USER MANUAL

REMOTE SENSOR

S/3-IR & S/2-IR

included

fidegas

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

Elaborated and approved in Revision 19 on 09/2024 by the Quality Department. Consists of 20 pages .

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INDEX

WARNINGS

Read carefully the user manual carefully before commissioning or operating.
Instructions for using the Test Kit FIDEGAS® is supplied with the equipment for verifying the proper operation.

- This equipment should not be opened in hazardous area when powered. Periodic calibration can only be performed by the manufacturer or by an authorized service.
- Avoid cleaning near the remote sensor with detergents containing bioalcohols, industrial solvents or brighteners with silicones in suspension. To clean the remote sensor, use a cloth dampened only with clean water.
- During the construction, installation or maintenance of the premises, remote sensors 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 vapours. If remote sensors have already been installed, they must be protected by an airtight casing for the duration of the works and clearly marked as not in operation.
- Remote sensors must be protected against vibrations, against the risks of mechanical impacts and direct exposure to sunlight.

To ensure the waterproofing of the device, it is necessary to seal the threaded connections.
Recommended sealants:
- Thread sealant (example, Loctite 577)
- General lubrication lithium grease (example, Lubekrafft Ref. 15393)

- Do not immerse the remote sensor in water or other liquid under any circumstances.
- It is recommended to send the equipment to the manufacturer or authorized technical service for calibration at the end of life or when it does not work with the supplied FIDEGAS® Test Kit.
- Note that failure to observe these basic precautions may lead to incorrect operation of the equipment and is not the responsibility of the manufacturer.
- The TLV-TWA toxicity limit (maximum exposure concentration in workplaces, for 8 hours a day and 40 hours a week) is 5000 ppm of CO_2 and 50 ppm of N_2O.
- Sudden changes in temperature can cause erroneous sensor readings.
- This device is designed to operate in atmospheres containing values below the set measurement range. However, exposure to atmospheres with higher gas concentrations will not affect its lifetime; the sensor will recover after a few minutes.

LIMITATIONS

- Remember that if the remote sensor has been disconnected, there may be a build-up of gas and it will not be detected.
- Ensure that the supply voltage (12 – 24) Vdc and connections are correct.
- When installing the remote sensor, the locations where it should NOT be installed must be taken into consideration (section 4).
- Under no circumstances should any component of the device be tampered with, as there is a risk of irreversible damage.
- S/2-IR version in plastic enclosure NOT suitable for use in potentially explosive atmospheres.
- LP Output: Not suitable for voltages higher than 30 Vdc and consumptions higher than 0.5 A.

WARRANTY

- Warranty three (3) years is given by C.A.E., S.L., manufacturer of FIDEGAS®, against any manufacturing defect from the date of purchase and will 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 with 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 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 commercialized in compliance with current regulations, guaranteed through a Quality Management System certified according to ISO 9001:2015 and audited annually by AENOR.

OPTIONAL ACCESSORIES

REFERENCE	OPTIONAL ACCESSORIES
03645	Gas collector cone for S/3 & S/2 sensor
03665	LS3 support for S/3 sensors
01314	S/3 mask with activated carbon filter
consult	FIDEGAS® Test Kit
03146	RS-485 module for remote sensor
03932	MS3-RE V1.1 Relay Module
03807	MS3-CAL Calibration Module
consult	MIR display module
03297	MK-E7 Calibration Mask

COMPATIBLE PRODUCTS

- Control units Ref. CA-
- Control units Ref. CS4
- SCAEDA
- GPRS remote control
- MIR V3 Remote Indicator
- Industrial communication modules

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

Cluster	Reference gas	Definition
I	Methane	Equipment intended for use in mines susceptible to firedamp above and below ground
IIA	Propane	Equipment intended for use ins 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 % LEL (Lower Explosive Limit) and % v/v (volume/volume) varies from one gas to another. Based on EN ISO/IEC 80079-20-1:2019 to give the following examples:

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

The remote gas detection sensors Ref. S/3-IR and S/2-IR detect the presence of toxic gases such as hydrocarbons with a high degree of precision, due to the use of infrared technology sensors. It consists of detecting the absorption of a certain wavelength by the gas molecules. For hydrocarbons, detection will only be possible in those that contain simple HC bonds in their molecule. In addition, the internal microcontroller contains a mathematical model of the sensor's behavior, thus compensating for variations in the reading over the entire temperature range.

They are available in their S/3-IR version in ATEX explosion-proof enclosure or in their S/2-IR version in a plastic enclosure.

They are especially indicated for connection to control units and/or data recording systems, for monitoring the concentration of toxic gas.

For this purpose, they have an industrial standard output in a 4-20 mA current loop proportional to the gas concentration present in the air and a UART-TTL serial communication port. It is possible to integrate them into industrial communication systems through RS-485 connectivity via an optional module.

