

DTR

INSTALLATION AND OPERATING MANUAL

WANAS COMBO 630 XF

WANAS COMBO 430 XF

WANAS COMBO 1330 XF



źródło komfortu

www.wanas.pl

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1. General information

1.1. Purpose of the device

A recuperator is used for ventilation of apartments, single-family houses, and offices. Fresh and filtered air is supplied to the rooms, the so-called "clean" rooms, living room, bedroom, and used air is extracted from the so-called "dirty" rooms, e.g. bathrooms, laundry rooms, kitchens, and wardrobes. Continuous air exchange ensures better living comfort and removal of moisture from the building with simultaneous heat recovery.

The device is equipped with an automatic bypass used mainly in summer at night, where the supplied cool air does not pass through the exchanger but is supplied directly to the rooms, improving the comfort in the building.

As standard, each recuperator is equipped with a touch weekly controller. Using an additional module, the device can be connected to the Internet and controlled remotely. The design and manufacture of the product is based on harmonized standards.

<p>If you intend to dispose of this product, do not discard it with normal household waste. According to the WEEE directive (Directive 2002/96/EC) in force in the European Union, separate methods of disposal must be used for used electrical and electronic equipment. For more information regarding the recycling of waste from this product, please contact the municipal authorities in your area or the appropriate waste disposal service.</p>	
<p>The manufacturer declares that the product complies with the LVD 2006/95/EC Directive, relating to electrical devices operating within the specified voltage range. The product has been marked as a result of the conformity assessment procedure.</p>	

1.1. Delivery

Each device is delivered packaged with: a controller, mounting dowels for the bracket, and a siphon.

1.2. Safety



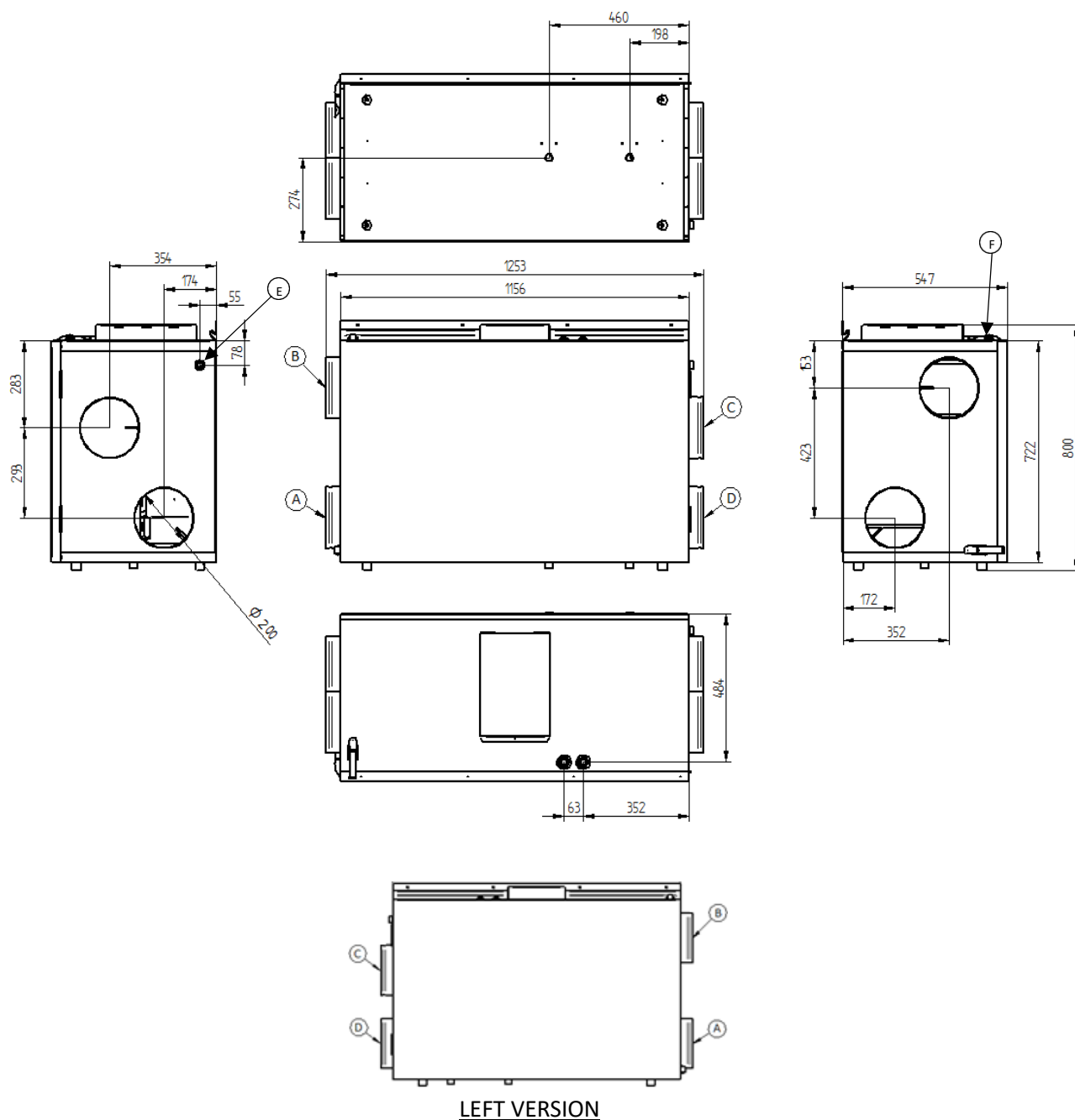
The manufacturer assumes no responsibility for any damage resulting from improper installation or use of the product contrary to its intended purpose and this user manual. Such damages cannot be grounds for claims or warranty repairs.



- The device should be installed by **qualified personnel only**.
- **Only adults** familiar with the user manual may operate the device.
- Installation in a system without a functional protective earth and residual current device is **strictly prohibited**.
- **The controller must not be installed below the heat recovery unit.**
- The electrical installation to which the device is connected **must have surge protection**.
- The unit should be installed in a location where the temperature ranges **between 5°C and 45°C**. Too low ambient temperature may result in condensation on the device housing, potentially causing failure.
- **Do not switch on** the device in buildings undergoing construction work.
- The siphon must be securely attached to the HRV, and any damage to it must be avoided. **A damaged drain could lead to water leaks and potential flooding of the unit.** The room housing the device should have a floor drain. No other electrical or electronic devices should be placed under or near the HRV.
- After replacing filters, ensure they are properly installed and that the door is securely closed.
- Maintenance tasks and filter replacement should only be conducted with the device **disconnected** from the 230V power supply.
- After maintenance, verify that all water drainage connections are sealed, and regularly check water connections.
- In the event of a water leak, stop using the device, disconnect it from the power supply, and contact **Wanas service**.
- The manufacturer assumes no responsibility for damages resulting directly or indirectly from human or animal actions due to non-compliance with this manual, particularly concerning installation, operation, or maintenance.

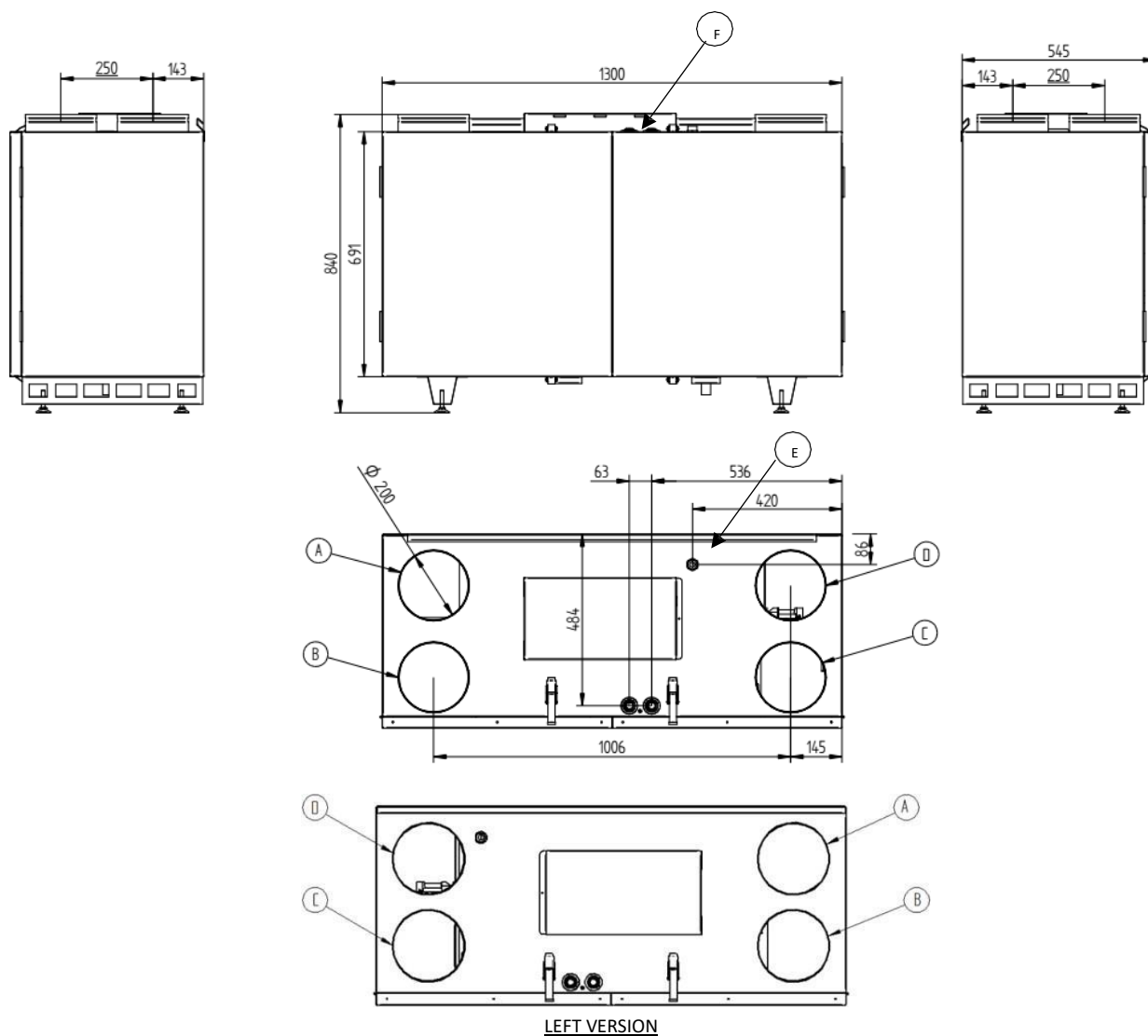
1.3. Device dimensions

COMBO H 430/630



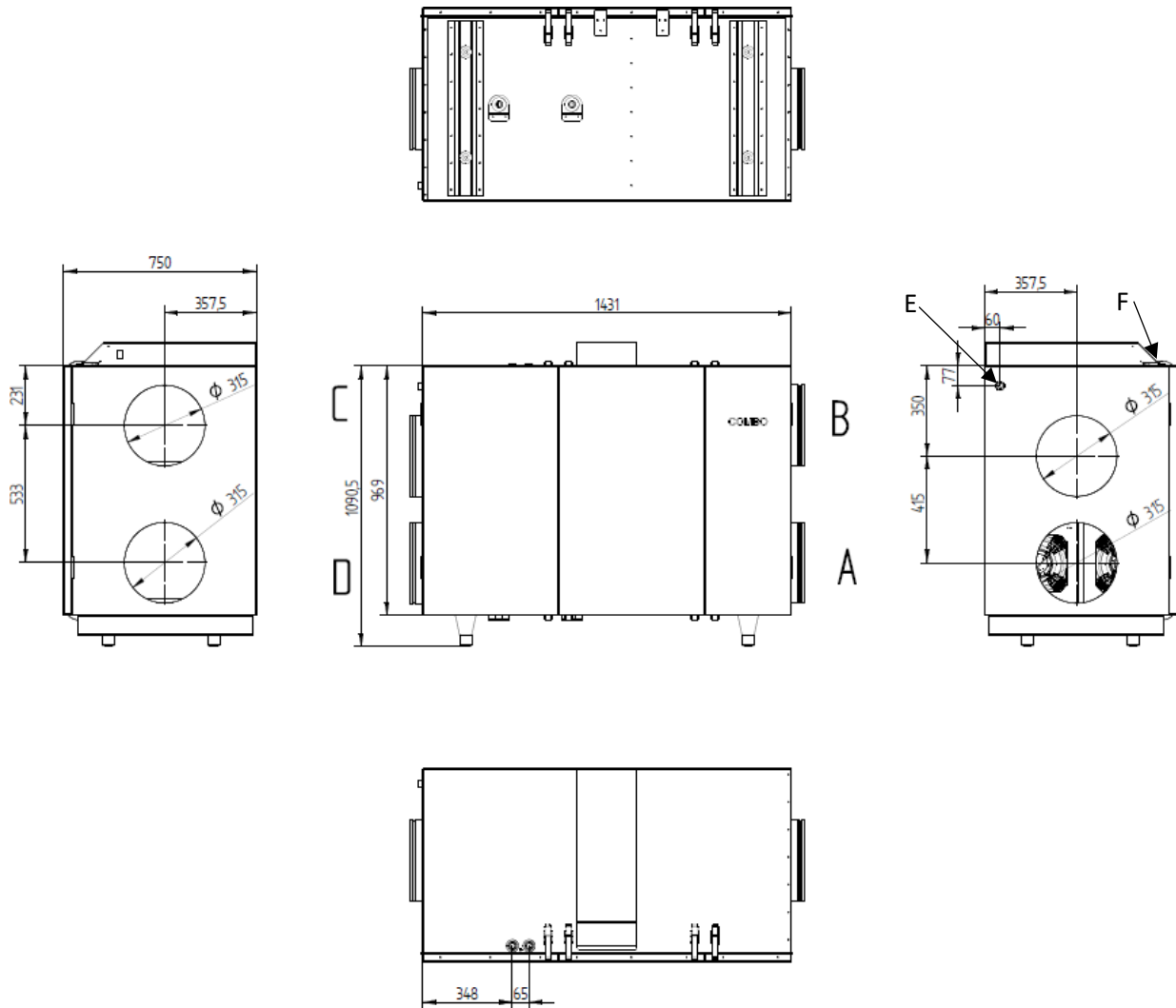
- A – air intake from outside the building
B – air intake from rooms
C – air supply to rooms
D – air exhaust to the outside of the building
E – ¾ inch water connection fitting
F – ¾ inch connection fittings with air vent

