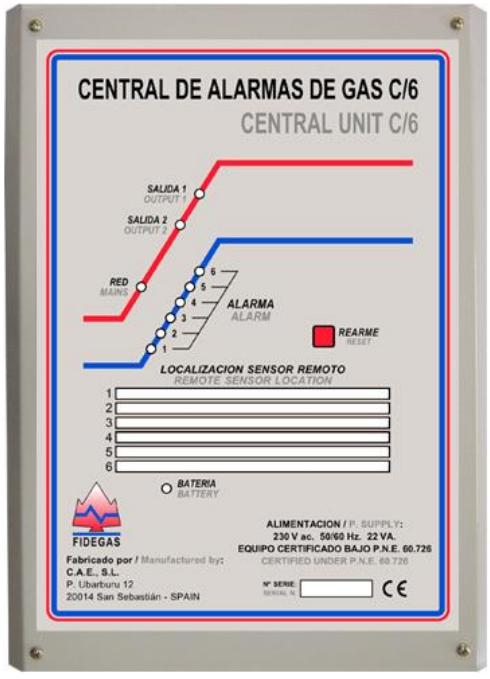
User Manual

Alarm Central Unit
"Fidegas" Ref. C/6



MANUFACTURED BY:

COMERCIAL DE APLICACIONES ELECTRONICAS, S.L.

P.º Ubarburu 12

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20014 **SAN SEBASTIAN - SPAIN**

www.fidegas.com

TECHNICAL SERVICE:

CONTENTS

WRITTEN AND APPROVED BY:
Quality Department

GENERAL

This Alarm Central Unit **Ref. C/6** is prepared to work with Remote Gas Sensors **Ref. S/10**. Due to its linearity, accuracy and standard output 4-20 mA of remote gas sensors together with the central unit make the gas detection system very accurate at alarm set-point levels and easy to use and install.

In the Central Unit **Ref. C/6** up to **SIX (6)** remote gas sensors **Ref. S/10** can be connected and it is provided with **THREE** outputs upon which six remote sensors act on two different levels of alarm, one of which is the **Prealarm** (12% LEL) and the other two **Alarms** (**OUTPUT 1** and **OUTPUT 2).** Both are found in the different modules of open and close at 12 V dc and at 230 V ac.

Central Unit:

- Indicating **MAINS, OUTPUT 1, OUTPUT 2, ALARM and BATTERY** at the front panel.

- The indication of ALARM and/or FAULT (in the link wires between the alarm central unit and each remote sensor), both are indicated at the front panel as an **ALARM**.

- The clear identification of all indicated by **LED**s at the front panel and memory of events.

- Several outputs.

- The immunity to power supply loss with an optional battery.

Remote Gas Sensor (R.G.S.):

- The accurate calibration made using a gas standard.

- The immunity to temperature, humidity and atmospheric pressure variations due to the sensor's catalytic technology.

All these characteristics make the detection system have high security and guaranteed reliability.

- **Install the Central Unit in a visible and accessible place.**

A remote gas sensor is not a substitute for the correct installation and maintenance of gas appliances and must be installed by a qualified person or an authorised installer.

OPERATION

Once it is verified that the remote gas sensor has been properly connected to the Central Unit and there are no short circuits in the outputs, connect the central unit to the mains at 230 V ac, the following LEDs will light on at the front panel: **MAINS/RED** indicate that the unit is powered at 230 V ac and a few seconds later the remote gas sensor red LEDs will be lit on.

Green KED for **OUTPUT 1** and **OUTPUT 2** remain switched off and will be able to rearm the system after 20 seconds pressing the **RESET/REARME button for at least one second.** When pressing the **RESET/REARME** the red-**ALARM** LEDs, corresponding to the remote gas sensors go out (if there is no gas or a bad connection), and turn on the green LEDs in the **OUTPUTS**.

