

- CE Alarma de detección de fugas de gases para conexión permanente
Gas leak detection alarm for permanent connection
Alarme de détection de fuites de gaz pour connexion permanente
Gasleck-Detektionsalarm für dauerhaften Anschluss
Alarme de detecção de fugas de gases para conexão permanente



AKO-52201 AKO-52202 AKO-52210
AKO-52211 AKO-52212

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AKO Electromecànica thanks you and congratulates you on the purchase of our product, the development and manufacture of which involved the most innovative technologies, as well as rigorous production and quality control processes.

Our commitment to achieving customer satisfaction and our continuous efforts to improve day by day are confirmed by the various quality certificates obtained.

This is a high performance, technologically advanced product. Its operation and the final performance achieved will depend, to a great extent, on correct planning, installation, configuration and commissioning. Please read this manual carefully before proceeding to install it and respect the instructions in the manual at all times.

Only qualified personnel may install the product or carry out technical support.

This product has been developed for use in the applications described in the manual. AKO Electromecànica does not guarantee its operation in any use not foreseen in this document and accepts no liability in the case of damage of any type which may result from incorrect use, configuration, installation or commissioning.

Complying with and enforcing the regulations applying to installations where our products are destined to be used is the responsibility of the installer and the customer. AKO Electromecànica accepts no liability for damage which may occur due to failure to comply with these regulations. Rigorously follow the instructions described in this manual.

In order to extend the lifetime of our products to the maximum, the following points must be observed:

- Do not expose electronic equipment to dust, dirt, water, rain, moisture, high temperatures, chemical agents or corrosive substances of any type.
- Do not subject equipment to knocks or vibrations or attempt to handle them in any way differently to that indicated in the manual.
- Do not under any circumstances exceed the specifications and limitations indicated in the manual.
- Respect the indicated environmental conditions for operation and storage at all times.
- During installation and on completion of this, avoid the presence of loose, broken or unprotected cables or cables in poor condition. These may constitute a risk for the equipment and its users.

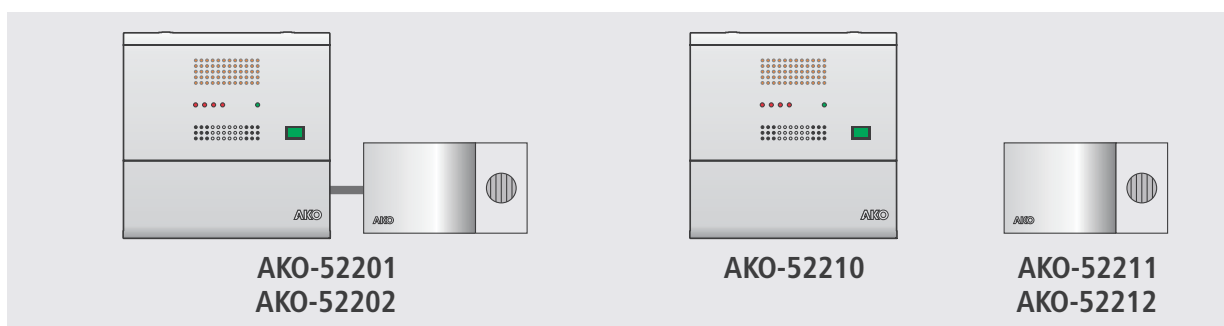
AKO Electromecànica reserves the right to make any modification to the documentation and the product without prior notification.

1.- Introduction

Refrigerator gas leak detection alarm to be used in refrigerated facilities designed to comply with standard EN 378-3.

2.- Versions and references

MODEL	DESCRIPTION	DETECTOR INCLUDED	POWER SUPPLY
AKO-52201	Alarm station + Detector	AKO-52211	90-260V~ 50/60 Hz
AKO-52202	Alarm station + Detector	AKO-52212	
AKO-52210	Alarm station	-	
AKO-52211	Detector for freon gases. Type A	-	-
AKO-52212	Detector for freon gases. Type B	-	



DETECTOR	GASES IT DETECTS	PRE-ALARM	ALARM
AKO-52211	R-134a, R-407C, R-410A, R-417A, R-409A, R-32	500 ppm*	1000 ppm*
AKO-52212	R-404A, R-507A, R-22, R-23, R-422D, R-422A, R-434A, R-437A, R-408A, R-403B, R-124, R-407A		

* The pre-alarm and alarm levels can slightly differ from the values shown in the table depending on the detected type of gas.



