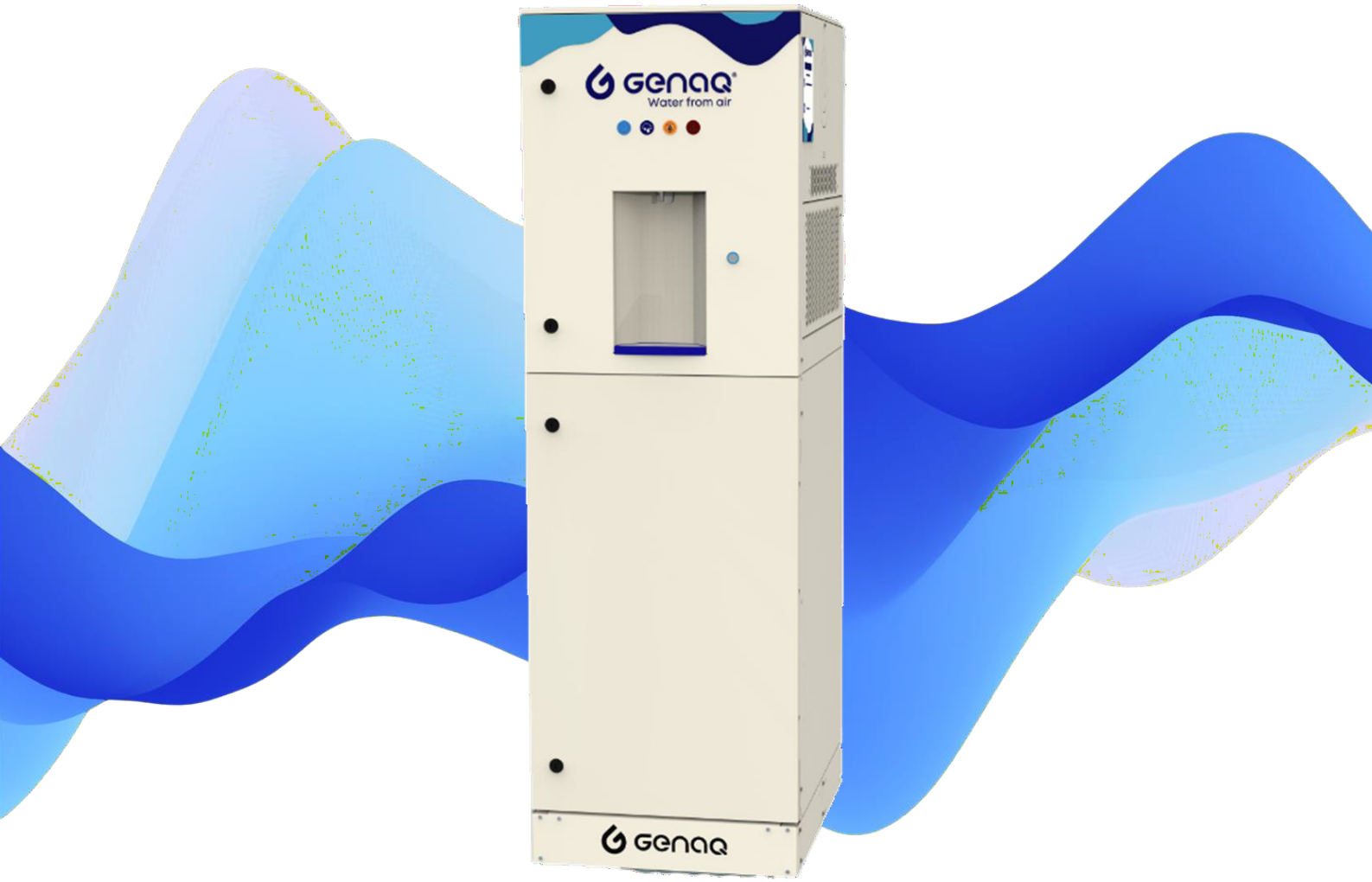
STRATUS S200

by GENAQ

User Guide

Atmospheric Water Generator
Water Dispenser
200 liters/day



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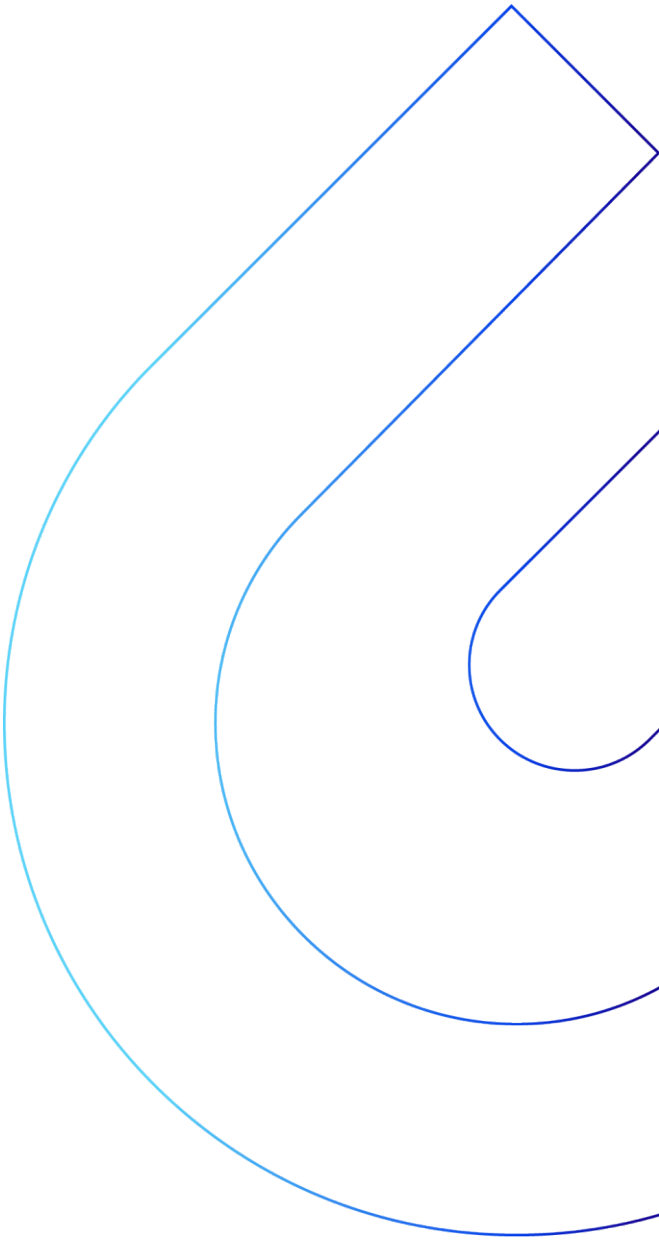
1. General Information



1.1. Introduction

GENAQ Stratus S200 is an Atmospheric Water Generator built in a **Water Dispenser** construction, with a nominal generation capacity of 200 liters/day.

The Atmospheric Water Generator has been optimized to maximize the water production and minimize the energy cost per liter of produced water, as well as extend the system operating range to extreme temperature and extreme humidity conditions.

The generator operation diagram is the following:

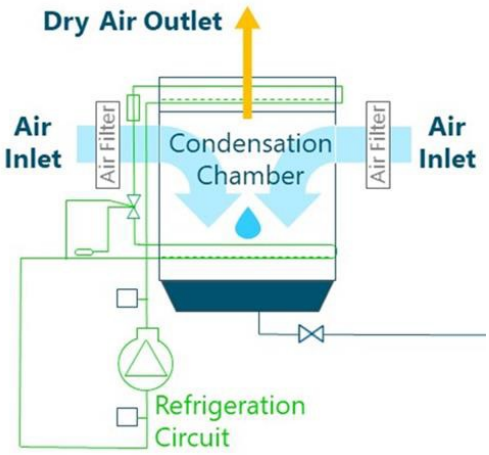


Figure 1: Atmospheric Water Generator working diagram

- The water generator takes laterally an atmospheric air flow that passes through a double air filter to the water precipitator.
- The water precipitator consists of a refrigeration cooler that cools the humid air to temperatures below its dew point, which produces water vapor condensation, present in the atmospheric air.
- When leaving the water precipitator, the air passes through an energy recovery section to precool the incoming air, so that the system energy consumption is considerably reduced.
- Finally, the air flow is carried outside, driven by radial fans.
- The hot and dry air flow is expelled outside by the generator's upper part. Due to the lower specific weight of the exhaust air, it rises naturally in the atmosphere, not interfering with the intake air.
- The condensed water remains in a tray and is pumped to the water filtration and storage system.

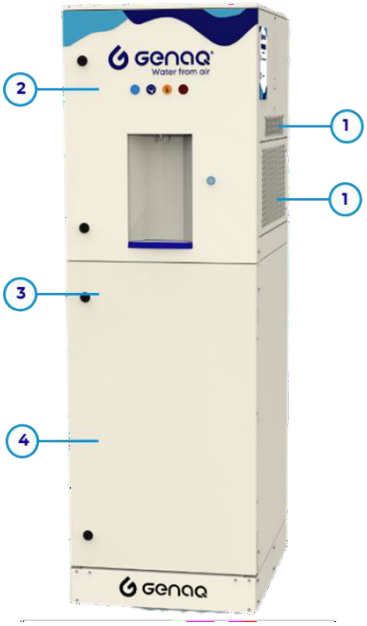
The refrigeration production for the precipitation of the water is obtained through a mechanical refrigerant compression cycle, equipped with alternative high efficiency compressors.

1.2. Specifications

Table 1: Technical Specifications

GENAQ Stratus S200	Version	**3.2**
	Dimensions (Height x Width x Depth)	**1880 x 600 x 760 mm**
	Weight	**261 kg**
	Dimensions with reinforced packaging (Height x Width x Depth)	**2092 x 770 x 1195 mm**
	Weight with reinforced packaging	**310 kg**
	Color	**White**
	Manufactured in galvanized steel sheet structure with polyester paint of high resistance to corrosion	
Performance	Nominal Generation, at 30ºC and 80% RH (±10%)	**202 L/day**
	Nominal consumption per liter, at 30ºC and 80% RH (±10%)	**0.19 kWh/L**
	Specific generation, at 23ºC and 60% RH (±10%)	**115 L/day**
	Specific consumption per liter, at 23ºC and 60% RH (±10%)	**0.28 kWh/L**
	Pressure sound level at 1m	**69 dB (A)**
Power Supply	Power Supply (Other Voltages Available)	**230V-I-50Hz**
	Nominal Power	**1.6 kW**
	Specific Power	**1.4 kW**
	Plug/Socket	**Type F**
Refrigerant Circuit	Refrigerant	**R134a**
	Evaporation coil built in copper tubes and aluminum fins	
	Condensation coil built in copper tubes and aluminum fins	
Air Circuit	Nominal Air Flow	**F1: 750 m3/h ; F2: 1250 m3/h**
	Air Pre-Filter	**60 ppi prefilter**
	Air Filter	**F7 air filter**
Hydraulic Circuit	Food grade low density lineal polyethylene tube	
	Nominal Water Flow	**P1: 1 L/min ; P2: 5 L/min**
	Internal Water Storage	**17 L**
	External Water Tank Compatibility	**Maximum 200 L with recirculation**
	Water Treatment	**Sediment Filter, Activated Carbon Filter, Ultrafiltration Filter, Zeolite Filter, Mineralization Filter, and UV lamp**
Control and Electrical Circuit	Control	**Emerson PLC, Dixell IPG208D-10021**
	Display	**Operation indicators and access via Wireless Control**
	IoT	**Optional**
	Electrical and control panel with thermal, magnetothermal and differential protection	
	Safety, Alarms, Operating and Defrosting Cycles Control	
Safety Devices	Protection against refrigerant pressure abnormal levels for high and low pressure	
	Automatic resetting thermal protections in the compressor and motor fan	
	Protection fuses and electrical panel's general grounding	
Limits	Temperature Limits	**10ºC to 45ºC**
	Relative Humidity Limits	**10% to 100%**
	Storage Limit	**-15ºC to 70ºC**

1.2.1. Circuits and Dimensions



Number	Description
1	Air circuit
2	Electrical and control circuit
3	Refrigeration circuit
4	Hydraulic circuit

Figure 2: Circuits

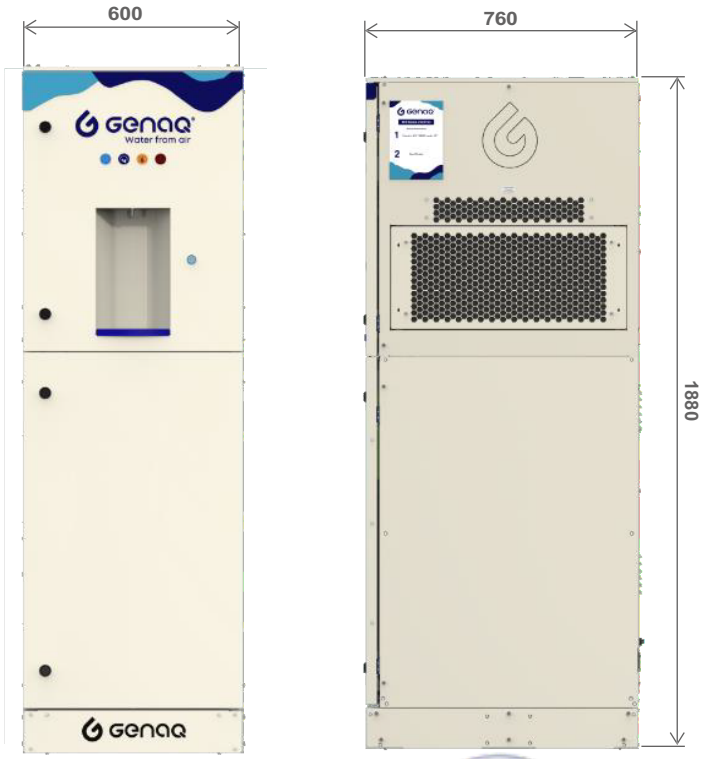


Figure 3: Dimensions

1.2.2. Safety Recommendations

To avoid all accidents risks during installation, commissioning, or maintenance, it is mandatory to follow the specific recommendations. The generator start-up, its repair and maintenance must be carried out by qualified personnel.