Explosion Limits of NATURAL GAS %Vol. in AIR	**LEL = 4,4**	**HEL = 17**
Explosion Limits of PROPANE % Vol. in AIR	**LEL = 1,7**	**HEL = 10,9**
Explosion Limits of BUTANE %Vol. in AIR	**LEL = 1,4**	**HEL = 9,3**

NOTE: *Data obtained from Standard **EN 61779-1: 2002**.*

METHANE GAS (Natural Gas)

% VOLUM	**0,44**	**0,88**	**1,32**	**1,76**	**2,2**	**2,64**	**3,08**	**3,52**	**3,96**	**4,4**
% LEL	10	20	30	40	50	60	70	80	90	100

PROPANE GAS

% VOLUM	**0,17**	**0,34**	**0,51**	**0,68**	**0,85**	**1,02**	**1,19**	**1,36**	**1,53**	**1,7**
% LEL	10	20	30	40	50	60	70	80	90	100
% VOLUM	**0,14**	**0,28**	**0,42**	**0,56**	**0,7**	**0,84**	**0,98**	**1,12**	**1,26**	**1,4**

BUTANE GAS

IT IS RECOMMENDED TO INSTALL A ¨FIDEGAS¨ VALVE THAT SHUTS OFF THE GAS WHEN THE GAS CONCENTRATION IN THE ENCLOSURE REACHES THE 20% LEL (Lower Explosion Limit). THE EQUIPMENT IS ADJUSTED AND CALIBRATED IN THE FACTORY WITH THE PATTERN GAS INDICATED ON THE REMOTE SENSOR´S FEATURES PLATE.

OPERATION

Central Unit Ref. C/6 incorporates the following signs of LEDs in the front panel:

- **MAINS** signal **(green** LED, marked **RED)**.

- Independent **ALARM memory** for each remote gas sensor (red LEDs marked with the number of each remote gas sensor 1, 2, 3, 4, 5 and 6 and the white space is to indicate its location).

- When **OUTPUT 1** and **OUTPUT 2** LEDs are switched on in green, there is voltage exit at the gas shut-off valve; when switched off there is voltage at the optical-acoustic alarm output.

- LED at amber **BATTERY** will be turned on if there is a power failure and thereafter the central unit will be powered by a 12 V / 3 Ah (optional) battery.

PREALARM.- When any remote gas sensor detects the presence of gas above the 12% LEL the **PREALARM** output will be activated**.** *This output remains activated for about one and a half minutes after the 12% LEL signal has stopped,* and is available in clamp marked as **PREALARM** at 12 V dc and 230 V ac.

ALARM.- If the gas concentration reaches the 20% LEL, the **ALARM** LED of the corresponding remote gas sensor will turn on and it will **deactivate the OUTPUT 1 and/or OUTPUT 2** (**or both**), depending on output addressing. The central unit will retain the memory of this event until it is **RESET** by the user, A strip line is reserved at the front panel of the unit next to each alarm LED to indicate there the location of the corresponding remote gas sensor (**REMOTE SENSOR LOCATION**). If the gas concentration does not decrease the central unit **cannot be RESET**. This alarm acts on **OUTPUT 1** and/or **OUTPUT 2** (**or both**), depending on the selected program and normally open and close at 12 V dc and 230 V ac.

BATTERY.- This central unit is provided with a connection for an auxiliary battery **Ref. B-01** to prevent mains failures. If the **BATTERY** LED is on and the **MAINS** light is off the central unit is being powered by the battery. **The battery lasts for about 30 minutes full loaded.** This central unit is provided with an automatic battery charging system. After some minutes it will be disconnected below a certain level of load to avoid an excessive discharge which could damage it. The central unit has a space inside to install the battery.

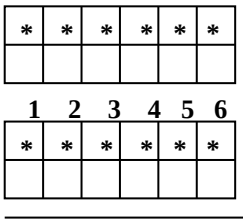
ATTENTION: If there is a power cut the **green** LED in **ON** will be switched off, but the central unit will continue to work with batteries (**optional**) as indicated by the **yellow BATTERY** LED.

RESET.- Behind the red button you can find the switch to reset the system after an alarm, keep pressing until the remote sensor's red LEDs are switched off that indicate the alarm and the green LED switches on at **OUTPUT 1** or **OUPUT 2** (or both). If in two or three seconds the reds **do not** go off, it means that the remote sensors can still detect gas over the 20% LEL or else there is a fault in the system.

