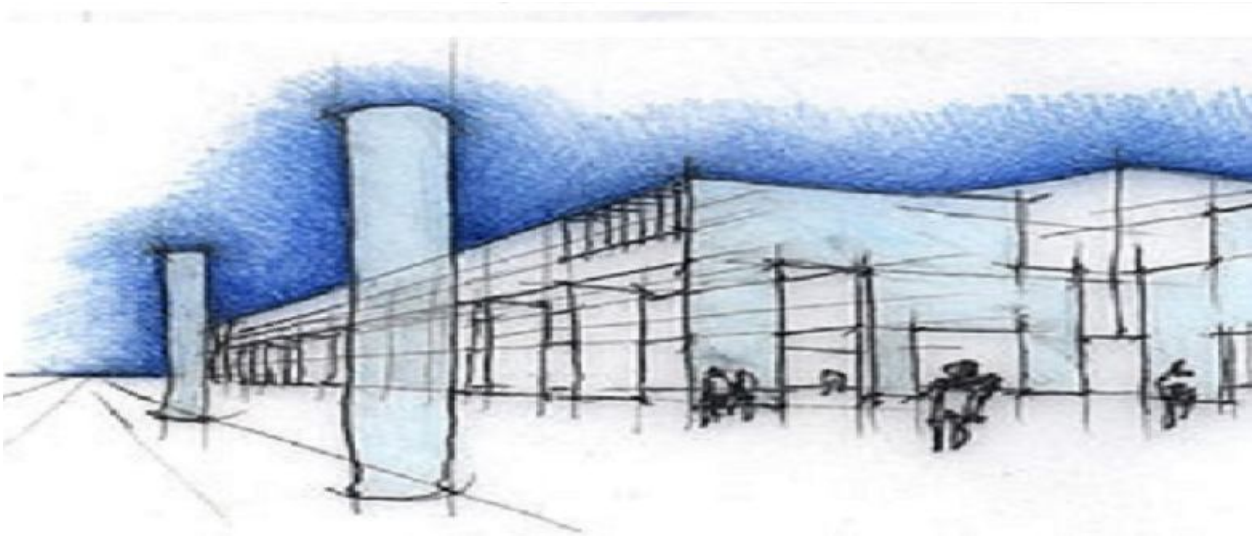
Belonging to ANIE CONFINDUSTRIA

Addressable Gas Sensor CO165

V. 16



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 creation of the new gas detection sensor, the **CO16**5. It has the prerogative of being able to control the presence of Toxic Gases via an **RS-485 MODBUS** Network through the Electrochemical technologysensors, so it can be combined with our BXI32 control unit.

Thanks to innovative technical pluses such as the control software, the probe is suitable for: industrial uses, boiler rooms and industrial kitchens, detecting **Carbon Monoxide gas**.

The sensor is managed by a microprocessor which, in addition to supplying an alarm signal to the control unit to which it is connected, allows you to make a self diagnosis, and therefore an AUTOMATIC CALIBRATION, so as to constantly have maximum detection accuracy over time.
The auto calibration allows the sensor to adapt in difficult environments and at variable temperatures, avoiding false alarms due to anomalous events.

The **important novelty** of this probe is:
The possibility of replacing the sensor at the end of the operating cycle or for failure by the technician without having to send it to **BEINAT S.r.l.**

Instrument of testing TS1008
To facilitate the reading of the functional parameters of the probe as well as the control of annual operating, the **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 eand by serial transmission **,** 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

Installation and user guide

CONFORMITY

	EN 50194
	EN 50270
Compliant	EN 60079-29-1
Installation	EN 60079-29-2
Reports issued by	TUV Italia

Electric connections also available on
Channel: Beinat gas solutions

Precautions

CHECK the integrity of the unit 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.
TERMS and EXPECTATIONS: The installation of the **CO165** Sensor, its ordinary and extraordinary maintenance, every six months, and its out of service removal at the end of the functional life guaranteed by the manufacturer, must be carried out by **authorized or specialized personnel.**
Do not allow it to become wet.
The control unit can be seriously damaged as it is not waterproof either when immersed in water or exposed to high levels of humidity.
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 control unit could work poorly.
Cleaning
Never clean the device with chemical products. If necessary, wash with a moist cloth.

