PERGAMON
PERCEPTIVE TECHNOLOGIES

CP-MGMS-S200 OPERATION AND MAINTENANCE MANUAL

Multi GAS MONITORING SYSTEM'S CONTROL PANEL

IMPORTANT: keep these user instructions for reference .

warning!

⚠ Please read this manual carefully before using the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed .

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1.Safety regulations:

1.1. Liability informations:

PERGAMON accepts no liability in cases where the product has been used inappropriately or not as intended. The selection and use of the product are the exclusive responsibility of the individual operator.
Product liability claims, warranties as well as guarantees made by PERGAMON concerning this product are voided, if it is not used, serviced or maintained in accordance with the instructions in this manual.

1.2. List of warnings:

Attention: The following warnings must be observed Carefully . Only in this way can the safety and health of the individual operators, and the correct functioning of the Product, be guaranteed.

warnings

1- Each person using this equipment must read and understand the information in this user manual before use . the use of this equipment by untrained or unqualified persons or use that is not in accordance with this user manual, may affect product performance.

2- DO not operate the MGMS system or its components outside of their rated operating specifications.

3- The MGMS is to be connected to a dedicated power source with voltage fluctuations not exceeding ±10% of the nominal supply voltage.

4- The MGMS is manufactured for indoor use only.

5- The MGMS must be operated in an environment where the temperature Range: is 40º to 105º F (5 to 40 º C).

6- The MGMS must be operated in an environment where Humidity does not exceed 80% up to 88º F (31º C).

7- Electrical Supply to the MGMS must be at 120V AC, 50/60Hz, 5A or 24 VAC.

8- All cabling must be appropriately rated and approved in accordance with local, national and company regulations, and suitable for installation.

9- the cable shields must be continuous and not grounded at any point along the communication run. the shields should be taped so there is no possibility of shorting to ground in the sensor housings, the communication cable shields should be taped back at the controller. Do not cut them off since it may be necessary to ground them to each ground if communication problems are experienced.

10- Access doors and entry points must be kept closed when the system is energized in normal operation.

11- The handle lock of the MGMS control panel must be securely closed during normal operation.

12- All equipment in this manual is rated to 2000 m altitude max.

13- MGMS may contain hazardous live terminals . Appropriate precautions should be taken during operation, installation,maintenance and servicing. Operators must have appropriate training and experience to be aware of the hazards to which they may be exposed , and of measures to minimize risk to themselves or other people.

14- MGMS input and output modules have no user serviceable parts.In case of a failure, the item must be replaced using only manufacturer supplied parts.

15- The guarantee provided by Pergamon may be impaired or lost if the equipment is installed or used in an incorrect, unspecified or unauthorized way.

16- The life span of the CO and the NO2 sensors can be shortened if they are operated in conditions that are different than the recommended (Temperature Range Continuous: -30oC to +50oC, Pressure Range 800 to 1200 mbar,Operating Humidity Range 15% to 90% RH).

17- the extended exposure of a sensor to certain concentrations of gas or Air can introduce stress to the element that may seriously effect its performance, and therefore recalibration or sensor replacement, or both may be required after an alarm due to an indication of a high concentration.

18- Be aware that the gas reading may be higher than the actual concentration at any sensor location , or it may be the actual concentration at one specific sensor.

19- Exposure to some chemicals may degrade the sealing properties of materials used in the alarm relay.

20- Do not open MGMS enclosures or disconnect/reconnect the equipment until power has been isolated and the area is safe / non hazardous.

21- Do not use sharp objects to operate the Touchscreen as this could irreparably damage the User Interface .

22- Use only soft damp cloths or screen wipes to clean the display screen . Do not use solvents or abrasives as they will cause irreparable damage.

23- Do not place any objects on the top of the enclosures as this may cause overheating and may cause the enclosure to fall from the wall.

24- Open the control panel's handle lock only using the provided key , Make sure to keep the key in a secure place under the responsibility of qualified personnel .

25- Once commissioned ,MGMS is intended for continuous operation.

26- Use only for monitoring the gases which the sensors and equipment are designed to detect. Failure to do so may result in exposures to gases not detectable and result in serious injury or death. For proper use, see supervisor or User manual, or Contact Technical Support at +1 (833) 888-1560.Failure to follow instructions outlined in this user manual can result in sickness or death

2. Use Instructions and Limitations

2.1.General Description

The CP-MGMS-S200 is a Multi-Gas Monitoring System designed to ensure occupant safety in enclosed areas, maintain indoor air quality at satisfactory levels and reduce energy costs through a demand-controlled ventilation system, using remote hardwired sensors to communicate with a central control module, remote relay and /or analog modules .

The CP-MGMS-S200 controller can monitor up to 256 sensors, including assorted sensor technologies such as electrochemical, infrared, pellistor and PID, or any combination thereof. The system contains three main modules: the “CM-100” control module,All in one touch screen PC , and “SNode” node module. For each module, competitive features offer an unmatched combination of accuracy, reliability, robustness and ease of use.

2.2. Features

- Supports up to 256 electrochemical, PID, NDIR and pellistor sensors
- Interchangeable smart calibrated sensing modules
- Plug-and-play smart sensors
- Auto-addressable and self-configurable sensors
- Modbus or BACnet communication protocol
- Intuitive web-based graphic user interface
- Visual and audible alarm with mute button
- Fully programmable alarm levels
- Fan override timers
- Sequential, time-based ventilation controls
- maintenance modes
- Unlimited datalogger
- Low power consumption

2.3.Specifications

- Aeration louvers on both sides.
- 17 in Screen.
- Alarm (Buzzer).
- Silencer push button.
- Handle lock .
- CM-100 controller module .
- Processing data computer .
- 3 Branches RS-485 .
- Strob horn terminal blocks .
- Dry contact terminal blocks output.
- Analog terminal blocks output.

- 120 VAC terminal blocks input.
- Size: 24’ x 20’ x 8’ (610mm x 508mmx 203mm).
- Weight:63.5lb (29kg).
- Enclosure:NEMA 1.
- Operating Temperature: 40º to 105º F (5 to 40 º C).
- Operating Humidity: 80% up to 88º F (31º C).

2.4.Modules

2.4.1.Controller Module (CM-100):

Dimensions	8.5 in. x 5.5 in. x 3 in. (216 mm x 140 mm x 76 mm)
Weight	0.44 lb. (200 g)
Power Supply	120 –240 VAC and +24 V DC/AC
Power Consumption	280 mA max.
Communication	• 3 x RS485, Modbus RTU, Modbus TCP, BACnet MS/TP, BACnet IP • 2 x Ethernet, HDMI, 2 x USB3 • LoRa gateway
Data Loggers	15GB storage

2.4.2.Gas Transmitter Sensor (SNODE):

Dimensions	6 in. x 5 in. x 2 in. (152 mm x 127 mm x 51 mm)
Weight	0.44 lb. (200 g)
Power Supply	+24 V DC
Power Consumption	18 mA max.
Sensors	• Plug & play dual sensors • Temperature & humidity sensors built in
Supported Technology	Electrochemical, PID, NDIR & pellistor
Communication	Shielded RS485 or LoRa wireless
Indication	power and status LEDs

2.4.3.Optional modules:

Relay Module (RM-8 Module)

Dimensions	8.5 in. x 5.5 in. x 3 in. (216 mm x 140 mm x 76 mm)
Weight	0.44 lb. (200 g)
Power Supply	+24 V DC/AC
Power Consumption	190 mA max.
Outputs	8 dry contact relays, 8 A @ 240 V each
Communication	Shielded RS485 or LoRa wireless
Indication	power and status LEDs and 8 Relays LEDs

Analog Module (AM-8 Module)

Dimensions	8.5 in. x 5.5 in. x 3 in. (216 mm x 140 mm x 76 mm)
Weight	0.44 lb. (200 g)
Power Supply	+24 V DC/AC
Power Consumption	340 mA max.
Outputs	8 current and voltage universal outputs Voltage: 0–2 V, 0–5 V, 0–10 V Current: 0–20 mA, 4–20 mA
Communication	Shielded RS485 or LoRa wireless
Indication	power and status LEDs and 8 Analog LEDs

3.Installation Instructions

3.1 Location & Mounting

The CP-MGMS-S200 should be installed with a 5 to 6 ft off the floor altitude in a centralized location that is accessible and protected from environmental elements . A Mechanical room, Alarm Control Room, or other similar areas are recommended.

Mounting holes are provided in the CP-MGMG-S200 control panel at the four corners. The panel should be mounted with space around it to allow access to conduit entry holes at the bottom or the top of the panel.

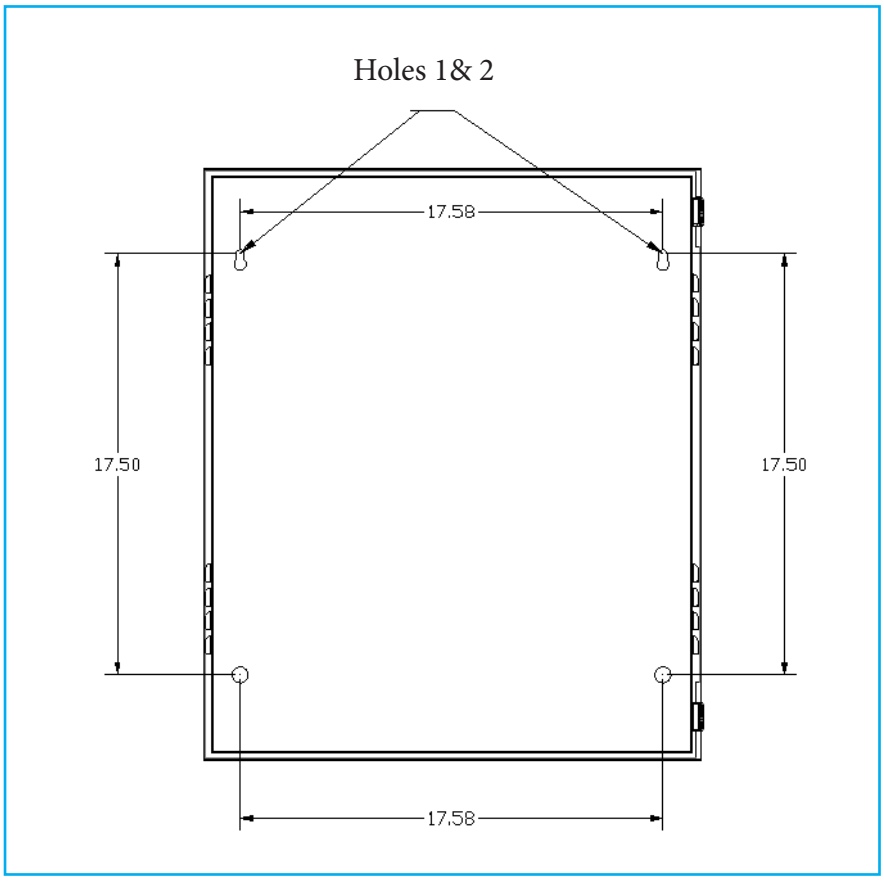
3.2 Installation

Important: This equipment works on monitoring the presence and concentration level of certain specified airborne gases. misuse may result in an inaccurate reading . meaning that higher levels of monitored gas may be present but not detected which results in over exposure . for proper use , see supervisor or User manual, or call Pergamon's Technical support at +1 (833) 888-1560

3.2.1 Panel Installation:

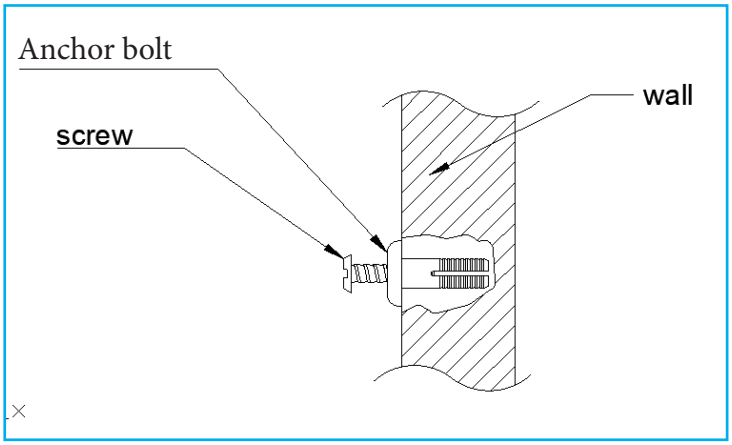
step1:

Using an electric Drill , make 4 mounting holes in the wall where the panel is to be placed according to the template below:



step 2:

After Drilling the 4 mounting holes install 1 anchor bolt in each hole , then insert round head or hex-agonal head screws “screw size 1/4”, “ head size(7/16)” ; one into each anchor . Do not push the screws all the way in , make sure half of it is still sticking OUT. (see picture bellow) :

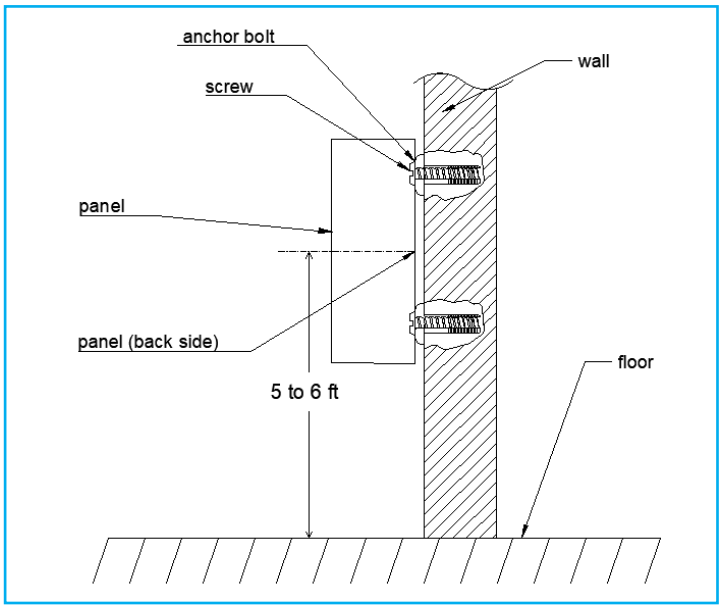


step 3:

Pick up the panel and place holes 1 & 2 in the half screw that is sticking out of the wall, make sure the two top screws pass through the narrow sides of the two top wholes .

step 4:

Open the door of the panel so you will be able to see the heads of the mounting screws sticking out of the back of the panel , Using a screw driver or an electric drill screw the 4 screws all the way in to secure the panel on the wall.



step 5: important:

Make sure the main power supply is OFF (disconnected) . in the panel: pull up the 2 fuse holders , F1 and F2 .

step 6:

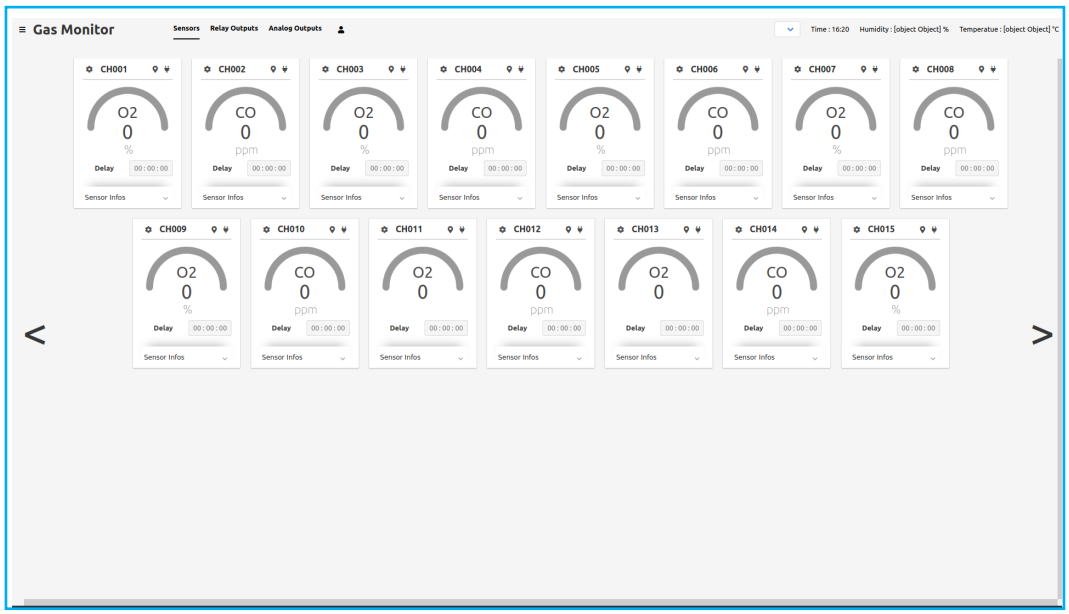
Connect the wires according to the technical drawing provided with the panel .

step 7:
Connect the 120 v power source . then push back the fuse holders F1 and F2.

step 8:
Turn the main power source back ON.

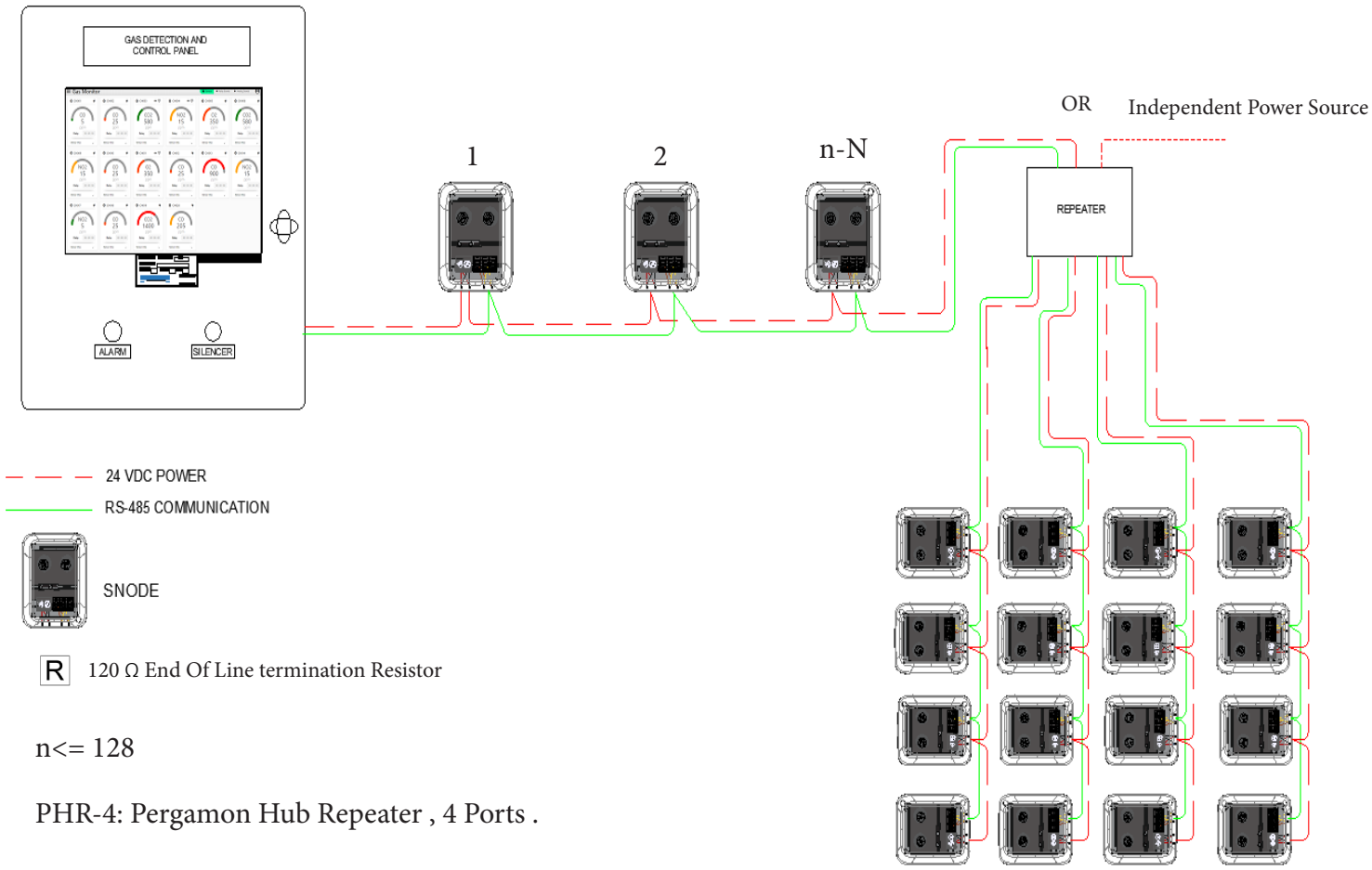
step 9:
Close the door of the panel and wait for a few minutes till the system stabilizes .

step 10:
Check the screen and make sure every thing is connected and working properly , you should be able to see something similar to the picture below:



3.2.2 Cabling & Wiring

up to 128 daisy chained Snodes:



n<= 128

PHR-4: Pergamon Hub Repeater , 4 Ports .