COMBO V 430/630



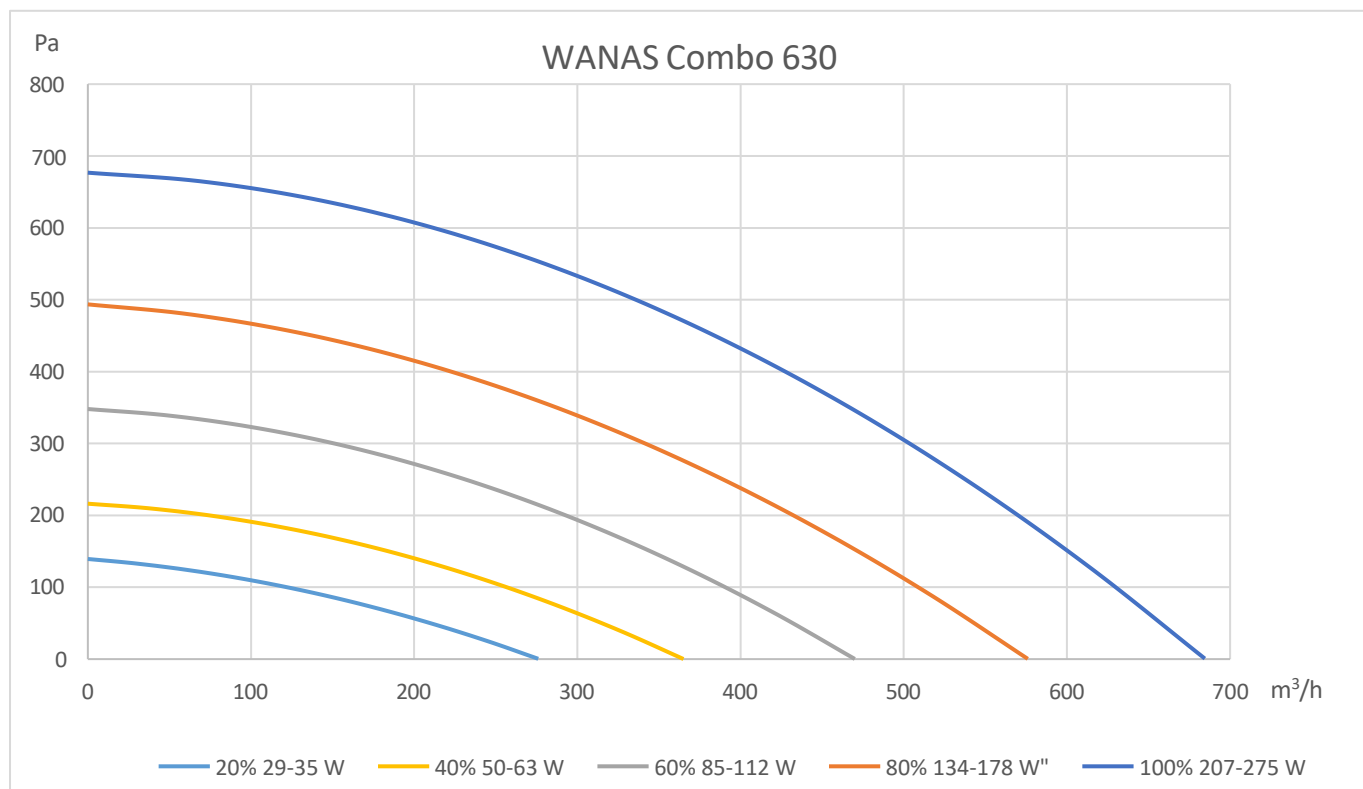
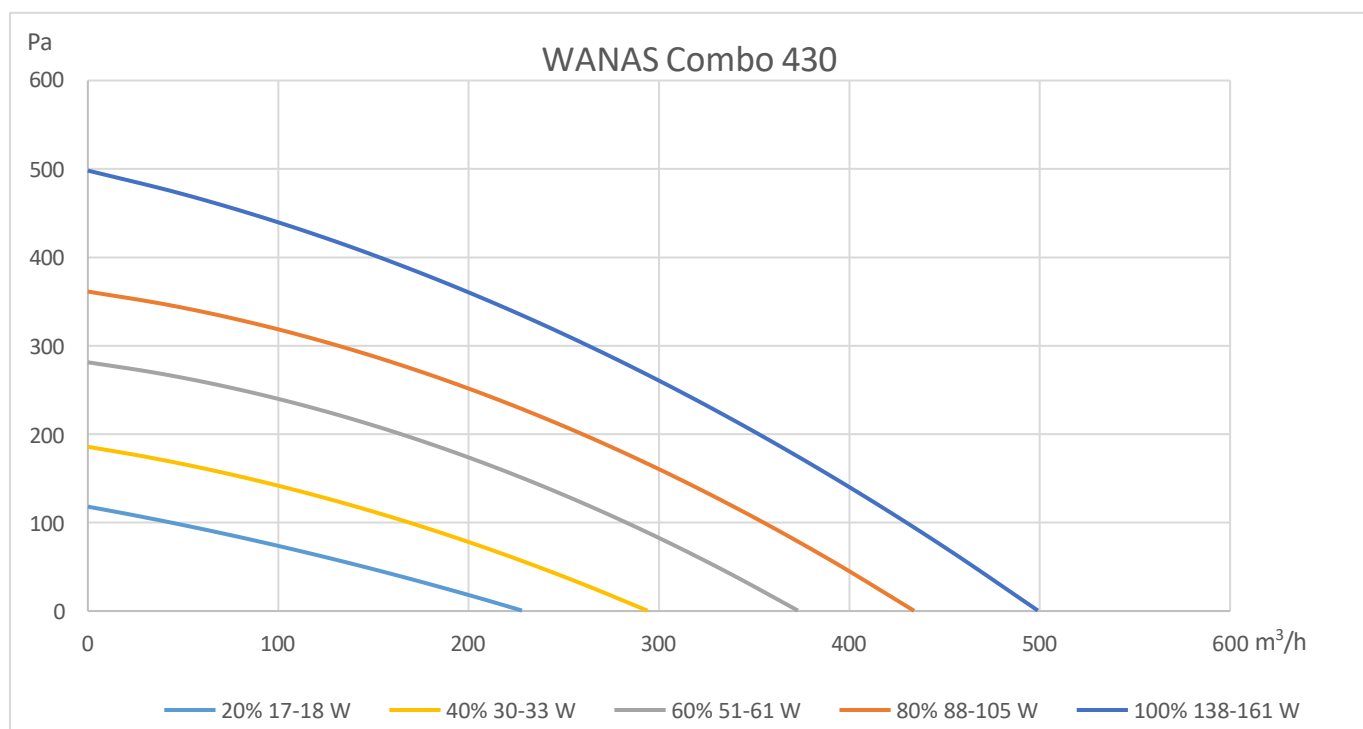
- A – air drawn from outside the building
- B – air drawn from rooms
- C – air supplied to rooms
- D – air expelled to the outside of the building
- E – $\frac{3}{4}$ inch water connection fitting
- F – $\frac{3}{4}$ inch connection fittings with air vent

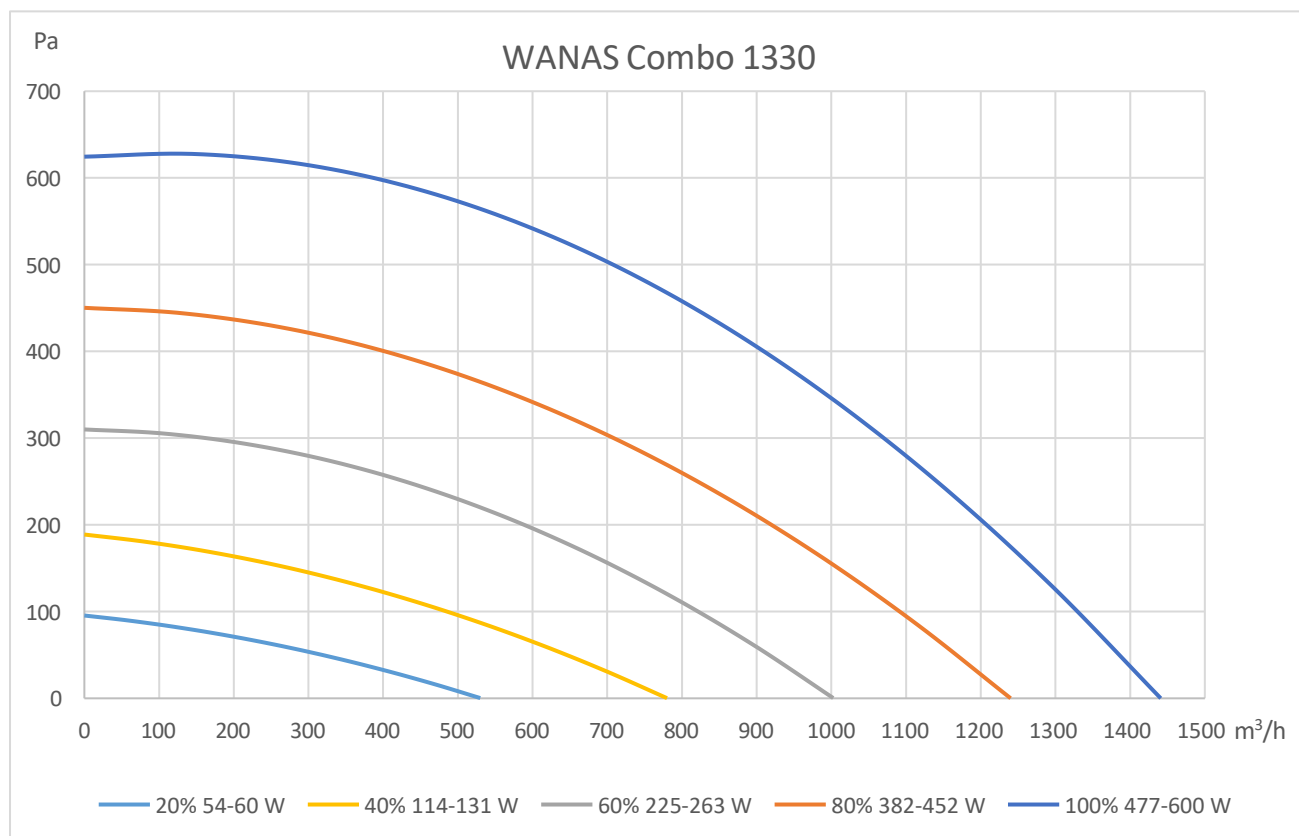
Combo 1330



- A – air intake from outside the building
- B – air intake from rooms
- C – air supplied to rooms
- D – air expelled outside the building
- E – ¾ inch water connection fitting
- F – ¾ inch connection fittings with air vent

1.4. Characteristics





2. Installation

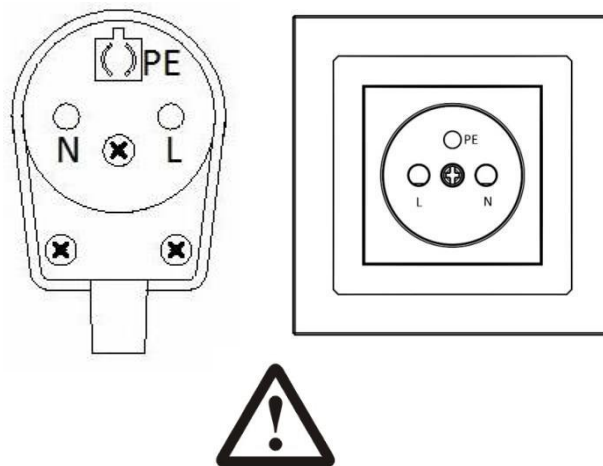
2.1. Installation of the device.

The installation of the device and the adjustment of its performance are the responsibility of the installer, and should be carried out exclusively by a qualified person with the appropriate qualifications. The installation of the device and performance adjustments must comply with applicable regulations.

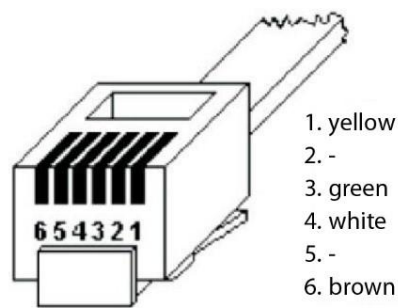
Each device is secured with a code that must be entered into the controller. The installer possesses the security code. The device will operate for up to 30 days without entering the code. After 30 days, the user must provide the serial number (SN) displayed on the controller, and based on this, they will receive an unlocking code.



NOTE: The power supply cable should be connected according to the diagram. Any connection other than as shown in the diagram may result in improper operation of the device or cause damage.



**The device can only be connected to a system with a functional protective earth.
Connection of the wall controller Display V1 to RJ12**



2.2. Drainage of Condensate

At low temperatures, condensation of water vapor occurs on the heat exchanger from the air being exhausted from the building. A 25 mm fitting located at the bottom of the unit is used for condensate drainage. The unit should be placed in an area where the temperature is always above freezing to prevent, among other things, the condensate drain from freezing. The drain must be connected to the siphon according to the diagram below.

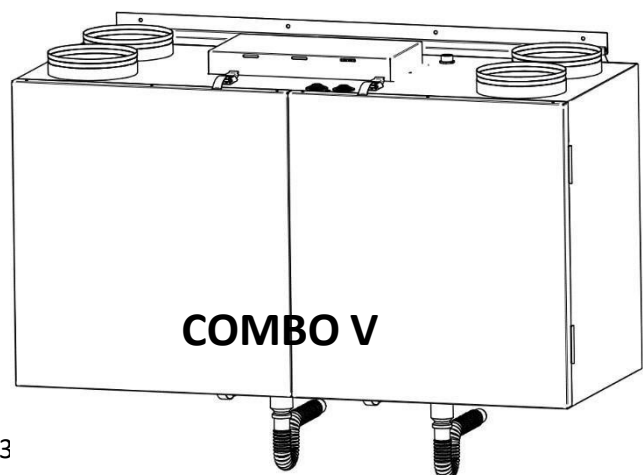
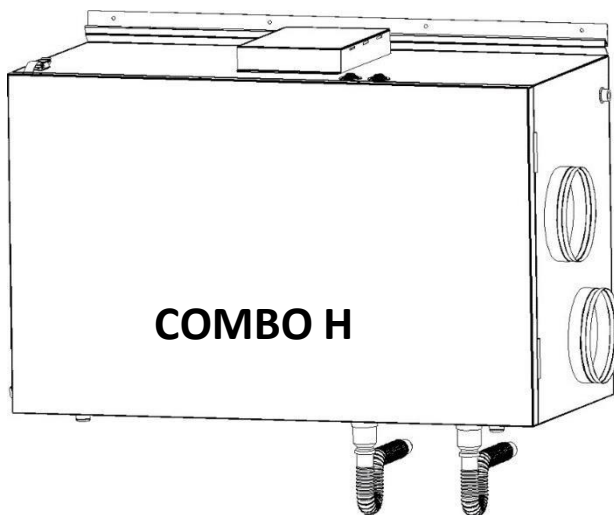
To ensure proper condensate drainage, the device must be leveled using the screws at the back of the unit.



The connection of the siphon to the unit should be airtight, meaning that the unit must not be able to draw air from the room it is located in through the drain pipe. Before the first startup, the siphon must be filled with water.



Improper connection of the unit to the siphon may lead to flooding of the unit or the room, for which the manufacturer bears no responsibility. For the COMBO 1330, the siphon should be positioned similarly to that of the COMBO H 430/630.



2.3. Installation location

The device can be installed in utility rooms, boiler rooms, garages, and attics where the temperature ranges from 5°C to 45°C. Installing the device in an area where the temperature drops below zero will cause the condensate to freeze, leading to improper operation of the device or potential damage. The heat recovery unit should be installed to ensure access for maintenance and service tasks.



Using mechanical ventilation in rooms where a fireplace will be installed requires the user to install a fireplace with a closed combustion chamber (air can only be drawn from outside the building) and a carbon monoxide detector. It is prohibited to install a fireplace that draws air from the room.



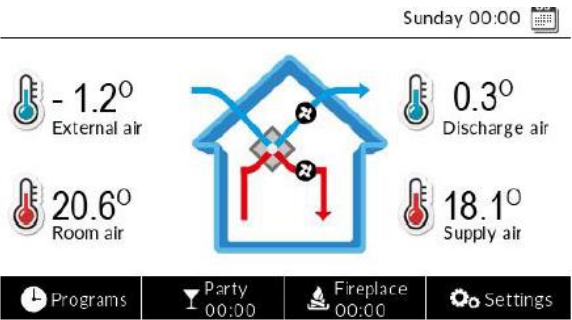
It is prohibited to turn off the unit during the winter if it is installed in the attic. Turning off the unit may cause condensation of water vapor on the walls of the unit and on the fans.



If the ventilation unit is to be mounted on the wall using the included bracket, the holes for the expansion plugs should be drilled with a non-hammer drill, without using the hammer function. Improperly drilled holes pose a potential risk of the ventilation unit falling.

3. Controller operation

3.1. Main menu














Main menu – The display shows the current air temperatures and the fan speed at which the unit is operating. Additionally, in the upper part, to the left of the date, icons appear indicating the operation of: bypass, heater, cooler, ground-coupled heat exchanger, and humidifier.

Main menu – appearance in the option with an additional air supply temperature sensor, used in the case of installing a secondary heater, humidifier, or cooler.



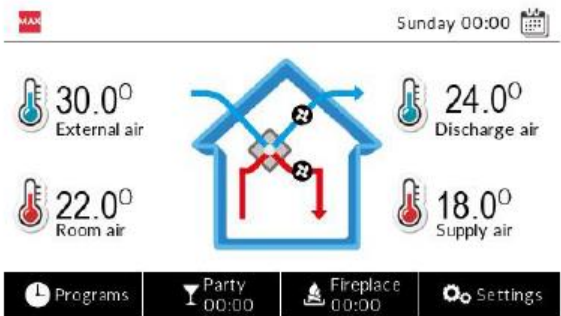
Party- activation forces the unit to operate at speed III for a specified period of time.

Fireplace – when activated, this option ensures 3 minutes of supply air fan operation with increased efficiency.

	Anti-freeze system turned on
	By-pass open
	Cooling function on
	Forced operation of the recuperator in gear I
	Forced operation of the recuperator in gear III
	Heating function on
	GHE operation
	The unit has reached the maximum flow rate
	The unit has reached the minimum flow rate
	Humidifier on
	HOLIDAY mode on















Settings – menu with unit operation settings.

MIN and MAX icons – If either fan reaches its maximum or minimum speed and the unit cannot maintain the set airflow, the corresponding icon will appear. The system is still being balanced.

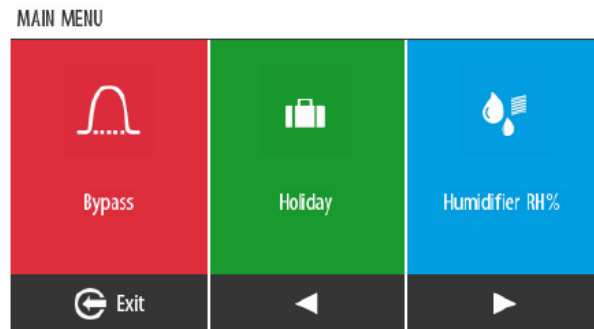


Main menu- in the option with an additional external air temperature sensor, used in the case of installing a ground-coupled heat exchanger.

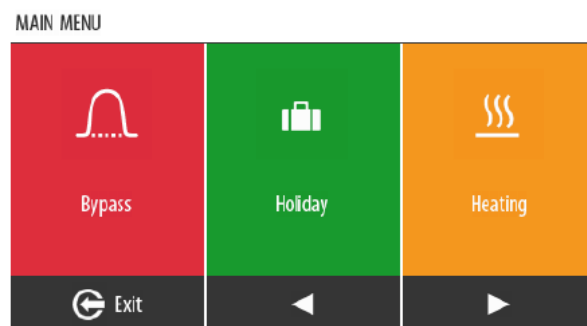
3.2. Weekly schedule and additional options.

MON.	TUE.	WED.	THU.	FRI.	SAT.	SUN.
From hour	Through hour	Efficiency		Temperature		
-00:00-	03:15	 		18		
03:15	10:45	 		20		
10:45	18:15	 		19		
18:15	22:45	 		20		
22:45	-00:00-	 		18		
 		 Cancel		 OK		

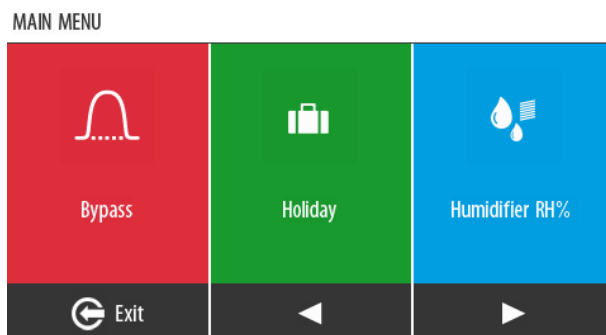
Programs – allow setting fan speed and comfort temperature within a specified time frame. For optimal comfort when residents are present, it is recommended to set the fan speed to level II. When the building is unoccupied, set the fan to level I. Level III is mainly used for ventilating the building. The comfort temperature serves as the basis for the operation of the bypass, heater, cooler, ground heat exchanger, and humidifier.



