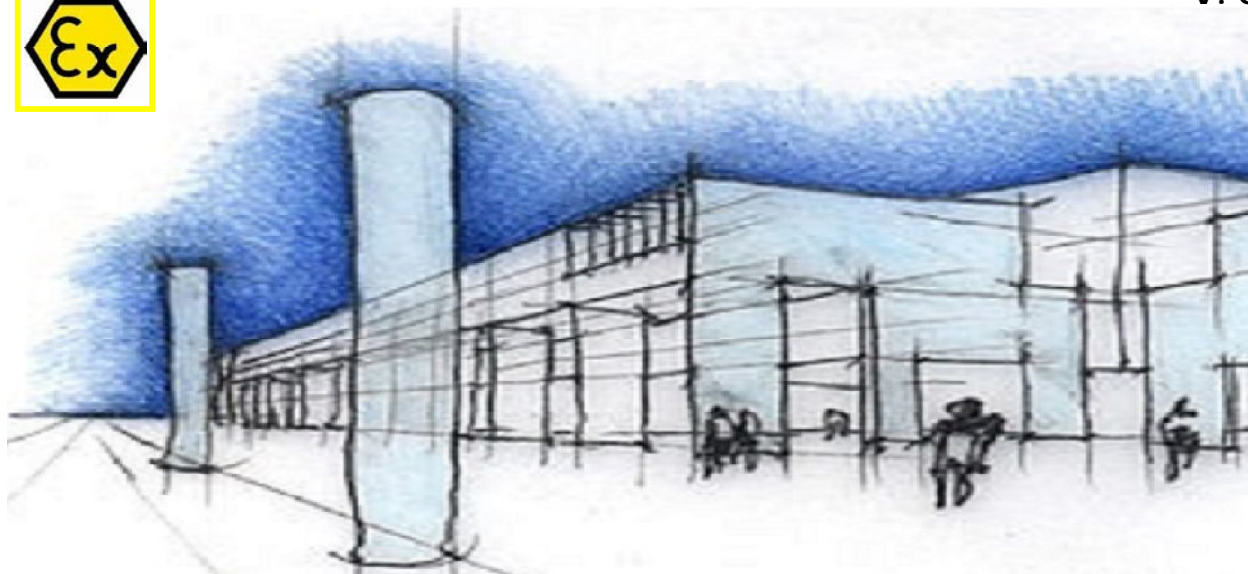


# Addressable Gas Sensor SGI 895

V. 0



The years of experience gained in the industrial sector and the knowledge of the market combined with the prestige that has always distinguished **BEINAT S.r.l.**, and the industrial fitness concept have allowed the conception of the new gas detection probe, **ATEX SGI 895**.

It has the prerogative of being able to control the presence of: Explosive Gases, through its Pellistor technology sensor, and thanks to a **RS-485 MODBUS** serial communication network, it can be combined with our **BXI 32** control unit. Thanks to more innovative technical features, such as control software, the probe is suitable for: industrial uses, boiler rooms and industrial kitchens, detecting **Methane, LPG and others types of gas** (see page 6)

Thanks to its innovative technology advances, the probe is suitable to: industrial use and car parks. The probe is managed by a microprocessor which not only supplies an alarm signal to the Control Unit connected to it, but also executes a self-diagnosis and therefore an **AUTOMATIC CALIBRATION** in order to obtain the maximum detection accuracy at all times. The self-calibration means the probe adapts in harsh and variable temperature environments, avoiding false alarms due to anomalous events.

### Instrument of testing TS1008

To facilitate the reading of the functional parameters of the probe as well as the control of annual operating, **BEINAT S.r.l.** has built a new portable tester **TS1008**. The tester allows to read all the data in the memory of the probes, received by serial transmission, and it prints the ticket that confirms the testing data, **certifying your own work**.



