



Technical Documentation for the Sound Level Sensor **GZ-CAPT2**

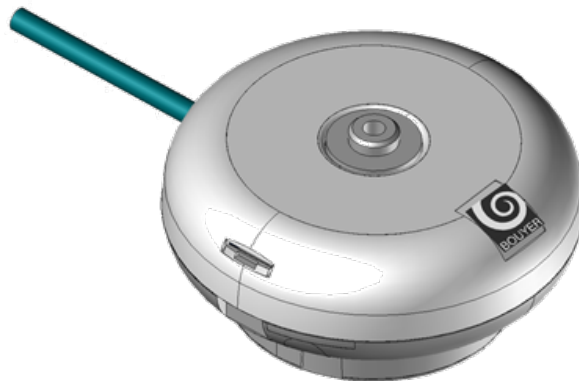


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A. Description

The GZ-CAPT2 is an autonomous sound level device with an embedded digital sensor for measuring sound level (ambient noise). The sensor features the same design as a smoke detector, meaning that it can be discreetly fitted anywhere. Its measurements are sent to a central PA system, which can dynamically adapt the sound level of the connected loudspeaker lines. The sensor can be installed up to 1 km from the central unit.

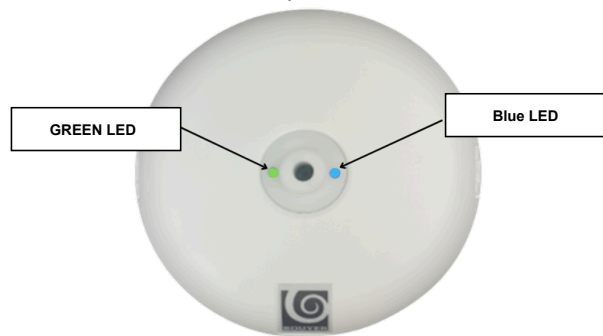


The sensor is designed as an add-on for a PA system and will never act on the sound level of any safety messages (EN 54-16 or NF Fire safety systems standards).

B. Presentation

B.1. Indicator lights

The product has two LEDs on the front of the sensor that provide information about its state:



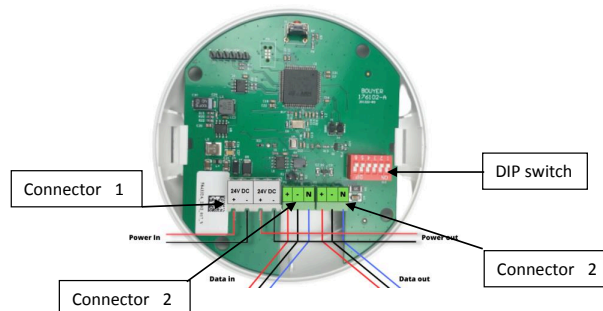
Green LED: this light indicates that the sensor is connected to a power source.

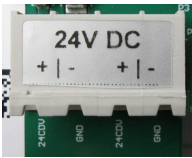
Blue LED: this flashing light has 3 states:

- "Heartbeat" (1s OFF - 100ms ON - 100ms OFF - 100ms ON) -> the system is operating correctly, but has not yet been configured or connected.
- "Slow" (5s OFF - 500ms ON - 5s OFF - 500ms ON) -> the system is operating normally. This mode lasts 30 seconds. After this interval, if there is no further interaction, the sensor returns to heartbeat mode.
- "Fast" (100ms OFF - 100ms ON) -> the product is being identified. This mode lasts 15 seconds.

B.2. Configuration

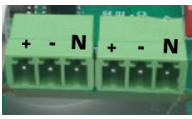
The GZ-CAPT2 is configured inside the product. To configure the sensor, open the enclosure by pressing down on the two tabs on either side of the product base (see Section C, "Installation").





Connector 1: power terminal with two "+" and two "-" 24 VDC contacts.

Several GZ-CAPT-2 sensors can be daisy chained together, in which case connect the power supply to one half of the connector and use the second half of the connector to power the next product.



Connector 2: communication terminal using the RS-485 protocol. This terminal is used to connect the GZ-CAPT-2 to a master element that is capable of communicating with the sensor. This terminal can also be used to connect other GZ-CAPT-2 products in series.