Bypass – is used to cool rooms at night during summer when it is hot indoors, and the nighttime outdoor temperature is lower. When the bypass is open, air bypasses the heat exchanger, and the cooler air is directly supplied to the rooms. The bypass opens when the outdoor temperature is lower than the indoor temperature and higher than the minimum activation temperature for the bypass. For improved comfort during the summer, it is recommended to activate the bypass in the main men

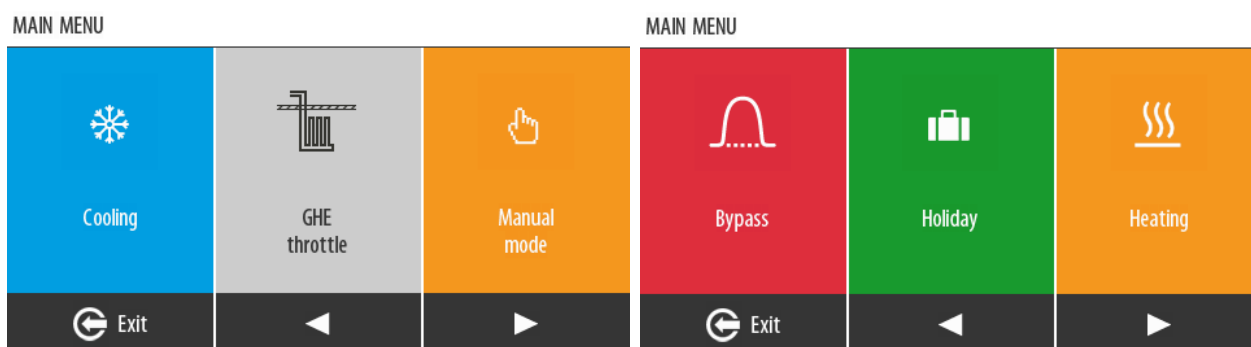


Holiday Mode – forces continuous operation of the unit at 70% of speed I for a specified number of days.



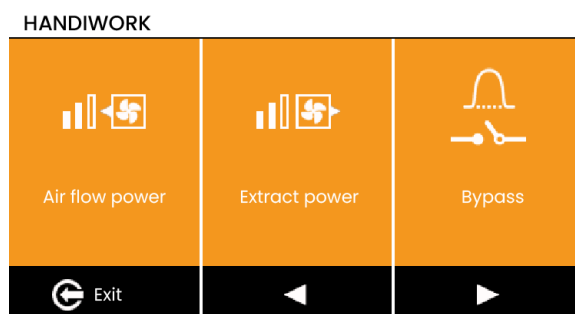
Humidifier RH% – active duct-mounted air humidifier (optional). The controller maintains the air humidity at the desired level.

Heating – active secondary heater (optional). The controller aims to reach the set comfort temperature. The heating function can be activated if the humidifier function is not active. If the humidifier function is active, the air heating is provided by the humidifier heater.



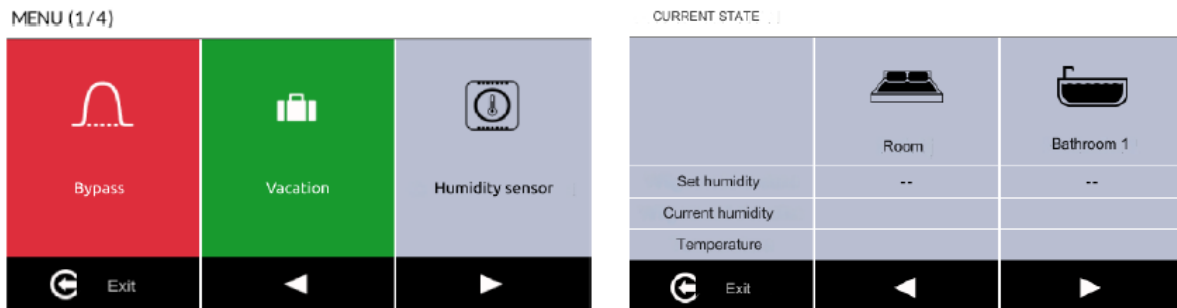
Cooling – active secondary cooler (option). The controller aims to reach the set comfort temperature.

GHE Damper – Ground Heat Exchanger (optional). When the function is activated, the temperature range within which the GHE operates is displayed. The operating range of the GHE damper or pump is set by the installer in the service menu. Activating the GHE requires the installation of an additional outdoor air temperature sensor

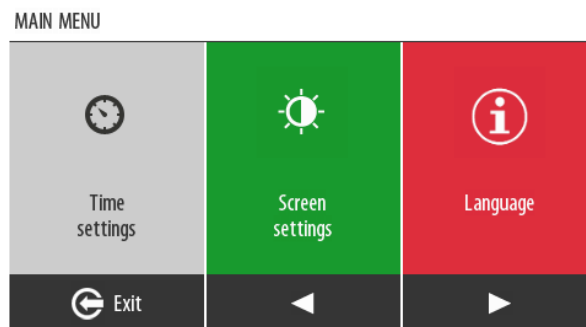


3.3. Manual operation and controller settings

Manual operation – allows checking the function of individual components.



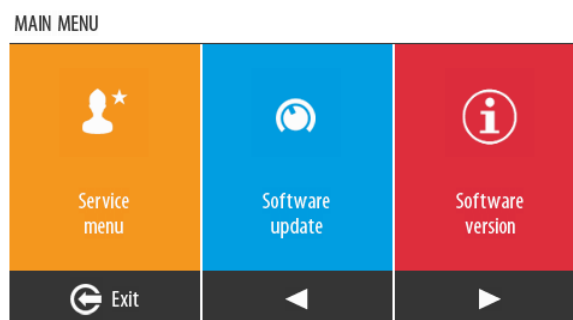
Humidity sensor – view parameters for wireless humidity sensors.



Setting the time – Function for setting the current date and time.

Screen settings – Allows adjustment of screen contrast when active and when off, screen timeout settings, and selection of screensaver type.

Language – Change the menu language.



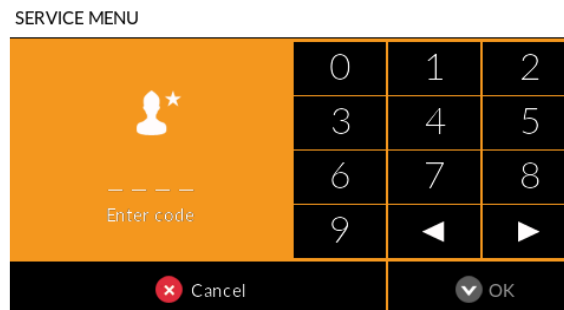
Service menu- A range of functions for configuring device operation by authorized installers.

Software update – Option to update the software, available only for authorized installers.

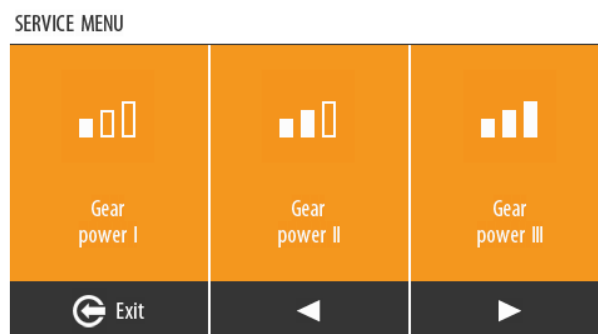
Program information – Displays the current version of the software.

4. Controller settings- service menu.

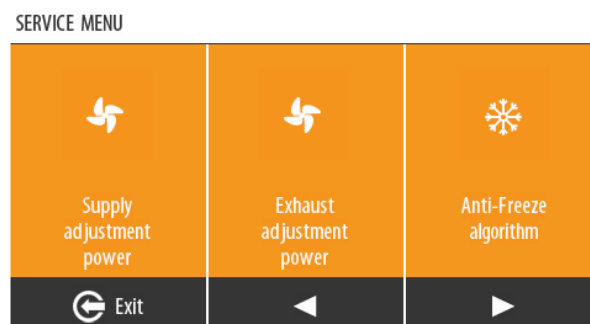
4.1. Initial settings.



This level is intended for the installer only and is active after entering the code: **3142**



Gear power – adjustment of performance at different speeds. The performance should be matched to the building volume, room characteristics, and number of occupants. Factory settings for the speeds can be adjusted according to demand. The settings should be made with the understanding that Speed II is intended to provide optimal ventilation performance, Speed III for building ventilation, and Speed I for minimal performance.

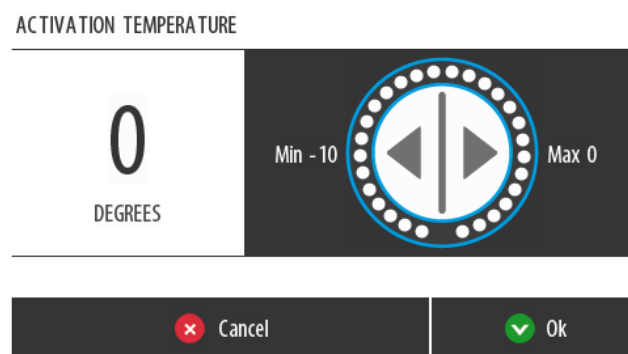


Exhaust and supply power correction – allows for quick adjustment of the performance of one fan relative to the other.

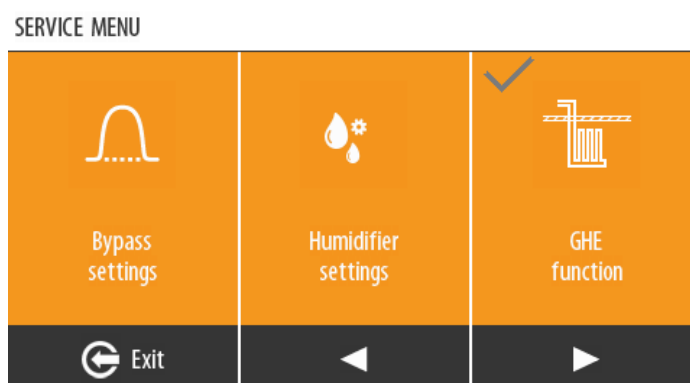


Anti-Freeze Algorithm Options:

1. **Fan Power Reduction:** Protects the heat exchanger solely by reducing the supply fan's power until it stops, while the exhaust fan continues operating without changes.
2. **Heater plus Fan:** Adjusts fan speed and activates the heater; the fan slows to minimum speed but does not stop.
3. **Primary Heater:** Activates the heater without adjusting fan power.



Activation Temperature – below the set outdoor temperature, the system begins to monitor and adjust the operation of the unit to prevent the heat exchanger from freezing. In new buildings where humidity is high, it is recommended to set the activation temperature between -3°C and 0°C. Once the building is dried out, the temperature can be lowered.

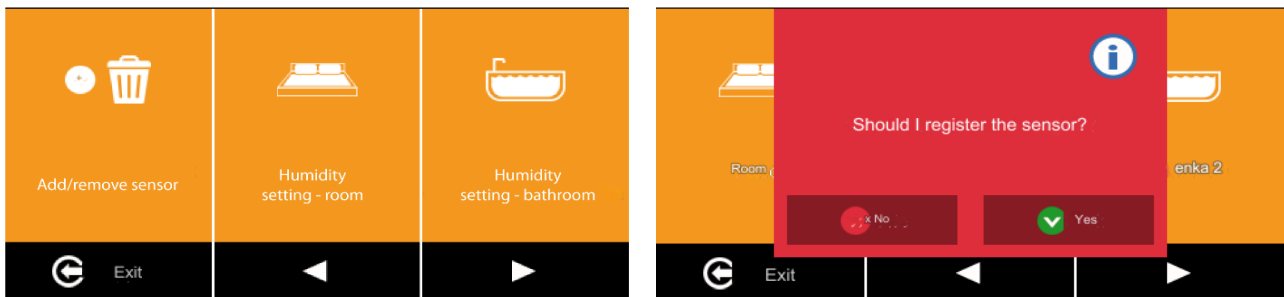


Bypass Settings – adjusts fan speed when the bypass is open and sets the lower activation temperature for the bypass.

- **0%** – no increase in performance.
- **100%** – performance is doubled.

The bypass is closed if the outdoor temperature is lower than the lower activation temperature for the bypass.

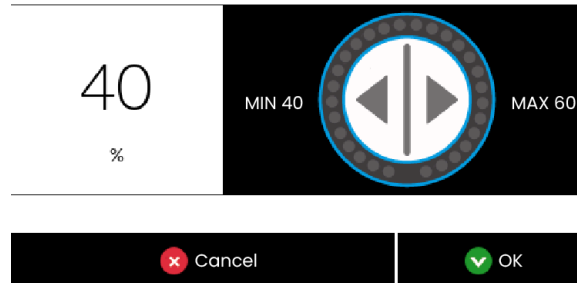
HUMIDITY SENSORS SETTING



Humidity sensor settings:

Add / Remove sensor – register a new sensor or deactivate an existing one.

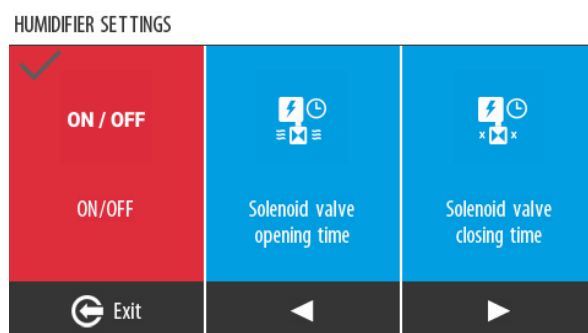
HUMIDITY SETTINGS - ROOM



Humidity settings – room – the value below which the humidifier is activated.

Humidity settings – bathroom – the value above which Speed III is activated.

4.2. Expansion of installation



Humidifier settings: ON/OFF – activation of the humidifier function.

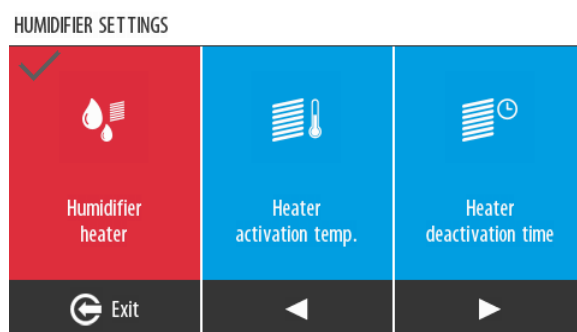
Note:

The humidifier and heating functions cannot be activated simultaneously. Due to the use of input I for controlling the humidifier, once the humidifier function is activated, it is not possible to force the unit to operate at speed I by shorting this contact.

Electrovalve Opening Time – The duration for which the humidifier mat is sprayed with water. This time mainly depends on the water pressure in the system and should be adjusted to ensure that the entire mat is soaked during one opening cycle of the electrovalve.

Electrovalve Closing Time – The time between successive openings of the water electrovalve. This time mainly depends on the airflow and should be adjusted to ensure that the humidifier mat does not dry out during the closing period.

Incorrectly set opening and closing times of the electrovalve can lead to increased water consumption or reduced efficiency of the humidifier.



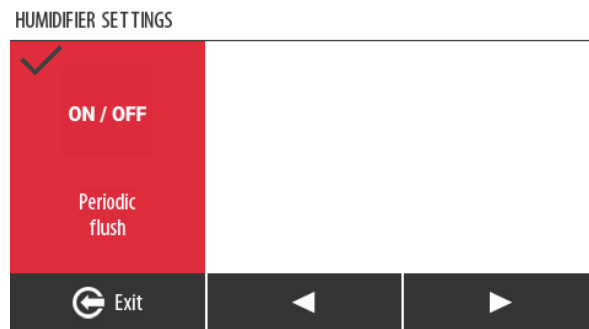
Humidifier Heater – activates the humidifier heater function.

The humidifier heater enhances the efficiency of the humidifier and raises the temperature of the supply air.

Humidifier Heater Activation Temperature – sets the temperature before the humidifier, above which the humidifier heater will not operate.

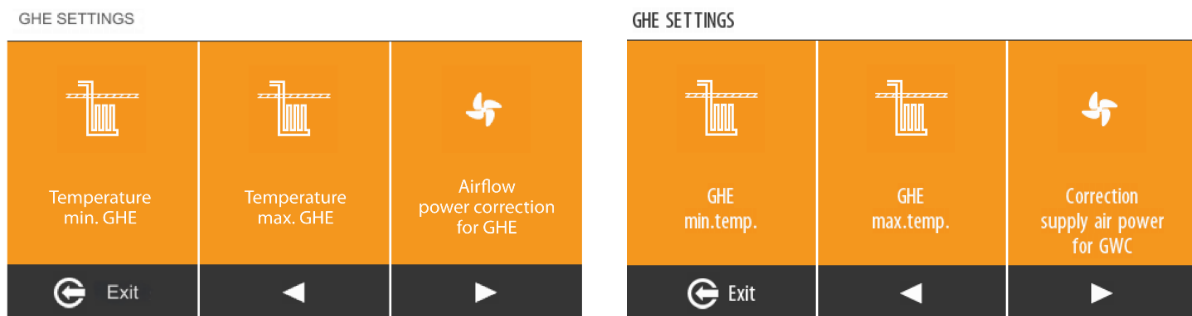
The heater turns off if the outlet temperature after the humidifier (EXTRA TEMP) is equal to or above the comfort temperature set in the weekly program, or if the supply air temperature (before the humidifier) exceeds the heater activation temperature.

Heater Re-Activation Delay – sets the delay time before the humidifier heater can be reactivated.