**Important:** Assembly / maintenance of the appliance must be carried out by qualified personnel and in accordance with applicable laws and regulations. The manufacturer assumes no responsibility for the use of products that have to comply with particular environmental and / or installation standards.

### Important note




Before connecting the equipment, it is recommended that you read the instruction manual carefully and keep it for future reference. It is also recommended to perform the electrical connections correctly as per enclosed drawings, observing the instructions and the Standards.



**N.B. Refer to the documentation in all cases where the symbol is on the side. READ THE OPERATING INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT**

**The instrument:** These operating instructions should be read by all persons using, maintaining or repairing this product.

This product will satisfy the performances reported in these operating instructions, only in case of use, maintenance or repair conforming with the directives by **BEINAT S.R.L.** as performed by personnel from **BEINAT S.R.L.** or personnel duly authorized by **BEINAT S.R.L.**

 <b>Installation and user guide</b>	<b>CONFORMITY</b> EN 60079-0 EN 60079-1 EN 61241-0 EN 61241-1 EN 50270	<b>Atex Marked</b> <b>Safety Version Explosion Proof</b> <b>BEINAT S.r.l.</b>  0477  II 2GD
	Ex d IIC T6 (85°C) Ex tD A21 IP66 85° C <b>EUM1 10 ATEX 0169</b> Don't open when circuits alive To wait for 60 seconds before the opening <b>Serial Number</b> , see Declaration of Conformity attached	



## Precautions



**CHECK** the integrity of the probe after having removed it from the box.

Check that the data written on the box correspond to the type of gas used.

When doing the electrical connections, follow the drawing closely.

Any use of the detector for purposes other than the intended one is considered improper, and as a result of which **BEINAT S.r.l.** therefore disclaims any responsibility for possible damages caused to people, animals or objects.

### LIABILITY LIMITATIONS

\* **BEINAT S.R.L.** cannot be held liable to any person in regard to material damages, injuries or death of the user resulting entirely or partially from misuse, wrong installation or storage of the product non conforming with the instructions and warnings and/or non conforming with the norms and regulations in force.

\* **BEINAT S.R.L.** does not support nor authorizes any other company, person or legal entity to take on the part of responsibility assigned to **BEINAT S.R.L.**, even if involved in the sale of the products of **BEINAT S.R.L.**

\* **BEINAT S.R.L.** shall not be held liable for the direct or indirect damages, as well as for the compensation of direct or indirect damages, resulting from the sale and use of its products, WHEN SUCH PRODUCTS WERE NOT SPECIFIED AND ALLOWED BY BEINAT S.R.L. FOR A SPECIFIC USAGE.

### INSTALLATION

When performing the installation, please remind that if you pierce the FLAMEPROOF container, it will lose its properties and its conformity to REGULATIONS.

**TERMS and EXPECTATIONS:** The installation of the **SGI895** probe, its ordinary and extraordinary maintenance, and its out of service removal at the end of the functional life guaranteed by the manufacturer, must be carried out by **authorized and/or specialized personnel**.

#### Do not allow it to become wet.

The probe can be seriously damaged when immersed in water. Remember that the probe has an EEX protection degree.

#### Do not drop it.

Heavy knocks or falls during transportation or installation can damage the appliance.

#### Avoid abrupt temperature fluctuations.

Sudden temperature variations can cause condensation and the probe could work poorly.

#### Cleaning

Never clean the device with chemical products. If necessary, wash with a moist cloth.

Absolutely avoid using any cloth dipped in thinners, alcohol and chemical detergents.

