

USER MANUAL

DOMESTIC GAS DETECTOR

D-202 and D-202R



Copyright ©2025 C.A.E., S.L.

Elaborated and approved in Revision 02 - 04/2025 by the Quality Department. Consists of 20 pages.

Any partial or total reproduction of this document without prior written authorization of C.A.E., S.L. is strictly prohibited.

The information contained in this document is not contractual and is subjected to change without notice.

C.A.E., S.L. manufacturer of FIDEGAS®

Paseo Ubarburu, 12 20014 San Sebastián (Spain)

Tel. +34 943 463 069

Cell +34 636 996 706

Email: cae@fidegas.com

INDEX

WARNINGS	4
LIMITATIONS	4
WARRANTY	5
QUALITY CONTROL	5
OPTIONAL EQUIPMENT	5
1. GENERAL	6
1.1. Gas detection	6
1.2. Indications	6
1.3. Outputs	6
2. OPERATON	7
2.1. Warm-up	7
2.2. Alarm	7
2.3. Fault	7
3. TECHNICAL DRAWING	8
4. LOCATION	9
5. CONNECTIONS	10
6. OPERATIONAL CHECK	11
7. BOATS AND CARAVANS	12
7.1. General	12
7.2. Location	12
7.3. Installation	13
7.4. Operational check	13
7.5. Sensor calibration/replacement	14
8. WHAT TO DO IN CASE OF ALARM OR SMELL OF GAS	15
9. TECHNICAL CHARACTERISTICS	16
EU DECLARATION OF CONFORMITY	17

WARNINGS



Read carefully the user manual before commissioning or operating.

No gas detector replaces proper installation and maintenance of gas burning appliances and must be installed by a competent person or authorized installer.

- There is the possibility of smelling the gas before the equipment triggers the alarm, due to the diffusion process of the gas, which reaches our nose before the detector.
- During the construction, installation or maintenance of the installations, devices must be protected so as to prevent the sensor from damage resulting from work such as welding or paints and should be installed as late as possible, but always before there is a risk of the presence of gas or vapor. If the detectors are already installed, during the works they must be protected by an airtight packaging and clearly pointed out as not in operation.
- Detectors must be protected from vibration, against the risk of mechanical impact and direct exposure to sunlight.
- Do not submerge the detector in water or other liquid under any circumstances
- Avoid cleaning near the detector with detergents containing bioalcohols, industrial solvents or brighteners with silicones in suspension. Use a cloth dampened with clean water only to clean the detector.
- A long exposure to the target gas, even in small concentrations, can dramatically shorten the life of the sensor.
- Overexposure above the detection range can irreversibly damage the sensor.
- A bad connection can result in a failure of both the detector and associated equipment.
- It is recommended to send the detector to the manufacturer for calibration at the end of its lifetime or if it does not work with the Test Kit FIDEGAS®.
- Note that the failure to observe these basic precautions can lead to equipment malfunction, the manufacturer is not liable.

LIMITATIONS

- Remember that if the detector has been disconnected, gas may accumulate during this period and will not be detected. Therefore, it is recommended to close the main gas inlet valve.
- Ensure that the supply voltage is (12 – 24) Vdc and the connections are correct.
- When installing the gas detector, the places where it should NOT be installed must be taken into consideration (see section 4.2).
- The sensitivity of a catalytic sensor can be altered by exposure to inhibitors or contaminants such as silicone, halogens, sulfur, acetylene, chlorinated compounds, and heavy metals. When these inhibitors are permanently present, it is recommended to use gas detectors with infrared sensors immunized against these contaminants and inhibitors. Do not use cables containing silicone for installation.
- The direct connection of the FIDEGAS® gas cut-off device will be carried out as indicated in section 5, and its consumption will be less than 200 mA with 12 Vdc.
- The detector must not be manipulated while it is powered.

WARRANTY

- Warranty two (2) 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 has been designed, manufactured and marketed in compliance with current regulations, guaranteed through a Quality Management System certified according to ISO 9001:2015 and audited annually by AENOR.