Technical Specifications

Power Supply ..... **12÷24VDC** ± 10%
Power demand ..... 110 mA Max @ 13,8 VDC
Peralarm relay ..... 5A 30 VDC **SELV**
Fault relay..... 5A 30 VDC **SELV**
LEDs diode signals ...**. Green** regular operation; **Yellow fault;** Red alarm 300 ppm;
Cyan TWA eight hour alarm**; Magenta STEL** alarm 15 minutes
Data transmission LEDs ..... **RX TX**

Detection ..... Monoxide Carbon **"CO"**
Sensor ..... **Electrochemical cell**
Sensitive element working range ..... 0÷5000 ppm
TWA alarm intervention **on an 8-hour** weighted average of CIANO COLOR ..... **30 ppm**
STEL Alarm intervention Maximum amount allowed n **15 minutes** MAGENTA SIGNAL ..... **200 ppm**
Alarm intervention **Immediate** RED SIGNAL ..... **300 ppm**
USB test socket **TS1008**

Data transmission signal ..... Serial RS485 protocol **ModBUSRTU**
Detector accuracy ..... 1% FS
Long term shift in clean air ..... < ± 3% ppm
Auto zero procedure ..... Included in the software algorithms
Response Time ..... <10"
Warm-up time ..... 4 minutes

Functioning humidity ..... 0-90% non condensed
Functioning temperature ..... -20°C to +40°C
Control units usable BXI32
Maximum distance between sensors and control unit .....1000 m
Cable diameter for **connecting sensors .**.....1 mm^2
RS485 BUS CONNECTION CABLES
Data transmission cable section ..... up to 1000 m
The bus connections must be made from a twisted and shielded pair with equivalent characteristics to BELDEN type 9841 or BELDEN 9842 cables.

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**

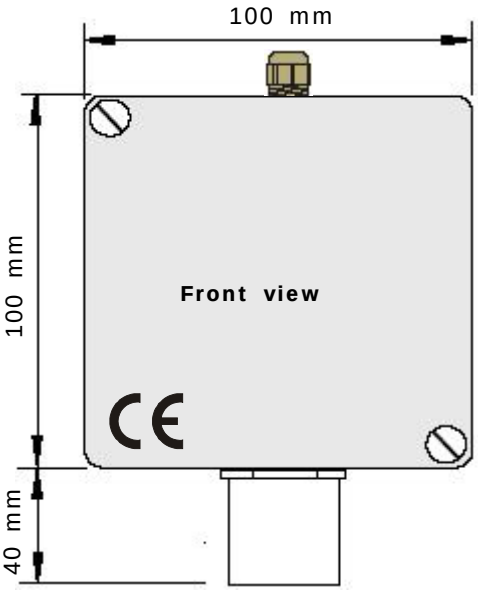
Installation ..... Wall
Probe's body material ..... Aluminum
External degree of protection IP66
Size .....100x100x60 mm

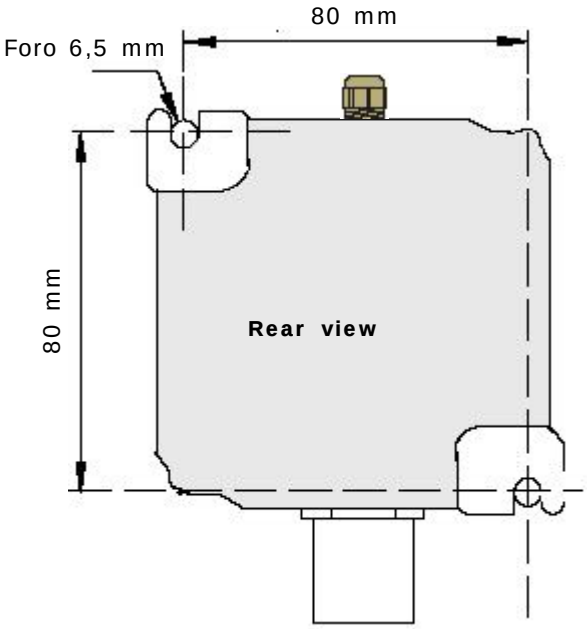
WARNING!
The sensor **ELECTROCHEMICAL CELL** has a duration that can vary from about 5 to 6 years in clean air.
Working temperature recommended from –10 ° C to + 40 ° C.
The detector must be tested by simulating the presence of gas by emitting it from a pre-calibrated can
N.B.
The operation test and eventual calibrazine must be performed at least 1 time **1 year** by qualified technician.