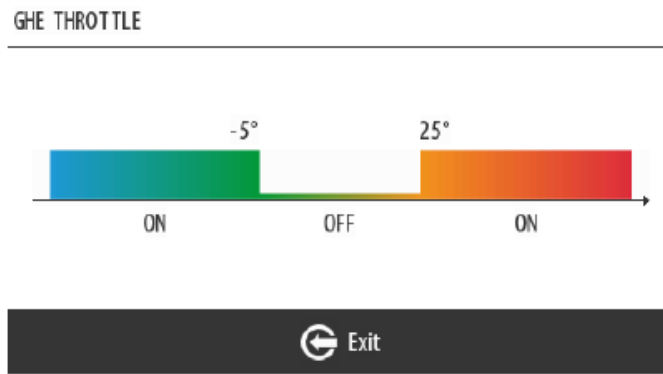


Flushing – weekly rinsing of the humidifier mat. This process removes contaminants left on the mat after water evaporation or those that bypassed the filter, flushing them into the drainage system.

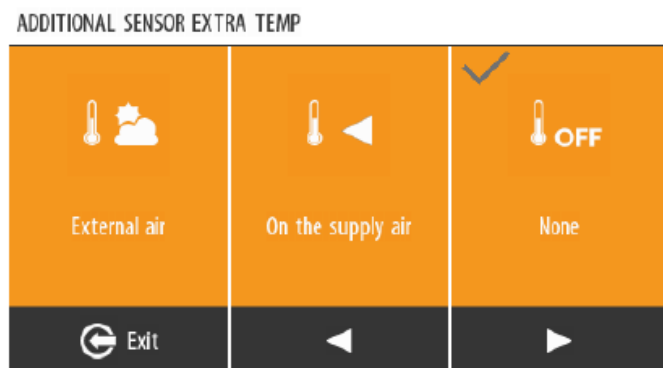
Once this function is activated in the service menu, a humidifier icon appears in the user menu. By clicking the icon, the humidifier activates. The humidifier will turn on when input I contacts are closed and the function is enabled in the user menu.



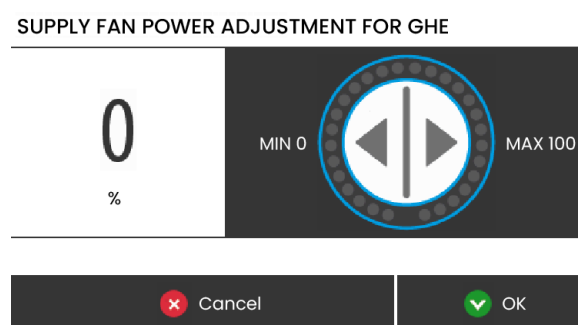
GHE Function – activates the Ground Heat Exchanger (GHE) function. When the “GHE Function” icon is selected in the service menu, the GHE operating range appears in the user menu. However, the user cannot modify this range



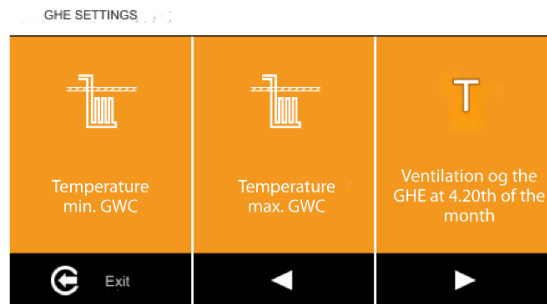
Connecting the GHE – when connecting the Ground Heat Exchanger (GHE) to the main board, plug the W-1000 external temperature sensor into the EXTRA TEMP socket and activate it in the service menu under the “Additional Sensor EXTRA TEMP” tab by selecting the “External” option.



The sensor should be placed outside the building in a shaded location on the wall where the air intake is mounted. During summer, when the GHE is activated, the bypass automatically opens to prevent air from flowing through the heat exchanger and warming up.

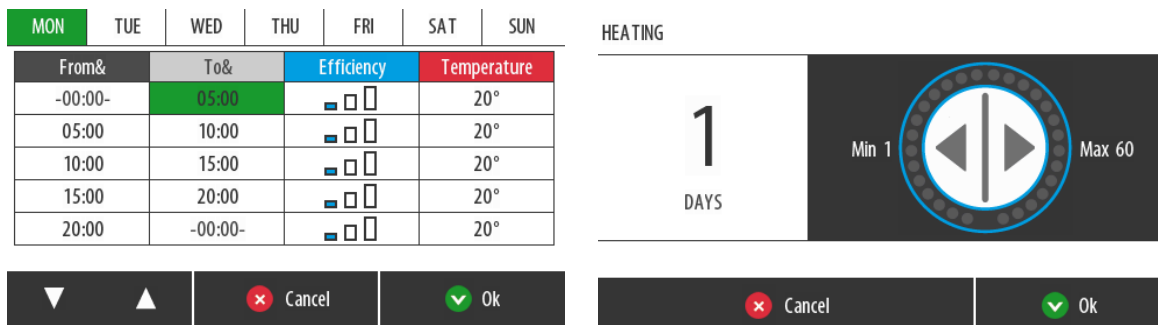


Supply Fan Power Adjustment for GHE – this feature increases the power of the supply fan to balance additional air resistance caused by airflow through the Ground Heat Exchanger (GHE). If the airflow resistance through the GHE differs from that of the wall intake, fan output can be adjusted accordingly. When the GHE is activated, the fan will automatically adjust its output by the set correction level. *Note: This function is not available in the HI-TECH model.*

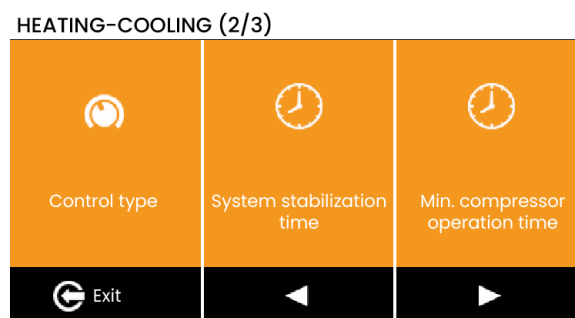


Minimum GHE Temperature – the temperature below which the Ground Heat Exchanger (GHE) activates during winter.

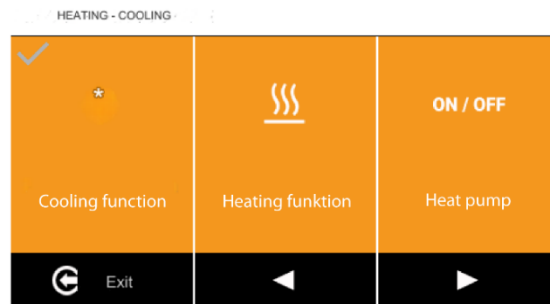
Maximum GHE Temperature – the temperature above which the GHE activates during summer.



Heating Function – this function pertains to the secondary heater. Once activated in the service menu, a heater symbol appears in the user menu. By clicking it, the user can set the number of days the heater will remain active. The heater activates when the room temperature drops below the set temperature in the programs menu.

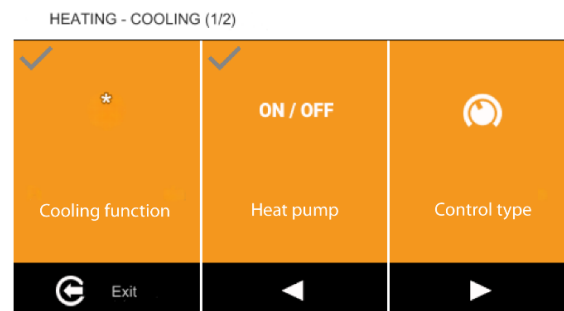


Note: the secondary heater is not intended for heating rooms but is designed for preheating the incoming air. When installing the heater, an additional temperature sensor can be connected to the supply duct, at least 1 meter behind the heater. Connect the sensor to the EXTRA TEMP temperature input and activate it in the service menu under the appropriate tab.

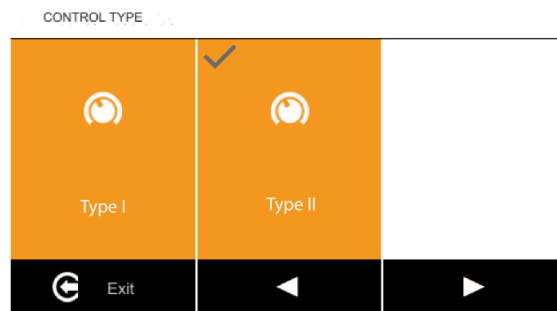


Cooling Function refers to the secondary cooler. Once activated, a symbol for the cooler will appear in the main menu, allowing you to set the number of days the cooler should remain active. The cooler will turn on when the room temperature exceeds the value set in the program menu.

During the installation of the cooler, an additional temperature sensor can be connected, which should be placed on the supply duct at least 1 meter behind the cooler. The sensor should be connected to the **EXTRA TEMP** additional temperature input and activated in the service menu under the "Additional Temperature Sensor" section, selecting the "On Supply" option.



Heat Pump – this function allows for the control of the heater and/or refrigerant cooler, used for heating or cooling the air supplied to the rooms. Once this function is activated, the previously mentioned algorithms for the heating and cooling functions are not active. Instead, based on the set comfort temperature and the currently measured temperatures of the supply air to the rooms and exhaust air from the rooms, either heating or cooling is performed using the refrigerant cooler. This process is modulated by a 0-10V voltage signal on the recuperator controller to adjust the intensity of heating and cooling.

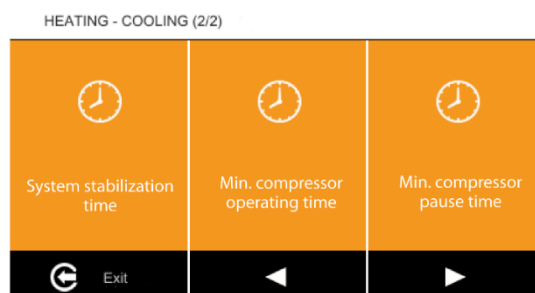


Control Type – selection of the control type based on the cooperating heater-cooler unit. The control type is chosen according to the specific aggregate and its manufacturer, as detailed in the table below.

CONTROL TYPE	REFRIGERATION UNIT
TYPE I	GREE
TYPE II	MIDEA, ROTENSO, KASAI

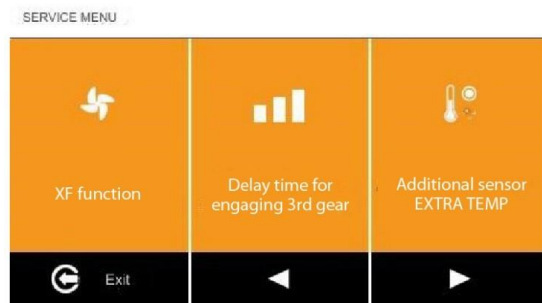
TYPE I – one output is responsible for turning the compressor on and off, while the other output selects the heating or cooling mode.

TYPE II – one output is responsible for activating the cooling, while the other output activates the heating.



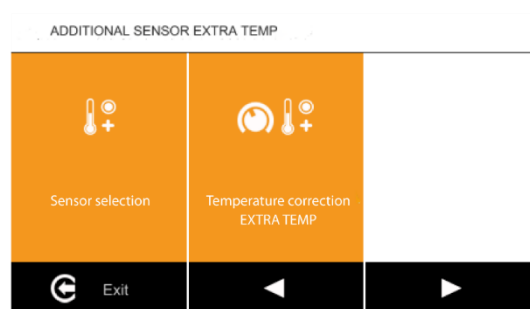
System Stabilization Time – the period during which the control algorithms for the heater and/or freon cooler remain idle. This period is necessary for stabilizing system operation and measuring temperature.

Minimum Compressor Run Time – the duration after which the compressor can be restarted (or stopped) again. Frequent cycles of turning the compressor on and off can lead to a reduced lifespan.

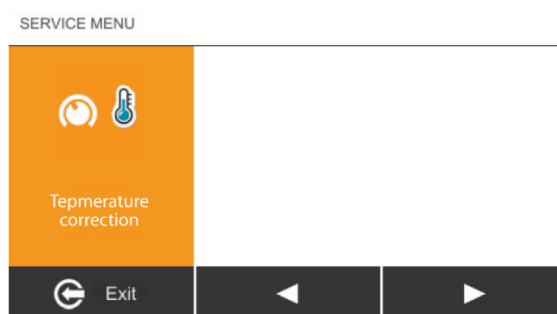


Function XF: activating this function allows for the setting of airflow in m³/h and automatic balancing of the system through continuous measurement of the current supply and exhaust air flow. This ensures that the unit maintains heat recovery at the maximum level.

Delay Time for Stopping Speed III: the fans operate at speed III, and after the contacts are opened, they continue to run for a predetermined time.



Additional Sensor EXTRA TEMP: selection of the placement method for the additional temperature sensor (external or supply air), as well as adjustment of the indicated temperature value.



Temperature Adjustment: if necessary, the installer can make adjustments to the temperature sensors installed in the unit.

Zone Control Function: this function allows for the management of the recuperator and damper operation based on the increased demand for fresh air in one of the two zones.

Additionally, when one of the CO2 concentration threshold values measured by the CO2 Control sensor is exceeded, the operation of the recuperator is forced to run at speed II or III. When the carbon dioxide concentration in the room decreases, the recuperator returns to normal operation according to the weekly program.

The **Zone Control Function** has three operating modes, depending on the number of CO2 Control sensors added (registered). The modes described below are automatically selected by the Display V2 recuperator controller based on the number of CO2 sensors added to the controller. As a result, the **Zone Control** tab appears differently for setups with one or two sensors. A maximum of two CO2 sensors can be registered for control in the Display V2.

- **Mode One:** to activate this function, two CO2 Control sensors must be registered. The operation of the damper is regulated by the two CO2 sensors, which are assigned to the daytime and nighttime zones, respectively. Fresh air is automatically directed by adjusting the position of the GHE damper in the ventilation system to the zone with the higher CO2 concentration reading.
- **Mode Two:** to activate this function, one CO2 sensor must be registered, placed in the daytime zone. In this mode, the time at which the damper position will change from the daytime zone to the nighttime zone (Activation time for the nighttime zone) must be manually set, as well as the duration for which the damper should remain in this position (Nighttime zone operating time).

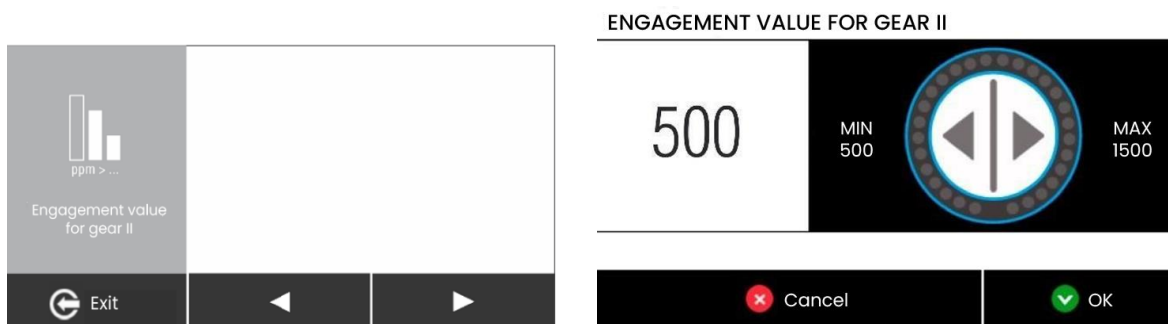


Settings screen for Mode Two and Three

- **Mode Three:** in this mode, it is not necessary to have a registered CO2 sensor for the function to operate. The operation of the unit is solely dependent on the weekly program. Similar to Mode Two, you must manually set the time at which the damper position will change from the daytime zone to the nighttime zone (Nighttime zone activation time) and specify the duration for which the damper should remain in this position (Nighttime zone operating time).

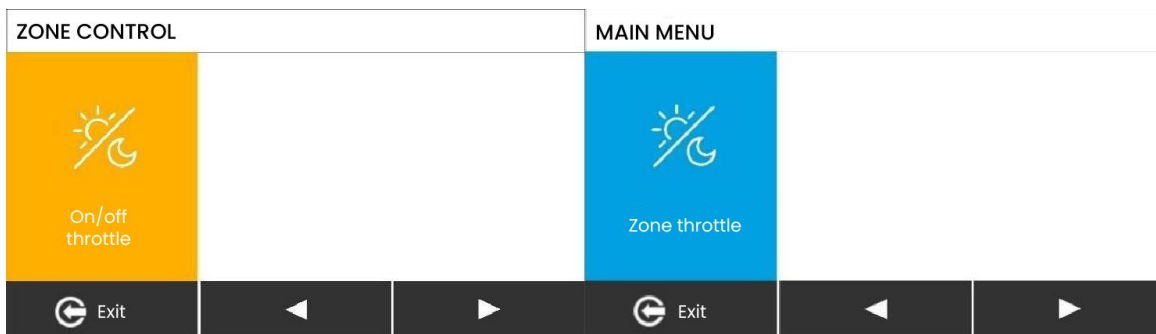
In Modes One and Two, there are two thresholds for the allowable CO2 concentration. When these thresholds are exceeded, the sensors, via the Display V2 controller, force the unit to operate at speed II and III for the first and second thresholds, respectively.

- **First Threshold:** this threshold is set by the user in the menu section **Service Menu > Zone Control > Activation Value for Speed II**. The adjustable range for this value is 500 to 1500 ppm.
- **Second Threshold:** this threshold is fixed at 1600 ppm and cannot be edited. Once this value is exceeded, the recuperator will begin operating at speed III. Once the CO2 concentration in the room normalizes, the recuperator will return to its normal operation according to the weekly program.