- **Guidelines:**

• RS-485 Com Link: 20 TO 24 AWG one shielded and twisted pair , two different colors.
• 24 VDC Power: Trunk/Bus: 16 TO 18 AWG one twisted pair , two different colors.
• Daisy-Chained Wiring Configuration,
• Wire-splitting of the communication lines possible only with optional remote PHR-4 modules.
• See specific datasheets for detailed wiring diagrams.
• Max. total (3) repeaters PHR-4 allowed on the network.

3.2.3.installation verification:

DO NOT SUPPLY POWER TO CP-MGMS-S200 PANEL DURING INSTALLATION VERIFICATION !

1. Verify that the CP-MGMS-S200 controller is mounted at eye level and has adequate unobstructed clearance around the unit (at least 5 to 6 ft from the ground).

2. Verify that the working ambient temperature of the space is within the operating parameters of the controller 23°F to 104°F (-5°C to 40°C).

3. At the electrical panel, provide a dedicated 120 volt and 10 Amp power circuit for the controller. Do not turn on the power breaker at this time!

4. Verify that communication cable is (20 to 24 AWG, 2-conductor, yellow & orange twisted and shielded pair for RS 485 communication) .

5. Verify that DC power cable is (16 to 18 AWG, 2-conductor , one twisted pair , Red and Black twisted pair for DC power).

6. **Important:** the cable polarity must be maintained from CP-MGMS-S200 controller to each Analog transmitter.

7. **Important:** the cable wiring must be daisy chained : controller to gas transmitter, then gas transmitter to gas transmitter, each gas transmitter should have 4 wires entering and 4 wires leaving. ILLUSTRATION 1)

8. **Important:** the cable shields must be continuous and not grounded at any point along the communication run. the shields should be taped so there is no possibility of shorting to ground in the sensor housings, the communication cable shields should be taped back at the controller.Do not cut them off since it may be necessary to ground them to each ground if communication problems are experienced.

9. **Important:** when installing the gas transmitters verify that the address number labeled on the outside of the housing matches approved layout plans. Typical SNODEs are specifically programmed for each project. Sensor addresses must be in sequential order per provided riser diagram to simplify communication troubleshooting and ensure proper zone control.

10. **Important:** confirm that a 120 Ω resistor was manually installed across the RS 845 communication terminals “F_BUS_A” and “F_BUS_B” for the last device on each trunk segment .(illustration2)

11. Make sure that the physical length for each trunk in the system does not exceed 3900 ft .

12. **Important:** All transmitter terminal blocks, with communication and power, must be unplugged from the printed circuit boards during this procedure. At the CP-MGMS-S200 Controller measure the resistance (ohms) between the trunk cable RS-485 communication wires A and B for each trunk in the system. Resistance should be around 120 ohms .

13. check all cables and verify no short to ground.

15. Reconnect the terminal blocks to their circuit boards. Remove protective sensor caps only after all construction and painting are completed.

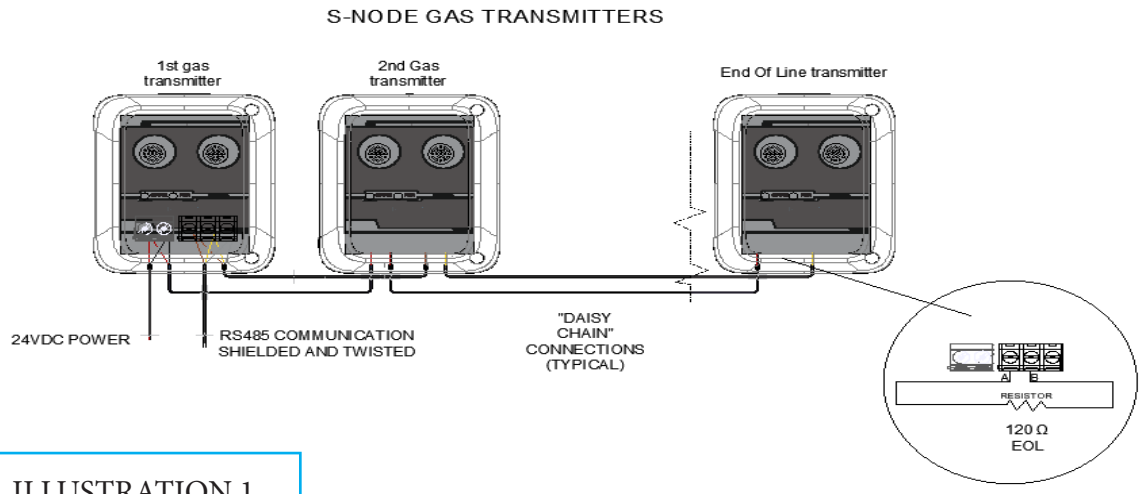


ILLUSTRATION 1

communication wires and all terminal blocks must be disconnected from the printed circuit boards prior to measuring resistance. the measured result should be 120 ohms.

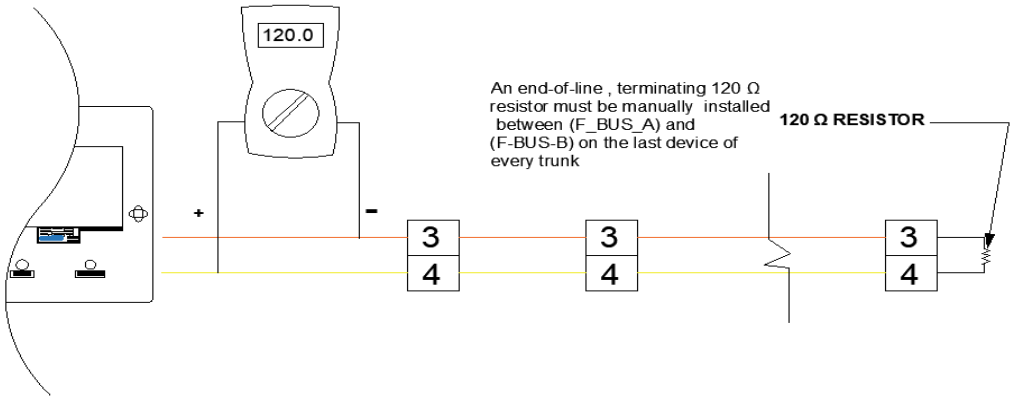
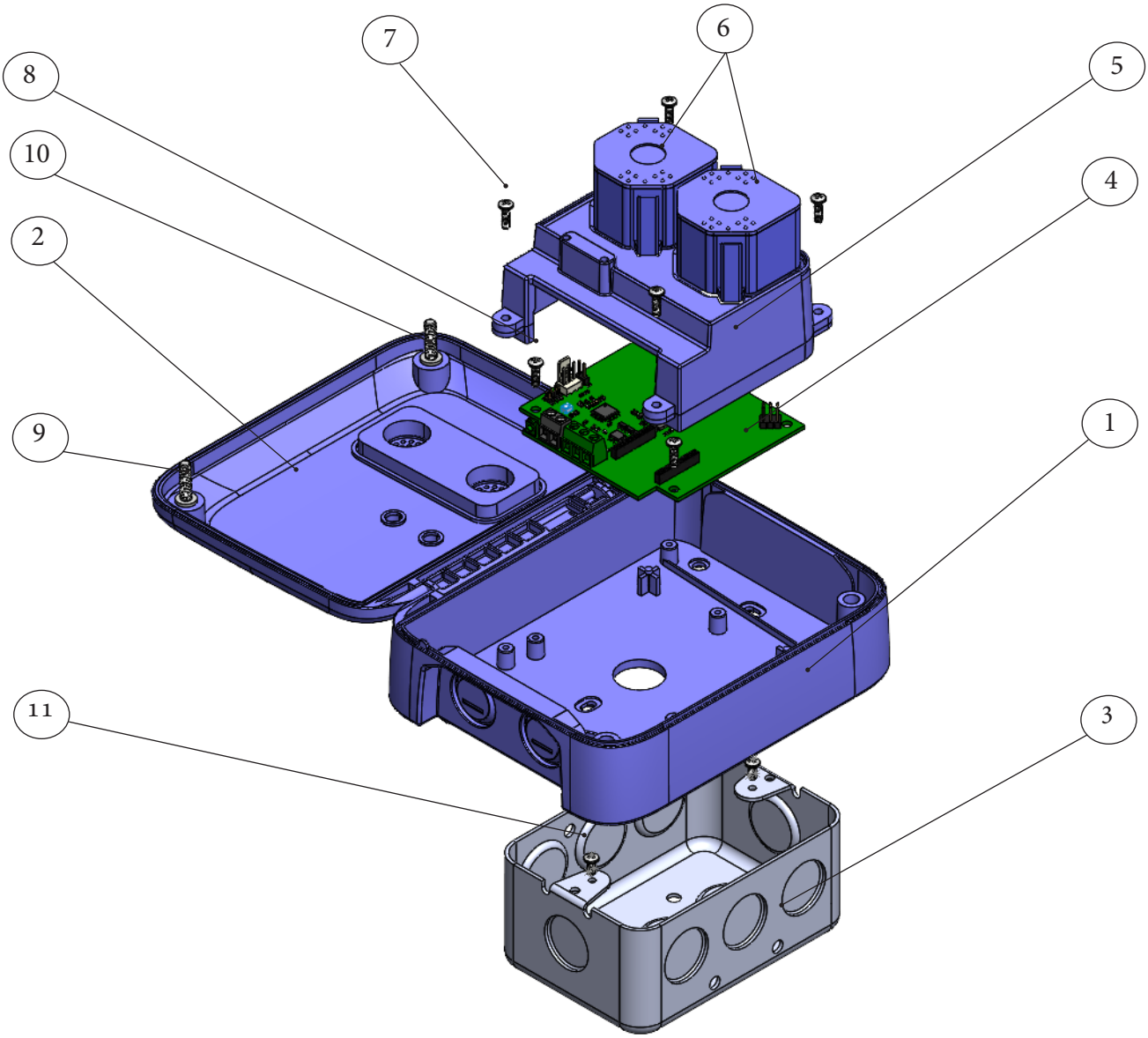


ILLUSTRATION 2

3.3 SNode installation & wiring

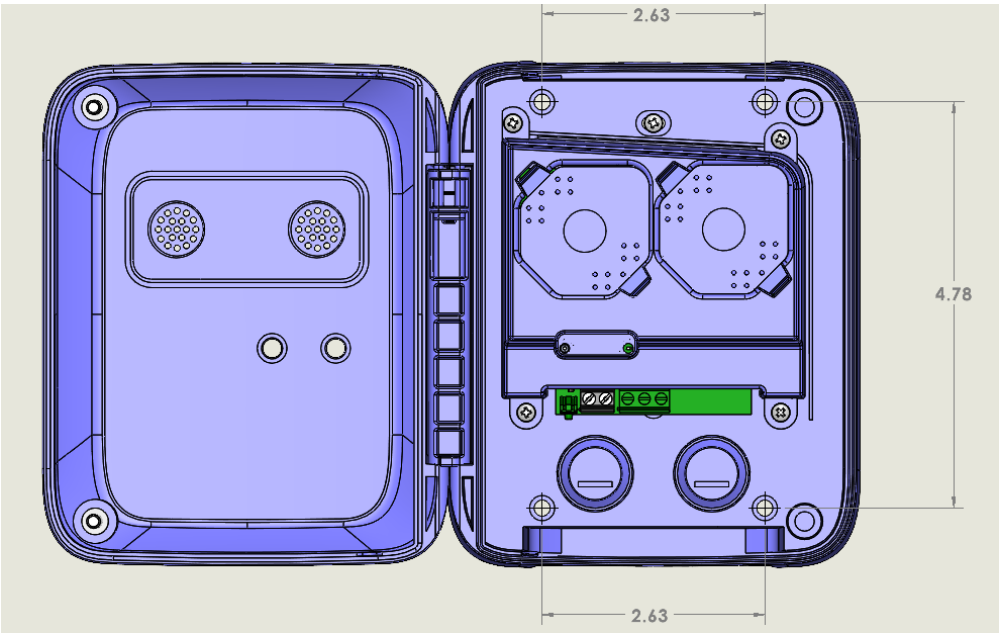


ITEM Num	DESCRIPTION	QUANTITY
1	SENSOR BASE	1
2	DOOR	1
3	JUNCTION BOX	1
4	PCB	1
5	PCB PROTECTION COVER	1
6	SENSOR CARTRIDGES	2
7	PAN HEAD SCREW #4-24	4
8	PAN HEAD SCREW #4-24	3
9	PAN HEAD SCREW # 8-32	2
10	NYLON SELF-RETAINING WASHER	2
11	JUNCTION BOX SCREWS	2

3.3.1 Wall Mount:

Step 1 :

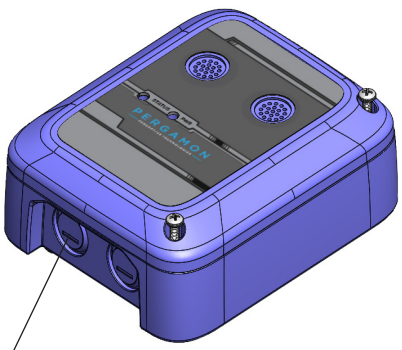
Using a drill (size 3/16 in) make 4 installation holes on the wall , refer to the picture below **for measurements:**



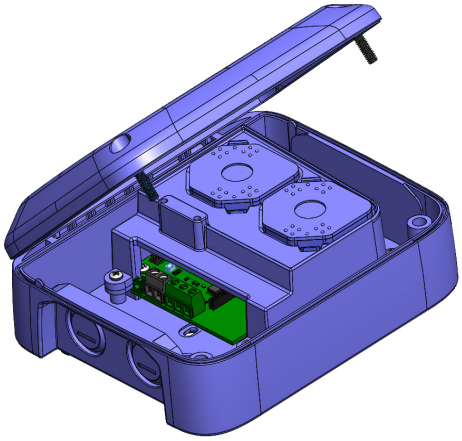
* all measurements are in inch

Step 2 :

Using a screwdriver or an electric drill Unscrew the two 8-32 screws (9) until they detach from the screwdriver (or the electric drill) head. You will then be able to open the Door (2) of the SNODE box.

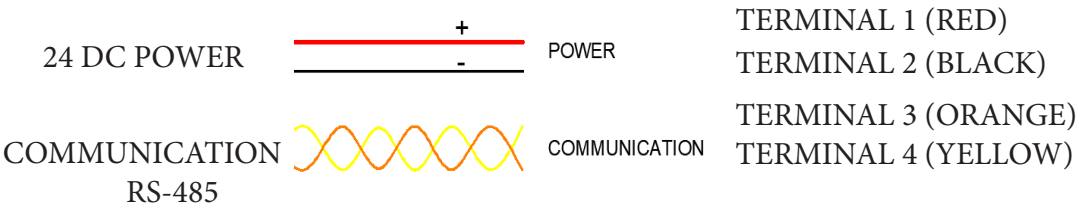


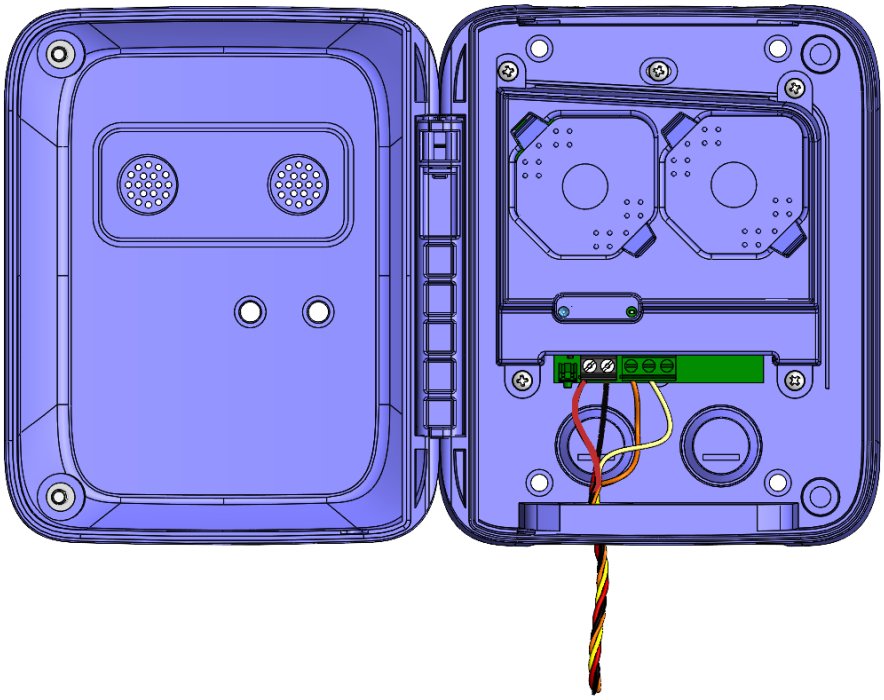
HOLE 4



STEP 3 :

Pull the wires through HOLE 4 and place them into their designated terminals .





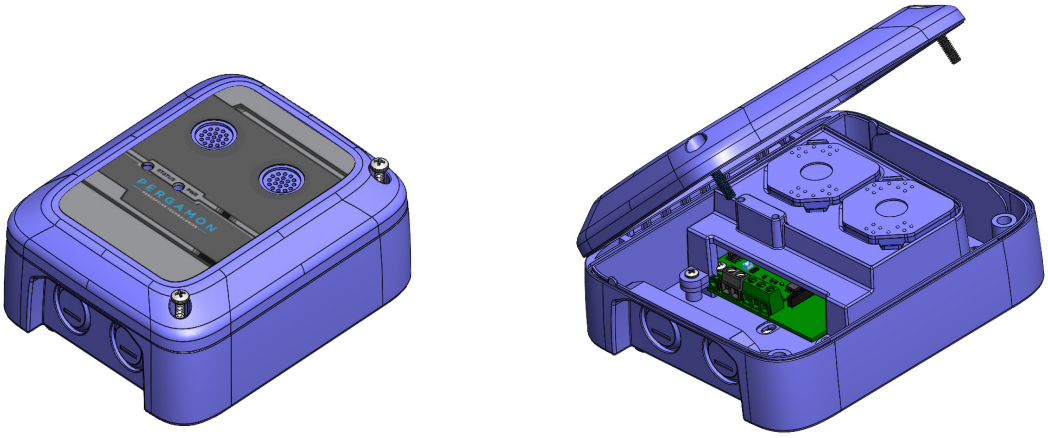
STEP 4 :

Close and secure the door using the two #8-32 screws (item 9).

