HEATPEX

ARIA VITALE

reddot winner 2023

DESIGN AWARD 2023

EN

INSTALLATION AND OPERATION MANUAL

heatpex.pl

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Chapter 1

Introduction and safety information

This Manual applies to the ***Aria Vitale*** heat recovery ventilation (HRV) unit intended for mechanical ventilation of single-family houses and residential buildings. The ***Aria Vitale*** HRV unit by HEATPEX will be referred to as the ***unit***.

1.1 General

Read this Manual before operating the unit.

The following symbols are used in the Manual to specify key information concerning hazards to operation of the unit and the danger to human health.

	Unit hazard
	Health hazard
	Hint

Operation of this unit requires proper installation indoors in conformity with the guidance and comments shown in this manual.

The unit may be used by children from 8 years of age and people with limited physical, sensory or mental capacity or people without the required experience and understanding only if they are under supervision of or instructed in the safe use of the unit and understand the resulting dangers.

This unit is not a toy and children must not play with it. Children shall not attempt to clean or maintain the unit without supervision.

1.2 Safety

- Do not operate the unit against its intended use.
- Before unit instaltion and before each opening of the unit's cover (e.g. for maintenance), unit must be disconnected from the power source.
- The supply air shall be free of all harmful substances, like flammables, aggressive to the human health, or corrosive.
- Do not install the unit on unstable surfaces.
- Do not use any liquids to clean electric components.
- Do not use aggressive liquids for cleaning which may damage the surface of the unit or its internals.
- Do not open the unit during operation.
- Do not touch any moving components inside the unit.
- Do not leave any objects or tools inside the unit.

Chapter 2

Unit overview

2.1 Unit purpose and ventilation system operation principles

Aria Vitale unit is intended for indoor installation as a component of a system which ensures sustainable ventilation with heat recovery. The unit is responsible for continuous exchange of stale indoor air to fresh outdoor air. The heat exchanger inside the unit recovers heat from the air extracted from the indoors and transfers that heat to the fresh air outdoors. Fresh air can be supplied by the unit to indoor spaces like living rooms, offices, or bedrooms via ventilation ductwork. Similarly, the same volume of stale air is removed from kitchen, bathrooms and utility rooms. The ductwork is separate for supply and exhaust air, so the supplied and extracted air do not mix.



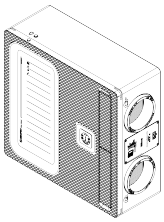
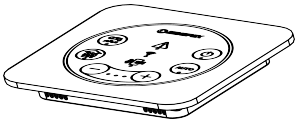
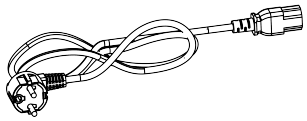
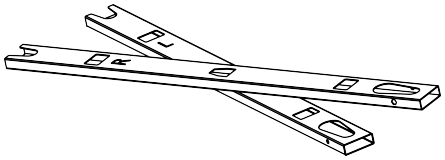
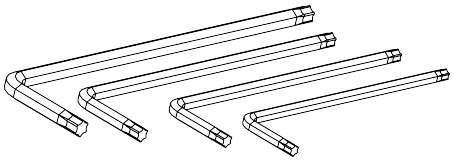
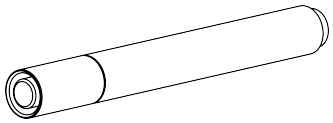
For the unit to operate correctly and with high efficiency, it is necessary to install ventilation ductwork in accordance with good construction practice. Installation errors in the ventilation system (the ductwork) may result in heat and pressure losses, decreased performance of the unit, and an inability to achieve the air flow values specified in the ventilation project. It is recommended to install a ventilation system using **Heatpex Aria Connect** and **Heatpex Aria ADURO** ducting. Heatpex is not responsible for incorrect performance of the unit as a result of incorrect installation of ventilation ductwork and related accessories.

2.2 Storage and transport

- The unit is factory packed and protected against damage during transport. Do not remove the unit from the factory packaging before installing it in the building, unless the packaging has been damaged to such an extent that there is a risk of damaging the unit during transport.
- The unit should be transported using appropriate tools and with due care to avoid potential damage to the unit.
- Inspect the unit packaging for damage upon delivery. If the packaging is damaged, report this to the carrier. If the packaging is damaged severely enough to indicate failure of the unit internals, reject the delivery and report the incident to the unit's distributor.
- Store the unit indoors, at a temperature from +5°C to 35°C and a maximum relative humidity of 65% with low dust level. Never store the unit outdoors, where it could be directly exposed to weather conditions.
- Protect the packaging from shock and impact.
- Do not place heavy objects on the packaging that could damage the unit.

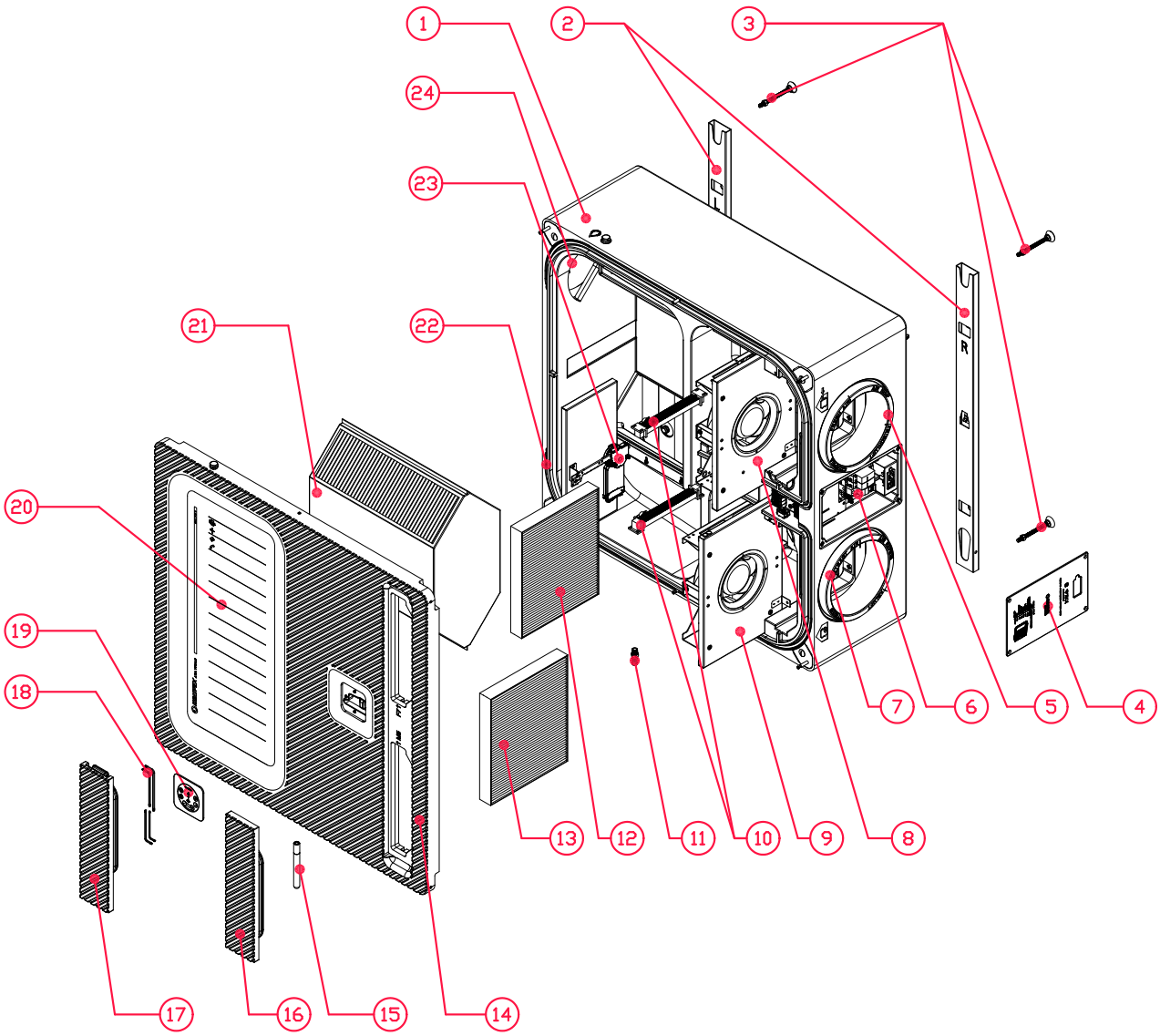
2.3 Packaging contents

The packaging contains the following items:

	Aria Vitale heat recovery ventilation unit
	Control panel
	Power supply cable
	Floor mounting set
	Set of wall/ceiling mounting brackets
	Set of 4 Torx wrenches (beneath the fresh air filter cover))
	Noteboard pen (beneath the exhaust air filter cover)
	Condensate drain 32 mm adapter
	Quick start guide, product data sheet and commissiong protocol

2.4 Unit overview

The basic version of the SILVER unit includes the following components::



1. Unit casing
2. Mounting brackets with levels (2 pcs.)
3. Floor mounting feet (4 pcs.)
4. Main control board cover
5. 200 mm Fresh air intake connection with temperature sensor
6. Main control board
7. 200 mm exhaust air connection with temperature sensor
8. Supply fan assembly
9. Exhaust fan assembly
10. Preheaters
11. Condensate drain fitting
12. F7/ePM1 70% fresh air filter
13. M5/ePM10 50% exhaust air filter
14. Unit cover panel
15. Noteboard pen (beneath the exhaust air filter blind)
16. Exhaust air filter blind
17. Fresh air filter blind
18. TORX service wrenches (beneath the fresh air filter blind)
19. Control panel
20. Washable noteboard
21. Heat exchanger
22. 200 mm supply air connection port with temperature sensor
23. Bypass shutter with actuator
24. 200 mm extract air connection port with temperature sensor

2.5 Configurations

The ***Aria Vitale*** unit is available in the following configurations, differing by type of sensors and heat exchanger.

	SILVER	GOLD	PLATINUM
Flow rate	300/450/600 m^3/h	300/450/600 m^3/h	300/450/600 m^3/h
Sensors	Temperature	Temperature Humidity and CO_2	Temperature Humidity and CO_2
Exchanger	Counterflow	Counterflow	Enthalpy counterflow

GOLD CF and PLATINUM CF models are additionaly equipped with Constant flow sensor (see 2.10 for more details)

2.6 Automatic heat exchanger bypass

The unit features an internal bypass of the heat exchanger. If heat recovery is undesirable, the bypass shutter is opened and the fresh air bypasses the heat exchanger and is supplied directly to rooms. The bypass is usually used for cooling the house at night in the summer, when the outdoor temperature is slighlty lower than the indoor temperature. Bypass automatically opens or closes based on the indoor and outdoor temperature settings. Cool night air enters the hot indoors, slowly cooling it to a comfortable temperature. When the outdoor temperature is higher than the indoor temperature the bypass closes to prevent overheating the indoor spaces.

2.7 Anti-freeze system

The unit features a heat exchanger freeze protection system. This system protects the exchanger from frost damage and ensures heat recovery even at negative outdoor temperature. If outdoor temperature drops below a setpoint, the preheater is started. The preheater raises the temperature of fresh air so the moisture does not condense from the air exhausted from the building, as a result protecting the heat exchanger from freezing. In extreme conditions, the automatic controls reduces the unit fans speed.

2.8 Air filters

Aria Vitale is equipped with premium-grade ISO ePM1 70% air filters (F7 according to the old classification specified in PN-EN 779) on the supply air and ISO ePM10 50% on the exhaust air.

The ePM1 70% filters remove 70% of suspended particulate matter (PM) with a grain diameter of less than 1 µm from the fresh air supplied to the indoors. This allows to achieve adequate air quality for dwellings with high concentration of particulate matter in outdoor air, according to the recommendations of Eurovent from 2022. PM1 is most harmful to health; with their small size, the particulates enter the bloodstream directly and lead to cancer, cardiovascular disorders, and dementia.

The M5/ePM10 50% filters protects the fans of the unit against contamination from exhaust air to ensure trouble-free operation. Class M5 filters should remove an average of 40-60% of particulates with a diameter of 0.4 µm. This filter removes plant pollen and is partially effective against smog and bacteria.

2.9 Air quality sensor control

The air quality sensor allows for controlling the operation of the unit's fans based on the air parameters in the building. When the set humidity or carbon dioxide threshold is exceeded, the unit increases the fan speed by 20% until the CO2 and humidity values return below the set threshold.".

2.10 Constant flow control mode (CF)

Constant flow mode (CF) maintains a desired level of air flow regardless of the ducts configuration. This simplifies the installation of the unit, as there is no need to manualy adjust the fan output to the pressure losses in the installation. CF operation is based on two pressure difference sensors installed separately for each fan. The constant flow mode will gradually increase the fan speed, for example, in case of filter clogging or intake/exhaust blockage, while maintaining the desired flow."

2.11 Boost mode

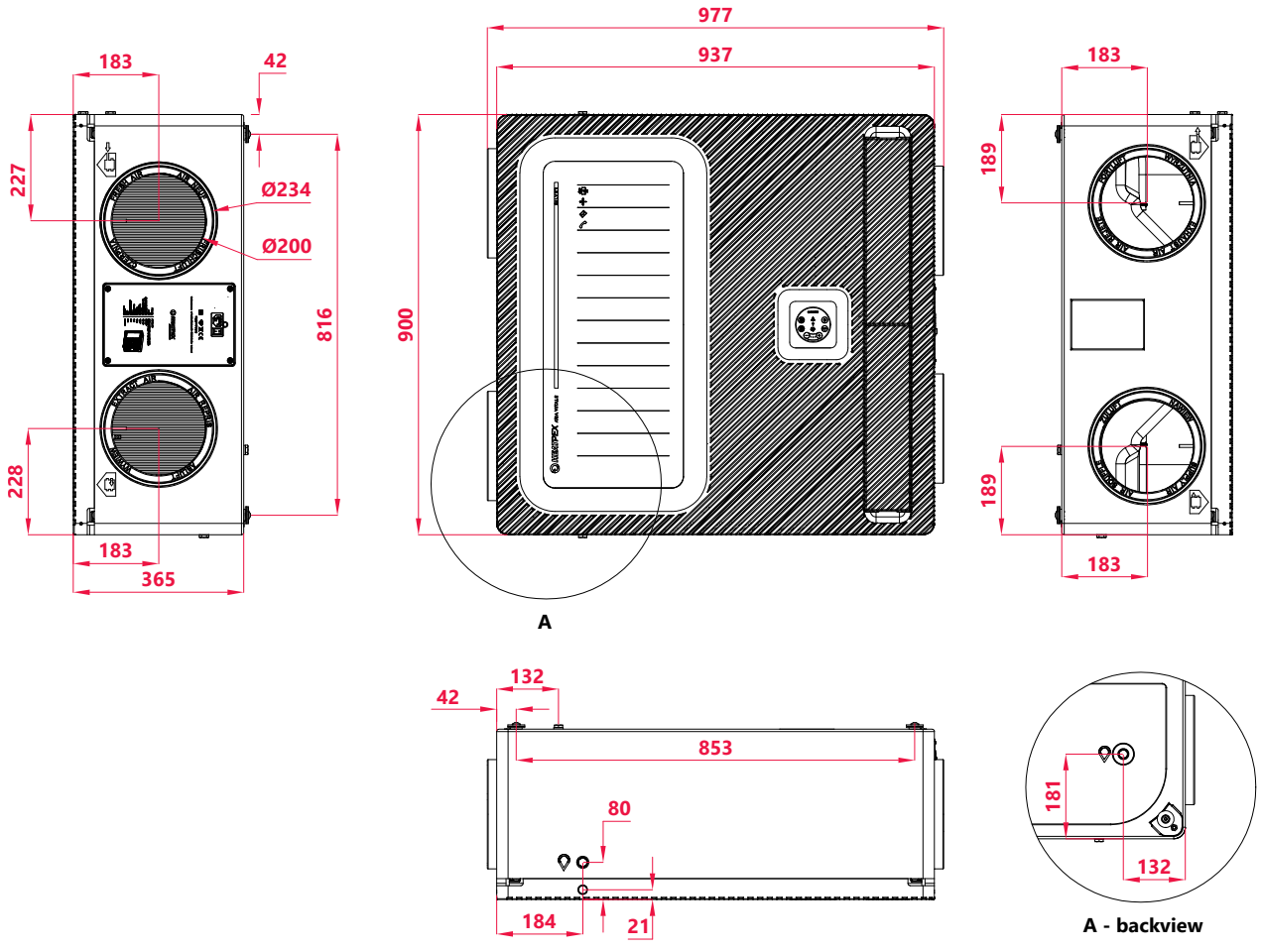
The unit has an ability to work in a boost mode. Boost mode allows to change fan speed and therefore airflow by an external switch, for example:

- Bathroom light switch
- Bathroom auxiliary fan switch
- Kitchen hood switch

The fan speed can be changed independently, seperately for supply fan and exhaust fan. Boost mode can be used to overdrive ventilation standard operation in various scenarios, like increasing exhaust fan speed after taking a bath in order to take care of extra moisture or increasing supply fan speed

when using kitchen hood to prevent creation of uderpressue areas in the house. Up to 2 boost mode scenarios can be set, called Boost 1 and Boost. There are 2 connection ports on the motherboard that are used for connecting the boost mode switches - **DIN 2** and **DIN 3**

2.12 Unit dimensions

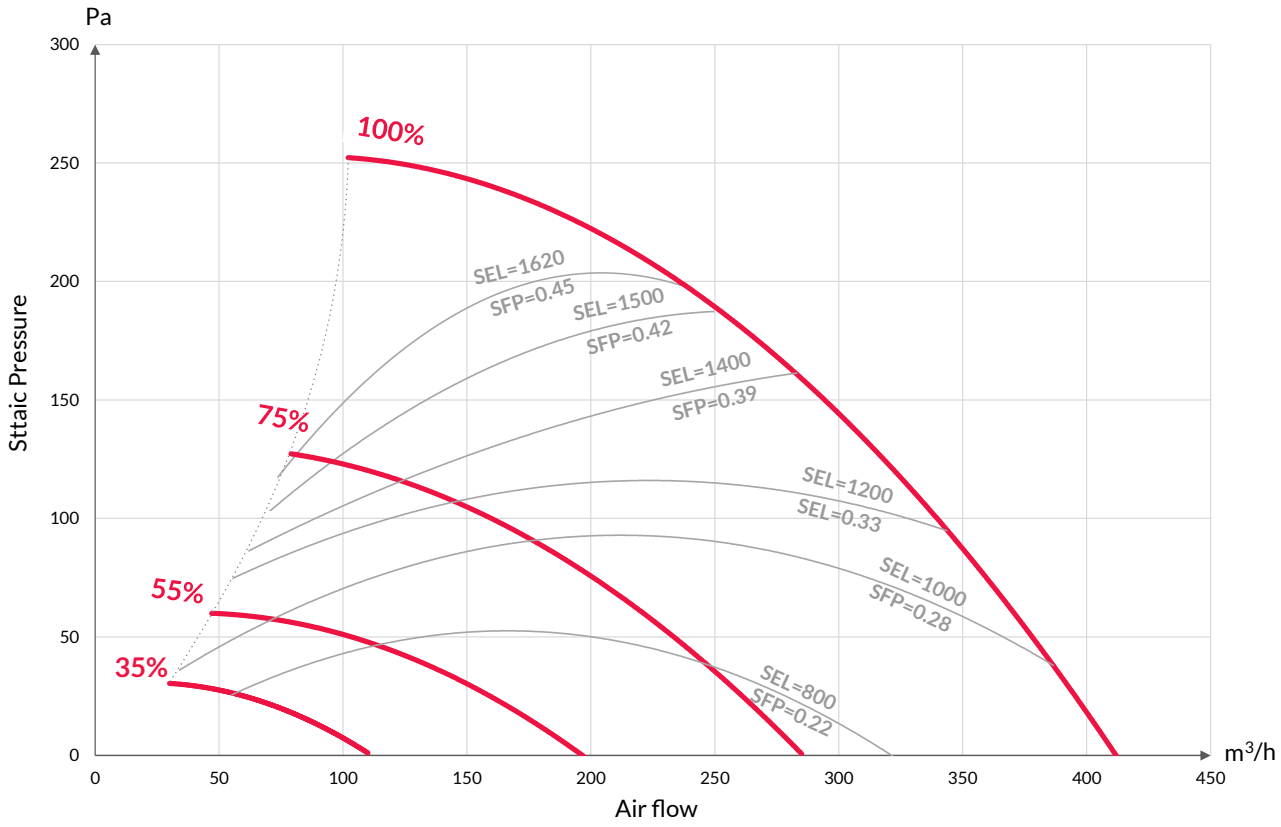


2.13 Technical data

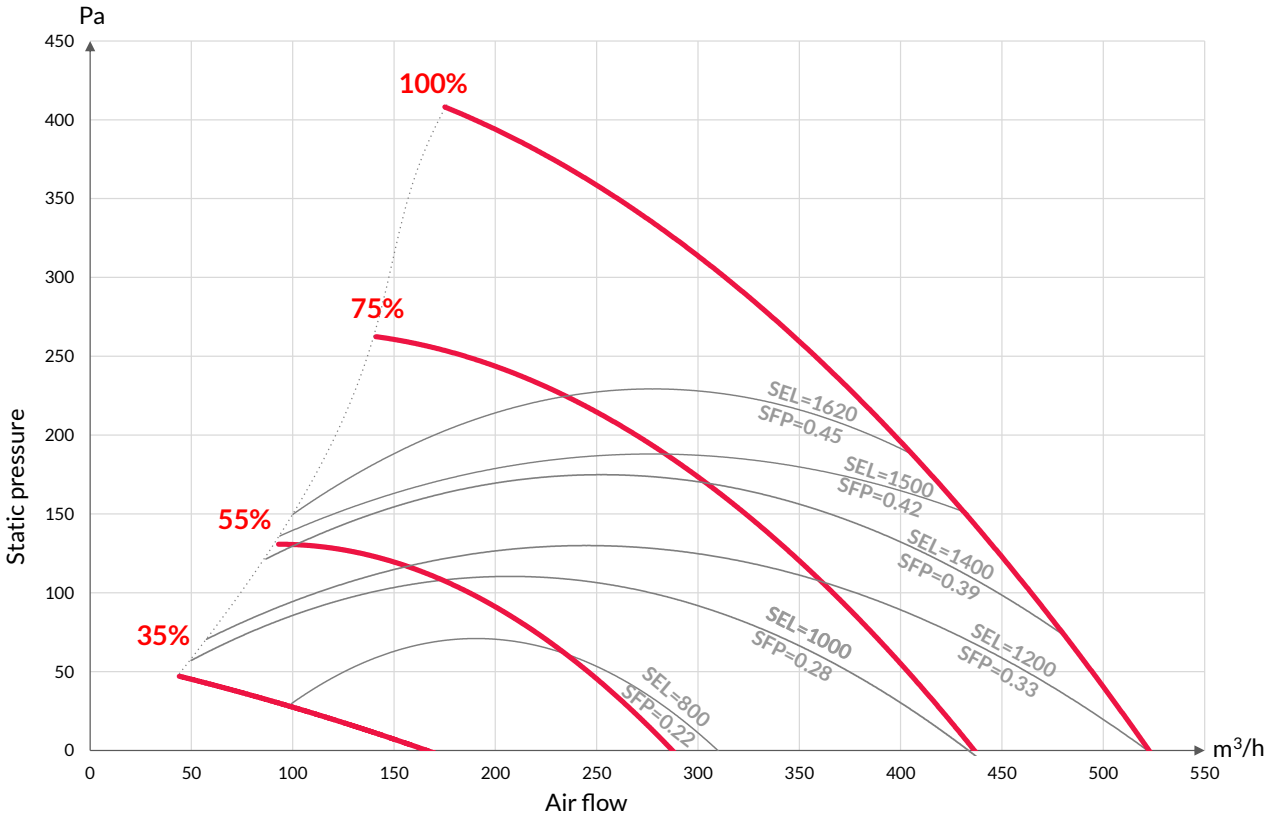
	Aria Vitale 300	Aria Vitale 450	Aria Vitale 600
Rated air flow	300 m3/h	450 m3/h	600 m3/h
Static pressure at rated air flow	140 Pa	120 Pa	100 Pa
Sound power level emitted through casing	44,4 dB(A)	50,9 dB(A)	53,4 dB(A)
Heat recovery efficiency: Silver and Gold	86,5%	84,7%	83,9%
Platinum	84,2%	83,1%	82,3%
Energy rating: Silver and Gold Platinum	A+	A	A
Platinum	A+	A	A
Fan type	Radial EC fans with stepless control		
Maximum fan power	90 W	190 W	353 W
Preheater power	1000 W	2000 W	
Power supply	230V/50Hz		
IP rating	IP 40		
Casing material	EPP		
Air connection port diameter	ϕ 200		
Condensate drain port diameter	ϕ 10		
Filter class	ePM1 70/% (F7) - supply air ePM10 50% (M5) - exhaust air		
Heat exchange type	Counterflow (Silver and Gold) Counterflow enthalpic (Platinum)		
Bypass	100% linear bypass, controlled by outdoor and indoor temperatures		
Dimensions (H. x W. x D.)	900 mm x 937 mm x 365 mm		
Weight	27,5 kg/29,9 kg (Platinum)		