## Technical specifications

Power Supply ..... **12÷15VDC** ± 10%  
Power demand ..... 90 mA in operating, 110 mA in alarm Max @ 13,8 V  
Rapports..... green light normal operation, yellow light fault, red light alarm  
Data transmission LEDs ..... **RX TX**  
Slot expansion board relay; CARD-03 ..... Fault , Prealarm, Allarm. Relay contacts 1A 30 VDC **SELV**

Sensor II 2 G EEx d II C Directive ATEX 94/9/CE ..... Pellistor/Electrochemical cell  
Sensitive element working range refered explosive gas ..... At 100% of L.E.L.  
Sensitive element working range refered toxic gas ..... At 1000 ppm  
Detector's range of measurement according to the type of gas ..... See table on page 4  
Detector accuracy ..... 1% FS  
Long term shift in clean air ..... < 3% of L.E.L.  
Response Time ..... < 10"

**Data transmission signal** ..... **Serial RS485 protocol ModBUSRTU**  
USB Test Socket ..... **TS1007**  
Auto zero procedure ..... Included in the software algorithms  
Waiting time (warm-up time) ..... 4 minutes

Functioning humidity ..... 0-90% non condensed  
Functioning temperature refered explosive gas ..... -10+60°C  
Functioning temperature refered toxic gas ..... -20+50°C  
Temperatura di stoccaggio ..... -25+70°C

Control units usable ..... **ONLY BXI32**  
Maximum distance between sensors and control unit ..... 1000 m  
Cable diameter for connecting sensors ..... 0,50 mm<sup>2</sup>

Connection: **The cable of connection of the probe must not be installed together with the power cables. Otherwise, make sure to use a shielded cable**

Case ..... ATEX IIGD EEx-d T6 CES I 03 ATEX148  
Probe's body material ..... Die-cast aluminium  
Protection ..... IP66  
Dimensions (probe's body diameter) ..... 100 mm  
External degree of protection ..... ATEX IIGD EEx-d T6 CES I 03 ATEX148



BEINAT's sensors conform with the European Directive ATEX 2014/34/UE concerning explosive atmospheres. The sensors CANNOT be used for explosive gas measurement as safety devices, according to the Directive ATEX 2014/34/UE; **These sensors are suitable for the detection of gas in case of leak, and then transmit the signal to the connected control unit.**

The information reported in the following paragraphs, shall be taken into consideration and observed by the person responsible of the product installation site.