DIP switch: this switch corresponds to the product's address. To define an identifier for the product, set the required switches to the "ON" position. Ensure that no other GZ-CAPT-2 sensors connected to the same installation have the same switch positions.

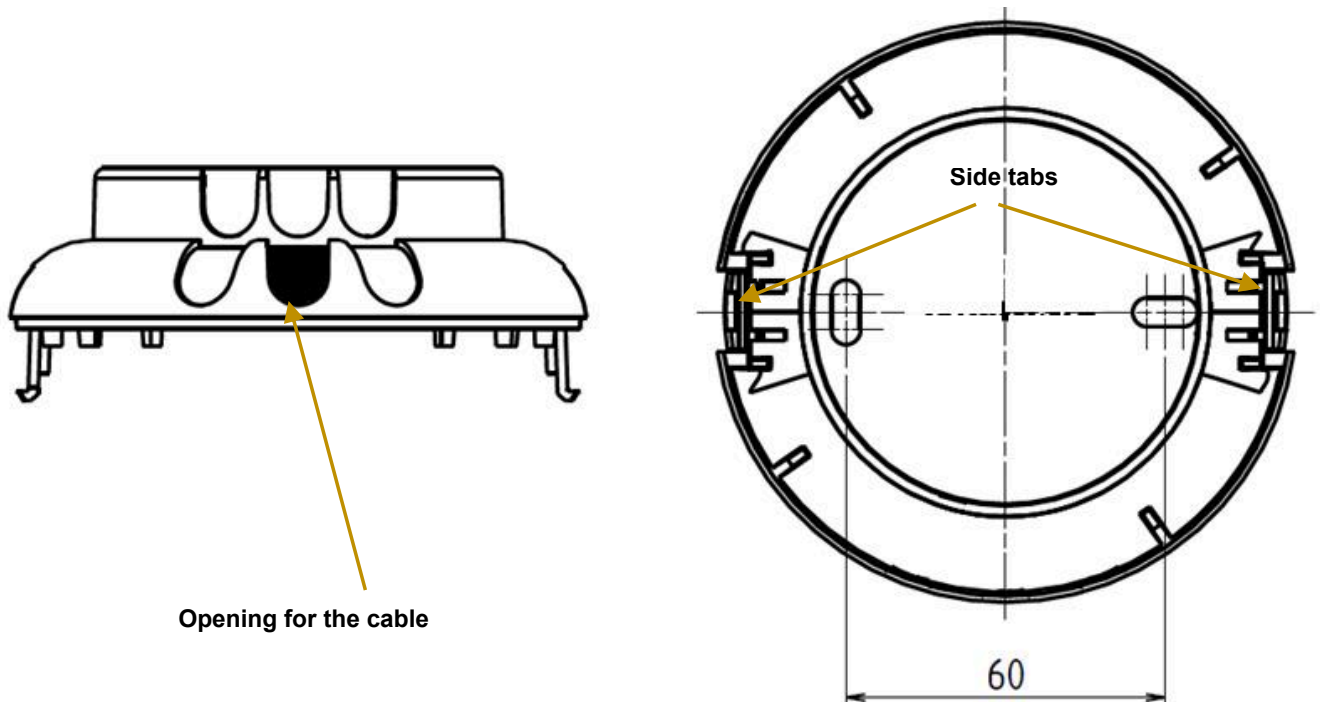
Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Address
On	Off	Off	Off	Off	Off	1
Off	On	Off	Off	Off	Off	2
On	On	Off	Off	Off	Off	3
Off	Off	On	Off	Off	Off	4
On	Off	On	Off	Off	Off	5
Off	On	On	Off	Off	Off	6
On	On	On	Off	Off	Off	7
Off	Off	Off	On	Off	Off	8
On	Off	Off	On	Off	Off	9
Off	On	Off	On	Off	Off	10
On	On	Off	On	Off	Off	11
Off	Off	On	On	Off	Off	12
On	Off	On	On	Off	Off	13
Off	On	On	On	Off	Off	14
On	On	On	On	Off	Off	15
Off	Off	Off	Off	On	Off	16
On	Off	Off	Off	On	Off	17
Off	On	Off	Off	On	Off	18
On	On	Off	Off	On	Off	19
Off	Off	On	Off	On	Off	20
On	Off	On	Off	On	Off	21
Off	On	On	Off	On	Off	22
On	On	On	Off	On	Off	23
Off	Off	Off	On	On	Off	24
On	Off	Off	On	On	Off	25
Off	On	Off	On	On	Off	26
On	On	Off	On	On	Off	27
Off	Off	On	On	On	Off	28
On	Off	On	On	On	Off	29
Off	On	On	On	On	Off	30
On	On	On	On	On	Off	31