It is mandatory to follow the recommendations and instructions contained in maintenance manuals, labels, and specific instructions.

Before intervening in the generator, verify that the general generator power is cut to avoid electric shock

Refrigerant leaks can cause:

- Asphyxia, due to displacement of oxygen from the air, narcotic effect, and cardiac arrhythmia, due to refrigerant's inhalation.

Always ensure good ventilation in the work area

- Eye irritations and burns from splashes or skin contact.

Wear safety glasses and gloves. Avoid all contact of the skin with the cooling fluid

Be careful with the cutting elements of the generator

In case of accident by coolant inhalation, act according to the following instructions:

- Move the victim to a place where he/she can breathe fresh air. The victim must remain lying down or in the sideways.
- Call emergency medical services if necessary.

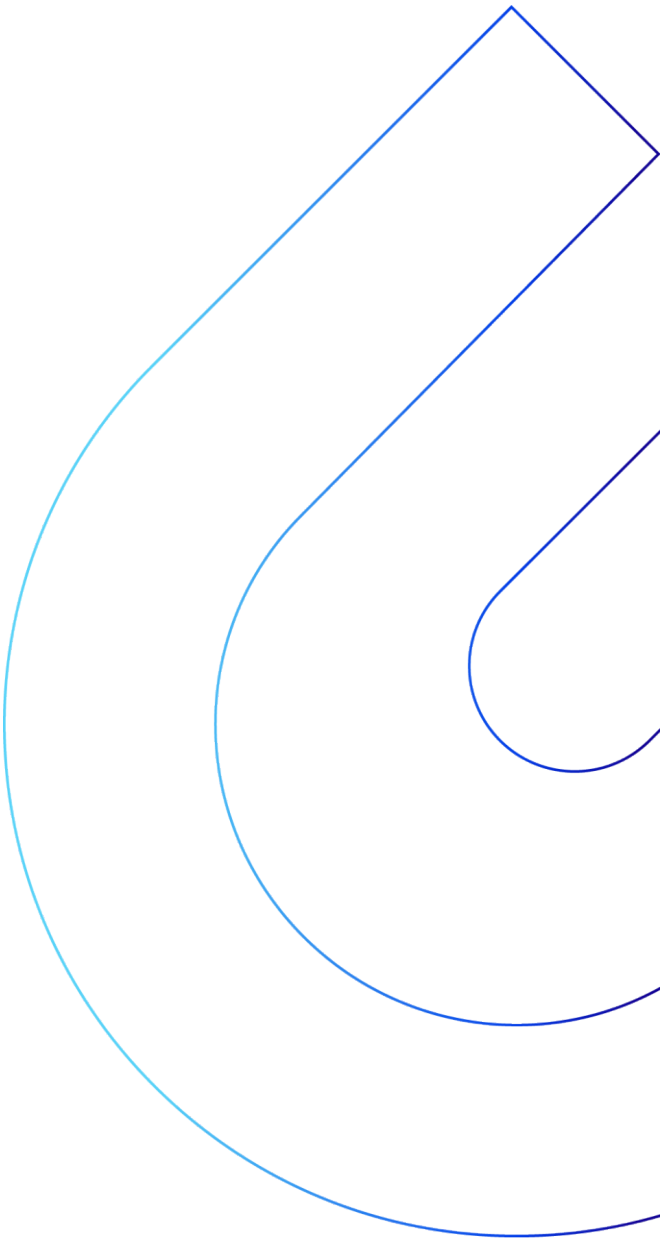
In case of eye injuries due to refrigerant splash:

- Never rub your eyes. if contact lenses are used, they must be removed.
- The eyelids will be kept open and rinsed with plenty of water.
- Then, the victim will be transferred to a specialist doctor (ophthalmologist) or to an emergency service.

In case of skin burn by coolant contact:

- Rinse the affected parts with plenty of tap water and keep applying it while removing the clothes.
- The affected parts should never be covered with clothing, bandages, oil, etc.

2. Start-up



2.1. First Start-up

The generator location will condition its functioning. For optimum performance, follow these steps:

- Once received, check that there have been no damages in the generator or its components.
- Place the generator in an area with good air renewal and away from heat sources, clearing its intakes to facilitate the air aspiration and expulsion, and avoid air recirculation as much as possible.

> ⚠ To ensure good air circulation around the generator, air inlets and outlets must be clear.

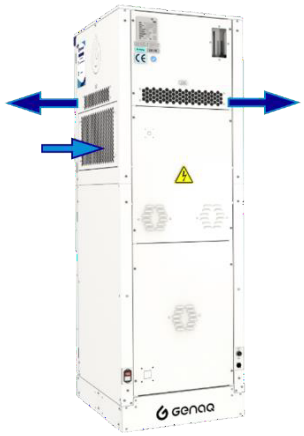


Figure 4: Air intakes and outtakes

- Prior to start up, the generator must remain in vertical position for at least 24 hours.

For the first generator start-up (or after long inactivity periods), it is mandatory to perform a water tank cleaning and compete filling followed by a tank complete emptying thought the Service.

After long periods of inactivity hyperchlorination must be carried out, as indicated in the section ***Preservation in long periods of inactivity***.

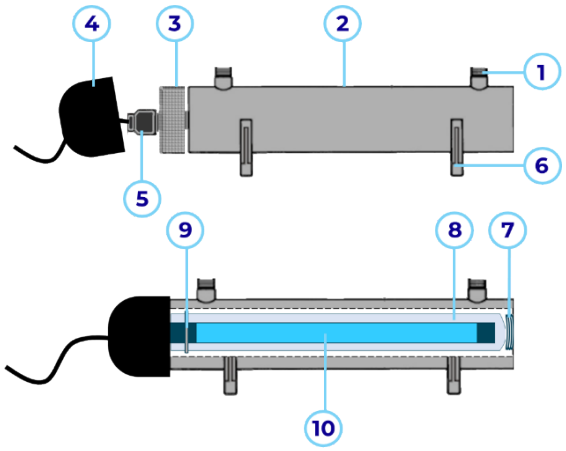
If you have worked inside the generator, check that you do not leave any object inside, that there are no gas leaks and that the hydraulic connections have been carried out properly.

2.1.1. UV Lamp Installation

The UV lamp is used to prevent the appearance of microorganisms in the hydraulic system. To do this, water is recirculated from the tank periodically.

> The ultra-violet rays are harmful to skin and eyes.

> The UV lamp will beep in the following cases:
> - If the UV Lamp is broken
> - If the UV Lamp connector is not properly connected



Number	Description
1	Water inlet / outlet connection
2	UV Lamp body
3	Quartz sleeve lock nut
4	PVC cap
5	UV Lamp connector
6	UV Lamp clamp
7	Quartz sleeve clamping spring
8	Quartz sleeve
9	Sealing O-ring
10	UV Lamp

Figure 5: UV breakdown

You will receive your Generator with the UV lamp removed and packaged to avoid damage during transportation. It is necessary to install the Lamp **BEFORE STARTING THE GENERATOR**, make sure you have all the components before starting the assembly.

The assembly instructions are shown in the following sequence:

- Access the UV Lamp located in the hydraulic circuit.
- Extract the UV Lamp body (2) from the holder and unscrew the Quartz sleeve lock nut (3).

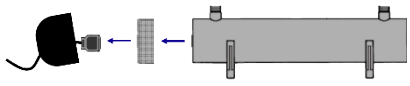


Figure 6: UV Lamp body breakdown

** Depending on the model, hydraulic connections are done with quick connectors or with screwed connectors. In the latter case, auxiliary tools may be necessary (like a crosshead screwdriver).*

Make sure that the sealing O-ring (9) is installed in the quartz sleeve. Introduce the quartz sleeve (8) into the UV Lamp body (2). Insert the quartz sleeve keeping the tube completely straight to avoid damage the sleeve, this component is especially fragile.

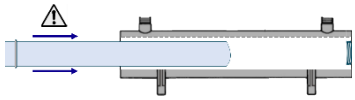


Figure 7: Quartz sleeve installation

- Screw the lock nut (3) to the UV Lamp body (2).

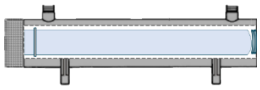


Figure 8: UV lamp lock nut

- Connect the UV Lamp (10) to the connector (5) and insert the lamp into the quartz sleeve (8). The Lamp must be inserted completely straight without damage the quartz tube.

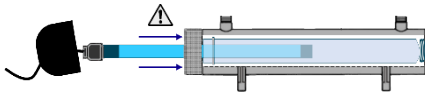


Figure 9: UV lamp installation

- Once all components are properly connected, insert the PVC cap (4) and install the UV lamp into the holder.

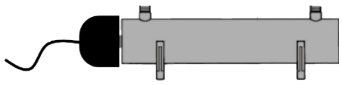


Figure 10: UV lamp

In case the UV lamp stops working, there will be a beep indicating it. In that case, the lamp would need to be replaced.

2.1.2. Waste Management

After the generator installation, recycle the packaging and the pallet respecting the environment.
When replacing the generator or any of its components, respect the environment, using an authorized company to remove and recycle, in accordance with the current legislation.

2.1.3. Transportation

GENAQ Stratus S200 has been designed to facilitate their transportation, please, remove the lateral register, and move the generator helped by a forklift or a pallet truck.

The transport sides are composed of the following parts:

- Left side
- Right side
- Screw kit

Please follow these instructions:

1. Check the right side and screw it.

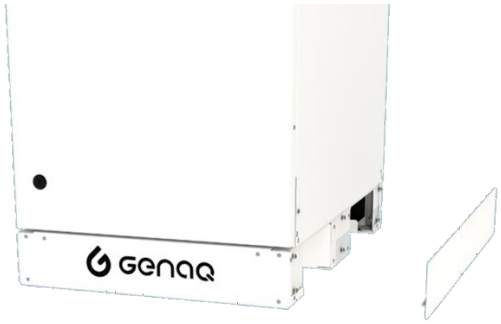


Figure 11: Pallet register

2. Repeat the sequence with the left side.

> ⚠ Make sure turn off the generator and disconnect it from the power grid before moving it

2.1.4. Transformer box connection (for V115160 optional)

If you acquire your GENAQ Stratus S200 with the optional V115160 (115V/I/60Hz), **it is mandatory to connect the generator to the transformer box that is included in the shipment before its start-up**.

To properly connect the generator, follow these instructions:

- Connect the generator to the 230V socket in the transformer box.

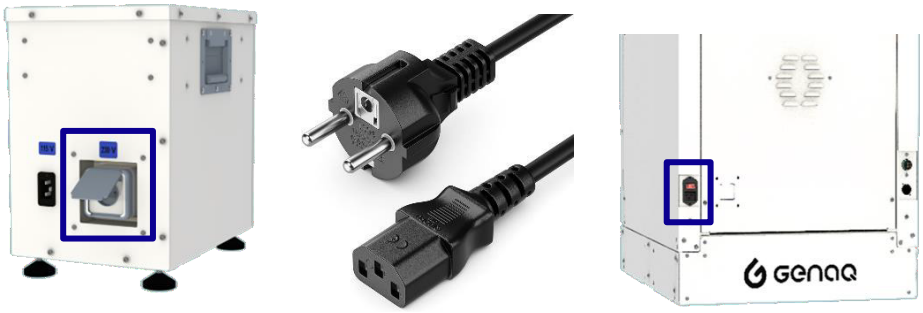


Figure 12: OV115160 power supply connection. Generator-Trafo

- Connect the transformer box to the 115V electrical current with the plug.

Figure 13: OV115160 power supply connection. Trafo-Power supply (V115160)

2.1.5. Frequency Variator (for FV optional)

If you acquire your GENAQ Stratus S200 with the optional FV, the generator will work with a different voltage (400V/III/50Hz), please consider the following indications:

- The power grid connection must be adapted to the plug and voltage that requires this optional.

Figure 14: Frequency variator socket type

- The frequency variator is installed in the electrical board.

Figure 15: Frequency variator location

2.1.6. Working Modes

GENAQ Stratus S200 is designed to be able to work with 3 operating modes:

- Internal tank
- Internal tank + Emptying water
- Internal tank + External tank

Water service is available whenever the lower-level buoy of the internal tank is active. Likewise, once the lower buoy of the internal tank is activated, the water in the internal tank will begin to cool (if water cooling is enabled).

The main characteristics that differentiate each working mode are shown in the following table:

<table>
<tr><th>Mode</th><th>Internal tank is empty</th><th>Recirculation of internal tank</th><th>Internal tank is full</th><th>Recirculation of external tank</th><th>External tank is full</th></tr>
<tr><td>Internal tank</td><td rowspan="2">No actions</td><td rowspan="3">Once the internal tank lower-level buoy is active</td><td>Generation stops</td><td rowspan="2">No actions</td><td rowspan="2">No actions</td></tr>
<tr><td>Internal tank + Emptying water</td><td rowspan="2">Emptying of the water from the internal tank to the external tank up to the middle-level buoy</td></tr>
<tr><td>Internal tank + External tank</td><td>Filling the internal tank from external tank to the middle-level buoy</td><td>Once the external tank lower-level buoy is active</td><td>Generation stops</td></tr>
</table>

For “Internal tank + external tank” operation mode, it is necessary to install a food grade external tank.
For “Internal tank + emptying water”, it is advisable to connect the generator to an external storage or pipeline to use the water.