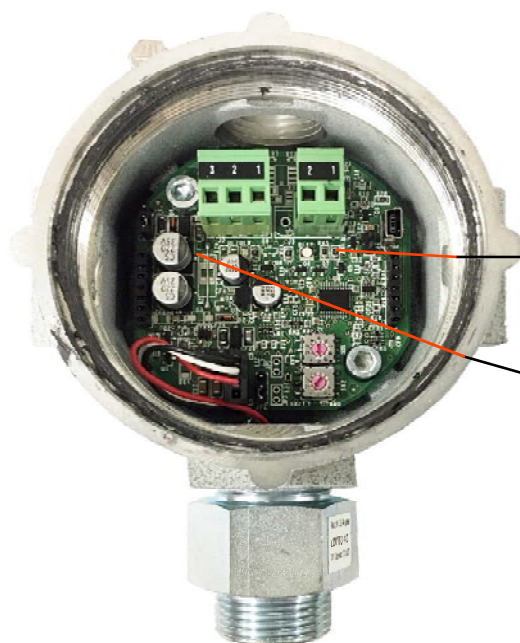
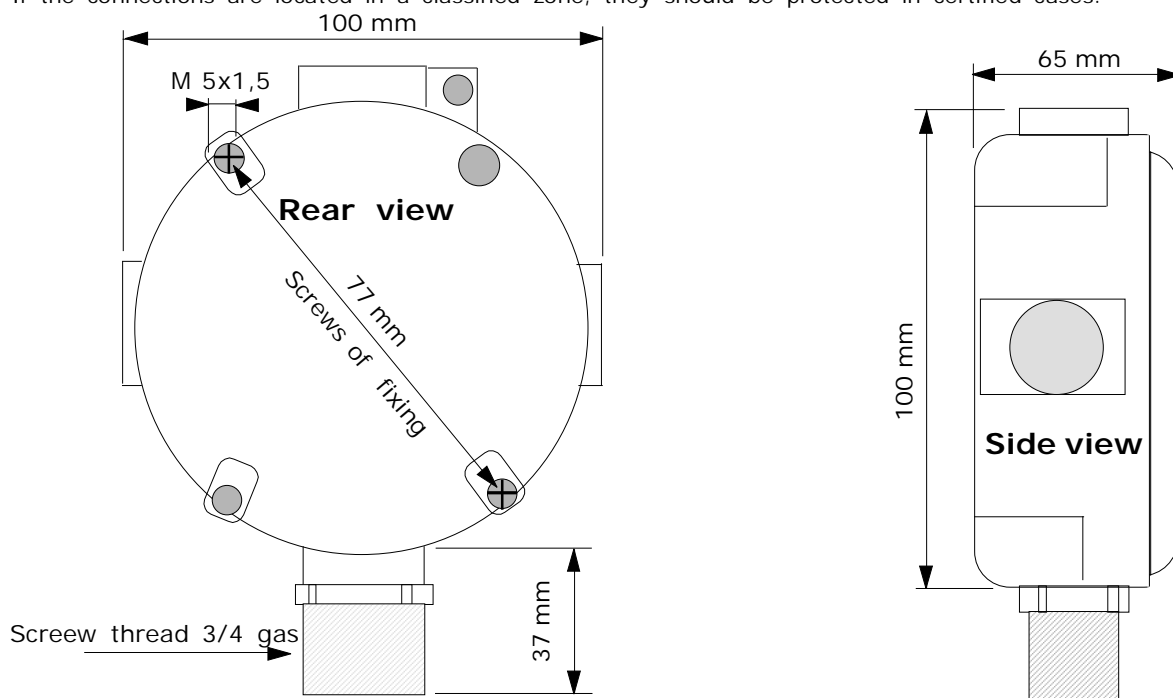
Please refer to the provisions of the European Directive ATEX 1999/92/CE relevant to the improvement of security and health protection of workers who are exposed to the risks of explosive atmospheres.

**Specifications for mechanical and electrical installations in a Classified Zone**

The installation shall be performed according to current regulations, in particular the following norms: **EN 60079-1, EN 60079-, EN 61241-0, EN 61241-1.**

**Explosion proof detectors (d)**

- These instruments have been specially designed for ground-level industries II, Category 2 zone 1 and 2 (Gas) and zone 21 or 22 (Dusts).
- The instruments should be fitted with an ATEX cable input with the following mark: Ex d IIC
- The working temperatures are between  $-10^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$ , in the T6 temperature class.
- The cables should be mechanically protected.
- The sensor body should be grounded and connected to the external or internal terminal that must be protected against corrosion. The user should regularly clean the product in order to avoid any dust accumulation on its walls.
- The sensors should be installed mechanically so that the detection cell is facing down.
- If the connections are located in a classified zone, they should be protected in certified cases.



**FUNCTIONING OF LED**

The integrated LED on the sonde has a threefold function:

- 1) Green LED. Normal operation; In waiting phase, the LED flashes.
- 2) Red LED. State of alarm; The frequency of light changes according to the percentage of gas monitored.
- 3) Led yellow. The probe detects an anomaly, FAULT