In addition, they have a normally open (NC) potential-free (LP) output associated with the alarm and fault status that can be used to control external elements such as optical-acoustic alarms. By default, the alarm is set to 20% of the full scale.

2. MARKING

C.A.E., S.L. declares that the toxic SRG FIDEGAS® Ref. S/3-IR is designed and marked in compliance with the requirements of Standards EN 60079-0 and EN 60079-1 (ATEX Enclosures).

The marking labels are located on the bottom (Ref. S/3-IR) and on the side (Ref. S/2-IR) of the equipment box and allow the user to identify all the main features of the equipment purchased:

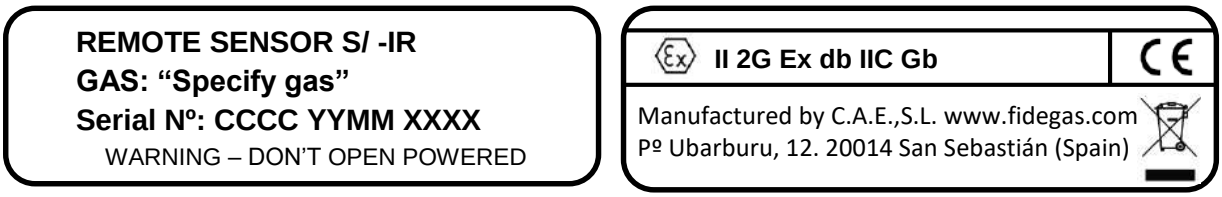


Figure 1: Identification and marking labels (**Serial number and gas are specified in section 9**)

Ex	II 2G	Ex	db	IIC	Gb
Ex marking, model approved according to DIRECTIVE 2014/34/EU	Group II Apparatus: Installation with the presence of an explosive atmosphere other than mining. Category 2G Apparatus: Intended for use in locations classified as Zone 1 and Zone 2 (Gases).	Explosion proof equipment	Type of protection: Explosion-proof enclosure. Apply measures to prevent the ignition of a potentially explosive atmosphere.	Explosion Group: a IIC team covers any gas or vapour except mining applications with firedamp risk.	Explosion-proof equipment: “High” protection level under normal conditions. Pay attention to the cable gland.

* SRG: acronym for Remote Gas Sensor

3. OPERATION

When the supply voltage is connected, the remote sensor requires a warm-up period during which the 4-20mA output signal is disabled and the concentration reading is zero. After this period, it operates as a linear meter of the gas concentration present in the atmosphere.

The information on the measured gas concentration is accessible through 2 means:

4-20 mA current loop proportional to the existing gas concentration. The measured gas concentration is easily calculated by applying the following transfer function to the 4-20 mA output signal:

$$\%C = \frac{FS\ x\ (mA - 4)}{16}$$

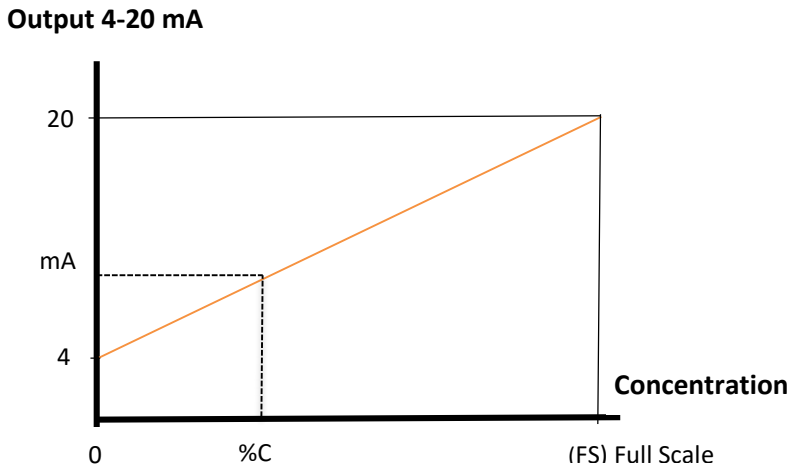


Figure 2: Relationship between concentration and 4-20 mA output

Output signal	Output status
<1 mA	Fault
2 mA	Output disabled, warm-up
4-20 mA	Reading of the concentration
>20 mA	Overrange

Serial communication, where in addition to the measured concentration it is possible to obtain more information from the sensor, such as the internal temperature, the detection range, the operating status or the sensor supply voltage.

A FIDEGAS® industrial communication module can be used to access this information.

4. LOCATION

The remote sensor Ref. S/3-T1 and S/2-IR must be located so that any accumulation of gas is detected before a significant hazard is created. Improper location of the remote sensor may reduce the effectiveness of the gas detection system.

The remote sensor must be installed with the sensor pointing vertically downwards, where gas tends to accumulate, approximately 1.5 meters away from gas consumption points or smoke outlets and away from air currents.

