USER MANUAL

GAS DETECTION CONTROL UNIT

CA-2/4/8

fidegas

Manufactured by C.A.E., S.L. • P. Ubarburu 12 • 20014 San Sebastián - Spain

Elaborated and appoved in Revision 24 02/2024 by the Quality Department. Consists of 24 pages.

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WARNINGS

Read carefully the user manual before commissioning or operating.

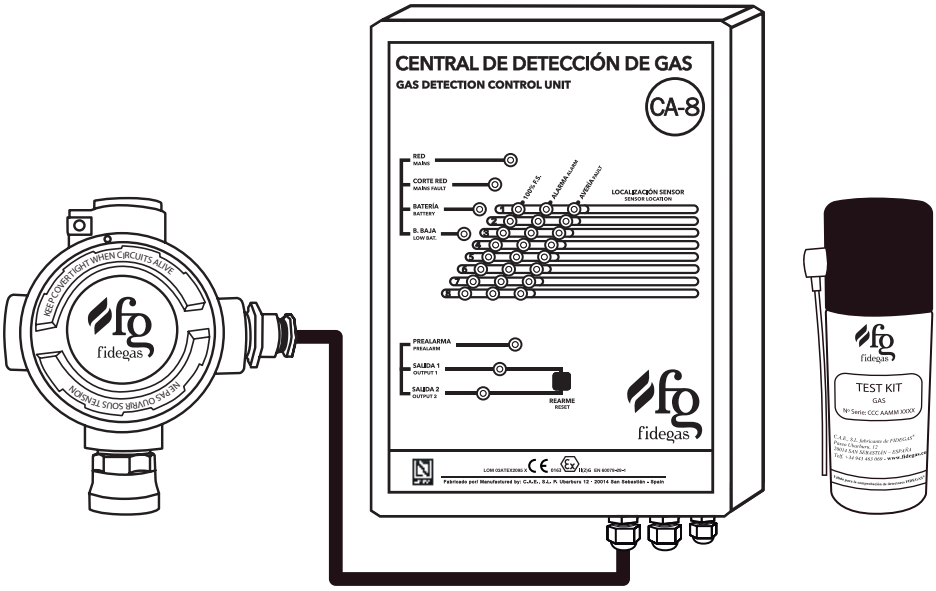
No gas detection system can be replaced by a proper installation and maintenance of gas appliances and boilers and must be installed by a competent person or an authorized installer.

Instructions for using the Test Kit FIDEGAS® is supplied with the equipment for verifying the proper operation and warning of false conclusions that can result from the use of other methods, such as gas lighters, flammable gases or vapours, etc.

- Control units must be protected against the risk of mechanical impact and direct exposure to sunlight.
- Note that any failure to follow these basic precautions can lead to a malfunction of the equipment where the manufacturer has no responsibility.

LIMITATIONS

- Control units Ref. CA are Group II equipment that have been designed and CERTIFIED to be located in SAFE AREA.
- The gas detection system FIDEGAS® consists of a Control Unit Ref. CA, a Remote Sensor Ref. S/3-2, wire S3 and a Test Kit certified to operate together.



GAS DETECTION SYSTEM FIDEGAS®

WARRANTY

- Warranty three (5) years is given by C.A.E., S.L., manufacturer of FIDEGAS®, against any manufacturing defect from the date of purchase and cease to be effective if this equipment is not installed, used and maintained according to the guidelines stated in the User Manual.
- This warranty becomes void in cases where it is found that:
  a) The equipment has been repaired, tampered with or external accessories have been added, with the involvement of people outside our Authorized Service Center.
  b) It has suffered any impact or damage.
  c) The serial number has been altered or modified and does not match with our records.
- C.A.E., S.L., manufacturer of FIDEGAS®, is not liable for damages that may arise as result of misuse of the equipment.
- All the necessary efforts have been made to ensure the accuracy of the information provided in this document. However, C.A.E., S.L., manufacturer of FIDEGAS®, reserves the right to make improvements or modifications to this equipment without prior notice.
- Any failure to follow these instructions automatically voids the warranty and the expenses are responsibility of the user.

QUALITY CONTROL

This product is designed, manufactured and commercialised under the honesty of the after-sales service, controlled within a Quality Management System certified according to ISO 9001:2015 and audited by AENOR.

The Laboratorio Oficial J.M. Madariaga (LOM) is a notified organism (Nº 0163) that certifies that C.A.E., S.L. manufacturer of FIDEGAS® has a quality control system of the production that complies with specified in Annex VII of Directive 2014/34/EU.

OPTIONAL EQUIPMENT

REFERENCE	OPTIONAL EQUIPMENT
00032	Battery B-01
00035	UPS 230 Vac
00308	Wire S/3
00107	Cabinet AC-01 IP66
00047	Indicating module MOD-V1
00045	Alarm AL-2
00028	Alarm AL-3
03604	Alarm AL-4
00317	Telecontrol GPRS

SUPPORTED PRODUCTS

- Sensors S/3 and S/2
- Sensors S/10 toxic

DIRECTIVE 2014/34/EU (ATEX)

Classification of hazardous areas

ZONE	Definition
0	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapor or mist is present continuously or for long periods or frequently
1	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapor or mist is likely to occur in normal operation occasionally.
2	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapor or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only

Equipment category

Category	Definition	Zone(s) of use
1	Equipment with a “very high” degree of security	0
2	Equipment with a “high” degree of security	1 and 2
3	Equipment with a “normal” degree of security	2

Group of gases

Group	Reference gas	Definition
I	Methane	Equipment intended for use in mines susceptible to firedamp, above and below ground.
IIA	Propane	Equipment intended for use in surface above ground industries
IIB	Ethylene	
IIC	Hydrogen	

Temperature Classification

The equipment shall be selected so that the ignition temperature of the material is not reached during operation.