Yellow intermittent LED. Active communication

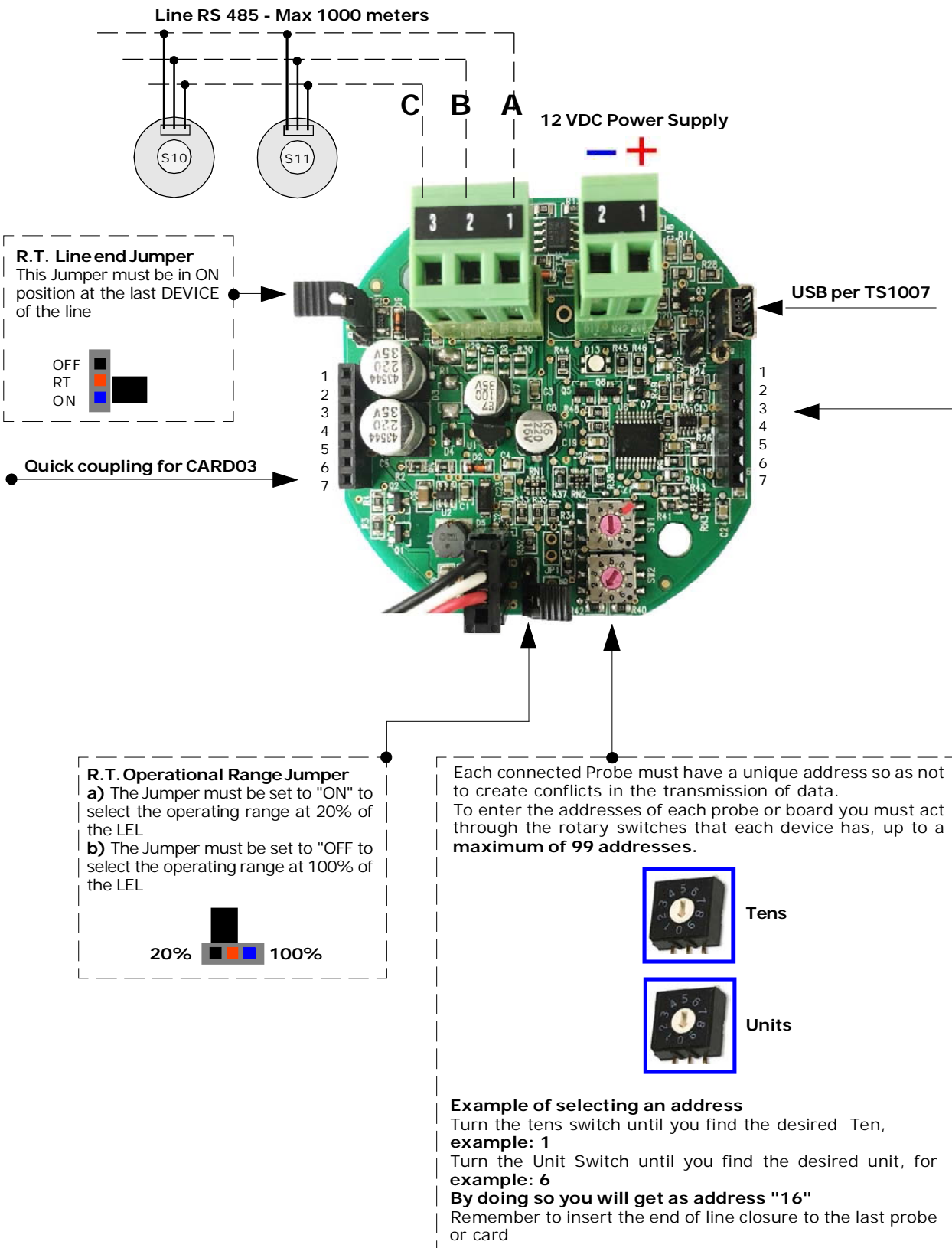


**Electrical cabling**

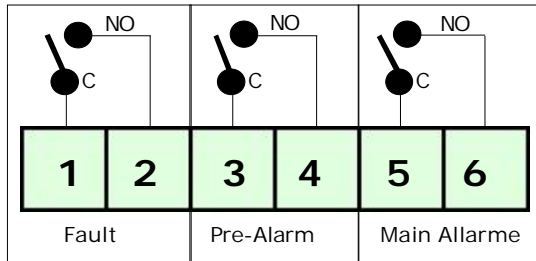
Please read the paragraph: "Particular Specifications for Use in Explosive Atmospheres in conformance with the European Directive ATEX 2014/34/UE".