OPTIONAL EQUIPMENT

REFERENCE	OPTIONAL EQUIPMENT
00007	D-70 automatic closing
00026	FA-20Xi power supply

1. GENERAL

The domestic gas detector Ref. D-202 detects the presence of combustible gas **Natural Gas (METHANE)** or **Liquefied Petroleum Gas (LPG: BUTANE/PROPANE)**, and as it is Type A, it is prepared for an automatic gas cut off in case of a gas leak with the most security and precision due it's design which follows the directives of EN 50194-1 standard, rigorously complying with European Directive 2014/30/EU requirements for Electromagnetic Compatibility.

1.1. Gas detection

Gas detection is done through a sensor of catalytic technology which is not affected by variations in temperature, atmospheric pressure or humidity, therefore achieving a very precise gas detection within the prefixed limit.

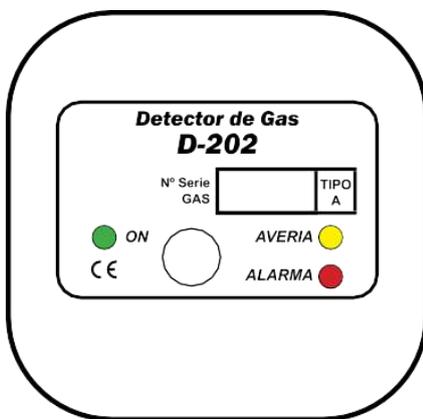
Alarm level: 20% LEL (Lower Explosive Level)

The sensor's estimated life is 5 years in clean air, although an operational check (see section 6) is recommended every 6 months.

ADJUSTMENT IS PERFORMED AT FACTORY WITH A CERTIFIED STANDARD GAS MIXTURE.

VERIFICATION BY AN "ENAC" ACCREDITED LABORATORY OF COMPLIANCE WITH ALL SECTIONS OF STANDARD EN 50194-1/2 GUARANTEES THE SAFETY AND RELIABILITY OF THIS EQUIPMENT.

1.2. Indications



- Green LED (**ON**): power-on indication.
- Yellow LED (FAULT): indicates warm-up time and fault status.
- Red LED (**ALARM**): indicates gas alarm.
- Buzzer: acoustic support to the visual indications

1.3. Outputs

- **ALARM (A - A)**: it is a normally closed, potential-free output associated with the alarm state. Maximum permissible values: 30V, 500 mA.
- **FAULT (F - F)**: it is a normally closed potential-free output associated with the detector's fault status.

Maximum output power **6 W**

2. OPERATON

2.1. Warm-up

After checking that the connections are correct and that there are no short circuits at the outputs, the detector will be connected to the (12-24) Vdc supply voltage, and the green led ON is lighted up. The yellow led FAULT will light up for approximately 25 seconds (sensor warm-up time).

While the yellow led FAULT is illuminated, the LP outputs will remain open (see section 5) and detection will be disabled.

Once the sensor warm-up time has elapsed, and if all connections are correct, the LP outputs will close, the yellow led FAULT will turn off, and only the green led ON will remain illuminated if no gas is detected.

The equipment is currently operational and monitoring for gas. You can reset the valve or gas shutoff device, although an operational check (see section 6) is recommended as a final step in the installation process.

2.2. Alarm

It will be activated when the presence of gas at or above alarm concentrations is detected. In this state, the red led ALARM will light up, accompanied by the buzzer, and the ALARM output (A – A) will remain open.

Lower explosive limit for METHANE in % Vol. in AIR	LEL = 4.4	LSI = 17
Lower explosive limit for PROPANE in % Vol. in A	LEL = 1.7	LSI = 10.9
Lower explosive limit for BUTANE in % Vol. in A	LEL = 1.4	LSI = 9.3

NOTA: Data obtained from EN ISO/IEC 80079-20-1:2019 standard and currently being used for equipment calibration.