Explosive Limit

The relationship between the % LEL (Lower Explosive Limit) and the % v/v (volumen/volumen) varies from gas to another. Examples extracted from EN ISO/IEC 80079-20-1:2019:

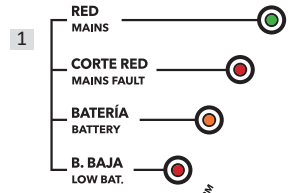
Gas	Formula	100% LEL
Methane	CH_4	4,4 % v/v
Hydrogen	H_2	4,0 % v/v
Butane	C_4H_{10}	1,4 % v/v
Propane	C_3H_8	1,7 % v/v

1. GENERAL

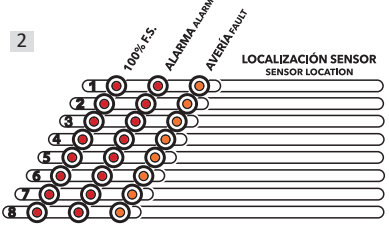
Gas detection control units include standard 4-20 mA inputs, intentionally designed to install with Gas Remote Sensors (GRS) Ref. S/3-2 FIDEGAS® (Certificated System). It is available in three versions Ref. CA-2, Ref. CA-4 and Ref. CA-8 to use with 2, 4 and 8 remote sensors.

The control units have alarm and fault indications for each remote sensor connected, clearly identified on the front panel. The events are registered until the user resets the control unit by means of the reset button. Depending on the model, the control units have different outputs associated with prealarm and alarm levels of the remote sensors. The have a battery connection to be immunity protected against power failures (battery optional).

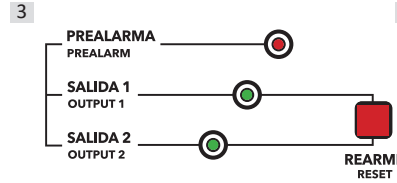
1.1 Indications



1 Green led (**MAINS**): indication of mains power supply.
Red led (**MAINS FAULT**): indication that there has been absence of power.
Yellow led (**BATTERY**): indication of bettery supply.
Red led (**LOW BAT.**): indication of low battery.



2 Red led (**100% F.S.**) for each GRS: indication of gas concentration above 100% of full scale of the corresponding GRS.
Red led (**ALARM**) for each GRS: indication of gas alarm of the corresponding GRS.
Yellow led (**FAULT**) for each GRS: indication of fault of the corresponding GRS.



3 Red led (**PREALARM**): indication of the activation of the prealarm output.
Green led (**OUTPUT 1**): indication of the deactivation of the alarm or fault output.
Green led (**OUTPUT 2**): indication of the deactivation of the alarm or fault output (only for CA-4 and CA-8).

Button **RESET**: Return to normal operation of the control unit after an event.

1.2 Outputs

The control unit has different outputs depending on the model; 12 Vdc, 100-240 Vac and LP (Dry contact).

12 Vdc OUTPUTS AND 230 Vac OUTPUTS: during normal operation (no alarms or faults) the outputs are powered between C (negative) contact and NC (positive) contact in 12 Vdc and between F (phase) and NC (neutral) in 100-240 Vac. When an alarm or a fault condition occurs, the activation relays change their state and become powered between C (negative) and NA (positive) in 12 Vdc and between F (phase) and NA (neutral) in 100-240 Vac.

LP OUPUT (dry contact): free contact that remains closed in normal operation (no alarms or faults) and opens when an alarm or fault condition ocurs.

Model CA-2: Output 1 in the 3 varieties 12 Vdc, 100-240 Vac and LP output.
Pre-alarm output in 100-240 Vac varity

Model CA-4 / CA-8: Output 1, Output 2 and Prealarm in the 3 varieties 12 Vdc, 100-240 Vac and LP.

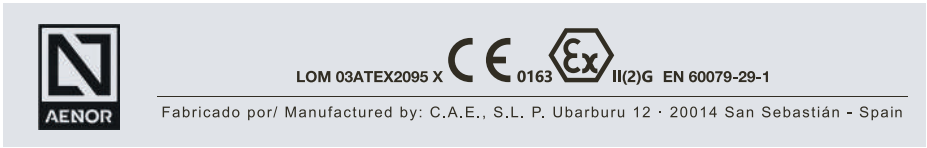
(See section 4.3 of this user manual)

2. CERTIFICATION AND MARKING

C.A.E., S.L. declares that the Gas Detection Control Unit FIDEGAS® **CA** is certified and marked according to all requirements of the EN 60079-29-1 standard, under which the equipment has been certified:

- Directive 2014/34/EU (ATEX) and Standards: EN 60079-29-1.

The marking is at the bottom of the frontal panel and in the side label, allowing the user to identify all the main characteristics of the acquired equipment:



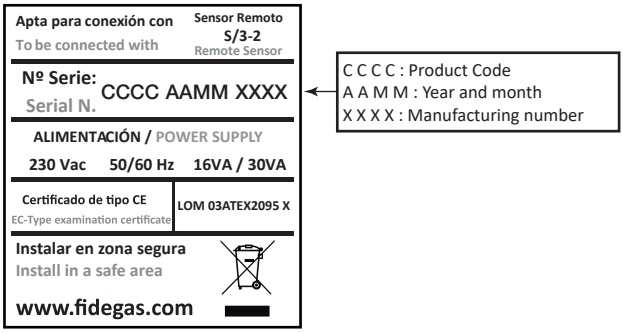


Figure 1: making and identification label

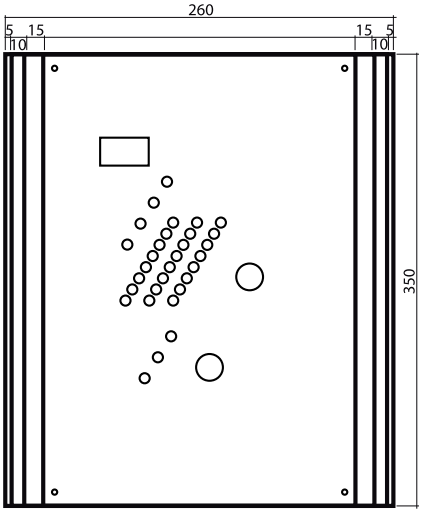
The CE marking indicates compliance with the DIRECTIVE

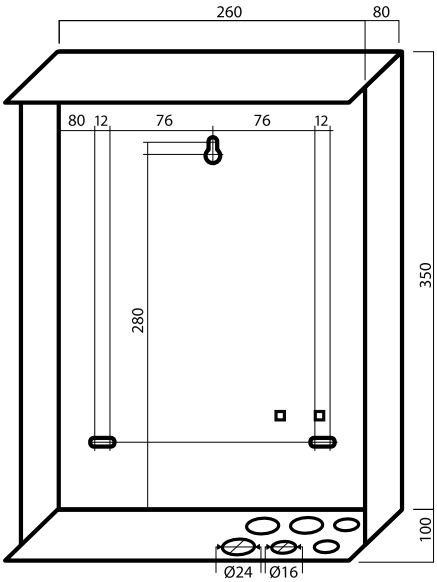
Number of identification of the authorised organism that supervised the production (LOM)

EX marking, model approved under DIRECTIVE 2014/34/EU

GROUP II(2)G equipment: safe installation, not in the presence of explosive athmospheres Zone 1 and Zone 2 (GASES)

3. TECHNICAL DRAWING





4. INSTALLATION

4.1 Wiring

For more information related with the connection to the remote sensor see the User Manual of the Remote Sensor.

- The wiring must comply with current local normative and regulations
- Conductors should be stripped and inserted so that they do not lead into undesired contacts.
- The mesh of the wire should be connected to earth in the central unit; in order to make easier this operation the central unit has clamps to make to make the connection.
- In the remote sensor the mesh should make contact inside de gland, as stated in 5.2.1. of the User Manual Remote Sensor S/3-2 FIDEGAS®.

To ensure ATEX protection of the system, central unit – remote sensor connection must be done by a shielded minimum section 3x0.75 mm2 cable for a maximum length of 200 meters.

For proper signal transmission, remember not splicing.

It is highly recommended using the cable provided for in the certification Ref. Cable S3 or a similar one subject to the following features:

Composition: Z1C4Z1-K Shielded 3x0.75 mm2, polished copper braid 85% tin plated, halogen free polyolefin. Outer diameter 6.6 mm. 400V, -10 ºC / +60ºC, < 26 Ω/Km for 0.75 mm2.

Compliance: Reaction to fire CPR Cca-s1b,d1,a1 according to UNE-EN 50575:2014+A1:2016.

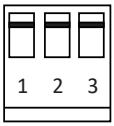
4.2 Input Connections

Together with Control Units FIDEGAS® a resistive group, two fuses of 1A and a spare screw are supplied.

Before making the connections open the door of the control unit considering that the opening can be made to the left or to the right.

Depending on the control unit up to eight (8) remote sensors FIDEGAS® can be connected on the terminal strips.

The terminal strip is numbered from 1 to 3 as shown in the figure:



1- Positive power supply (12 Vdc)
2- Input signal 4-20mA
3- Common negative power and signal

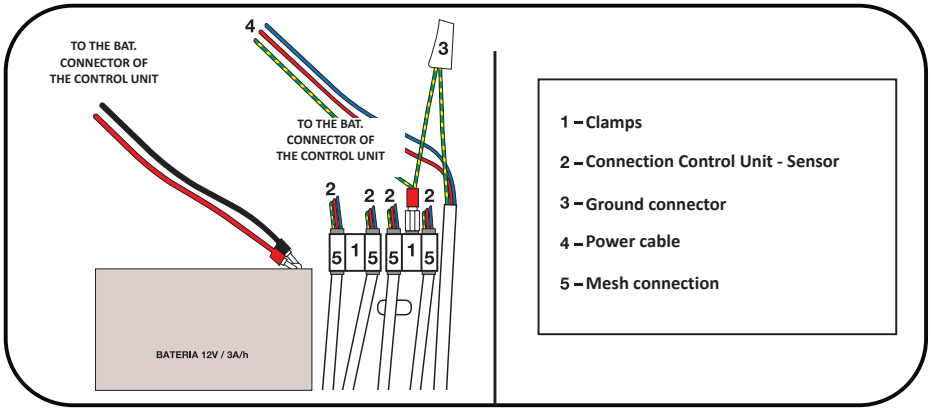
A) Connect the 100-240 Vac power cable (4) to the MAINS terminal strip. Make sure that the voltage is correct. Connect the Ground connector (3) to the corresponding terminal strip on the control unit.

B) The cable of the remote sensor should go through the inside part of the gland and must be calculated that it should reach the terminal strip numbered form 1 to 3.

Ensure that the wire lenght is enough to allow opening the door to the left and to the right so that the wire is not tight.