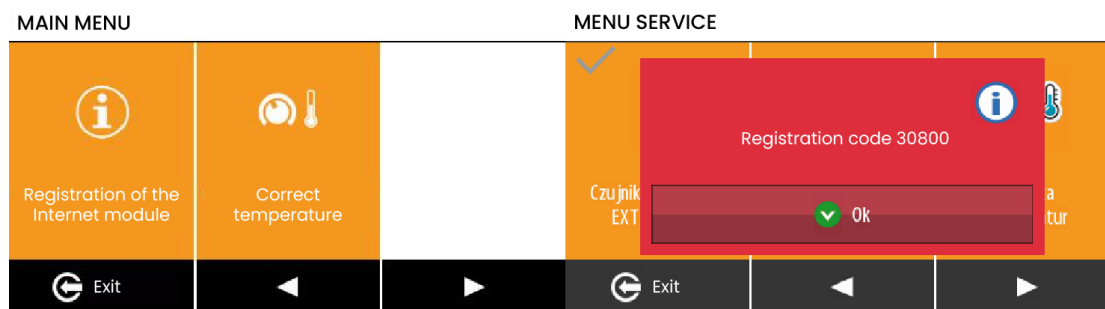


Setting screens of the ppm value of the switch-on for gear II

To activate the Zone Control function, navigate to **Service Menu > Zone Control** and select “**Enable/Disable Damper.**” Then, in the **Main Menu**, activate the “**Zone Damper**” function.



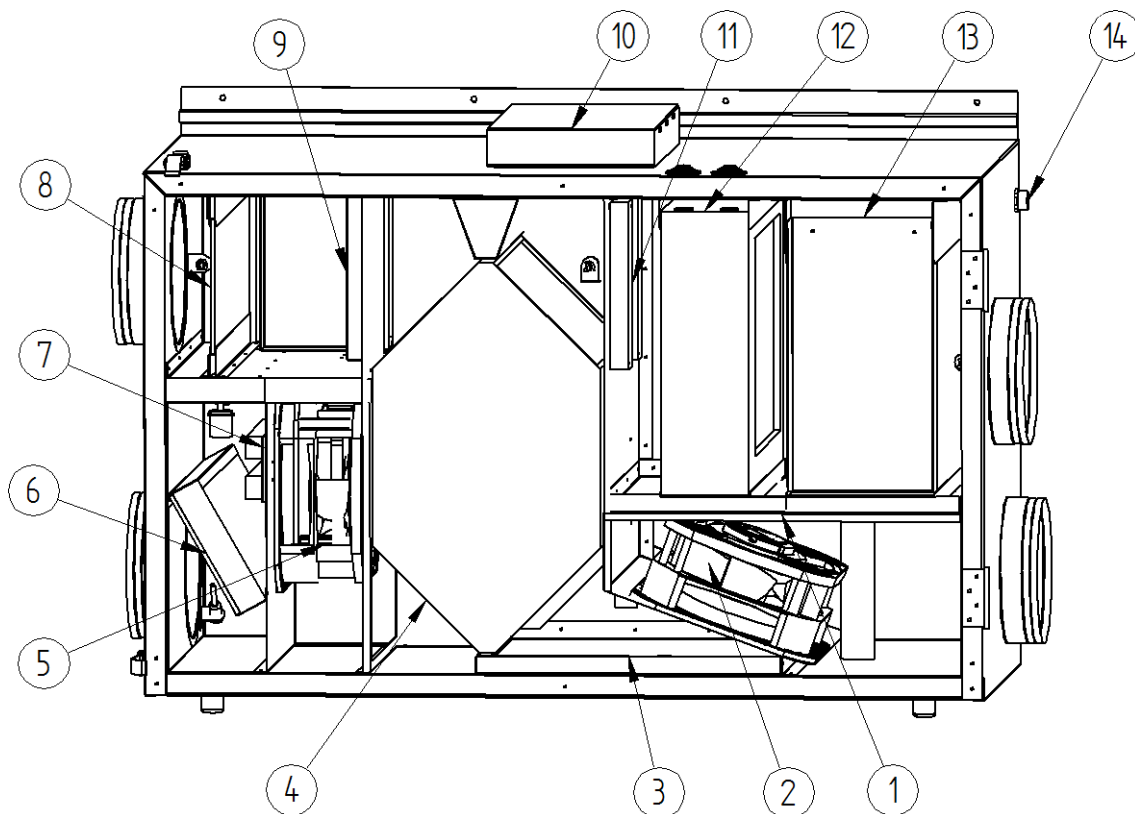
Zone Control Activation Screens



Registration of the WANAS Mobile Control W-15 or WANAS Mobile W-19 Wi-Fi Internet Module –
 After connecting the module to the unit and the Ethernet network, enter the code generated by the controller at <https://emodul.pl/login> and follow the subsequent instructions to register.

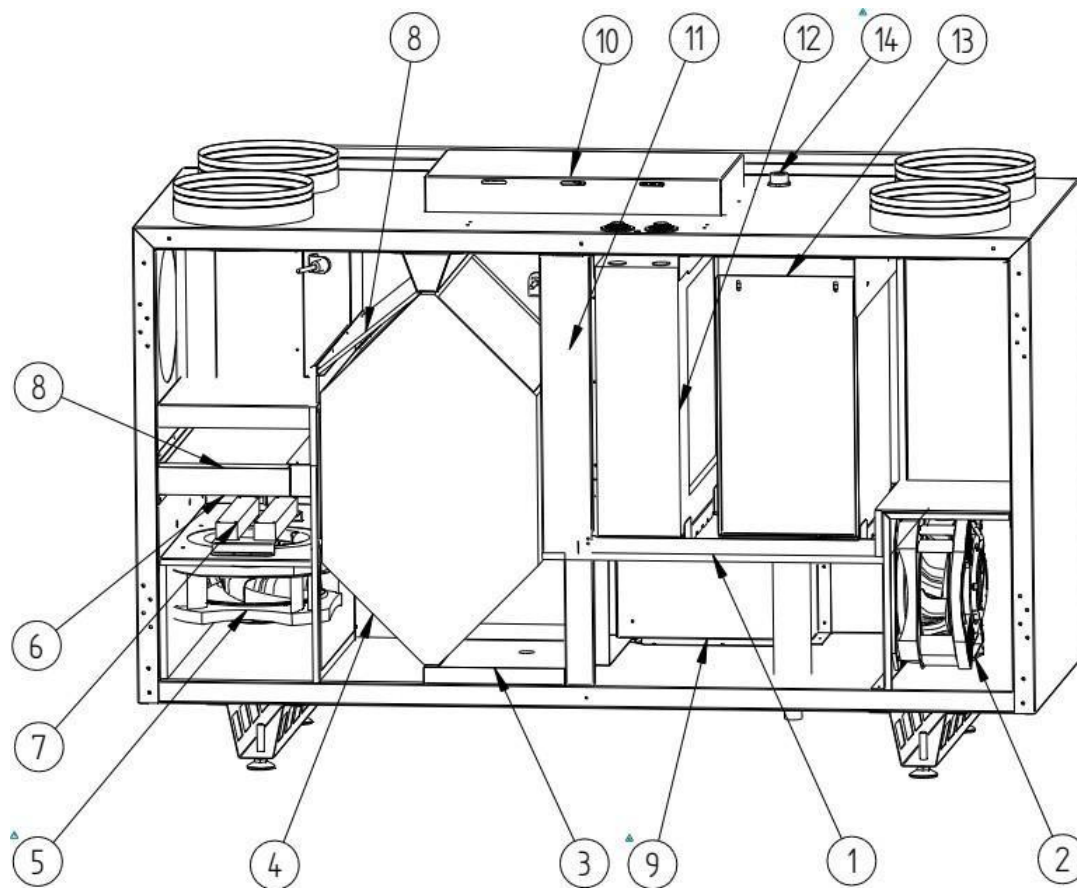
The WANAS Mobile Control W-15 and W-19 Wi-Fi Internet modules are additional components used to manage the operation of the ventilation unit via the Internet. The user manual and setup documentation are included with the module.

5. Construction of the air handling unit.



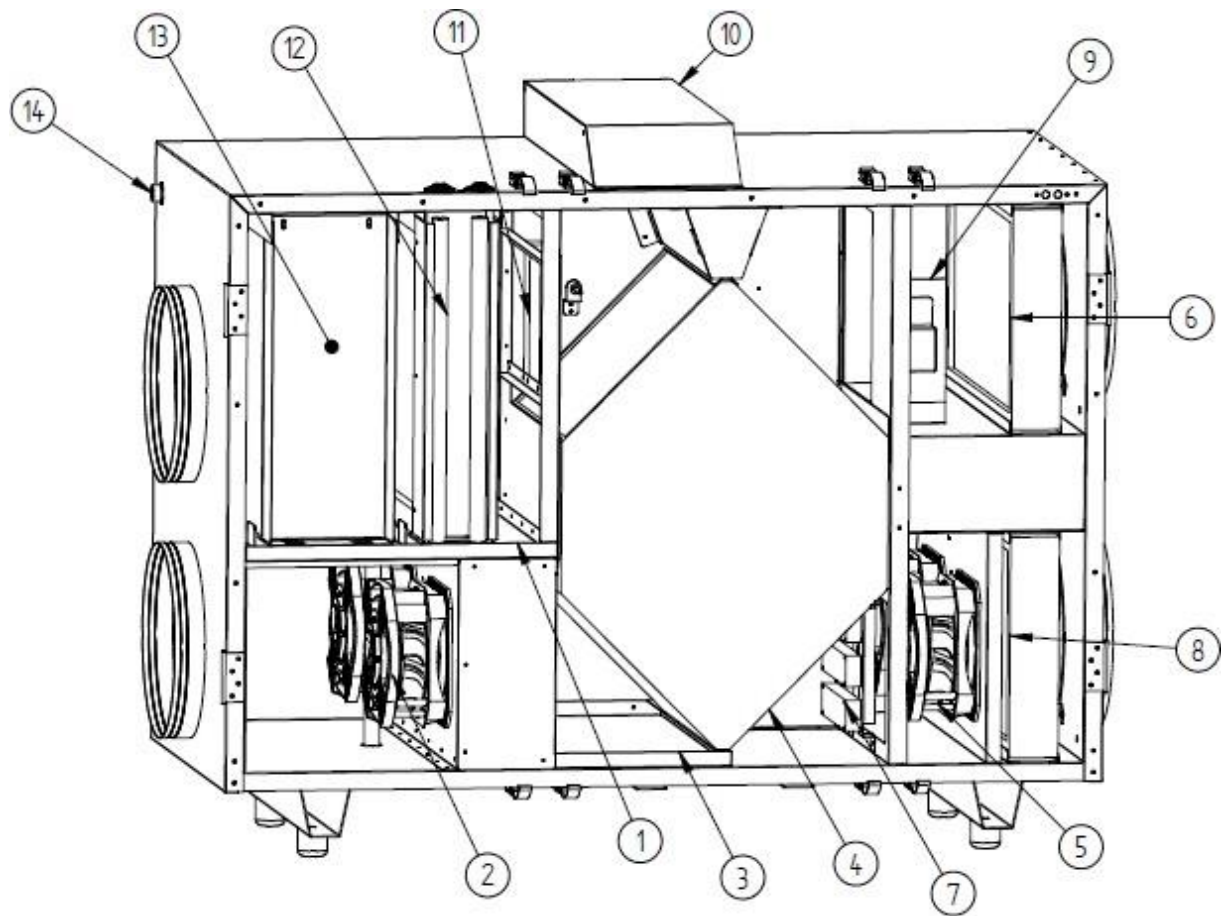
WANAS COMBO H 430/630

- 1) Drip tray for the heater/cooler and humidifier
- 2) Exhaust fan
- 3) Drip tray for the heat exchanger
- 4) Heat exchanger
- 5) Supply fan
- 6) Air filter ISO COARSE 75% and ePM 10 50%
- 7) Pre-heater
- 8) Air filter ISO COARSE 75%
- 9) Bypass
- 10) Control system
- 11) Electric heater for the humidifier
- 12) Secondary heater/cooler
- 13) Humidifier
- 14) Water supply connection



WANAS COMBO V 430/630

- 1) Drip tray for the heater/cooler and humidifier
- 2) Exhaust fan
- 3) Drip tray for the heat exchanger
- 4) Heat exchanger
- 5) Supply fan
- 6) Air filter ISO COARSE 75%
- 7) Pre-heater
- 8) Air filter ISO COARSE 75% and ePM 10 50%
- 9) Bypass
- 10) Control system
- 11) Electric heater for the humidifier
- 12) Secondary heater/cooler
- 13) Humidifier
- 14) Water supply connection

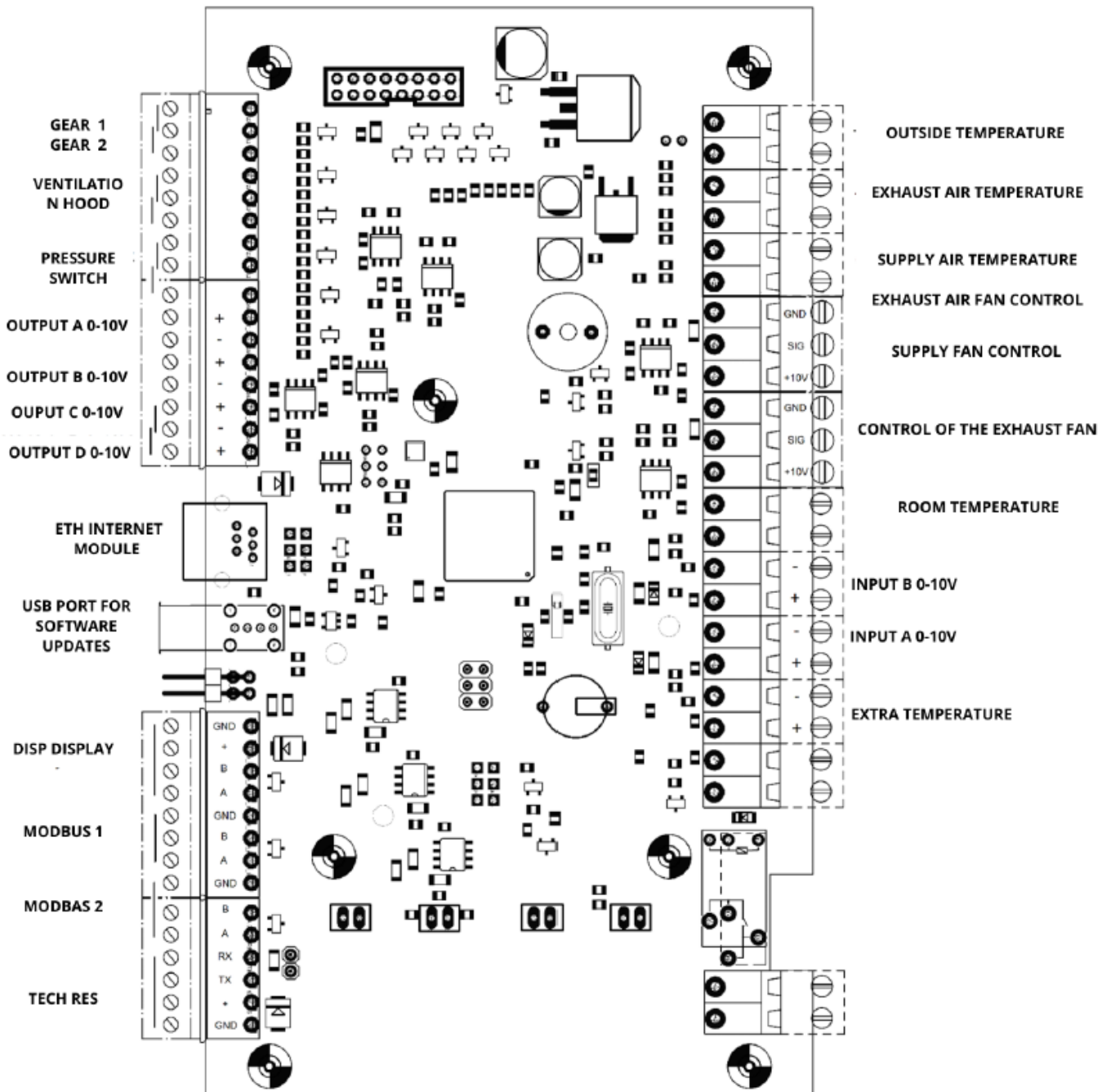


WANAS COMBO 1330

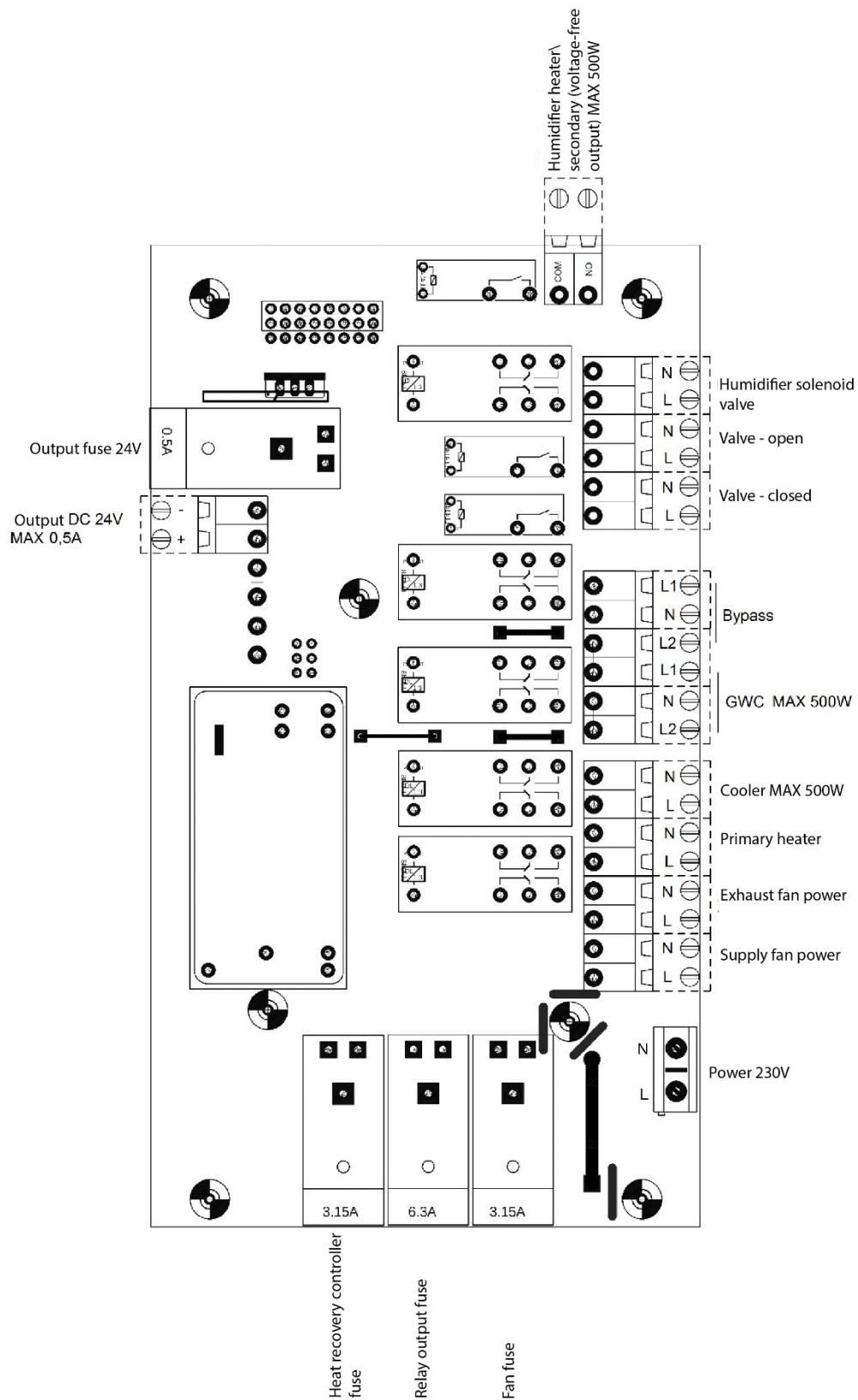
1. Drip tray for the heater/cooler and humidifier
2. Exhaust fans
3. Drip tray for the heat exchanger
4. Heat exchanger
5. Supply fans
6. Air filter ePM 10 50%
7. Pre-heater
8. Air filter ePM 10 50%
9. Bypass
10. Control system
11. Electric heater for the humidifier
12. Secondary heater/cooler
13. Humidifier
14. Water supply connection