		% LEL									
		10	20	30	40	50	60	70	80	90	100
% VOLUMEN	METANO	0.44	0.88	1.32	1.76	2.20	2.64	3.08	3.52	3.96	4.40
	PROPANO	0.17	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70
	BUTANO	0.14	0.28	0.42	0.56	0.70	0.84	0.98	1.12	1.26	1.40
	OCTANO	0.08	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.72	0.80



It is recommended to install a 12V DC shut-off valve that cuts off the gas when the gas concentration in the detector's area of influence reaches the alarm level.

2.3. Fault

Permanent activation of the yellow led FAULT indicates that the device is in the Fault-Fault state. In this state, the potential-free contacts, both ALARM (A – A) and FAULT (F – F), will remain open.

4. LOCATION

Ideally, the detector should be installed in every room containing a fuel-burning appliance (heater, boiler, stove, etc.).

The detector must be installed in the place to be protected and where gas tends to accumulate, one and a half meters (1,5 meters) away from gas consumption points or smoke outlets (heaters) and away from air currents.

There must be NO obstacles such as dividers, columns, furniture, etc. between the detector and the gas consumption point that prevent the passage of gas to the detector.

Avoid places where dirt can obstruct the gas inlet to the sensor.

Natural gas is a mixture of gases that are lighter than air. When it escapes, it rises and accumulates in the upper atmosphere, making it difficult to disperse. The main component of natural gas is methane, and its proportion varies depending on the extraction process.



To detect natural gas (methane), install the detector on the ceiling or separate it at a distance of approximately 30 centimeters.

LPG is a mixture of gases heavier than air. When it leaks, it sinks to the ground and accumulates in lower areas making it difficult to disperse. The main components of LPG are butane and propane, and their proportions vary depending on the process used to obtain them from petroleum.



To detect LPG (butane/propane), install the detector 10-20 centimeters above the floor. Cable entry should be provided from the bottom to prevent water ingress.

When choosing the **position** in which the detector will be placed, it is important to take into account that:

- It should be possible to see all the indicator lights from the surrounding area.
- If the detector is to be mounted on a wall, it should be placed near the ceiling, at a height greater than the maximum height of any door or window and at least 150 mm from the ceiling.
- It should be at a horizontal distance between 1 m and 3 m from any potential sources.
- If there is a partition in the room, the detector should be placed on the same side of the partition as the potential source.
- Detectors placed in bedrooms and in rooms away from fuel-burning appliances should be placed relatively close to the occupants' breathing zone.

In addition, the following warnings should be taken into account when locating the detectors and avoid installing them under the following conditions:

- In a closed space (for example, in a closet or behind a curtain);
- Where it may be obstructed (e.g. by furniture);
- Directly above a drain;
- Near a door or window;
- Near a fan or extractor;
- Just above/below a sink;
- Near cooking appliances;
- Near a draft or other similar vents;
- In a damp or wet place;
- Where dirt and dust may obstruct the gas inlet to the sensor;
- Places where the temperature may be lower than -10°C or exceed 55 °C.