Figure 3: correct SRG placement position.

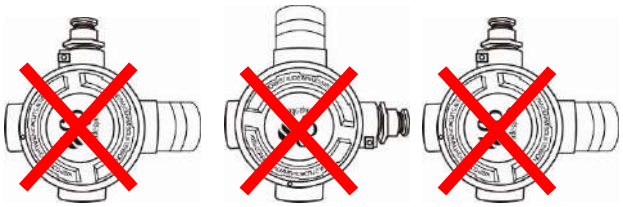


Figure 4: incorrect SRG placement positions.

The position of the remote sensor must be determined in collaboration with people who are familiar with the operation of the facilities and the equipment concerned and also with the technical personnel involved in the safety procedure. Further details or assistance can be obtained by contacting FIDEGASyou're your authorized distributor.

The position of each remote sensor must be recorded and this data provided to security personnel.

As a general rule, the remote sensor should be placed depending on its density relative to air as shown in the following table:

Density	Gas (relative density)			Location
Gases lighter than air	Methane (0.55)			Less than 0.3 m from the ceiling or on the ceiling itself
Gases heavier than air	Ethane (1.04)	Acetone (2.00)	Hexane (2.97)	At a maximum height of 0.2 m from the ground
	Carbon dioxide (1.5)	Butane (2.05)	Ethyl acetate (3.04)	
	Nitrous oxide (1.5)	Isopropyl alcohol (2.07)	Toluene (3.20)	
	Ethylene oxide (1.52)	Cyclopentane (2.40)	Dichloroethane (3.42)	
	Propane (1.56)	Pentane (2.48)	Xylene (3.66)	
	Ethanol (1.59)	Methyl ethyl ketone (2.48)		
	Methyl chloride (1.78)			
Gases with a density similar to air	Ethylene (0.97)	Methanol (1.11)		Approximately 1.5 m from the ground

In addition, the following warnings should be taken into account when locating remote sensors:

- Access to the equipment must be convenient for maintenance and inspection operations.
- The equipment with its ATEX cable gland must be protected against risks related to the operation of the facilities.
- The remote sensor must be protected against vibrations and risks of mechanical impact.
- The remote sensor should never be placed directly under or over a water or liquid outlet.
- When located outside, protection from rain and/or sun must be provided.
- Do not install in a draft, near a door, window, fan or extractor.
- Do not install in a damp or wet location.
- Do not install where dirt and dust may obstruct the gas inlet to the sensor.
- Avoid locations where the temperature may exceed the operating range limits.
- Avoid places where sudden changes in temperature may occur.