6. Electrical diagrams.

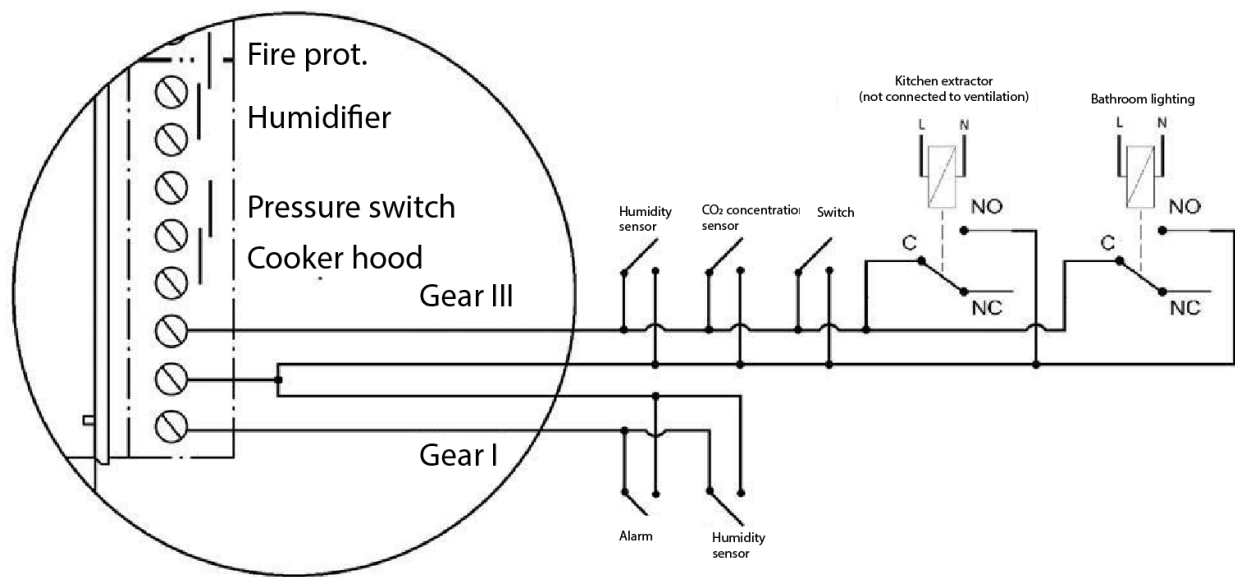
6.1. Electrical Schematic of the V2 Controller Board, Part 1



6.2. Electrical Schematic of the V2 Controller Board Part 2



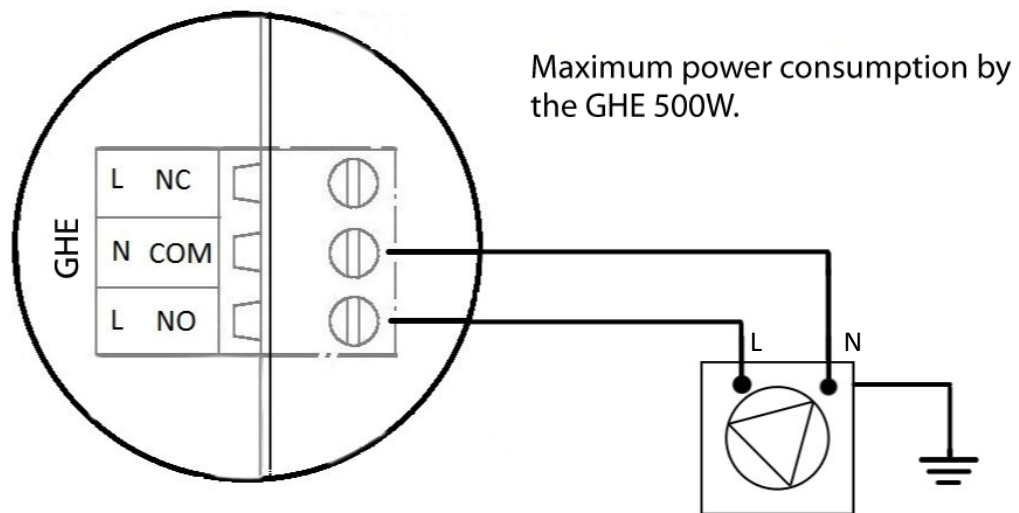
6.3. Wiring Diagram for GEAR I or GEAR III



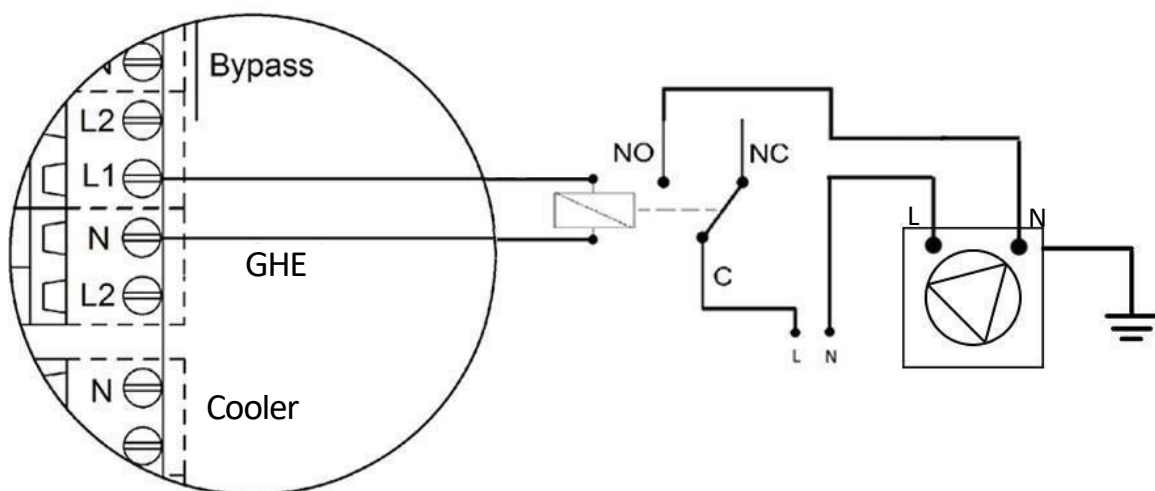
Automatically, upon closing the contacts for Gear I or Gear II, the unit adjusts its performance accordingly.

6.4. Wiring Diagram for Ground Heat Exchanger Pump

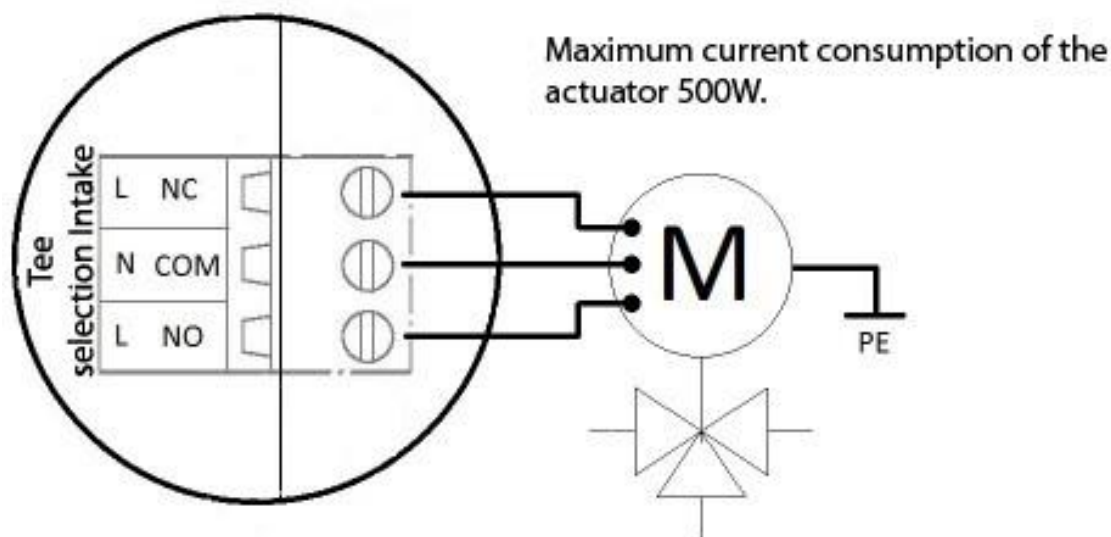
NOTE: Connection method for the GHE pump when the power of the device does not exceed 500W.



NOTE: Connection method for the GHE pump when the power of the device is greater than 500W.

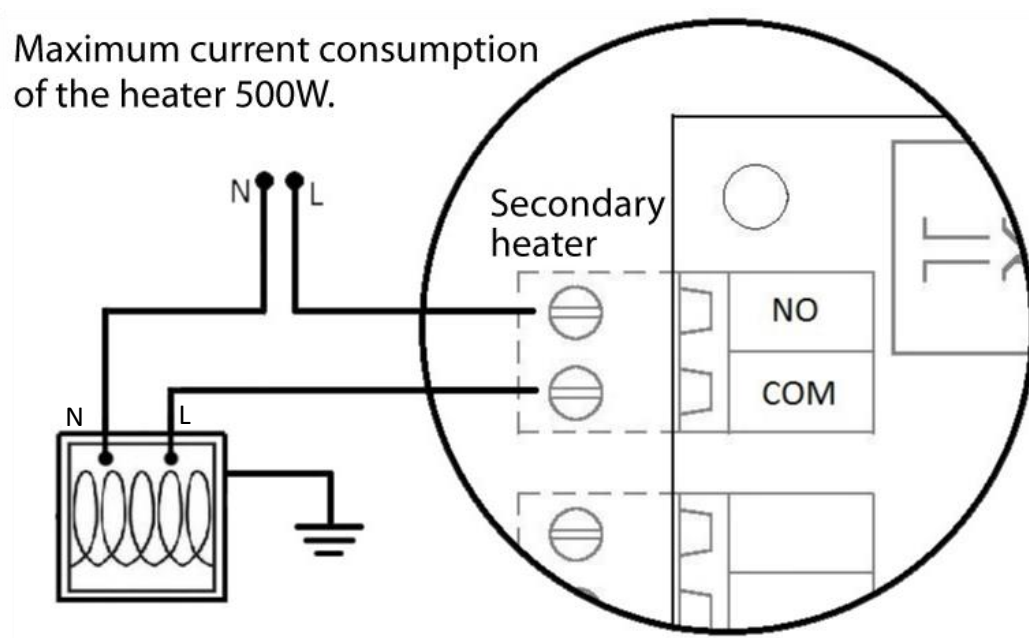


6.5. Connection diagram for the branch selection tee pump.

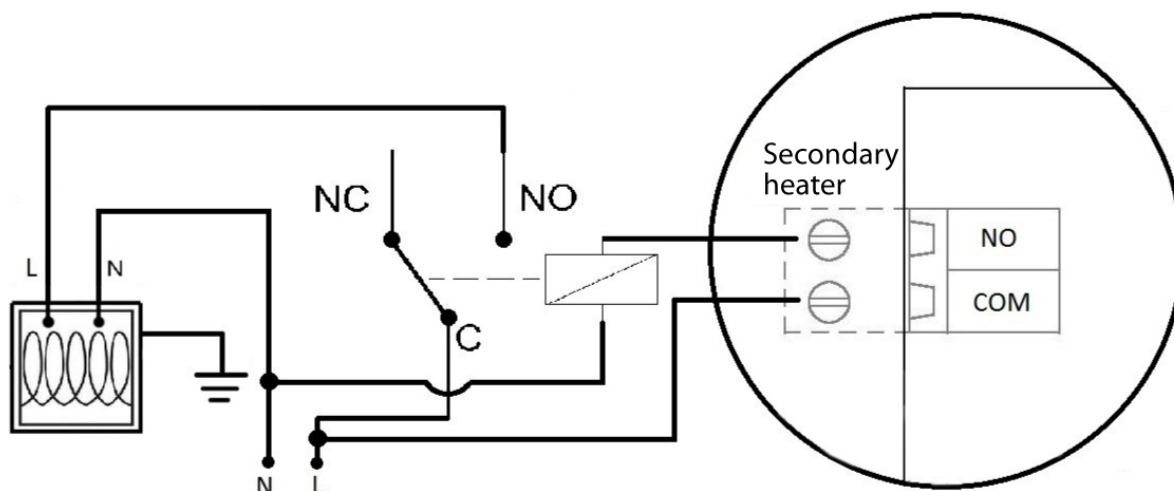


6.6. Connection diagram for the secondary heater.

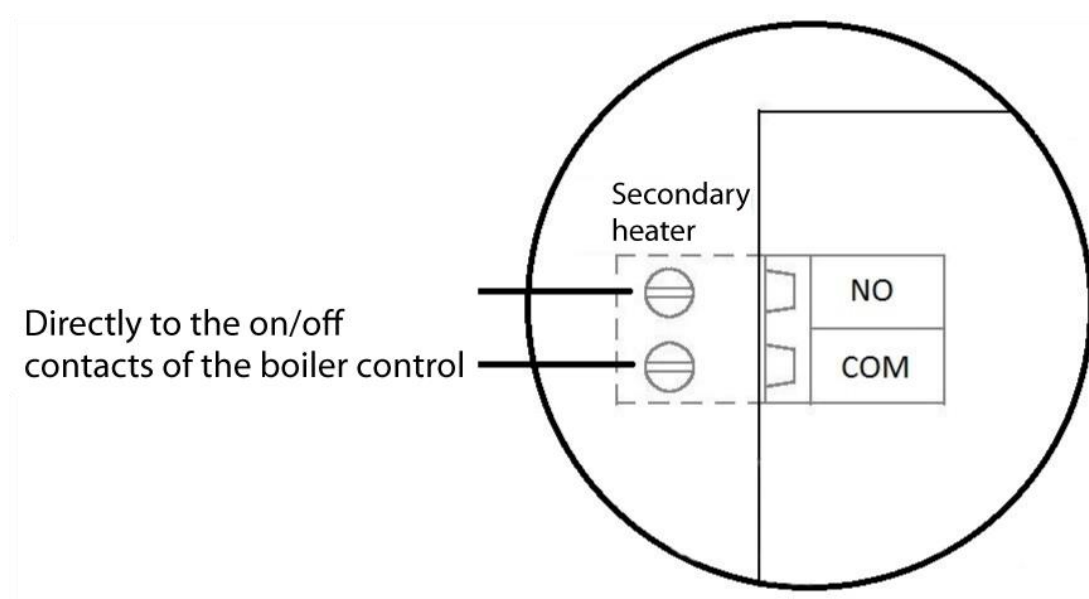
NOTE: Connection method for the secondary heater in cases where the power of the device does not exceed 500W.



NOTE: Connection method for the secondary heater in cases where the power of the device exceeds 500W.