For a quick first start up and first filter cleaning, it is advisable using at least 20 liters water to fill the condensation tray and let it flow until the water runs clear to eliminate activated carbon particles that may contain the new filters.

For long periods of inactivity (more than 1 week), please, check section “**Preservation During Long Periods of Inactivity**”.

2.1.2.1. External Tank Installation (for Internal tank + External tank mode)

If the generator will be used with an external tank, follow the instructions:

- Connect the external-tank pipes:
  - Connect a pipe in ***Inlet from Tank*** (2) to the tank outlet.
  - Connect a pipe in ***Outlet to Tank*** (1), to the tank inlet.
  - Open these valves.

Number	Description
1	Outlet to tank
2	Inlet from tank

Figure 16: External tank connections. Automatic with tank

- Connect the level buoys as follows:
  - Upper-level buoy (EUB):
    - Introduce the level buoy into the external tank.
    - Regulate the high-level float switch as shown in the images.

Make sure the level buoy does not rub into the top of the tank.
Once the level is regulated, please affix the float with the safety ring.

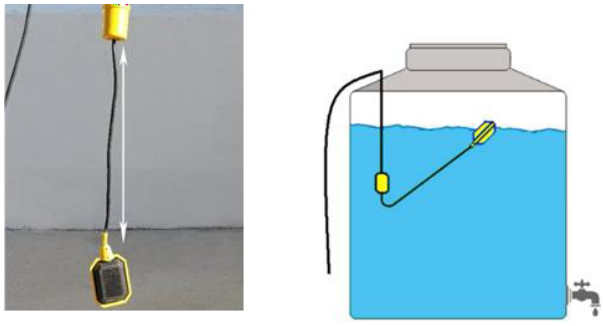


Figure 17: Upper buoy installation

  - Lower-level buoy (ELB):
    - Introduce the level buoy into the external tank.
    - Regulate the Lower-level float switch as shown in the images.

Make sure the level buoy does not rub with the bottom of the tank.
Make sure the level float is higher than the level of the external tank tap.
Once the level is regulated, please affix the float with the safety ring.

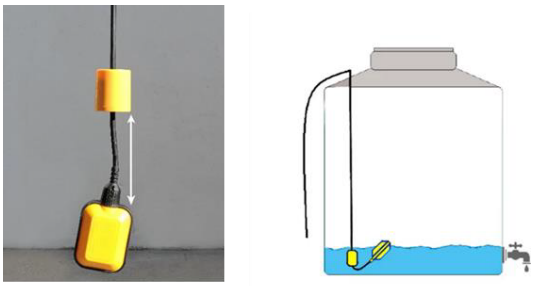


Figure 18: Lower buoy installation

- Connect the buoys connector:

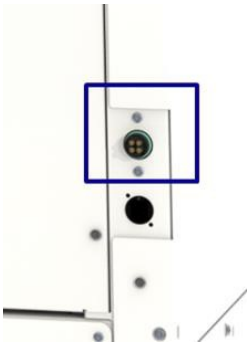


Figure 19: Buoys connection

2.1.2.2. External Tank Installation (Internal tank + Emptying water)

If the generator is to be used to fill an external tank, follow the instructions:

- Connect the external-tank pipes:
  - Connect a pipe in ***Outlet to Tank*** (1), to the tank inlet and open the valve.

Number	Description
1	Outlet to tank

Figure 20: External tank connections. Automatic without recirculation

2.1.2.3. Internal tank

For Internal tank mode there is no necessary to install an external tank, close the valves “Outlet to tank” and “Inlet from tank”.

2.1.2.4. External Tank Selection Recommendations

This section aims to give recommendations that will facilitate the selection, installation, and use of an external water tank fed by an Atmospheric Water Generator.
These indications **do not exclude the obligation to comply with the drinking water quality regulations** applicable in the place of use of the Generator.

- External Water Tank Material

1. The water tank material must be suitable for drinking water (it is recommendable that it has a food grade certificate or similar).
2. The valves and pipes must be built with materials that do not introduce into the water any substance or microorganism that alters its potability.
3. The rest of the materials used for the external tank installation or for fixing it with another element must have food certified to ensure their compatibility with water for human consumption (for example, food grade silicone).

- External Water Tank Conditions

1. The tank must be sized according to daily use. You can also consider the followings indications:
    a. If the water is treated with chlorine, it must be renewed at least once a week. You cannot mix chlorinated water with unchlorinated water; this eliminates the disinfection efficiency of chlorine.
    b. The water cannot remain in the tank for more than 48 hours if not treated with chlorine.

For both cases, the water **cannot remain stagnant** so it must have a recirculation system towards an ultraviolet lamp. The recirculation system must ensure that the tank fully recirculates every 4 hours.

2. The tank piping must be insulated, the joints must be periodically cleaned and checked for leaks or corrosion caused by lack of insulation.
3. The tank must be kept sealed to prevent contamination.
4. The interior of the tank must be accessible to allow cleaning, inspection, etc.
5. The tank must have a purge system for its total emptying after maintenance tasks.
6. The recommended external tank **capacity is 200 litters** maximum.

- External Water Tank Location

1. The storage water must remain at a temperature below 20ºC to avoid the appearance of microorganisms.

2. The tank should not be exposed to sunlight for a long time. This wears down the material in the reservoir and can alter the quality of the water.
3. Do not install the tank in places with high humidity, this can cause condensation in the pipe.
4. Install the tank as close to the generator as possible to minimize the amount of standing water in the pipeline.
5. It is advisable to place the generator on a smooth surface, if possible, with an elevation from the ground.

- Water Quality

1. To ensure the quality of the water in the external tank, it may be necessary to install an additional filtration system sized according to the dimensions of the external tank.
2. If the use of the water stored in the external tank is for human or animal consumption:
    a. Depending on the dimensions of the external tank, it may be necessary to carry out periodic analysis to ensure that the water quality parameters comply with the regulations for drinking water.
    b. In case of not complying with any of the parameters regulated by the regulations, the **water in the tank will be discarded and cannot be consumed** until the alteration source of this parameter/parameters has been eliminated.
3. After any maintenance task it is necessary to sanitize the circuit. Do not use solvents, degreasers or products that are harmful to people.

2.2. Quick Start Guide

GENAQ Stratus S200 have a friendly interface that allow to identify the generator status according to the illumination of these icons:

Number	Description
1	**Generation enabled** The icon is activated when generation is enabled by pressing the **Generation switch**
2	**Water generation** The icon is activated when the generator is generating water **Water generation can be stopped because the tank is full or for other reasons*
3	**No water** The icon is activated when water service is unavailable
4	**Alarm** Any alarm stops water generation

Figure 21: Display

To start-up the generator, follow these instructions:

2.2.1. Turn On the generator

To activate the generator, connect the socket to the power grid and activate the **Power switch** located at the back of the generator.

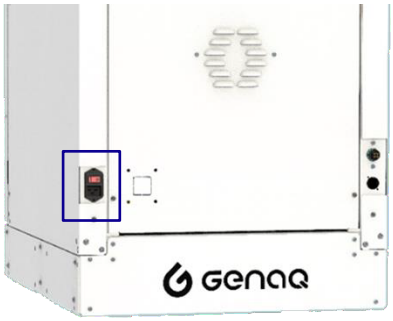


Figure 22: Power switch

2.2.2. Water treatment first start-up

Before activating the water generation and service, it is necessary to clean the new water filters. This is especially important to eliminate particles that new filters may contain. It will be necessary to use a container to catch the spilled water.

Open the water treatment access door, you will find these three pipes disconnected:

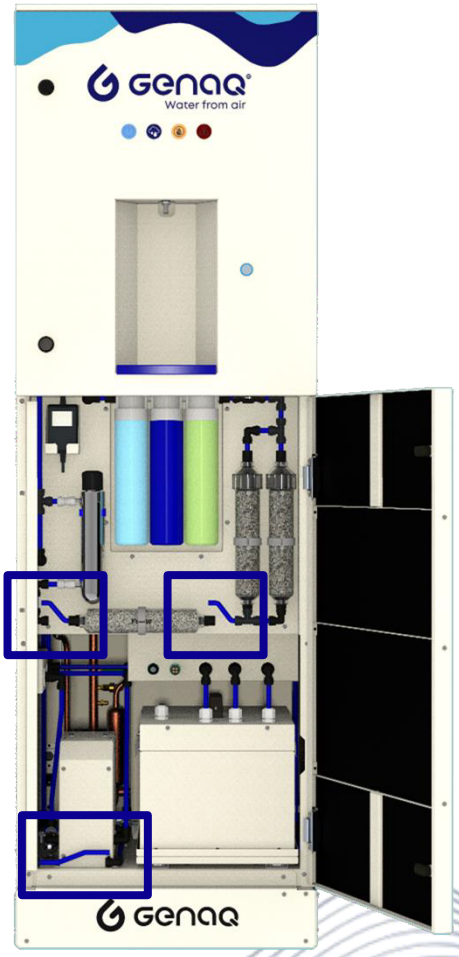


Figure 23: Hydraulic circuit disconnected

Follow the steps below:

1. Activate maintenance mode, there is some ways to do that:
   If you don't have an external display:
   Follow instructions indicated in Offline control sticker

   Access to "commands" menu and activate "maintenance mode". For more detailed information regarding Offline Control access, see Offline Control chapter.

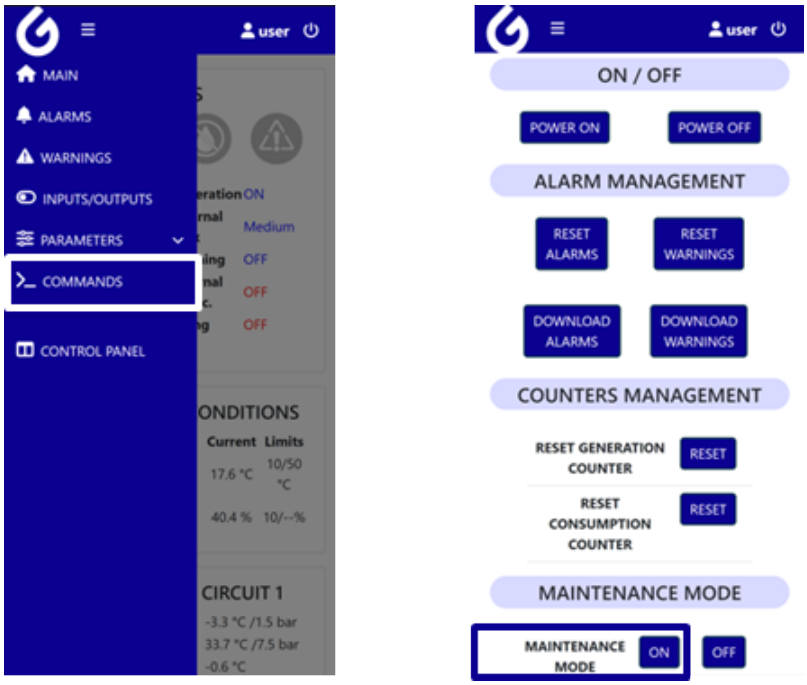


Figure 24: Maintenance mode – Offline control

If you acquire an external display (it must be acquired separately and configured by GENAQ), you can activate this mode thought the screen.

- Access the main screen by pressing "Main" icon and introduce your password.

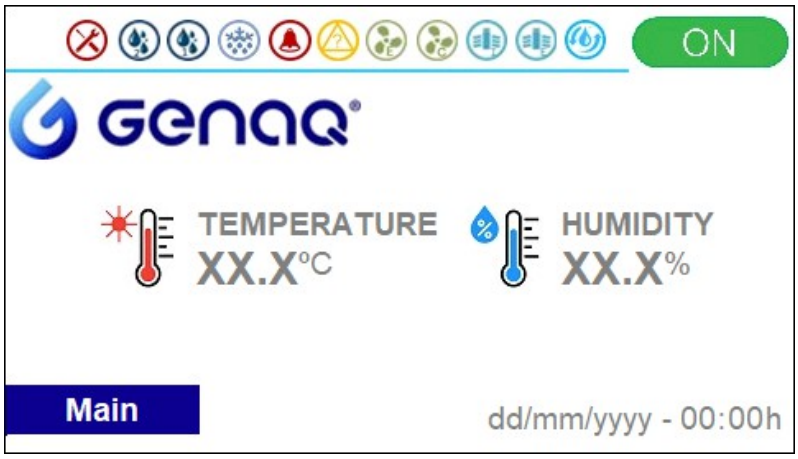


Figure 25: Main screen

- Access the maintenance menu by pressing “Maintenance” icon.