2.14 Fan performance

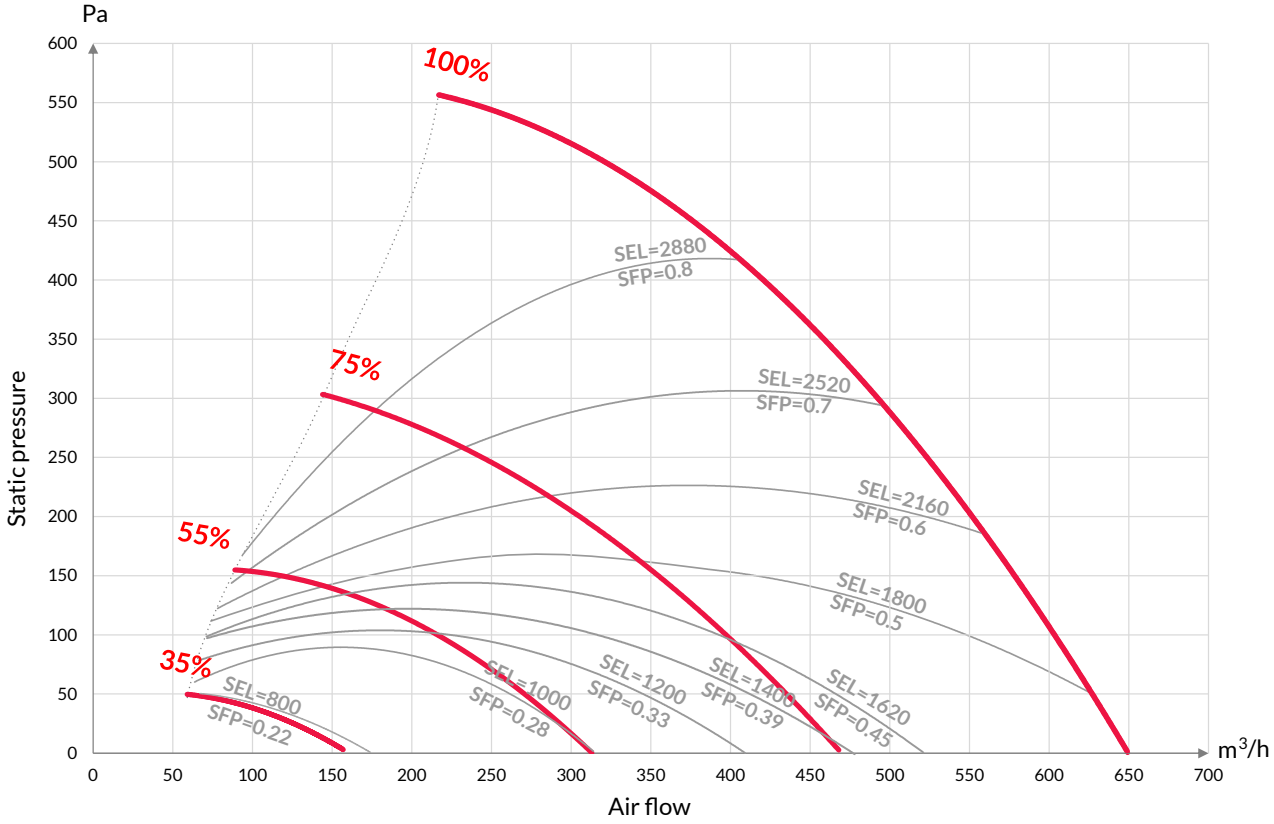
Aria Vitale Silver/Gold/Platinum 300



Aria Vitale Silver/Gold/Platinum 450



Aria Vitale Silver/Gold/Platinum 600



Chapter 3

Unit installation

3.1 Air requirements at the installation site of the unit

- The unit has to be installed in an indoor area where the temperature will be between +5°C and +45°C.
- The relative humidity level in the room where the unit is installed should not cause condensation on the unit's casing.
- The maximum continuous humidity inside the room shall not exceed 60%.
- The unit is not intended for ventilation of indoor areas where humidity remains high for a long periods of time or there is risk temporary humidity increase above the recommended level. This rule applies, but not only, to swimming pools, sauna rooms, wellnes and spa zones, as well rooms adjacent to afromentioned. Do not use the unit for drying the building during construction works. The maximum continuous humidity shall not exceed 60%.
- The unit is not intended for removing gases or dust that could damage the unit's internal parts, like air thick with fat or grease, explosive gases, or adhesive aerosols.
- Do not connect a kitchen hood to the ventilation system with this unit; otherwise it will lead to grease depositing inside the exhaust ductwork and will increase the risk of damaging the unit.
- Due to the materials and design used, the unit must be installed and operated indoors and without direct exposure to sunlight, rain, and snow.
- Do not connect an hot air heating system to the ventilation system. The materials used in the unit require a maximum operating temperature limited to 50°C.



The failure to comply with the above rules may result in improper operation of the ventilation system, incorrect operation of the unit or its damage, and in extreme cases, endangerment to the health and safety of users.



If installed or operated during indoor construction works, the unit shall be protected against impact and ingress of dust. Blind off the connection ports of the unit; if the unit has been connected to the ventilation system, blind off the diffuser connection branches and never start the unit until the construction work is completed.

3.2 Simultaneous operation of Aria Vitale unit with open flue combustion equipment



Never operate the mechanical ventilation system simultaneous with with open flue combustion equipment (e.g. a fireplace without a separate air delivery duct, a solid-fuel boiler). Otherwise, the air intake for combustion will cause negative pressure in the room where the combustion equipment is installed, resulting in flue gases being drawn back into the room. In boiler rooms with indoor air intake for combustion, separate gravity ventilation should be used. The room should be separated from the rest of the building indoor spaces with an airtight door. Operate closed fireplaces only, with a separate combustion air intake from the outdoors and a separate combustion gas exhaust ductwork.

3.3 Water drainage and electrical power connections

Provide a 230V/50Hz electrical power outlet with a PE (protective earth) contact.

Provide access to a building drain for connection to the unit's condensate drain. Make sure that the entire length of the drainage connection to the sewage system is protected from freezing. If the condensate drain connection is routed through unheated indoor spaces, provide adequate thermal insulation .

3.4 Recommended installation locations

The unit is best installed in the following indoor spaces:

- Utility room
- Cellar
- Insulated and attic with access to a sewage system drain
- Enclosed recess with
- Car garage

Due to the noise generated by the unit, it is not recommended to install the unit in open spaces or in close proximity to bedrooms.

3.5 Unit unboxing and preparing for installation

Inspect the unit after unboxing for any damage that could occur during transportation. Place the unit on a firm, flat surface to protect if from damage. Avoid placing the unit on the connection ports as it may cause them to be damaged.



Do not discard the original box! An installation template is printed on the backside of the box. The template helps to mark out and drill holes for the mounting brackets.



Do not connect the unit to power supply until the installation is complete.

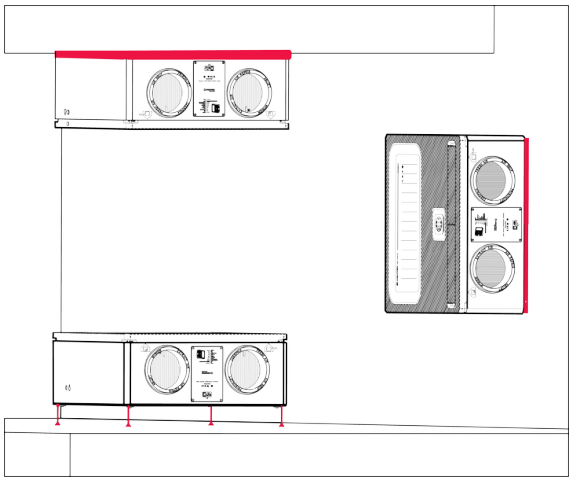


The unit can be picked up by the connection ports. The connection ports are designed to withstand the unit's weight. When handling the unit by connection ports, be careful not to accidentally damage the integrated temperature sensors.

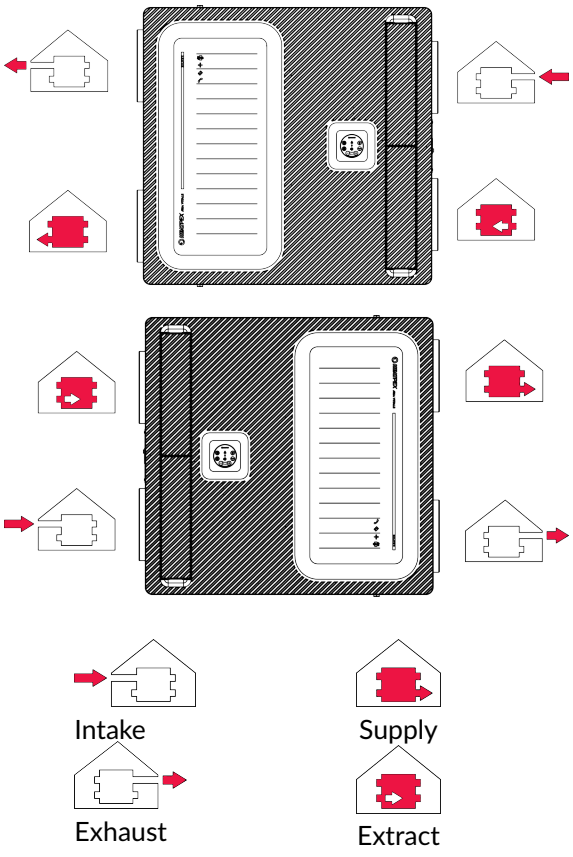
3.6 Installation variants

The Aria Vitale is designed for operation in 3 installation options:

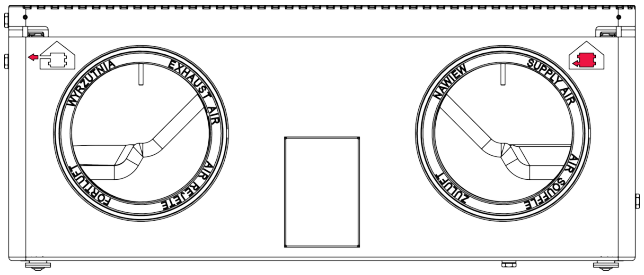
- On the wall
- Under the ceiling
- On the floor



Each of the above positions allows for a 180° rotation of the unit, depending on the desired location of the intake and exhaust. The arrangement of the unit's connections, depending on the position of the intake, is shown in the following graphics:

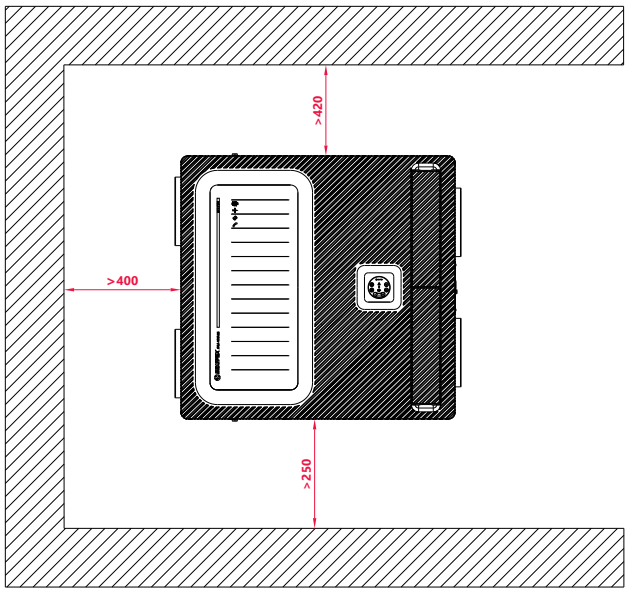


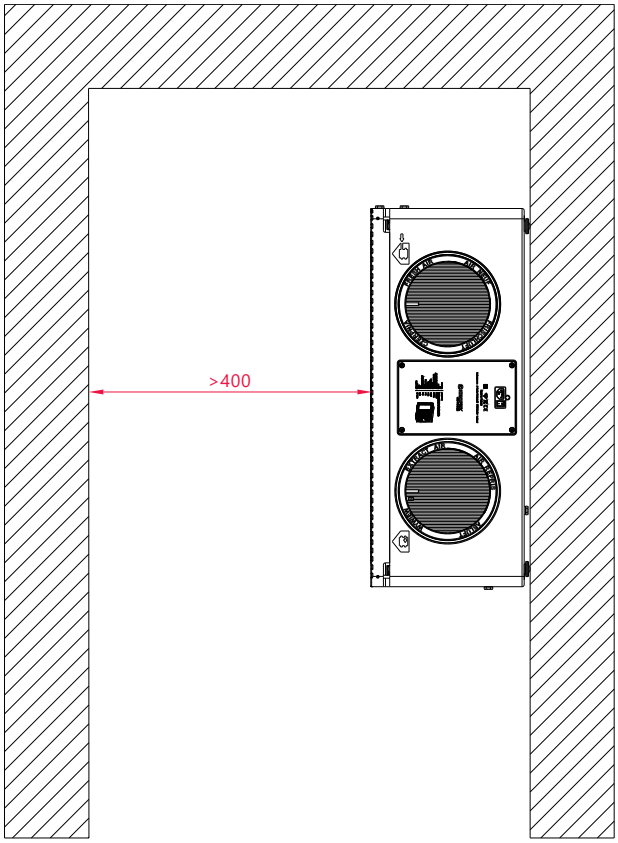
The above icons are placed on the unit's casing next to the duct connections, the connections are also labeled in four languages in order to prevent mistakes



3.7 Minimum clearances

Before installing the unit, make sure that the minimum distances from the walls indicated in the drawings are met. These distances allow for trouble-free connection of ducts and condensate drainage as well as service access. The minimum distance from the ceiling applies when ADURO pipes are routed above the unit. In cases where the pipes are routed upwards, this distance may be smaller.

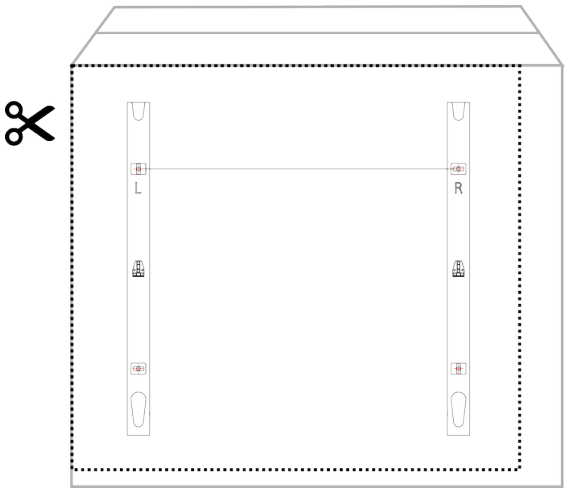




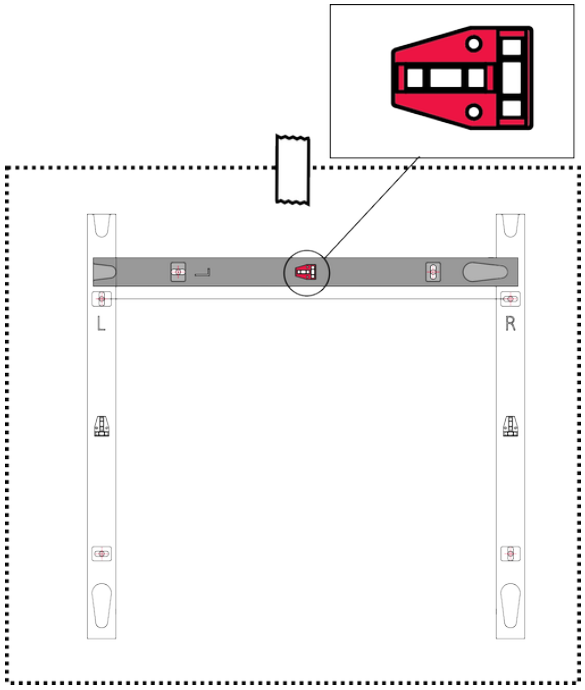
Pay attention to the surface and load-bearing capacity of the wall or ceiling on which the unit will be installed. Use anchors suitable for the desired surface and the weight of the unit. This does not apply to floor installation.

3.8 Wall/ceiling installation

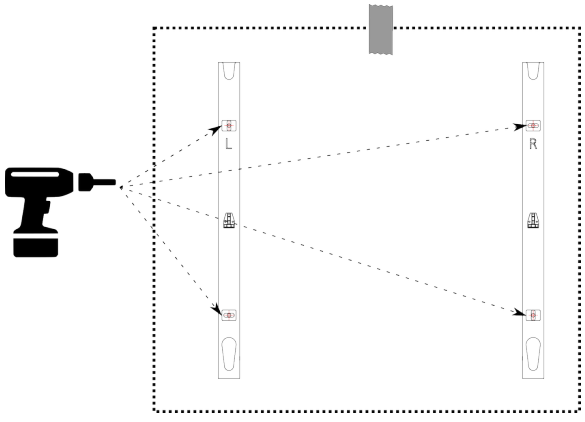
1. Cut out the template located on the back of the cardboard along the marked line.



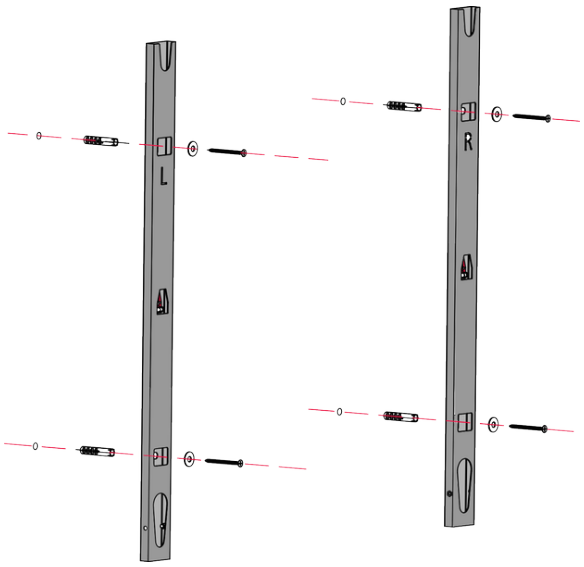
2. Place the template against the wall and level it. You can use one of the mounting brackets equipped with a level.



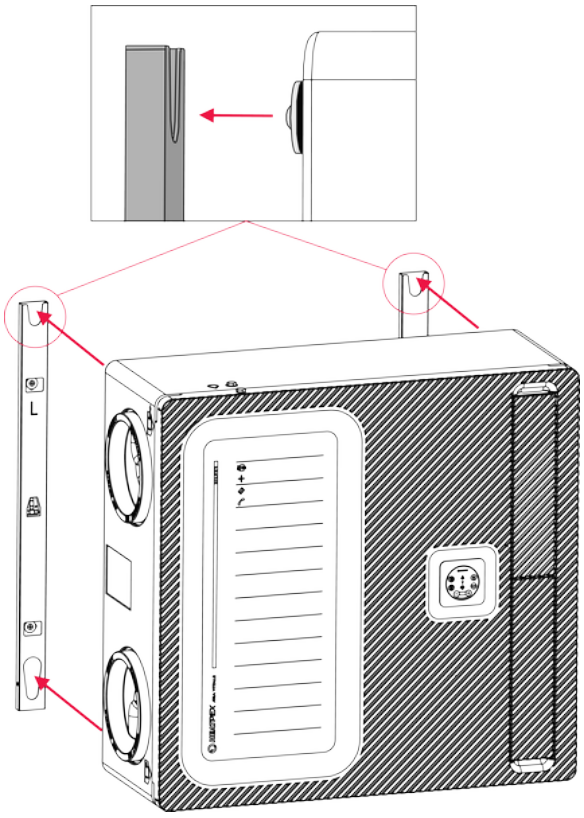
3. Drill holes through the marked points.