5. CONNECTIONS

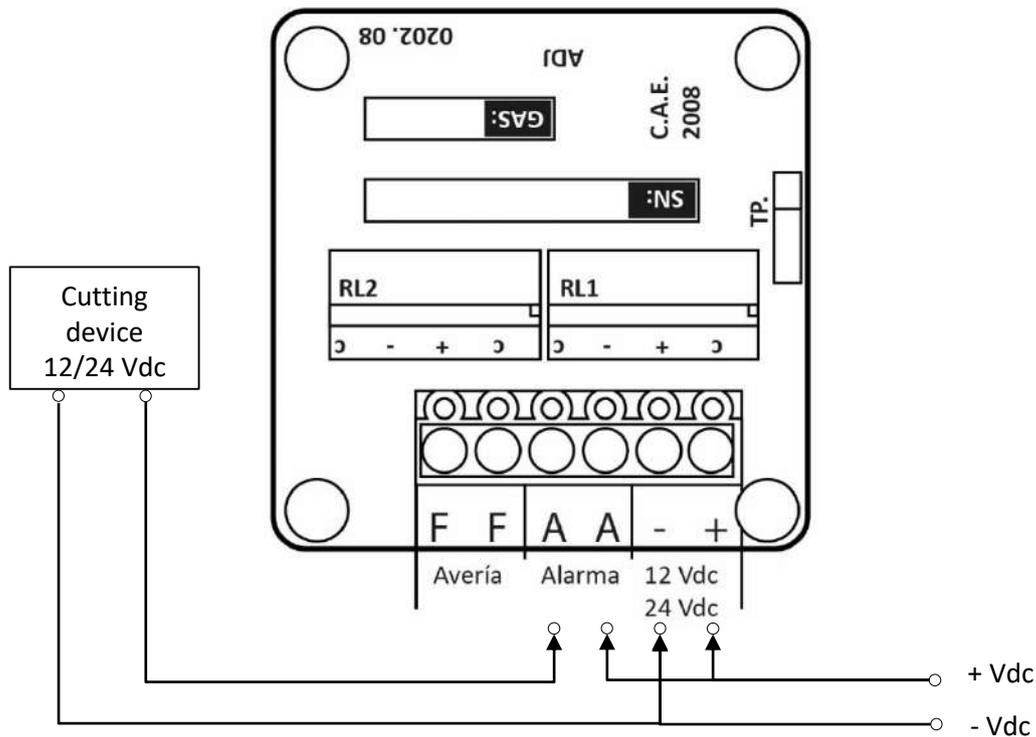


Figure 1. Connection of the cutting device to the detector

Connect the 12-24 V DC power supply to the terminals marked + and -, observing the indicated polarity. Connect using a power cable compliant with HD 21/22.

To connect a gas cut-off device, connect it to the power supply and in series with the ALARM contact (A - A), so that it is deactivated with the gas detection alarm (See Figure 1).

The ALARM contact (A – A) is closed when the device does not detect the presence of gas and is operating correctly. It opens in the event of gas detection or a detector fault. Both contacts are open when the device is without power and are used only to operate any auxiliary device. 230 V AC devices should not be connected directly.

Make the connections before installing the circuit breaker in the junction box. Adjust the wire lengths so they fit inside the junction box. Mount the outer cover over the circuit breaker to complete the appliance installation.



The information contained in this manual regarding the selection, installation, use and maintenance of the device complies with the specifications of the UNE-EN 50244 standard for combustible gases in domestic premises.

6. OPERATIONAL CHECK

The purpose of the operational check is not to verify the accuracy of the measurement, but rather to verify that the sensor is capable of detecting the target gas at safe concentrations. For this purpose, the FIDEGAS® TEST KIT is used to apply a known, approximate gas concentration, which the detector must detect and trigger the alarm.

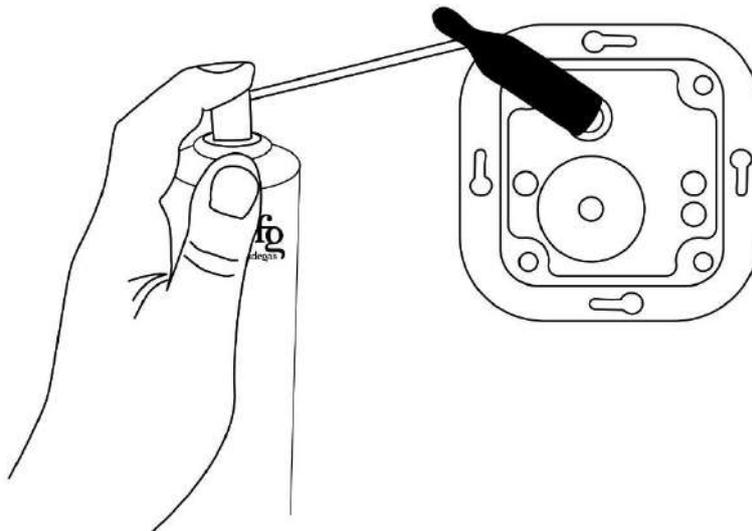


Do not use gas lighters or flammable vapours that could lead to false conclusions.
When the FIDEGAS® Test Kit presents low pressure, more gas application time will be necessary to perform the test.
FIDEGAS® Test Kit is not valid for further testing when there is no output pressure.