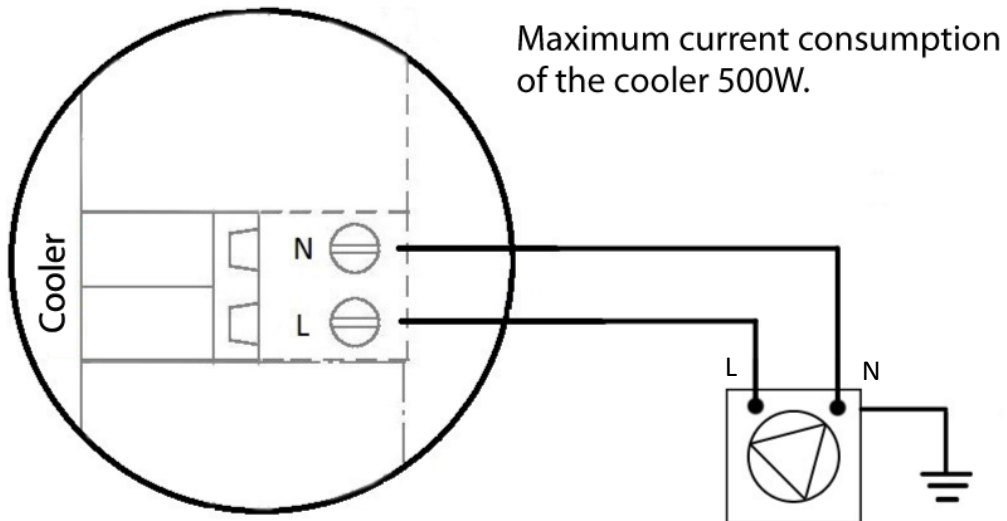
NOTE: Connection method in cases where the water heater is powered by a gas boiler.



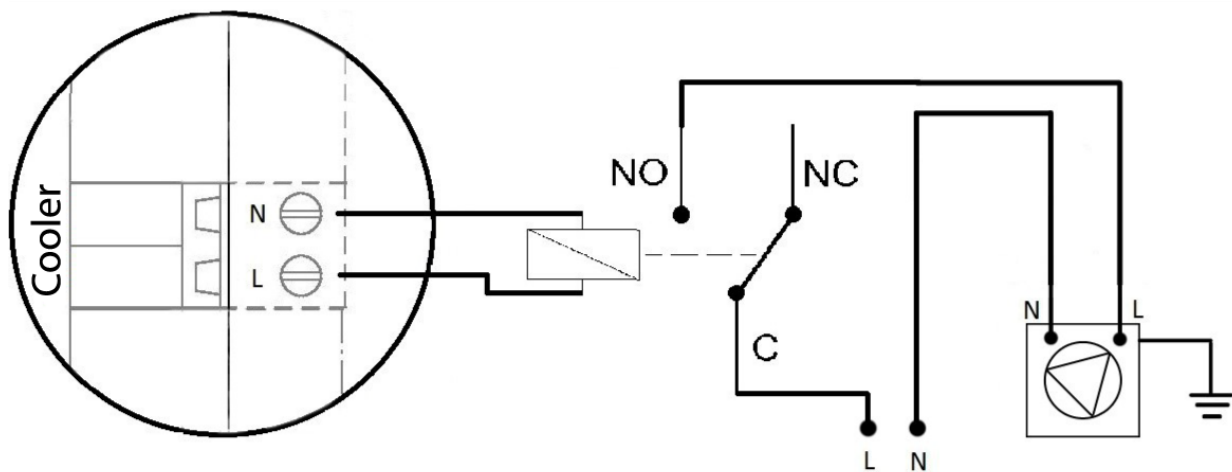
We use the weekly program of the controller and the "secondary heater" option to control the boiler.

6.7. Diagram for connecting the secondary cooler.

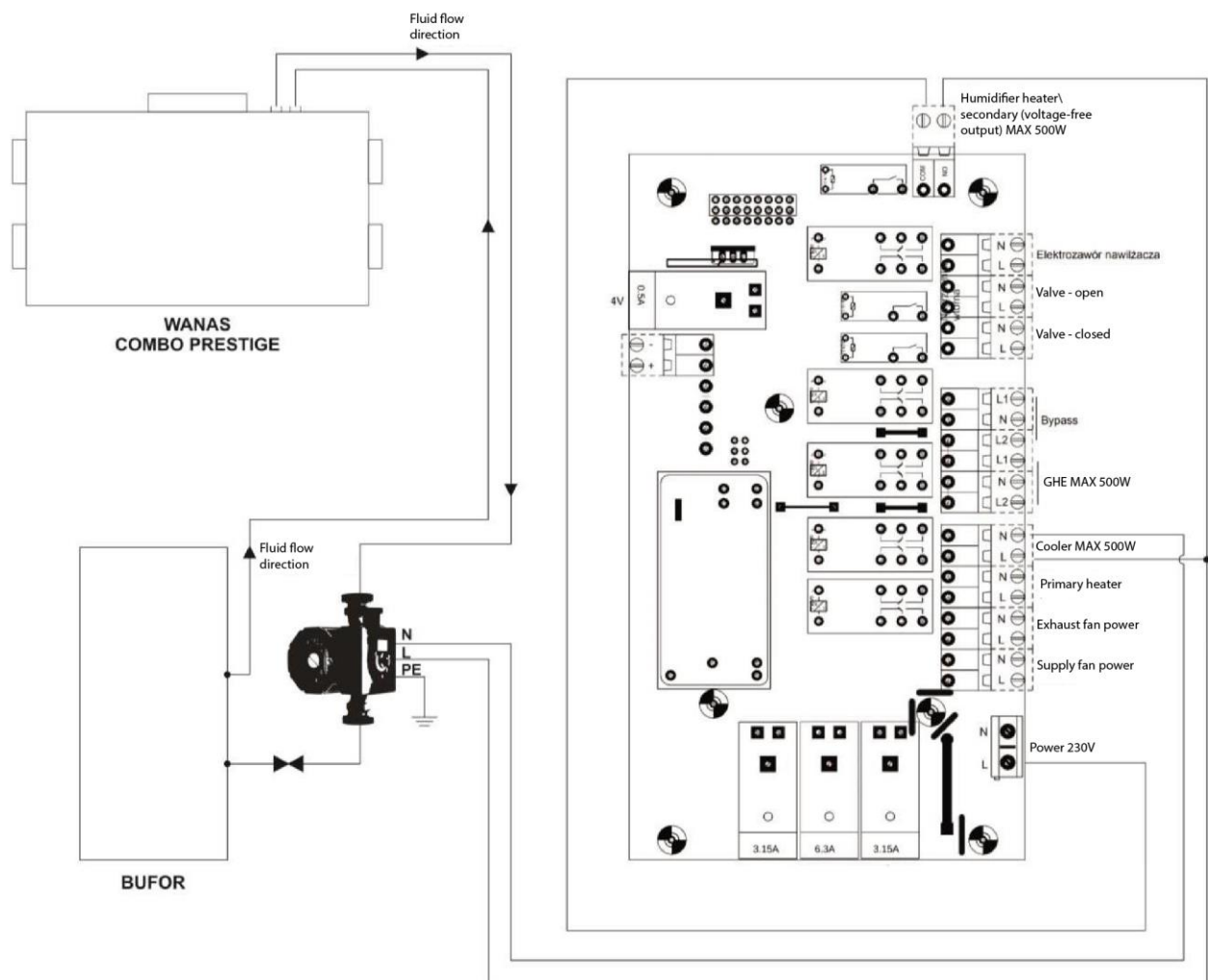
NOTE: Connection method for the secondary cooler when the device power does not exceed 500W.



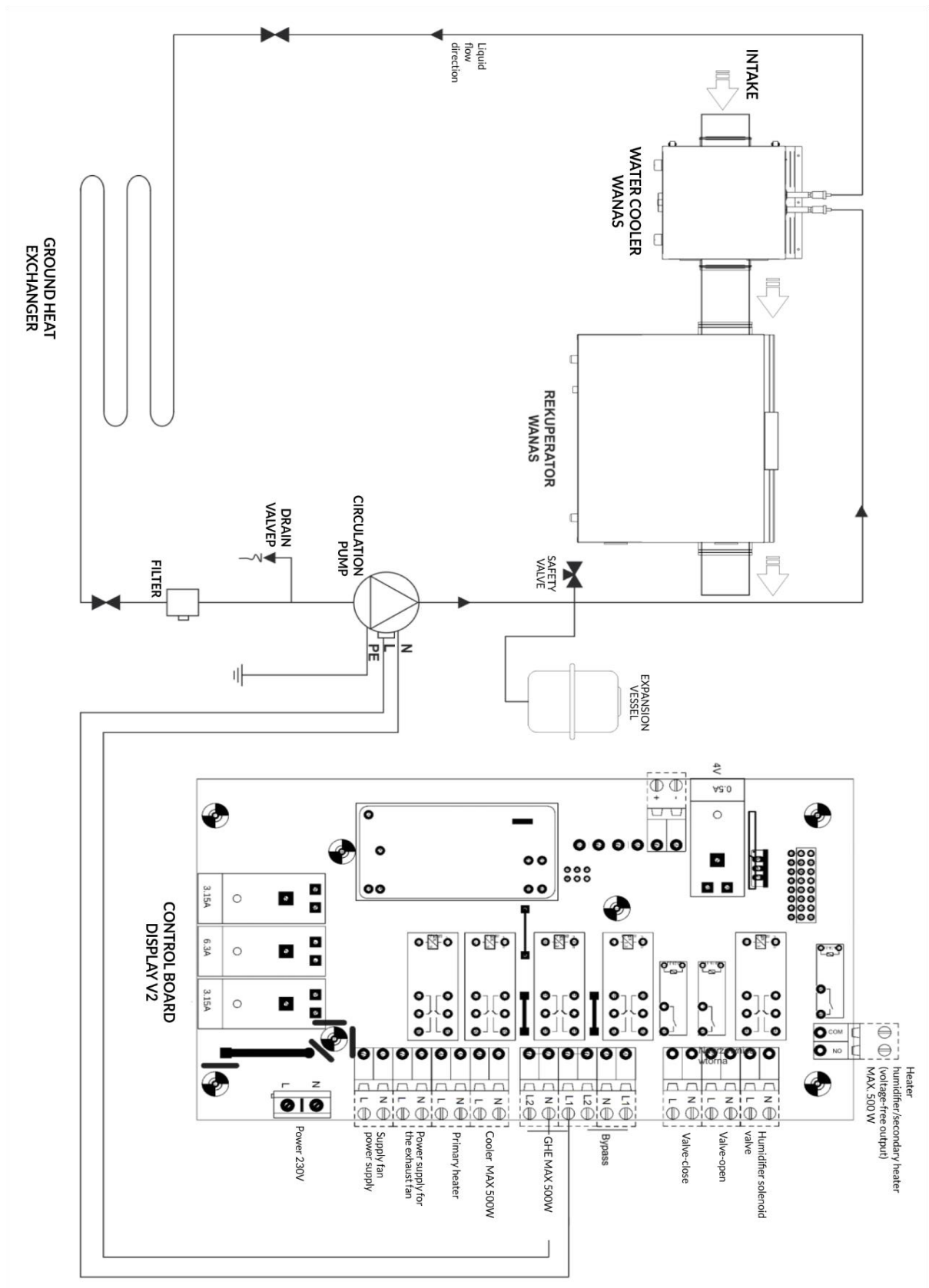
NOTE: Connection method for the secondary cooler when the device power exceeds 500W.



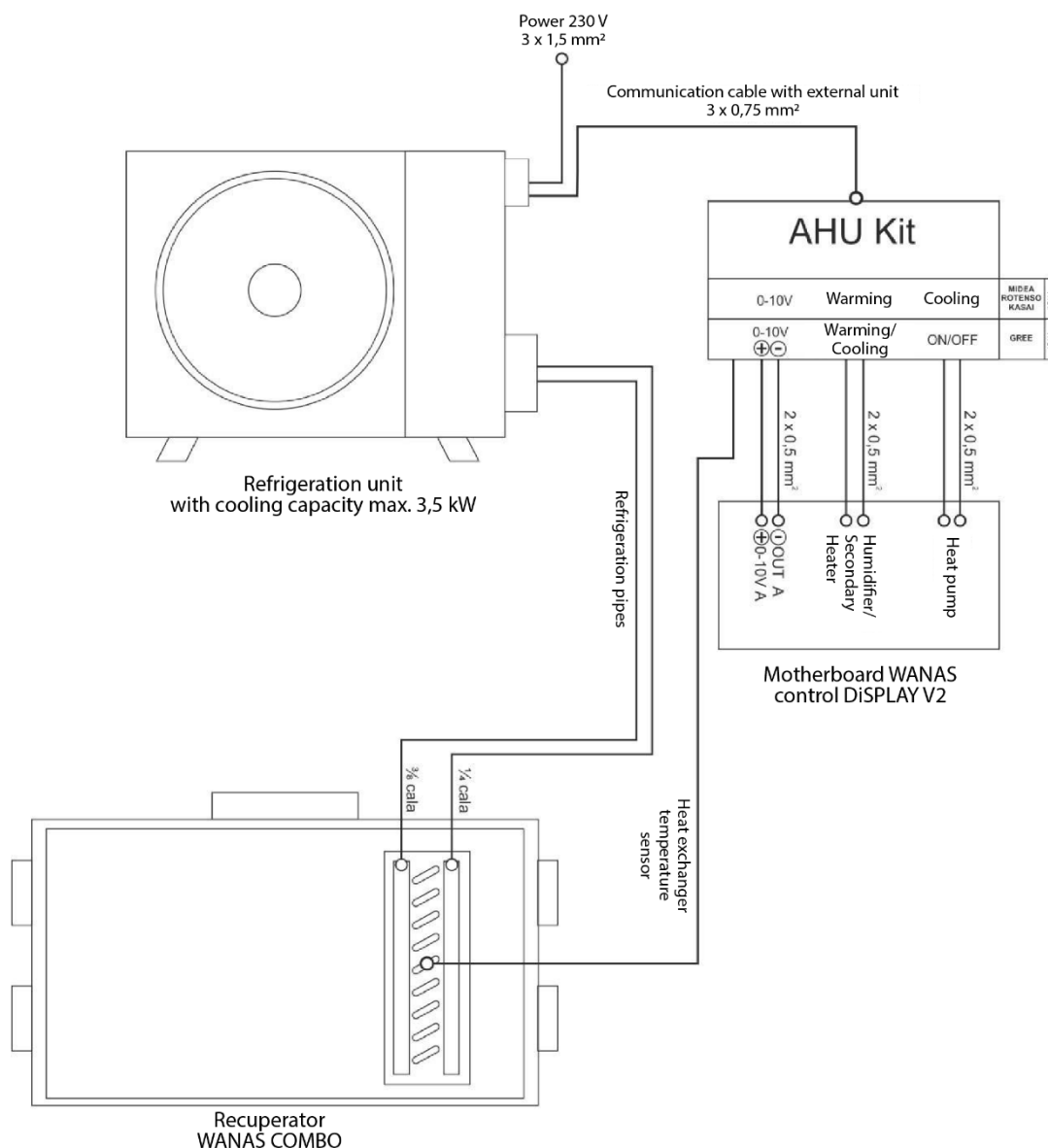
6.8. Connection of the water exchanger.



6.9. Connection of the WANAS water heater/cooler with the Ground Heat Exchanger.



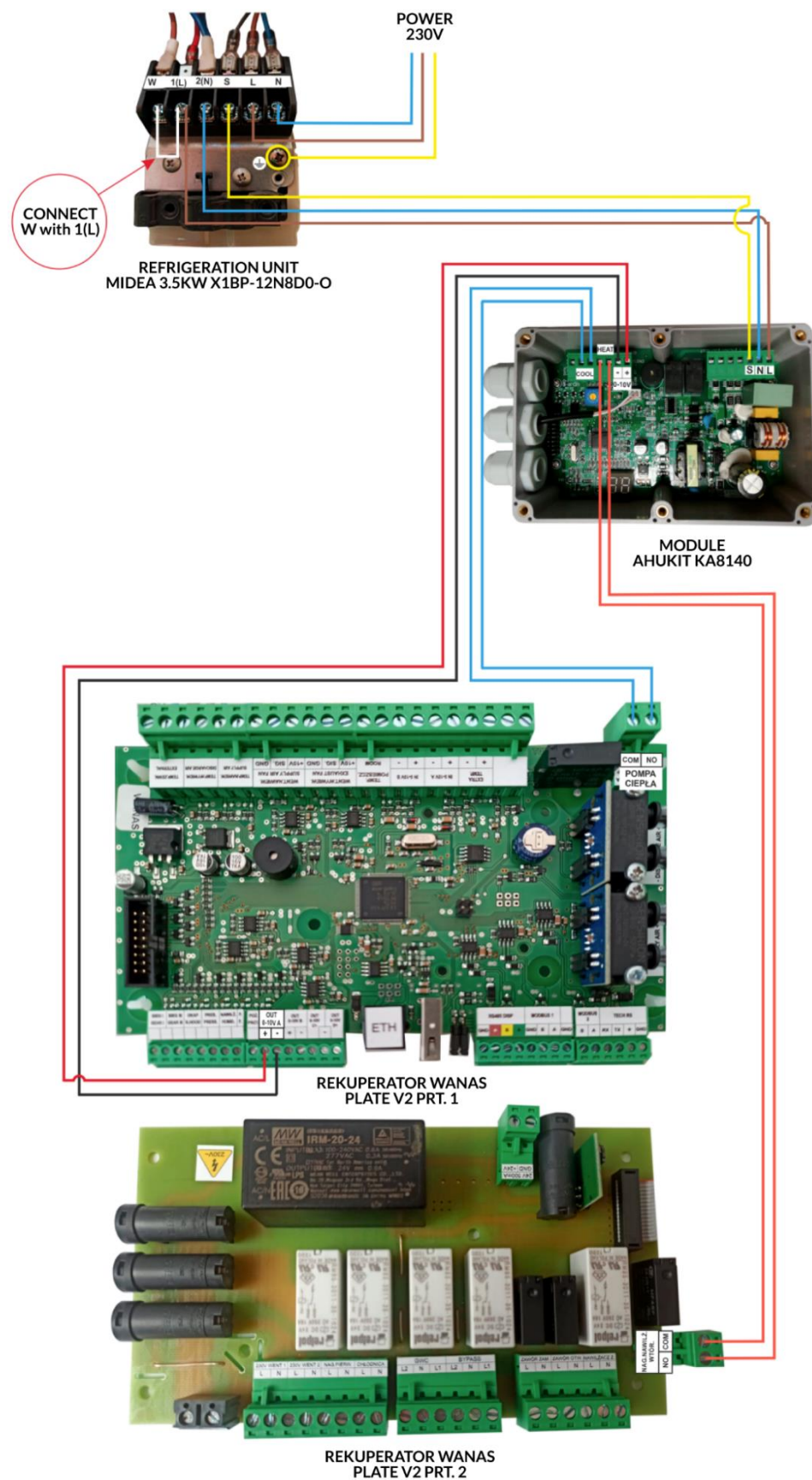
6.10. Connecting of freon exchanger.