5. TECHNICAL DRAWING AND DIMENSIONS

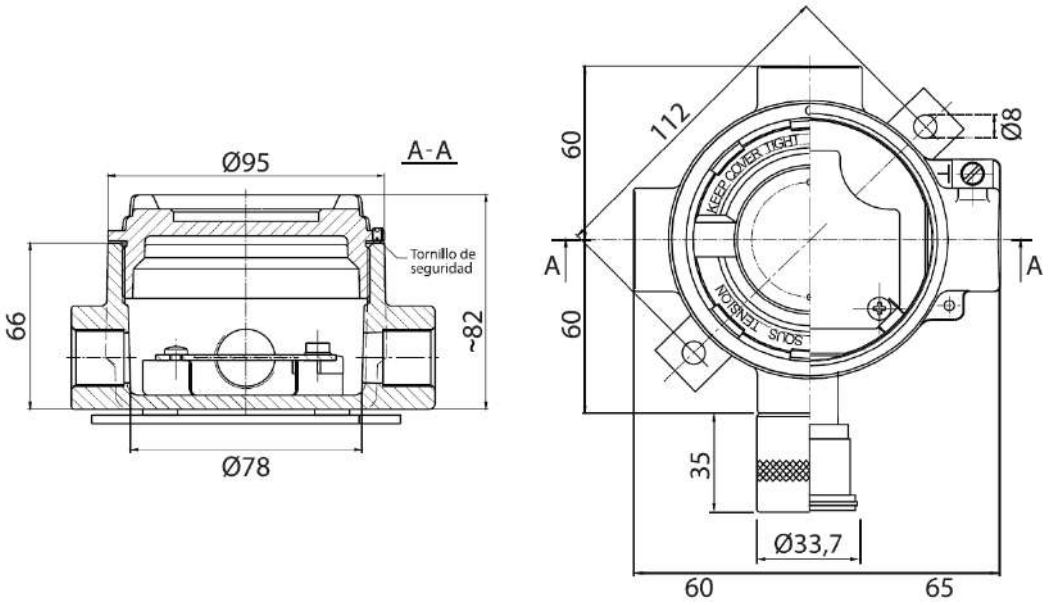


Figure 5: S/3-IR remote sensor drawings and dimensions

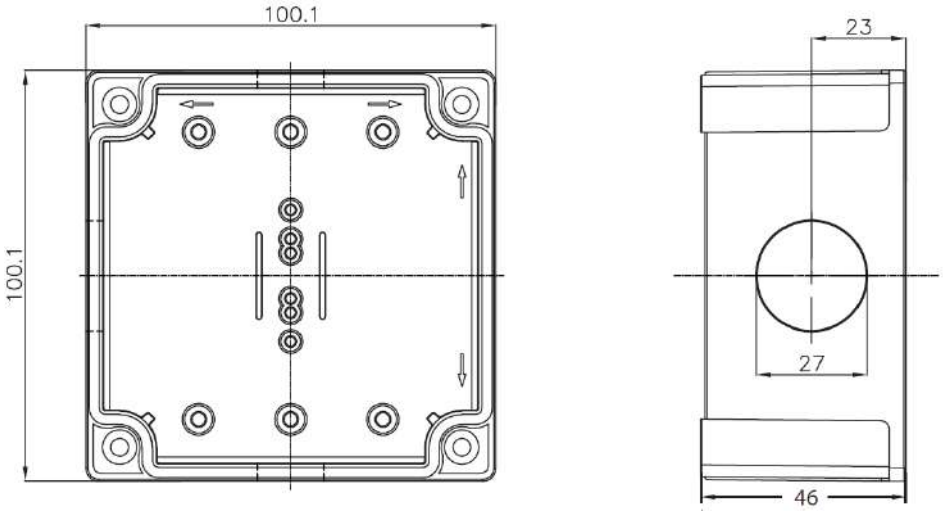


Figure 6: S/2-IR remote sensor drawings and dimensions

6. INSTALLATION

6.1. Wiring for S/3-IR version

- Wiring must comply with applicable local regulations and rules.
- The external diameter of the cable must not exceed the maximum dimensions of the ATEX cable gland.
- The conductors must be stripped and inserted in such a way that no unwanted contacts can occur.
- The cable gland must be tightened onto the cable sheath to ensure tightness.
- The cable mesh must be grounded in the control unit. To this end, the control unit has clamps so that the mesh can be connected to ground easily.
- In the remote sensor the mesh must make contact inside the gland, detailed specification in section 7.1.

For more information regarding the connection to the gas control unit, please refer to the control unit user manual.

To ensure ATEX protection of the system, the Control unit - Remote Sensor connection must be made using a shielded cable with a minimum section of 3 x 0.75 mm2 for a maximum length of 200 meters.

For correct signal transmission, remember not to make splices.

It is highly recommended to use the cable included in our certification Ref. Cable S3 or a similar one respecting the following characteristics:

Composition: Z1C4Z1-K Shielded hose 3x0.75 mm2, 85% tinned polished copper braid, 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.

6.2. S/3-IR and S/2-IR Installation

Along with the S/3-IR ATEX remote sensor, an accessory bag is provided containing: an ATEX cable gland, a gasket and an Allen key.

Along with the S/2-IR ABS remote sensor, an accessories bag is provided containing: a Cable Gland with its corresponding seal.

Steps to follow for the installation of the remote sensor Ref. S/3-IR and S/2-IR:

1. a) Loosen the Allen security screw on the cover and unscrew the cover counter clockwise.

1. b) Unscrew the four screws and remove the cover.

S/3-IR ATEX

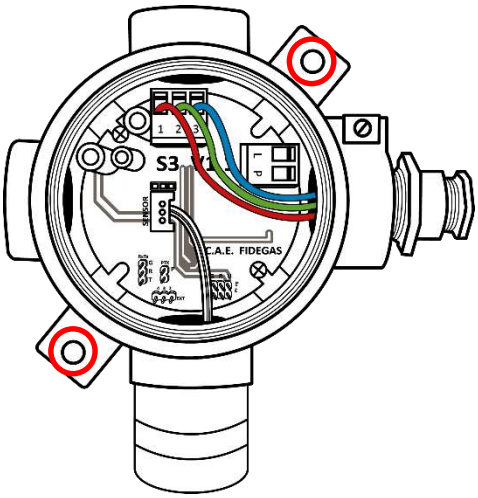


Figure 7: S/3-IR ATEX installation

S/2-IR ABS

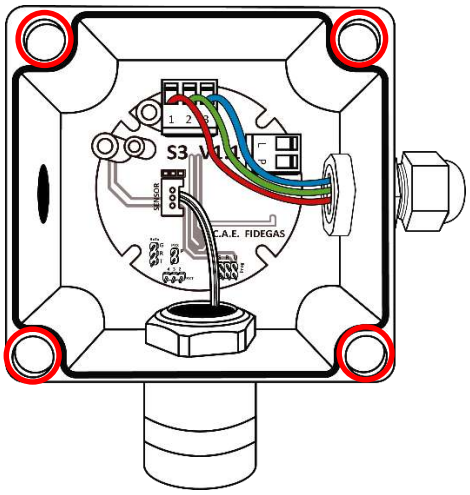


Figure 8: S/2-IR ABS installation

2. Fix the main body of the enclosure to its fixed location.

3. Insert the wiring through the cable gland.

4. Make the connections to the electronic circuit respecting its connection map (see section 7).

5. Adjust the length of the cables so that they can be accommodated inside the box.

6. a) Screw the cover clockwise and tighten the Allen screw on the cover.