WARNINGS

- The alarm and detectors should be installed in a place protected from vibrations, water and corrosive gases, where the ambient temperature does not exceed the value indicated in the technical data. The station should be installed in a place where the regular presence of people who can alert to the presence of alarms is guaranteed.
- To prevent false alarms, the detector should be installed away from:
 - Maintenance rooms where solvents, paints or refrigerator gases are handled.
 - Fruit ripening or storage rooms, as some fruits can emit gases.
 - Smoke outlets located in confined spaces (carbon dioxide, propane, LPG) or from engines, generators or motorised machinery (fork-lift trucks, etc.).
 - Particularly damp areas or with the risk of getting wet.
 - Areas with strong ventilation.
- Do not paint the detector or place it near solvents or paints.
- Neither the alarm or gas detector are suitable for areas classified as potentially explosive.

4.- Equipment description

Alarm station

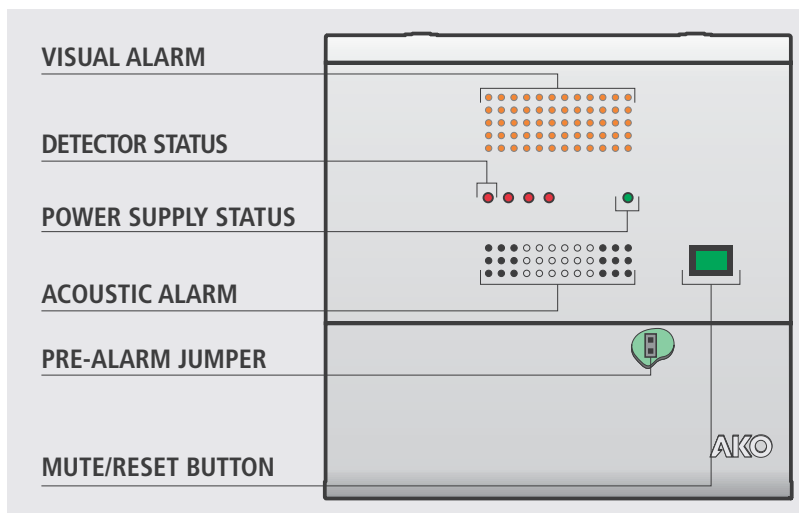
Mute/reset button

Mutes the alarm or deletes saved alarms

Pre-alarm jumper

It allows deactivating pre-alarm detection.
Before using this option, make sure that regulations allow for only one alarm level.

- With pre-alarm
- Without pre-alarm



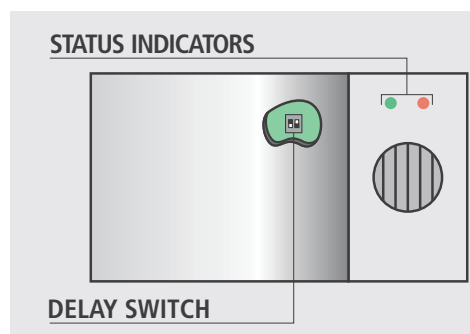
Gas detector

Delay switch

It delays the activation of alarms detected in the station.

The detector status indicators will indicate the alarms and pre-alarms immediately, without taking into account the delays.

- Without delay*
 - 30 sec.
 - 60 sec.
 - 120 sec.
- *Default value.



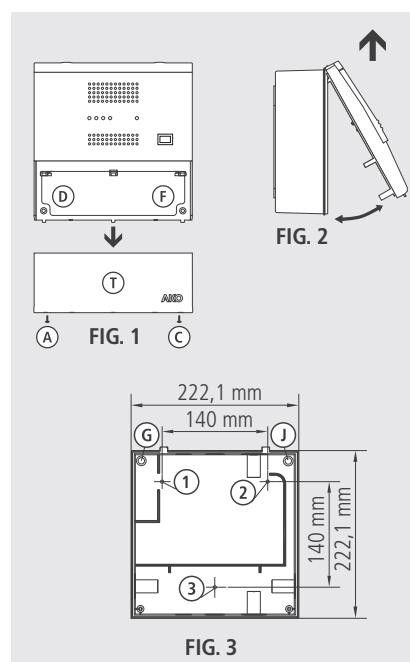
IMPORTANT: The delay configuration should be carried out with the station's power supply disconnected, as if not it will not work.