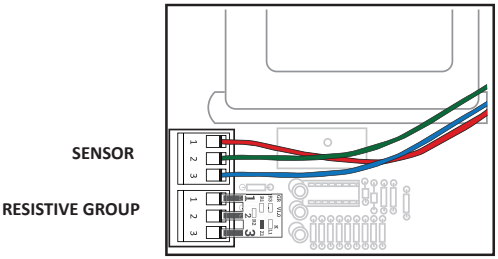
C) Cut the cable sheath without cutting the mesh. Pull back the mesh and cut it leaving about 2 centimeters. Insert the cable through the clamps (1) up to the area covered with the mesh (5) and tighten the screw until it is firmly fastened.

A common break down source are the loose wires before cable peeling and the mesh. The mesh should not touch the electronic circuit.



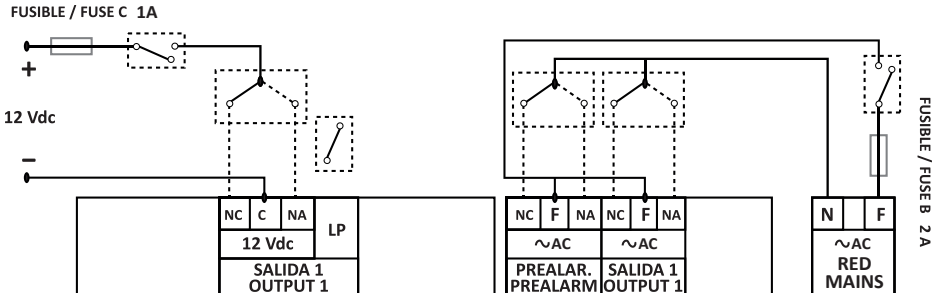
D) Connect the 3 wires (2) to the terminal strips numbered form 1 to 3 marching the numbering on the GRS and the control unit.

If an input of a GRS is not used in the control unit, a resistive group must be placed instead. Resistive groups are supplied inside the control unit.



4.3 Output Connections

4.3.1. Outputs in CA-2 model:

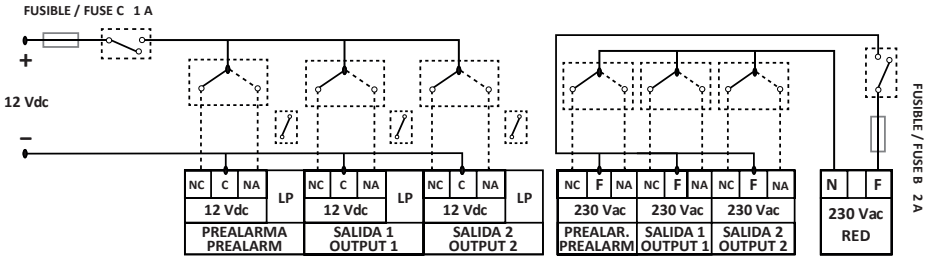


Ther are two outputs, PREALARM and OUTPUT 1, which are divided in two blocks of strips; block of Í00-240 Vac and block of 12 Vdc and LP (dry contact).

CAUTION, both DC and AC outputs are power supplied. The voltage of the AC outputs is the same as the MAINS voltage.

OUTPUT 1		PRE-ALARM	OUTPUT 1
Block 12 Vdc	LP output (potential free)	Block 100-240 Vac	
The connection is made between C and NC or NA dependig on the purpose, considering that the equipment connected (electrovalves, sirens, etc.) has a nominal voltage of 12Vdc	Contact that in normal operation is closed (NC), opening when triggered an alarm or fault	The connection is made between F and NC or NA depending on the purpose, considering that the equipment connected (electrovalves, contactors, sirens, etc.) has a nominal voltage of 100-240 Vac	
Maximum power allowed in block 12 Vdc 6W	Maximum current 2 A	Maximum power allowed in block 100-240 Vac 400 VA	
Protected by C fuse of 1A		Protected by B fuse 2 A	

4.3.2. Outputs in CA-4 and CA-8 models:



CAUTION, both DC and AC outputs are power supplied. The voltage of the AC outputs is the same as the MAINS voltage.

PRE-ALARM OUTPUT 1 OUTPUT 2		PRE-ALARM	OUTPUT 1	OUTPUT 2
Block 12 Vdc	LP output (potential free)	Block 100-240 Vac		
The connection is made between C and NC or NA dependig on the purpose, considering that the equipment connected (electrovalves, sirens, etc.) has a nominal voltage of 12Vdc	Contact that in normal operation is closed (NC), opening when triggered an alarm or fault	The connection is created between the F and NC or NA depending on the purpose, considering that the equipment connected (electrovalves, contactors, sirens, etc.) has a nominal voltage of 100-240 Vac		
Maximum power allowed in block 12 Vdc 6W	Maximum current 2 A	Maximum power allowed in block 100-240 Vac 400 VA		
Protected by C fuse 1A		Protected by B fuse 2A		

4.3.3. Connection options on OUTPUTS

12Vdc electro valve: connect to OUTPUT 1 and / or OUTPUT 2, block of 12 Vdc, between NC and C.

In case a 12 Vdc electrovalve FIDEGAS® is used, a ferrite must be installed ,

Electrovalve 230 Vac: connect to OUPUT1 and / or OUTPUT2, block of 100-240 Vac between NC and F.

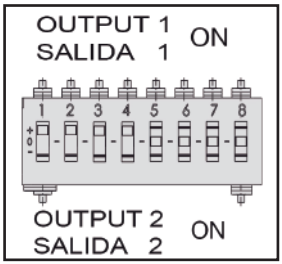
Alarm Ref AL-3 12 Vdc: connect to OUTPUT1 and / or OUTPUT 2, block of 12 Vdc, between C and NA.
Consider polarity: (+) red color to NA connector and (-) black color to C connector.