6. b) Mount the cover and screw in the four screws.

7. CONNECTIONS

Map of connections available on the remote sensor Ref. S/3-IR and S/2-IR:

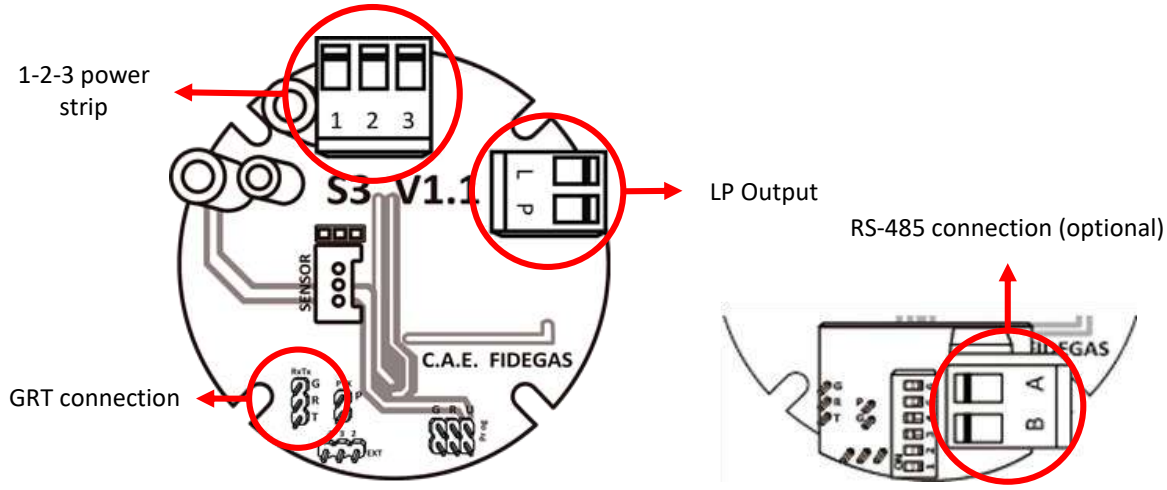
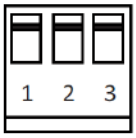


Figure 9: Connections

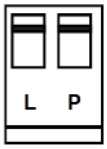
Terminal block 1-2-3: sensor power supply and 4-20 mA signal output terminal block numbered 1 to 3.



1- Positive power supply (12 to 24 Vdc)
2- 4 - 20mA signal output
3- Common negative of power and signal

Figure 10: 4-20 mA connection identification

LP Output Terminal: normally open (NC) non-latching potential-free output (LP) associated with the alarm and fault status. By default, the alarm is set to 20% of full scale.



- Maximum values: 30 Vdc, 0.5 A.

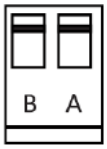
Figure 11: LP output connection identification

GRT connection: serial connection in TTL values.

G - GND ground reference
R - Microcontroller Rx line
T - Microcontroller Tx line

Figure 12: GRT connection identification

RS-485 connection (optional): with this optional module installed in factory, the sensor can be equipped with RS-485 communication for integration into industrial buses.



A - Bus connector A
B - Bus connector B

Figure 13: RS-485 connection identification

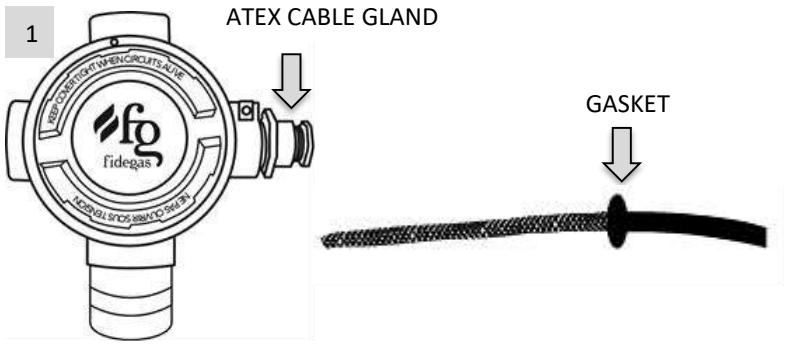
7.1. Connection of the 3-wire remote sensor

To connect the remote sensor to a 3-wire system, use the 1-2-3 terminal block, respecting the polarity as indicated in figure 10. Please note that it is not possible to connect several sensors to each other through this output, either in series or in parallel.