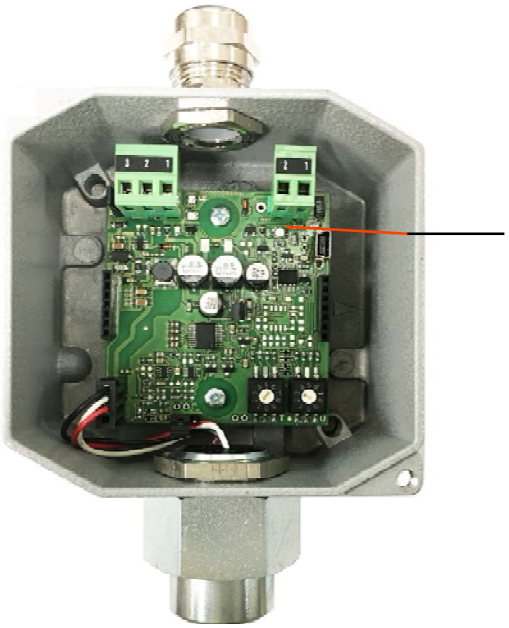
MAINTENANCE

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.







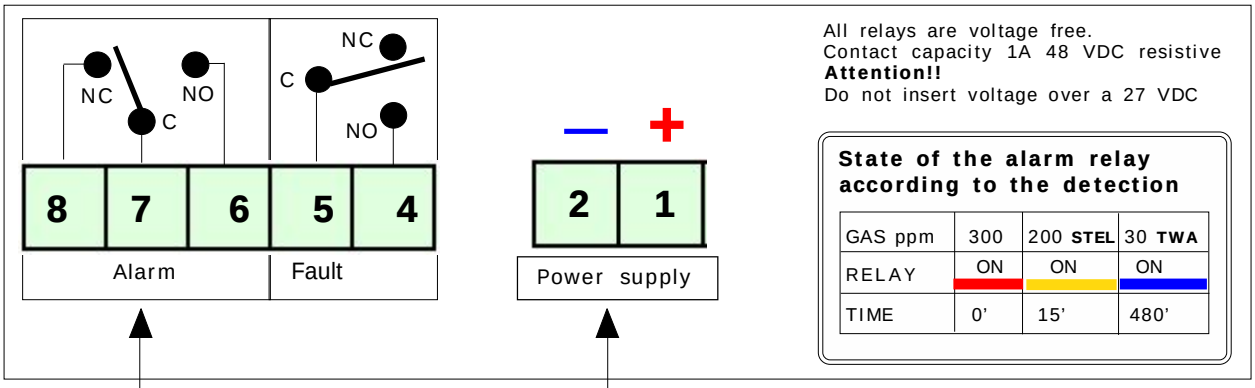
FUNCTIONING OF LED

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

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.