5.- Installation

The wiring between the detector and the station should **NEVER** be installed in a conduit together with power, control or feeder cables.

Station assembly

- Remove the cover T of the equipment (Fig. 1).
- Open the equipment and remove the front of the housing (Fig. 2).
- Drill the holes needed for the cable entry glands using the pre-stamped centres on the sides of the housing for guidance.
- Drill 3 holes on the wall following the fixing holes 1, 2, 3. (Fig. 3).
- Fasten the glands into the equipment.
- Insert the 3 screws and wall plugs through the housing into the holes in the wall and tighten.
- Insert the cables through the glands.
- Fit the front of the housing (Fig.2).
- Insert and tighten screws D, F (Fig. 1).
- Connect the cables as shown in the wiring diagram, close the cover T, insert and tighten screws A, C (Fig. 1).



Detector assembly



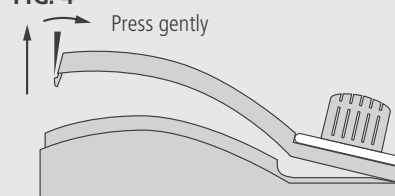
The detector should be installed in an area where the highest amount of gas may concentrate, near places where gas leaks could start and accessible for maintenance work. It is also advisable to place it away from transit areas or areas where it could be accidentally knocked.

Different types of gas can have different densities, and this means that leaks could concentrate in the lowest part of the room or near the roof. Take this into account when deciding on the height of the detector.

It is advisable to install the freon detectors around 20 cm from the ground, with an free distance around them of some 50 cm.

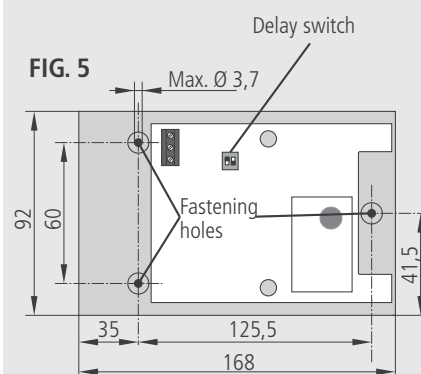
- Remove the detector's cover (Fig. 4).
- Drill the hole for the glands needed for the cable entry following the pre-stamped centres on the bottom or top of the base.
- Drill 3 holes on the wall following the fixing holes. (Fig. 5).
- Fasten the gland onto the base.
- Insert the 3 screws+plugs through the base, into the 3 holes on the wall and tighten.
- Insert the cables into the gland and connect them according to the wiring diagram.
- Adjust the alarm/pre-alarm delays using the delay switch (See page 11)
- Insert the cover and gently press it until you hear a "click".