ATEX enclosure S/3-IR version:

A) Place the ATEX cable gland on the SRG and tighten it with a spanner. Loosen the adjusting ring of the ATEX cable gland. Thread the supplied gasket over the cable and strip the cable to approximately 15 centimeters, as shown in image 1.

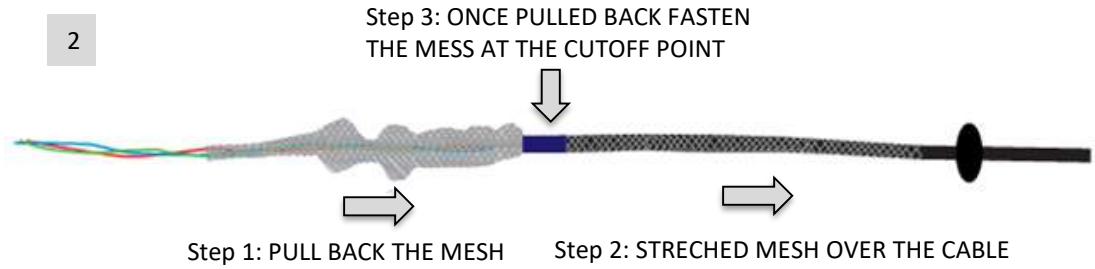
1



A common break down source are the loose wires before cable peeling.

B) Pull the mesh back over the cables and past the cutting point until it is fully stretched, tape at the cutting point so that the mesh cannot be returned.

2



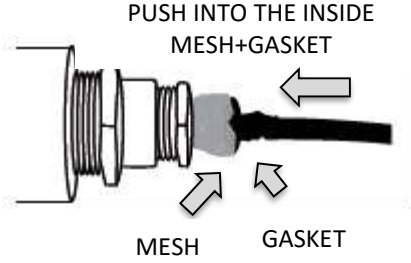
C) Insert the cable into the ATEX cable gland until the tape appears, tighten the thread with a wrench so that the cable and mesh are securely fastened.

D) Finally, slide the mesh with the help of the gasket towards the inside of the ATEX cable gland to finish adjusting both inside as shown in images 3 and 4.

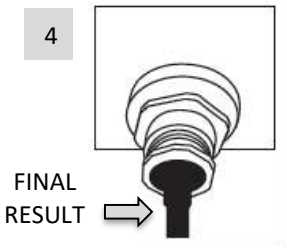
E) Remove and cut the plastic protection and connect the wires to the SRG terminal block, so that the colors and numbering match both in the Control unit and in the SRG (1-2-3), detailed specification in section 7.2.

Remember that the mesh must not touch the electronic circuit.

3



4



F) Close the cover and tighten the Allen security screw.

7.2. Connection of the remote sensor to the FIDEGAS® Control Unit

Make the wiring connection so that the colors and numbering 1-2-3 of the terminal block match both in the remote sensor and in the Control unit.

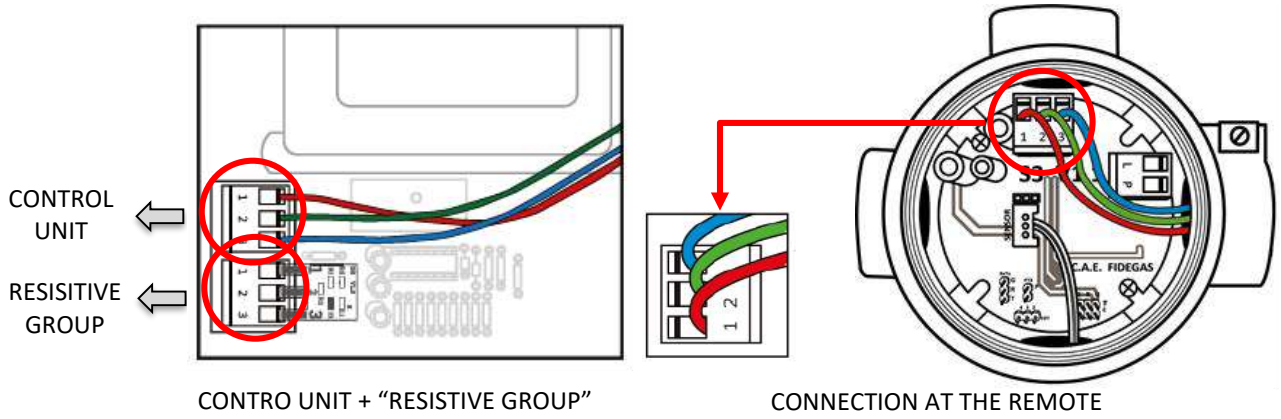


Figure 14: Control Unit-Remote Sensor Connection

If any Remote Sensor input is not used in the Control Unit, a "Resistive Group" must be placed for each unused input, these are supplied inside the Control Unit.