C. Installation

Steps for installing the GZ-CAPT2 sound level sensor:

1. Open the enclosure by pressing down on the two side tabs.
2. Drill a hole in the base to create an opening for the cables.
3. Mount the base on the wall (or ceiling) with two Ø 5 mm max screws (not supplied).
4. Then connect the cables to the PCB.
5. Secure the cables using the cable clamp on the PCB.
6. Fit the PCB into the base and run the cables through the previously drilled hole in the base.

Figure 1. Mounting the GZ-CAPT2 on the wall / ceiling

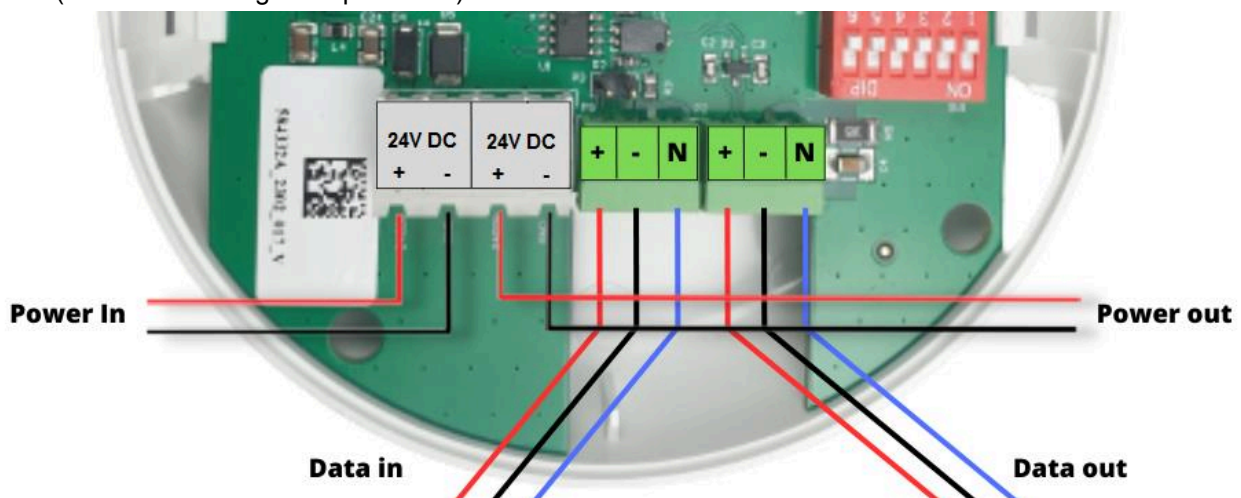


D. Connections

The sensor is connected using the different terminals inside the product.

Depending on the site's surface area, several sensors may need to be installed. We would advise fitting one sensor for a surface area of up to 400 m². For areas over 400 m², simply add more sensors. Up to 31 sensors can be installed on the same line. In this case, the power supply must be sized accordingly. The TA-410x can only power four sensors. The additional power supply that should be used is the Bouyer "NS-221505" (24 V / 1 A) or an equivalent model.

To daisy chain several sensors together, simply connect their power terminals in series and do likewise for their RS-485 terminals (refer to the wiring example below).