FIG. 4



Fastening holes suitable for universal built-in housing

FIG. 5



Wiring

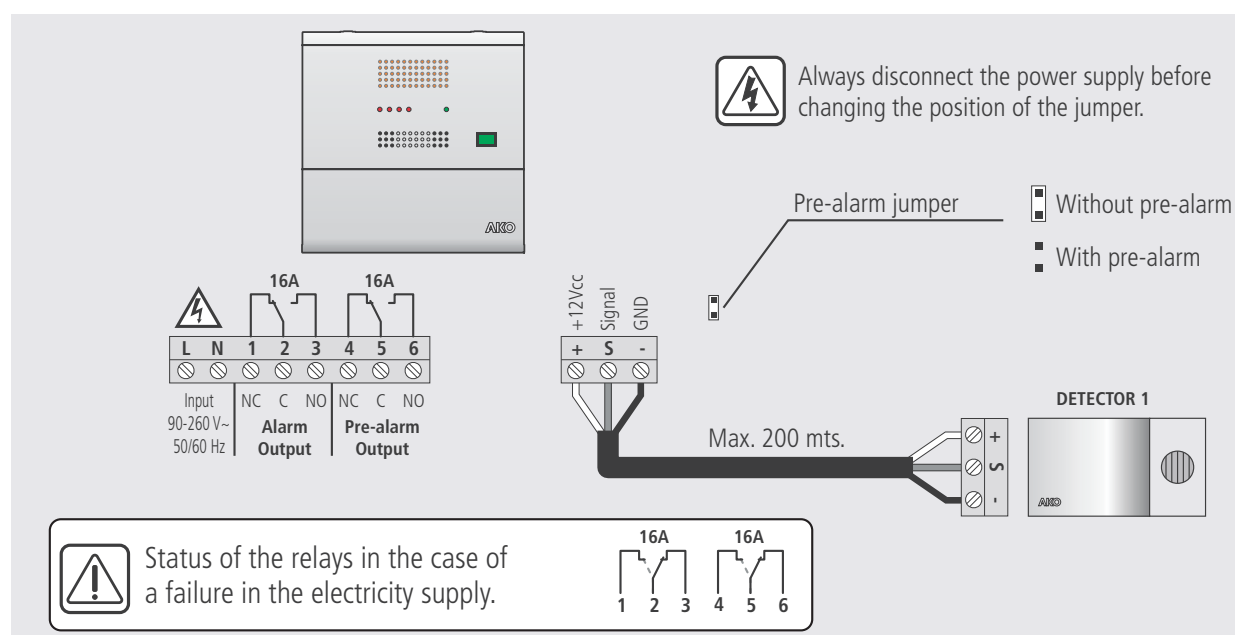


Always disconnect the power supply to do the wiring.

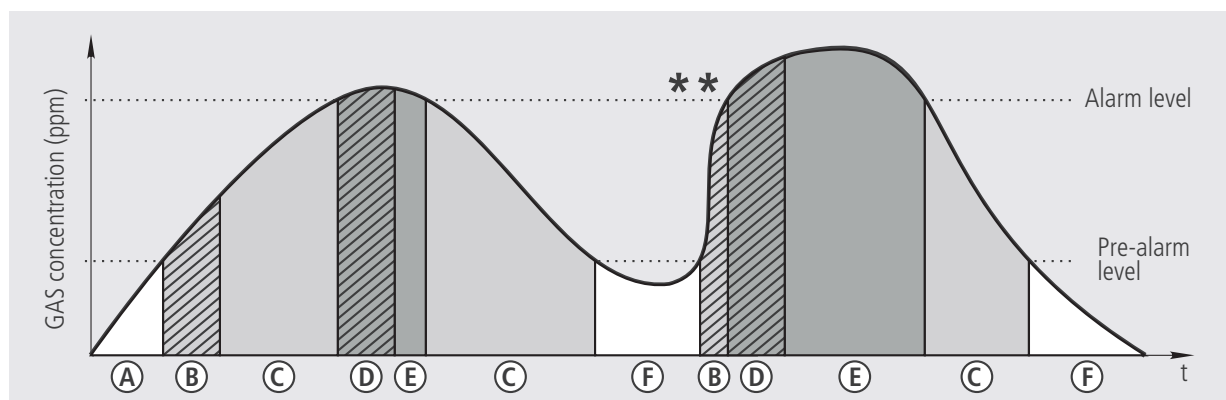
The power circuit should be equipped with a switch for its disconnection of at least 2 A, 230 V, situated near the appliance. The power supply cable should be H05VV-F or H05V-K type. The gauge will depend on local regulations, but should in no case be less than 1 mm².

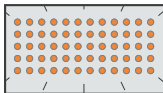
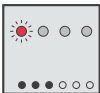

















Cables for wiring the relay contact should have an adequate section depending on the unit to be connected.

AKO recommends the use of shielded cable for the wiring of the detectors.

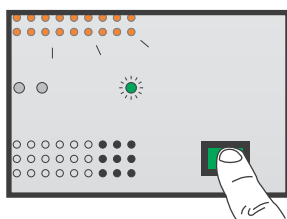


6.- Operation



		ALARM STATION				GAS DETECTOR	
STATUS			ACOUSTIC ALARM	RELAYS			
				Alarm	Pre-alarm		
Ⓐ No alarm	Off	Off	Off			Slow flashing	Off
Ⓑ Delayed pre-alarm	Off	Off	Off			Off	Quick flashing
Ⓒ Pre-alarm	Flashing	On	Flashing			Off	Quick flashing
Ⓓ Delayed alarm	Flashing	On	Flashing			Off	On
Ⓔ Alarm	Flashing	On	Two-tone sound			Off	On
Ⓕ Saved alarm / pre-alarm *	Off	Flashing	Off			Slow flashing	Off
Detector / wiring fault	On	On	3 short tones every 2 minutes			Flashing / alternative	
Without power supply	Off	Off	Off			Off	Off

** If during the delay time of a pre-alarm the gas concentration increases to the alarm value, for safety reasons, the pre-alarm delay will be cancelled, activating the signalling in the station.