**NOTE:**

Please remind that if you **pierce the FLAMEPROOF container**, it will completely lose its properties. Moreover, you should install a **FLAMEPROOF cable-gland** for the connection cables



**INSERTING THE CARD03 OPTIONAL CARD**



Before inserting the Relé CARD03 board, disconnect the probe.  
 Insert the card inserting it as shown in the drawing, keeping the terminal board at the top right.

All the relays are free of tension. Contact capacity 1A 30VDC SELV

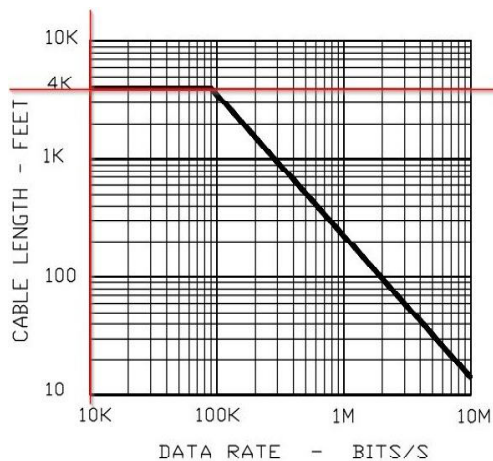
**CAUTION!!**

**RS485 BUS CONNECTION CABLES**

The bus connections must be made from a twisted and shielded pair with equivalent characteristics to **BELDEN type 9841 or BELDEN 9842** cables indicated in the table below:

Type	N° Pair	RESISTENZE IN DC		Nominal Impedence Ohm	NOMINAL CAPACITY		
		Wire Ohm/km	Shield Ohm/km		Between wires pF/m	AWG Shield pF/m	
<b>BELDEN 9841</b>	1	78,7	11,0	120	42,0	75,5	24 (0,25mmq)
<b>BELDEN 9842</b>	2	78,7	7,2	120	42,0	75,5	24 (0,25mmq)

- 1) The **total length** of the **RS485** network must not exceed **1000 meters**.
- 2) The minimum distance between two devices must not be less than 1 meter.
- 3) The branch line from the main network must not exceed 2 meters.
- 4) The shield of the BUS cable must be connected to earth at one end, for example on the peripheral near the control unit.
- 5) A second ground connection would not guarantee the equipotentiality of the screen.  
 Do not use the same conduit for Bus and power supply cables, or power cables in general..





Technical specifications SGI895

Code	Type of Gas	Sensor	Working Range	Temperature
SGI895met	<b>Methane</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895gpl	<b>LPG</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895idr	<b>Hydrogen</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895CO	<b>Carbon monoxide</b>	Elect. Cell	0-300 ppm	-20+50°C
SGI895amX	<b>Ammonia explosive</b>	Catalytic	LEL 0-100%	-10+50°C
SGI895amT	<b>Ammonia toxic</b>	Elect. Cell	ppm 0 - 50	-30+50°C
SGI895ace	<b>Acetylen</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895vbe	<b>Gasoline</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895meh	<b>Methanol</b>	Pellistor	LEL 0-100%	-20+60°C
SGI895alc	<b>Alcohol</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895ara	<b>White spirit</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895eth	<b>Ethanol</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895act	<b>Acetone</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895hex	<b>Hexane</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895eta	<b>Ethyl Acetate</b>	Pellistor	LEL 0-100%	-10+50°C
SGI895tol	<b>Toluene</b>	Pellistor	LEL 0-100%	-20+60°C
SGI895clo	<b>Chlorine</b>	Pellistor	ppm 0 - 10	-20+50°C
SGI895idso	<b>Hydrogen Sulphide</b>	Elect. Cell	ppm 0 - 15	-20+50°C

Positioning of the probe

The **GAS sensors** connected to this equipment are of various types and must be positioned at different heights depending on the type of gas to be detected.