3.3.2 Junction Box Mount :

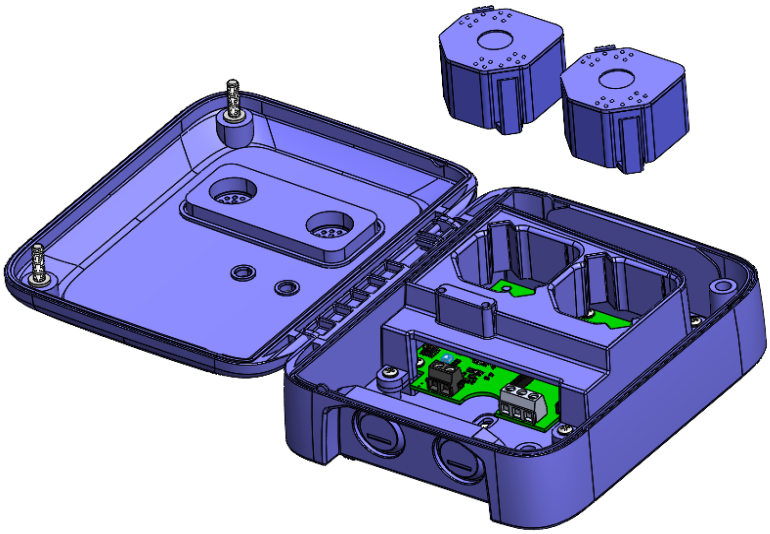
STEP 1:

Using a screwdriver or an electric drill Unscrew the two 8-32 screws (9) until they detach from the screwdriver (or the electric drill) head. You will then be able to open the Door (2) of the SNODE box.



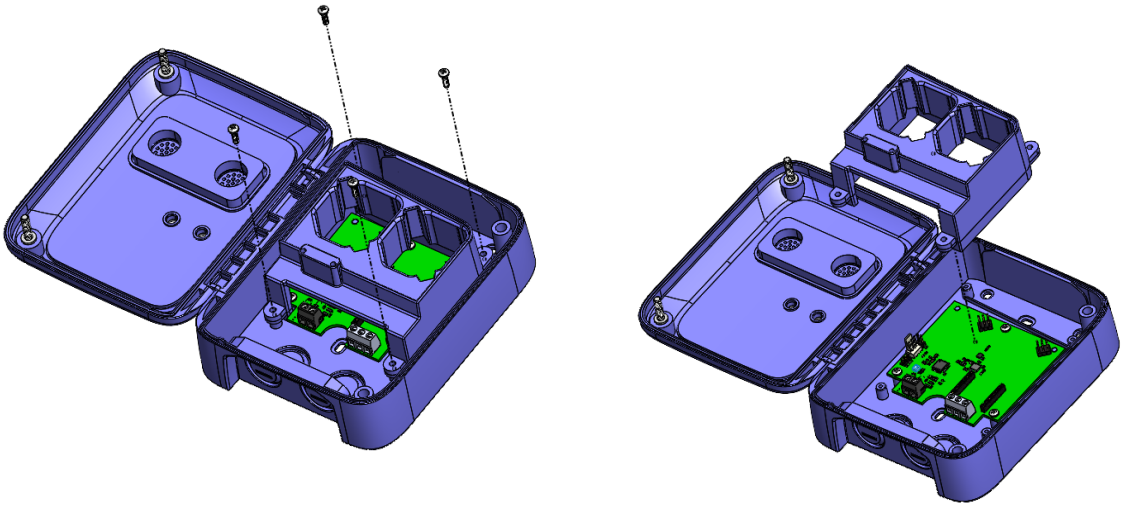
STEP 2:

Remove the sensor cartridges from their base by squeezing the tabs on each side and gently lifting them out.



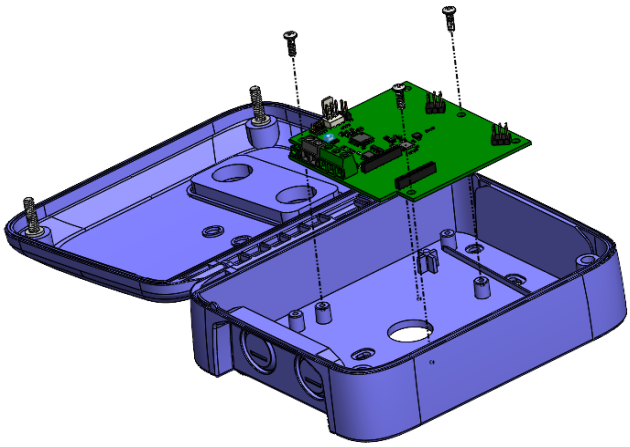
STEP 3 :

Unscrew #4-24 screws (7) then remove the PCB PROTECTION COVER (3)



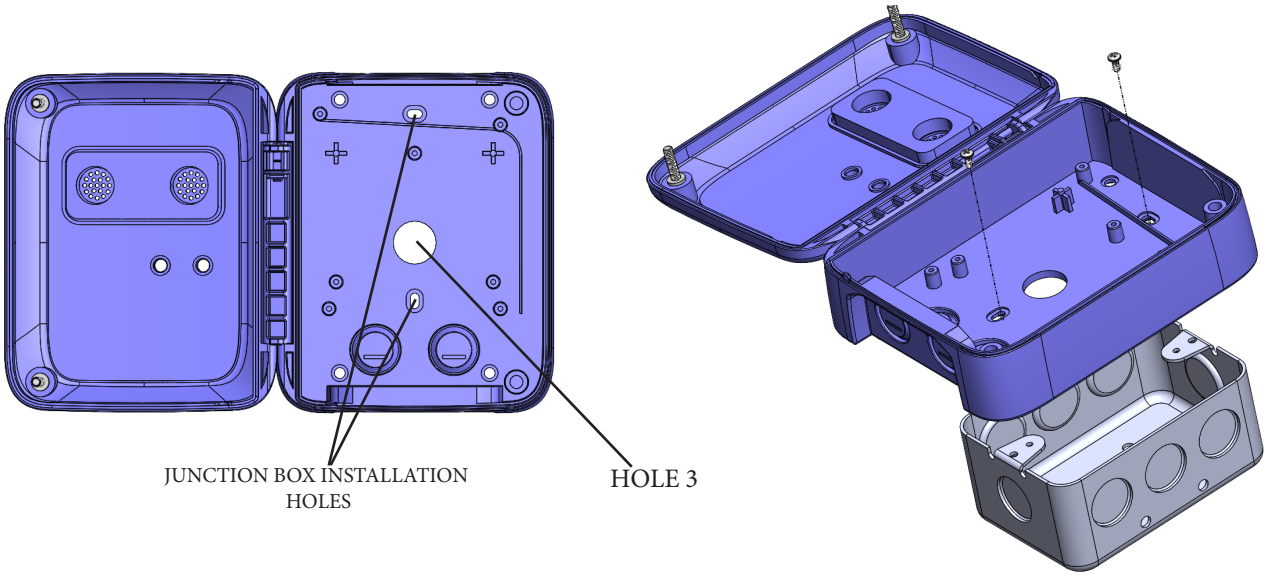
STEP 4 :

Unscrew the #4-24 screws (8) then remove the PRINTED CIRCUIT BOARD (PCB)



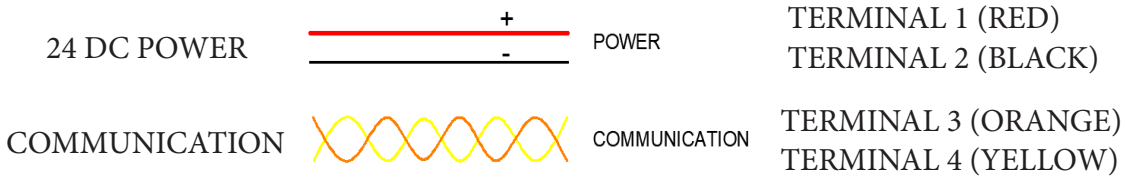
STEP 5 :

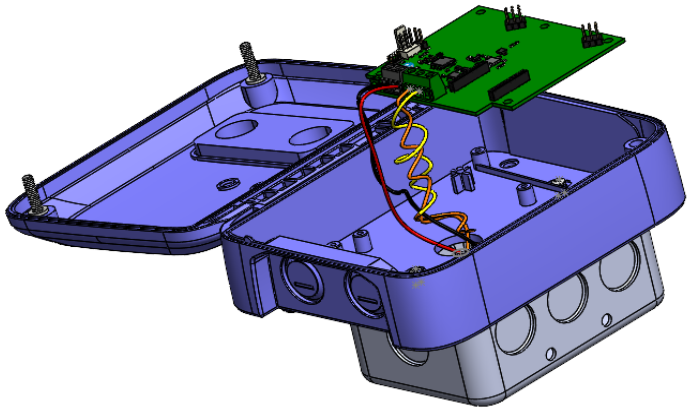
Using screws (11) secure the base of the SNODE box to the junction box using holes 1 and 2



STEP 6 :

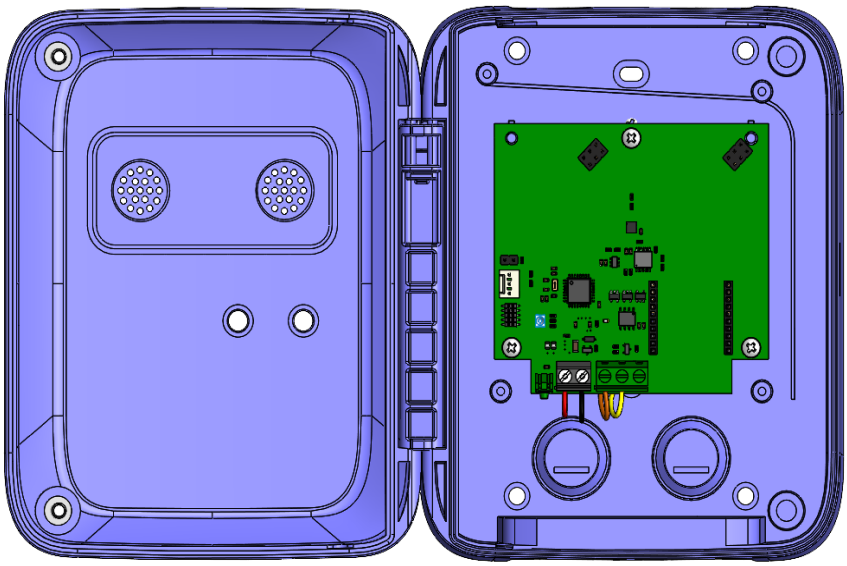
Pull the wires from the junction box through HOLE 3 and place them into their designated terminals .





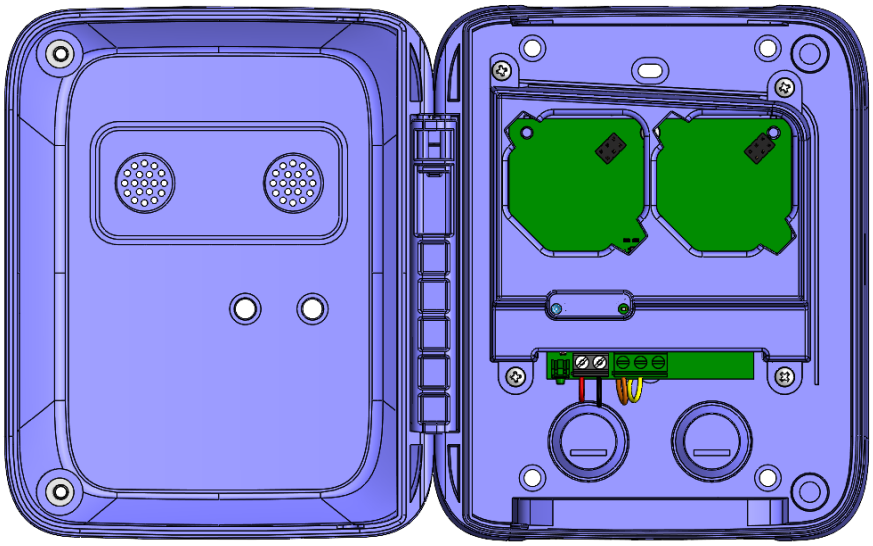
STEP 7 :

Place back the PCB and secure it Using screws #4-24 (item 8) .



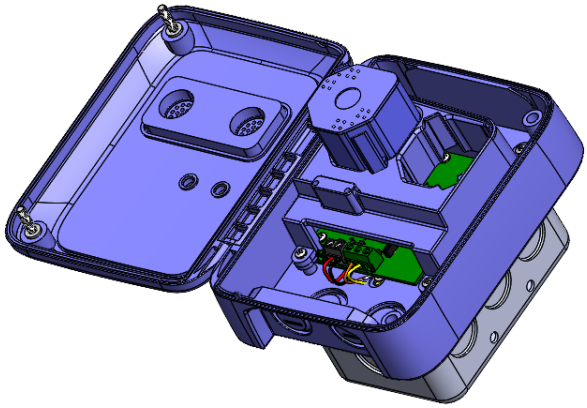
STEP 8 :

Place the PCB protection cover and secure it using screws #4-24 (item7)

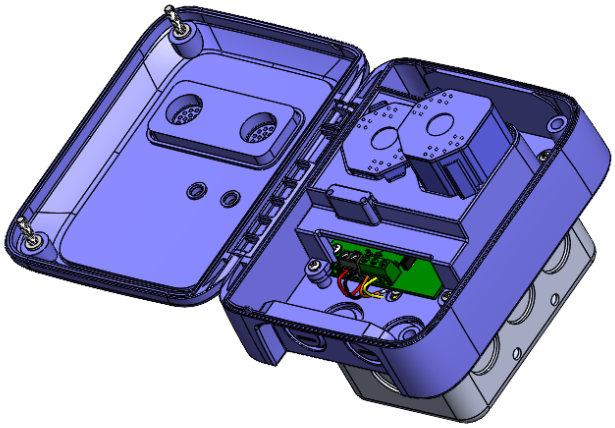


STEP 9 :

Place the sensor cartridges in the following order :
1- CO sensor on the left side .
2- NO2 sensor on the right side.
place each cartridge and push it in until you hear it “click”.



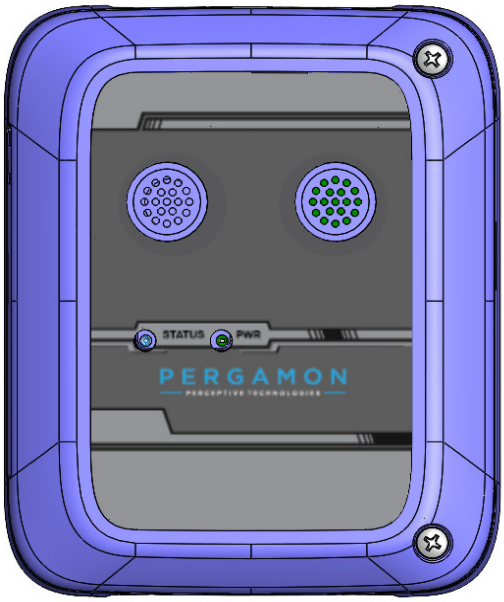
1



2

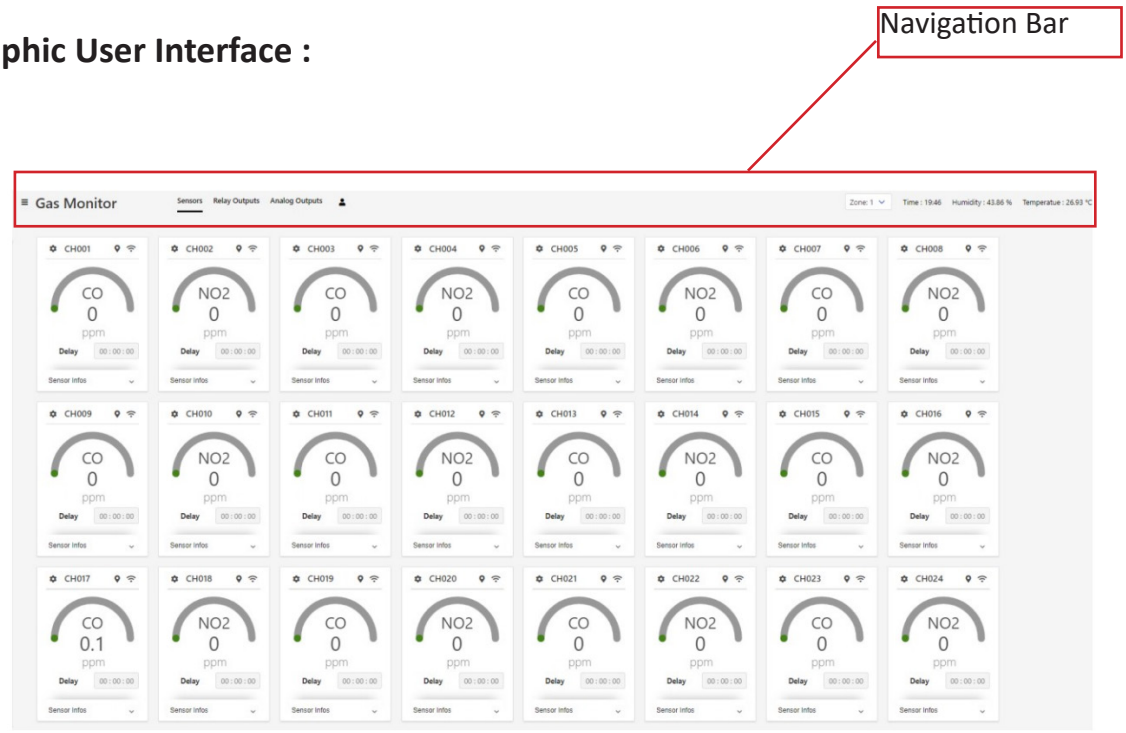
Step 10 :

Close and secure the DOOR .

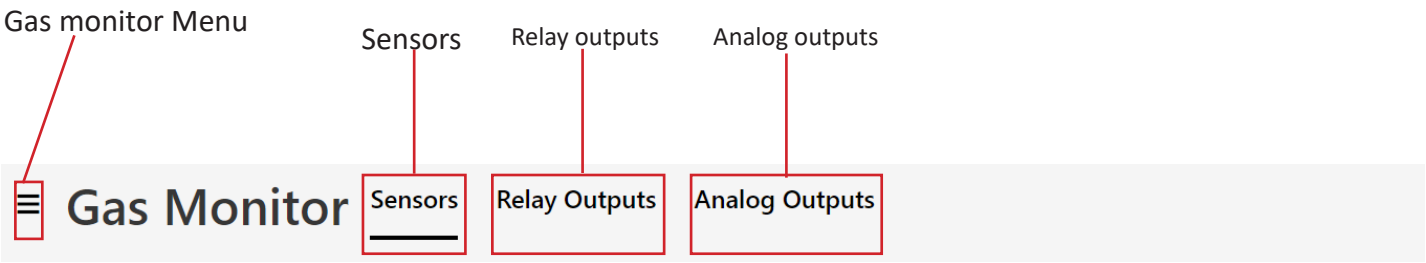


4.Operations:

4.1.Graphic User Interface :



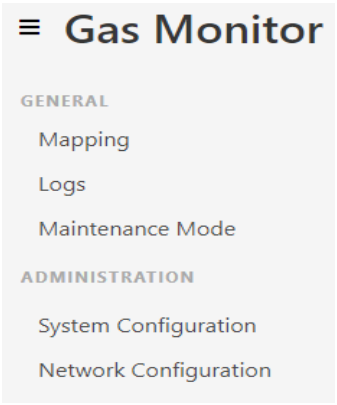
4.1.1.Navigation Bar:



The navigation bar contains all the tabs necessary for operating and maintaining the system's user interface as well as the time, the zone , Humidity and room temperature.