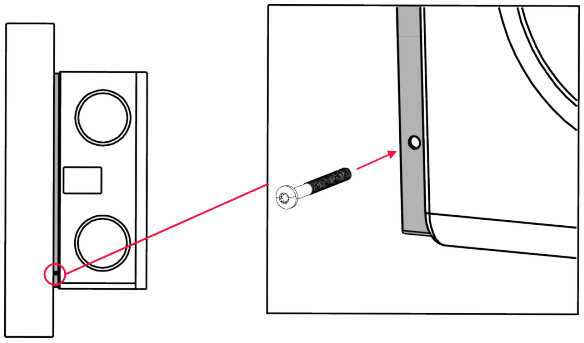
4. Fix the brackets to the wall using fasteners suitable for the load-bearing capacity of the wall where the unit will be mounted. Use the built-in levels to ensure they are properly leveled. Pay attention to whether the bracket marked with the letter "L" is on the left side and the one marked with "R" is on the right side. The brackets are not symmetrical, and reversing their order of arrangement will make it impossibe to secure the unit's retaining bolts.



5. Hang the unit on the wall by inserting the cylindrical elements on the unit's back into the recesses in the mounting brackets.



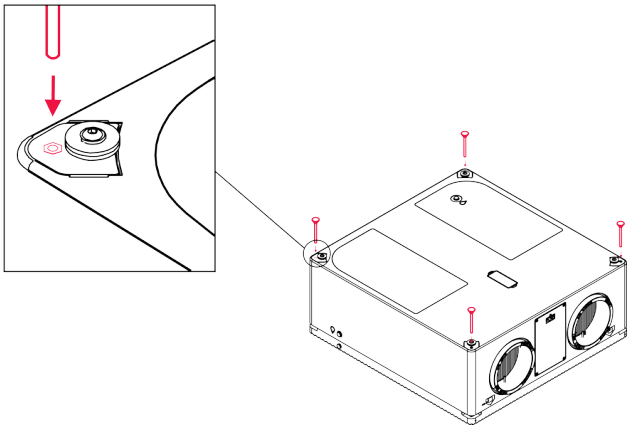
6. Secure the unit against movement by tightening the retaining bolts into the bottom of each mounting bracket.



For a wall-mounted installation, it is recommended to place the unit with its control panel on the eye level. This does not apply if the control panel is separated and installed remotely on the wall.

3.9 Floor installation

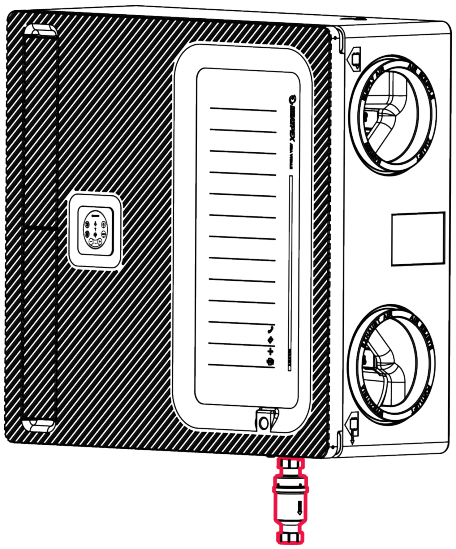
To install the unit on the floor position, screw the legs into the threaded holes located on the back of the unit.



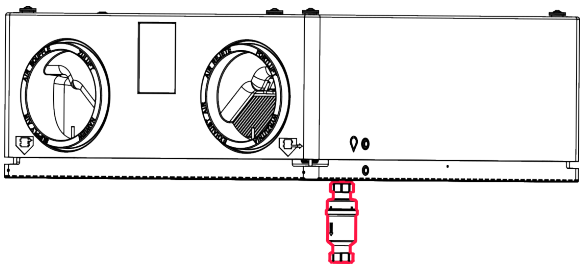
3.10 Condensate drain installation

Condensate drain location The location of the condensate drain is dependent on the installation variant and in case of wall mounting also on orientation of the unit. In every instance, the condensate drain port is marked with the symbol .

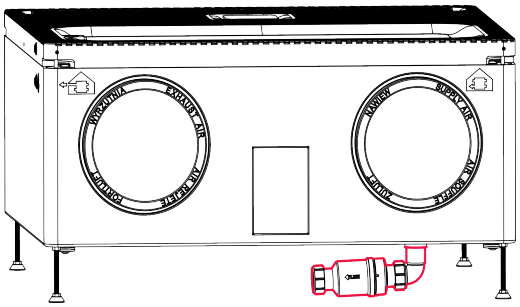
- Wall



- Ceiling



- Floor

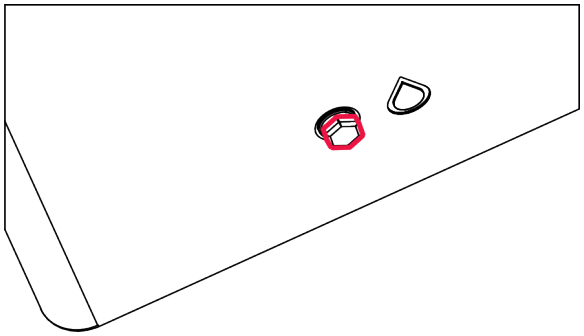


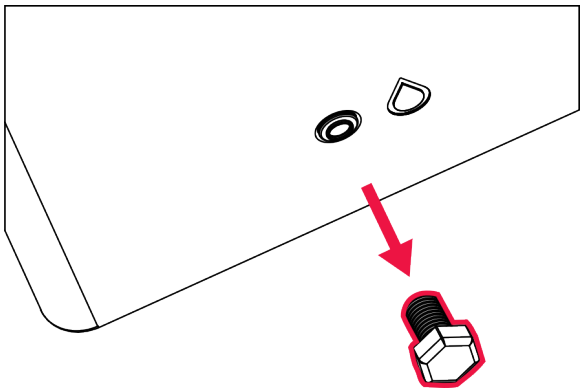
The condensate drains are positioned as shown in the above graphics:

- Wall mounting: at the bottom of the unit, below the note board.
- Suspended ceiling mounting: on the front cover.
- Floor mounting: on the back of the unit.

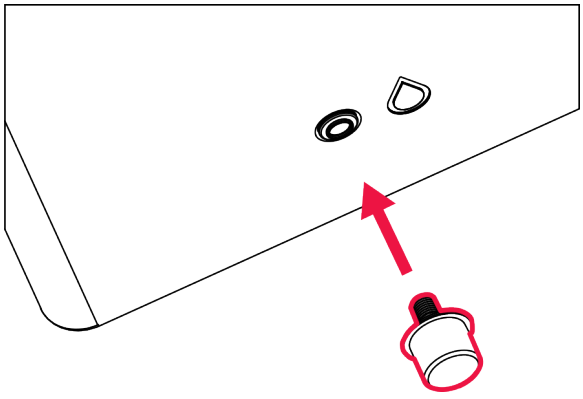
The installation method for the condensate drain is the same for each mounting variant.

1. Remove the protective plug securing the condensate drain. Take off the gasket from the plug

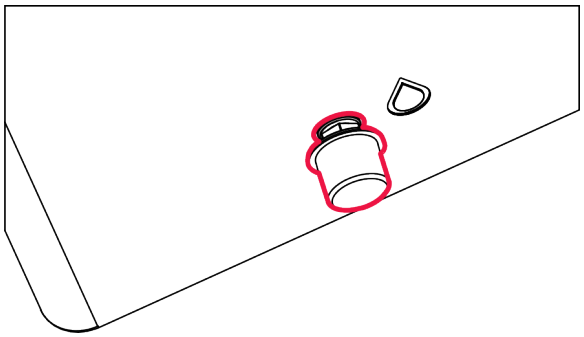




2. Put the gasket on the drain adapter thread and screw the condensate drain adapter into the drain hole.



The condensate drain adapter should be screwed in manually, without the use of tools. Overtightening the component can cause damage to the unit's casing and compromise its sealing.



The drain adapter supplied with the unit allows to connect the unit to standard 32 mm plumbing

It is recommended to use a dry trap (sold separately). There is a risk of water trap drying out due to low condensate amount and therefore unpleasant smell from sewage can be carried over to supplied air.

The unit is equipped with a drip tray with inclines to facilitate condensate drainage. It is important to level the unit carefully to maintain the proper condensate flow path. Tilting the unit in any direction can lead to condensate accumulation inside the unit and, as a result, damage to internal components.

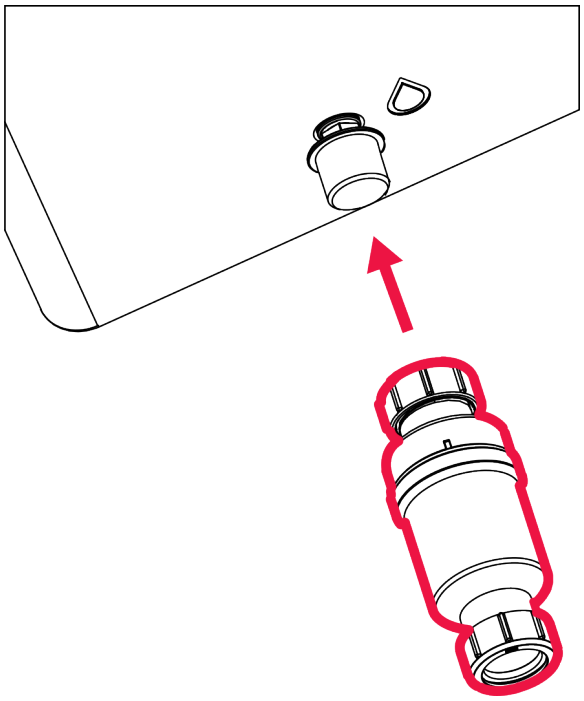
Optional accessories

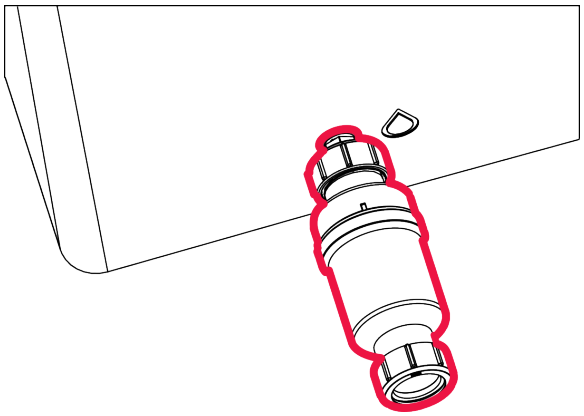
There are 2 accessories available for the condensate drain, which are suitable for different installation configurations

1. DRY MEMBRANE TRAP (52600800100W)
2. DRY BALL TRAP 32 MM (52600700100T)

Dry membrane trap

1. Place the dry membrane trap on the drain adapter and tighten the nut



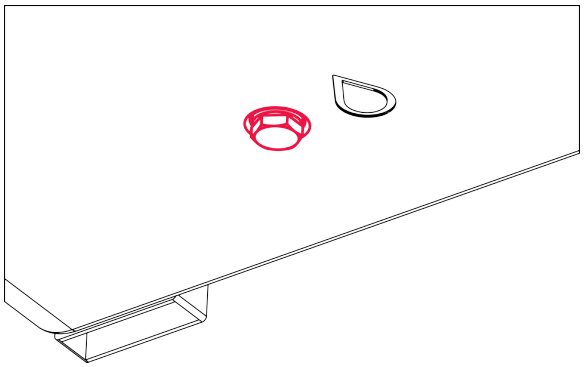


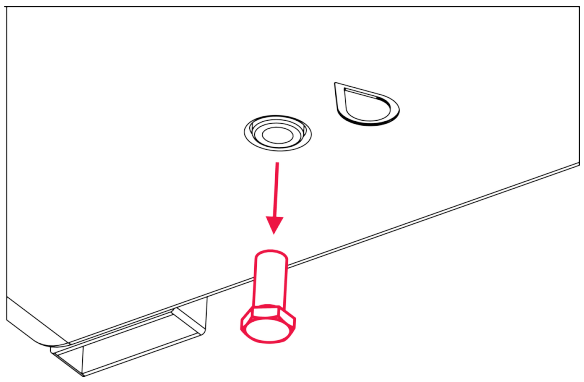
2. Connect the dry trap to the plumbing

Dry ball trap 32 mm

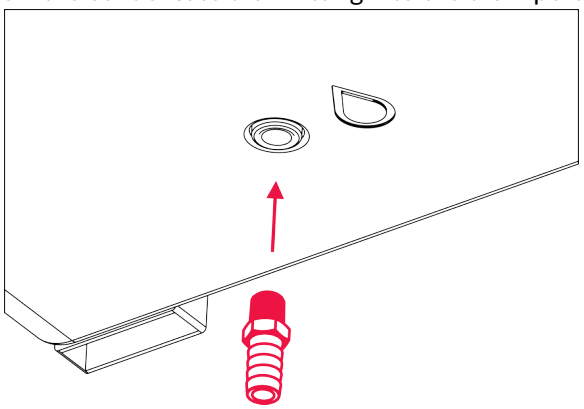
Dry ball trap can be used in configurations with limited amount of space, where there is a problem with fitting other kind of traps.

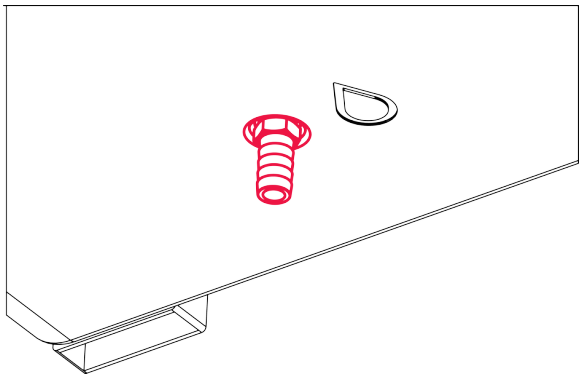
1. Remove the protective plug securing the condensate drain.



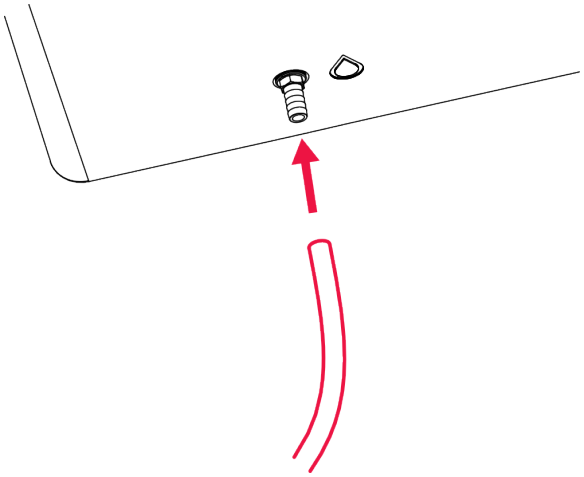


2. Screw the condensate drain fitting into the drain port.

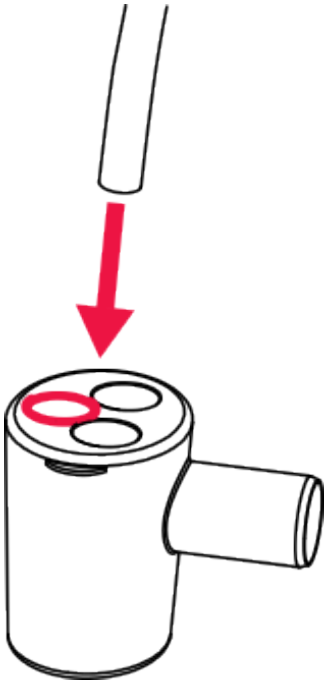




3. Connect one end of a 10 mm inner diameter drain hose to the condensate drain fiiting.



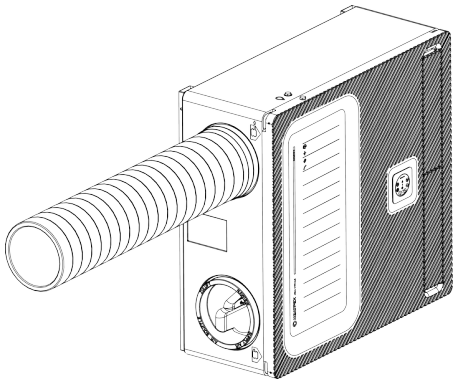
4. Connect the drain hose to one of the openings in the dry ball trap.



5. Connect the outlet of the ball trap to the 32 mm plumbing

The condensate drain fitting should be screwed in manually, without the use of tools. Overtightening the component can cause damage to the unit's casing and compromise its sealing.

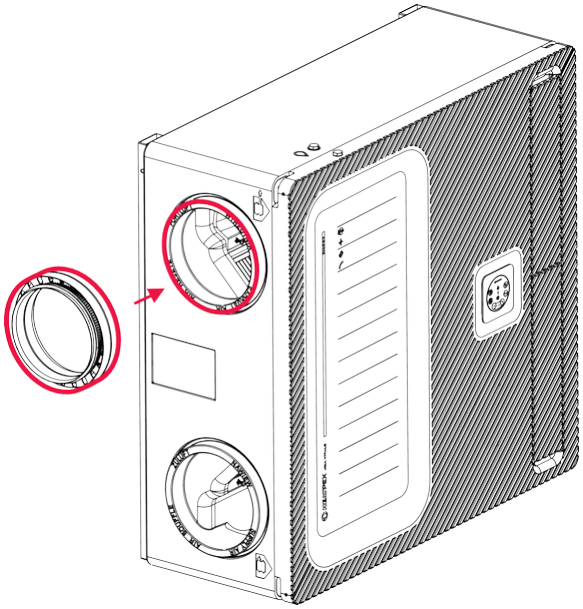
3.11 Connecting the unit to the ductwork



The Aria Vitale unit is equipped with 200 mm internal diameter connection spigots. The spigots are designed especially to be compatible with the Aria ADURO system. Using the Aria ADURO system for ductwork is recommended due to high level of air tightness and ease of installation.

Aria ADURO system

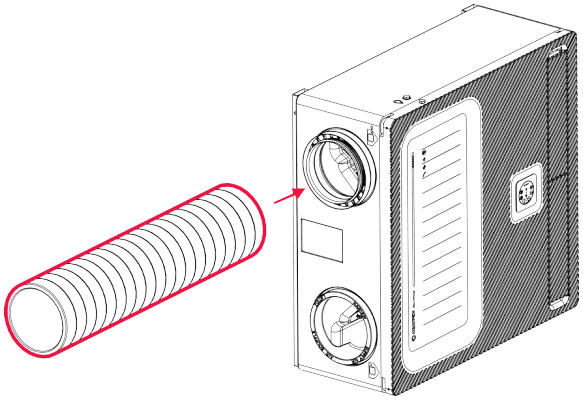
1. Slide the 200 mm connector onto the unit's air connection until it reaches a tight fit.

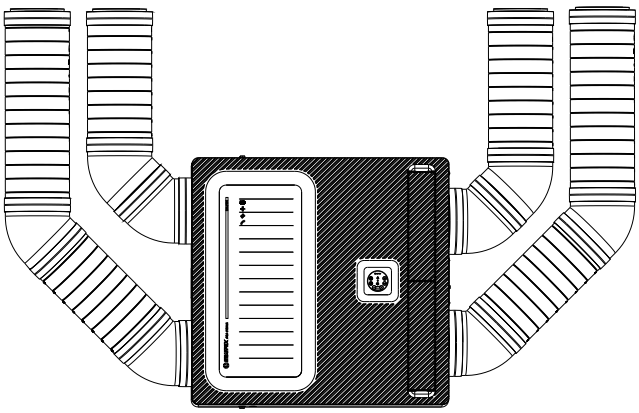


For further ductwork installation, follow the instructions for the **ARIA ADURO** system.

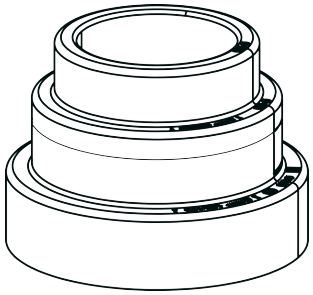
When installing the unit on a wall and running duct upward, 45° elbows can be used to reduce the size of the installation. This allows for a more compact configuration.

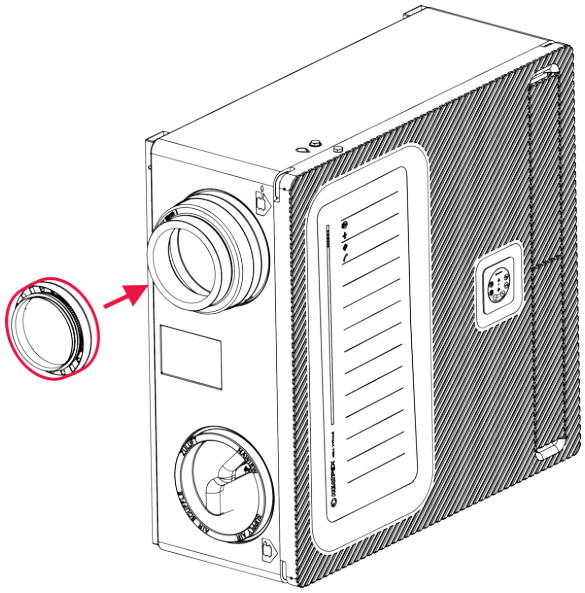
2. Insert the 200 mm Aria ADURO pipe into the connector until it reaches a tight fit.





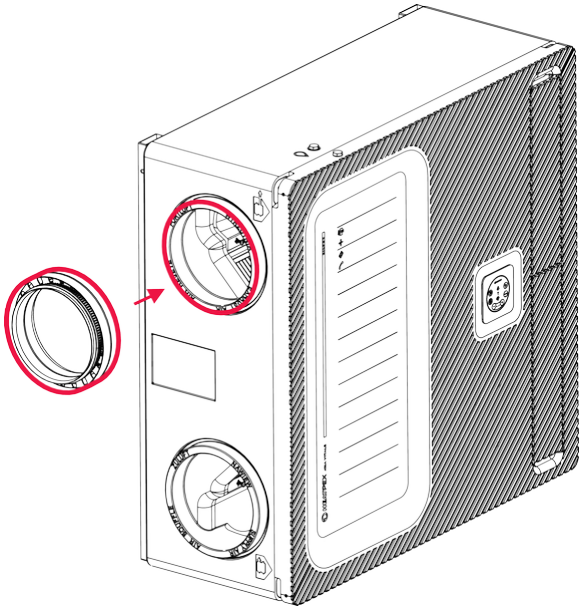
If the 200 mm diameter is too large, you can use the Aria ADURO Reducer (125/160/200 mm) to connect pipes of smaller diameters.