Optical-acoustic alarm 230 Vac: connect to OUTPUT1 and / or OUTPUT2, block of 100-240 Vac, between F and NA.

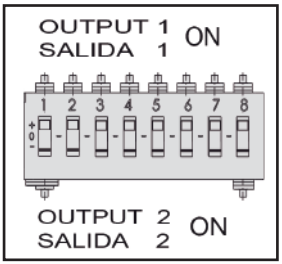
Extractor fan / 230Vac: connect to PREALARM, block of 100-240 Vac, between F and NA.

Potential free contact: connect to OUTPUT1 for CA-2 and to PREALARM, OUTPUT1 and / or OUTPUT2 for CA-4 and CA-8.

4.3.4. Programming outputs in CA-4 and CA-8 models:



Factory programming switches CA-4



Factory programming switches CA-8

The micro-switch allows to select which output works with each remote sensor.

It is located at the bottom of the circuit board and numbered corresponding with the number of the remote sensor. The programming of each GRS is done by addressing each position towards the output on which the sensor has to work with. By default, inputs are configured to work with OUTPUT 1. In the middle position ("0") the input does not work with any of the outputs.

4.4 Commissioning

Verify that the remote sensors and the auxiliary devices connected to the outputs are correctly connected. When main voltage is on, the indication of MAINS (green led) and MAINS FAULT (red led) on the front panel are lighted up.

During the period of mains supply break, outputs are not energized in order that any auxiliary device (valves, sirens, etc.) can operate and contacts of the LP outputs (potential free) are closed until the control unit is rearmed.

After a minimum of 15 seconds, and if all connections are correct, the control unit can be rearmed by pressing the reset button (pressing at least one second). The indication of OUTPU1 and / or OUTPUT2 are lighted up (according to the selected programming) and MAINS FAULT indication is turned off. Now the control unit is in its normal operating mode.

This time of 15 seconds is necessary for the stabilization of the remote sensors Ref. S/3-2 FIDEGAS® and it happens every time the control unit is started.

Please read carefully the procedure for a correct installation of the equipment.

5. OPERATION

5.1 Gas Detection

The gas detection system composed of a CA control unit and a remote sensor is ready to activate alarms at 20% of full scale of the remote sensor connected.

For combustible gases the detection range is 0-100% LEL, so the alarm system is activated at 20% LEL.

		% LEL									
		12	20	30	40	50	60	70	80	90	100
METHANE	% VOLUME	0,53	0,88	1,32	1,76	2,2	2,64	3,08	3,52	3,96	4,4
PROPANE		0,20	0,34	0,51	0,68	0,85	1,02	1,19	1,36	1,53	1,7
BUTANE		0,17	0,28	0,42	0,56	0,7	0,84	0,98	1,12	1,26	1,4
HYDROGEN		0,48	0,8	1,2	1,6	2	2,4	2,8	3,2	3,6	4
EQUIVALENCE (Vdc)		1,5V	1,8V								4,8V

It is recommended to install a valve to cuts the gas supply when a leak occurs and the gas concentration in the area of influence of the remote sensors exceeds 20% LEL (Lower Explosive Limit).

5.2 Prealarm

If any of the remote sensors detects gas in concentrations higher than 12% FS (1.5 Vdc between points 2 and 3 in the power strip), the PREALARM indication lights up in red and the activation relay changes its state. This output is common to all remote sensors and is delayed for approximately 2, while not start counting until the signal of each remote sensor is below 12% of FS output prealarm is available on terminal output signalized as PREALARM.

5.3 Alarm

The control unit is designed so that when one of the remote sensors connected detects a concentration of at least 20% FS (1.8 Vdc between points 2 and 3 in the terminal strip) the ALARM indication of the corresponding sensor lights up in red. The OUTPUT on which is acting the remote sensor (in the case of CA-2 model, only OUTPUT 1) changes its state turning off the corresponding led. The event is stored in the memory until it is RESET by the user, enabling a quick location of the alarm thanks to the available areas on the front of the control unit (SENSOR LOCATION) that the user can fill during installation. If the gas concentration does not decrease the control unit can NOT be RESET and the ALARM led of the corresponding remote sensor will flicker when the RESET button is pressed.

5.4 100% F.S.

When one of the remote sensors connected to the control unit reaches the level of 100% FS (4.8 Vdc between points 2 and 3 in the power strip), the indication 100% FS lights up and that means that the corresponding remote sensor has detected that concentration sometime and probably exceeding the value. From this time, the detection is ambiguous and can only be ensured that the concentration is less than 100% LEL turning on again the GRS in clean air or checking with other equipment that measures above 100% LEL. This event has no effect on the outputs because it is controlled by the ALARM status. This event is stored in the corresponding led until the control unit is RESET.

After taking necessary actions, it is recommended to consider the possibility of sending to factory the remote sensors to check their adjustment.

5.5 Fault

The control unit has a fault detection. When a FAULT led lights up on the frontal panel means that the corresponding remote sensor is not working properly. This event acts on the outputs as with an alarm and the OUTPUT on which the remote sensor is acting (in the case of CA-2 model, only OUTPUT 1) changes the state turning off the corresponding led (color green led on the frontal panel) and memorizing the event. If the control unit can not be RESET, the fault is permanent and the reason may be a cut between the cable that connects the remote sensor and the control unito or a short circuit therefore. The control unit must be disconnected from the MAINS supply and from the battery if any, until the fault is corrected. In section 6 FAULTS possible causes of failures are indicated. If the fault continues, contact the manufacturer or authorized technical service.