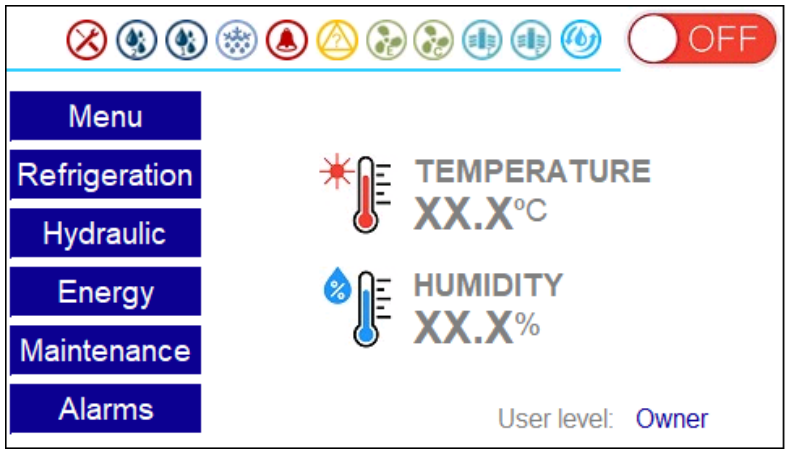


Figure 26: Maintenance menu

- Activate the maintenance mode, Use the arrows to highlight the option to modify. Using the "SET" button and the arrows, activate maintenance mode.

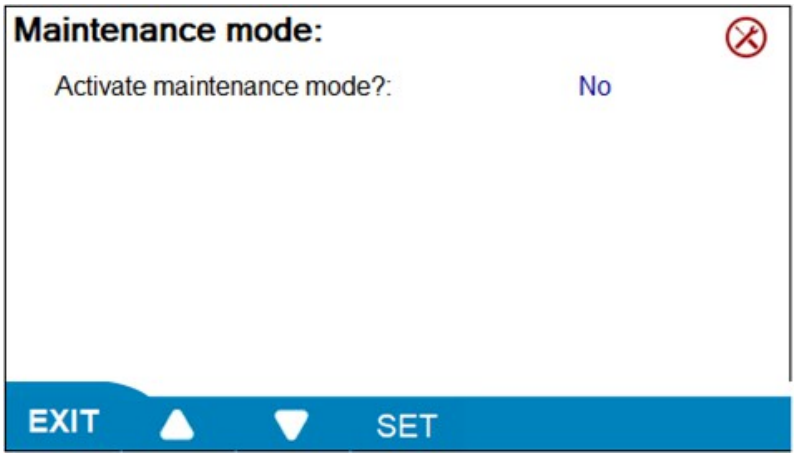


Figure 27: Maintenance mode activation

- Once the maintenance mode is configured, proceed with the water filter activation.

2. Fill the internal water tank to the top level.
3. Press the service button until no air comes out of the next pipe:

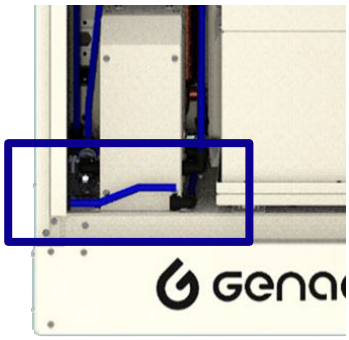


Figure 28: Pump pipe

4. Connect the pipe

5. Press the service button until the tank is empty by this pipe:

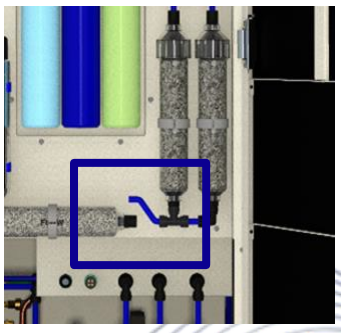


Figure 29: ZF pipe

6. Discard the collected water by this pipe
7. Connect the pipe
8. Fill the internal water tank to the top level
9. Press the service button until the tank is empty by this pipe:

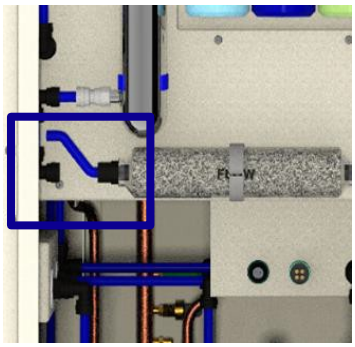


Figure 30: MF pipe

10. Discard the collected water by this pipe
11. Connect the pipe

After this procedure the generator should be left with all pipes connected like the following picture:

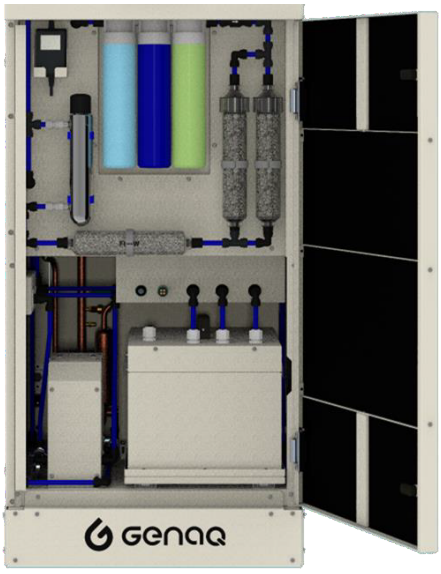


Figure 31: Hydraulic circuit connected

Once you have checked that all the pipes are connected, deactivate maintenance mode and you close the lower door of the generator.

2.2.3. Turn On the water generation

To activate the generation, open the upper frontal door and activate the **Generation switch**

Figure 32: Generation switch

2.2.4. Serve Water

To serve water first you must follow the steps to Turn On the generator. Then:

- Make sure the “No water” icon is deactivated.
- Press the **Service button** to start the service. Release the **Service button** to stop the service.

Figure 33: Service button

2.3. Offline Control

Offline Control is the default interface and access method for Stratus S200-3.2 by which you can use your own device to access generator settings. This chapter will cover the access mode and a brief description of the functionality and information provided by this system.

2.3.1. Access guide

Access to the server can be done via the direct connection method of the node in the LAN network or via the application on the Android platform. The access instructions are available online visiting your generator QR code.

Figure 34: Offline control acess

a) Direct connection from QR

To establish a direct connection, a manual scan of Wi-Fi networks must be carried out from the device from which we want to connect.

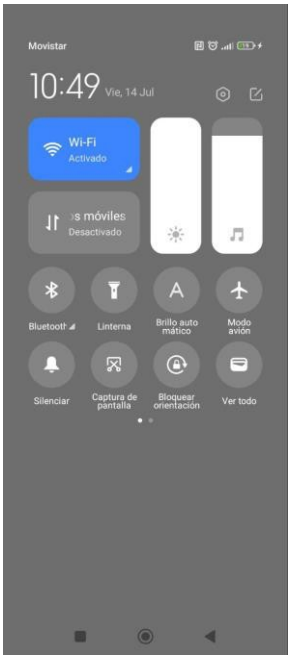


Figure 35: Android Wi-Fi activation and scan

The network scan should show the SSID of the generator's access point if we are in range. By connecting to this network, we enter the generator's local area network, which allows us to access the generator's web interface.

Figure 36: Android Wi-Fi network scan results

At this point, access the following *link* or open “192.168.0.250” in your web browser.

Remember that disconnecting your mobile data may be necessary

After a few seconds you should see the server login, where you will have to enter your access data.

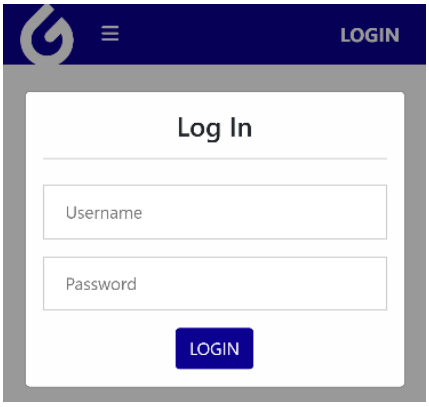


Figure 37: Webserver login interface

b) Connecting via APP

For the new versions of Offline Control, GENAQ has developed an app to make it easier to access the web server, which is available for Android in the Play Store.

It is very easy to use and allows both offline access via Offline Control and Online access if you have subscribed to the kiconex platform.

Once you have the *GENAQ app* installed on your Android device, when you start it and after the welcome screen you will see an interface like the one shown in the picture below. This interface is where you can decide whether you want to use the app to access kiconex online monitoring platform, or whether you want to connect to the generator via Offline Control.

Figure 38: Webserver app interface

To connect to Offline Control, select the **OFFLINE** option, after which you will be required to activate the location of the device and a series of permissions that the application needs to make the connection to the generator. (This is only necessary the first time you connect).

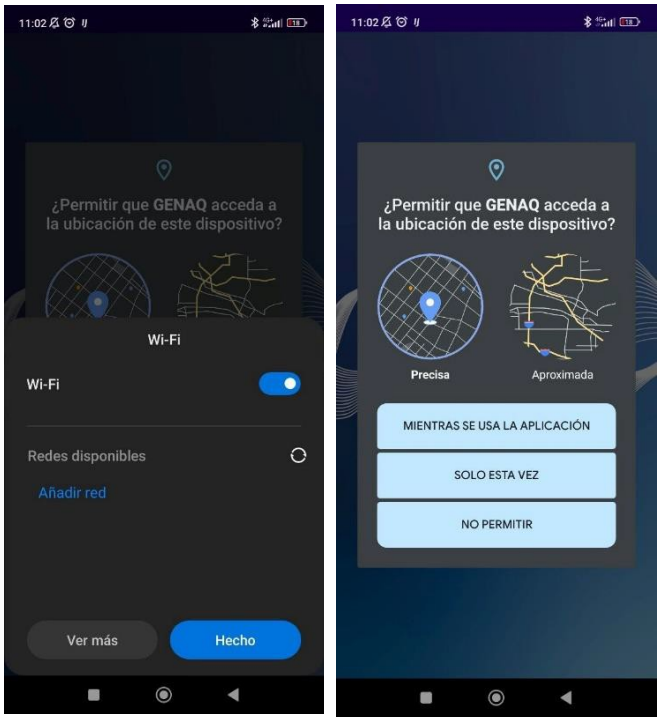


Figure 39: Webserver app interface

After accepting the permissions and enabling both Wi-Fi and location, the application will start scanning nearby Wi-Fi networks and shows only those belonging to GENAQ generators. Selecting one will connect you to the network of that generator and you will be automatically redirected to the web interface login.

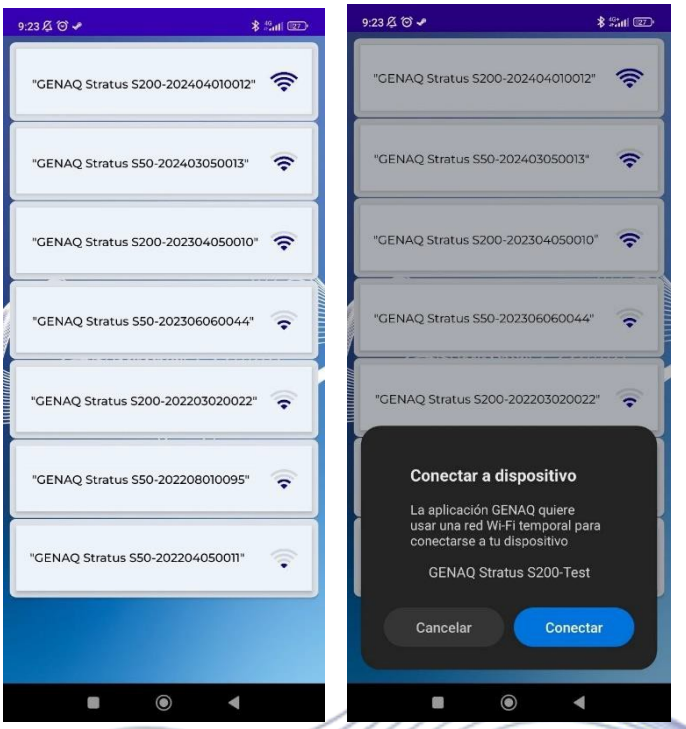


Figure 40: Generator-webserver connection

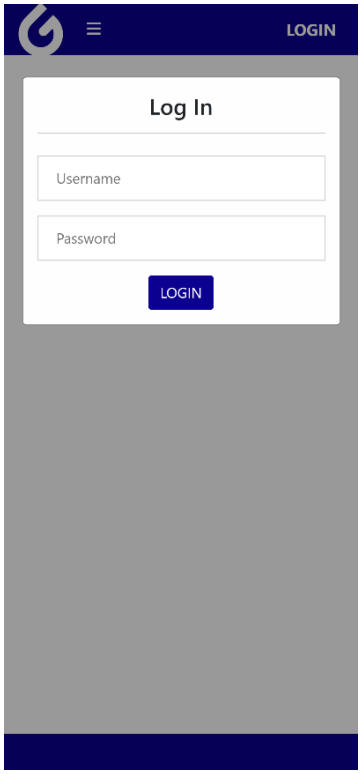


Figure 41: Webserver login interface via APP

2.3.2. Web Interface review

The user interface of "Offline Control" is designed to provide an intuitive and accessible experience. From it, you can monitor all the important variables of your generator, as well as act directly on its behavior. The following chapters aim to guide you through all the functionalities offered by this new interface.

a) Login

As shown before, when accessing the server by any method, the first thing that appears is the login. Your access data must have been previously provided by GENAQ.

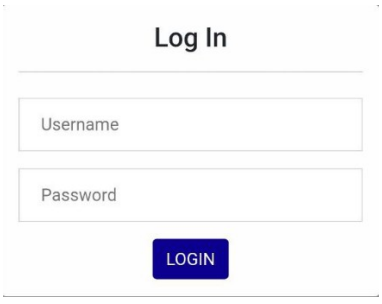


Figure 42: Webserver login interface

a) Side menu

The user interface structure is organized by tabs with specific functionalities. The sidebar is the easiest method of navigating between tabs, and it shows all those to

which a certain level of user has access. You can access this general menu at any time by clicking on the three-bar icon located in the top left corner of your device.