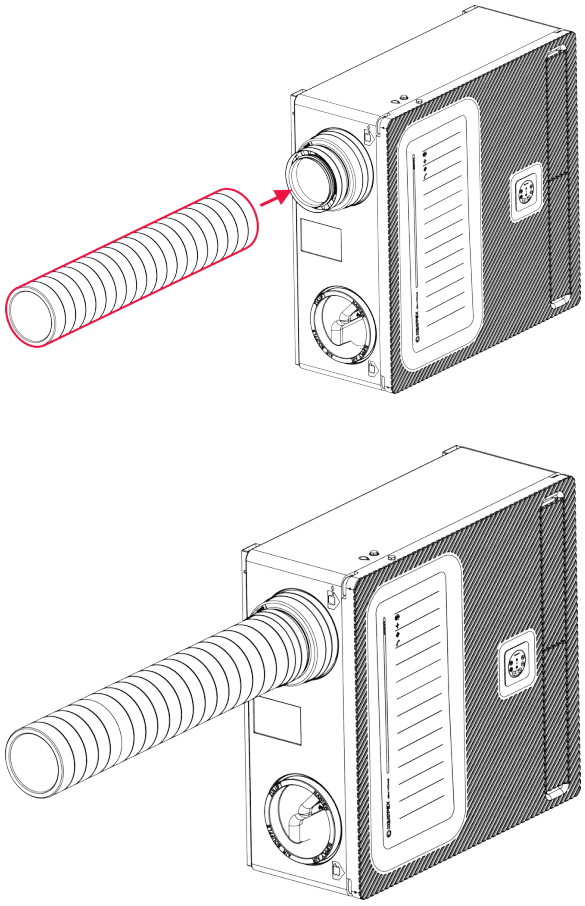




3. Insert an ADURO 125 mm or 160 mm pipe into the connector until it fits tightly.

1. Slide the 200 mm connector onto the unit's air connection until it reaches a tight fit.





2. Insert the 125/160/200 mm reducer into the connector. If using 160 mm pipes for air distribution, the 125 mm part should be cut off. In the example, a trimmed 160/200 mm reducer has been shown. Slide a 125 or 160 mm connector onto the reducer until it reaches a tight fit.

Round metal ducts The unit can also be connected to round metal ducts. The internal diameter of the unit air connections comply with the PN-EN 1506:2007 standard. To connect a round metal pipe, you can use the 200 mm diameter connectors from the Aria ADURO system. The connection should be additionally sealed and secured to minimize the risk of the metal duct slipping out of the connector.

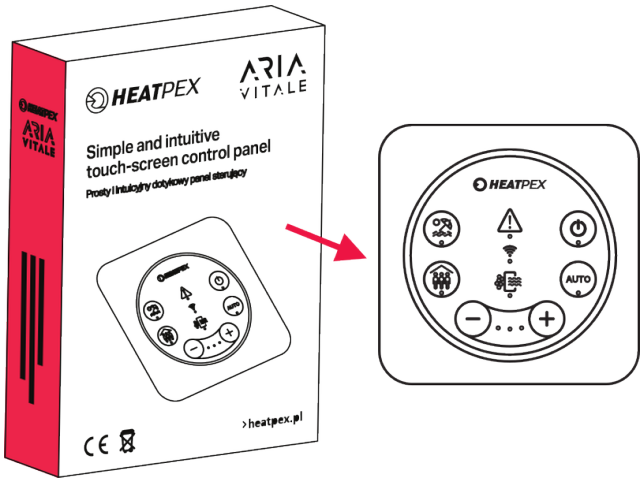
It is advised to avoid using pre-insulated flexible ducts to connect the unit with the rest of the duct-work. These types of ducts can result in high pressure losses and are prone to damage, which can lead to compromised air tightness and loss of efficiency, adversely affecting the performance of the unit.

It is important to ensure that the duct connected to the unit exert no force that could cause them to disconnect from the unit's air connection ports, leading to a loss of air tightness and potentially damaging the connectors. Proper support and secure attachment of the pipes are crucial to maintain the integrity of the connections and prevent any unintended disconnections.

To reduce noise, silencers can be installed on the supply and exhaust air connectors of the unit, helping to dampen the noise generated by the airflow and to improve the overall acoustic characteristics of the system.

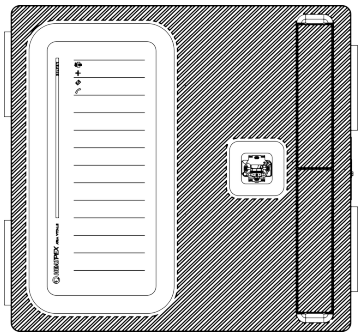
3.12 Control panel installation

The control panel is located in a separate box. Before starting the installation, you need to remove the control panel from its packaging.

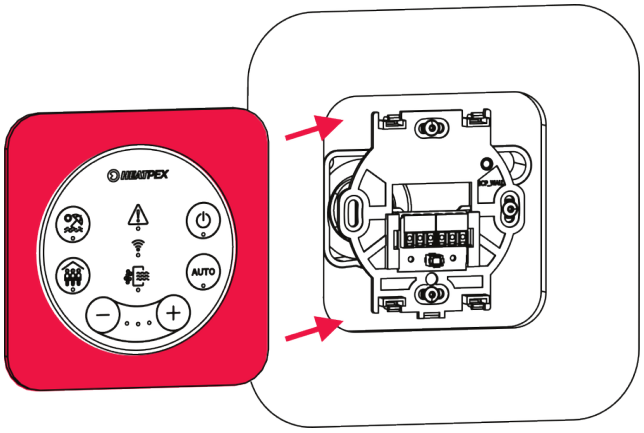


Further steps depend on the unit's mounting variant

Air intake on the right - default position

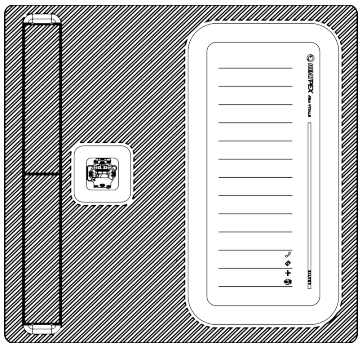


Plug the control panel into the control panel base until it clicks into place.

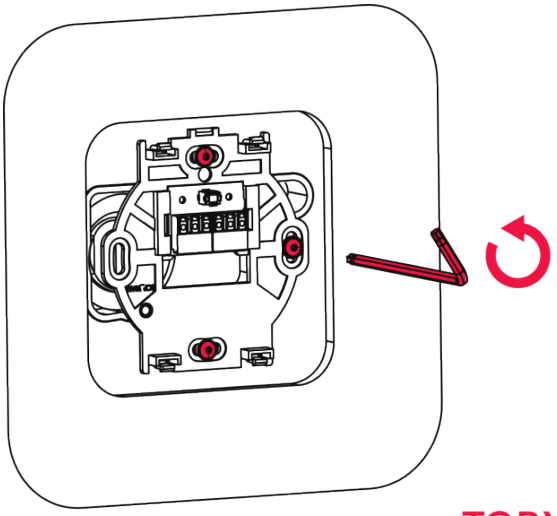


Air intake on the left - rotated position

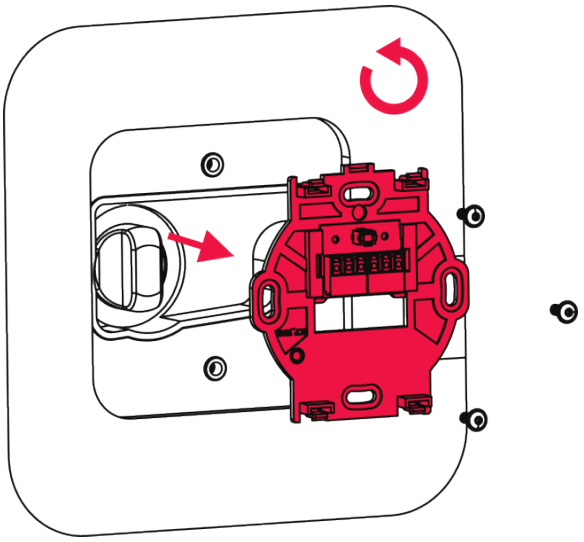
If the unit is rotated 180° from its default position, it is necessary to rotate the base of the control panel.



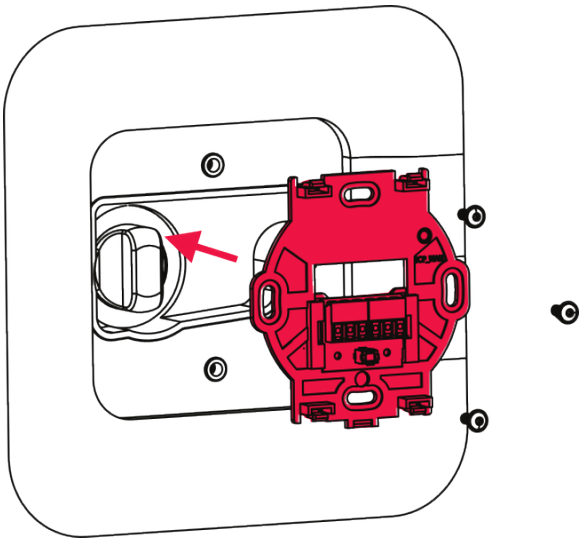
1. Unscrew the three screws that secure the control panel base to the unit's cover using a Torx T10 key which is located beneath the cover of the fresh air filter.

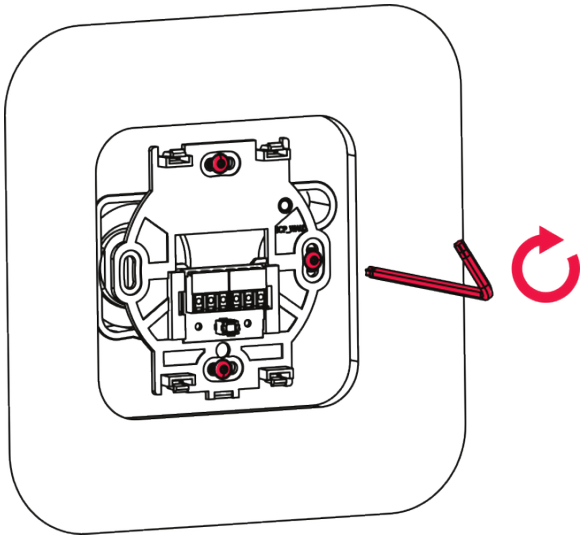


2. Carefully remove the base of the control panel, being mindful of connected wires. Rotate it to the desired position.

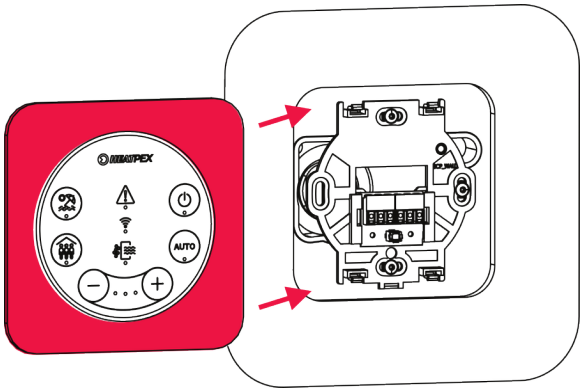


3. Screw the base of the control panel back onto the unit's cover.





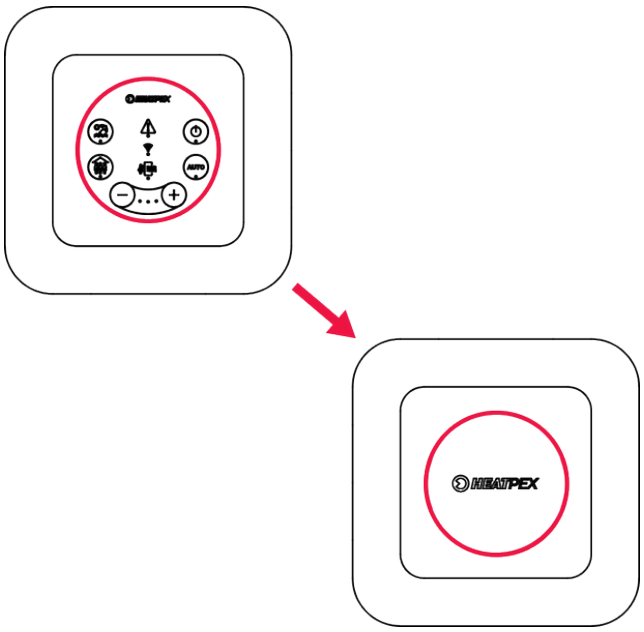
4. Plug the control panel into the control panel base until it clicks into place.

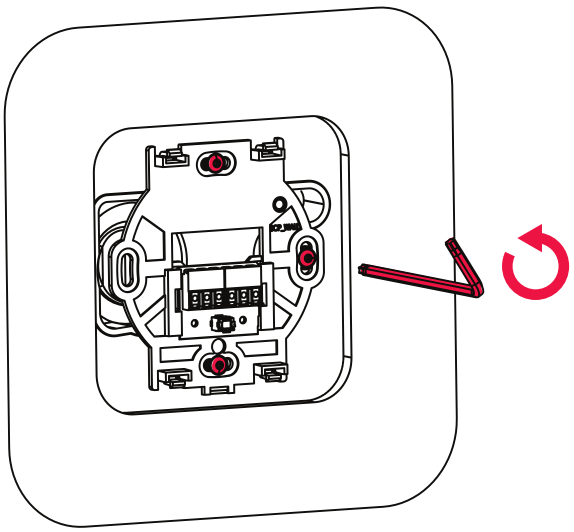


Control panel wall installation

In the standard configuration, the unit is prepared for mounting the control panel on the unit's casing. There is also an option to install the control panel on the wall in any chosen location within the house and cover the control panel base

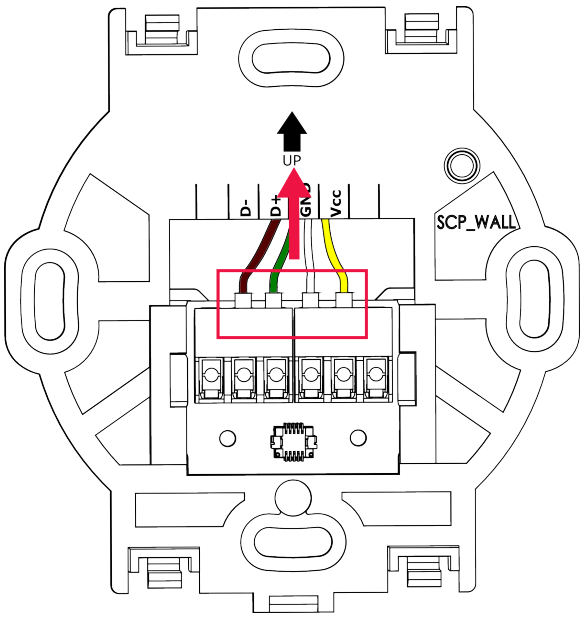
with a blind (available for purchase as an option, along with a 10m power and control cable).





2. Disconnect the cable from the base of the control panel.

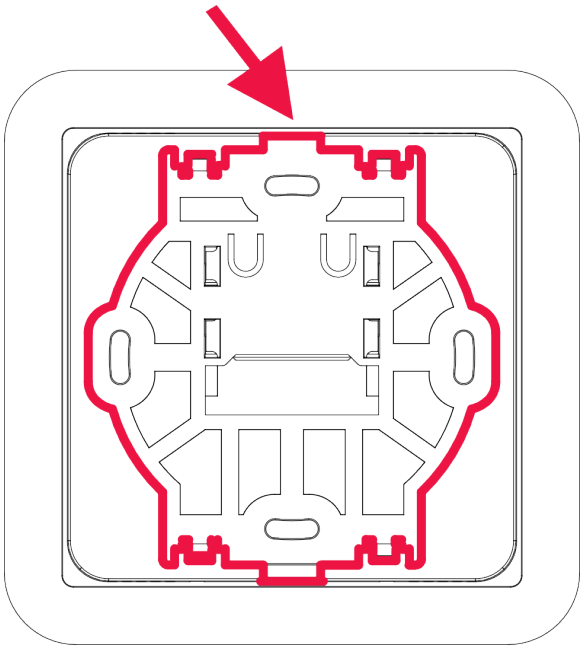
The control panel is intended for wall mounting, exclusively in dry indoor environments. The control panel should be protected from water vapor condensation and direct contact with water. Contact with water can lead to damage to the control panel and the risk of electric shock for user.



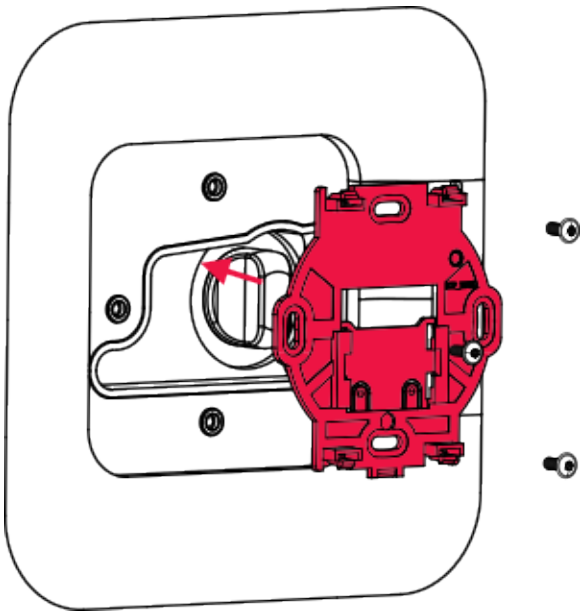
When selecting the cable to connect the panel to the controller, it is important to follow the rule that the resistance of a single wire in the cable should not exceed 8 Ω, and the total length of the cable should not exceed 100 meters. As the length of the cable increases, its cross-sectional area should be increased accordingly.
For lengths below 10m length LiYY 4x0.14 cable is recommended

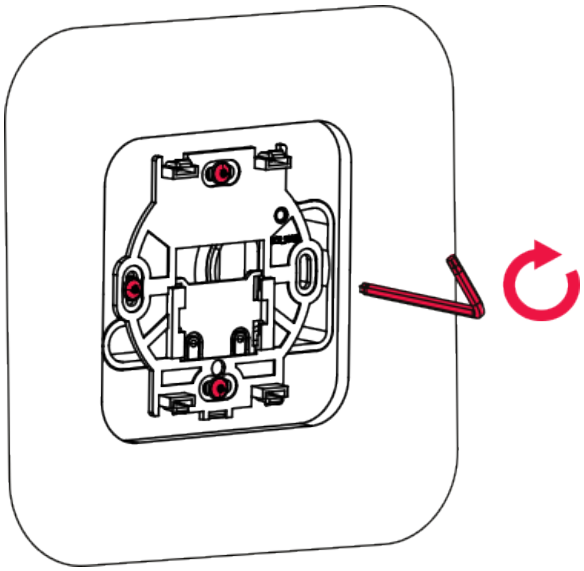
1. Unscrew the 3 screws securing the base of the control panel using a Torx T10 wrench, and carefully remove the base while being mindful of the cable that is connected to the main control board of the unit.

3. Detach the base from the control panel blind by releasing the latch at the indicated location.

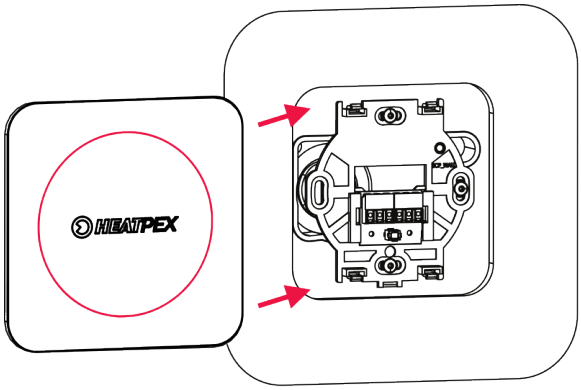


4. Attach the base of the control panel blind to the unit's cover by screwing it in place.

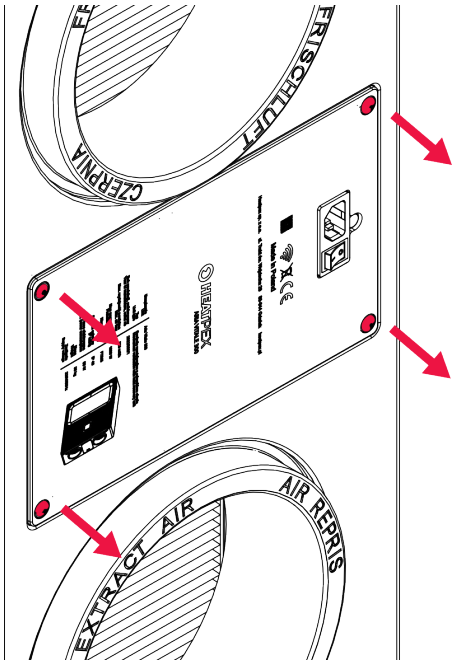




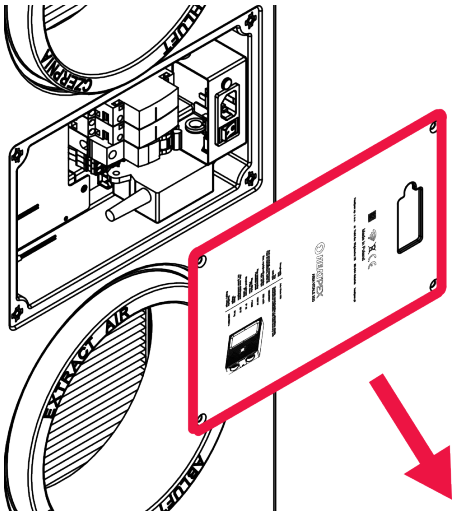
5. Insert the control panel blind into the base of the control panel blind on the unit.



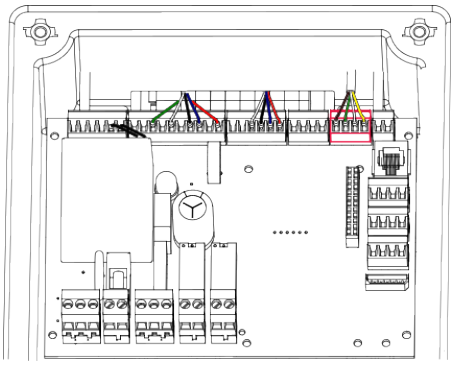
6. Unscrew the 4 screws securing the nameplate using a Torx T10 wrench.