These heights are:

- **30 cm.** from the lowest point of the floor to detect: **heavy gases (G.P.L., etc.)**
- **30 cm.** from the highest point of the ceiling to detect: **light gases (Methane etc.)**
- **160 cm.** from the lowest point of the floor to detect: **volatile gases (CO etc.)**

**It is important to remember that the remote probes must be installed keeping in mind that:**

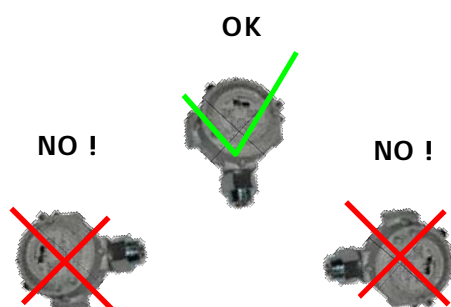
- 1) The probes must not be installed near the appliance to be controlled, boiler, burner, industrial kitchens, etc.) but on the opposite side.
- 2) The probes must not be affected by fumes, vapors, and by sources of moving air, which could distort the detection.
- 3) The probes must not be installed near sources of heat, fans or vacuum cleaners.

**NOTE.** Recall that the GAS detection sensors placed inside the probe are perishable components, whose average duration is variable from 5 to 6 years therefore after this period it is good to replace them.

**Maintenance**

The user is kept periodically (every 6 months), to perform a verification of the operation of the detection system by spraying specific test gas to the connected probes, until the alarm status of the control unit is obtained.

- a) **Once a year**, a more thorough check must be carried out by a specialized technician.
- b) The removal of the probes after 5 years from installation must be carried out by qualified personnel.



**WARNING!**

The **CATALYTIC** technology sensor has a duration that can vary from 5 to 6 years (in clean air).

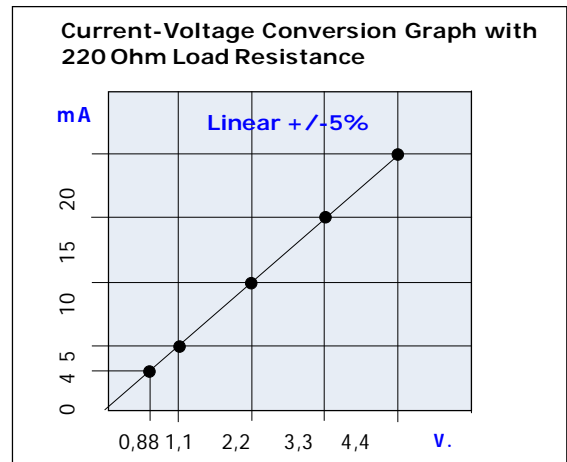
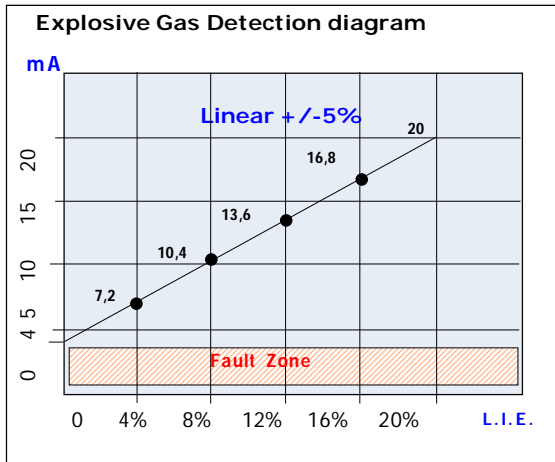
The probe's functioning temperature ranges from **-10°C to +70°C**.

The CATALYTIC probe does not tolerate a gas detection exceeding **100% of L.E.L.**, with consequent natural death of the sensor.

Each immediate puff of gas that exceeds 100% of L.E.L. takes away months of life from the sensor.

The detector must be tested by simulating the presence of gas by issuing it from a pre-calibrated testing aerosol.

A common cigarette lighter near the sensor does not guarantee excellent functioning. Moreover, you can damage the sensor.