OPERATION

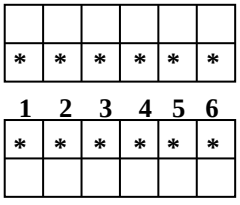
OUTPUT PROGRAMMING

This central has two micro-switches that allow selection of the output that will be activated by each remote gas sensor, **OUTPUT 1** or **OUTPUT 2**. Each switch is named with its corresponding remote gas sensor number and is found in the printed circuit of the central unit. Selection of the output for each remote gas sensor is done when the corresponding switch is in the ON position for **OUTPUT 1** or **OUTPUT 2**. **Make sure it is not in the OFF position or intermediate position since in this case it would not act on any OUTPUT.**



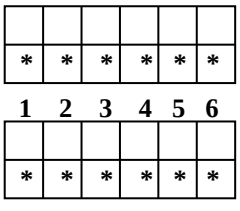
A) **OUTPUTS S1** and **S2** act simultaneously turning off the **green** leds when gas is detected (**ALARM**), both OUTPUTS can be activated by any remote sensor.

FACTORY SET DEFAULT POSITION.



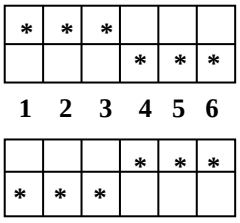
B) **OUTPUT S2** acts turning off the **green**-led when gas is detected (**ALARM**).

ATTENTION: IN THIS POSITION OUTPUT S1 DOES NOT ACT.



C) The gas detection (**ALARM**) only works indicating the remote sensor has triggered the alarm.

ATTENTION: IN THIS POSITION OUTPUTS DO NOT ACT.



D) To select the remote sensors that need to be acted on the **OUTPUT S1**, place the switches in the **ON** position and other remote sensors in the **OFF** position.

At the **OUTPUT S2**, place the switches of the remote sensors that act on the **OUTPUT S1** in the **OFF** position and those that act on the **OUTPUT S2** in the **ON** position.

In this example the 1-2-3 remote sensores act on the OUTPUT S1 and the 4-5-6 remote sensors act on the OUTPUT S2.

THE OUTPUT POSITION FROM THE FACTORY IS

WITH ALL THE MICRO-SWITCHES IN THE ON POSITION.

INSTALLATION

The Central Unit **Ref. C/6** should be put in an accessible place visible to users, **out of risk areas**.

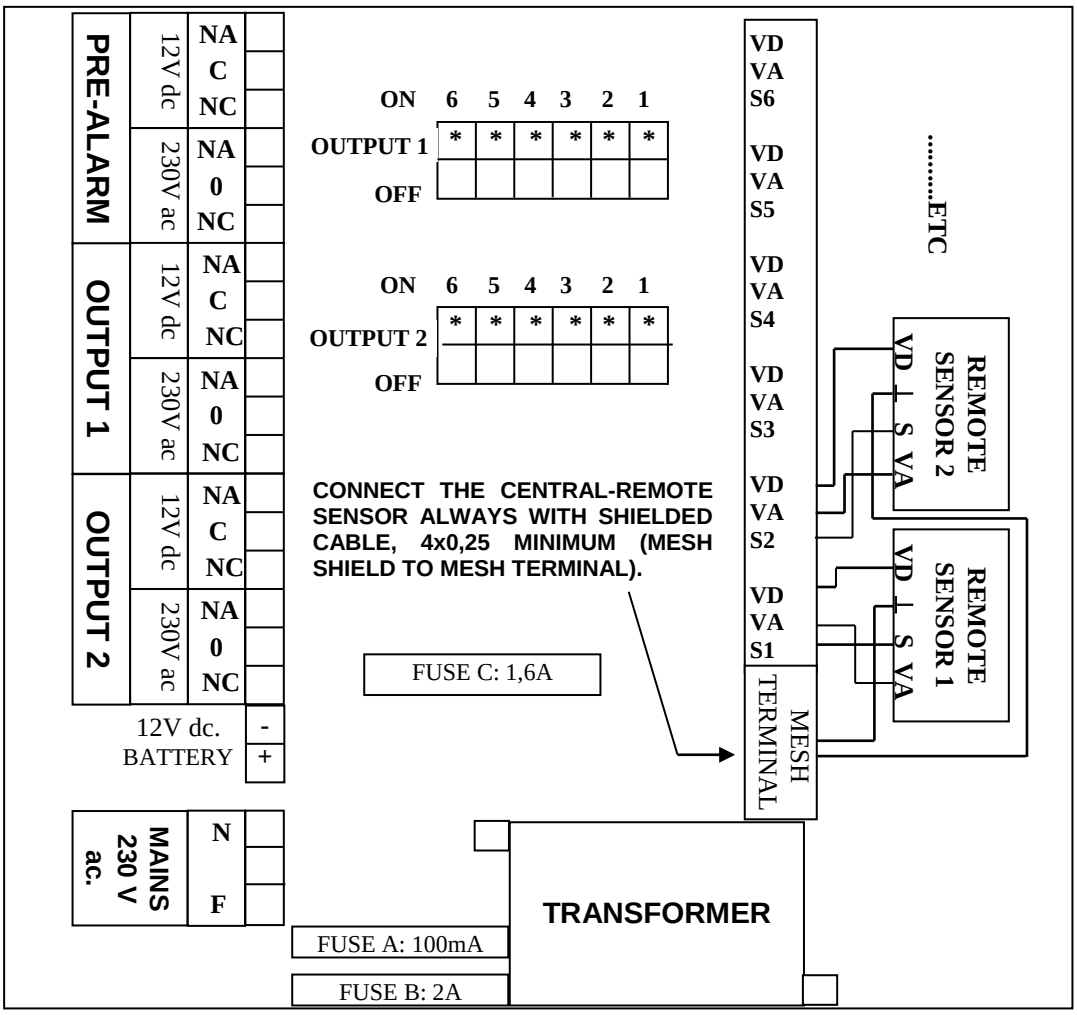
The remote sensor **Ref. S/10** should be installed in a protected place and kept at a minimum distance of 1,5 meters from gas appliances or smoke outputs and air flows. Avoid places where dirt can clog the entrance of the gas sensor (sensitive component). It has a covering area of approximately 16 m^2. This covering area is applied to the perimeter of gas appliances, so as to cut the trajectory of gas as it advances.