1. – Remove the detector cover and insert the test mask so that it covers the sensor until it rests on the circuit board.
2. Insert the cannula (tube) through the hole in the mask and release gas for 2 to 3 seconds. Wait 5 seconds without removing the mask until the alarm is activated. If the alarm does NOT activate, repeat the procedure, releasing more gas.
3. Once the proper operational check has been completed, be sure to remove the mask and store it with the FIDEGAS® Test Kit. The detector will require a recovery time (<20 s) while the gas inside is evacuated and normal operation is restored.



This test must be performed **EVERY SIX MONTHS.**



7. BOATS AND CARAVANS

7.1. General

There is a specific version for installation on recreational craft (boats longer than 2.5 m and shorter than 24 m, according to Directive 2013/53/EU, for use for sports and leisure purposes) or for use on recreational vehicles (caravans, motorhomes, etc.), consisting of a Control Unit and a Remote Sensor. It is designed following strictly the guidelines of the Standard EN 50194-2.

7.2. Location

Follow the instructions in section 4 LOCATION to determine the position of the remote sensor. Also keep in mind that the control unit must be installed in a location that allows for proper viewing and listening of the alarm.

LPG is a mixture of gases heavier than air. When it leaks, it sinks to the ground and accumulates in lower areas, making it difficult to disperse. The main components of LPG are butane and propane, and their proportions vary depending on the process used to obtain them from petroleum.



To detect LPG (butane/propane), install the remote sensor using its bracket in the bilge, pointing vertically downwards and securing it to the structure.

GASOLINE is a liquid, and its composition varies greatly depending on its source (composed of dozens of hydrocarbons). Its vapours are also heavier than air, although they are not very volatile at room temperature. In terms of sensor sensitivity, they are considered equivalent to hexane, and the level will be adjusted to 20% LEL of hexane .



To detect GASOLINE, install the remote sensor using its bracket in the bilge, pointing vertically downwards and securing it to the structure.

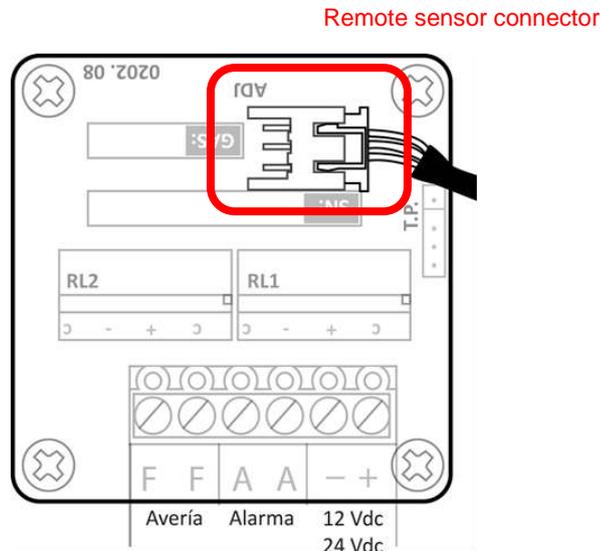


The remote sensor must be placed in the supplied bracket, ensuring that the marking on the remote sensor socket matches the opening in the bracket. The back of the bracket indicates the environmental classification as defined by EN 60721-3-6: 6K3/6B1/6S1/6M3.

7.3. Installation

Follow the connection diagram in section 5 CONNECTIONS and connect the remote sensor to the circuit board connector.

Each remote sensor must be accompanied by its corresponding control unit, and sensors and/or control units must not be interchanged.



