates the second ventilation group. This second group is used both in automatic extraction and in manual extraction.
 Alarm level: When the concentration of CO exceeds the dangerous limits for health, it activates a relay to which an emergency acoustic alarm can be connected.
 When the installation has two groups of extractor fans per sector, the centrals are programmed so that they can go between one and the other on the first level and, only if necessary, between the second. If risk levels are still reached (third level) with both groups operating, the control unit activates the evacuation systems.
- The control panel can be instructed to alternate the use of fan groups in zones that have two groups. In this way we avoid the disproportionate wear of the first group of each zone. Not available on the AE/CO-Z1M control panel.
- Remote activation of the extractor. Regardless of the level of CO that we are detecting, we can activate the ventilation groups from a location other than the central one. For example, at the entrance to the garage.
- Periodic vents can be configured independently for each zone to renew the air and clean the room environment.
- The control units have a maintenance mode that facilitates the start-up of the installation. Not available on the AE/CO-Z1M control panel.

It is in the control equipment where the operation of the installation is planned. Its basic parts are:

<< **Microprocessor**: Manages all the information from the detectors, orders the information presented on the display and coordinates the programming of maneuvers (starting and stopping of the extractors, confirmation of monoxide levels, timers, etc...)

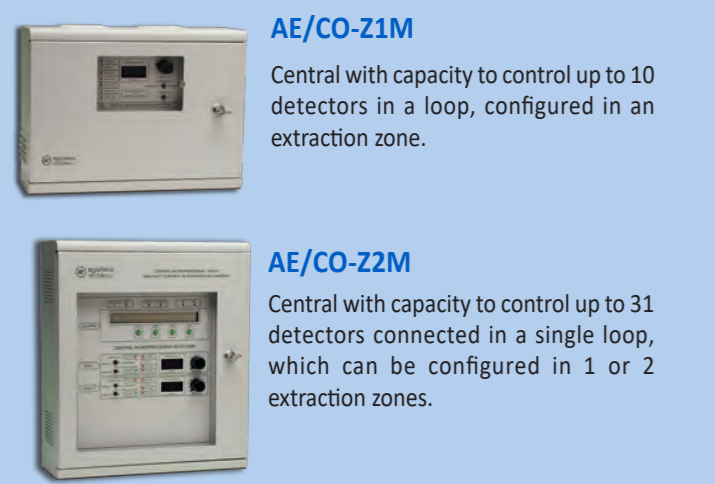
<< **Switching power supply**: Provides 5 and 12 volt outputs to power the different needs of the central; and another of 35 volts provided with a consumption stabilizer, to power the detector loops.

<< **2 x 40 character liquid crystal display** that allows viewing of all incidents recorded by the control panel (state of communications, status of extractor fans, display of the last 32 incidents, etc.) This screen is not available in the AE/CO-Z1M control panel.

<< **Selector for maximum concentration allowed per zone with 10 positions**. Allows you to select between 25 and 250 parts per million (p.p.m) the level at which the extractors should start.

<< **Manual extractor selector by zone**, with three positions: "Automatic", "Manual" and "Disconnected".

<< **Digital indicator of concentration by zone**. It presents the highest value of those recorded by the detectors connected to it.



AE/CO-Z1M
Central with capacity to control up to 10 detectors in a loop, configured in an extraction zone.

AE/CO-Z2M
Central with capacity to control up to 31 detectors connected in a single loop, which can be configured in 1 or 2 extraction zones.

AE/CO-Z4M
Central with capacity to control up to 62 detectors in two loops, which can be configured in 2, 3 or 4 extraction zones.



Detectors

Addressable equipment developed with analog technology model AE/COD, which allows individually analyzing the concentration of monoxide existing in its area of influence.

Detector encoding

The detectors are numbered from 1 to 10 in installations with AE/CO-Z1M control panels and from 1 to 31 in the rest.

To assign the detectors to one or another extraction zone, we use the 4 control keys of the control panels, which allow us to present their numbers on the screen.

Most significant features

Maintain communications with the central, sending its values of concentration, temperature, current and other parameters to be processed and managed.



Made of ABS, equipped with bayonet contacts that allow detectors to be replaced without disconnecting their cables. They are manufactured in a standard 22mm version, which allows the tubes to enter when the installation is visible, and 10mm with an internal entry for recessed installations.

Functioning

Every two and a half minutes, the central unit checks all its detectors individually, analyzes the concentration of CO provided by each detector, identifies the detector with the highest concentration and compares it with the selected level.

If the concentration detected is greater than the selected level, it identifies the zone to which the detector belongs and applies a programmable time delay. During this time the control panel constantly checks the current level of that zone.

If, at the end of the timing, it is confirmed that the concentration level continues to be equal to or greater than the selected level, it activates the relay in its zone and starts the first extractor or the first group of extractors. If after a second programmable time, the concentration remains above the selected level, the second extractor or second group of extractors starts.

The plant turns off the fans after confirming that the carbon monoxide concentration has dropped below the selected level.

If, due to insufficiency or failure in the extraction, the concentration of CO increases until it reaches levels that represent a risk to people, the control unit, after a pre-alarm, activates the third level relay. In this relay you can connect the alarm sirens for the eviction of the garage.

Periodic ventilation: The centrals can be programmed so that the extractors start up from time to time to clean the garage environment.

Wiring of the detectors

The detectors are connected to each channel of the control panels by means of 4 conductors: two for communications with a 0.5 mm² section and two for power supply with a 2.5 mm² section.

The connection can be made in series, parallel, star or as more practical in each case.