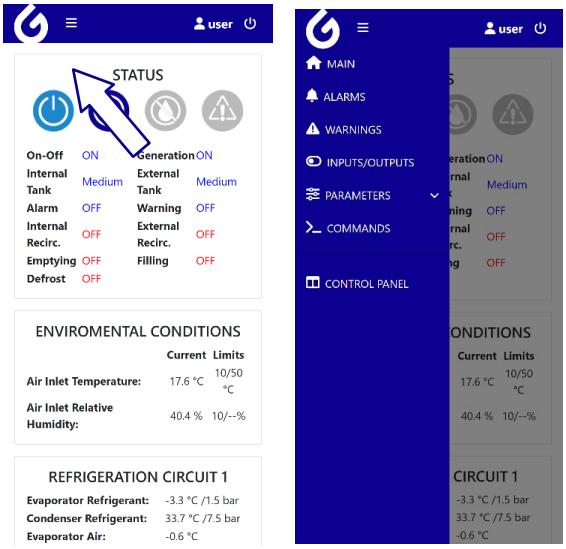


Figure 43: Main interface views

c) Main Dashboard

Upon logging in, you will be greeted by the Main Dashboard, which presents an instant summary of the status of the atmospheric water generators, including environmental indicators and the general state of the system. This dashboard adapts responsively to each generator, incorporating pertinent information and excluding details that are not applicable to specific generator models, so its interface may vary slightly from the following images. The utility of this dashboard is purely informative, and no action can be performed on the generator from this tab.

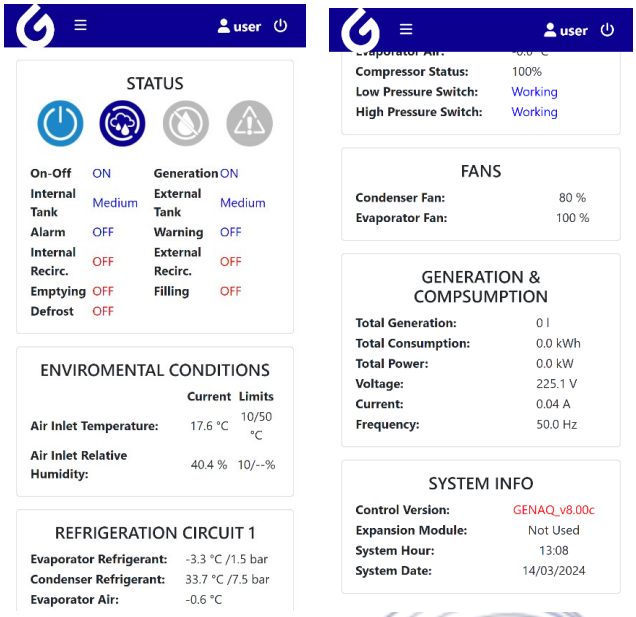


Figure 44: Main interface views

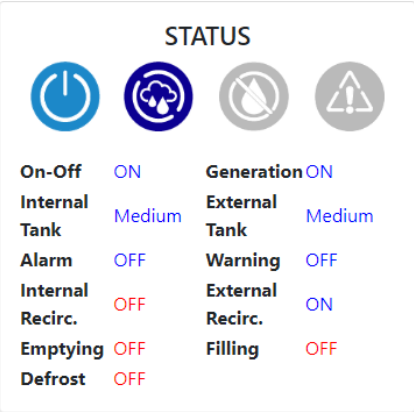


Figure 45: Status view

The STATUS card provides an overview of the generator's condition, displaying external LED indicators and the main variables of the hydraulic circuit.

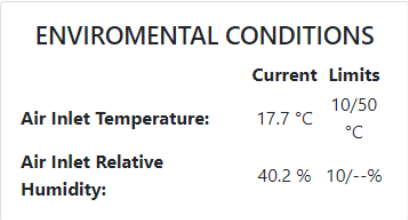


Figure 46: Environmental view

The ENVIRONMENTAL CONDITIONS card provides a detailed and updated view of the environmental factors that directly influence the performance of the atmospheric water generator. Through precise readings from external probes, this card displays both the air inlet temperature and relative humidity. Additionally, the programmed operational limits are clearly set and shown, which are essential for ensuring the generator's optimal functioning and efficiency. If the external conditions exceed these ranges, the generator will automatically pause its water production, activating a warning signal to inform the user.

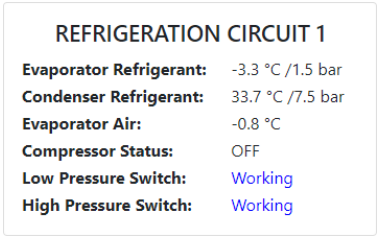


Figure 47: Refrigeration circuit view

The REFRIGERATION CIRCUIT cards provide a comprehensive overview of the operation and safety of the refrigeration circuits that enable atmospheric generation. Here, the most important variables of the cycle are presented in real time. The system will display a card of this type for each circuit it has.

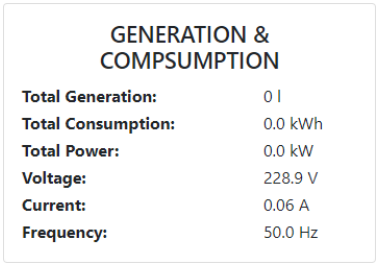


Figure 48: Generation and consumption view

For generators that incorporate a network analyzer and consumption meters, here you can consult the electrical variables that affect their supply, as well as a count of the liters of water generated.

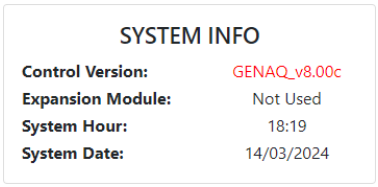


Figure 49: System view

On the SYSTEM INFO card, you can check your generator's software version, as well as your system's time and its input and output architecture.

Figure 50: Water cooling view

In case the generator has water cooling, a WATER COOLING card will appear in this view with the main variables and status of this functionality.

b) Alarms and warnings

These tabs are very similar and show the active alarms and warnings, as well as the history of the last ten alerts from the generator. Unlike the rest of the tabs, these can also be accessed through the buttons on the top bar, which are displayed in the event of an active alarm or warning.

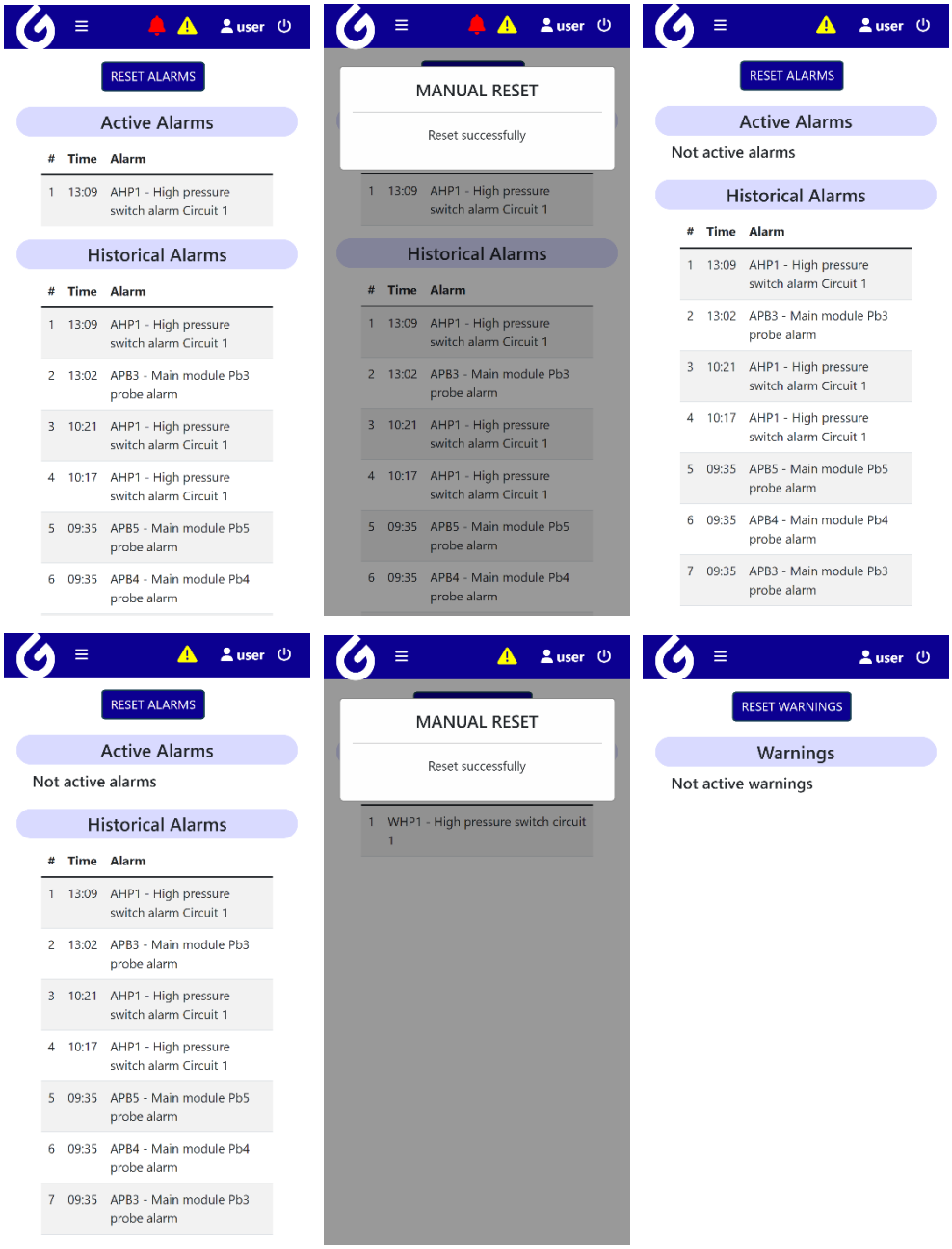


Figure 51: Alarms and warnings view

From these tabs, it is also possible to reset certain active alarms and warnings, provided that the cause has been previously resolved. For more information on resetting alarms and warnings, consult the corresponding guide.

c) Inputs/Outputs

The input/output's view shows the instantaneous value of all signals configured for your generator model, this tab is used to obtain a comprehensive view of the system's operation.

Figure 52: Alarms and warnings view

d) Parameters

The parameters are organized by category to make them easier to find, one for every specific configuration of the generator. Access to most of these menus is limited to the professional technician and the GENAQ team, so before accessing them, it will be necessary to log in with one of these two profiles. From the user level, it is possible to change the system's date and time.

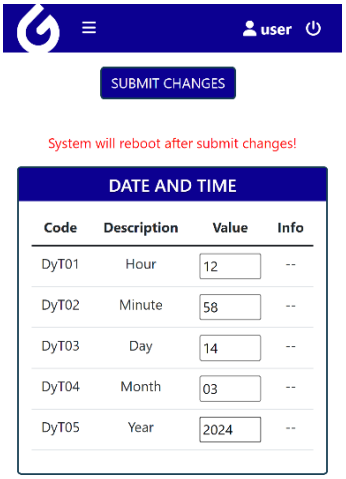


Figure 53: Parameters view

e) Commands

Finally, the commands menu allows you to act on the start and stop status of the generation, load or save the .conf files previously saved in the controller's memory and reset certain alarms or restart the system logs. From this tab, it is also possible to access the hydraulic circuit's maintenance mode. In this mode, all water generation and management routines are stopped, allowing the user to clean and tune the hydraulic circuit safely.