4.1.1.1 Gas monitor menu:

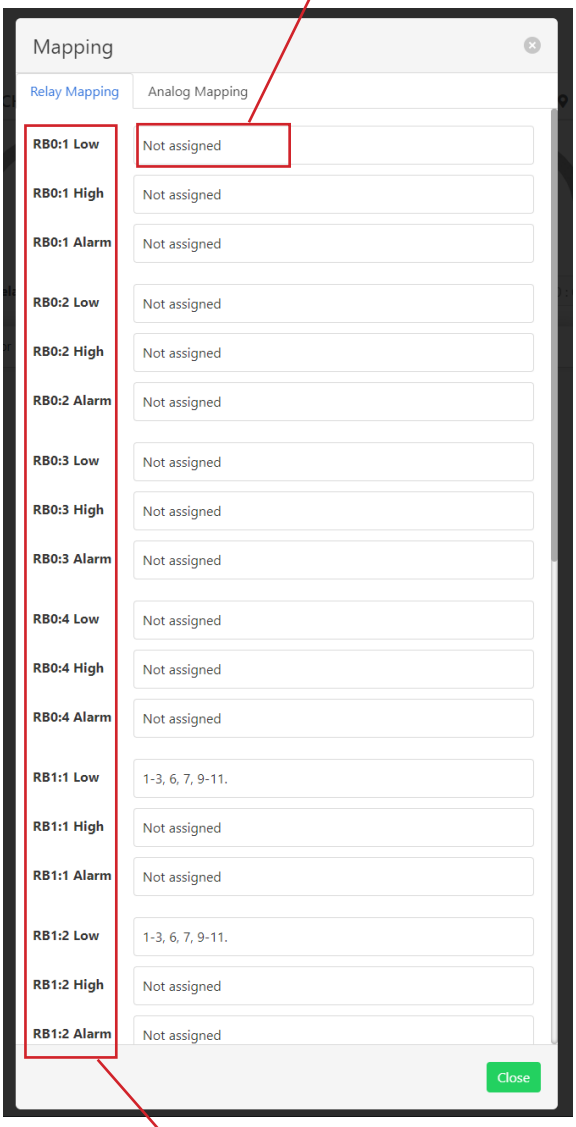
This Tab gives access to the System configuration and Network configuration , it also allows the User to verify the mapping, logs ,system and network configuration.

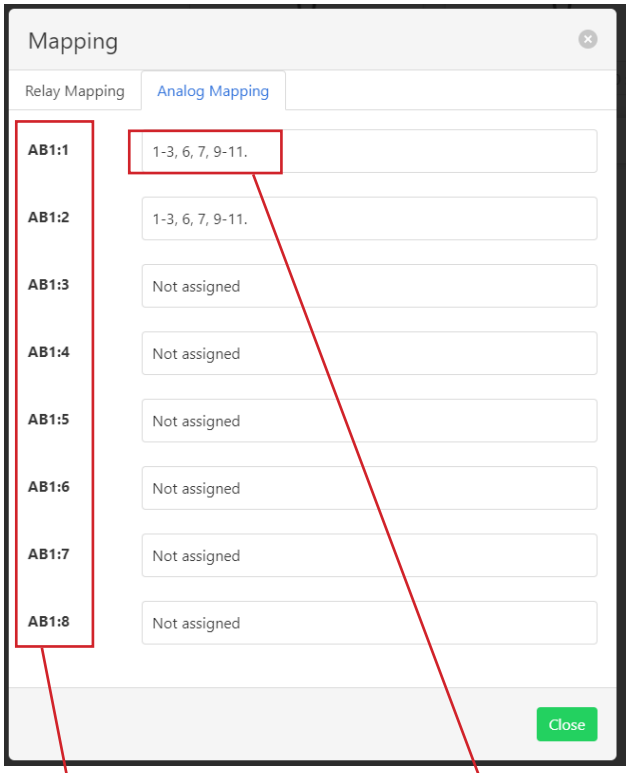


4.1.1.1.a. Mapping:

Upon clicking “mapping” a pop up window will appear (see pic below) with two sections showing the mapping of the Relay and Analog outputs.

The ID of sensors mapped to each relay is shown in this box , if there are no sensors mapped to a relay it shows “ not assigned”





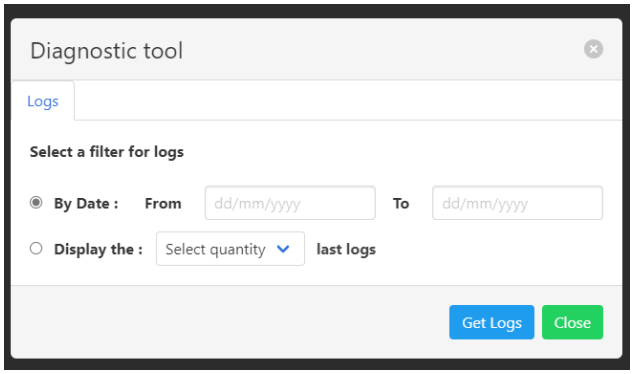
RB0 stands for Relay Bank 0 which is the controller board containing 4 Relay outputs
RB1: Relay Bank 1 refers to the Relay card containing 8 Relay outputs. each Relay is configurable according to the alarm level : Low , High or Alert.

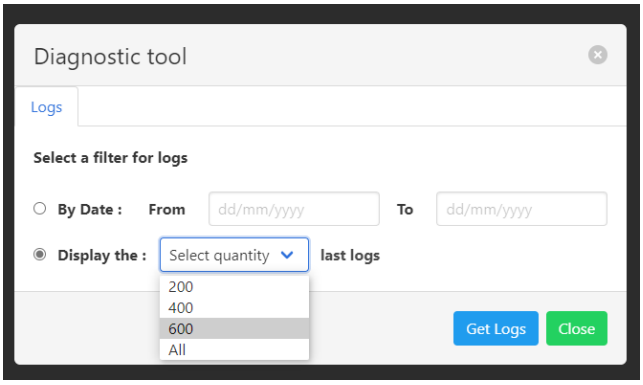
AB1 stands for analog bank .

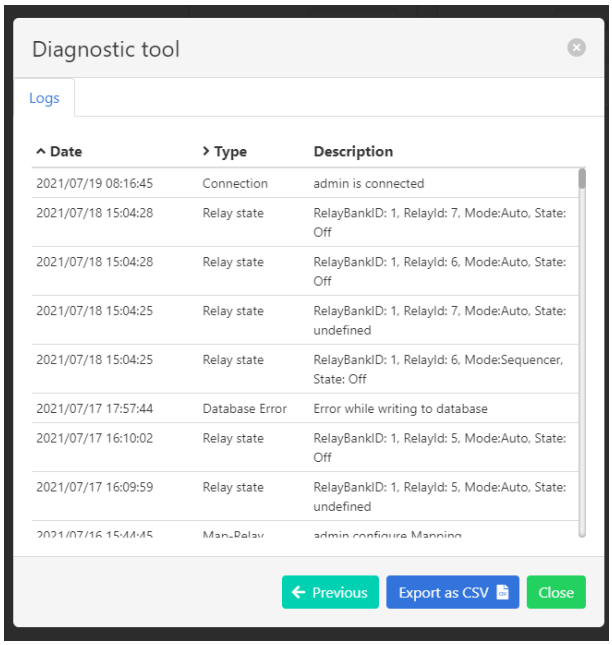
The ID of sensors mapped to each analog bank is shown in this box , if there are no sensors mapped to a relay it shows “ not assigned”

4.1.1.1.b. Logs:

Allows the user to see the system's activity logs, they can be filtered by date or by most Recent.





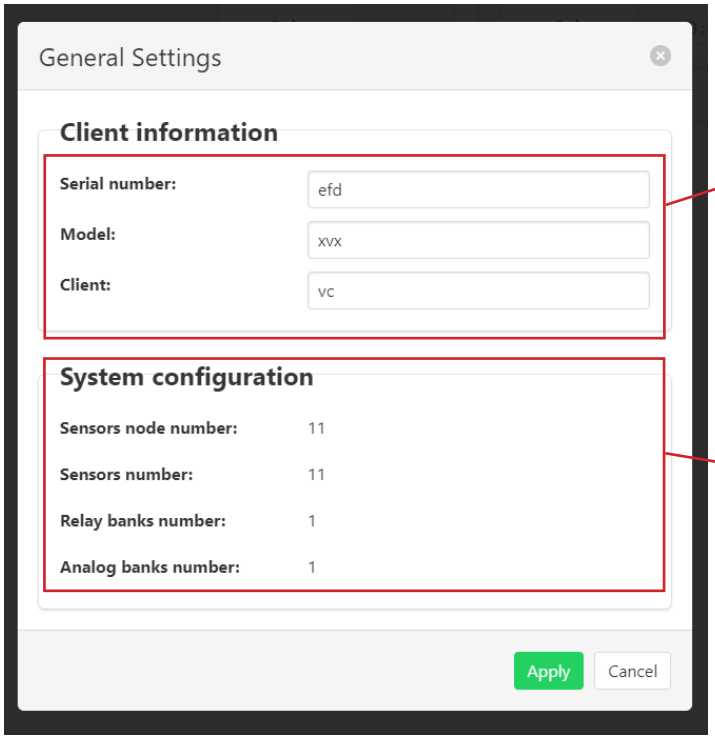


4.1.1.1.c. Maintenance Mode :

Allows the user to set a new configuration system , manage devices addresses , add and re-place devices . **This Feature requires an ADMIN password.** (Refer to Maintenance section for more details).

4.1.1.1.d. System Configuration:

Allows access to the "General Settings" window showing the client informations , Snode and sensor numbers and the number of Relay and analog banks. (see picture below):



Client informations are editable in this window.

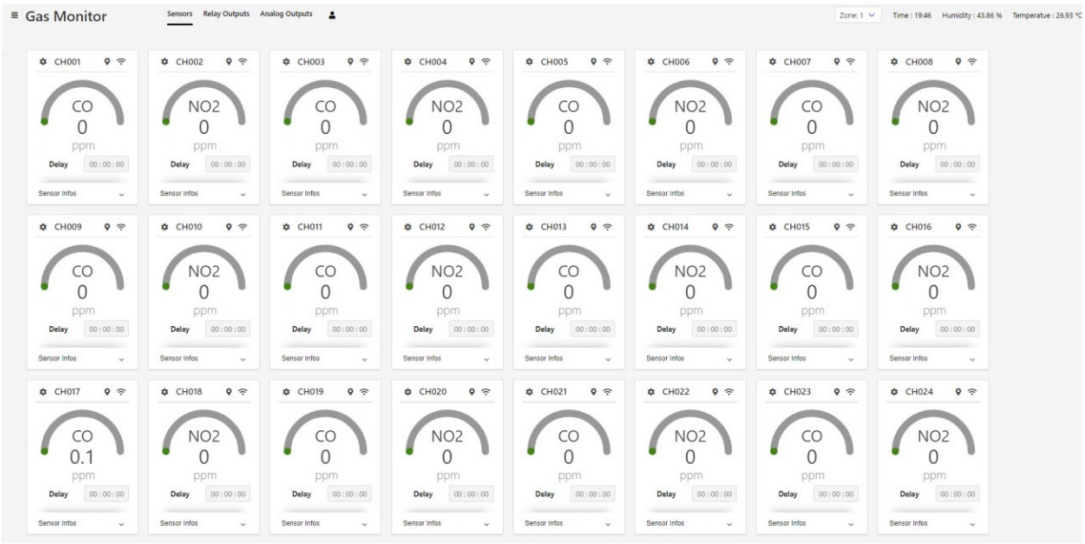
System configuration can be edited in the maintenance mode

4.1.1.1.e. Network Configuration:

Choices between the possible modes (configurations) for the BACnet are given here " UDP / IP" or "MS /TP" , the user will enter the appropriate information depending on the chosen mode (see picture below):

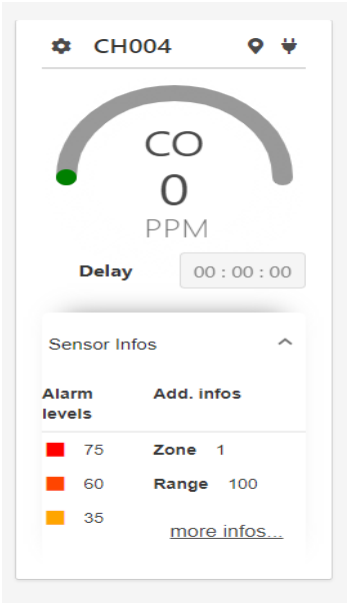
4.1.1.2 Sensor

Once logged in, the user will be redirected to the main page. The state of all the sensors will be displayed there. The order of the sensors can be managed with the drag and drop functionality



4.1.1.2.a Sensor Box

By clicking on the 'Sensor Infos', the alarm levels, the zone, and the range related to the sensor can be displayed. Located in the middle, the dynamic gauge will communicate the value of the sensor.



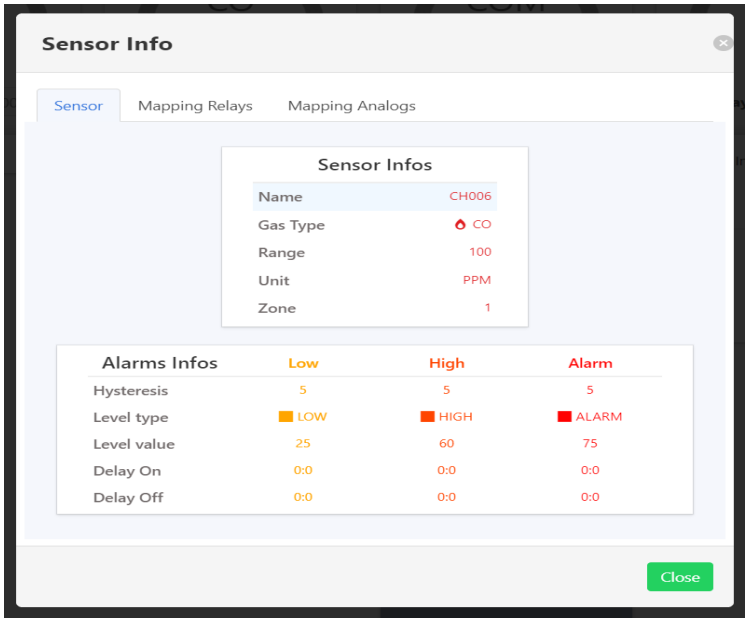
Sensor Settings

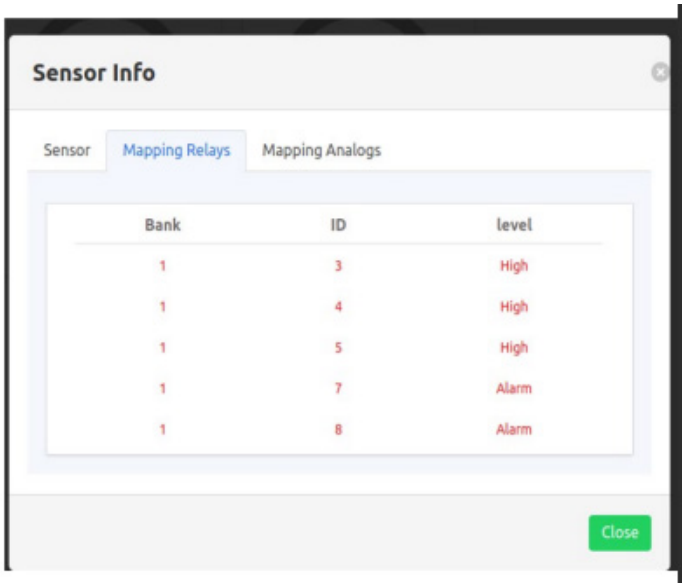
Sensor connection mode wireless & battery

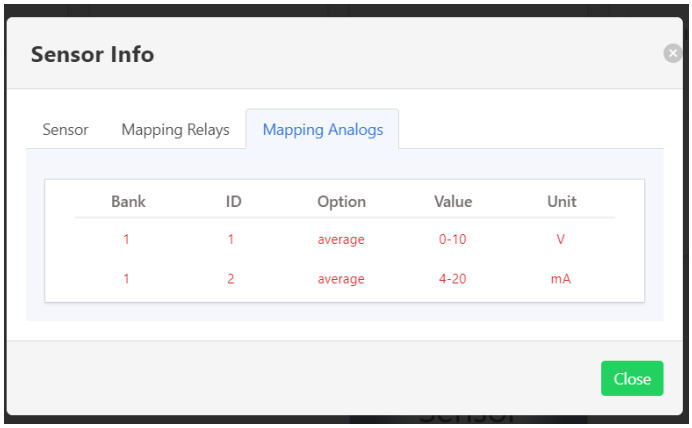
Sensor Connection mode wired

Ping

*To view the sensor information, the Relays and Analog mappings, click on 'More Infos…', (See pictures below):

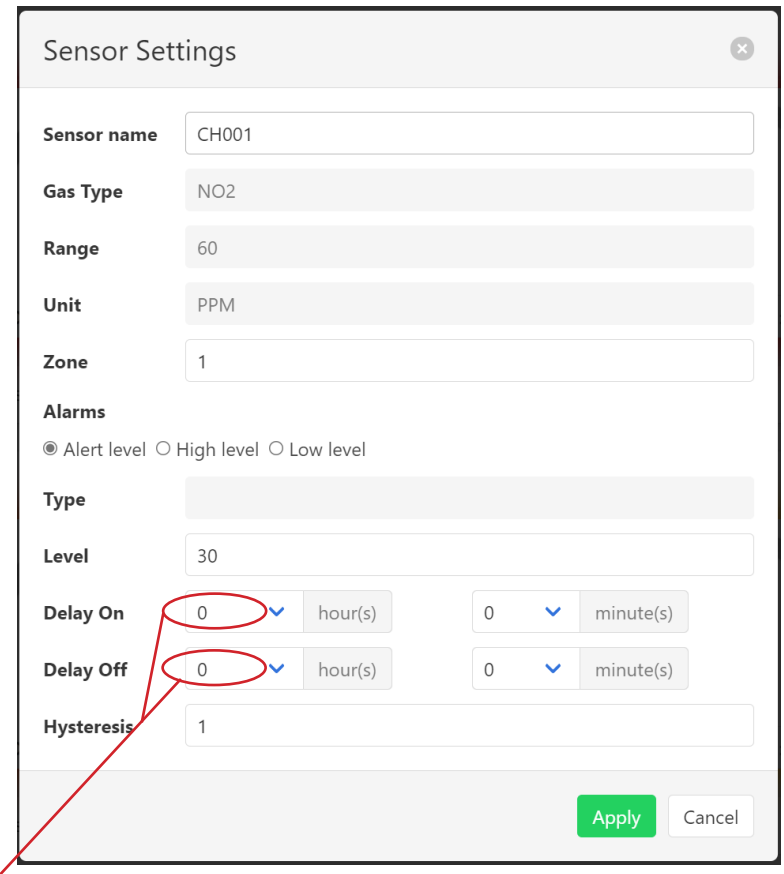


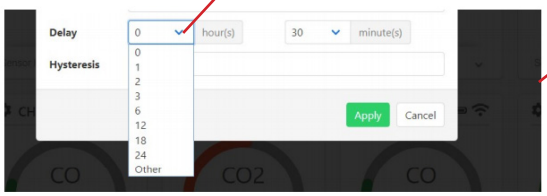




4.1.1.2.b Sensor Settings

The configure button will trigger a pop-up window which contains all the information concerning the sensor. The editable fields for each alarm level are the zone, level, delay and hysteresis. see picture below:

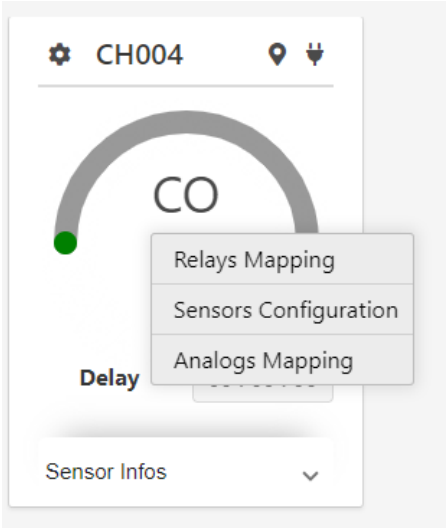




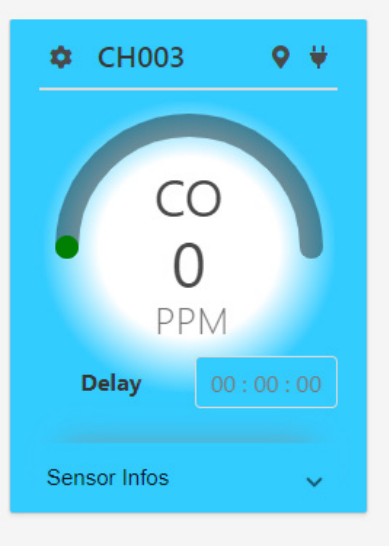
- By default, the user will be given the choice between multiple options for the hour(s) and minute(s) fields. However, a custom value can be put by selecting 'Other'.
- If clicked on 'other' and want to go back to the options, press the 'Escape' key.