TO DETECT **METHANE** (**NATURAL GAS**) PLACE REMOTE GAS SENSORS AT A DISTANCE OF 15 cm FROM THE CEILING.

TO DETECT **BUTANE** OR **PROPANE** PLACE REMOTE GAS SENSORS AT A DISTANCE OF 10 - 30 cm FROM THE FLOOR.

CONNECTIONS

CONNECTIONS DIAGRAM



MAXIMUM POWER TO CONNECT at 12 V dc OUTPUTS:
6 W / 0,5 A (total in the plate)

CONNECTIONS

BE AWARE OF

IF THERE IS NO CONNECTION WITH THE MESHES OR INDICATED CABLE (4 x 0,25 WITH MESH), IT CAN GENERATE FALSE ALARMS THROUGH ELECTRICAL INTERFERENCE.

THE REMOTE GAS SENSOR INPUT IS NOT IN USE:

¡¡ATTENTION!! CONNECT "S" WITH "MESH TERMINAL"

FUSE "A" IS 100 mA.

PROTECT 230 V ac MAINS INPUT.
IF THIS FUSE IS BLOWN, THE CENTRAL UNIT WILL NOT LIT UP.

FUSE "B" IS 2 A.

PROTECT 230 V ac OUTPUTS.

MAXIMUM POWER TO CONNECT IN OUTPUTS: 400 VA.

IF THIS FUSE IS BLOWN, THERE IS NO VOLTAGE AT 230 V ac OUTPUTS

FUSIBLE "C" IS 1,6 A.

PROTECT 12 V dc OUTPUTS.

MAXIMUM POWER TO CONNECT IN OUTPUTS: 6 W.

IF THIS FUSE IS BLOWN, THERE IS NO VOLTAGE AT 12 V dc OUPUTS, REMOTE SENSORS WOULD NOT WORK, *GREEN OUTPUTS LEDS* WOULD TURN OFF AND THERE WILL BE VOLTAGE AT 230 V ac OUTPUTS BETWEEN CONTACTS "NA" AND "0".

IN CASE OF POWER FAILURE OF 230 V ac WITH A CONNECTED BATTERY, THE CENTRAL UNIT BECOMES DISCONNECTED, AND THE BATTERY DOES NOT WORK.