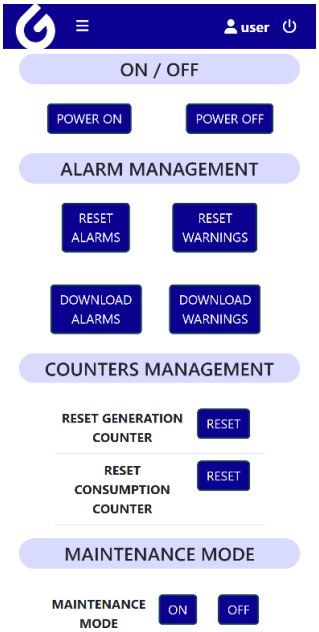


Figure 54: Commands view

2.4. Alarms and Warnings

2.4.1. Alarms Description

Table 2: Alarms description

Label	Description	Effect	Reset
APB1 APB2 ... APB10	Main module PbX probe alarm	Alarm sign Stops water generation	Automatic: Once the probe recover its value
APBE1 APBE2 ... APBE7	DIN4 expansion module PbX probe alarm	Alarm sign Stops water generation	Automatic: Once the probe recover its value
APBX1 APBX2 ... APBX10	DIN10 expansion module PbX probe alarm	Alarm sign Stops water generation	Automatic: Once the probe recover its value
ACC1	Circuit 1 Compressor Alarm	Alarm sign Circuit 1 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator if the alarm appears more than 5 times in less than 1 hour Automatic: Once the digital input is recovered
ACC2	Circuit 2 Compressor Alarm	Alarm sign Circuit 2 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator if the alarm appears more than 5 times in less than 1 hour Automatic: Once the digital input is recovered
ASC1	Safety line of Circuit 1	Alarm sign Circuit 1 compressor stops Stops water generation	Automatic: Once the digital input recovers its value
ASC2	Safety line of Circuit 2	Alarm sign Circuit 2 compressor stops Stops water generation	Automatic: Once the digital input recovers its value
AHP1	High pressure switch alarm Circuit 1 Exceed of pressure switch activations	Alarm sign Circuit 1 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator
ALP1	Low pressure switch alarm Circuit 1 Exceed of pressure switch activations	Alarm sign Circuit 1 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator
AHP2	High pressure switch alarm Circuit 2 Exceed of pressure switch activations	Alarm sign Circuit 2 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator
ALP2	Low pressure switch alarm Circuit 2 Exceed of pressure switch activations	Alarm sign Circuit 2 compressor stops Stops water generation	Manual: It is necessary turn off/on manually the generator

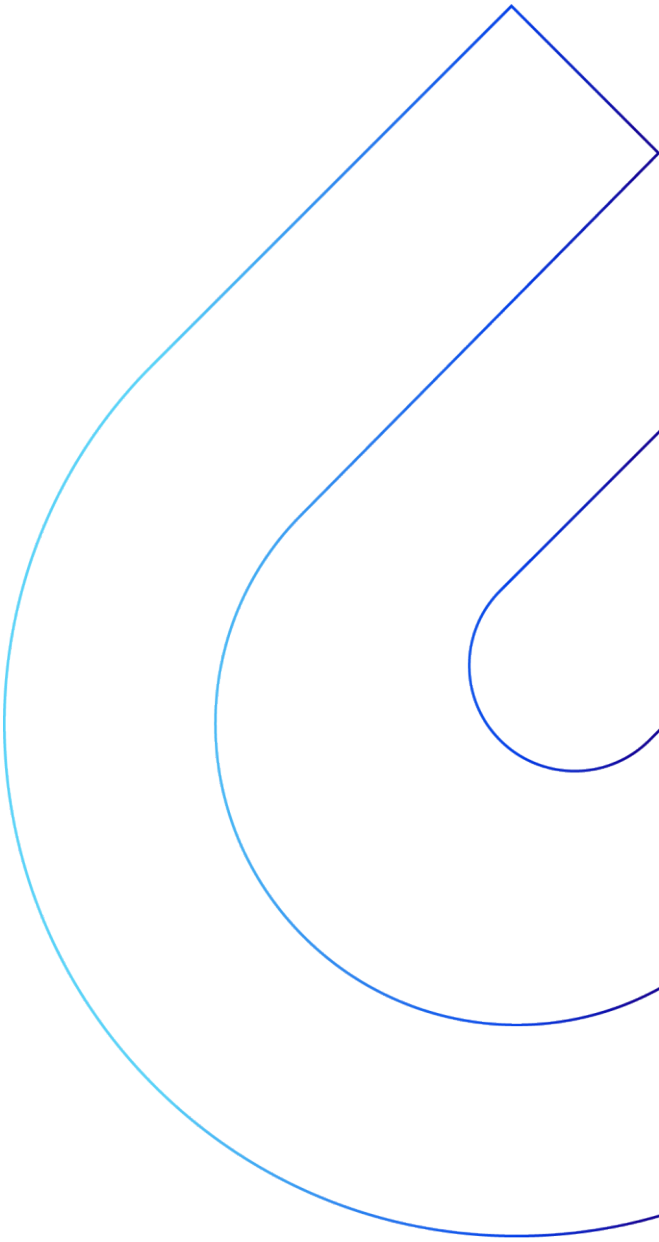
Label	Description	Effect	Reset
AFAN	Fans failure alarm	Alarm sign Stops water generation	Automatic: Once the digital input recovers its value
ACNF	Circuit number configuration alarm	Alarm sign Stops water generation	Manual: It is necessary reconfigure the generator
ATET	Tray emptiying time The water flow is very low	Alarm sign Stops water generation	Automatic: Once the upper tray buoy is deactivated Manual: It is necessary turn off/on manually the generator
AZWF	Zero water flow	Alarm sign Stops water generation Stops tray water pump	Manual: It is necessary turn off/on manually the generator
ANLK	No-link expansion module 4DIN	Alarm sign The probes changes the value to "error". The reading of the digital inputs changes to "false" Stops water generation	Manual: It is necessary reconfigure the generator
ANLK	No-link expansion module 10DIN	Alarm sign The probes changes the value to "error". The reading of the digital inputs changes to "false" Stops water generation	Manual: It is necessary reconfigure the generator
ACS1	Coresense compressor 1 Circuit 1	Alarm sign The control will register in an internal file the type of alarm produced in the coresense Stops water generation	Automatic: Once the problem in the compressor is solved
ACS2	Coresense compressor 2 Circuit 1	Alarm sign The control will register in an internal file the type of alarm produced in the coresense Stops water generation	Automatic: Once the problem in the compressor is solved

2.4.2. Warnings Description

Table 3: Warnings description

Code	Description	Cause	Check
WHP1 WHP2	High pressure switch circuit X	The high pressure switch is active. If the pressure switch is activated a predefined number of times in one hour, the water generation will stop and the AHPX alarm will be activated.	Check the pressure in the high sector of the respective circuit.
WLP1 WLP2	Low pressure switch circuit X	The low pressure switch is active. If the pressure switch is activated a predefined number of times in one hour, the water generation will stop and the AHPX alarm will be activated.	Check the pressure in the low sector of the respective circuit.
WDF1 WDF2	Defrost finished by time circuit X	The defrost has ended because a predefined time has been exceeded since its start.	Check the amount of ice in the evaporator.
WOPE	Operation limit reached	Ambient conditions are outside the predefined operating limits of the generator. The water generation stops.	Check the reading of the values of the input temperature and humidity probes.
WLFR	Low water flow rate	The tray emptying water flow rate is lower than the predefined value.	Verify emptying of the condensation tray and condition of the water filters.
WLNA	RS485 connectivity failure network analyzer	The control does not communicate with the network analyzer.	Check connection between NA and controller. Check Modbus address of the device.
WEV1 WEV2	RS485 connectivity failure EEV driver circuit X	The control does not communicate with the electronic expansion valve on circuit X.	Check connection between EEV and controller. Check Modbus address of the device.
WCS1 WCS2	RS485 connectivity failure Coresense circuit X	The control does not communicate with the Coresense on circuit X.	Check connection between Coresense and controller. Check Modbus address of the device.
WCS3	Coresense Compressor on circuit 1	Alarm message in the circuit 1 compressor	Check coresense light indicators
WCS4	Coresense Compressor on circuit 2	Alarm message in the circuit 2 compressor	Check coresense light indicators
WOWL	Off generation by water level	The generation of water stops because the water tank is full. It is not possible to store more water.	Check the connection of the level buoys and their correct operation
WSH1 WSH2	Off generation by superheating circuit X	The superheat is higher than the predefined value.	Check evaporation pressure
WPHP	Prevent high pressure	The refrigerant circuit pressure is higher than the predefined limit pressure.	Make sure the air inlet filters are cleaned, replace them.

3. Maintenance



3.1. Basic Maintenance

GENAQ Stratus S200 atmospheric water generator requires:

- **Basic Maintenance**, to be carried out by the user.
- **Professional Maintenance**, to be carried out by a refrigeration professional qualified for this generator.

> ⚠ Any repair, replacement, or intervention in the generator by unauthorized personnel will lead to the cancellation of the Warranty.

> ⚠ During maintenance, turn off the power and wear protective gloves to avoid possible cuts.

It is important to follow the Maintenance recommendations with the **frequency** indicated in this Manual.

The Basic Maintenance tasks are described below:

3.1.1. External Cleaning

To keep your generator free of dust and dirt, wipe the housing surface with a damp cloth. Do not use detergents or solvents.

Frequency: Depending on the location.

3.1.2. Air Filters

By the generator use, dust and dirt will be deposited on the air filters, hindering the air flow. This requires periodic filter cleaning and replacement.

> ⚠ It is mandatory disconnect the generator from the power grid before any maintenance task.

3.1.2.1. Air Inlet Filter

- Remove the filter as indicated in the following sequence.

Figure 55: Air inlet access

- Remove the filters and replace them. If spare parts are not available, please contact support@auqvian.se.

Frequency: Once a year, in dusty environments, the replacement frequency may increase.

3.1.3. Hydraulic Circuit

The hydraulic circuit is composed of several elements that require supervision, cleaning and replacement maintenance:

> ⚠ It is mandatory disconnect the generator from the power grid before any maintenance task.

3.1.3.1. Diagram

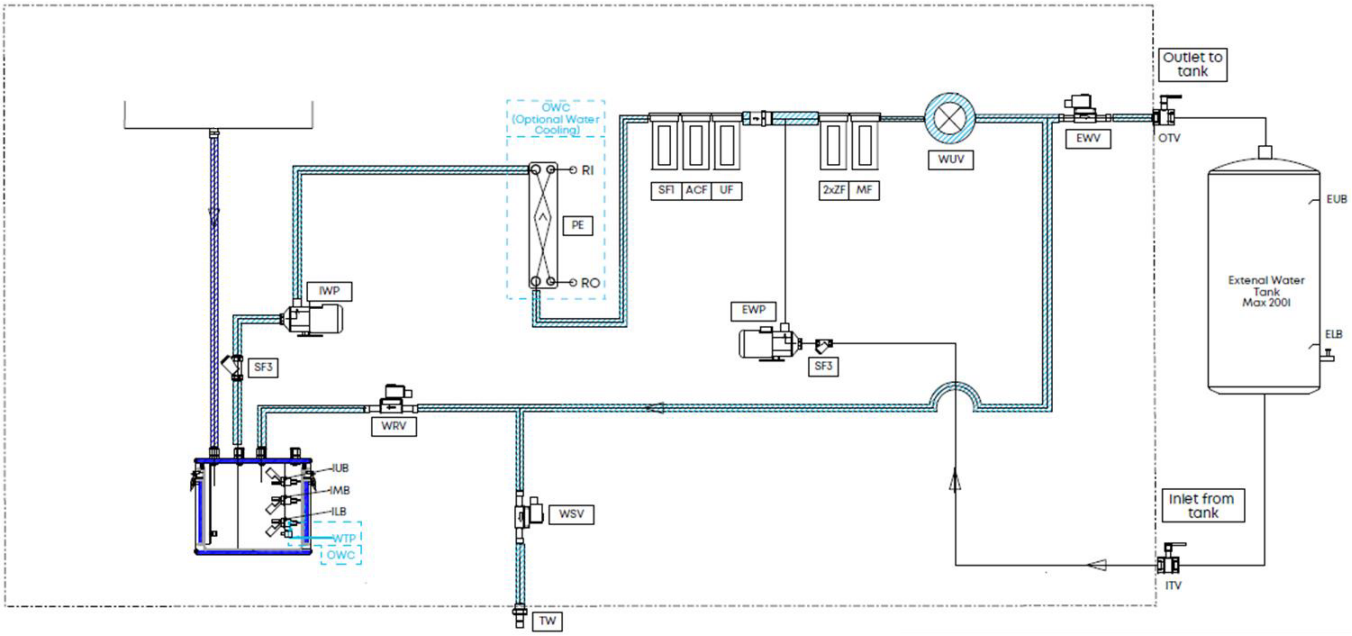


Figure 56: Hydraulic diagram

Code	Description	Code	Description
WSV	Service Water Valve	WUV	UV Lamp
WRV	Recirculation Water Valve	MF	Mineralization filter
EWV	External Tank Water Valve	ZF	Zeolite filter
EWP	External water pump	UF	Ultrafiltration filter
IWP	Internal water pump	ACF	Activated Carbon Filter
EUB	External Tank Upper Buoy	SF1	Sediment filter
ELB	External Tank Lower Buoy	SF3	Sediment Y Water Filter
IUB	Internal Tank Upper Buoy	BV	Bleed valve
IMB	Middle Tank Lower Buoy	OTV	Water outlet from generator to the external tank (OUTLET TO TANK)
ILB	Internal Tank Lower Buoy	ITV	Water inlet from external tank to the generator (INLET FROM TANK)
WTP	Water Temperature Probe	OWC	Optional Water Cooling
TW	Water tap	PE	Plates Exchanger

Figure 57: Hydraulic circuit

3.1.3.2. Leakage Check

Periodically check the absence of leaks in the hydraulic circuit and after any cleaning or replacement operation. To disconnect the pipe, press the joint ring and pull the pipe in opposite direction (it is recommendable help with a 10 open-end wrench). To ensure the connection, introduce the pipe completely into the quick connection.
In case of doubts, please contact support@auqvian.se.

Frequency: In each maintenance operation.

3.1.3.3. Condensation Tray

The condensation tray cleaning requires removing the access panel as shown below:

- Turn off the generator by pressing the ON/OFF key at the display and disconnect it from the power supply.
- Remove the lateral panel.
- Remove the condensation chamber panel.

Figure 58: Condensation tray access

- With the panel removed, proceed to clean the condensation tray.
- Clean the tray with products that do not damage the stainless steel of the tray and that are not harmful to health, such as bleach dissolved with water. Do not use solvents, degreasers or products that are harmful to health.
- After cleaning the condensation tray, it is necessary to clean the water tank, since the cleaning product go from the drain of the tray to the tank.
- Once the condensation tray panel is tightening, screw the lateral panel.
- Turn On the generator.

Frequency: Depending on the air quality of the place, its frequency is 2 weeks

3.1.3.4. Water Filters

The water filters are used to trap particles that have passed through the main air filters, to avoid microbiological and chemical contamination risk or any smell or flavor in the water, and to enrich it with minerals.

To replace the filters, please, follow these steps:

- Turn off the generator and disconnect it from the power supply.
- Open the front door to access the hydraulic circuit.