**MAINTENANCE**



The user periodically (every 6 months) must perform a check of the operation of the control unit by spraying a suitable test gas at the base of the probes connected until the alarm condition is reached.

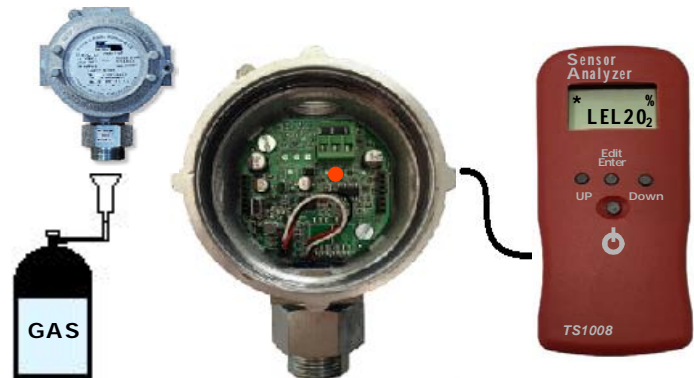
- At least once a year make a more accurate check by a specialist technician.
- Disabling the detector must be carried out by qualified personnel.



Without gas it reads 0% of Gas



With gas it reads the % detected



The installation of the detector does not exempt from ..... The compliance with all regulations concerning the characteristics, installation and use of gas appliances. The ventilation of the spaces and the elimination of combustion products are described in the UNI norms according to ART. 3 LAW 1083 / 71 and relevant legal provisions.

**WARNING! Actions to be taken in case of alarm**

- 1) Put out all free flames.
- 2) Close the main gas tap or the LPG cylinder tap.
- 3) Do not turn any lights on or off; do not turn on any electrical device or appliance.
- 4) Open windows and doors in order to increase ventilation.



If the alarm stops, its cause must be found and the relevant consequent measures taken.


If the alarm continues and the cause of gas presence cannot be found or removed, abandon the building and call the emergency services when outside (fire department, distributors, etc.)

**IMPORTANT:** The operation test should not be carried out with the gas tap as this does not guarantee a sufficient concentration to activate the general alarm.

**Warning !!**

If you have the following symptoms: vomiting, sleepiness, or else, go to the closest first aid station and inform the operators that you could have been poisoned by **Carbon Monoxide**, or by an excess or deficiency of oxygen



**INSURANCE.** This device is insured by the SOCIETÀ REALE MUTUA for the PRODUCT'S GENERAL LIABILITY up to a maximum of 1,500,000.00 EURO against damages caused by the device in case of failures in functioning. 

**WARRANTY.** The warranty term is 3 years from manufacturing date, in agreement with the following conditions. The components acknowledged as faulty will be replaced free of charge, excluding the replacement of plastic or aluminium cases, bags, packing, batteries and technical reports.

The device must arrive free of shipment charges to **BEINAT S.r.l.**

Defects caused by unauthorized personnel tampering, incorrect installation and negligence resulting from phenomena outside normal functioning shall be excluded from the warranty.

**BEINAT S.r.l.** is not liable for possible damage, direct or indirect, to people, animals, or things; from product faults and from its enforced suspension of use.



**DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT.**

This symbol on the product or its packaging indicates that this product shall not be treated as household waste. Instead, it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment, such as for example:

- sales points, in case you buy a new and similar product
- local collection points (waste collection center, local recycling center, etc...)

By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

**Attention:** In some countries of the European Union, the product is not included in the field of application of the National Law that applies the European Directive 2002/96/EC and therefore these countries have no obligation to carry out a separate collection at the "end of life" of the product.



**Sensor SGI895** *Lo styling è della b & b design*

Stamp and signature of the dealer

Purchase date: .....

Serial Number : .....

The Beinat S.r.l. following the targhet to improve its products, reserves the right to modify the technical features, aesthetic and functional any time without prior notice.

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