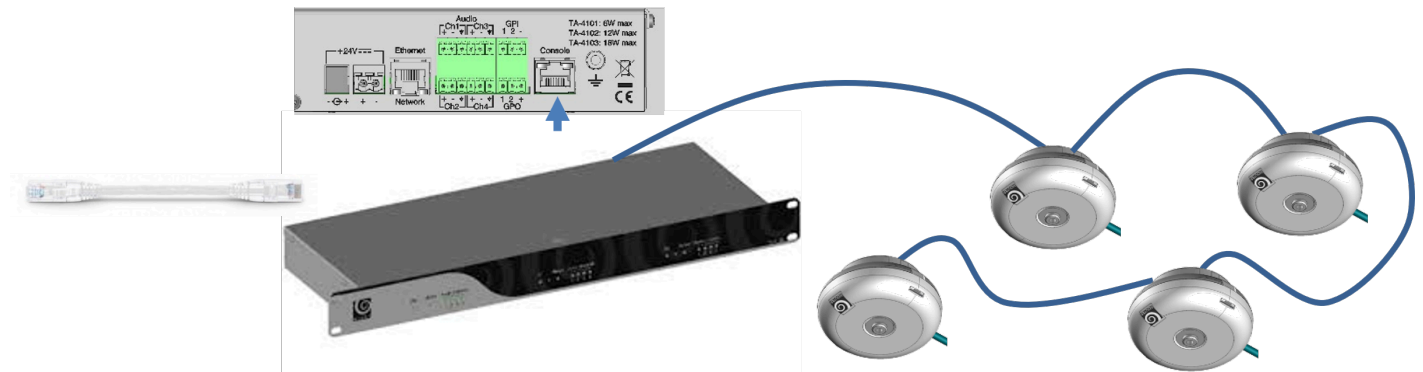
Example of an RS-485 bus connection for several sensors in a central PA system.

E. Operating principle

To communicate with the EOS-4000 PA system, sensors must be connected to the "Console" jack on a TA-410x (see Fig. 2).

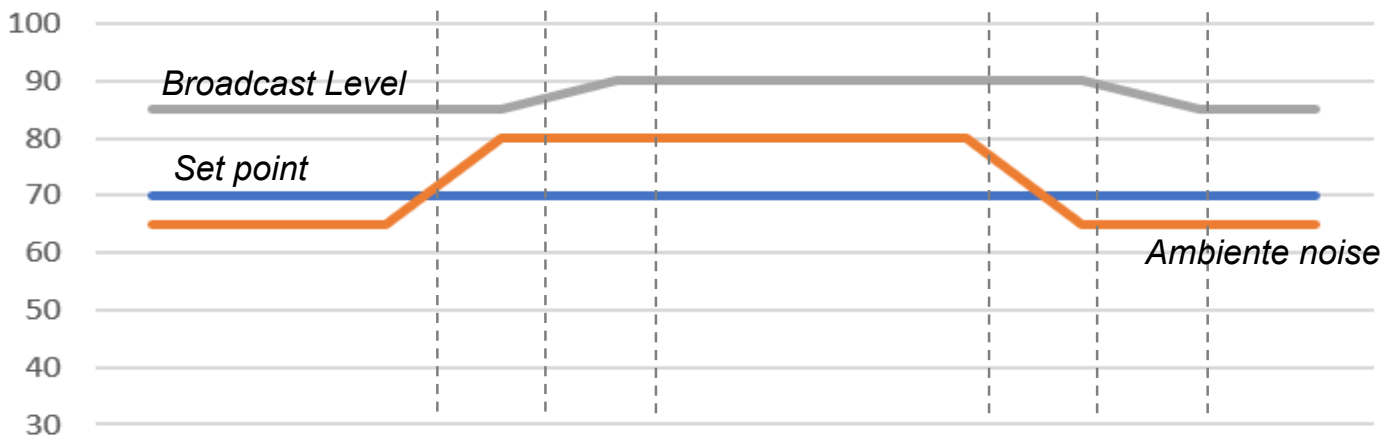
The TA-410x is subsequently connected to the IP network of the PA system and exchanges sound level information in the different areas, so that the broadcast levels can be adjusted as required.

Figure 2. IP link to the PA system



The sensors' operating principle is based on three parameters:

- The baseline (in blue in the chart below) represents the limit from which the sound level will be increased.
- The ambient sound level measured by the sensor is shown in orange. When the ambient sound level exceeds the baseline, the PA system is ordered to increase the broadcast level.
- The PA system's broadcast level is shown in grey. The level rises after a slight lag compared to the ambient noise to confirm the increase. The value of the sound level increase is another configurable parameter. In our example, the value is set to 5 dB.



When sensors are connected to the PA Manager E, the PA system uses the last level setpoint provided.

These parameters can be configured using the specific menu in the web HMI of the TA-410x and CS-4000.