4.1.1.2.C Sensor Menu

Upon right clicking the sensor box , a menu with three options appears. The user can either choose to configure the relay mapping, configure the sensors, or configure the analog mapping.

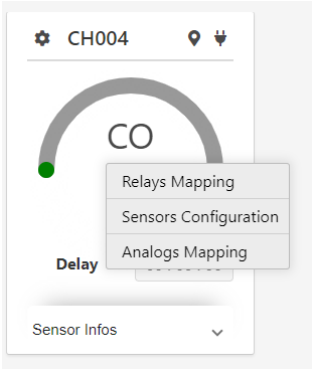


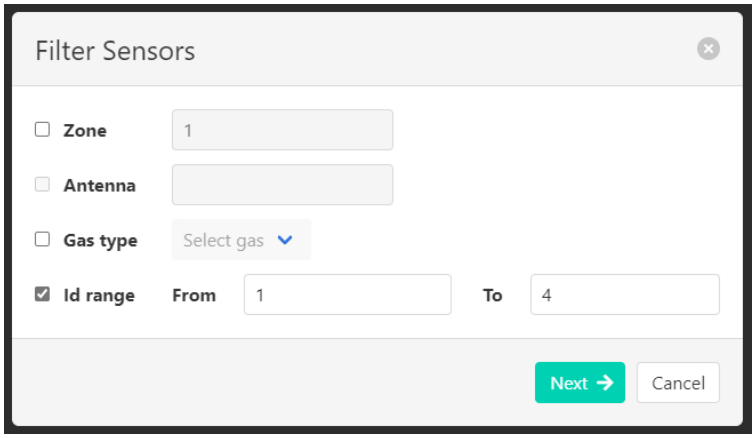
a sensor can be selected by left clicking anywhere inside the sensor box , Upon left clicking , the sensor box color will turn to blue , see picture below :



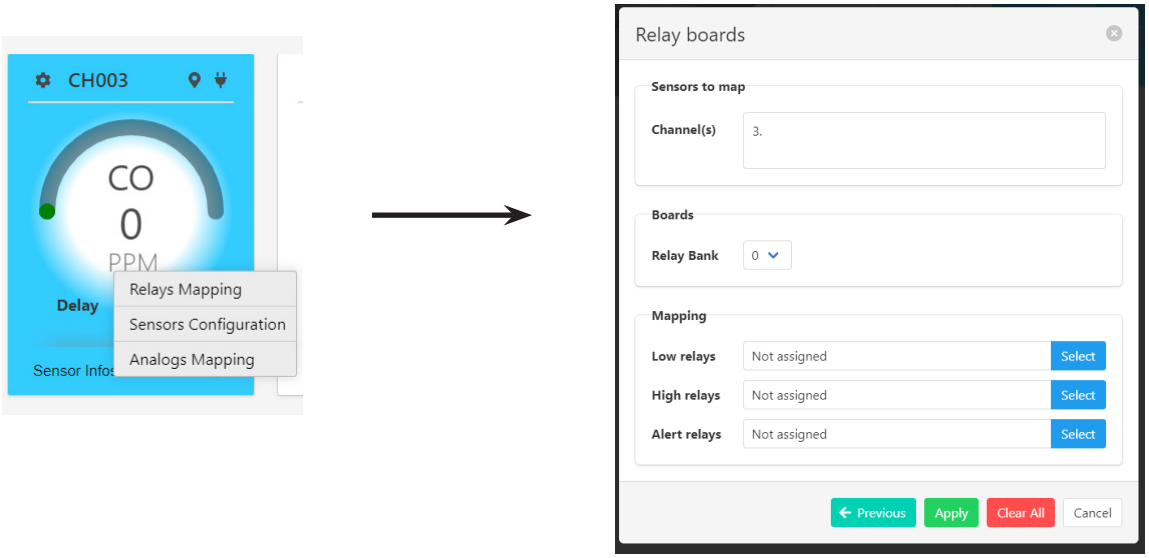
When choosing the desired menu option, there are two scenarios:

• If sensors are not selected before the right click, the user will be redirected to the sensor filter window .



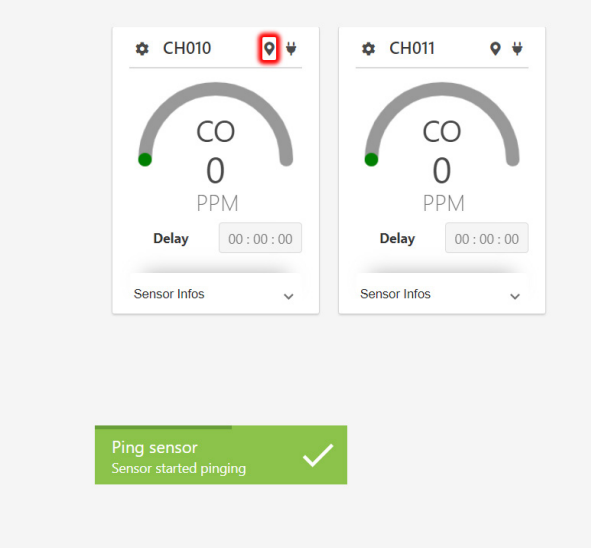


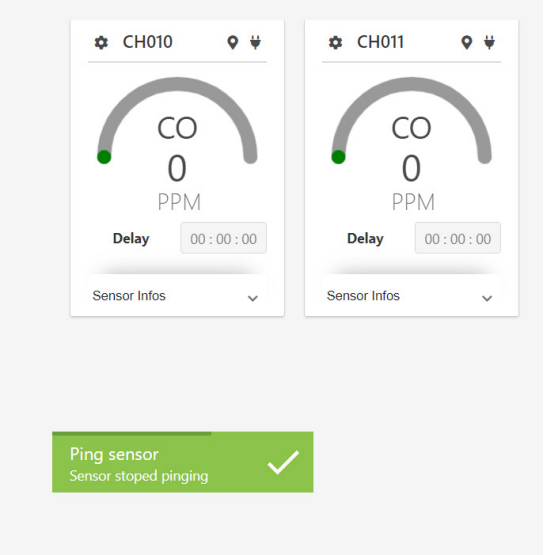
- If sensors are already selected, the user will have direct access to the selected action.



4.1.1.2: Sensor pinging:

To Ping a sensor click on the 'ping' icon when the sensor is pinged the following confirmation message will appear on the screen:





To stop the pinging , click again on the ping icon a confirmation message will appear on the screen saying "sesnor stopped pinging"

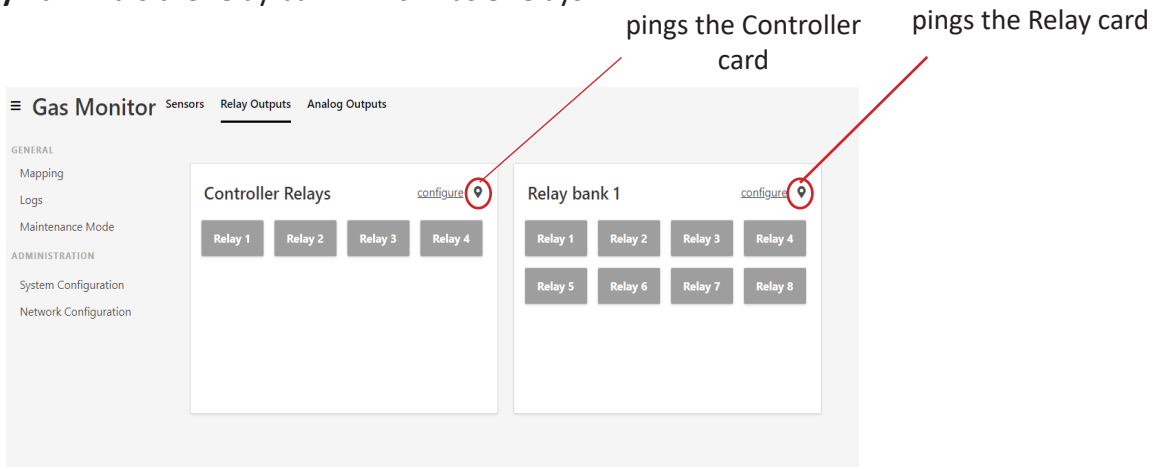
- When the sensor is pinging , the Status Led on the Snode will show a flashing red light (See picture below) , the light will keep flashing until another sensor is pinged or the ping icon is clicked again to stop the pinging.

4.1.1.3. Relay output :

Allows the control and configuration of the relay outputs and displays the existing relays and and their current state.

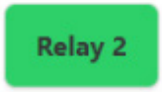
There are two types of Relay banks :

Control Relay: it is always the first relay bank which has 4 relays.
Standard Relay Bank: it is the relay bank which has 8 relays.

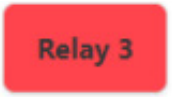


Relays can be in three states:

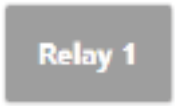
Relay forced ON: the Relay is activated .

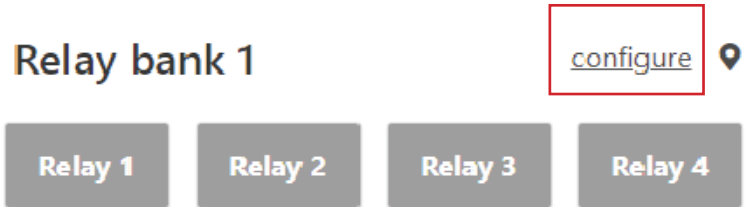


Relay Forced OFF: the relay is off.



Relay Mode Auto: the relay is on or off depending on the condition fixed and the state of the sensor.



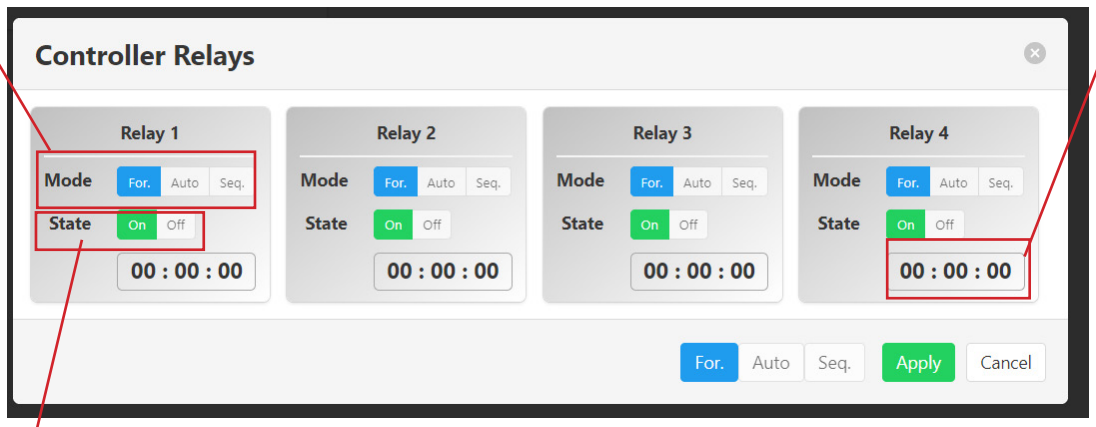


Upon clicking "Configure" , a pop up window will appear , this window allows the user to perform the following tasks:

- force the state of the relay to On or Off, with or without a timer
- apply timer to each relay
- apply sequencer to each relay.

we can switch between three modes : Forced , auto or sequence

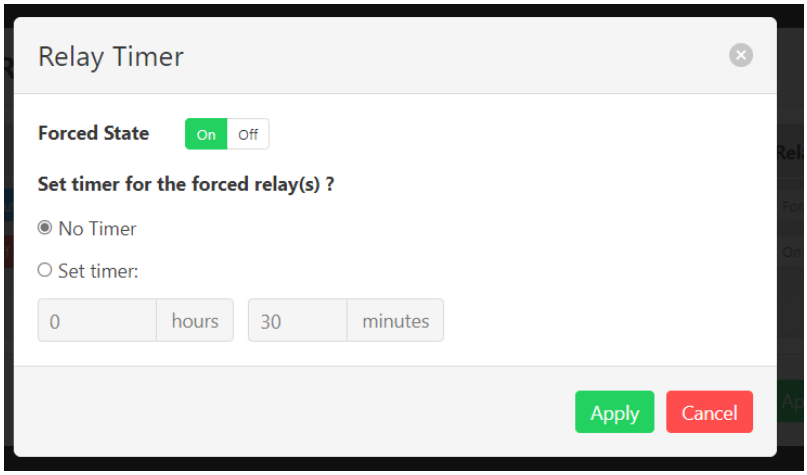
Timer Box



Shows the current state of the Relay

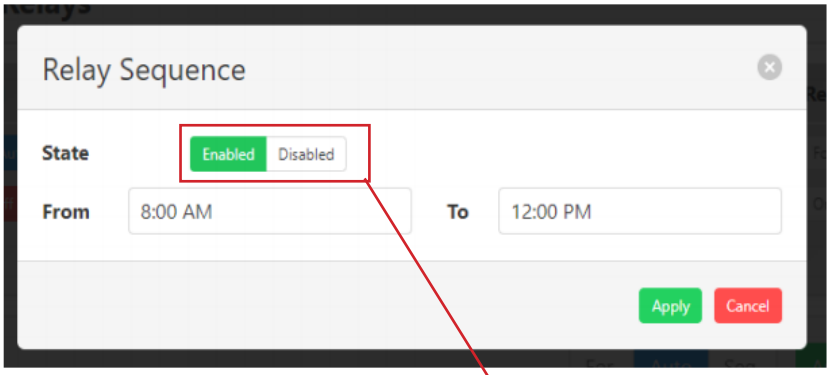
4.1.1.3.a Relay Timer :

A choice of setting the timer will be given. Once the user wants to force the state of the relay.



4.1.1.3.b Relay Sequencer:

The sequencer window allows configuring an activation period for the relay. For instance: if rush hour is decided to be between 08:30 to 09:30 AM, the Relay can be set to be activated around that time. However , it is highly recommended to configure the relays to be active for 15-20 minutes before and after the rush hour (for the previous example the recommended activation sequence for the relays would be from 8:15 to 9:45 AM) .

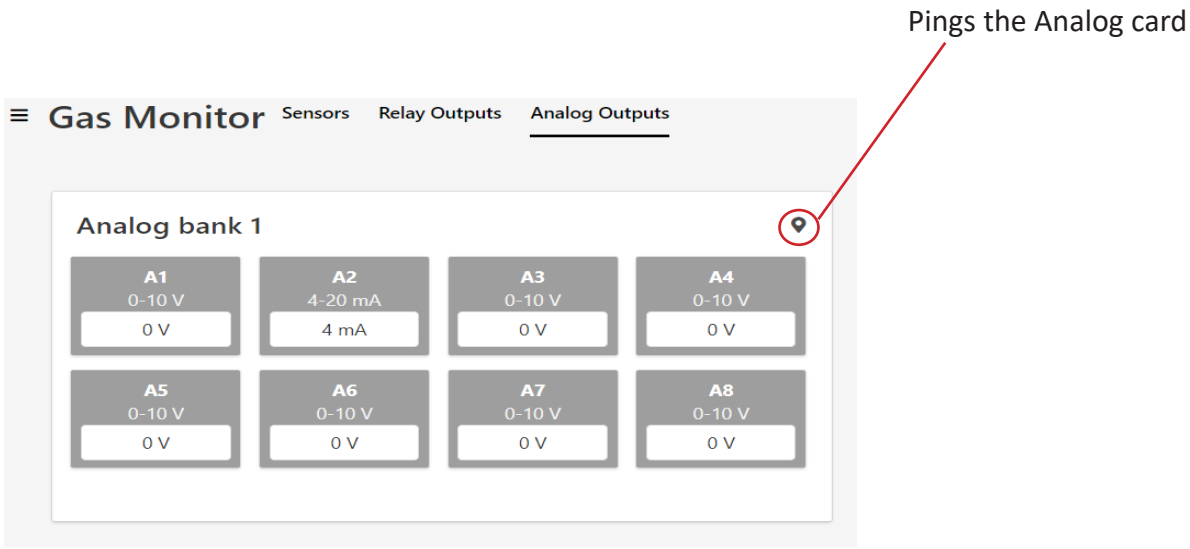


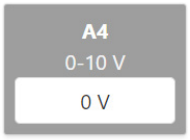
the Relay can be set to either be Enabled or Disabled.

To verify that the system is functioning properly , check the Status led on the Snode, the Controller , Relay and Analog cards , you should see them all flashing Amber.

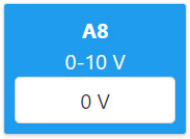
4.1.1.4. Analog output :

The Analog board displays all the available analog devices organized by bank, every analog device shows its ID and output type.



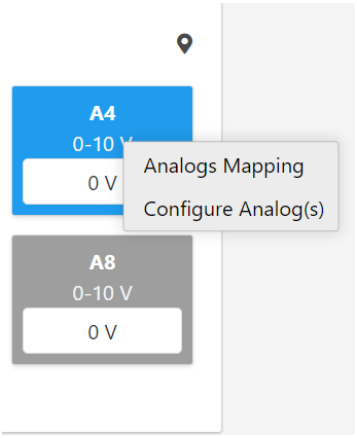


Single Analog.



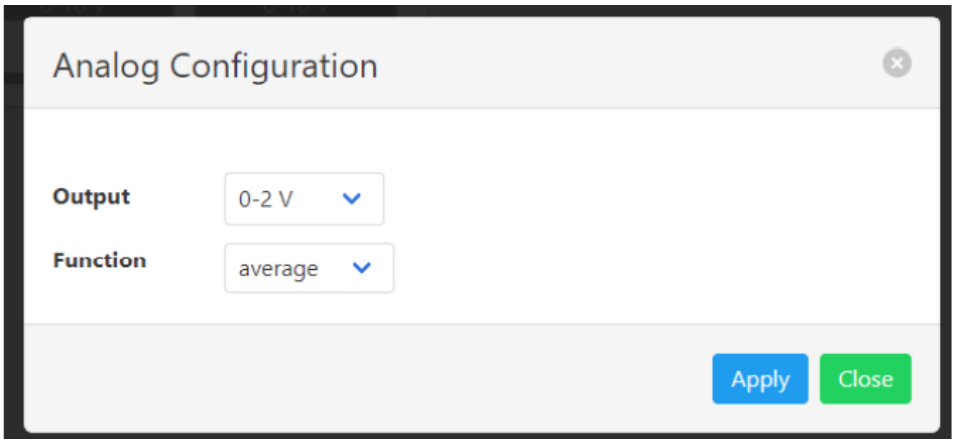
Single Selected Analog.

4.1.1.4.a Analog Menu :



- **Analogs Mapping:** in order to be able to map or configure the analog , it must be selected first by left clicking the analog output. (for more details see the Mapping part of this manual).

- **Configure Analog:** After clicking on configure analogs, the user will be invited to select the output nature for the selected analog devices. Then the type of Analog output can be set, once finished, click on 'Apply'.



For Output: Choose from the following: '0-2 V', '0-5 V', '0-10 V', '0-20 mA' or '4-20 mA'

For Function: You can choose: 'average', 'peak' or 'minimum'.

To verify that the system is functioning properly , check the Status led on the Snode, the Controller , Relay and Analog cards , you should see them all flashing Amber.

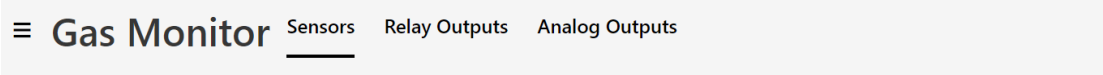
4.2. Mapping :

There are two ways to do the mapping , either from the “Sensors” window or directly from the Relays outputs. (the same goes for the Analog outputs).