Electrical connections

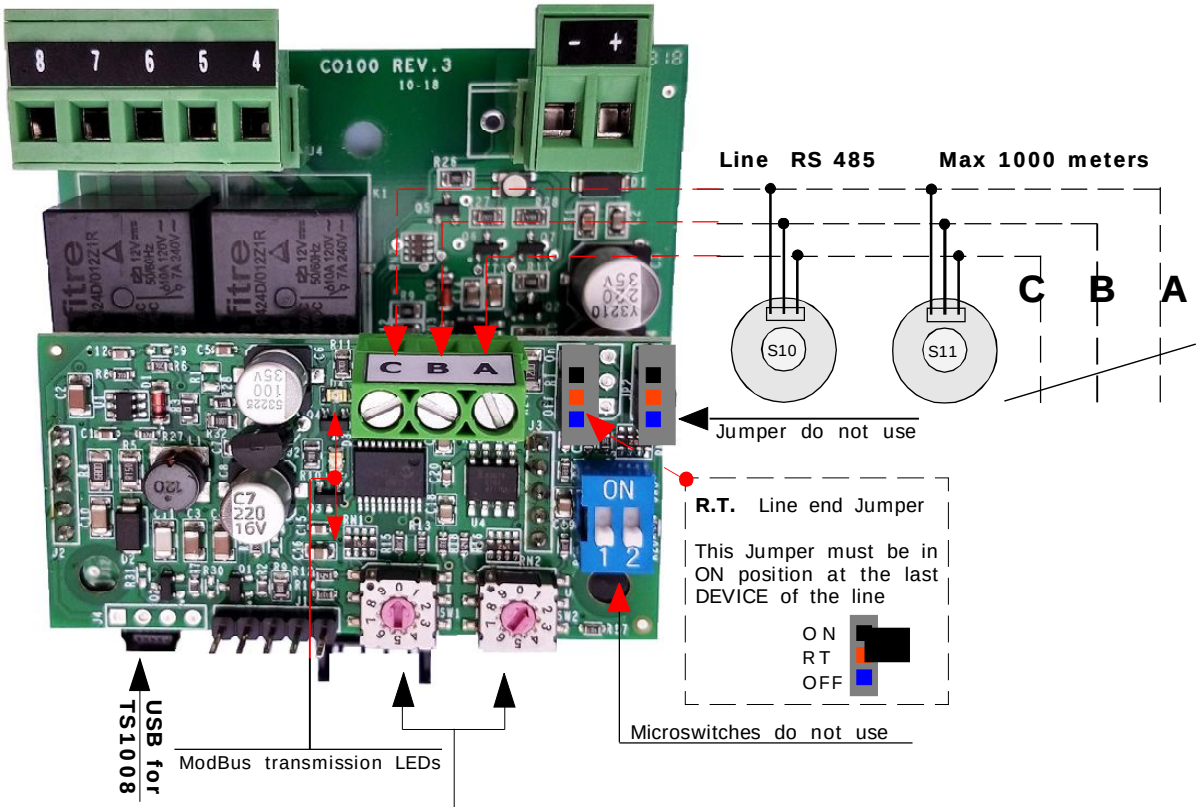
WARNING
Before connecting to the mains power, ensure the voltage is correct. Carefully follow the instructions and the connections according to Regulations in force, keeping in mind that the signal cables should be laid separate from the power cables



All relays are voltage free.
Contact capacity 1A 48 VDC resistive
Attention!!
Do not insert voltage over a 27 VDC

State of the alarm relay according to the detection

GAS ppm	300	200 **STEL**	30 **TWA**
RELAY	ON	ON	ON
TIME	0'	15'	480'



Each connected Probe must have a unique address so as not to create conflicts in the transmission of data.
To enter the addresses of each **probe or board** you must act through the rotary switches that each **device** has, up to a maximum of 99 addresses.

Tens **Units**

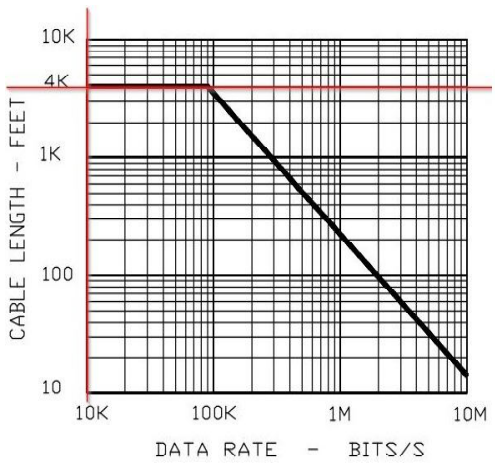
Example of selecting an address
Turn the tens switch until you find the desired Ten,
example: 1
Turn the Unit Switch until you find the desired unit, for
example: 6
By doing so you will get as address "16"
Remember to insert the end of line closure to the last probe or card

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		AWG
		Wire Ohm/km	Shield Ohm/km		Betwen wires pF/m	Betwen wires Shield pF/m	
BELDEN 9841	1	78,7	11,0	120	42,0	75,5	24 (0,25 mmq)
BELDEN 9842	2	78,7	7,2	120	42,0	75,5	24 (0,25 mmq)

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..