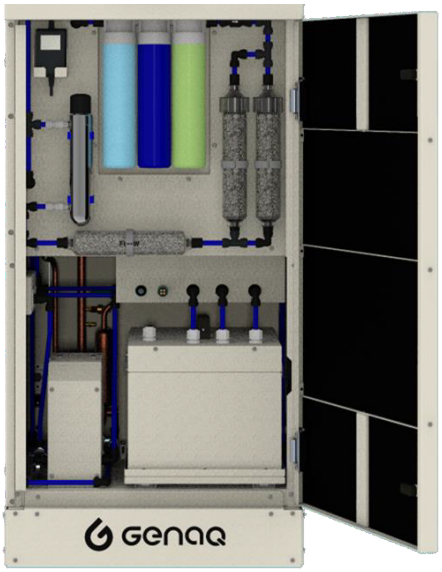


Figure 59: Hydraulic circuit

3.1.3.4.a. Sediment, Ultrafiltration and Activated Carbon Filters

- Unscrew the filters counterclockwise.

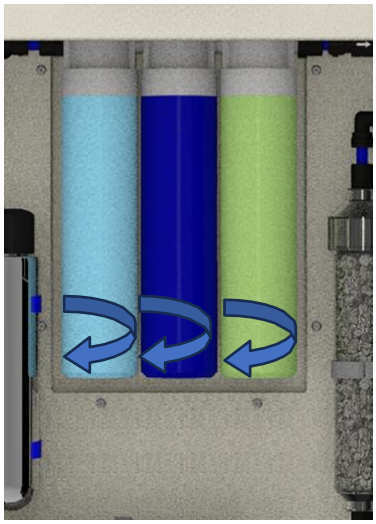


Figure 60: Filters extraction

- Replace the filters with new ones
- Screw them clockwise.

- Once the water filter has been replaced, it is necessary to pre-clean it, using generated water.
  It is necessary to switch on the generator, let it run until the tank is full, and drain the water through the water service, until the entire volume of water in the internal tank is emptied.
- If you do not have spare parts, please contact support@auqvian.se.

3.1.3.4.b. Zeolite Filters

- Disconnect the filters from the pipe.

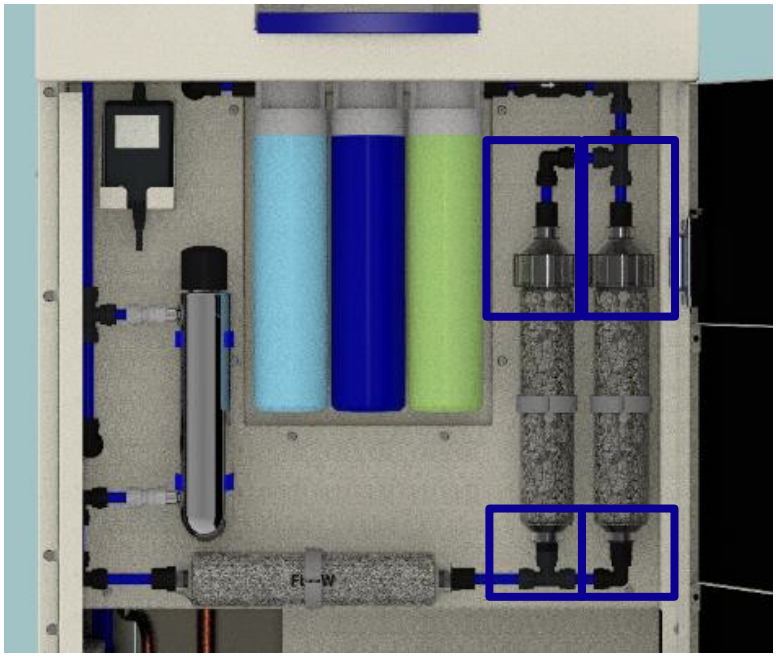


Figure 61: Zeolite filters disconnection

- Unscrew the quick connection to remove the cap.

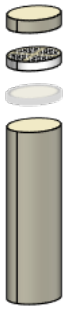


Figure 62: Zeolite filter

- Refill the filters.
- Fit the black gasket on the inside of the filters correctly to prevent leakage.

- Install the caps and fix the pipes.

- Once the water filters have been replaced, it is necessary to pre-clean it, using generated water.
  It is necessary to switch on the generator, let it run until the tank is full, and drain the water through the water service, until the entire volume of water in the internal tank is emptied.
- If you do not have spare parts, please contact support@auqvian.se.

To avoid leaks, make sure that the pipes are properly connected.

3.1.3.4.c. Mineralization Filter

- Unscrew the mineralization filter from the quick connections.

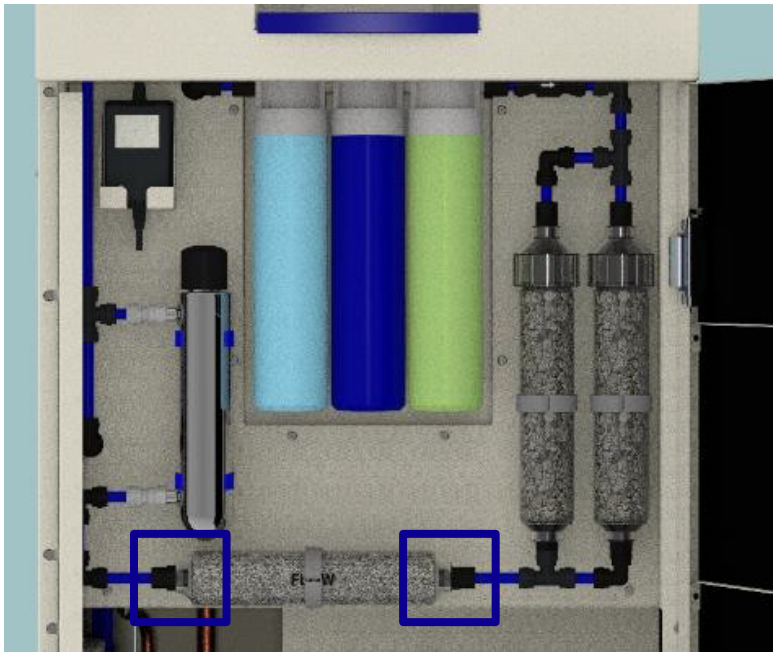


Figure 63: Mineralization filter disconnection

- Replace the filter and screw the pipe connection. To avoid leaks, make sure that the pipes are properly connected.
- Once the water filter has been replaced, it is necessary to pre-clean it, using generated water.
  It is necessary to switch on the generator, let it run until the tank is full, and drain the water through the water service, until the entire volume of water in the internal tank is emptied.
- If you do not have spare parts, please contact support@auqvian.se.

> ⚠ Please check Possible Anomalies in the ***Troubleshooting*** chapter.

3.1.3.4.d. "Y" Sediments Filter (SF3)

- Unscrew and remove the lateral panel.

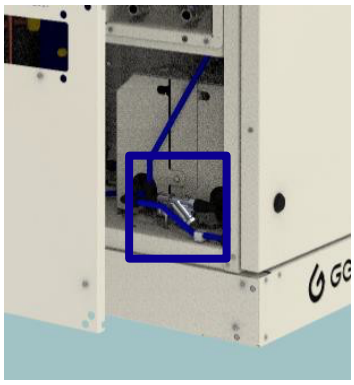


Figure 64: Sediment filter location

- Unscrew the two 300-micron Y-strainers upstream of the water pumps with a spanner.

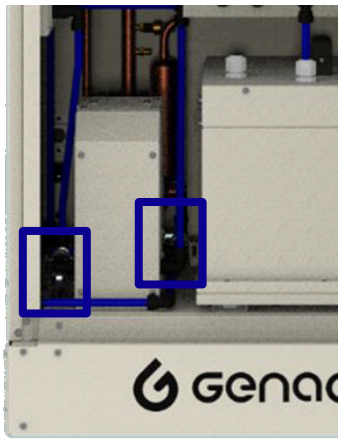


Figure 65: Sediment filter location

- Empty the contents inside the 300 µm mesh and clean it with water.
- Reinstall the meshes in their respective compartments.

Frequency:

- **Sediment filter:** Around 6 months. In dusty environments, the replacement frequency may increase.
- **Sediment "Y" filter:** Once a year. In dusty environments, the cleaning frequency may increase.
- **Ultrafiltration and Activated Carbon filters:** Once a year. In dusty environments, the replacement frequency may increase.
- **Zeolite filter:** Refill once in a year, refill frequency varies as a function of water consumption.
- **Mineralization filter:** Once a year, replacement frequency varies as a function of water consumption.

The frequency of filter change can be affected by the generator use and external environmental conditions, the values given above are under daily operating conditions and use in a closed environment.

Therefore, to accurately assess the need to change the water filters, a quarterly water analysis should be carried out, where the following parameters are evaluated:

Parameters	Unit	Limit according to Spanish regulation (RD 3/2023)	Corrective actions if the limit is exceeded
NH_4^+	mg/l	0.5	Changed ZF
NH_3	mg/l	0.5	Changed ZF
pH	mg/l	6.5-9.5	Changez SF-ACF-UF and MF
NO_2^-	mg/l	0.5	Change SF-ACF-UF and clean internal tank

3.1.3.5. Replacement of the UV lamp

- Extract the UV Lamp body from the holder and unscrew the Quartz sleeve lock nut.

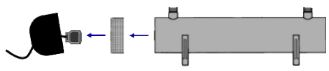


Figure 66: UV Lamp body breakdown

- Make sure that the sealing O-ring is installed in the quartz sleeve. Introduce the quartz sleeve into the UV Lamp body.

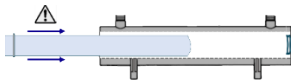


Figure 67: Quartz sleeve installation

- Screw the lock nut, connect the UV Lamp and insert the lamp into the quartz sleeve.

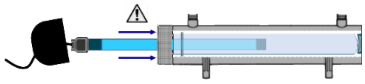


Figure 68: UV lamp installation

If the replacement of the lamp body and / or the brass connections was necessary, please follow these instructions:

- Disconnect the UV Lamp body from the Hydraulic circuit by disconnecting the

quick connection.

- Remove the UV Lamp body from the brass connections by unscrew them.

- Screw the new brass 3/8”-female connections (in case they were deteriorated) to the water inlet / outlet.
- To connect the lamp to hydraulic circuit it is necessary to install a 3/8”–10mm quick connection to each brass connection.

Note: In any screwed hydraulic connection, it is especially important to coat the connections with Teflon to ensure tightness. Please, make sure that these connections are properly tightness to avoid leaks.

Frequency:
- **Cleaning of the Quartz sleeve:** Once a year.
- **Replacement of Quartz sleeve and the UV lamp:** Around two years.

3.1.3.6. Internal Water Tank Cleaning

With the use of the generator, the water tank will accumulate sediments. It is important to keep it clean and inspected periodically. To perform a correct maintenance, follow these steps:

- Turn off the generator by pressing the ON/OFF key and disconnect the generator from the grid.
- Access the hydraulic circuit.
- Disconnect the level buoys connector, unscrew and pulling the two parts in opposite directions.

Figure 69: Level buoys connector

- Disconnect the inlet and the suction pipe from the tank.
- Extract the water tank.

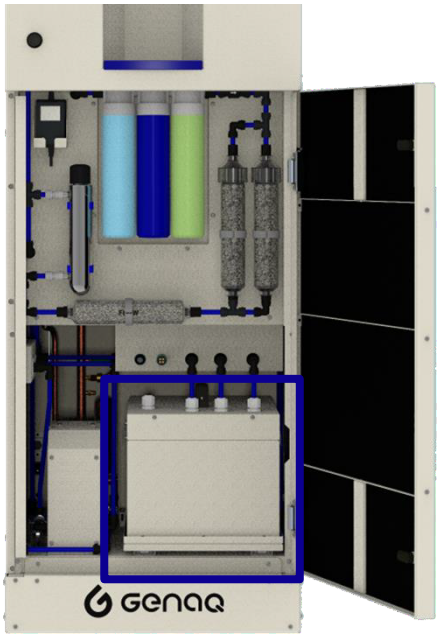


Figure 70: Water tank

- Remove the cover. Clean the tank with a damp cloth. Do not use solvents, degreasers, or products harmful to people.
- Once relocated all the elements, turn on the generator.

Frequency: Depending on the air quality of the place, its frequency is 2 weeks.

3.1.4. Preservation During Long Periods of Inactivity

It is **IMPORTANT** to carry out the correct hygiene of the generator if it is going to be more than a week out of operation, as the pipes and filters can be contaminated due to the lack of use. Despite the warranty offered by the generators regarding their hygiene, the pipes' sections between the tank and the dispensing tap can contain microbiological contamination if the generator is not operating.

The manufacturer will not be responsible for any defect, in this sense, if the following procedure is not followed to avoid such contamination:

- Always perform a hyperchlorination of the generator's hydraulic circuit when it has been in a period of inactivity of more than a week.
  For this we will aim for a total chlorine concentration of 7mg/l to eliminate any possible pathogens that may have been developing during the period of inactivity. The table below shows the volume (ml) of sodium hypochlorite to be used depending on the richness of the sodium hypochlorite used.

  The total volume of water to be treated corresponds to 12 litres, the capacity of the internal tank.