5.6 Battery

These control units have a connection to an auxiliary battery Ref. B-01 FIDEGAS® which avoids shutdown of the control unit when undesirable interruptions of MAINS occur and its operation is reflected by the indication of BATTERY (by yellow led) and LOW BAT. (by a red led). When the BATTERY led lights up and MAINS led turns off means that a fault has occurred in the supply mains and the control unit is being powered by the battery. The battery life of 12 V / 3 Ah at full load is at least 30 minutes depending on the model and the load. The LOW BAT. led indicates that the battery voltage is about to be discharged so the control unit will be disconnected in a few minutes before the battery is damaged by excessive discharge.
When this extreme discharge occurs, the charger of the control unit needs four days to return the battery to fully charged state. The central units have a location inside to house the battery (See image in 4.2).

6. FAILURES

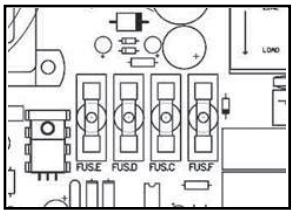
Together with Control Units FIDEGAS® a resistive group is supplied. In case of not using an input for GRS on the control unit, a resistive group must be installed for each unused input to avoid fault indication.

PROBLEM	PROBABLE CAUSE	SOLUTION
Control unit does not turn on	No voltage reaches the control unit	Check with a tester that the input is powered
	Wiring	Review peeled and contact wire
	Input fuse A blown	Replace the fuse
	Broken transformer	Factory delivery
When connecting MAINS the input fuse A blowns	Varistor short-circuited by over-voltage	Factory delivery
	Transformer short-circuited by consumption	Factory delivery
No voltage on 100-240 Vac outputs	**Check the fuse B**	Replace the fuse with one of EQUAL VALUE
The 100-240 Vac outputs fuse B blowns	Shor-circuited on circuit board	Factory delivery
No voltage on 12 Vdc outputs	**Fuse C blown**	Replace the fuse
	Damaged electronics	Factory delivery
Sensors in fault condition	Sensors 1 to 4 in failure	**Replace fuse D**
	Sensors 5 to 8 in failure	**Replace fuse E**
	One sensor in fault	Fault sensor, factory delivery
It does not switch from MAINS to BATTERY	**BATTERY fuse F blown**	Replace fuse F
	Damaged electronics	Factory delivery
Sensor does not act on output	Check the status of microSwich	Addressing the swich to the desired output

Fuse layout

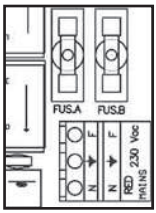
The values of the fusues marked on the circuit board must be respected.

When manipulating or changing a fuse do not force the contact blades in order to ensure good contact.



FUSE E = 1 A
FUSE D = 1 A
FUSE C = 1 A
FUSE F = 1 A

Fuses E-D-C-F



FUSE A = 2 A

FUSE B = 2 A

Fuses A-B

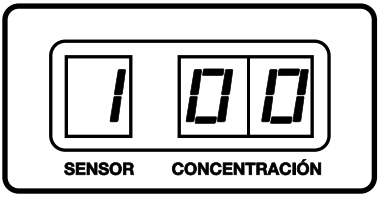
7. INDICATOR MODULE (optional)

7.1 General

The indicator module is an accessory device of the gas detection control units CA-2/4/8 where is shown the gas concentration measured by each of the remote sensors connected.

It is only used for displaying information; in any case executes actions related with security or interfere with the operation of the control unit.

It consist of a display with 3 digits. The left digit shows the number of input being monitored. The two digits on the right show the concentration measured by the remote sensor connected to that input. The representation of information varies depending on the type of sensor connected.



In this case the image correspond to the display of input 1 where the connected sensor shows a value equivalent to a concentration of 0.

7.2 Operation

The indicator module has 2 operation modes; normal mode and configuration mode.

7.2.1 Normal mode:

The reading and display of the values obtained from the inputs of the control unit are carried out during normal operation mode.

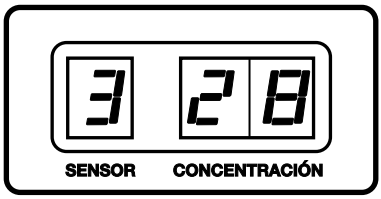
The representation of the information is different depending on the type of the remote sensor selected; so there are 6 type of representation:

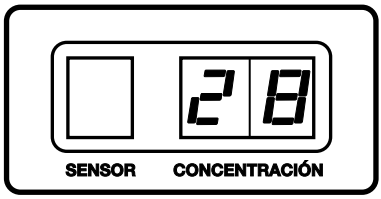
Type of sensor	Measurement range	Representation	Resolution	Pre-alarm	Alarm
S3/2 (combustibles)	0 - 100% LEL	0 - 99	1% LEL	12% LEL	20% LEL
S3/T1 CO	0 - 300 PPM	0 - 30	10 PPM	30 PPM	60 PPM
S3/T1 H2S y NH3	0 - 100 PPM	0 - 99	1 PPM	10 PPM	20 PPM
S3/T1 NO2	0 - 20 PPM	0 - 20	1 PPM	2 PPM	4 PPM
S3/T2 O2 (21-0)	21 - 0% V/V	21 - 0	1% V/V	19% V/V	17% V/V
S3/T2 O2 (0-25)	0 - 25% V/V	0 - 25	1% V/V	3% V/V	5% V/V
S3/T1 Cl2	0 - 5 PPM	0 - 5	0,1 PPM	0,6 PPM	1 PPM
S3/ IR CO2	0 - 2% V/V	0 - 2	0,1% V/V	0,24% V/V	0,4% V/V

Operating in normal mode:

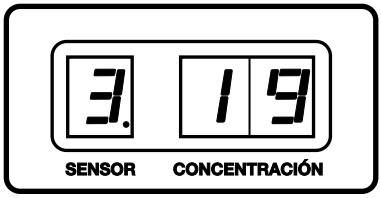
During normal operation mode, the module is successively showing the different inputs selected in the configuration mode (only selected inputs), with an exposure time for each of approximately 2 seconds, as long as there are no incidents.