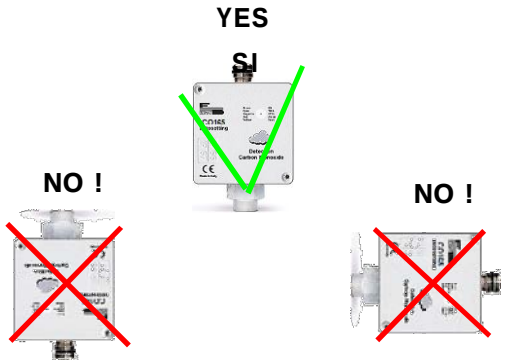


Positioning of the Probe

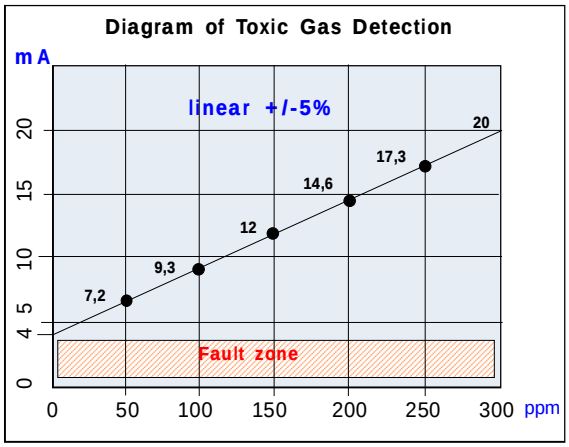
The position of the probe is a crucial factor for its correct functioning. The probe must be placed at a height of:

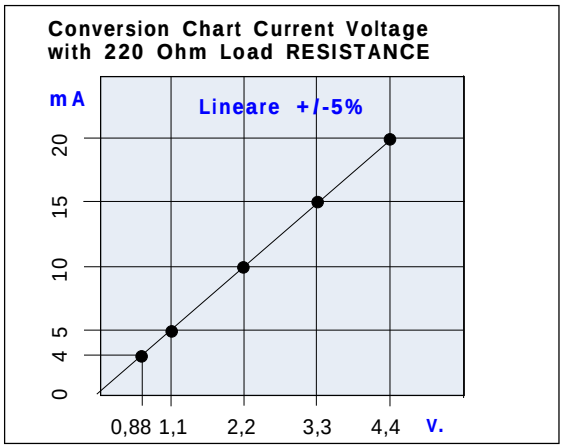
160 cm from the lowest point on the floor up to **30 cm from the ceiling**, and in all cases at an average height in the monitored area.

The probe **must not be placed** near the following: furnaces, fuel-burning kitchen appliances, fireplaces, ranges, suction fans, and should not be affected by smoke, vapour as these could distort its measurement. The probe **must not be placed** away from sources of heat, suction fans, ventilation fans, windows, doors, etc. that can distorting the detection, should be placed away from heat sources and away from aspirators or fans.



Detection Diagrams Data

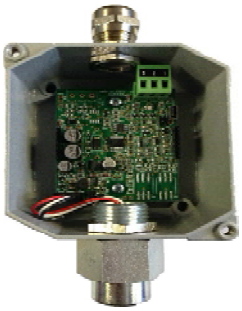




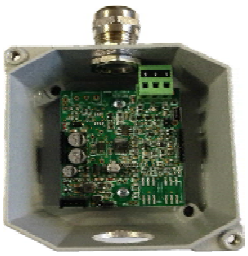
According to the EN 45544 regulation
Weighted average of detection over 8 hours
TWA CO = Alarm at 30 ppm after 8 hours
Maximum amount allowed in 15 minutes
STEL CO = 200 ppm in alarm after 15 minutes

Maintenance and gas sensor replacement

Before performing this operation disconnect the power to the probe

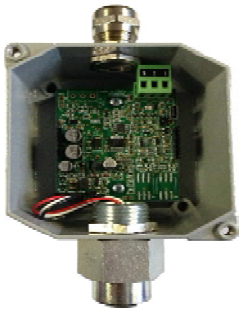


Probe with sensor to be raplaced



Probe with sensor Rremoved

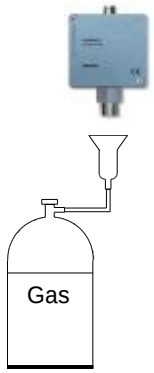
Sensor



Probe with sensor remounted

Test after replacing the sensor.
Reconnect the power, the probe starts blinking to the waiting time (Warm-up).
After waiting you can proceed to test the functioning inputting the sample gas.
WARNING !! From this moment on for all the duration of 24 hours of self-calibration, the probe must stay in clean air without loss of GAS.