The cable should NOT be "tight" either in the Control Unit or in the Remote Sensor, thus minimizing the force exerted on the power strip.

For more information regarding the connection to the gas control unit, please refer to the user manual of the gas control unit.

7.3. Connection of the remote sensor via serial communication

It is possible to use the GRT connection to connect the sensor in TTL levels.

For more information, please contact the manufacturer.

7.4. Connection of the remote sensor via RS-485 module

Using an optional module, it is possible to switch from TTL values to RS-485 connectivity compatible with FIDEGAS® communication modules.

For more information, see the user manual "RS485 Communications Module Manual for S3 FIDEGAS® boards Ref. MS3-RS485 V1".

7.5. Connection of the remote sensor to other devices

If the Remote Sensor is connected to another PLC type device, it must be checked that it has standard 4-20 mA input/s, analog voltage inputs or some type of industrial serial communication.

For more information regarding the connection to the device, please refer to the user manual of the device.

In the case of voltage inputs, it will be necessary to transform the current signal into voltage by connecting a resistor between the negative power supply (3) and the 4-20 mA signal output (2) on the device. The value of this resistor depends on the voltage range, applying the formula R=V/I

Example: to transform the 4-20 mA range to 1-5 Vdc a 250 Ω resistor is used

I = 4 mA = 0.004 A	V = 1 Vdc	=>	R = V / I = 1 / 0.004 = 250 Ω
I = 20 mA = 0.02 A	V = 5 Vdc	=>	R = V / I = 5 / 0.02 = 250 Ω

8. MAINTENANCE

Before carrying out maintenance operations, the property must be notified that the gas detection system alarms will be activated and scheduled actions will be taken.

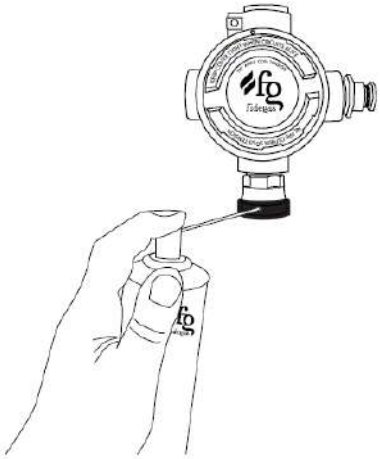
Check regularly that there is no dust obstructing the gas inlet.

The minimum recommended maintenance is:

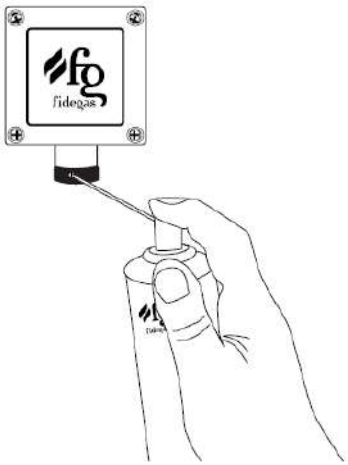
- Operation check at start-up of the installation.
- Field calibration every 6 months.
- Once the sensor's useful life has been exceeded, it is recommended to send it to the factory for assessment or replacement with a spare part.

8.1. Operating test

The purpose of the functional check is not to check the accuracy of the measurement, but rather to check whether the sensor is capable of detecting the target gas in safe concentrations. For this purpose, the FIDEGAS® TEST KIT is used to apply a known and approximate gas concentration, which must be detected by the sensor and activate the alarm.



1. Remove the mask from the Test Kit and place it over the sensor head.
2. Insert the cannula (tube) through the hole in the mask, release gas for 2-3 seconds and wait for the alarm to activate. If the alarm is NOT activated in the control unit, repeat this operation releasing more gas.
3. Once the proper functioning check has been carried out, do not forget to remove the mask and store it with the Tester.



When the Test Kit is showing low pressure, more gas application time will be required to perform the test. The Test Kit is not valid for further testing when there is no output pressure.

8.2. Field calibration

Field calibration is used to check the accuracy of the measurement and, if necessary, to correct any deviations detected.

Field calibration should only be performed by the manufacturer or authorized service center.

To carry out the field calibration, follow the IN SITU CALIBRATION PROCEDURE FOR TOXIC GAS AND/OR OXYGEN SENSORS P-SAT-02.

8.3. Replacement of the SRG

An SRG spare part consists of an electronic circuit and a socket that incorporates the sensor. These elements have been calibrated together at the factory, therefore they should not be interchanged with other spare parts.

Before replacing the SRG electronic circuit, the system must be disconnected from the mains supply and/or auxiliary batteries, the SRG must not be opened or manipulated under voltage.