If any of the remote sensors triggers the alarm, the indicator module remains showing the corresponding input permanently (latched until RESET button is pressed). During this process, the input number is displayed intermittently, provided that the sensor values still in alarm levels. If the sensor returns below the alarm values, the module remains fixed, but in this case the corresponding input number is shown with a point and not intermittently.





In this case the sensor connected to input 3 is in alarm levels, so the input number is shown intermittently.



When the sensor returns below the alarm level values, the indicator module continues showing the same input, the digit of the input number no longer flashes and it is shown with the point.

To overcome this situation (unlatch) you need to press the reset button on the control panel.

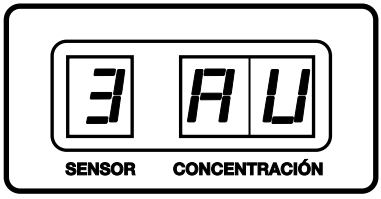
After the reset, the indicator module continues its normal operation.

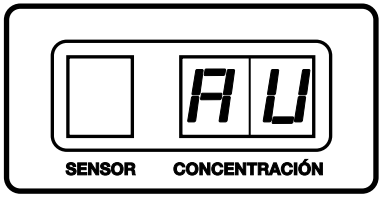
It is also possible to fix a particular input by pressing the reset button when the module is showing the desired input. This is indicated by the displaying the point where the number of input is shown.

Other indications:

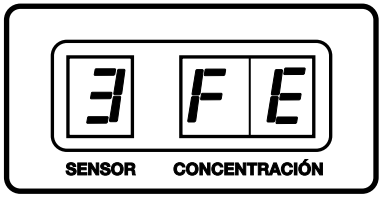
In addition to the gas concentration, where appropriate, the module displays other information.

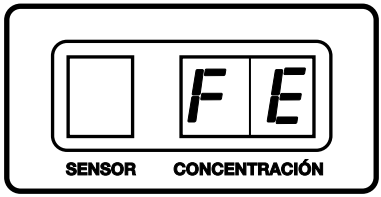
In case of sensor fault the message “AU” is displayed and the number of sensor flashes.





In case of exceeding the full scale (over-range) “FE” is displayed and the number of sensor flashes.

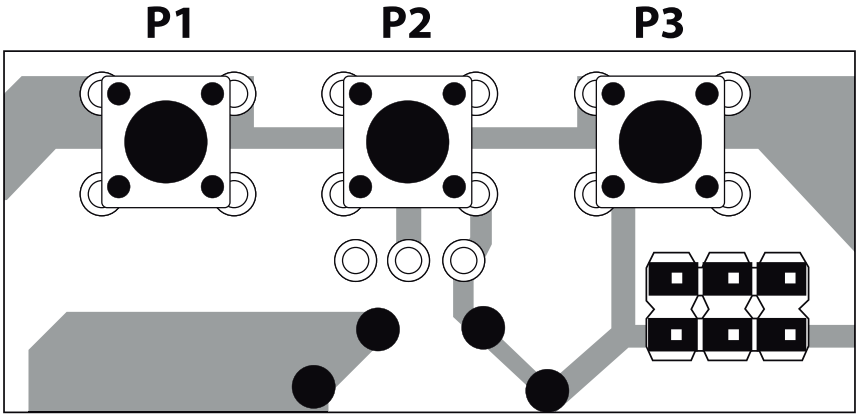




In both cases the module remains fixed in the corresponding sensor until the control unit is RESET.

7.2.2 Configuration Mode:

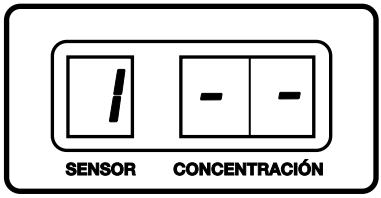
To configure the indicator module P1, P2 and P3 buttons must be used.



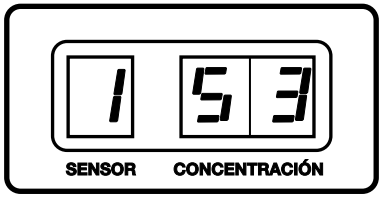
To enter configuration mode P3 must be pressed, therefore it is not accessible with the control unit closed. Now, by pressing P3 the input number increases and pressing P1 the sensor type to be selected start changing.

Different types of sensors are displayed for selection as follows:

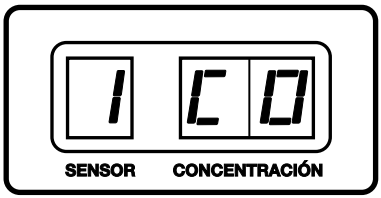
Input not selected



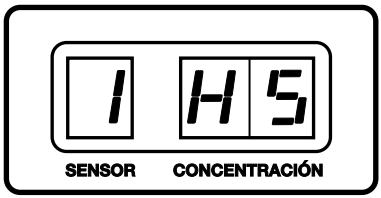
Sensor S/3-2 (combustible gases)