CONNECTIONS OPTIONS

*** Valve "FIDEGAS" Ref. 101 or Ref. 102, connect between "C" and "NC" located at the terminals marked as OUTPUT 1 and/or OUTPUT 2 at 12 V dc, or one valve at each OUTPUT depending on the program chosen.**

*** 230 V ac electronic valves Ref. DUNGS or KROMS, connect between "0" and "NC", located at the OUTPUT 1 and/or OUTPUT 2 at 230 V ac, or one valve at each OUTPUT depending on the program chosen.**

*** Optic-Acoustic "FIDEGAS" Alarm Ref. AL-2 or AL-3, connect between "NA" and "C", located at the OUTPUT 1 and/or OUTPUT 2 at 12 V dc, one alarm at each OUTPUT depending on the program chosen.**

ATTENTION WITH POLARITY, NEGATIVE (-) IS "C".

To connect an EXTRACTOR / FAN at 230 V ac ALWAYS USE AN AUXILIARY COIL OR CONNECTOR. Connect between "NA" and "0" at 230 V ac at PREALARM.

PRECAUTIONS

OUR MAJOR REASON FOR FAULTS IS THE POSITIONING OF ELECTRONIC VALVES OR OPTIC – ACOUSTIC ALARMS WITH POWER HIGHER THAN INDICATED, MAINLY AT 12 V dc OUTPUTS.

*** Make sure that the Remote Gas Sensors Ref. S/10 are properly connected, and the Central – Remote Sensor connection is carried out with a minimum of 4 x 0,25 shielded cable. Connect the mesh according to diagram on page 7.**

*** Make sure to place a bridge between "S" and "MESH TERMINAL" when a remote sensor input is NOT going to be used.**

* Make sure that the voltage supply is 230 V ac and in case an auxiliary battery is connected, verify the polarity: **Positive + (Red) and negative - (Black)**.

* Take into account that the values of the fuses are the right ones for the proper operation of the Central Unit and THESE VALUES MUST NOT BE CHANGED. THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR THE DAMAGE derived from non-compliance of these rules.

* Do not sink in water or any other liquids.

* Avoid painting with synthetic paintings near the remote sensor.

* When the remote sensor is for BUTANE / PROPANE gas, it needs to be installed near the floor and avoid cleaning closely with detergents that contain bio-alcohols, industrial dissolvents or silicone in suspension (polishers).

* Avoid remote sensors getting in contact with SILICON, TRICLORINETHILENE, SULPHUR DIOXIDE or HYDROGEN SULPHIDE vapours since the sensor would be irreversibly damaged.

*** It is recommended that the remote sensor is sent to the manufacturer to verify its calibration at the end of its life time or if it no longer works with the Test Kit.**

*** As of the third year of storage, it is advised to send to the manufacturer or the technical service for checking.**

*** Remember that it is not allowed to manipulate any components from the central unit nor any adjustments to the remote sensors under any circumstances, since there is the risk of electrocution or irreversible damages.**

*** Remember that failure to observe these BASIC RULES might damage the unit. THE MANUFACTURER DECLINES ANY RESPONSIBILITY FOR THE DAMAGE CAUSED THROUGH MANIPULATION OR INCORRECT USE.**

***** In order to comply with Directive **WEEE 2002/96/CE** (modified by the 2003/108/CE), imposed upon the Spanish legislation through **RD 208/2005 RAEE** (Electronic Apparatus and Electronics and its residue) ***the pick up is done by the distributors.***

TEST METHOD

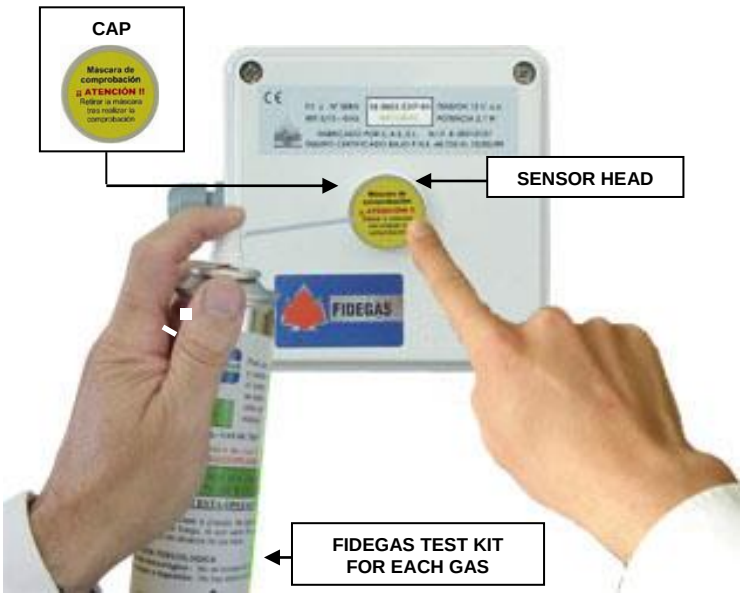


FIGURE 3: How to use **FIDEGAS** Test Kit.