7. Remove the nameplate to reveal the unit's main control board.

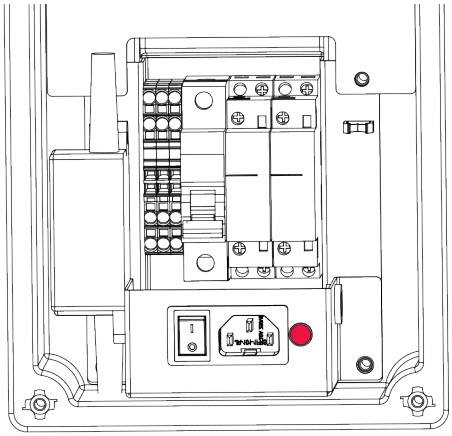


8. Disconnect the control panel connector from the main board.

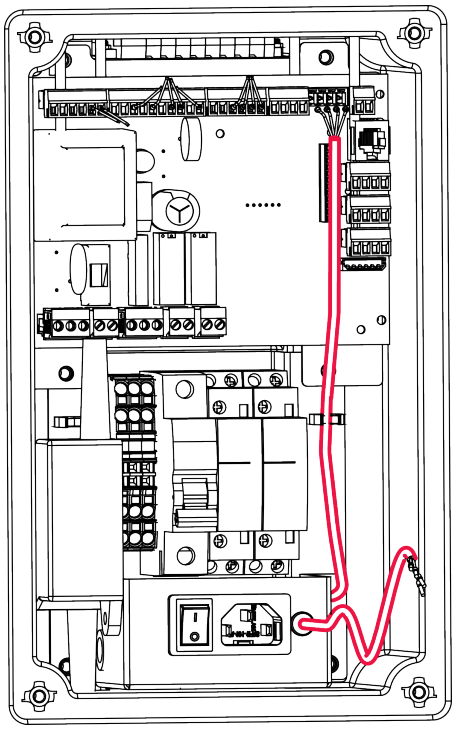


9. Disconnect the cable from the control panel connector and remove it from the unit. Keep the cable for future use in case there is a need to reinstall the control panel on the unit's casing.

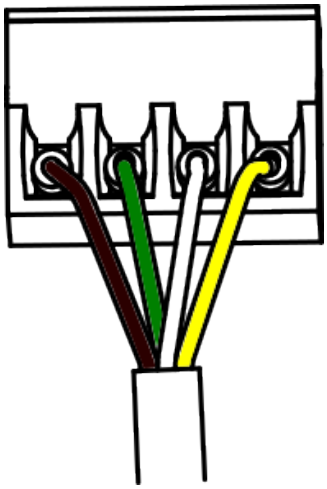
10. Make a hole in the conduit using a screwdriver or the Torx key provided with the unit.



11. Pull and route the 10-meter cable through the previously made hole in the conduit as shown in the diagram below.

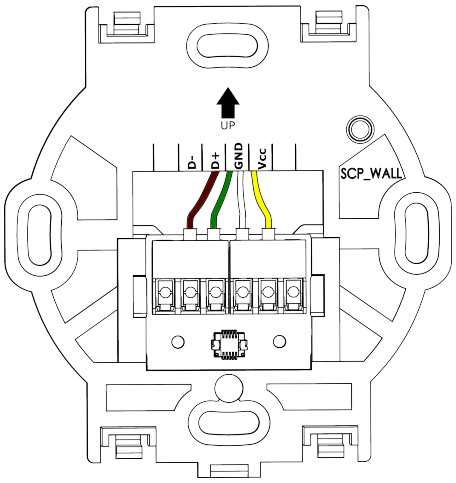


12. Screw the ends of the 10-meter cable to the control panel connector as shown in the diagram. Then, plug the connector back into the socket on the main board.

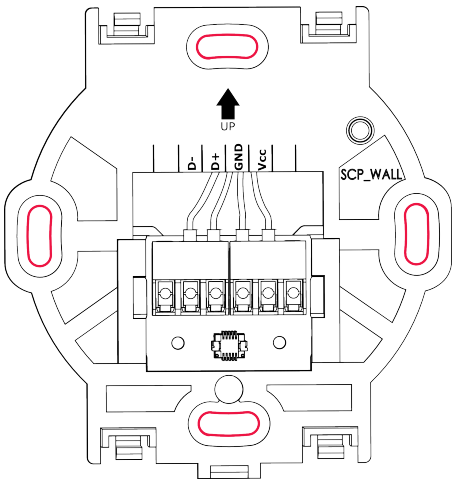


13. Plug the ends of the 10-meter cable into the terminals of the base of the control panel as shown in the diagram below.

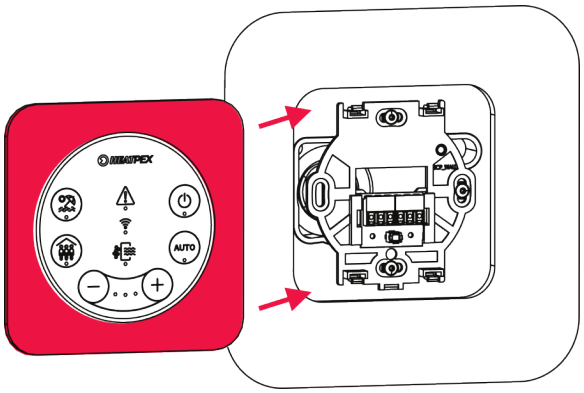
- Vcc - yellow
- GND - white
- D+ - green
- D- - brown



14. Install the base of the control panel in the desired location. Pay attention to the "UP" arrow indicating the top of the base.



15. Insert the control panel into the control panel base until it clicks into place.



The cable connecting the control panel to the unit's main board should be routed within the wall and kept away from electrical wiring and devices emitting strong electromagnetic fields.

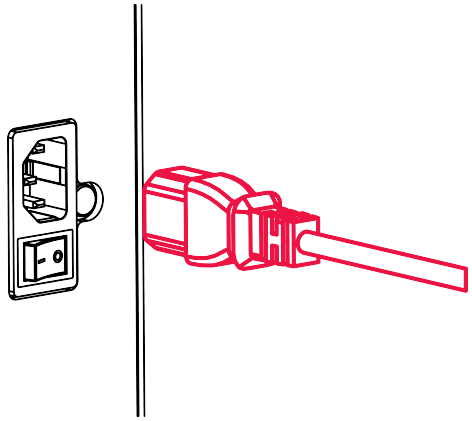
3.13 Connecting the unit to the power supply

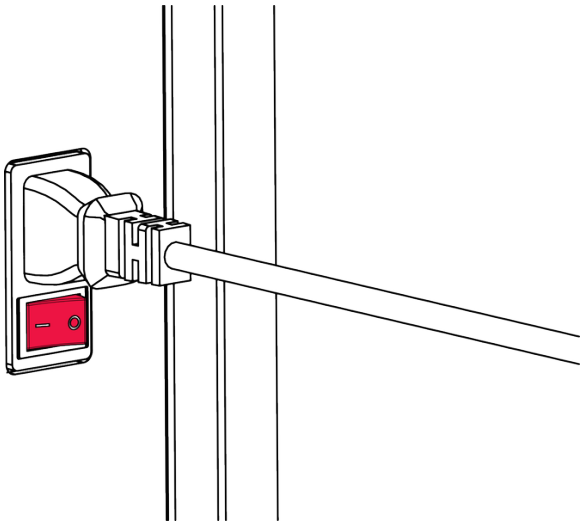
The electrical installation supplying power to the unit must be carried out in accordance with the relevant building regulations and standards. Only individuals with the appropriate electrical qualifications and certifications should perform electrical connections.

The unit is equipped with factory internal wiring. All components within the unit are pre-connected to the mainboard during the manufacturing process. A 3-meter long Schuko – IEC C13 power cable is included in the package. The power socket is located on the side of the unit, on the nameplate.

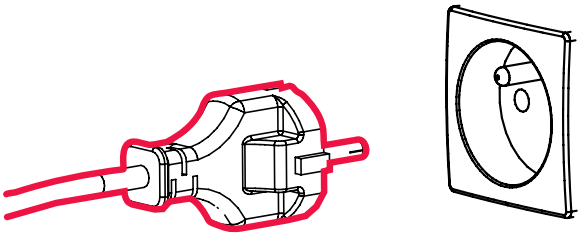
The unit should only be connected to power outlets with an earthing pin.

1. Insert the IEC C13 plug into the socket located on the side of the unit.

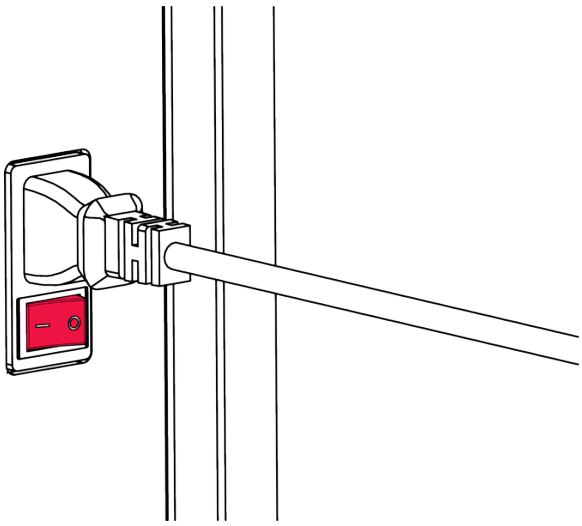




2. Insert the Schuko plug into the electrical socket with an earthing pin.



3. Switch the power switch on the unit to position 1.



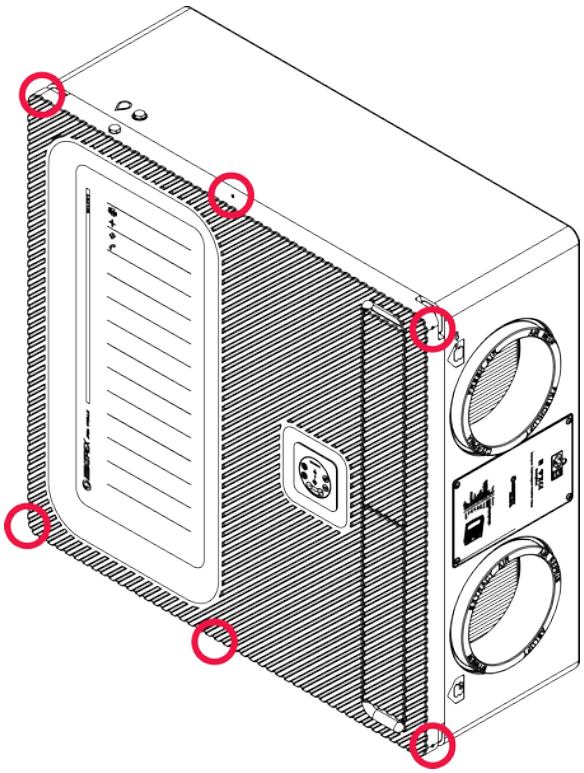
The unit will start up, and the LED light on the control panel will start blinking.

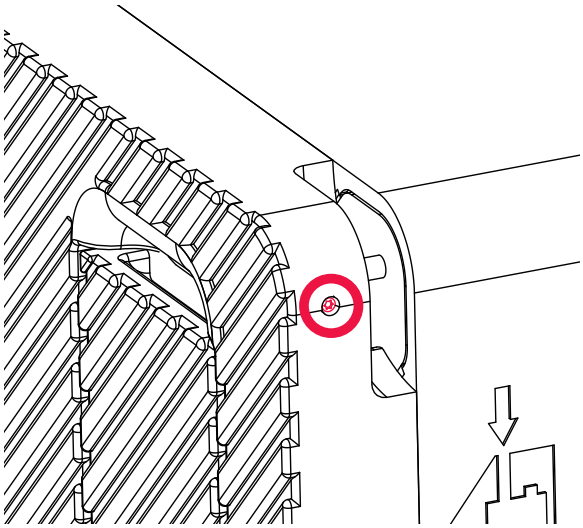
3.14 Maintenance access

To access the interior of the unit for maintenance or servicing it is necessary to remove the cover.

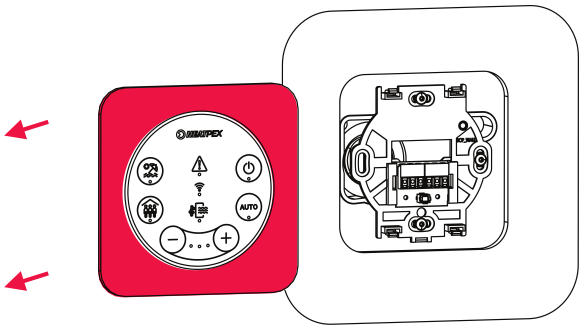
1. Turn off the unit using the main power switch located on the side of the unit.

2. To remove the cover, unscrew the 6 securing screws using a Torx T10 key. There are 4 screws located in the corners of the unit, and the remaining 2 are positioned in the middle of the longer sides of the cover. The screws do not need to be fully removed; they can remain inside the cover.

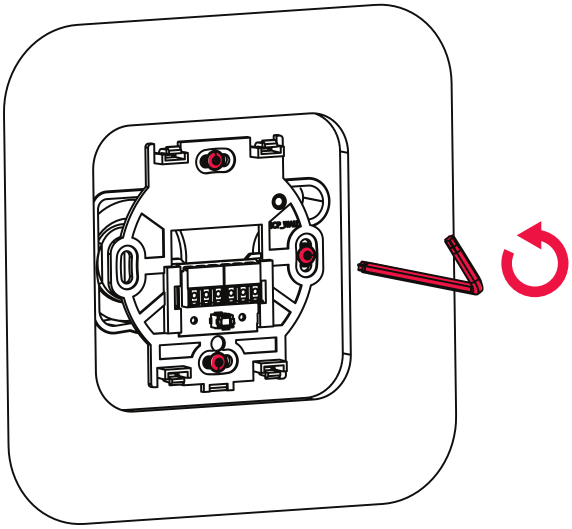




3. Detach the control panel from the control panel base.

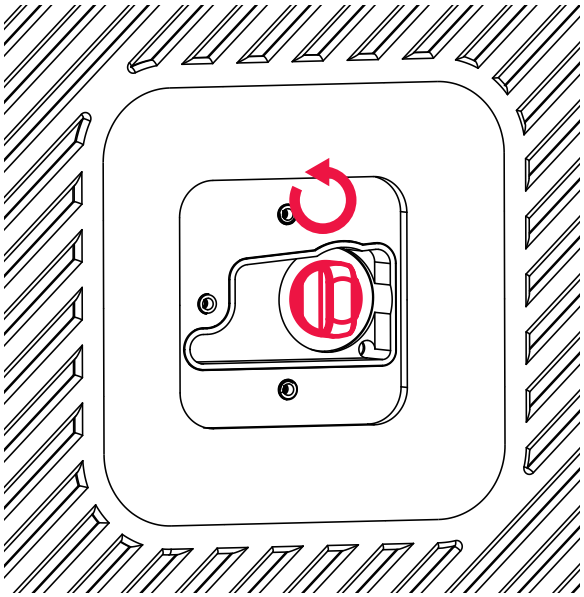


4. Use a Torx T10 key to unscrew the three screws securing the control panel base and carefully pull it out, taking care not to damage the wire connecting the base with the main control board of the unit.

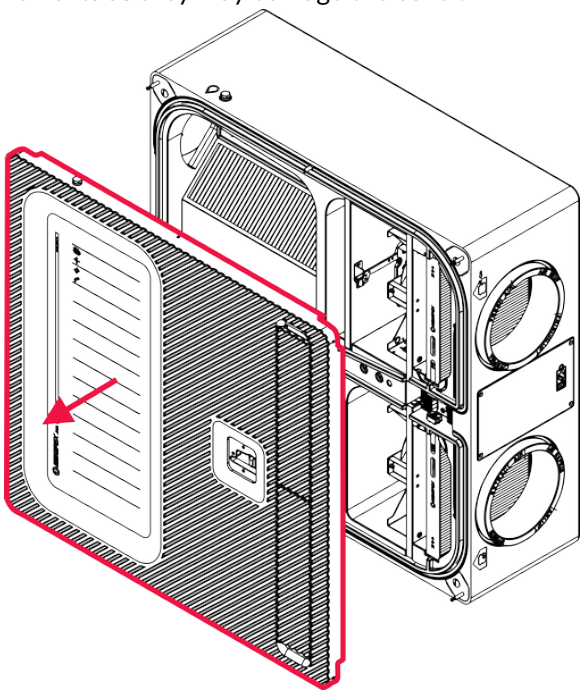


5. Disconnect the wire from the control panel base. This will make it easier to remove the unit's cover and protect the wire from accidental damage.

6. Unscrew the screw securing the unit's cover.



7. To remove the unit's cover, grip it by the corners and gently pull until the cover disengages from the grooves on the unit's casing. Avoid making abrupt or forceful movements as they may damage the cover.



To reattach the cover, follow the previous steps in reverse order:

3.15 Steps before commissioning the unit

- Make sure that all unit spigots are properly connected to their corresponding ventilation ducts.
- Verify that all electrical connections have been made correctly and do not pose any safety risks.
- Check that no foreign objects (tools, packaging fragments, dust, construction debris) have been left inside the unit.
- Ensure that the filters are inserted into their slots and are clean.
- Verify that the unit is properly leveled both vertically and horizontally..
- Check if the condensate drain has been connected correctly according to the instructions for the chosen mounting variant and that the trap has been filled with water (excluding dry traps).
- Make sure that all the air diffuser valves are half open.

3.16 Ventilation system balancing

1. Close the external doors to the building and windows.
2. Start the unit, check if it works correctly on all predefined operating modes.
3. Set the airflow rate to match the nominal value in the ***Aria myHome***application.
4. Measure the values on each of the supply and exhaust air diffusers using an anemometer. Follow the instructions provided by the manufacturer of the measurement unit during the measurement process. It is recommended to use a conical measurement hood to ensure the highest measurement accuracy.
5. Starting from the diffuser closest to the unit, adjust the airflow according to the design specifications. This can be done closing the diffusers or by using the Heatpex Aria throttle/damper. Follow the design guidelines to ensure proper airflow distribution throughout the system.
6. After adjusting all the supply and exhaust points, measure the airflow again. If the results differ from the design specifications, repeat the procedure outlined in step 4. This ensures that the airflow is properly balanced and aligned with the intended design.
7. If it is not possible to achieve the required airflow at the furthest supply or exhaust point, increase the unit capacity in the ***Aria myHome***and repeat the balancing process.
8. Fill out the commissioning protocol

3.17 User acceptance

- Describe the operation and usage of the unit, emphasizing the importance of following appropriate safety measures.
- Explain the functionality of the control panel, providing an explanation for each available option.
- Describe the functionality of the ***Aria myHome***service and the capabilities it offers.
- Emphasize that the diffusers should always remain open and should not be manually adjusted by the user, as this can affect the overall ventilation balance. The ventilation intensity should be adjusted solely through the unit's control panel or the ***Aria myHome***application.
- Highlight the importance of not obstructing the ventilation openings or door undercutts with carpets or other objects, as this can impact the effectiveness of the ventilation system.
- Explain the process of replacing filters in the unit and emphasize that regular filter replacement ensures reliable operation with nominal efficiency.
- Remind users to periodically check the air intake and exhaust louvres for any obstructions.
- Stress that any work on the ventilation system, maintenance, and unit repairs other than filter replacement should only be performed by authorized service personnel. Unauthorized intervention may disrupt the proper functioning of the ventilation system and damage the unit.
- Provide the user with a complete set of documentation
- Hand out the unit along with clean, unused filters.

Chapter 4

Unit operation

4.1 Unit operation guidelines

- The unit should operate continuously to ensure a constant exchange of air in the building. Turning off the unit for an extended period of time is not recommended as it will lead to an increase in pollutants and moisture inside the building, which, in extreme cases, can lead to the appearance of mold and fungi. In case of longer absence of occupants from the building, the minimal performance mode - Holiday mode - should be turned on. The unit should only be turned off during maintenance and servicing.
- To ensure proper functioning of the ventilation system, it is prohibited to cover, close, or reduce the ventilation openings or undercuts in the doors leading to the rooms, as well as close or adjust the air diffuser valves.
- Regularly, according to the unit's indication, it is necessary to replace the fresh and extract air filters. The filter replacement can be done by the end user. will ensure the unit's energy-efficient operation and prevent damage to its components, especially the fans. In case of accelerated clogging of the filters e.g in high polluted areas, it is recommended to adjust the schedule settings in ***Aria myHOME*** app and, thus, replace the filters more frequently.
- Any service work or modifications to the unit, other than filter replacement, should only be performed by qualified installers or service technicians.

4.2 Operating modes

Automatic mode AUTO

Operating mode according to the schedule set in the *Aria myHOME* application. The unit operates in one of three predefined gears, within hourly intervals set in the application. By default, the modes correspond to the following fans capacity settings:

- Gear 1 – 35%
- Gear 2 – 55%
- Gear 3 – 75%

Holiday mode - minimal capacity mode 

The unit operates in the minimum capacity mode (default 25% for 7 days) for a specified period. In this mode, there is minimal air exchange, which prevents moisture buildup and mold formation in the building during the absence of occupants. It is recommended to activate the unit in holiday mode when residents plan to be away from home for an extended period. The minimum capacity and the duration of the holiday mode can be set in the *Aria myHOME* application.

Pary mode - intensive ventilation mode 

The unit operates at maximum capacity for 3 hours. This mode is recommended when there is increased humidity and carbon dioxide generation in the building, for example, when there are more people present than the ventilation project allows or when activities are being carried out that lead to higher levels of pollutants and unpleasant odors. After the 3-hour period, the unit will automatically switch back to the last used mode. Additionally, you can manually disable the party mode by selecting any other operating mode.

There is an option to manually adjust the duration of the party mode in the unit settings within the *Aria myHOME* application.