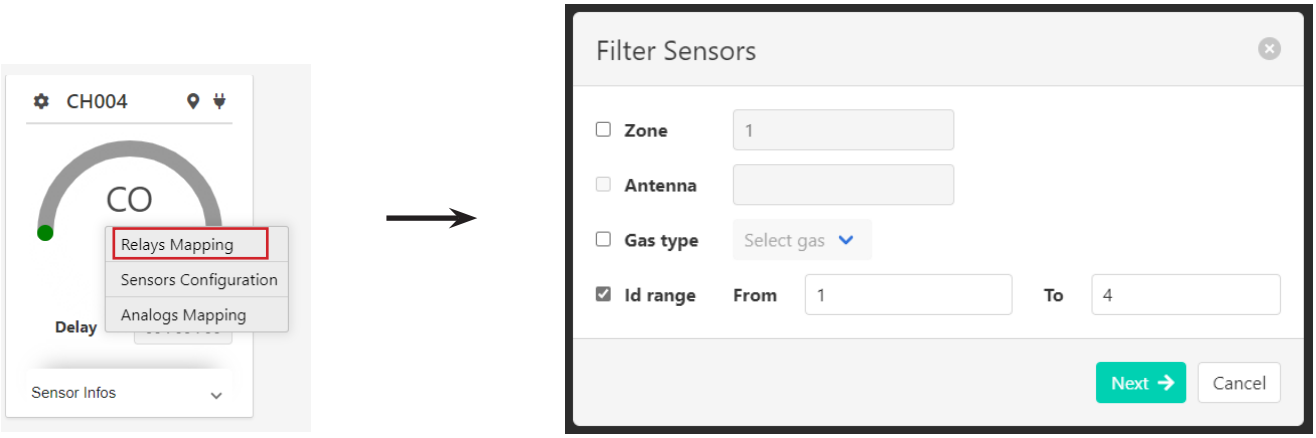
4.2.1 Sensor to Relay Mapping :

4.2.1.a. Method 1:

step1: from the Navigation bar , choose “Sensors”



step2: right Click inside any sensor box to show the menu , then choose “ Relays Mapping” according to the desired action. Upon clicking , a sensor filter window will appear (see picture below):



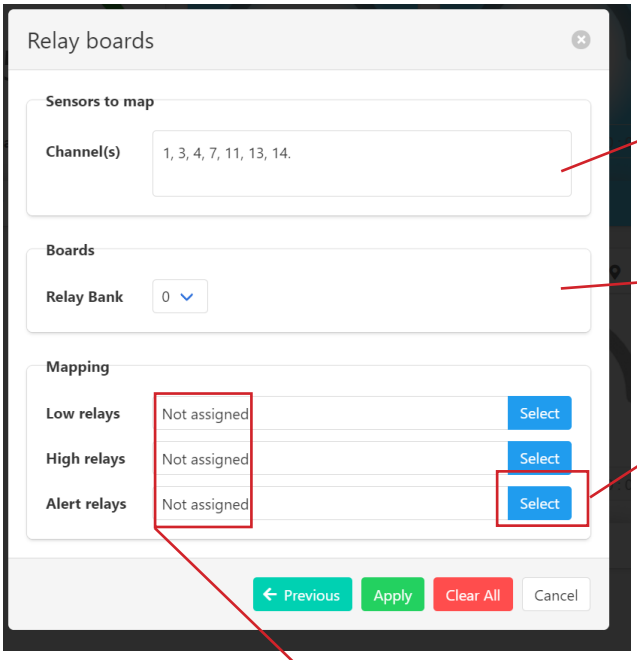
step3: Fill in the required information :

zone: choose the zone.

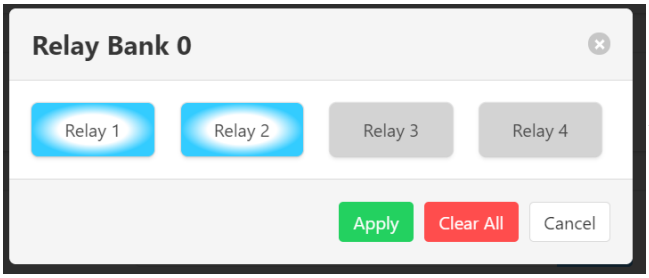
gas type: choose the desired gas type (CO , NO2 , COM .... etc)

Id Range: choose the desired sensor number to map.

step4: Click “next” and the Relay boards window will appear , Fill in the informations necessary for the mapping (see picture below):

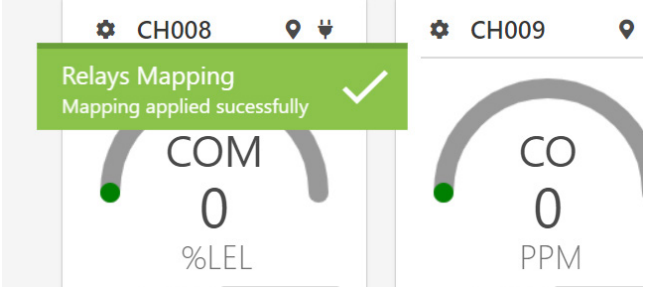


- Sensors selected are shown under “Sensor to map”, the sensor IDs can be shown by sequence ex: 1-3 (1 TO 3) , or separated by a comma “,”.
- Under “Boards” choose Relay bank 0 or 1 .
- Under mapping , choose the alarm level desired then click “ select” , a **relay bank window** will appear from which you can select the desired relay to be mapped to the sensors.
- This window must show either the Relay bank number or “ not assigned” , If it shows “mixed” it indicates a logic problem in the mapping, **for example** the same relay bank is mapped to do two different actions at the same time



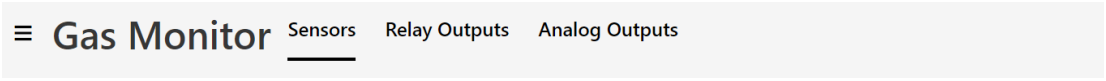
Relay bank window

step5: click “Apply” and a confirmation message will appear on the screen .

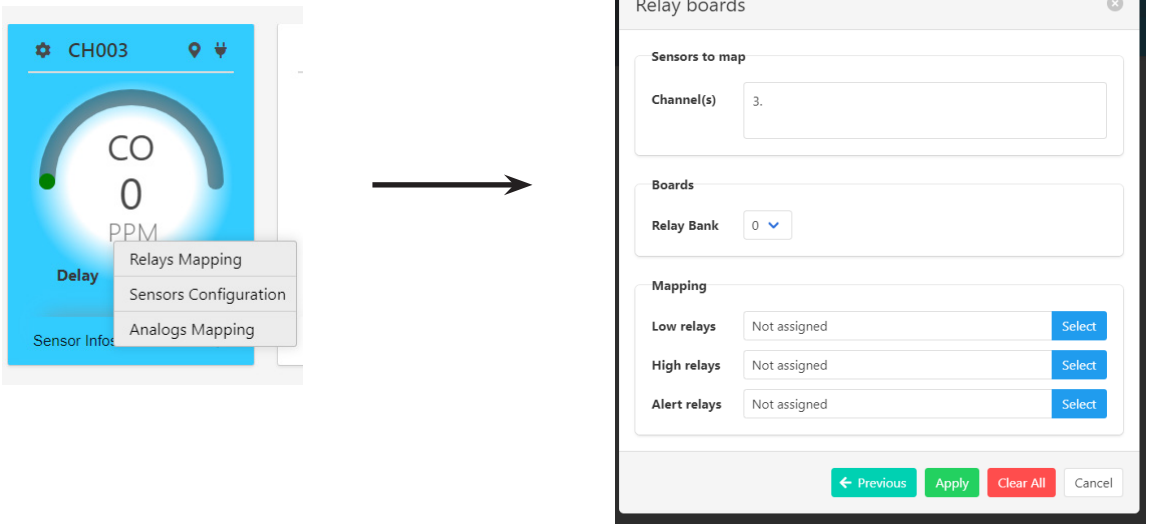


4.2.1.b. Method 2:

step1: from the Navigation bar , choose “Sensors”



step2: Left click in multiple sensor boxes to select multiple sensors , then right click and choose “ Relays mapping”, the Relay boards window will appear directly.



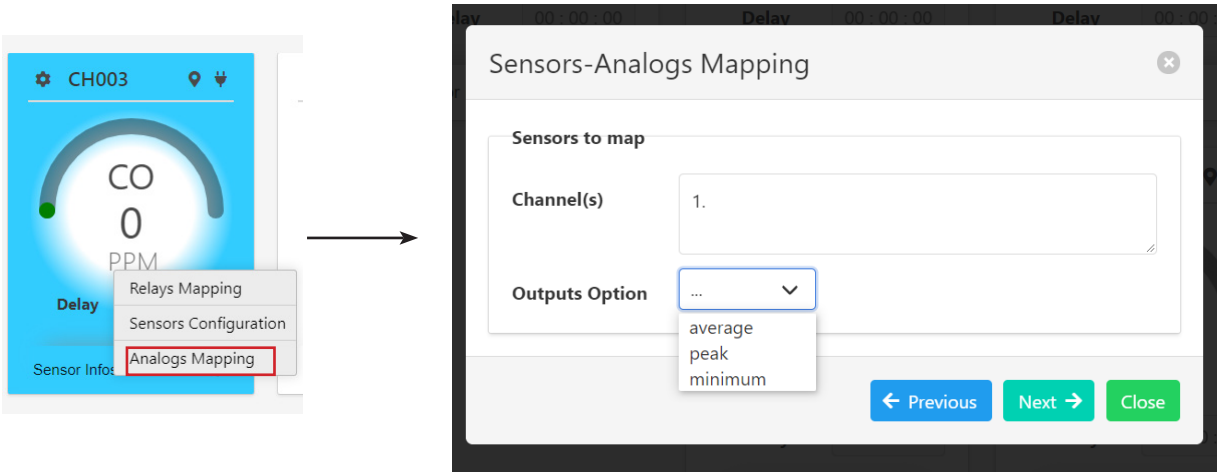
step3: fill in the informations , then click “ Apply”.

4.2.2. Sensor to Analog mapping:

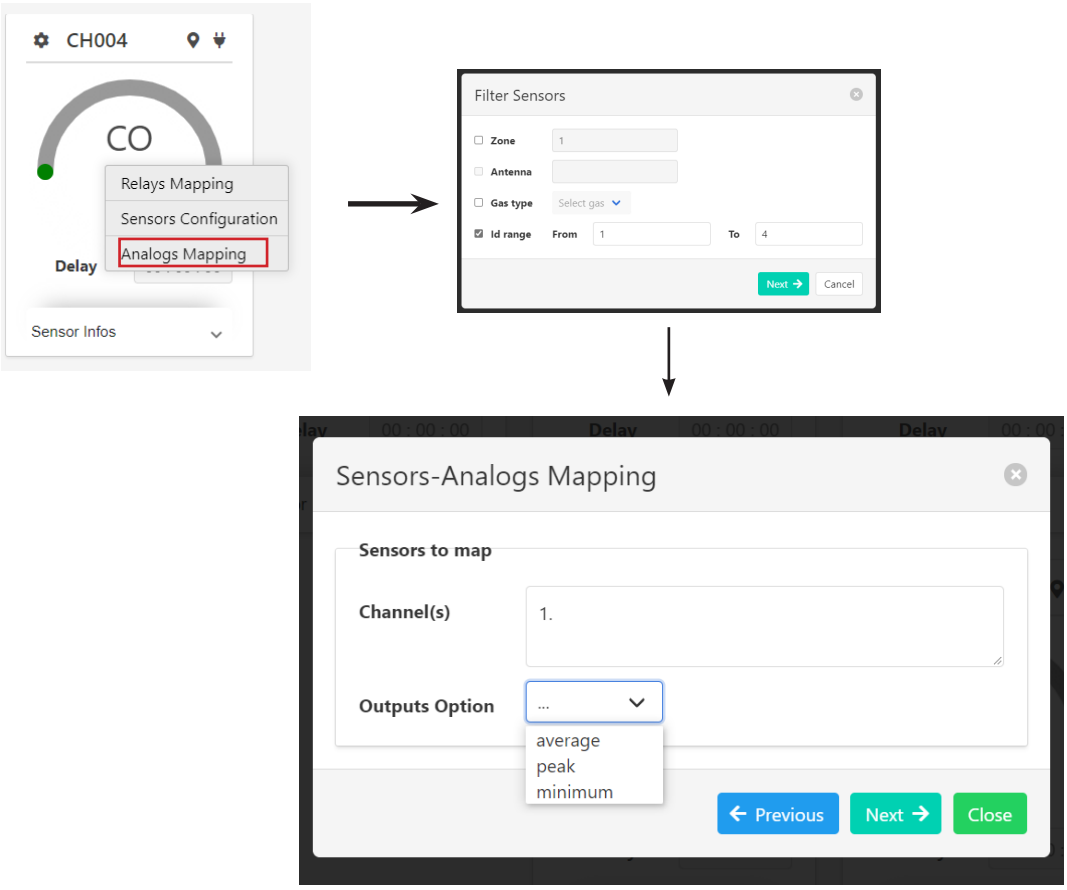
To map sensors to analogs , in the Sensors tab , right click inside a sensor box and choose “Analog mapping “.

- Just like Sensor to Relay mapping , there are two methods to this process :

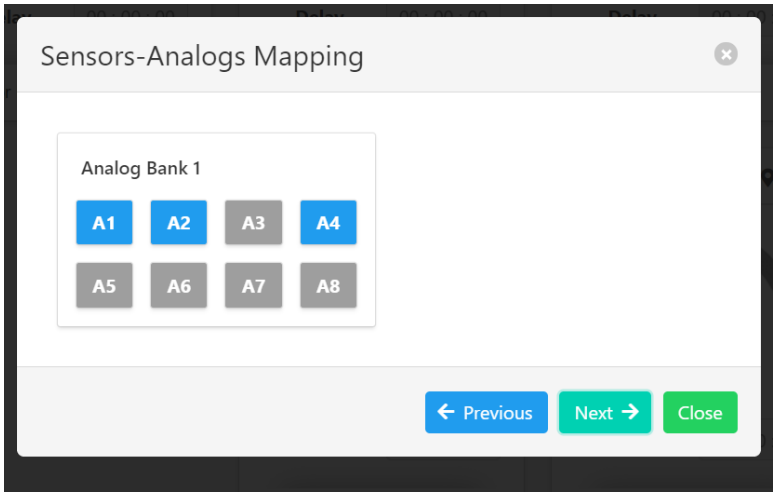
Method1:
Selecting the sensor before choosing the “ Analog mapping” **:**



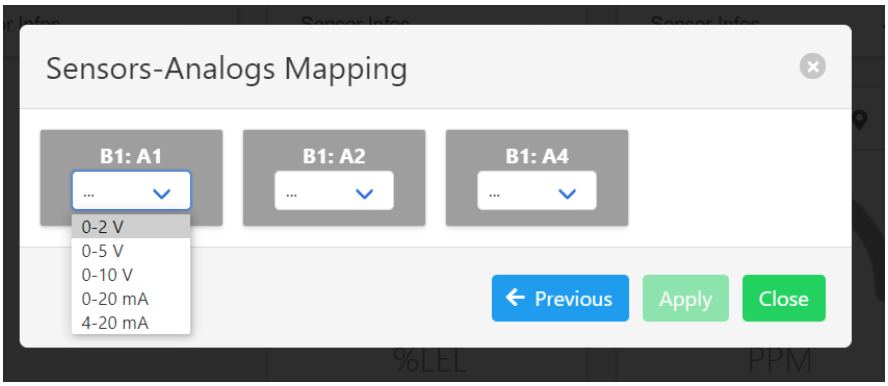
Method2:
choosing “Analog mapping” then choosing the sensors to map using the “ Filter Sensors” window.:



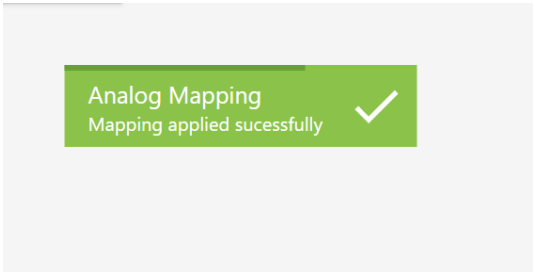
step3: Upon clicking “next” , an analog bank window will appear from which you can choose the desired analog outputs to map to the sensor(s), then click “ next” .



step4: in the sensor analog mapping window (see picture below), choose the desired output for each analog , then click “apply”.



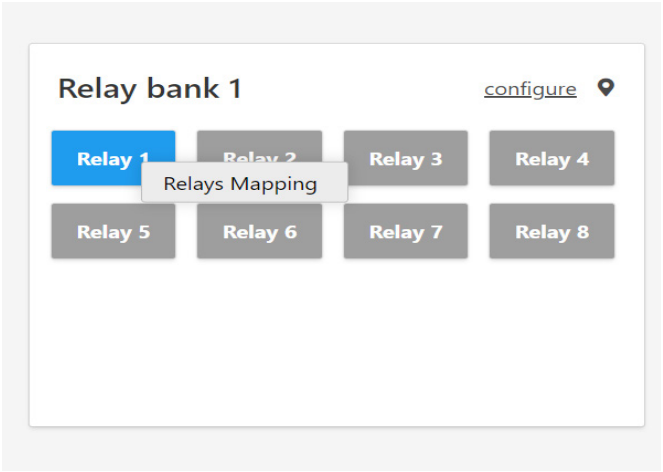
- a confirmation message will appear on the screen:



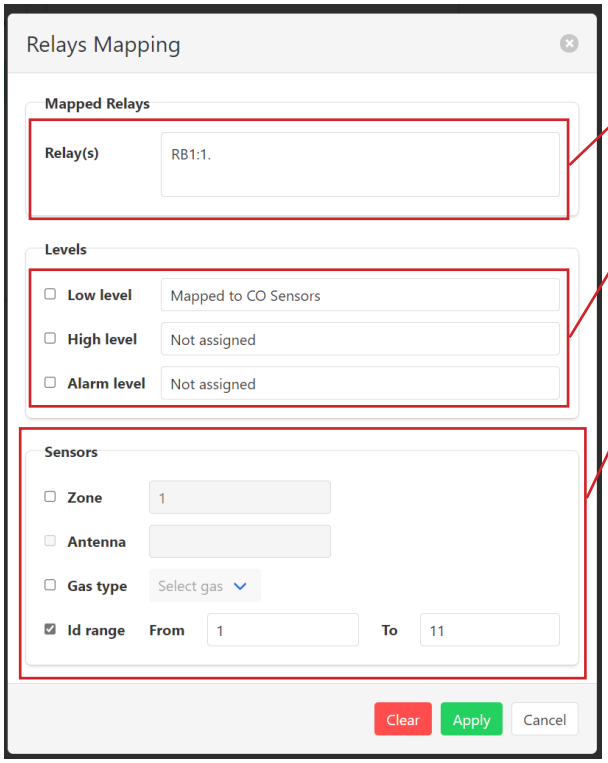
4.2.3 Mapping Relays to Sensors :

Step1: from the Navigation bar , choose “Relay outputs”

Step2: select a relay or multiple relays , then right click and choose “Relays mapping”



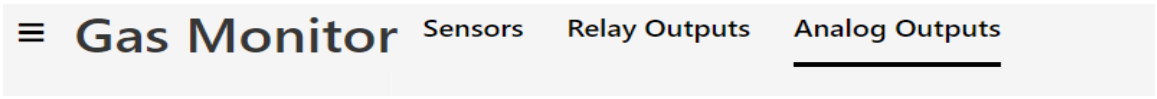
Step3: select a relay or multiple relays , then right click and choose “Relays mapping”, in the following window, fill in all the necessary Data as desired then click “Apply”