Table 4: Hyperchlorination

Water amount	Product Concentration	Chlorine
12 liters (full tank)	1%	8.4 ml
12 liters (full tank)	2%	4.2 ml
12 liters (full tank)	3%	2.8 ml
12 liters (full tank)	4%	2.1 ml
12 liters (full tank)	5%	1.7 ml
12 liters (full tank)	6%	1.4 ml
12 liters (full tank)	7%	1.2 ml
12 liters (full tank)	8%	1.05 ml
12 liters (full tank)	9%	0.93 ml
12 liters (full tank)	10%	0.84 ml

- In case the richness of your sodium hypochlorite is different from the one shown in the table above, you can make the calculation using the following equation:

$$V_{NaClO}\ (ml) = \frac{V_{water}(l) \times C_{final}\ (\frac{mg}{l})}{Richness\ (\frac{mg}{ml}) \times 10}$$

V_{NaClO}= Volume of hypochlorite
V_{water}= Volume of water in the tank

C_{final} = Concentration desired of hypochlorite (7 mg/l is the advisable value for hyperchlorination)

$Richness$= % of hypochlorite richness (data available in material safety datasheet)

- After more than one month without use, after the hyperchlorination and empty the tank twice through the service. It is advisable to carry out a tap water analysis according to the local regulation, in order to detect anomalies in the water treatment, in this case, it is necessary replace it. Check at least the following parameters:
    - Coliform bacteria (E. coli)
    - Aerobia bacteria
    - Ammonia
    - pH
    - Nitrites

For long periods of inactivity, it is advisable to empty the tank, the filters, the UV and empty the pipe (to do this, disconnect the pipe from solenoids valves and the pipe sections before and after the filters).

3.1. Professional Maintenance

Professional Maintenance includes all the tasks of the **Basic Maintenance** plus those described in this section which must be carried out by a refrigeration specialized and authorized technician.

> ⚠ Any repair, replacement or intervention on the generator of unauthorized personnel will lead to the cancellation of the warranty.

> ⚠ During maintenance, turn off the power and wear protective gloves and goggles to protect against cuts and splashes.

Frequency: Annual and in case of any anomaly detected.

Professional Maintenance includes the following tasks:

- The generator metallic parts corrosion control (chassis, bodywork, exchangers, electrical panel, etc).
- Check the air, water, and refrigerant isolation circuits.
- In case of an incident, the repair of mechanical parts, refrigeration elements and hydraulic circuits.
- Check the electrical connections.
- In case of an incident, replacement, or repair of electrical generator elements.
- Handling of protection elements, control panel, start-up, stop and emergency switches.

In addition to the maintenance tasks recommended above, the generator will be affected by the applicable regulations in this matter.

3.1.1. Refrigeration Circuit

GENAQ Stratus S200 is designed to work with R134a refrigerant. The use of any other refrigerant in this generator is not allowed and invalidates the warranty.

The refrigerant charging and draining will always be done in liquid phase through the Schrader valve located in the liquid line of the generator.

3.1.1.1. Refrigerant Charge and Emptying

Any operation related to loads, drains or replacements of the refrigerant must be carried out by an authorized refrigeration professional and never by the user of the generator. The recovery of the refrigerant is mandatory for its subsequent reuse and / or disposal and must be handed over to an authorized waste manager when appropriate.

3.1.1.2. Dehydrator Filter

The filter function is to keep clean and free of moisture the refrigerant circuit, neutralizing the acids that can be found therein. Check through the viewfinder indicator of the absence of liquid moisture in the system.

3.1.1.3. Oil

Look through the compressor oil viewfinder in order to check the oil level. If there is change of color, check the quality of the oil through a contamination test. In the presence of acid, water or metallic particles, replace the affected oil circuit and the dehydrator filter. If it is necessary to replace the oil, you should use new oil identical to the original one. Both oil type and volume required for each model are listed in tables technical characteristics.

3.1.2. Air Circuit

If a repair or replacement of the fan is necessary, its access is done by opening the upper plate, as shown in the figure:

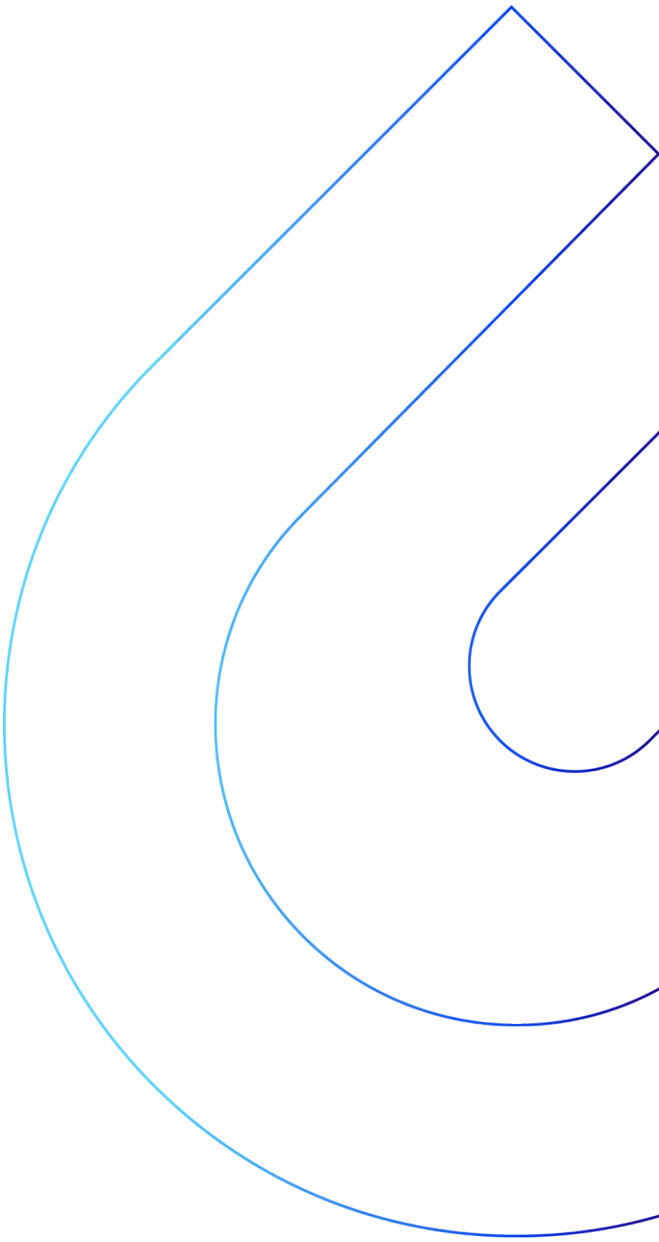
Figure 71: Fan access

3.1.3. Control and Electrical Circuit

This generator uses DIXELL IPG208D-10021, that has been designed to control all functions of this generator.

Figure 72: Control

4. Troubleshooting

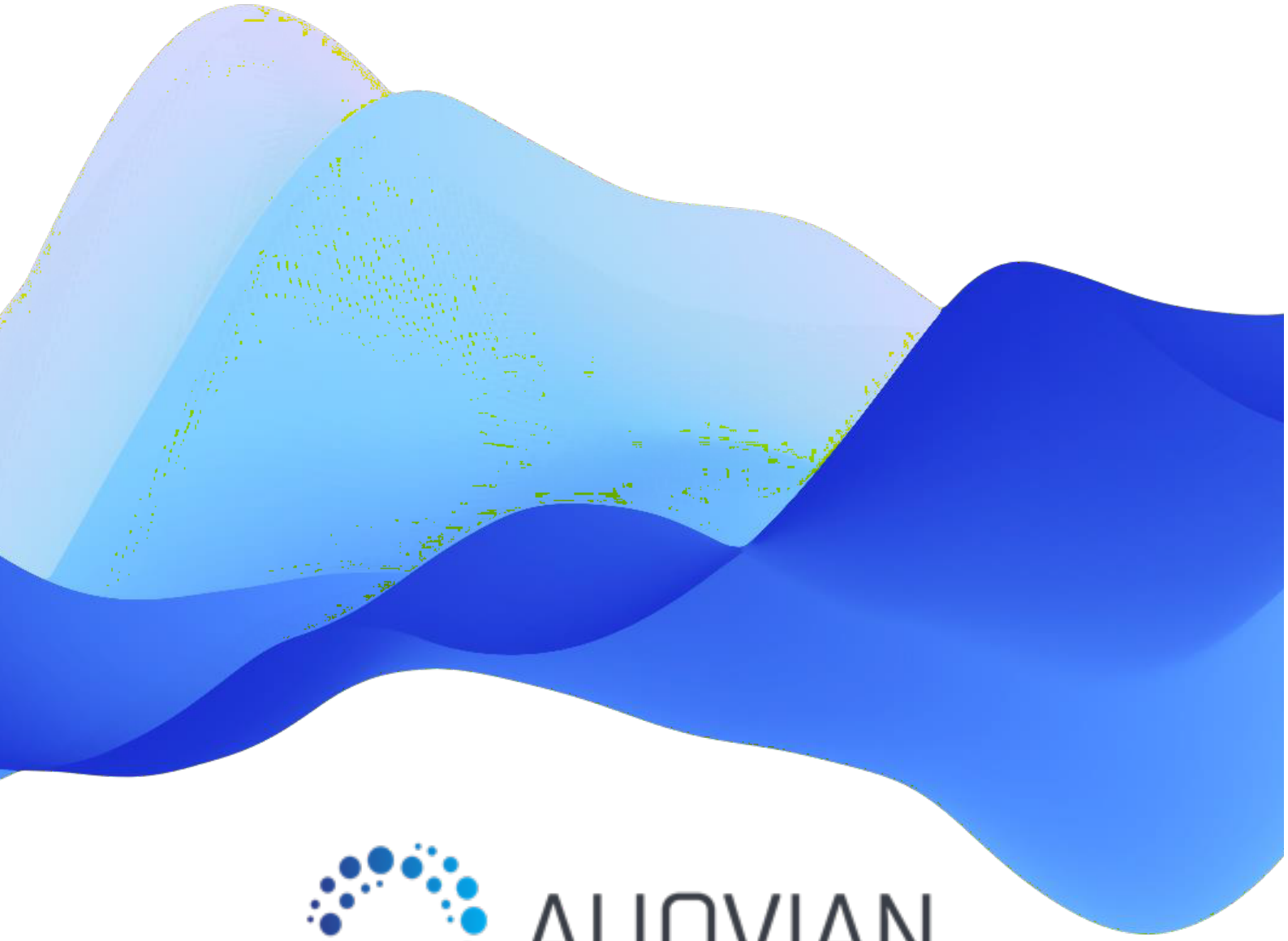


4.1. Troubleshooting

If there is a problem with the generator, check the table below and follow these tips. In case you need additional assistance, please contact support@auqvian.se.

Table 5: Troubleshooting tips

Symptom	Cause	Solution
The generator does not turn on	a) Absence of electrical power	a) Check differential, MCB ....
The compressor does not start The compressor pilot is on	a) Absence of electrical power b) Burned contactor coil c) Internal Klixon open d) Inlet Temp lower than set point	a) Check differential, fuses b) Change it c) Wait for rearming, check intensity absorbed
The compressor does not start The compressor pilot flashes	a) The contacts of a control element are open (pressure switches) b) Anti-short cycle timing does not allow start-up	a) Check the safety chain in electronic regulation b) Wait and verify electronic regulation c) Check the continuity of the contact (jumper connection)
The compressor stops a few seconds after starting, the engine sounds intermittently, and opens the internal Klixon	a) Very low network voltage b) Damaged starter kit (check starter relay opening) c) Crammed compressor d) Crashed compressor	a) Check the voltage of the line and locate the voltage drop b) Replace compressor and starter kit c) Check the oil level and return the oil to the compressor through the suction pipe. If it is necessary to install siphons and resize the pipe. d) Replace the compressor
Repeated stops and starts of the compressor	a) The compressor light flashes b) The compressor pilot remains on. (cut by Klixon) c) Regulating differential too low	a) Check pressures and / or check the safety chain (pressure switches) to find the cause High- or Low-pressure switch cut-out b) Increase the temperature or humidity differential
High pressure switch cut PAL Alarm: Very high condensation pressure	a) Insufficient flow or recirculation of air b) Dirty or clogged air filter c) Fan is damaged d) Dirty or clogged condenser e) High ambient temperature	a) Check air circuits (flow, recirculation, obstructed air outlet) b) Clean c) Repair d) Clean
Evaporator blocked by ice PAL Alarm: Very low evaporation pressure (low pressure switch cut)	a) No evaporator flows b) Cooling fan breakdown c) Continuously frozen Evaporator d) Filter clogging liquid (having different temperature at the inlet and outlet) e) Lack of gas f) Very low-pressure condensation g) Low room temperature	a) Clear air intakes b) Fix it c) Check defrost, defrost parameters change. d) Changing the filter e) Find leak, complete loading f) Air temperature at very low condenser (very high air flow), adjust control parameters condensation or relocating generator
The compressor is noisy	a) Loose Fixation b) Lack of oil c) Default compressor	a) Set b) Add oil up to recommended level c) Change it
Defrosting is not performed	a) Power failure b) Probe out of evaporator coil c) Non-operating module Defrost	a) Check contactor and fuse b) Check reading in Pb2 probe / check location c) Check defrost parameters
EAL Alarm	a) Plate unconfigured to default	a) Check the plate configuration
Null / Sparse production	a) Clogged filters b) Membrane saturated	a) Replace filters b) Replace membrane
Plastic or synthetic flavor	a) Start-up or non-use b) Spent mineralization filter	a) Water filling and complete emptying of the water tank twice b) Replace the mineralization filter
Chlorine taste and smell (with the option chlorine dosing)	a) Spent activated carbon filter	a) Replace activated carbon filter
Unpleasant taste and smell	a) Environmental pollution	a) Replace the filters, the membrane and sanitize the circuit



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