* Saved alarm / pre-alarm

They let us check if any alarm / pre-alarm has triggered during our absence.

Mute/reset button

During an alarm, it silences the acoustic alarm, in delay (without alarm), deletes the existing saved alarms.



Detector heating time

After receiving the electrical power supply, the gas detector needs a heating time of around 5 minutes, during which it will **NOT** detect leaks. This time is indicated by means of a quick flashing of the green led on the detector itself.

Self-diagnosis function

The unit incorporates a self-diagnosis system of the detector and the wiring between the detector and alarm station. In the case of malfunction, the station will alert making three consecutive tones every 2 minutes, and activating the visual alarm and the detector status led, while the detector will alternately activate its status leds.

7.- Maintenance

- Clean the surface of the equipment with a soft cloth, water and soap.
- Do not use abrasive detergents, petrol, alcohol or solvents, as this might damage the sensor.
- **AKO guarantees the calibration of the detectors during the first 3 years from the date of purchase, and after this time, it is advisable to replace the detector.**
- We recommend changing the detector in the event of having been exposed to high gas concentrations.



According to standard EN-378, the correct operation of the detector should be checked at least once a year, ask about if your current local regulations require lower intervals.

CHECK METHOD

Preparation:

- Disconnect the unit's power supply, open the detector's cover and change the delay switch to "Without delay".
- Close the cover and connect the unit's power supply again. Wait for 5 minutes before making the check.

Start of the check:

- **AKO-52211 (Type A):** Put a normal lighter 5 cm underneath the detector and release gas for 4 seconds.
- **AKO-52212 (Type B):** Put a normal lighter 10 cm underneath the detector and release gas for 2 seconds.

Check that:

- The pre-alarm activates after a few seconds. The detector's green indicator turns off and the red indicator starts to flash. The station beeps intermittently. The pre-alarm relay activates.
- The alarm then activates, and the detector's red indicator turns on permanently. The alarm station emits a two-tone sound. The alarm relay activates.
- The alarms disappear after 1 to 2 minutes. The detector's red indicator turns off and the green indicator starts to flash slowly. The alarm and pre-alarm relays deactivate.



-If the pre-alarm does not activate, check that it has not been cancelled in the alarm station (consult the station's instructions manual).

-If the pre-alarm or alarm do not activate, try it again releasing gas for a longer time.

-An excessive exposure might reduce the delay between the activation of the pre-alarm and the alarm, and lengthen the waiting time for their deactivation.

-Remember to press the reset button to delete the alarm log (green button) after checking.

When you have finished the check, remember to change the delay switch to its initial configuration again, disconnecting the power supply before using it.

8.- Technical data

AKO-52210

Power supply	90-260 V~ 50/60 Hz
Maximum input power	10 VA
No. of inputs.....	1
Compatibility of inputs	Only AKO-52211/52212 detectors
Alarm / pre-alarm relay	SPDT 230 Vac, 16 A, $\cos \varphi = 1$
Working ambient temperature	0 °C to 50 °C
Storage ambient temperature	-30 °C to 70 °C
Protection degree	IP 40
Installation category	II s/ EN 61010-1
Pollution degree	II s/ EN 61010-1
Double isolation between power supply, secondary circuit and relay output.	
Sound power.....	90 dB(A) at 1 metre
EMC Standard.....	EN 61000

AKO-52211/52212

Power supply.....	15 Vdc ± 3 Vdc
Consumption Typical.....	75 mA
Maximum.....	100 mA
Working ambient temperature	-20 °C to 50 °C
Storage ambient temperature	-20 °C to 60 °C
Range of maximum allowed humidity	5 - 85% RH (without condensation)
Protection degree	IP 40
Life.....	Depending on the temperature and humidity conditions
EMC Standard.....	EN 61000