Use this Test Kit (Spray can + Cap) to verify the correct functioning of the remote sensor. Put the cannula (tube) into the cap. Put the cap on the sensor's head. Spray for 2-3 seconds, and wait for 5 seconds to activate the pre-alarm and/or alarm. In case the alarm does not activate, repeat this test again spraying more gas. A sufficient gas concentration to activate the alarm could remain in the cap for 30 seconds. Therefore, remove the cap when the test is done. **No noise when spraying indicates the can is finished**.

IT IS RECOMMENDED TO CARRY OUT THIS TEST EVERY SIX MONTHS.

Do not use gas lighters nor flammable vapours that could lead to wrong conclusions and damage the gas sensor.

WHEN THE TEST SPRAY INDICATES LOW PRESSURE, IT WILL NEED MORE TIME TO TEST THE GAS SENSOR.

THE TEST SPRAY IS NOT VALID WHEN GAS DOES NOT COME OUT ANYMORE (PRESS THE SPRAY AND LISTEN CLOSELY IF GAS COMES OUT OR NOT).

ELECTRONIC CIRCUIT REPLACEMENT

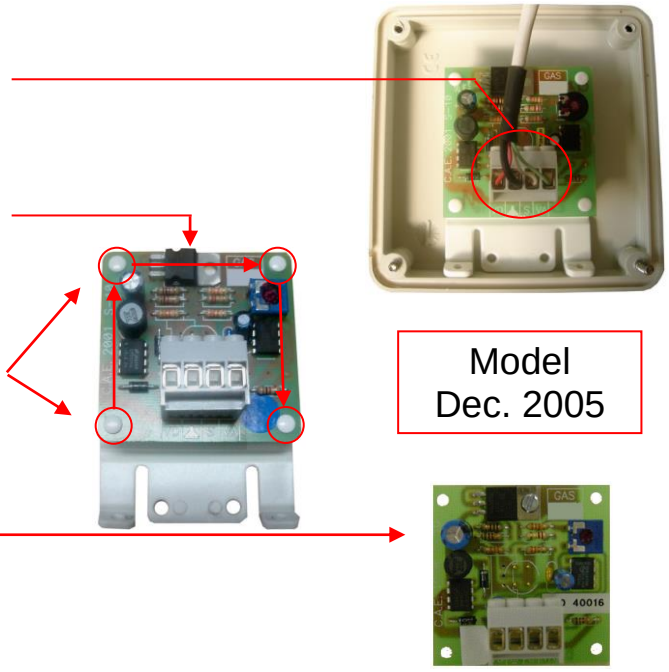
Before replacing the *Spare* sensor and electronic circuit of the remote sensor, **be sure to disconnect the detecting system of the MAINS and/or BATTERY.** This remote sensor cannot be opened while there is voltage.

1.- Open the lid of the remote sensor using a screwdriver. Disconnect the carrier connections and the sensor connector on the electronic circuit.

2.- Carefully hold the front lid of the remote sensor and remove gently the circuit until it is separated from the lid.

3.- Remove the four screws which are on the white base clamp and replace a new Spare remote sensor.

4.- Set the new circuit of the remote sensor in the indicated position and connect the carrier connections previously withdrawn.



Once the replacements are done, connect the detection system to the **Mains** and verify that the operation is correct.

TECHNICAL CHARACTERISTICS

- **Supply Voltage: 230 V ac. 50/60 Hz.**
- **Power Consumption: 22 VA.**
- **Inputs for SIX (6) Remote Gas Sensors Ref. S/10 (indicate the gas type).**
- **Sensor type and lifetime: Catalytic Sensor. Four (4) years in air approximately. IT IS RECOMMENDED TO CARRY OUT THIS TEST EVERY SIX (6) MONTHS.**
- **Covering area: 16 m^2 approximately.**
- ***The Central – Remote Sensor connection is always carried out with shielded cable, 4 x 0,25 minimum.***
- **Two ALARM outputs programmable by means of switches at 230 V ac and 12 V dc, normally open and closed. Protected by fuse.**

  Alarm Output 1: 12 V dc.
  230 V ac.