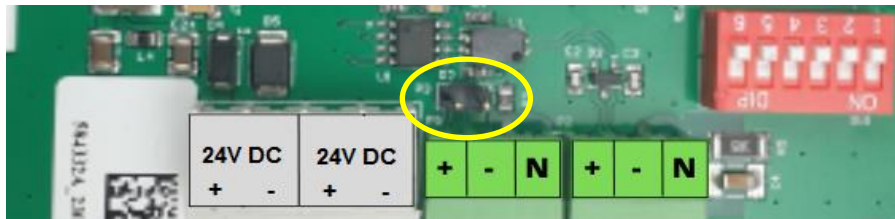
F. Configuration

Address: define the address of the GZ-CAPT2 module according to the site's configuration. Note that 31 addresses are available for configuring the module.



Warning: address 0 is forbidden. All addresses must be unique.


EOL RS485: in case of an RS-485 bus, an end-of-line device must be connected to the last GZ-CAPT2 in the bus. This end-of-line device is connected by placing a jumper on the EOL RS485 connector (see image below).



G. Technical specifications

Sensor	
Type:	Digital, Class 2 in the frequency bands measured
Measurement range:	40 – 130 dB SPL
Power supply	
Via central unit:	24 VDC
Power consumption:	0.5 W
Other characteristics	
RS-485 connector:	Three-contact terminal
Power connector:	Two-contact terminal
Dimensions:	Ø 110 mm x H 50 mm
Weight:	0.14 kg
Installation:	Wall / ceiling with screws (not supplied)
Colour:	White
Climatic specifications	
Operating temperature	10 – 40°C
Permissible operating humidity	90% max
Storage temperature	-10 – 70°C
Permissible storage humidity	90%

H. Information and marking

Address	European certification	Item code
BOUYER 1270, avenue de Toulouse, 82000 Montauban France Contacts Telephone: +33 (0)5 63 21 30 00 Fax: +33 (0)5 63 03 08 26 Email address: bouyexport@bouyer.com		GZ-CAPT2

I. Maintenance

Maintenance must be performed on the sensor according to applicable standards in the country of installation.

Maintenance intervals are defined in agreement with the installation firm.

Maintenance must be performed by qualified personnel.

Maintenance procedure:

- Check the power LED.
- Check the operation of the "state" LED.
- If the sensor needs to be recalibrated, it must be returned to BOUYER's after-sales service.

J. Preventive measures



Please read all the following instructions carefully

1. Observe all warning messages. Do not remove the safety labels and other information from the device.
2. Only use the device for the specified applications and in an appropriate manner.
3. The device is not recommended for use above an altitude of 2,000 metres.
4. Do not obstruct the air vents with any objects.
5. Maintain a minimum distance around the device to allow for sufficient aeration.
6. Do not expose the device to rain or humidity (unless the device is designed for outdoor use, in which case comply with the corresponding instructions).
7. If the device stops working correctly or if water or other objects have entered the device, switch it off immediately and disconnect it. This device must only be repaired by qualified personnel.

Devices connected to the mains power supply

8. Power off the device before touching any of the conductive parts inside.
9. Do not switch the device on and off repeatedly, since this could shorten the lifespan of its internal components.

10. Only replace the fuse with a fuse of the same type and rating.

11. Caution: a mains plug has three pins, including an earth pin. The earth pin ensures safety. Check that the earth pin can enter the mains socket, otherwise contact an electrician to replace the obsolete socket.

Warning symbols



Safety earth terminal



Earth terminal



Direct current or direct voltage



Alternating current or alternating voltage



Dangerous voltage to the touch, risk of electric shock and electrocution



Read the accompanying document carefully



Caution: hot surfaces, do not touch during operation, risk of burns



Devices classed as excessive thermal energy sources (TS2 and TS3)

Caution: hot surfaces, do not touch during operation, risk of burns



Audio devices, such as loudspeakers

High sound pressure, risk of hearing damage, do not listen to high volume levels for prolonged periods (above 90 dB)



Product disposal

At the end of the product's life, if it is installed in France (including overseas France), please contact ECOSYSTEM. BOUYER is a member of this eco-organisation for recycling its products in accordance with the WEEE Directive.

Otherwise, please comply with applicable regulations in the country where the product is installed.