Manual mode 

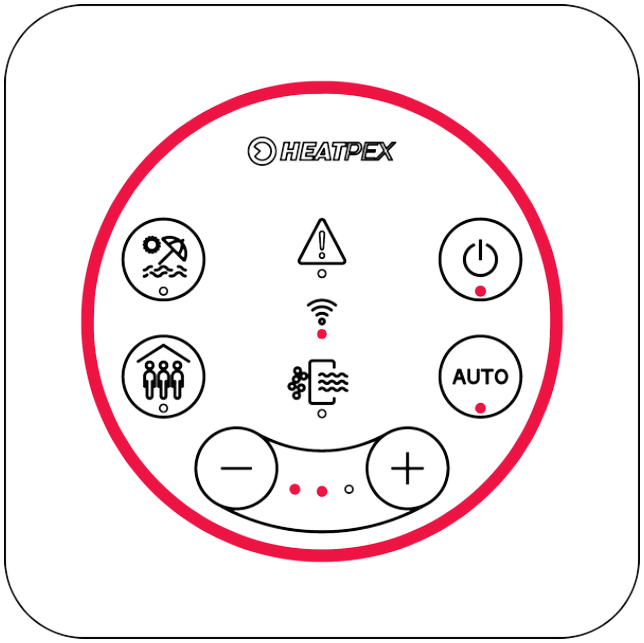
Operation mode with a fixed capacity according to the settings in the *Aria myHOME* application. The unit will operate in manual mode at the selected gear until switching to a different mode or selecting another gear. By default, the settings correspond to the following expenses::

- Gear 1 – 35%
- Gear 2 – 55%
- Gear 3 – 75%

There is a possibility adjust air flow for each mode and gear in the *Aria myHOME* application by the installer.

4.3 Control panel operation

The control panel provided with the unit enables quick and intuitive operation. The panel allows for the adjustment of key operating parameters, covering most typical usage scenarios.



ON/OFF

ON/OFF is used to start or stop the unit. Pressing the icon while the unit is operational will stop the fans and the LED under the icon will turn off. Pressing it again will restart the unit in the last used mode."

is not meant for completly shutting down the unit. In order to power off the unit use the power switch located on the side of the unit.

AUTO mode AUTO

Pressing the icon will switch the unit to the AUTO Mode. Operation in AUTO Mode is indicated by a red LED below the icon. LEDs between the +/- icons indicate the current gear. To deactivate AUTO Mode, switch to Manual Mode.

Manual mode

Operation mode in one of the three defined gears. LEDs between the +/- icons indicate the current gear. Pressing the "+" icon will switch to a higher gear, while the "-" icon will switch to a lower gear.

Holiday mode

Minimal capacity mode. The unit will operate in the holiday mode until the mode is turned off or until the period of time defined in the *Aria myHOME* application elapses. To end holiday mode prematurely, press the holiday mode icon again. The unit will return to a previous mode of operation before holiday mode was activated.

Party mode

The unit operates with maximum capacity for 3 hours. Party mode is recommended in case of increased production of CO2 and moisture in the building e.g. when there are more people in the building than defined in the ventilation project or there is increased production of moisture or odours due to cooking or other works. After 3 hours the unit will switch back into the previous working mode. To end party mode prematurely, press the party mode icon again. The unit will return to a previous mode of operation before holiday mode was activated. The length of the party mode can change in the Aria myHOME app.

Wireless connection

Wireless connectivity status indicator LED. A fast blinking LED below the icon indicates that the unit is in a wireless communication mode with a phone. A slowly blinking LED signifies Wi-Fi connection search. A continuously lit LED indicates that the unit is connected via Wi-Fi. To switch the unit between Wi-Fi mode and phone communication, press and hold the icon for 5 seconds.

Alarm

Alarm indicator LED. To check the unit status and get a detailed alarm description, please log in to the *Aria myHOME* service.

Filters Contamination

A red LED indicating filter contamination. Follow the filter replacement procedure described in section 5.1.

4.4 Connecting the Aria Vitale to a mobile phone

In order to do the first configuration of the unit, it needs to be paired with a smartphone. The *Aria myHOME* mobile app is required for this process

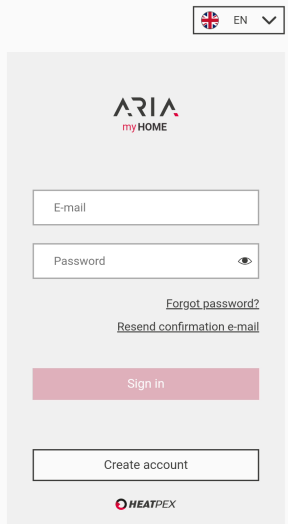
1. Download the *Aria myHOME* app from Google Play Store (requires Android 8.0 or newer) or App Store (requires iOS 15.0 or newer)

2. Start the Aria Vitale unit. The light ring on the control panel should come on red

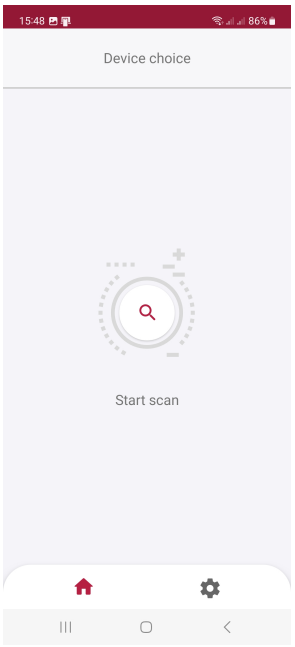
3. Make sure that the Aria Vitale unit is in wireless communication mode. This is indicated by a fast-flashing LED under the If it is not the case, switch the unit to the smartphone communication mode by pressing and holding the On/Off button for 5 seconds. All LEDs will go off on the control panel and come on again after a few seconds.

4. Launch the*Aria myHOME* app on your phone

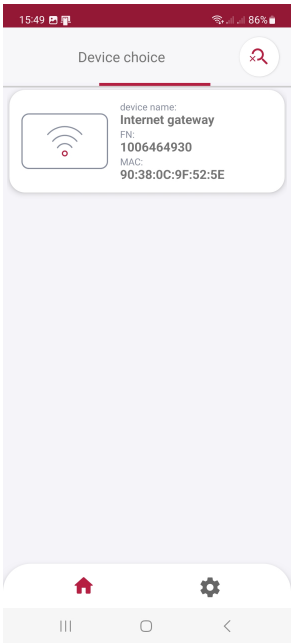
5. Tap the ***Begin*** button on the screen shown below



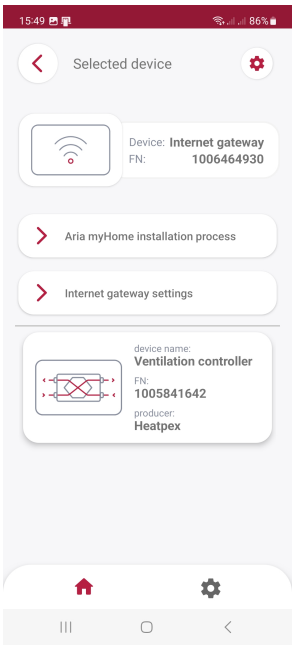
6. Next press ***Start scan***



7. The app will search for the control panel in the vicinity and if found, it will be displayed as ***Internet gateway***. Select this unit in your phone.

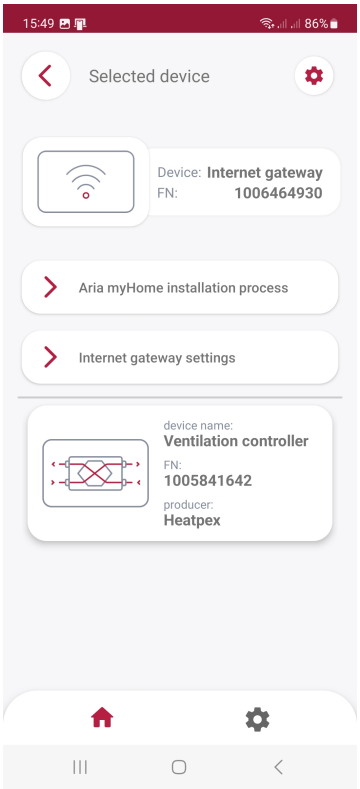


8. If the following screen is displayed, it means that the wireless connection to the unit has been successful. From this screen you can go to further configuration of the unit or register the unit in the *Aria myHOME* web app.



The unit's control panel communicate only in the 2,4 GHz band. Please ensure that the 2,4 GHz is enabled or the router is working in a dual band mode. Otherwise, the control panle will not be able to connect to the internet.

The *Aria myHOME* mobile app is for initial configuration of the unit during the first start-up, especially when the premises still do not have Internet connectivity. For everyday use, it is recommended to connect the unit to the Internet via a WiFi network, as explained in Section 4.5. 4.5

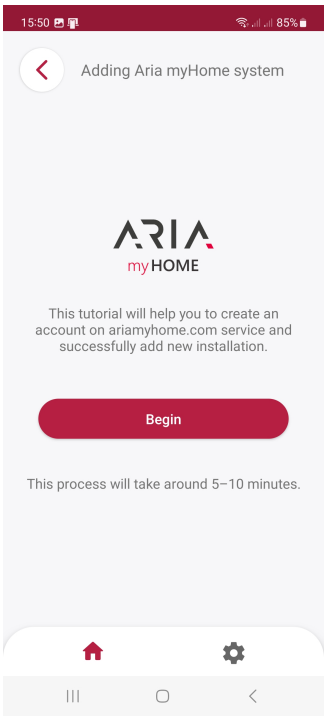


4.5 Registering the unit in the web app

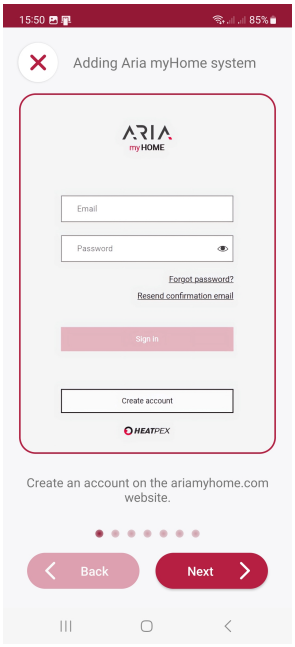
In order to control the unit on a daily basis, it is recommended to use the Aria myHOME app. Aria myHOME is available on Google Play Store: https://play.google.com/store/search?q=aria+myhome&c=apps or Apple AppStore: https://apps.apple.com/ua/app/aria-myhome/id6468773032

To register the unit in the *Aria myHOME* web app select the ***Aria myHome installation process*** system field as in the screen shown below. A wizard will be launched to help to connect the unit to the Internet, step by step. A local WiFi network with Internet connectivity is required.

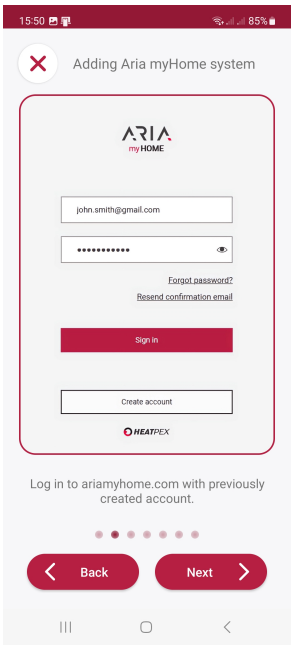
1. Select ***Begin*** on the following screen:



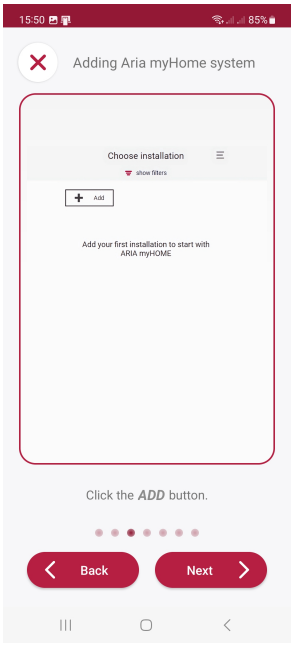
2. Create a new user account at www.ariamyhome.com



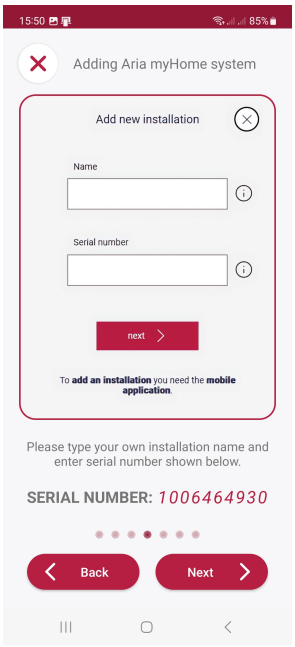
3. Login to the website using newly created account



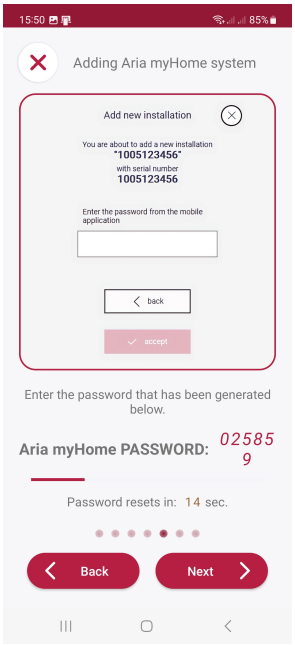
4. Go to the list of installations and select ***Add***



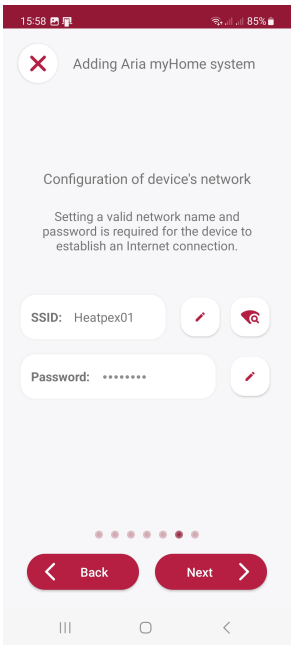
5. Enter new installation name and the unit serial number, which will be displayed in the mobile app



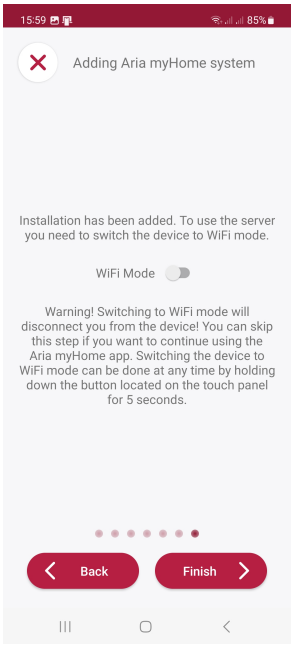
6. In the next step, enter the password that is displayed in the mobile app.



7. Search for or manually input the name of the WiFi network (SSID) to which the unit will be connected and enter the WiFi password.



Switch the unit to WiFi connectivity mode. Now, the unit will reboot and close the phone connection. The unit can now be controlled with the web app on www.ariamyhome.com. If you want to operate the unit with your phone, press ⏻ on the control panel. The unit will reboot and establish wireless connectivity with your phone.



4.6 Operation via web service

The *Aria myHOME* web service allows remote control of the unit connected to the internet via Wi-Fi.

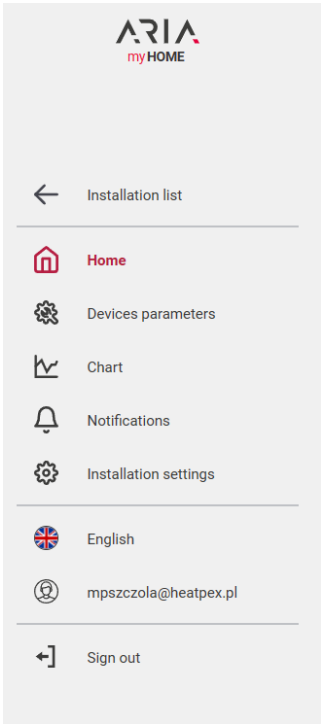
Main menu

After logging into the application and selecting the installation, the main menu will be displayed.



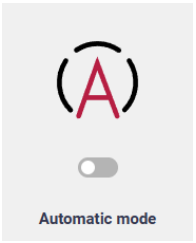
Icons describing the current status of the unit and sensor readings are located on the top bar. Below, there are mode tiles that allow to control the unit.

On the left side of the screen, or by clicking on the ☰ icon on mobile devices, a list of additional screens will appear. Here, you can configure unit and installation parameters, check real-time unit status, and view current notifications.





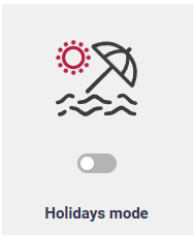
ON/OFF is used to stop or start the unit. Note that this button does not result in a complete shutdown of the unit, it only pauses its operation. Changing unit settings and remote startup remain possible. To completely turn off the unit, use the switch located on the side of the casing.



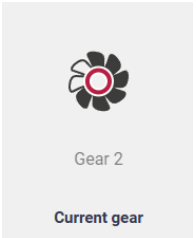
Automatic Mode is used to enable or disable automatic operation, according to a predefined schedule. Disabling automatic mode will switch the unit to manual operation.



Party Mode is one of the timed modes. It allows the unit to operate at an increased performance level for a specified duration. By default, the unit runs at 100% speed for 3 hours. The fan speed and duration of the party mode can be defined in the installer settings. The party mode remains active for the defined time or until manually turned off. Once the defined duration elapses, the unit returns to its previous operating mode, either automatic or manual. To deactivate the party mode before the set time, press the party mode icon.

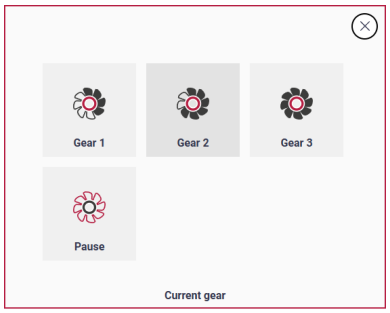


Holidays Mode initiates a working mode with minimal capacity for a specified number of days as defined in the settings. The airflow during holidays mode defaults to 25% of the nominal capacity, with the possibility to change in the installer's settings. The holiday mode remains active for the defined duration (default: 7 days) or until manually deactivated. Once the designated period ends, the unit reverts to its previous operational mode – whether automatic or manual. To deactivate the mode before the predetermined time, press the holidays mode icon.

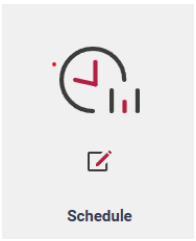


Manual Mode If the auto mode is turned off, the unit automatically switches to manual operation mode. The ***Current Gear*** icon enables gear selection for the unit's operation.

Upon selection, a pop up window appears offering the choice of one of three gears or stopping the unit.



The option is visible only when the unit is in the **Manual mode** mode.



Schedule Allows to define the schedule according to which the unit will operate in **automatic mode**. Upon selecting the icon user is transfered to Schedule editing view.

Schedule



In the schedule view, you can define the operating mode of the unit for each day of the week individually. To make them easily distinguishable, each gear is represented by a different color:

Blue– Gear 1 (default 35%)

Orange – Gear 2 (default 55%)

Red – Gear 3 (default 75%)

Gray – Stop

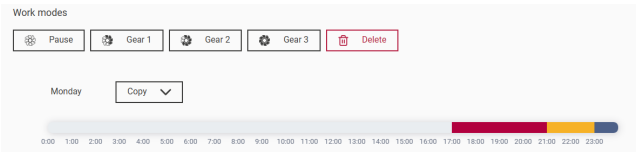
To adjust the duration of operation for a specific gear, start by selecting the bar in the corresponding color. Markers indicating the start and end times for operation with chosen gear will appear at the bar edges.



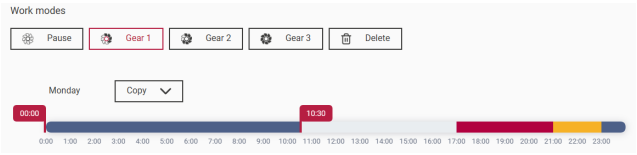
Next, drag the hour marker to either extend or shorten the operating time for that gear.



To remove a time interval, select the delete button located on the bar above the timeline axis and choose the interval to be removed.

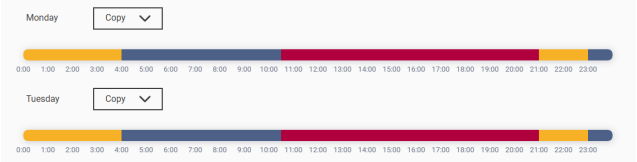


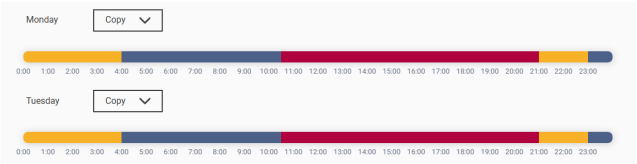
To add a new time interval, select the desired gear on the top bar, then point to an empty space on the timeline axis and set the interval to the required duration.



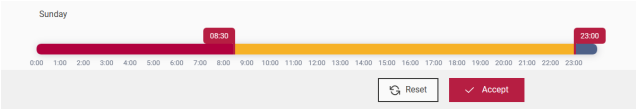
There must be free space available on the timeline in order to add a new time interval. You can set a maximum of 5 intervals for one day.

There is an option available to copy the schedule from one day to other days of the week. In order to do this, click on the copy button next to the day of the week which schedule you want to replicate. Then, from the dropdown list, select the days you want to copy the schedule to and confirm your selection.





To reset the changes, select the reset button at the bottom of the screen. To confirm the schedule changes, choose the confirm button located at the bottom of the screen. If the changes are not confirmed, they will be discarded upon exiting the schedule view. Note: Once changes are confirmed, reverting to previous schedule settings will not be possible.



Unit's parameters

Menu for adjusting unit configuration by the user, installer, or service personnel.

User menu

Bypass Sets the bypass state.

Auto - Bypass opens and closes automatically, depending on the comfort temperature

Open - Bypass is open all the time, comfort temperature is ignored, and fresh air bypasses the heat exchanger.

Closed - Bypass is closed all the time, comfort temperature is ignored, fresh air flows through the heat exchanger

It is recommended to keep the bypass state in the ***Auto*** mode.

Work modes

Control over the unit's operating mode. This setting aligns with the options in the main menu of the application.

Unit state - Determines ON/OFF status of the unit.

Automatic mode - Turns on or off the automatic mode.

Current gear - Sets the gear at which the unit will operate in manual mode.

Time mode - Activates one of the timed modes, either Party or Holiday.

-

Summer/Winter mode

Set the mechanism for controlling the unit's operation. Winter mode disables connected coolers and enables automatic bypass opening, while summer mode bldisables heaters. Ventilation mode disables both heaters and coolers.

Winter mode activation - The temperature at which the winter mode will be activated if the operating mode is set to Auto.

Summer mode activation histeresis - The hysteresis value for mode change if the Auto mode is active. If the temperature rises above the sum of the temperatures specified in the "Winter Mode Activation" and "Summer Mode Activation Hysteresis" fields, the Summer mode will be activated.