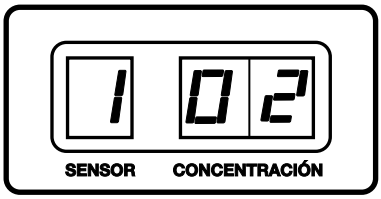
Sensor **S/3-T1** for **CO**



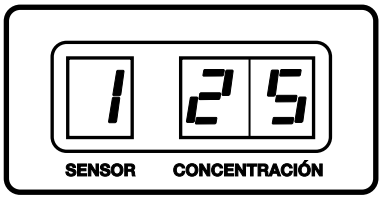
Sensor **S/3-T1** for **H2S** and **NH3**



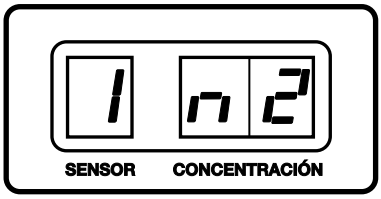
Sensor **S/3-T2 O2 (21 - 0 % V/V)**



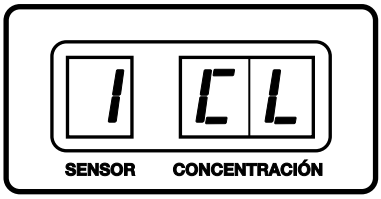
Sensor **S/3-T2 O2 (0 - 25 % V/V)**



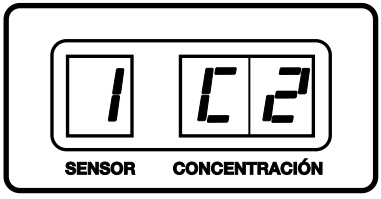
Sensor **S/3-T1** for **NO2**



Sensor **S/3-T1** for **CL2**



Sensor **S/3-IR** for **CO2**



Configure a particular input:

- Press P3 to select the wanted input.
- Press P1 to select the wanted type of sensor (for expple S3 or CO).
- Press P2 and hold, press P1 or P3.
- Press P3 until input number 8 is exceed to enter normal operating mode.

Show the selected type of sensor input:

- Press P3 to select the wanted input.
- Press P3 until input number 8 is exceed.

8. TECHNICAL CHARACTERISTICS

Supply voltage	100-240 Vac 50-60 Hz
Power	60 W
Inputs for remote sensing	Model CA-2: Two (2) Model CA-4: Four (4) Model CA-8: Eight (8)
Outputs for CA-2	Prealarm at 230 Vac in opened and closed Alarm at 230 Vac and 12 Vdc, in opened and closed and free potential BOTH OUTPUS are protected with fuses
Outputs for CA-4 / CA-8	Prealarm at 230 Vac and 12 Vdc , in opened and closed and free potential Alarm at 230 Vac and 12 Vdc, in opened and closed and free potential BOTH OUTPUS are protected with fuses
Alarm levels	Prealarm (12% Full Scale F.S.) Alarm (20% Full Scale F.S.) 100% F.S.
Fault	Failure detection due to cuts in the remote sensor, etc Indication and memory of all of the events of the control unit
Warming time	> 15 seconds
Temperature Range	-10 to 55 ºC
Lifetime	>10 years (see manufacturing date and serial number)
Certification	LOM 03ATEX2095X When used with SRG S/3-2 FIDEGAS®
Marking	CE 0163 Ex II(2)G EN 60079-29-1 Grupo II device: installation with presence of explosive atmosphere different from mines Category (2) G: Installation in non-classified areas, connection with associated device (remote sensor) intended for use in classified areas such us zone 1 and zone 2 (Gases)
Serial number	C C C C : Product code A A M M : Manufacturing Year and Month X X X X : Manufacturing number
Degree of protection	IP43
Dimensions	355 x 260 x 85 mm
Weight	CA-2: 4100 gr CA-4: 4400 gr CA-8: 4500 gr

EU DECLARATION OF CONFORMITY

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

ADDRESS: Paseo Ubarburu 12 - 20014 San Sebastián - Spain

PRODUCT DESCRIPTION:

Gas Detection Control Unit:

Marking CE 0163 Ex II (2) G EN 60079-29-1

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

1.Directive ATEX 2014/34/EU Equipment a nd protective systems intended fo r us e in potentially explosive atmospheres abolishing Directive 94/9/CE (DOCE 29/03/2014 - Serie L, nº 96 /309).

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

- **EN 60079-29-1:2016** Explosive atmospheres -- Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases.
(There are no relevant technical changes with respect to the version EN 60079-29-1:2007)

The "Laboratorio Oficial J.M. Madariaga" (LOM) located in Eric Kandel, 1 (Tecnogetafe) E-28906 Getafe - Madrid has CERTIFIED that the product conforms with these standards and has acted as the **Notified Body nº 0163 for factory production inspection, issuing the Producto quality assurance notification N. LOM 03ATEX9122, in Madrid, 30 July 2003, and the EC-type examination certificate N. LOM 03ATEX2095 in Madrid, 10 July 2003.**

Supplement no.1 CE Examination Certificate of Type: LOM 03ATEX2095 X, On July 24, 2008

Supplement no.2 CE Examination Certificate of Type: LOM 03ATEX2095 X, On March 15, 2011

Certificate **AENOR no. 030/001429.** Issued on: **2001/06/01**

In San Sebastián,

JULIO BOUZAS FUENTETAJA
GENERAL MANAGER

Respectful and Solidarity with the Environment

This product complies with the European Directive 2012/19/EU WEEE, transposed to the Spanish legislation through RD 110/2015 WEEE (Waste of Electrical and Electronic Equipment). The Directive provides the general framework valid throughout the field of the European Union for the removal and reuse of waste from electrical and electronic equipment. Do not throw this product in the trash at the end of its life, take it to your FIDEGAS® distributor or to the collection points authorized by the town halls.

OFFICIAL DISTRIBUTOR

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EXPERTS IN GAS DETECTION