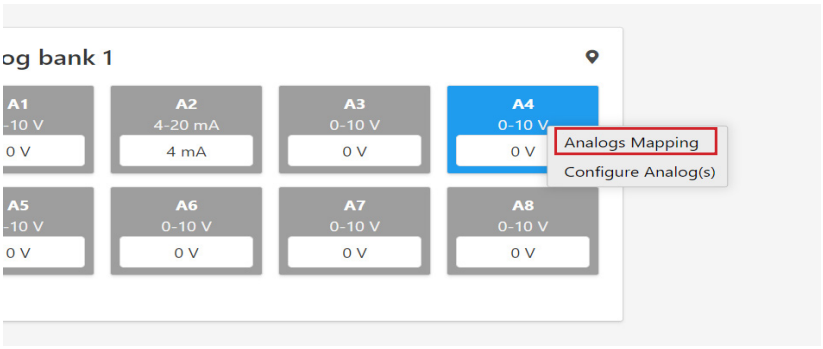
- Mapped Relays list .
- Alarm levels to assign to relays.
- Sensor filter

4.2.4 Mapping Analogs to Sensors :

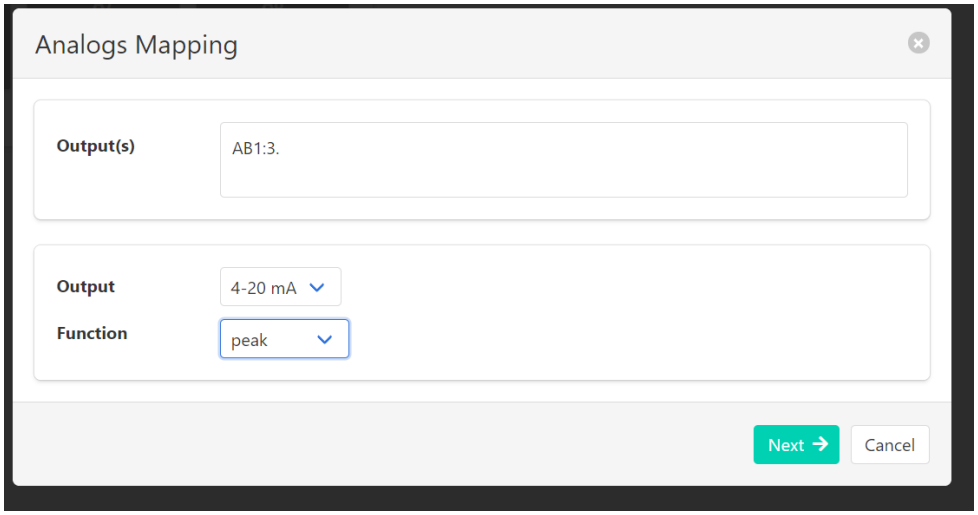
Step1: from the Navigation bar , choose “Relay outputs”



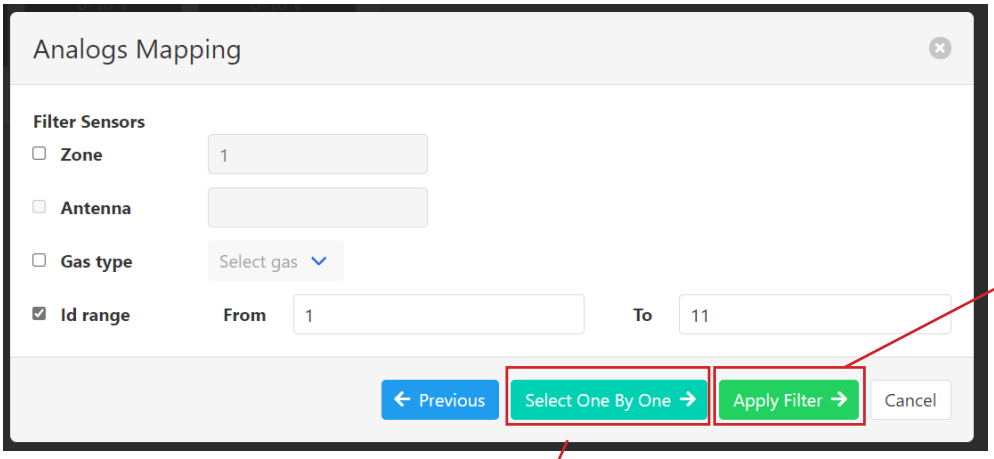
Step2: right click to select the analog output , then right click and choose “Analog mapping”

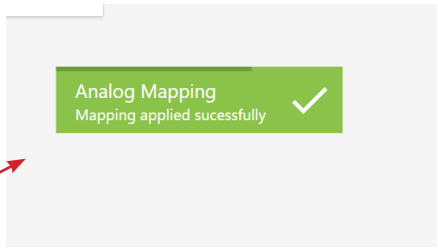


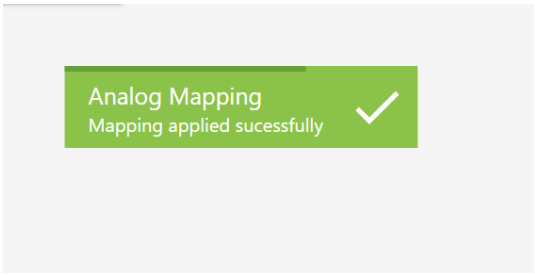
Step3: Fill in the data as desired , keep in mind that all analog outputs selected must use the same option (“average” , “peak” or “minimum”) , then click “Next”.



Step3: after clicking “next” , a sensor filter window will pop up , you can either enter data and click “ apply filter” , or click “ select one by one” and manually select sensors (see pictures below :





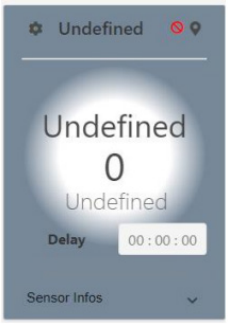


Manually select sensors and click “ apply”

5.Maintenance and troubleshooting:

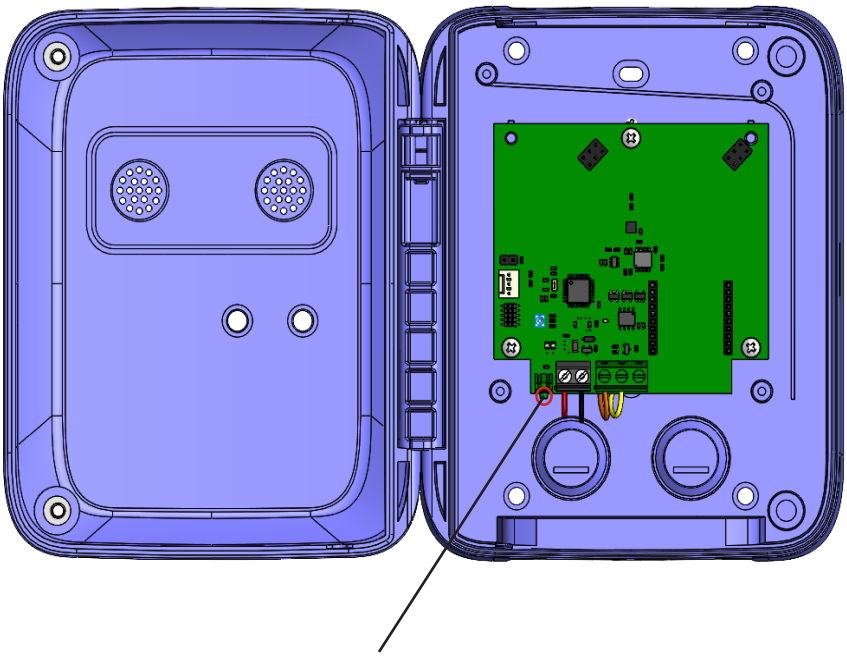
5.1 Sensor state :

5.1.a Sensor undefined:



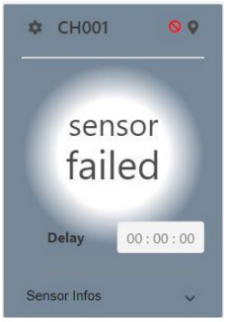
- The sensor has not been detected. This is the initial state of the sensor once a new configuration is launched. if after 20 minutes the sensor state does not go back to normal , do the following:

1. Check that the cables are wired according to the manufacturer's directions .
2. if the cabling is correct , go to the maintenance section and set a new configuration ,for more details check the "**new configuration**" section below. make sure that the number of the sensors configured corresponds with the number of sensors existing in the system.
3. if the status led on the Snode is off, this indicated that the sensor froze, in this case clicking the Reset button on the Snode card will solve the issue (see picture below) .
4. If the problem persists , manually enter the Sensor's Mac address to add it as a device. for more details check the "**add device**" section below.
5. if the status led on the snode is flashing Amber , this indicates that the connection is established and the system is working properly.



Reset button

5.1.b Sensor Failed:

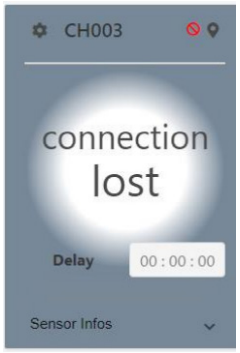


- This means that there is no communication between the Snode and the sensor.

Solutions:

1. open the Snode enclosure and check that the sensor is present inside the Sensor cartridge.
2. check that the sensor cartridge is correctly setting on the Pcb card (the pins on the Snode are in contact with the PCB of the sensor)
3. verify that the Snode pins are intact and in good condition.
4. if the power and status Leds on the Snode are off , this indicates an issue with the Snode and it should be replaced .
5. if the problem persists , contact Pergamon technical support at: **+1 (833) 888-1560**.

5.1.c Connection lost:

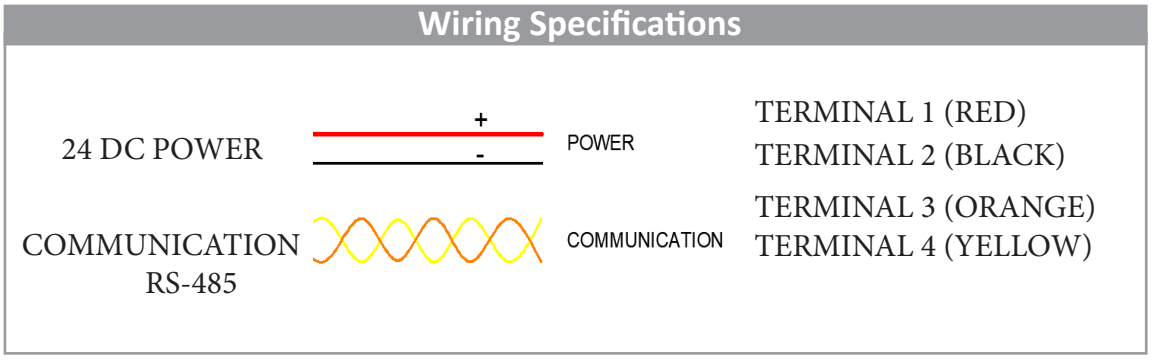


- This means that there is no communication between the controller and the snode.

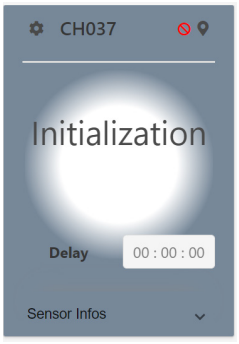
Solutions:

1. verify that the cabling is connected according the Pergamon's specifications (see picture below).
2. verify that the Controller card CM-100 is functioning properly , the Status LED should be flashing green and orange alternatively.
3. if the problem persists , contact Pergamon tech support at: **+1 (833) 888-1560**.

Wiring Specifications



5.1.d Initialisation:

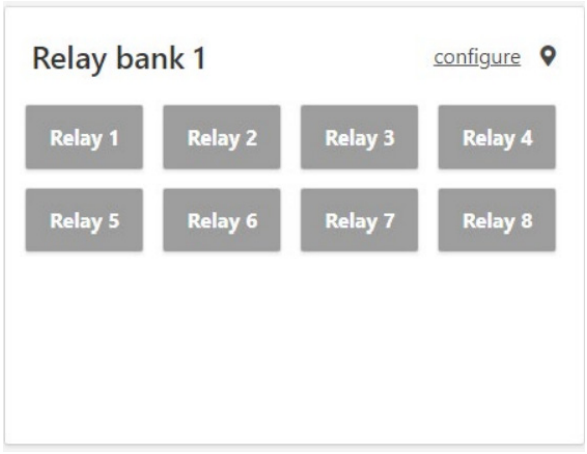


- This is the initial state of the senor once the system starts, or a new configuration is launched . after the connection is successfully established , the Sensor should be in its **working state**.
- if the problem persists this means that snode is not communicating with the controller , this usually indicates a problem with the controller card. and it should be replaced.
- if the problem persists , contact Pergamon technical support at: **+1 (833) 888-1560**.

- **Status LED indications:**

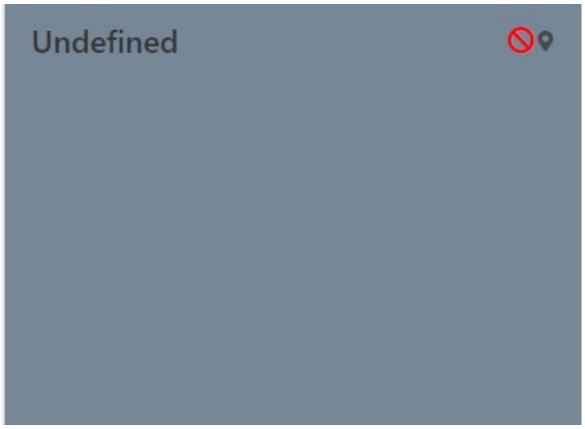
Solid Red: Error . (Sensor issue)
Blinking Red: Error.(communication problem , Sensor undefined)
AMBER: Discovery mode (Receiving from CM-100).
GREEN: Functional (Transmitting to CM-100).

5.2 Relay Bank state:



- **working:** The Relay bank is working, no issues

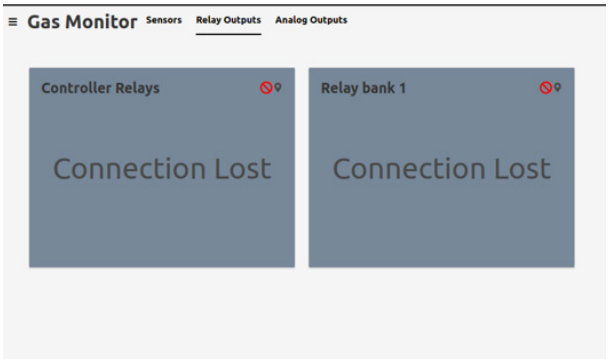
5.2.a Relay Bank undefined:



- This means that The Relay Bank has not been detected. This is the initial state of the Relay Bank once new configuration is launched. the relays bank's status led will be blinking Red at this state , if after a while the Relay bank is not detected , do the following:

1. check that the relay bank card is properly connected to the controller card.
2. check that the system's configuration contains all the existing Relay cards.
3. if the problem persists, contact pergamon's technical support at : **+1 (833) 888-1560**.

5.2.b Connection lost:

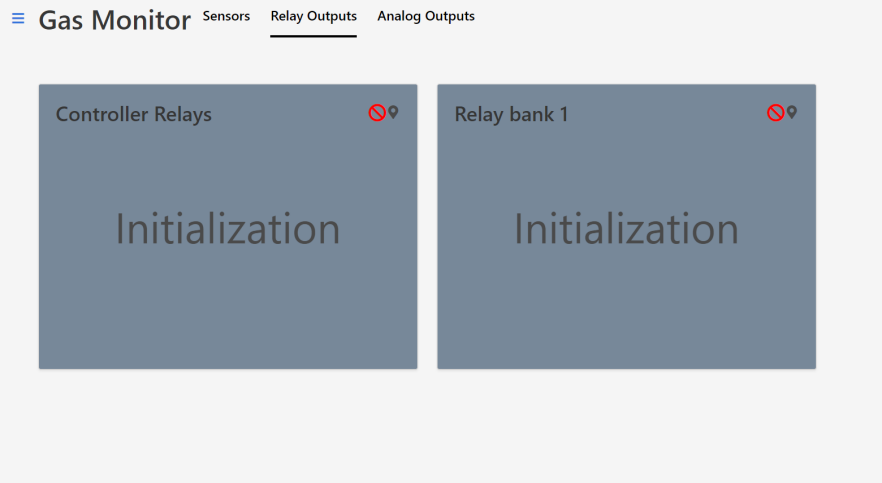


- This means that there is no connection between the controller card (CM-100) and the Relay card (RM-8) .

solution:

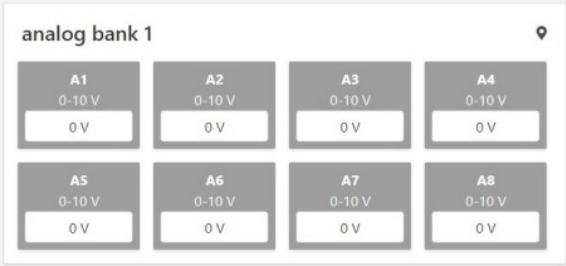
1. verify that the relay bank card is properly connected to the controller card by checking the condition of the connector attaching the bottom part of the controller card to the upper part of the Relay card.

5.2.c Relay Bank Initialization:



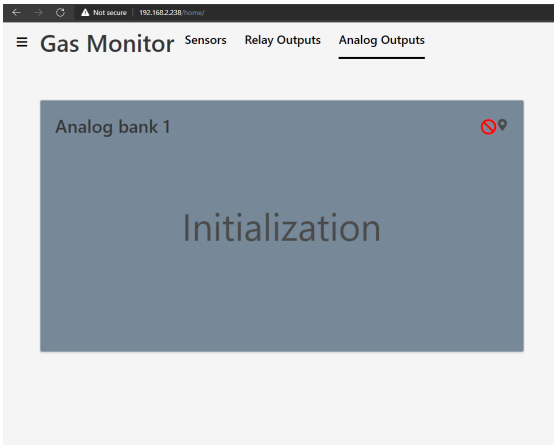
- This is the initial state of the Relay bank once the system starts or a new configuration is launched . after the connection is successfully established , the Relay Bank should be in its **working state**.

5.3. Analog Bank state :



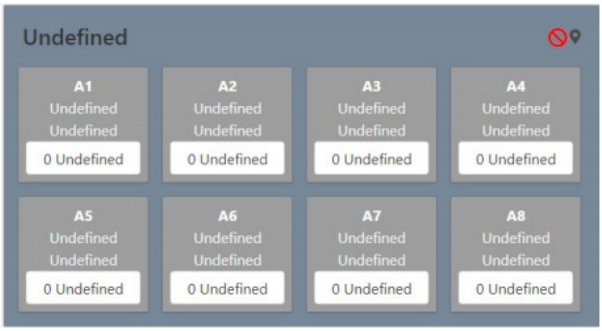
- **working:** The Analog bank is working, no issues

5.3.a Analog Bank Initialization:



- This is the initial state of the Analog bank once the system starts or a a new configuration is launched . after the connection is successfully established , the Relay Bank should be in its **working state**.

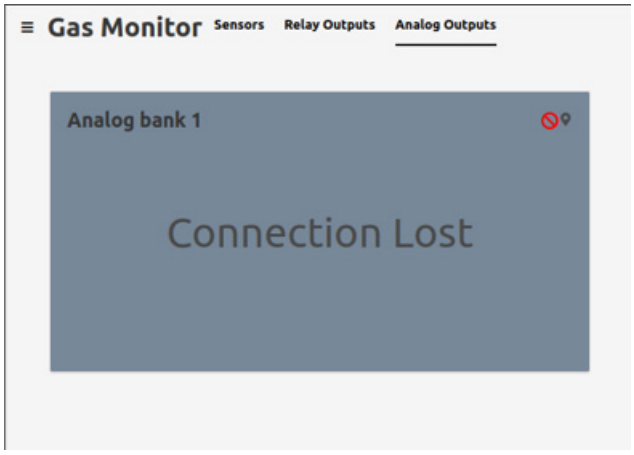
5.3.b Analog Bank undefined: :



- This means that The Analog Bank has not been detected. This is the initial state of the analog Bank once a new configuration is launched. the relays bank's status led will be blinking Red at this state , if after a while the Relay bank is not detected , do the following:

1. check that the Analog bank card is properly connected to the Relay card.
2. check that the system's configuration contains all the exhisting Analog cards.
3. if the problem persists, contact pergamon's technical support at: **+1 (833) 888-1560**.