Work mode - Selection of the unit's operation control mode.

It is recommended to stay in Auto mode.

Comfort temperature

Set the comfort temperature for each of the unit's gears. This parameter affects the operation of the bypass as well as heaters and coolers if they are connected.

Time modes settings

Define operating parameters for timed modes.

Party - Comfort temp. - Defines the comfort temperature for Party mode

Party - Duration of the party - Sets the duration of Party mode

Holiday - Fan control - Sets the fans speed in Holiday mode (in percentage of maximum speed)

Holidya - Duration of holiday mode - Specifies the duration in days after which the Holiday mode will be automatically de-activated.

Information

Detailed status of the unit.

Filters

Filter work time reset - Resets the filter working time counter after replacing them with new ones.

Installer menu

Confirm service configuration - Defines if confirming the setting change is neccessary
Regulation lead sensor - Select the leading sensor for bypass and preheaters control
User mode settings - Set the fan air flow on each of the three gears and party mode, separately for the supply and exhaust fans, as a percentage of the nominal output or in m3/h if the constant flow mode is active
Supply and extraction control
Type of regulation - Define the fan control type

Standard - the default type of fan control based on the set percentage values of the nominal output for the supply and exhaust fans.

Constant pressure - The fan control type based on the set pressure value. The fans aim to maintain the set pressure value. A constant pressure sensor is required

Constant flow - The fan control type based on the set flow value. The fans aim to maintain the set flow value. A constant flow sensor is required.

Supply/extraction control

Flow factor K - Individual value for each fan. It is used to calibrate fans in CF mode. By default, it is set according to the laboratory measurements of the ventilation unit. By increasing the K parameter, the fan speed decreases, and by decreasing it, the fan speed increases. It is **STRONGLY** recommended to keep factory values

Start level - The minimum fan speed at which control is performed in CF mode

Fan settings - Set various fan's settings

Minimum supply/extraction fan control - Specifies the minimum value at which the supply/ectraction fan can operate as a percentage of the nominal flow value.

Maximum supply/extraction fan control - Specifies the maximum value at which the supply/extraction fan can operate as a percentage of the nominal flow value.

Supply/extraction fan stop delay - Specifies the time after which the fans will stop after pressing the ON/OFF button on the control panel or in the Aria myHome app while the unit is running.

Supply/extraction fan start delay - Specifies the time after which the fans will start after pressing the ON/OFF button on the control panel or in the Aria myHome app while the unit is stopped.

Filter setting - Configure the filter replacement procedure

Detection mechanism -> Timing mechanism

Days to alert - Specifies the number of days since the last filter replacement after which a reminder alarm will appear to change the filters.

Days to emergency mode - The number of days since the last filter replacement after which the unit will switch to emergency mode.

Filter support

Enforce the filter replacement procedure - Stops the unit when the filter working time has elapsed.

Filter replacement by the user - Specifies if the end user can replace the filters by himfself.

Resetting the operating time of the supply/extraction filter - Reset the filter working time counter (separately for supply and exhaust)

Failure mode - stopping the panel - Specifies if the unit should be completely stopped after switching to emergency mode

Supply/extraction fan in emergency mode - Specifies the fan speed after the unit switches to emergency mode as a percentage of the nominal output.

Alert when replacement time is approaching - An alarming signal that informs the user in advance (x days) that the filter working time is ending.

Boost mode settings

Logical state Boost 1/2 - sets the logical state for enabling the boost mode, normally open or closed

How to activate Boost 1/2 - defines how to active the boost mode, either by signal or closing the circuit. Setting to signal will require setting up the Duration of Boost parameter.

Duration of Boost 1/2 - defines the duration of the boost mode, starting from the boost mode activation

Supply/extraction fan control from Boost 1/2 - defines the fan speed in boost mode, as percentage of current fan speed.

Overview/lock settings

Operation of overview function - Function signaling the cyclic inspection date (disabled by default)

Operation of unit operation lock - Function stopping the unit after a specified number of working days (disabled by default)

Resetting maintenance counter - Function reseting the unit inspection cycle

Number of days to review -Specifies the time after which the unit should be inspected, from the date of the last review

Number of days to block - Specifies the time after which the unit should be stopped after setting the lock.

Modbus settings - Set up the modbus communication. More information in **Modbus communication** section

Modbus adress – Modbus address of the controller in the Modbus network.

Transmission speed - The desired Modbus transmission speed; available values: 9600, 19200, or 115200.

Number of stop bits - The number of stop bits at the end of the Modbus frame; available to set: 1 stop bit or 2 stop bits.



The parameters: Transmission speed and Number of stop bits must be configured in the same way in all devices on the line. Otherwise, the connection will not be established.

Modbus activation - Activates the communication using Modbus protocol; setting the parameter to No will block communication using the protocol.

Edit parameters - Permission to edit parameters using Modbus; if the parameter is set to No, modification commands 0x06 and 0x10 will be blocked.

Control panel - Permission for control via Modbus; if the parameter is set to No, control of the regulator using the protocol will be disabled.

Settings for air sensors - Setting for optional air sensors

Activation of air parameters sensors - enables or disables the air quality sensor

CO2/Humidity sensor signal sourcei - Specifies the type of CO2/humidity sensor used (Gold, Platinum version - CO2/SCO2 by default)

Sensor input - Specifies the physical port on the controller board to which the sensor is connected

Normal CO2 concentration/humidity level - Specifies the desired CO2 concentration/Humidity level

Hysteresis CO2 concentration/Humidity level - Specifes the threshold above/below the desired CO2/humidity level which starts/stops the increased fan speed operation

Change of fan control - Defines the increase in fan speed in the air quality control operation

Alarm cancellation - Cancel all of the alarms in the unit

4.7 Modbus communication

Modbus RTU protocol

The controller has a built-in software module that allows communication using the Modbus RTU protocol. This protocol enables reading registers/group of registers containing current parameter values and writing values to selected parameters. The controller supports three Modbus commands: read command 0x03, single register modification command 0x06, and group register modification command 0x10. Communication is carried out on the controller's isolated port (COM3), which is a slave-type port.

The complete list of Modbus parameters for the controller can be found in Table 7.3.



The communication is carried out using the RS485 standard. To ensure reliable transmission, it is mandatory to connect the signal wires D+ and D- to the corresponding ports of the master device and the controller (slave).

Communication settings

In order to achieve proper communication following parameters should be configured:

Modbus adress – The address of the controller on the Modbus network.

Transmission speed - The desired Modbus transmission speed; selectable options: 9600, 19200, or 115200.

Number of stop bits - The number of stop bits in the Modbus frame; selectable options: 1 stop bit or 2 stop bits.



Parameters: Transmission speed and the number of stop bits must be configured in the exact same way across all devices on the line. Otherwise, the connection will not be established.

Modbus activation - Allowing communication using the Modbus protocol; setting No will not block communication using the protocol.

Edit parameters - Permission for parameter editing using Modbus; if the parameter is set to No, modification commands 0x06 and 0x10 will be blocked.

Control panel - Permission for control via Modbus; if the parameter is set to No, control of the controller using the protocol will be disabled.

Read command 0x03

The Modbus communication protocol allows reading registers (or a group of registers) containing current parameter values. The read command frame consists of (starting rom the beginning of the frame):

- Device address (1 byte)
- Function code (1 byte, in the case of read command - 0x03)
- Starting register number (2 bytes)
- Number of registers to read (2 bytes)
- CRC (2 bytes)

Sample query:

01 03 00 04 00 02 85 CA

According to protocol specification, the above command defines the reading of 2 (**00 02**) data registers starting from register 4 (**00 04**) of the device with address 1 (**01**) using the read command 0x03 (03).

Sample response:

01 03 04 00 03 00 01 CB F3

According to the protocol specification, the above frame indicates that two consecutive registers (a total of 4 bytes - **04**) from the device with address 1 (**01**) have values: 3 (**00 03**) and 1 (**00 01**), and these values were read using the read command (**03**).

Modification command 0x06

Modbus communication protocol allows for the modification of the value of one register containing the current parameter value. The command frame consists of (starting from the beginning of the frame):

- Device address (1 byte)
- Function code (1 byte, in the case of modification command - 0x06)
- Number of the register to be modified (2 bytes)
- Value to be set (2 bytes)
- CRC (2 bytes)

Sample query:

01 06 00 04 00 03 88 0A

According to the protocol specification, the above command defines the modification of the value of data register number 4 (**00 04**) in the device with address 1 (**01**) to the value 3 (**00 03**) using the modification command 0x06 (**06**). The response to a modification command depends on whether the value change operation is successfully executed. If it is successful, a confirmation frame will be returned; if not, an error frame will be returned.

The error frame consists of (starting from the beginning of the frame):

- Device address (1 byte)
- Command echo + error flag (1 byte, in the case of a read command - 0x86)
- Error code
- CRC (2 bytes).

Sample response signaling a modification error:

01 86 03 02 61

According to the protocol specification, the above frame indicates that the modification process of a single parameter value in the device with address 1 (**01**) was unsuccessful (**86**) due to an invalid value (**03**)

Modification command 0x10

The Modbus communication protocol allows for the modification of the values of multiple registers containing current parameter values. The command frame consists of (starting from the beginning of the frame):

- Device address (1 byte)
- Function code (1 byte, in the case of modification command - 0x10)
- Starting register number (2 bytes)
- Number of registers to modify (2 bytes)
- Number of modified bytes (2x the number of modified registers)
- Value to be set (2 bytes) in register 1, 2, ...
- CRC (2 bytes)

Sample query:

01 10 00 27 00 02 04 00 15 00 16 20 5B

According to the protocol specification, the above command defines the modification of the values of data registers starting from register number 39 (**00 27**) in the device with address 1 using the frame 0x10 (**10**). The values of 2 (**00 02**) registers are to be modified, totaling 4 bytes (**04**). They are to be set sequentially to the values 21 (**15**) and 22 (**16**).

The response to a modification command depends on whether the value change operation is successfully executed. If it is successful, a confirmation frame will be returned; if not, an error frame will be returned. The confirmation frame is an echo of the modification command frame, with the only difference being the absence of information about the values to be set. The error frame consists of (starting from the beginning of the frame):

- Device address (1 byte)
- Command echo + error flag (1 byte, in the case of a modification command - 0x90)
- Error code
- CRC

Sample response signaling a modification error:

01 90 03 0C 01

According to the protocol specification, the above frame indicates that the modification process of multiple parameters in the device with address 1 (**01**) was unsuccessful (**90**) due to an invalid value (**03**).

Chapter 5

Inspection and maintenance

5.1 Filters replacement

The need to replace filters is indicated by the filter dirt icon on the control panel and in the Aria myHOME application.

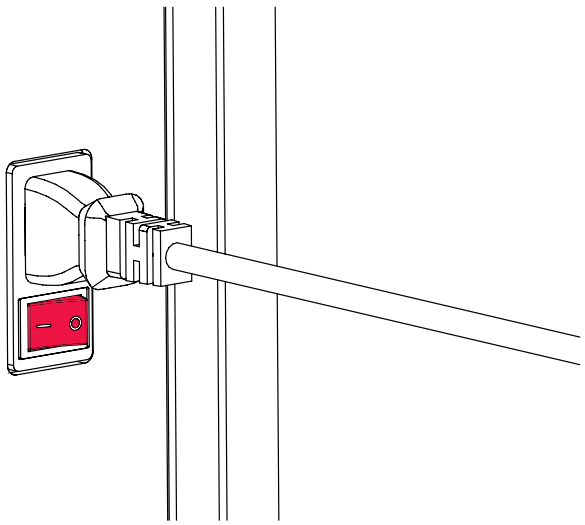
By default, the unit signals filter replacement every 3 months, which is recommended for normal air pollution levels. If the building is situated in an area with high levels of solid pollutants (such as chimney emissions, busy roads, pollen), more frequent filter replacement is advised. The filter replacement frequency can be adjusted in the Aria myHOME service.

Regular filter replacement ensures energy-efficient and trouble-free operation of the unit. Heavily polluted filters can lead to a increased pressure and in consequence in reduced performance of the unit, increased noise levels, and ultimately, potential damage to the unit's fans.

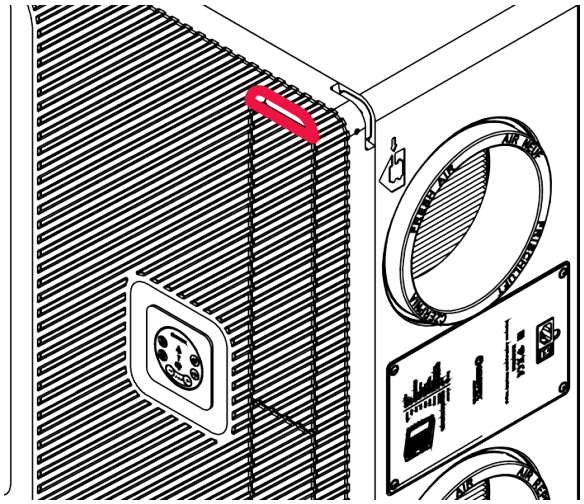
The unit must never operate without installed filters!

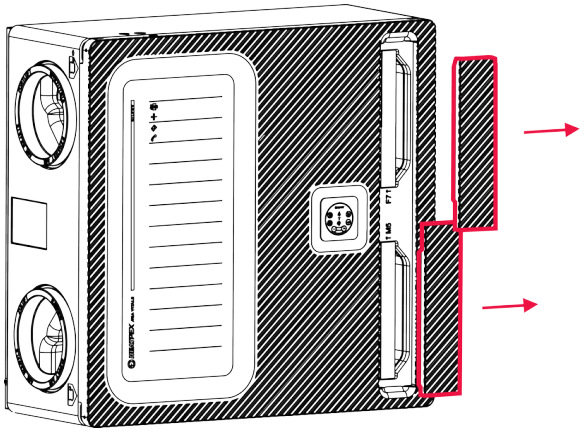
It is recommended to use original Heatpex filters, which ensure perfect compatibility with the unit and provide a high level of filtration.

1. Turn off the unit using the power switch located on the side of the unit, on the nameplate.

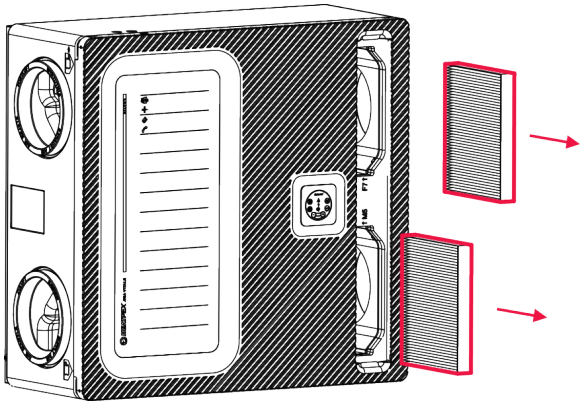


2. Take out the filter covers by gently pulling the cover at marked spot.





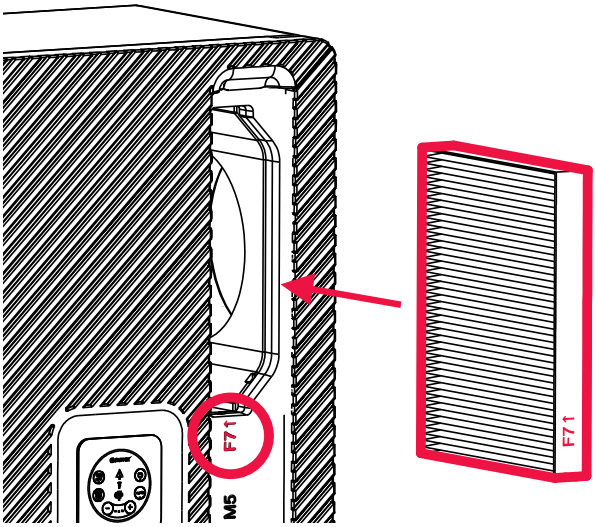
3. Take out used filters from its slots

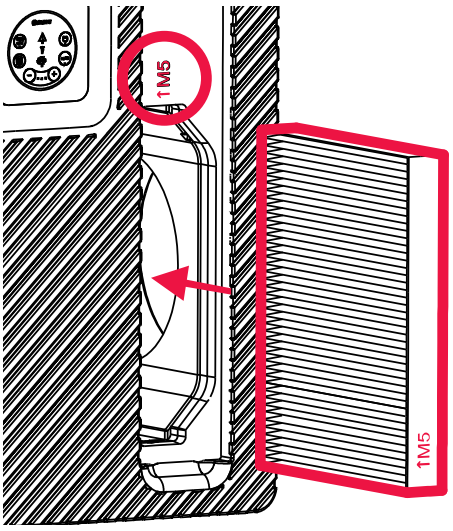


4. Dispose the filters in appropriate trash container

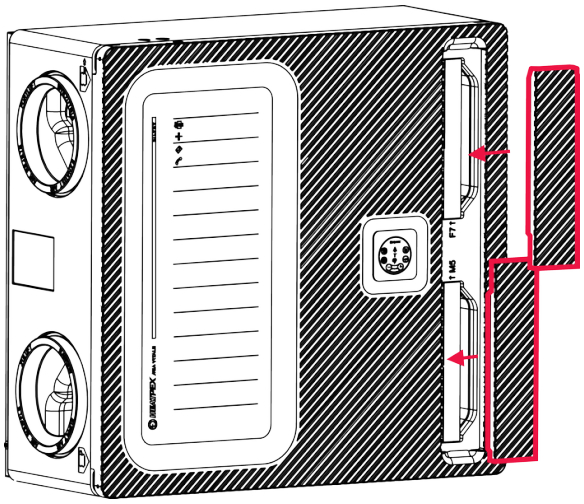
Do not brush, vacuum clean, or use detergents or any other chemical substances on the dirty filters. Cleaning filters in this way significantly reduces their effectiveness compared to clean, new filters. Using cleaned filters will result in reduced unit performance and increased noise levels.

5. Insert new filters into their respective slots. Place an F7 filter on the supply side and an M5 filter on the exhaust side. The slots are marked with symbols on the unit. Insert the filters following the arrow on the side of the filter, indicating the direction of airflow.





6. Insert the filter covers back into the slots. Make sure that the covers sit tightly.



7. Turn on the unit back.
8. In the Aria myHOME application, navigate to ***Unit parameters***. Expand the ***Filters*** menu and select ***Yes*** from the dropdown list next to ***Filter work time reset***. Confirm by clicking th ***Confirm*** button at the bottom of the screen.

Chapter 6

Disposal of the unit



The ***Aria Vitale*** unit is subject to the regulations of the European Parliament Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). This means that the units must not be disposed of with other waste but should be taken to a designated waste collection point for recycling, processing, or disposal.

Electronic equipment consists of complex mixtures of materials, some of which can be hazardous. Additionally, electronic components contain rare and valuable resources that can be reused. Responsible recycling contributes to efficient resource utilization, recovery of secondary materials, and minimizes potential environmental and health risks.

Packaging

The materials used for packaging unit components are subject to recycling and should be disposed of in appropriate waste containers, according to the type of material they are made of.

Unit's disassembly

To disassemble the unit, use the following tools:

Fan motors Torx T20, T25, T30 wrenches

Preheaters Torx T20 wrench

MotherboardTorx T10, T20, flat-head screwdriver, clippers/knife

Control panel Torx T10 wrench

Heat exchanger Torx T25 wrench

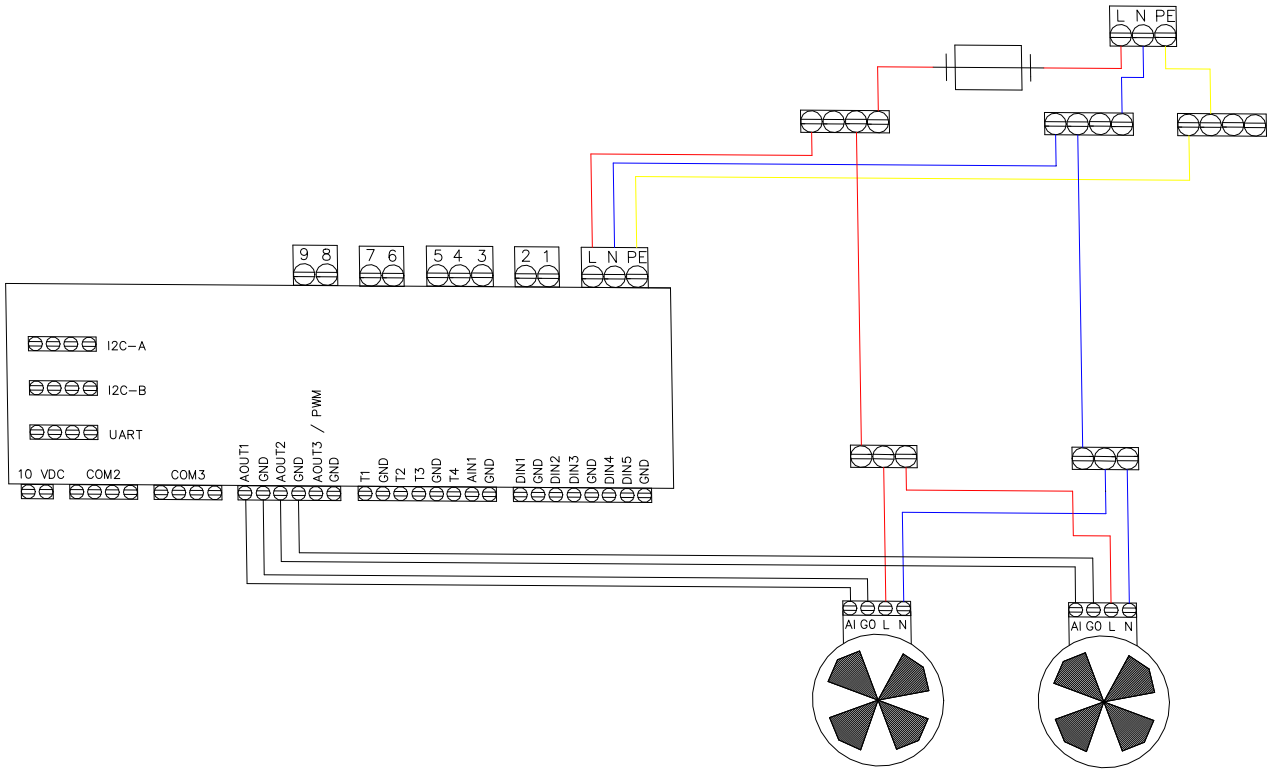
Torx wrenches are included with the unit and are hidden beneath the cover of the fresh air filter