Gas Test



CO165 gas test

CO **up to 300ppm**
Resto **Aria**

The installation of the **CO165** sensor, its ordinary and extraordinary maintenance and the decommissioning at the end of the operating period guaranteed by the manufacturer must be performed by authorized or specialized personnel.

The general inspection test must be performed by emitting gas from a pre-calibrated can within the indicated percentages.
This test is recommended to be performed at least once a year.

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.)

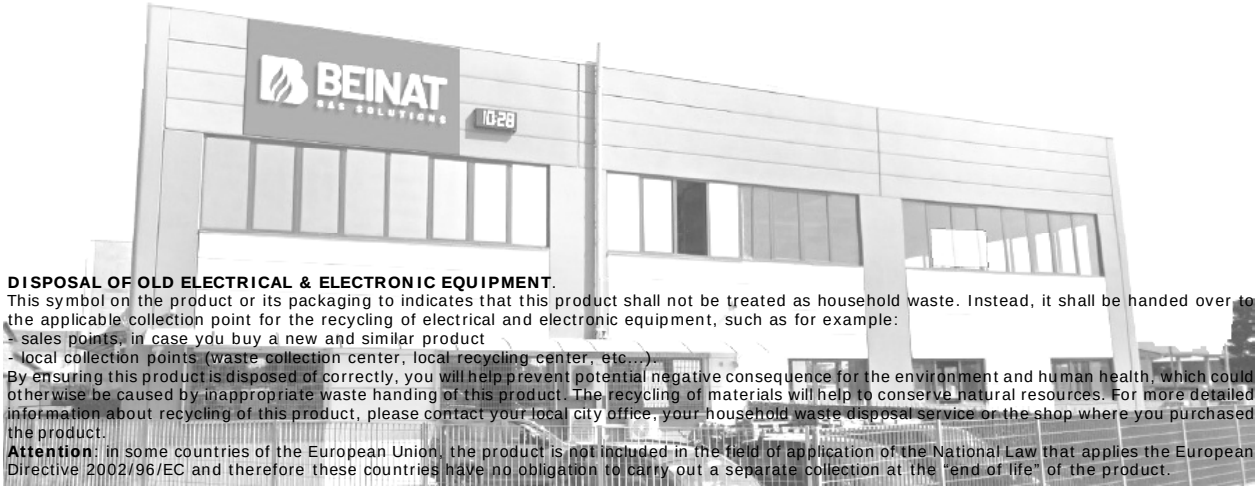
Warning !!
If you have the following symptoms: vomiting, sleepiness, or else, go to the closest first aid station and inform the operators that you could have been poisoned by **Carbon Monoxide**.

Symptoms of Carbon Monoxide **"CO"** poisoning	
ppm	
150	HEADACHE within 2 hours
250	HEADACHE within 3 hours
450	STRONG HEADACHE
800	CONVULSIONS within 30 minutes
1500	DEATH within 2 hours
5000	DEATH within 20 minutes

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.

BEINAT
GAS SOLUTIONS



DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT.
This symbol on the product or its packaging to 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 handing 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.

CE RoHS Compliant **IP66** **Made in Italy**

Adressable sensor C0165 *Lo styling è della b & b design*

Stamp and signature of the dealer

Purchase date: . . . . . .

Serial Number: . . . . . .

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

BEINAT S.r.l.
Via Fatebenefratelli 122/C 10077, S. Maurizio C/se (TO) - ITALY
Tel. 011.921.04.84 - Fax 011.921.14.77
http:// www.beinat.com

Business **-** info@beinat.com
Help Desk **-** laboratorio@beinat.com