7.4. Operational check

The purpose of the operational check is not to verify the accuracy of the measurement, but rather to verify that the sensor is capable of detecting the target gas at safe concentrations. For this purpose, the FIDEGAS® TEST KIT is used to apply a known, approximate gas concentration, which the detector must detect and trigger the alarm.

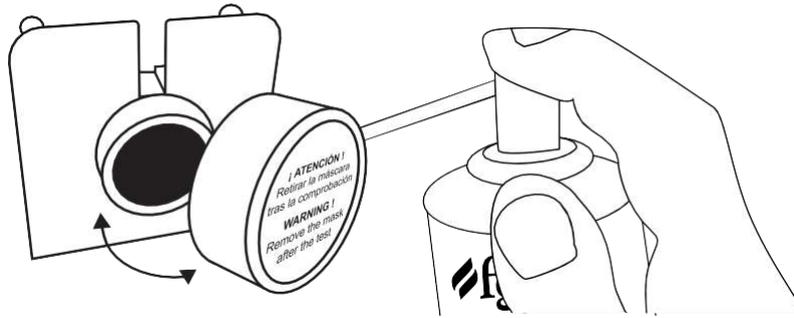


Do not use gas lighters or flammable vapours that could lead to false conclusions. When the FIDEGAS® Test Kit presents low pressure, more gas application time will be necessary to perform the test. FIDEGAS® Test Kit is not valid for further testing when there is no output pressure.

1. – Place the application mask over the metal mesh filter so that it completely covers the remote sensor.
2. Insert the cannula (tube) through the hole in the mask and release gas for 2 to 3 seconds. Wait 5 seconds without removing the mask until the alarm is activated. If the alarm does NOT activate, repeat the procedure, releasing more gas.
3. Once the proper operational check has been completed, be sure to remove the mask and store it with the FIDEGAS® Test Kit. The detector will require a recovery time (<20 s) while the gas inside is evacuated and normal operation is restored.



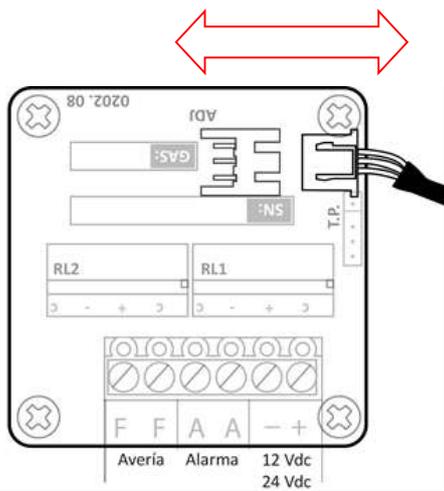
This test must be performed **EVERY SIX MONTHS.**



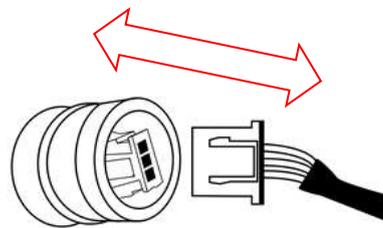
7.5. Sensor calibration/replacement

To calibrate the detector at the factory, both the control unit and the remote sensor must be sent. To avoid removing the cable from the installation, you can disconnect the cable from both sides, both on the electronic board and at the remote sensor head.

If necessary, the sensor will be replaced with a new one and calibrated with its electronic board. These elements are calibrated together at the factory; therefore, they should not be exchanged.



CONTROL UNIT



REMOTE SENSOR



CAUTION: to release the cable from the sensor and control unit connectors, DO NOT pull on the cable.

8. WHAT TO DO IN CASE OF ALARM OR SMELL OF GAS

Stay calm and take the following actions:

- Extinguish all open flames, including smoky material;
- Turn off all gas appliances;
- Do not turn on or off any electrical equipment, including the gas detection device;
- Turn off the gas supply at the main natural gas switch and/or (with LPG supply) the storage tank;
- Open doors and windows to increase ventilation;
- Do not use the telephone in a building where gas is suspected to be present.