Chapter 7

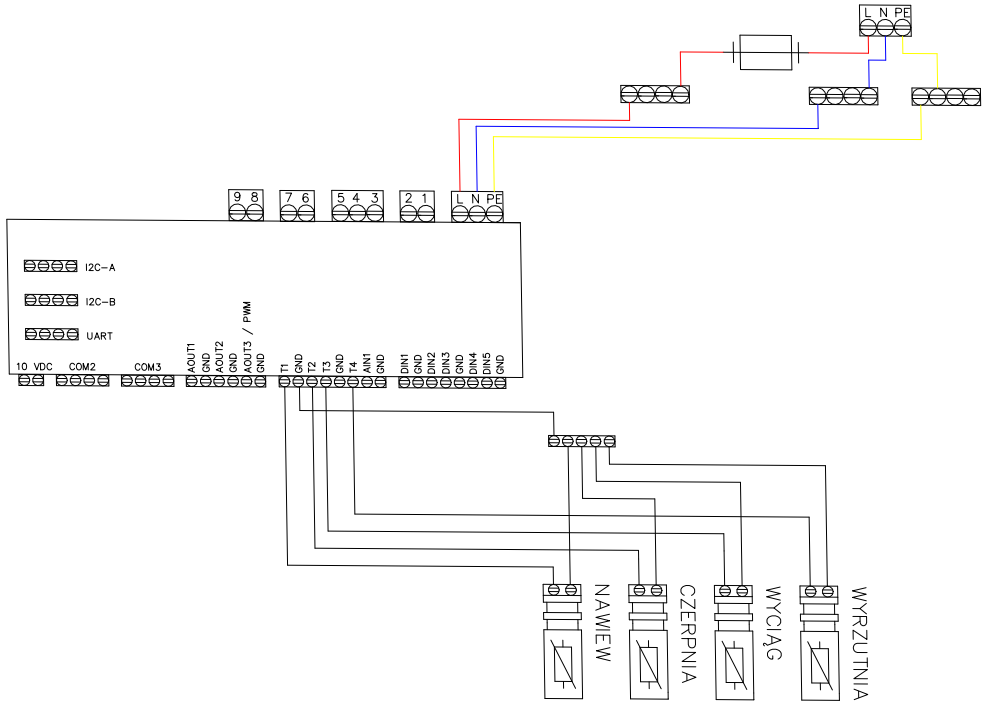
Attachements

7.1 Electrical diagrams

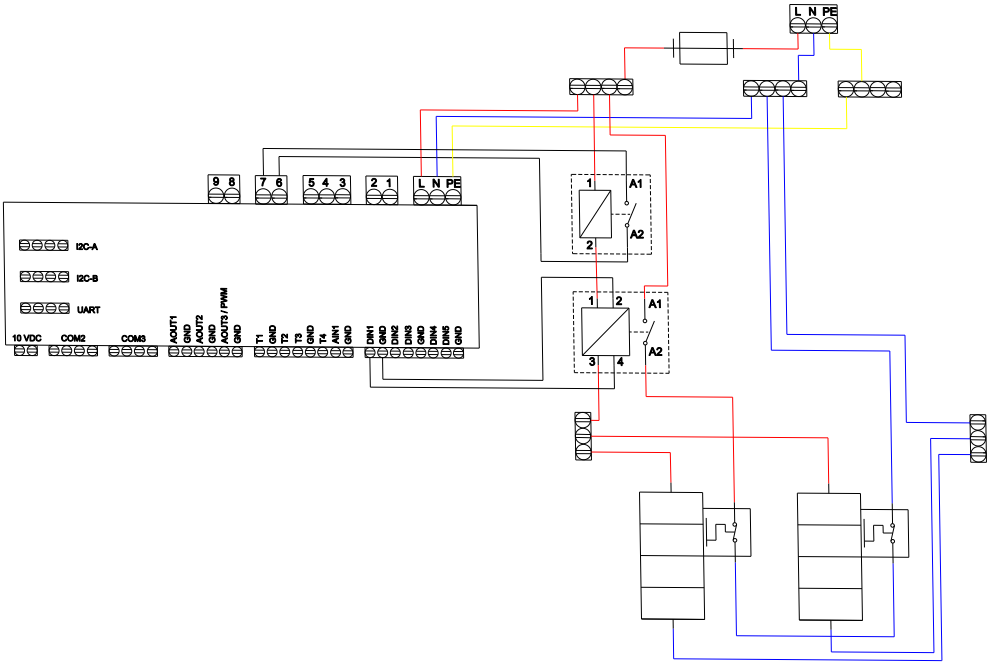
Fans



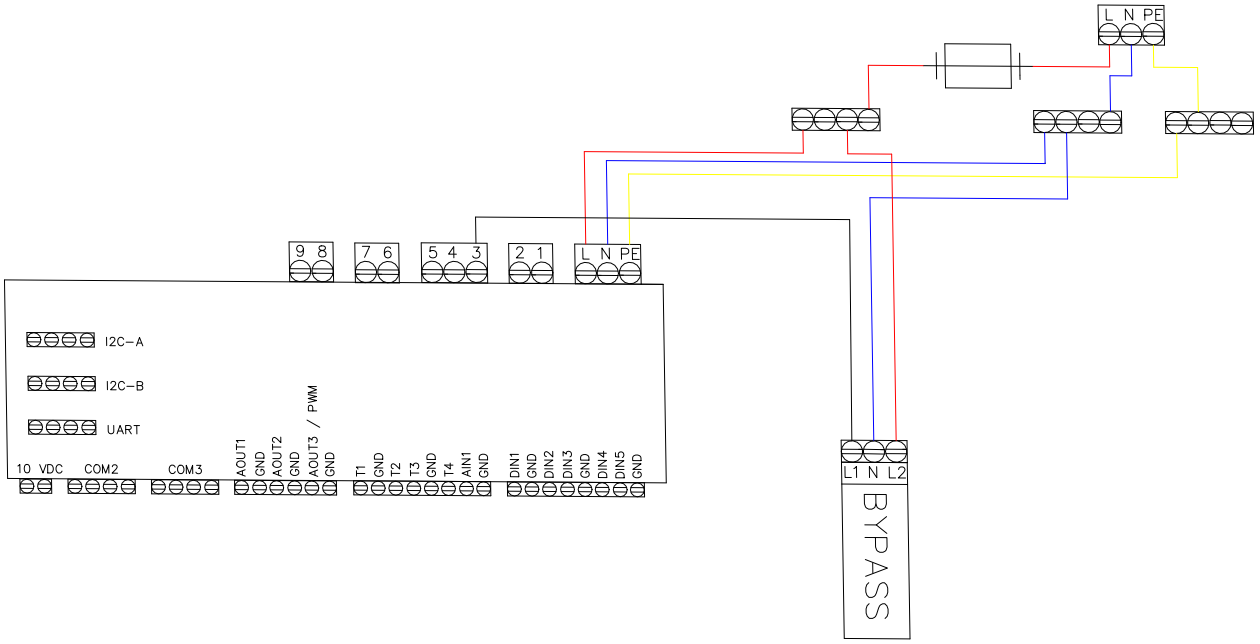
Sensors



Preheater



Bypass


L N PE
9 8
7 6
5 4 3
2 1
L N PE
I2C–A
I2C–B
UART
10 VDC
COM2
COM3
AOUT1
GND
AOUT2
GND
AOUT3 / PWM
GND
T1
GND
T2
T3
GND
T4
AIN1
GND
DIN1
GND
DIN2
DIN3
GND
DIN4
DIN5
GND
L1 N L2
BYPASS

7.2 Energy data

The data complies with the requirements of Regulations (EU) 1253/2014 and (EU) 1254/2014.

SUPPLIER NAME	-	Heatpex sp. z o.o								
MODEL IDENTIFIER	-	**Aria Vitale 300 Silver**	**Aria Vitale 450 Silver**	**Aria Vitale 600 Silver**	**Aria Vitale 300 Gold**	**Aria Vitale 450 Gold**	**Aria Vitale 600 Gold**	**Aria Vitale 300 Platinum**	**Aria Vitale 450 Platinum**	**Aria Vitale 600 Platinum**
SPECIFIC ENERGY CONSUMPTION (SEC) FOR ZONE:										
COLD	**kWh/m2/ annum**	-81,6	-78,3	-75,0	-81,6	-78,3	-75,0	-76,8	-71,9	-67,7
AVERAGE		-43,0	-40,1	-37,2	-43,0	-40,1	-37,2	-40,8	-37,2	-33,8
WARM		-18,3	-15,6	-12,9	-18,3	-15,6	-12,9	-17,5	-14,6	-11,7
SPECIFIC ENERGY CONSUMPTION (SEC) CLASS:	**-**									
COLD		A+	A+	A+	A+	A+	A+	A+	A+	A+
AVERAGE		A+	A	A	A+	A	A	A	A	B
WARM		E	E	E	E	E	E	E	E	E
TYPOLOGY		Bidirectional ventilation unit (BVU)								
TYPE OF DRIVE	-	Variable speed drive								
TYPE OF HEAT RECOVERY SYSTEM	**-**	Recuperative								
THERMAL EFFICIENCY OF HEAT RECOVERY	**%**	85,4	83,5	81,5	85,4	83,5	81,5	72,6	66,1	61,8
MAXIMUM FLOW RATE	**m^3/h**	300	450	600	300	450	600	300	450	600
PELECTRIC POWER INPUT OF THE FAN DRIVE	**W**	90	190	353	90	190	353	90	190	353
SOUND POWER LEVEL (LWA)	**dB(A)**	44,4	50,9	53,4	44,4	50,9	53,4	44,4	50,9	53,4
REFERENCE FLOW RATE	**m^3/s**	0,06	0,09	0,12	0,06	0,09	0,12	0,06	0,09	0,12
REFERENCE PRESSURE DIFFERENCE	**Pa**	50								
SPECIFIC POWER INPUT	**$W/(m^3/h)$**	0,19	0,38	0,57	0,19	0,38	0,57	0,16	0,33	0,52
CONTROL FACTOR	-	Ducted ventilation unit MISC = 1,1								
CONTROL TYPOLOGY	-	Local demand control CTRL = 0,65								
MAXIMUM INTERNAL LEAKAGE RATES	**%**	1,43	0,95	0,71	1,43	0,95	0,71	1,43	0,95	0,71
MAXIMUM EXTERNAL LEAKAGE RATES	**%**	0,57	0,38	0,29	0,57	0,38	0,29	0,57	0,38	0,29
DESCRIPTION OF VISUAL FILTER WARNING	**-**	LED on the control panel that lights up when the filter needs to be changed. Regular filter replacement has a significant impact on maintaining high performance and energy efficiency of the unit.								
APRE-/DIS-ASSEMBLY INSTRUCTIONS URL	**-**	www.heatpex.pl/downloads								
ANNUAL ELECTRICITY CONSUMPTION FOR ZONE:	**kWh/annum**									
COLD		683	783	884	683	783	884	667	757	857
AVERAGE		146	246	347	146	246	347	130	220	320
WARM		101	201	302	101	201	302	85	175	275
ANNUAL HEATING SAVED AT ZONE:	**kWh/annum**									
COLD		8995	8916	8837	8995	8916	8837	8477	8213	8039
AVERAGE		4598	4558	4517	4598	4558	4517	4333	4199	4110
WARM		2079	2061	2043	2079	2061	2043	1959	1899	1858

7.3 Modbus table

Table below states a complete list of Modbus parameters for the controller. The table is valid for programs S001.00 and newer.

BMS Index	Modbus adress	Variable name	description	Singal type	Min. value	Max. value	Dom.	Variable type	Comments
1	0	Program version	Program version	O	0	0xFFFF	1	hex	Format: SXXX.YYY XXX – older byte, YYY – younger byte
2	1	-	-	-	-	-	-	-	
3	2	STATUS_OK	Normal working state	O	0	1	0	integer	
4	3	AWARIA	Error state	O	0	1	0	integer	
5	4	WORK_MODE	Controler mode	I/O	0	6	0	integer	2- manual control 3 – gear 1, 4 – gear 2, 5 – gear 3,
6	5	Tmain	Leading sensor	O	0	2	2	integer	1 - extract sensor, 2 - supply sensor, 100 – control panel sensor
7	6	Tsup	Supply temperature (T1)	O	-40.0	60.0	0.0	integer	999 - sensor error
8	7	Texh	Extract temperature (T2)	O	-40.0	60.0	0.0	integer	999 - sensor error
9	8	Tinl	Intake/outside temperature (T3)	O	-40.0	60.0	0.0	integer	999 - sensor error
10	9	Tout	Exhaust temperature (T4)	O	-40.0	60.0	0.0	integer	999 - sensor error
11	10	Trec	Ground heat exchanger temperature (T15)	O	-40.0	60.0	0.0	integer	999 - sensor error
12	11	Theat	Temperature after secondary heater (T16)	O	-40.0	60.0	0.0	integer	999 - sensor error
13	12	Tpanel	Control panel temperature	O	-40.0	60.0	0.0	integer	999 - sensor error
14	13	Q1-limit	Air quality sensor (Q1- 0/1)	O	0	1	0	integer	0 – open contact 1 – closed contact
15	14	DEV_factorySettings	Reset to factory settings	I/O	-	-	-	-	0 - No, 1 - Yes
16	15	TR1	Preheater thermostat (N1)	O	0	1	0	integer	0 – open contact 1 – closed contact
17	16	TR2	Secondary heater thermostat (N2)	O	0	1	0	integer	0 – open contact 1 – closed contact
18	17	BYPASS	Bypass actuator state	O	0	1	0	integer	0 - przep. OFF 1 - przep. On,
19	18	SAP	External signal SAP	O	0	1	0	integer	0 - SAP, 1 - no SAP
20	19	IN1	External signal IN1	O	0	1	0	integer	0 - inactive, 1 - active
21	20	IN2	External signal IN2	O	0	1	0	integer	0 - inactive, 1 - active
22	21	ECO	External signal ECO (alarm)	O	0	1	0	integer	0 – inactive, 1 – active
23	22	N1	Preheater (N1)	O	0	1	0	integer	0 - inactive, 1 - active
24	23	N2	Secondary heater (N2)	O	0	1	1	integer	0 - inactive, 1 - active
25	24	N2 control	Secondary heater output (N2)	O	0	100	0	integer	Output in %
26	25	Y1 control	Cooler output (CH1)	O	0	100	0	integer	Output in %
27	26	GWC	Ground heat exchanger actuator	O	0	1	0	integer	0 - inactive, 1 - active
28	27	SBP1	Bypass actuator - supply (SBP1)	O	0	100	0	integer	Output in %
29	28	SM1	Mixing chamber actuator (SM1)	O	0	100	0	integer	Output in %
30	29	Clean	Heat exchanger cleaning mode	O	0	1	0	integer	0 - inactive, 1 - active
35	34	Mode_PARTY	Party mode	I/O	0	1	0	integer	0 - inactive, 1 - active
-	-	-	-	-	-	-	-	-	-
39	38	-	-	-	-	-	-	integer	
40	39	Temp_USER1	Temp. setpoint gear 1	I/O	8	30	20	integer	Unit: °C
41	40	Temp_USER2	Temp. setpoint gear 2	I/O	8	30	20	integer	Unit: °C
42	41	Temp_USER3	Temp. setpoint gear 3	I/O	8	30	20	integer	Unit: °C
44	43	W1	Supply fan current output	O	0	100	0	integer	Output %
45	44	W2	Extract fan current output	O	0	100	0	integer	Output %
46	45	W1_EN	Supply fan work permission (W1)	O	0	1	0	integer	0 – inactive, 1 - active

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47	46	W2_EN	Extract fan work permission (W2)	O	0	1	0	integer	0 – inactive, 1 - active
49	48	Speed_W1_USER 1	W1 speed in gear 1	I/O	dyn. (15)	dyn. (100)	30	integer	Output %
50	49	Speed_W1_USER 2	W1 speed in gear 2	I/O	dyn. (15)	dyn. (100)	50	integer	Output %
51	50	Speed_W1_USER 3	W1 speed in gear 3	I/O	dyn. (15)	dyn. (100)	75	integer	Output %
55	54	Speed_W2_USER 1	W2 speed in gear 1	I/O	dyn. (15)	dyn. (100)	30	integer	Output %
56	55	Speed_W2_USER 2	W2 speed in gear 2	I/O	dyn. (15)	dyn. (100)	50	integer	Output %
57	56	Speed_W2_USER 3	W2 speed in gear 3	I/O	dyn. (15)	dyn. (100)	750	integer	Output %
68	67	-	-	-	-	-	-	-	-
69	68	Service_time_rem aining	Time left to service	O	0	999	-	integer	Unit: day
70	69	GWC_Enable	Ground heat exchanger work permission	I/O	0	2	2	integer	0 - closed, 1 - open, 2 - auto
71	70	GWC_Winter	High threshold ground heat exchanger - winter	I/O	5	20	8	integer	Unit: °C
72	71	GWC_Summer	High threshold ground heat exchanger - summer	I/O	10	30	18	integer	Unit: °C
73	72	SM1_Enable	Mixing chamber actviation (SM1)	I/O	0	1	0	integer	0 - inactive, 1 - active
74	73	SM1_Limit	Mixing chamber actuator open limit (SM1)	I/O	0	100	100	integer	Unit: %
75	74	BMS_adress	Device adress for BMS communication	O	0	247	1	integer	
76	75	-	-	-	-	-	-	-	
77	76	BMS_change_en	Changing setting from BMS	O	0	1	1	integer	0 - off 1 - on
78	77	BMS_STOP_en	START_STOP from BMS	O	0	1	1	integer	0 - off 1 - on
79	78	-	-	-	-	-	-	-	
80	79	UID1	UID - characters 1 and 2	O	12336	23130	-	ASCII	
81	80	UID2	UID - characters 3 and 4	O	12336	23130	-	ASCII	
82	81	UID3	UID - characters 5 and 6	O	12336	23130	-	ASCII	
83	82	UID4	UID - characters 7 and 8	O	12336	23130	-	ASCII	
84	83	UID5	UID - characters 9 and 10	O	12336	23130	-	ASCII	
85	84	UID6	UID - characters 11 and 12	O	12336	23130	-	ASCII	
86	85	UID7	UID - characters 13 and 14	O	12336	23130	-	ASCII	
87	86	UID8	UID - characters 15 and 16	O	12336	23130	-	ASCII	
88	87	UID9	UID - characters 17 and 18	O	12336	23130	-	ASCII	
89	88	UID10	UID - characters 19 and 20	O	12336	23130	-	ASCII	
90	89	UID11	UID - characters 21 and 22	O	12336	23130	-	ASCII	
91	90	UID12	UID – character 23	O	48	90	-	ASCII	younger byte is character, older skip
92	91	P1_value	Measured pressure supply	O	0	4000	0	integer	Unit: Pa
93	92	P2_value	Measured pressure extract	O	0	4000	0	integer	Unit: Pa
94	93	Flow1_value	Measured flow supply	O	0	4000	0	integer	Unit: m3/h
95	94	Flow2_value	Measured flow extract	O	0	4000	0	integer	Unit: m3/h
96	95	-	-	-	-	-	-	-	-
97	96	-	-	-	-	-	-	-	-
98	97	Flow1_setPoint	Supply flow setpoint	O	0	4000	0	integer	Unit: m3/h
99	98	Flow2_setPoint	Extract flow setpoint	O	0	4000	0	integer	Unit: m3/h
108	107	-	-	-	-	-	-	-	-
109	108	Flow_W1_USER1	Flow setpoint supply – gear 1	I/O	0	4000	100	integer	Unit: m3/h
110	109	Flow_W1_USER2	Flow setpoint supply – gear 2	I/O	0	4000	200	integer	Unit: m3/h
112	110	Flow_W1_USER3	Flow setpoint supply – gear 3	I/O	0	4000	300	integer	Unit: m3/h
113	112	Flow_W2_USER1	Flow setpoint extract – gear 1	I/O	0	4000	100	integer	Unit: m3/h
114	113	Flow_W2_USER2	Flow setpoint extract – gear 2	I/O	0	4000	200	integer	Unit: m3/h

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116	114	Flow_W2_USER3	Flow setpoint wywiew – gear 3	I/O	0	4000	300	integer	Unit: m3/h
117	116	k_fac_W1	K factor supply fan	I/O	0	1000	0	float	
118	117	k_fac_W2	K factor extract fan	I/O	0	1000	0	float	
119	118	PSA_W1	Start level supply fan	I/O	dyn. (15)	dyn. (100)	25	integer	Output in %
120	119	PSA_W2	Start level extract fan	I/O	dyn. (15)	dyn. (100)	25	integer	Output in %
121	120	-	-	-	-	-	-	-	-
122	121	-	-	-	-	-	-	-	-
	127	OUT_manControl	Relays control in manual mode	I/O	0			integer	0x01 – OUT1 0x02 – OUT 2 0x04 – OUT 3
	128	ECOX_set Value_AOUT0	AOUT1 control maunal mode	I/O	0				Unit: V
	129	ECOX_set Value_AOUT1	AOUT2 control manual mode	I/O	0				Unit: V
	130	ECOX_set Value_AOUT2	AOUT3 control manual mode	I/O	0				Unit: V
	131	ADC_A4	AIN1 read manual mode	O	-			integer	Unit: V
	132	IN_DINstate	DIN read manual mode	O	-			integer	0x01 – DIN 1 0x02 – DIN 2 0x04 – DIN 3 0x08 – DIN 4 0x10 – DIN5
	133	ADC_A2	T1 read	O	-			integer	Unit: °C
	134	ADC_A1	T2 read	O	-			integer	Unit: °C
	135	ADC_A3	T3 read	O	-			integer	Unit: °C
	136	ADC_A0	T4 read	O	-			integer	Unit: °C
	137	REK_WS2	Summer/winter mode	I/O					1-Auto, 2-winter, 3-summer, 4-wietrzenie
	138	REK_summerHyst	Summer mode hysteresis	I/O	0	20	14		Unit: °C
	139	REK_winterActive Temp	Winter mode hysteresis	I/O	-20	20	6		Unit: °C
	140	P_HEAT_modSett	Preheater beyond antifreeze	I/O					0-nie, 1-tak
	141	DEV_servConfirm	Serivce settings confirmation	I/O					0-nie, 1-tak
	42	DEV_prodConfirm	Producer settings confirmation	I/O					0-nie, 1-tak
	143	P_HEAT_turnOnT emp	Preheater turn on temperature	I/O	-20	20	5		Unit: °C
	144	P_HEAT_turnOffH yst	Preheater turn off hysteresis	I/O	1	10	2		Unit: °C