- Loosen the safety Allen screw and unscrew the cover (S/3-IR) or unscrew the 4 screws and remove the cover (S/2-IR).
- Disconnect the terminal strip (1-2-3) and the sensor connector from the electronic board.
- Unscrew the two screws holding the electronic board and remove it, unscrew the socket that contains the sensor, attach it to the electronic board and remove it.
- Unseal the new SRG spare part, disconnect the socket from the electronic board and screw it into place, finish tightening it with the help of a tool.
- Fix the new electronic board in its location and screw the two screws into place.
- Connect the terminal strip (1-2-3) and the socket connector to the electronic board.
- Finally, screw on the SRG cap back and tighten the Allen security screw (S/3-IR) or screw on the cap (S/2-IR).
- Attach the marking label(s) supplied.

8.4. Spare parts

List of available spare parts:

Gas	Ref. S/3-IR	Ref. S/2-IR	Range	Ref. Spare part
CO_2	00291	03384	(0-2)% v/v (0-5)% v/v	00240
	03937	03946	(0-2000) ppm	03938
N_2O	03700	03984	(0-1000) ppm	04133
Methane CH_4	00292	-	%LIE or %v/v	00284
Butane/Propane C_3H_8	00295	-	%LIE or %v/v	00321

* For other gases consult

Please read the procedure carefully for correct product maintenance.

9. TECHNICAL CHARACTERISTICS

Supply voltage	12 to 24 Vdc	
Consumption	At 12 Vdc: 40 mA At 24 Vdc: 25 mA If the 4-20 mA output is used, consumption can increase by up to 20 mA.	
Serial connectivity	TTL RS-485 (optional)	
Output sign	4-20 mA current loop (three wires)	
LP output	Max voltage 30 Vdc Max current 0.5 A	
Sensor type	Infrared	
Type of gas	Toxic or Hydrocarbons (see table)	
Measuring range	CO_2 : (0-2)% v/v / (0-5)% v/v / (0-2000) ppm N_2O: (0-1000) ppm HC: (0-100)% LIE For other adjustment ranges, consult the manufacturer.	
Lifetime	Six (6) years approx. in clean air. It is recommended to perform a calibration EVERY 6 MONTHS	
Warm-up time	1 minute	
Stabilization time	5 minutes	
Response time	T90 < 1 minute	
Recovery time	T10 < 1 minute	
Linearity	<3% FS	
Temperature range	-20 to 55 ºC	
Relative humidity range	15 to 90%RH	
Working pressure	850 to 1150 mbar	
Marking (S/3-IR)	Ex II 2G Ex IIC Gb Group II apparatus: installation with the presence of an explosive atmosphere other than mining. Category 2G: intended for use in sites classified as zone 1 and zone 2 (Gases)	
Serial No.	CCCC: Product code AAMM: Year and Month of manufacture XXXX: Manufacturing number	
Degree of protection	S/3-IR: IP66 (see WARNINGS) ⚠	S/2-IR: IP66/67
Dimensions	S/3-IR: 140 x 162 x 91 mm	S/2-IR: 130 x 140 x 75 mm
Weight	S/3-IR: 1150 gr	S/2-IR: 300 gr

EU DECLARATION OF CONFORMITY

MANUFACTURER : Electronic Applications Commercial, SL

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

PRODUCT DESCRIPTION :

Remote Gas Sensor Ref. S/3-IR ATEX and S/2-IR ABS Toxic Gas:

The above mentioned product is declared, under our exclusive responsibility, in compliance with the provisions of the following directives:

1.- Directive 2014/34/EU Equipment and protective systems for use in explosive atmospheres and repealing Directive 94/9/EC (OJEC 29/03/2014 - L Series, No. 96/309). (Only version S/3-IR ATEX).

2.- 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 with reference to the following harmonized standards:

- **EN IEC 60079-0:2018+AC:2020-02** Explosive atmospheres - Part 0: Equipment - General requirements. (S/3-IR ATEX version only).
- **EN 60079-1:2014** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”. (S/3-IR ATEX version only).
- **EN 60079-29-1:2016+A1:2022+A11:2022** Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases. (Hydrocarbon version only).
- **EN IEC 62990-1:2022+A11:2022** Workplace Atmospheres - Part 1: Gas detectors - Performance requirements of detectors for toxic gases. (Toxic gas version only)
- **EN 50270:2015+AC:2016-08** Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen.
- **EN 50271:2018** Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen - Requirements and tests for apparatus using software and/or digital technologies.

In San Sebastian,

JULY BOUZAS FUENTETAJA
GENERAL MANAGER

Respectful and supportive of the environment

This product complies with the 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 withdrawal 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 enabled by the town councils.

OFFICIAL DISTRIBUTOR

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EXPERTS IN GAS DETECTION