If the alarm continues to operate and there is no apparent cause of a leak and/or it cannot be repaired, evacuate the premises and **IMMEDIATELY NOTIFY** the gas supplier and/or the 24-hour emergency service.

If the alarm stops and the reason for the alarm is identified, after the gas leak has stopped and after ensuring that all appliances are turned off, the main gas supply can be restored.

9. TECHNICAL CHARACTERISTICS

GENERAL	
Power supply	12 - 24 Vdc
Consumption	1.5 W (12 Vdc) / 2.5 W (24 Vdc)
Maximum power outputs	6 W
Lifetime	Lifetime (5) years in clean air. It is recommended to carry out an operational check <u>EVERY SIX MONTHS</u> .
Alarm level	20% LEL (Lower Explosive Limit)
Warm-up time	25 seconds
Stabilization time	1 hour (required for the equipment to acquire its full metrological characteristics)
Response time	$T_{90} < 20$ seconds
Recovery time	$T_{10} < 30$ seconds
Coverage area	25 m ² approximately
Working temperature	-10 to 50 °C
Working humidity	0 to 90% RH
Pressure limits	850 to 1150 mbar
Electrical insulation	Class III 
Degree of protection	Control unit: IP X2D
Serial number	CCCC: Product Code YYMM: Year and month of manufacture XXXX: Manufacturing number
Dimensions	With surface box: 84 x 84 x 51 mm Without surface box: 84 x 84 x 42 mm
Weight	With surface box: 125 gr. Without surface box: 70 gr.
DOMESTIC VERSION D-202	
Sensor type	Integrated catalytic
Gases detected	Natural Gas (Methane) or LPG (Butane/Propane)
BOATS AND CARAVANS VERSION D-202 R	
Sensor type	Remote Catalytic
Gases detected	LPG (Butane/Propane) or Gasoline
Remote sensor length	4 meters
Degree of protection	Remote sensor: IP 44

EU DECLARATION OF CONFORMITY

MANUFACTURER : Comercial de Aplicaciones Electrónicas SL

ADDRESS : Paseo Ubarburu 12 - 20014 San Sebastián - Spain.

PRODUCT DESCRIPTION :

Domestic Gas Detector D-202

The above-mentioned product is declared, under our sole responsibility, to be in compliance with the provisions of the following directives:

1.- Directive 2014/30/EU Electromagnetic compatibility and repealing Directive 2004/108/EC (OJEC 29/03/2014 - Series L, No. 96/379).

This conformity is assumed by reference to the following harmonized standards:

- **EN 50194-1:2009** Electrical apparatus for the detection of combustible gases in domestic premises -- Part 1: Test methods and performance requirements
- **EN 50194-2:2019** Electrical apparatus for the detection of combustible gases in domestic premises - Part 2: Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises - Additional test methods and performance requirements. (D-202 R Version with Remote Sensor)
- **EN 50270:2015+AC:2016-08** Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen

In San Sebastián to:



Julio Bouzas Fuentetaja
GENERAL MANAGER



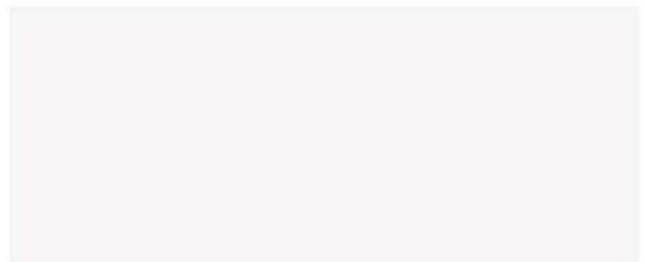
Respectful and supportive of the environment

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



P. Ubarburu 12
20014 San Sebastián Spain
Tel. (+34) 943 463 069
Cell (+34) 636 996 706
cae@fidegas.com

OFFICIAL DISTRIBUTOR



www.fidegas.com
EXPERTS IN GAS DETECTION