  Alarm Output 2: 12 V dc.
  230 V ac.

- **One PREALARM output at 230 V ac and 12 V dc, normally open and closed. Protected by fuse.**

  Prealarm Output: 12 V dc.
  230 V ac.

ATTENTION:

MAXIMUM POWER TO CONNECT AT 12 V dc OUTPUT: 6 W / 0,5 A.

MAXIMUM POWER TO CONNECT AT 230 V ac OUTPUT: 400 VA.

- **Possibility of auxiliary battery Ref. B-01, 12V / 3Ah. (optional). About 30 minutes full loaded.**
- **Operational temperature: (-10 to 55) ºC.**
- **Relative humidity: (20 to 90) % RH.**
- **Serial Nº:** C C C A A M M X X X X

  - Product **Code**.
  - Manufacturing **Year**.
  - Manufacturing **Month**.
  - Manufacturing **Number**.

- **Degree of protection: IP 43.**
- **Size: 355 x 260 x 85 mm. Weight: 3.900 g.**

CERTIFIED ACCORDING TO P.N.E. 60726

CE DECLARATION OF CONFORMITY

MANUFACTURER: **Comercial de Aplicaciones Electrónicas S.L.**

ADDRESS: Paseo Ubarburu 12 - 20014 San Sebastián - Spain

PRODUCT DESCRIPTION:

Gas Alarm Central Unit Ref. C/6:

The product above mentioned is declared, under our responsibility, in accordance with the following European directives requirements:

1. **Directive 2004/108/EC** of the European Parliament and Council of 15 December 2004 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (EMC) abolishing therefore Directive 89/336/EEC (OJ L 390 of 2004-12-31).

2. **Directive 2006/95/EC** of the European Parliament and Council of 12 December 2006 on the harmonisation of the laws of the Member States relating to Electrical Equipment designed for use within certain voltage limits (Low Voltage) abolishing therefore Directive 73/23/EEC (OJ L 374 of 2006-12-27, p. 10-19).

This conformity is assumed in reference with the following harmonised standards:

- **EN 50081-1** Electromagnetic Compatibility (Emission).
- **EN 50082-1** Electromagnetic Compatibility (Immunity).
- **EN 60335-1** Security household and similar electrical appliances.
  Part 1: General requirements.
- **P.N.E. 60726** Gas detectors.

In San Sebastian, 24 July 2008.

JULIO BOUZAS FUENTETAJA
MANAGING DIRECTOR

GUARANTEE CONDITIONS

This guarantee is issued by C.A.E., S.L. a " FIDEGAS " manufacturer, specifically for the original purchaser who shall appear in this document and covers the apparatus against eventual failure or malfunction and its correct use, as indicated in the User Manual, and taking into account the following conditions:

1.- The materials are guaranteed for TWO YEARS. CE

2.- This guarantee will become void if any of the following cases can be proved:

- **d) The apparatus has been repaired or modified, or any foreign device has been added or introduced, or if personnel not in our technical service has worked with it.**
- **e) The apparatus has suffered any damage.**
- **f) The serial / manufacturing number has been altered or if it does not coincide with our records.**

3.- The present guarantee document shall not be modified.

4.- Postage costs will be paid for by the user.

NON-COMPLIANCE OF THESE CONDITIONS WILL AUTOMATICALLY RENDER THIS GUARANTEE VOID AND ALL COSTS WILL BE PAID FOR BY THE USER.

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COMERCIAL DE APLICACIONES ELECTRONICAS, S.L.
C/ Paseo Ubarburu 12 Tel. 943 463 069 Fax. 943 471 159
20014 SAN SEBASTIAN – SPAIN www.fidegas.com

INSTALLED BY: _____

APPARATUS:

USER: _____

ADDRESS: _____

STATE: _____ **DATE:** _____

C.A.E., S.L. GUARANTEE FOR THE COMPANY Rev. 3 (07/08)

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