5.3.c Connection lost :

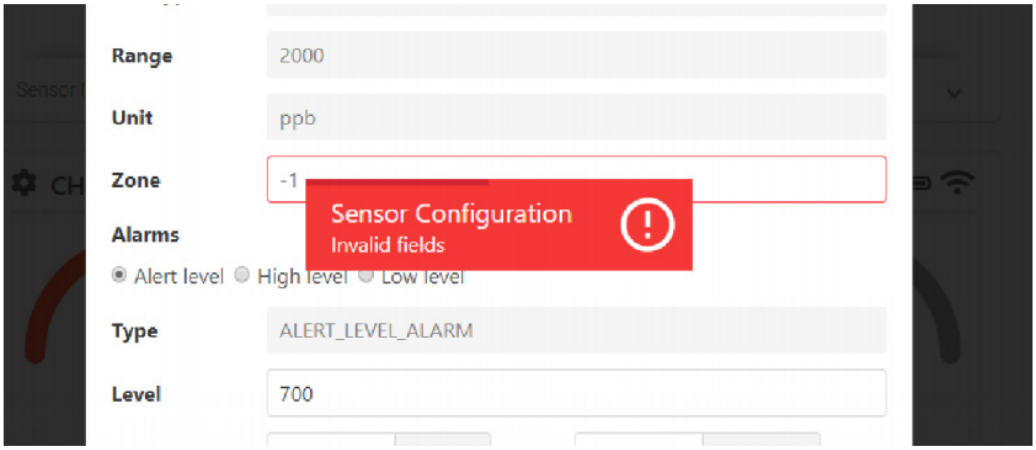


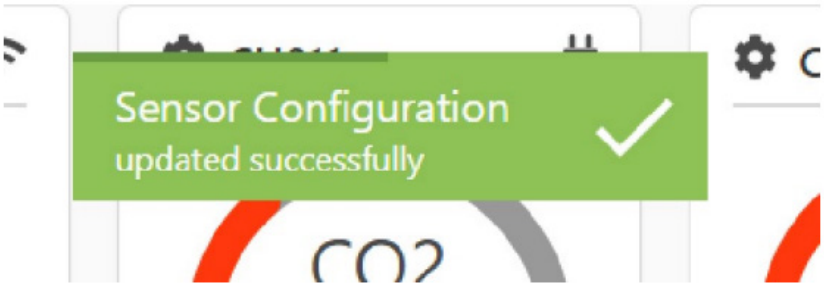
- This means that there is no connection between the controller card and the Analog card

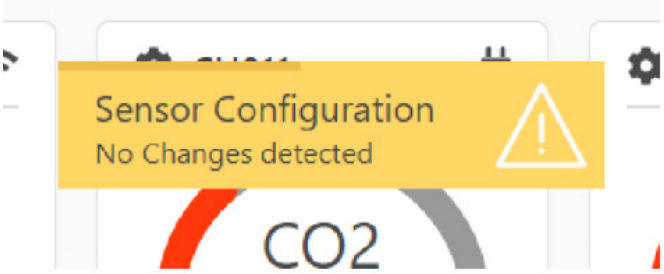
1. check that the Analog bank card is properly connected to the Relay card by verifying the condition of the connector attaching the bottom part of the Relay card to the upper part of the Analog card.

5.4. input management :

The interface can manage many inputs (correct and incorrect) and will warn if a field caused an issue. For example:

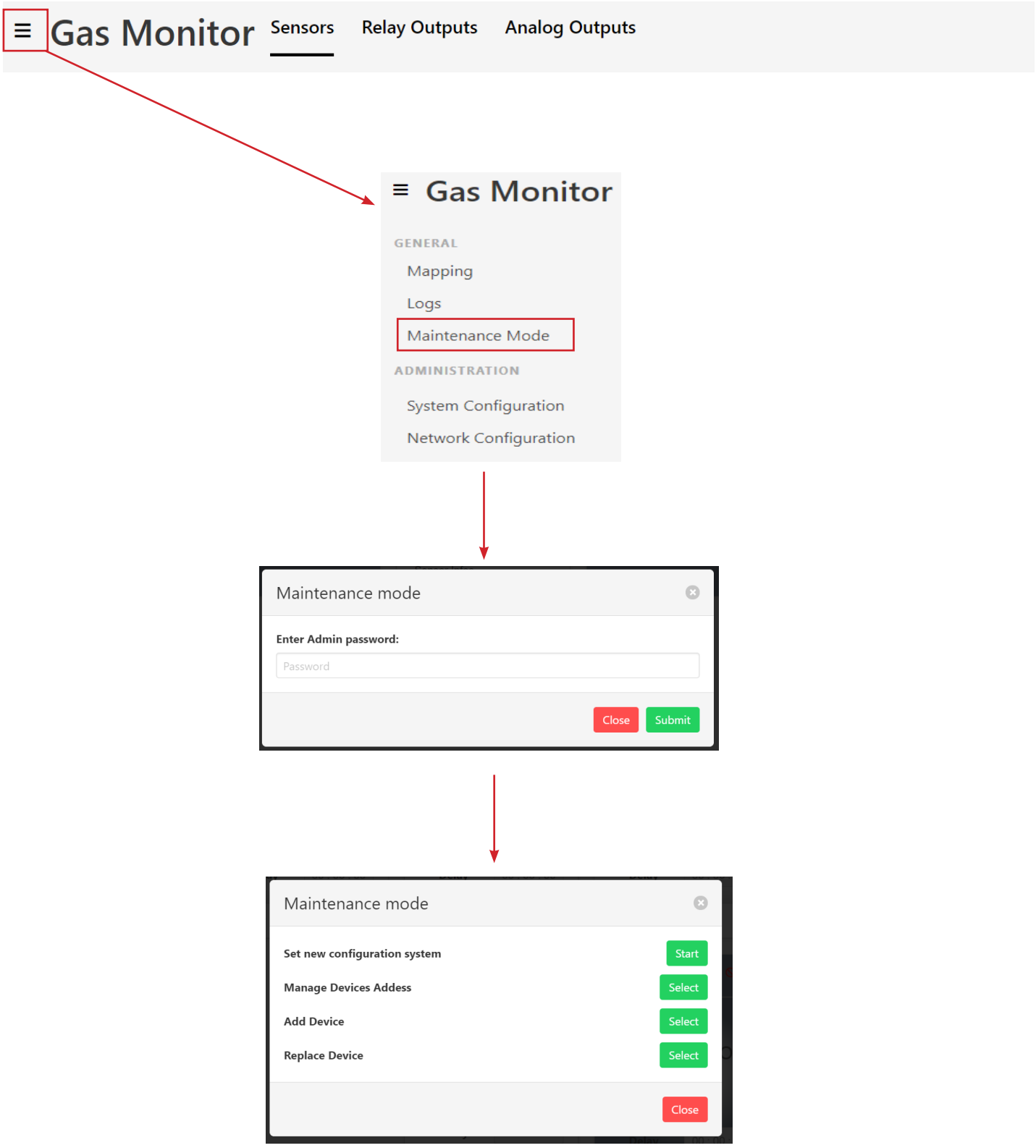




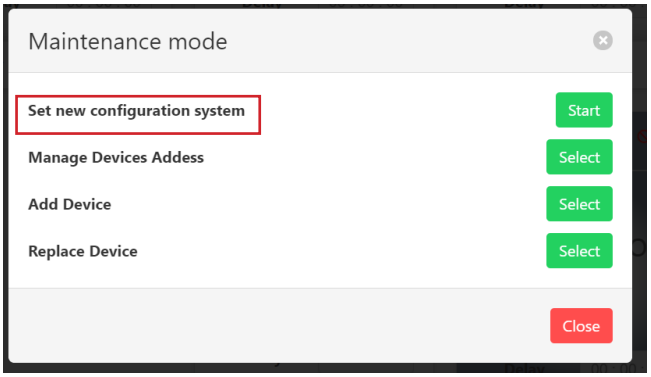


5.5 Maintenance mode :

To log in to maintenance mode: from the gas monitor menu , choose maintenance mode. **An admin password will be required**

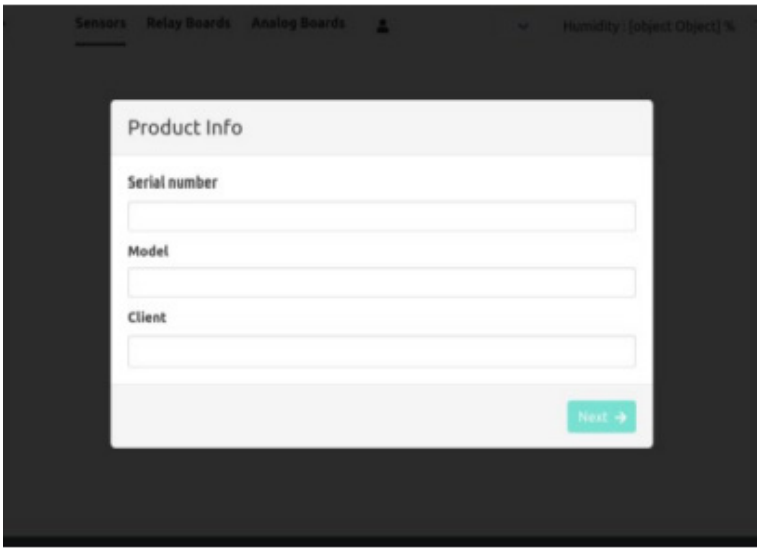


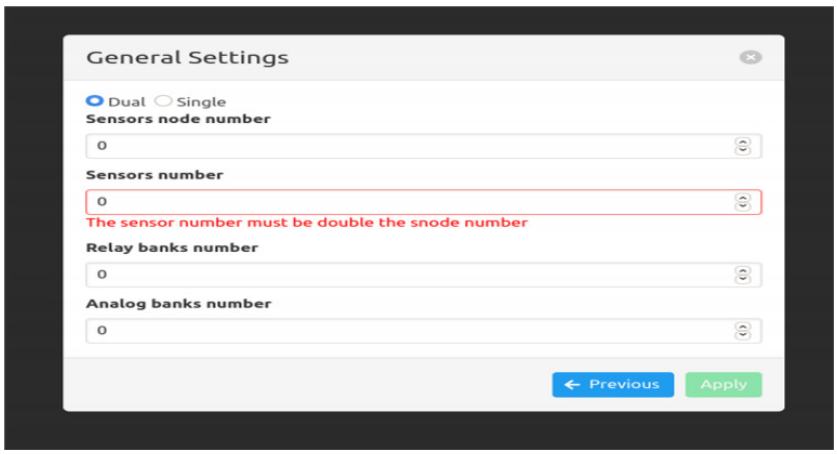
5.5.1. setting a new configuration system:



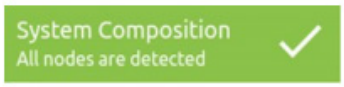
Once the new configuration is selected to set, the process will start erasing the current configuration.
The new configuration will be set once the current configuration has been erased.

- for the new system configuration , the client informations and the system composition , will be required:





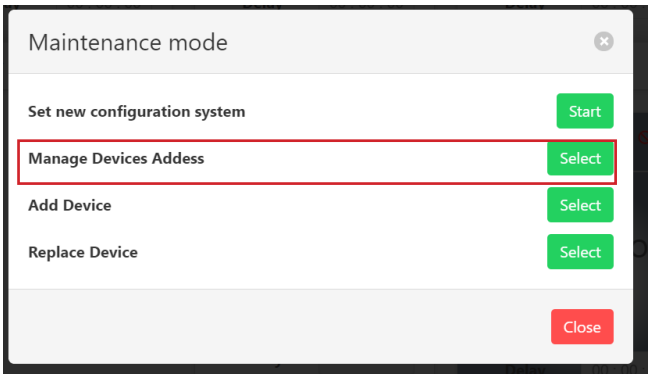
Upon the completion , the user will be informed if the system composition configured is equal to the actual system. The option of reconfiguring or keeping the current configuration will be given:

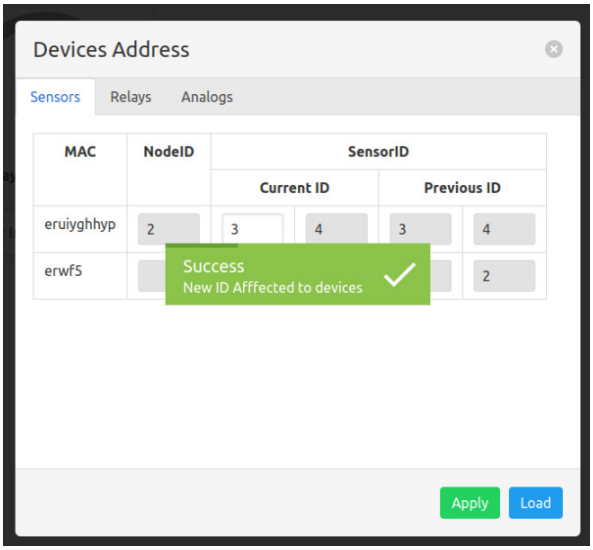


Note: the option of reconfiguring will be given three times .If by the third attempt, the system composition configured is still not compatible with the actual system. The new configuration will be accepted and started anyway.

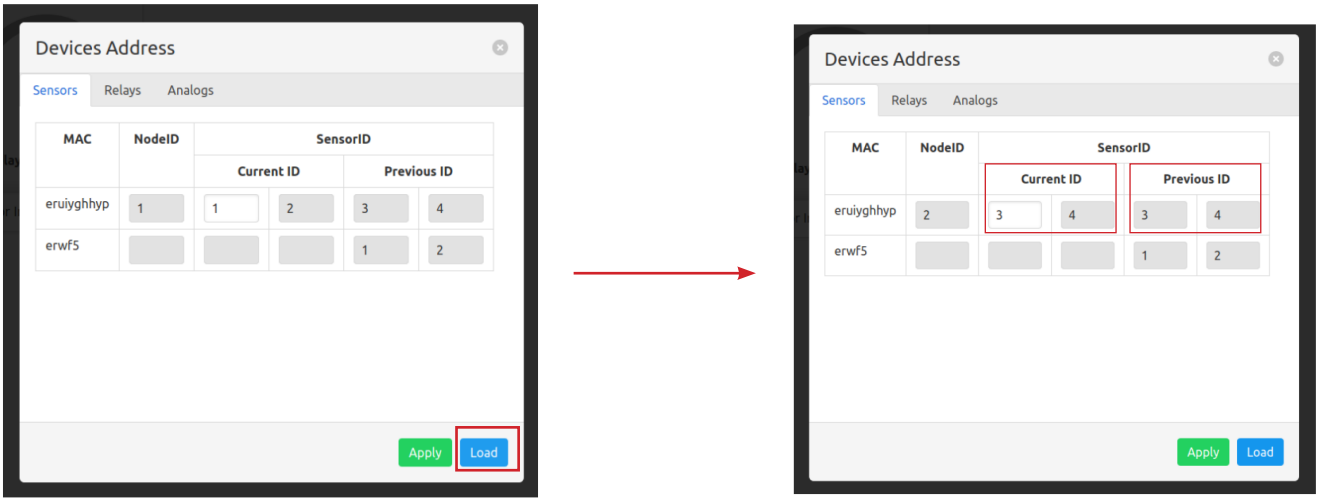
5.5.2. Manage Device Address:

the ID of each Sensor , Relay or Analog can be modified in this window. Upon clicking “Apply” , the ID will be applied to the system and its configuration will be saved as the latest ID configuration.





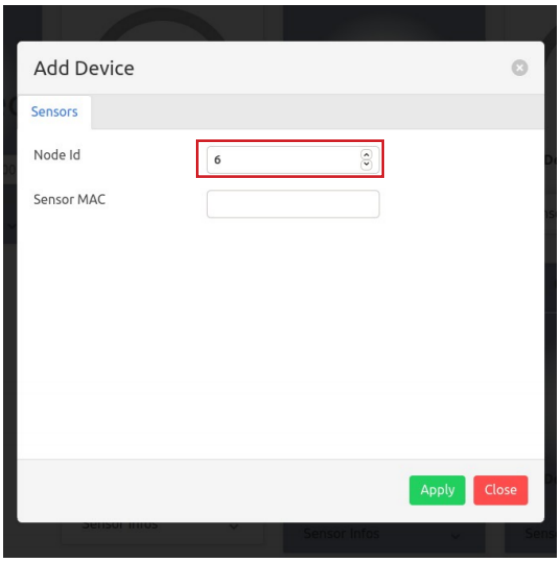
- When " load" is clicked , each device will be assigned the ID that it had saved in the previous ID configuration. See picture below:



- Click on "Apply" to set the IDs in the system.

5.5.3. Add device:

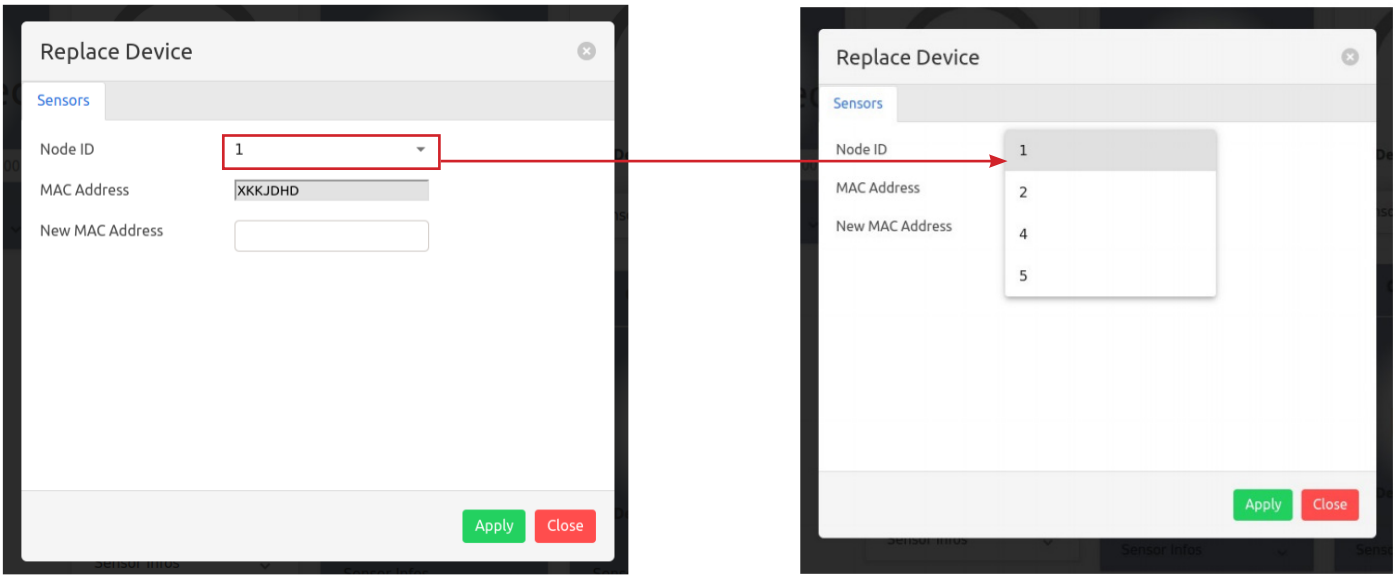
To add a device, enter the MAC address and the associated node ID, then click "Apply" .



- **There must not be two devices having the same node ID or Mac at the same time.**

5.5.4. Replace Device:

To replace a device, select a node ID from the"**Node ID**" drop list and insert the new MAC address in the "**New address MAC**" field, then click "Apply".



For more information and/or Technical support , call Pergamon perceptive technologies at +1(833) 888-1560.