Do not connect the controller of the freon heater/cooler to the "Cooler" output of the recuperator controller. This is a 230V power supply output and may permanently damage the freon heater/cooler controller.

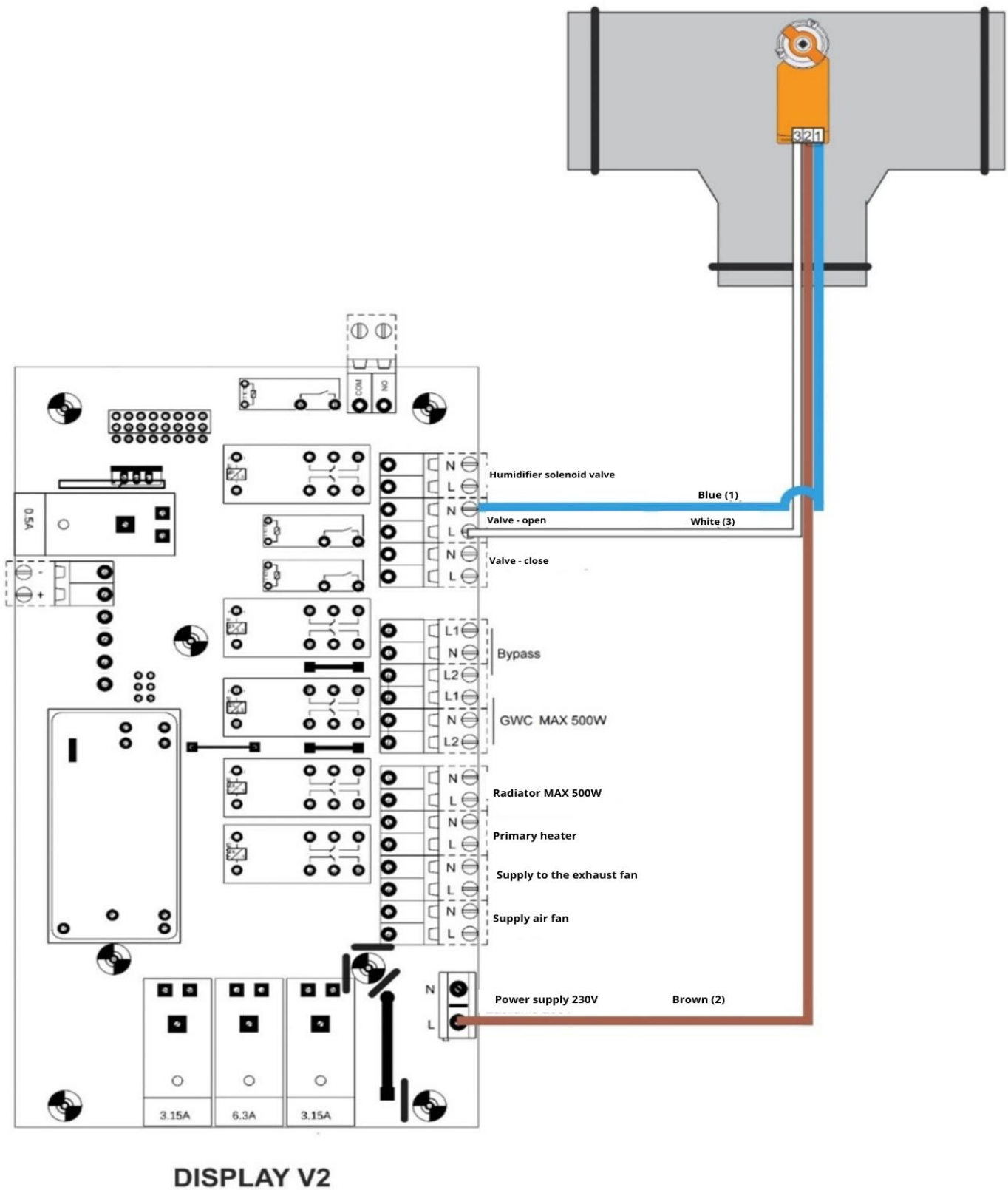
WARNING: After connecting the system, perform a nitrogen leak test, followed by a vacuum leak test at 0.5 bar. Fill the system with R32 refrigerant. If the distance from the outdoor unit exceeds 5 meters, add 12g of refrigerant for each additional meter of installation. Do not add refrigerant for distances below 5 meters.

6.11. Connection of the freon exchanger with the external Midea unit.



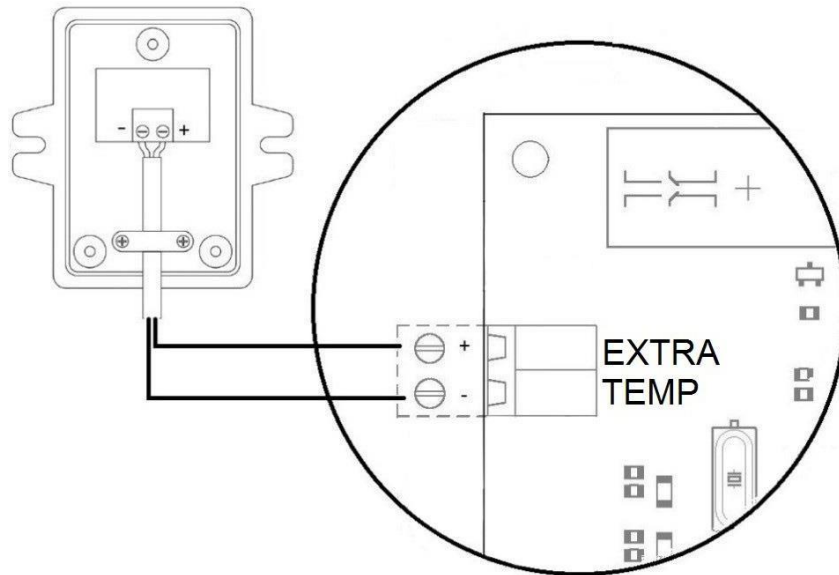
6.12. Diagram for connecting the zone damper to the ventilation unit.

T-PIECE WITH ACTUATOR

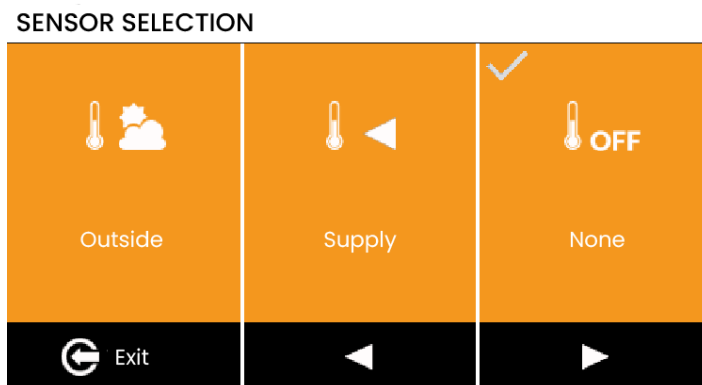


6.13. Wiring Diagram for External Temperature Sensor

The external temperature sensor is connected to the C_6 EXTRA TEMP connector.



In the service menu, you need to activate the additional EXTRA TEMP sensor and select the connected external sensor.



7. Modbus RTU

The Wanas ST-340 V2 recuperator controller features two built-in RS485 slave communication ports, allowing control of the ventilation unit using the Modbus RTU protocol in half-duplex mode. It is recommended to use the MODBUS 2 connector for control.

Control of the unit and monitoring of current parameters can be performed by reading and writing a single register or a group of registers.

Default data transmission parameters:

Speed: 19200 b/s

Parity Bit: Even

Data Bits: 8

Stop Bit: 1

Controller Address: 1

Commands:

0x03 – Read 16-bit registers;

0x06 – Write a 16-bit register;

0x10 – Write a group of 16-bit registers;

7.1. List of Modbus RTU Registers

Function number	Register address	Register type	Variable name	Description	Variable type	Min value	Max value	Default value	Notes
1	0	R	Supply airflow	Current value m ³ /h	Decimal	0	1600		0 - no XF function, increment of 1 m ³ /h
2	1	R	Exhaust airflow		Decimal	0	1600	-	
3	2	R	Supply fan speed	Current speed	Decimal	0	3	1	0 - standby, 1 - empty house, 2 - operation, 3 - ventilation
4	3	R	Exhaust fan speed		Decimal	0	3	1	
5	4	R	Outside temp.	Current temp.	Decimal	0	65535		0 => 0°C 65535 => -0.1°C The conversion method is described alongside. 63066 - sensor error Step size of 0.1°C
6	5	R	Discharge temp.		Decimal	0	65535	-	
7	6	R	Supply temp.		Decimal	0	65535	-	
8	7	R	Room temp.		Decimal	0	65535		
9	8	R/W	Day of the week	Weekly schedule	Decimal	0	6	0	Selection of the day in the schedule for which the end of the zone, zone operation, and zone temperature will be set; 0 - Sunday, 1 - Monday, 2 - Tuesday, 3 - Wednesday, 4 - Thursday, 5 - Friday, 6 - Saturday
10	9		Reserved	Reserved	-				Reserved
11	10	R/W	End of zone 1 (start of zone 2)	Zone from weekly schedule	Decimal	15	1380	300	Value expressed in minutes. Increment of 15 minutes.
12	11	R/W	End of zone 2 (start of zone 3)		Decimal	30	1395	600	
13	12	R/W	End of zone 3 (start of zone 4)		Decimal	45	1410	900	
14	13	R/W	End of zone 4 (start of zone 5)		Decimal	60	1425	1200	
15	14	R/W	Zone operation 1	Zone from weekly schedule	Decimal	0	3	1	0 - standby, 1 - empty house, 2 - working, 3 - ventilation.
16	15	R/W	Zone operation 2		Decimal	0	3	1	

17	16	R/W	Zone operation 3		Decimal	0	3	1	
18	17	R/W	Zone operation 4		Decimal	0	3	1	
19	18	R/W	Zone operation 5		Decimal	0	3	1	
20	19	R/W	Zone temp. 1	Zone from weekly schedule	Decimal	10	30	20	Step of 1°C
21	20	R/W	Zone temp. 2		Decimal	10	30	20	
22	21	R/W	Zone temp. 3		Decimal	10	30	20	
23	22	R/W	Zone temp. 4		Decimal	10	30	20	
24	23	R/W	Zone temp. 5		Decimal	10	30	20	
25	24	R/W	Device address	Address Modbus	Decimal	1	254	1	
26	25	R/W	Baud Rate	Communication speed.	Decimal	0	6	3	0:2400; 1:4800; 2:9600; 3:19200; 4:38400; 5:57600; 6:115200
27	26	R/W	Communication parameters		Decimal	0	5	1	0:N-8-1; 1:E-8-1; 2:O-8-1; 3:N-8-2; 4:E-8-2; 5:O-8-2 Parity bit: N - none; E - even; O - odd. Stop bit: 1 or 2. 8 data bits.
28	27		Reserved	Reserved	-	-		-	Reserved
29	28		Reserved	Reserved	-	-			Reserved
30	29	R	EXTRA TEMP	Current temp.	Decimal	0	65535		Similary to numbers 5-8
31	30	R	GHE	Current operating status of the device.	Decimal	0	1	-	0 - inactive, 1 - active
32	31	R	Bypass		Decimal	0	1		
33	32	R	Humifider		Decimal	0	1	-	
34	33	R	Heater		Decimal	0	1	-	
35	34	R	Cooler		Decimal	0	1	-	
36	35	R	Holiday		Decimal	0	1	-	
37	36	R	Filter exchange	Filter consumption.	Decimal	0	252	-	0: Replacement needed; 1-252: number of days until replacement
38	37	R	Errors		binary		-	-	Error table.

39	38	R/W	GHE	Activation! Deactivation.	Decimal	0	1	0	0 - inactive, 1 - active
40	39	R/W	Bypass	(Main menu)	Decimal	0	1	0	
41	40	R/W	Humifier		Decimal	0	1	0	
42	41	R/W	Heater		Decimal	0	60	0	Activation for a maximum of 60 days.
43	42	R/W R/W R/W	Cooler		Decimal	0	60	0	Activation for a maximum of 60 days.
44	43		Holiday		Decimal	0	30	0	Activation for a maximum 30 days
45	44		Fireplace function	Activation / Deactivation.	Decimal	0	180	0	Activation for max. 180s.
46	45	R/W	Party function		Decimal	0	720	0	Activation for max720 min(12h)
47	46	R	Gear 1 input.	Information about the digital input.	Decimal	0	1	-	0 - inactive, 1 - active
48	47	R	Gear 3 input.		Decimal	0	1	-	
49	48	R	Canopy input		Decimal	0	1	-	
50	49	R	Fire safety input.		Decimal	0	1	-I	
51	50	R/W	Data		Decimal			-	Date Table
52	51	R/W	Hour		Decimal			-	Table hour
53	52	R/W	Power/Flow gear 1.	Set value	Decimal	1 / 10	100 / 1600	15 / 100	Power / Flow of Stage 1
54	53	R/W	Power/Flow gear 2	Set value	Decimal	1 / 10	100 / 1600	40 / 200	Power / Flow of Stage 2
55	54	R/W	Power/Flow gear 3	Set value	Decimal	1 / 10	100 / 1600	100 / 1600	Power / Flow of Stage 3
56	55	R	Humidity sensor	Humidity sensor room.	Decimal	0	100	-	
57	56	R	Humidity sensor	Humidity sensor bathroom 1	Decimal	0	100	-	
58	57	R	Humidity sensor	Humidity sensor bathroom 2	Decimal	0	100	-	
59	58	R	Sensor Co2	Co2 PPM	Decimal	0	9999	-	Day zone
60	59	R	Sensor Co2	Co2 PPM	Decimal	0	9999	-	Night zone
61	60	R	Sensor Co2	Co2 Humidity	Decimal	0	100	-	Day zone
62	61	R	Sensor Co2	Co2 Humidity	Decimal	0	100	-	Night zone
63	62	R/W	Zone damper	Activation/Deactivation	Decimal	0	1	0	0 - inactive, 1 - active

64	63	R	Anti-freeze	Anti-freezing (Read).	Decimal	0	1	-	0 - inactive, 1 - active
65	64	R	Primary heater.	Primary heater (Read).	Decimal	0	1	-	0 - inactive, 1 - active
66	65	R	Humidity sensor	Room temperature sensor (Read).	Decimal	0	65535	-	0=> 0°C 65535=> -0,1°C
67	66	R	Humidity sensor	Bathroom 1 temperature sensor (Read)	Decimal	0	65535	-	63066 — sensor error Step size: 0.1°C
68	67	R	Humidity sensor	Bathroom 2 temperature sensor (Read)	Decimal	0	65535	-	
69	68	R	Sensor Co2	Co2 Day Zone temperature (Read).	Decimal	0	65535	-	
70	69	R	Sensor Co2	CO2 temperature Night Zone (Read)	Decimal	0	65535	-	
71	70	R	Zone damper	Current operating status of the device.	Decimal	0	1	0	

Data															
Day	Day	Day	Day	Day	Month	Month	Month	Month	Year	Year	Year	Year	Year	Year	Year
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour															
Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Errors															
-	-	-	-	-	Supply pressure sensor	Exhaust pressure sensor	EXTRA TEMP supply	EXTRA TEMP external	Humidifier temp. sensor	Exhaust temp. sensor	Temp. sensor for supply air	Exhaust temp sensor	Inlet Temp. Sensor	Supply Fan	Exhaust Fan
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

7.2. Setting the date and time.

Data

Date															
Day	Day	Day	Day	Day	Month	Month	Month	Month	Year	Year	Year	Year	Year	Year	Year
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Value = Year - 2000 e.g., 23 = 2023

Bits 1 to 7 represent the year. The year is recorded by subtracting 2000.

To write the data, bit shifting should be used. The day is shifted by 11 bits, the month by 7 bits, and the year is not shifted.

Example of date encoding: 31.01.2022

Date															
Day	Day	Day	Day	Day	Month	Month	Month	Month	Year	Year	Year	Year	Year	Year	Year
1	1	1	1	1	0	0	0	1	0	0	1	0	1	1	0

Time

Time															
Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

To write the data, bit shifting should be used.

Example of time encoding: 01:30.

Time															
Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Hour	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0

To set the date and time, a converter is necessary, for example: <https://www.simonv.fr/TypesConvert/?integers>.
 Setting the time on the controller using Qmodmaster:

1. In the converter's Auto mode, enter the hour or minutes (separately). Combine the resulting 8 bits of the hour and minutes.

8-bits types

16-bits types

Enter the value in the converter in Binary mode. The obtained value should be entered into the Modbus communication program.

Input:

0000110000110111

☐ Auto ☐ Decimal ☐ Hexadecimal ☒ Binary

☐ Hexadecimal is little-endian (right-to-left)

Format help

Decimal value: 3.127e+3
(interpreted as unsigned integer)

8-bits types

SINT8 (signed 8-bits integer, signed char)

55	0x37
0 0 1 1 0 1 1 1	

Conversion in SINT8 type of the input value results in overflow. The displayed value is the result of the overflow. Note that overflow of signed 8-bits integer is undefined and therefore the result given here is for information only.

UINT8 (unsigned 8-bits integer, unsigned char)

55	0x37
0 0 1 1 0 1 1 1	

Conversion in UINT8 type of the input value results in overflow. The displayed value is the result of the overflow.

16-bits types

SINT16 (signed 16-bits integer, signed short)

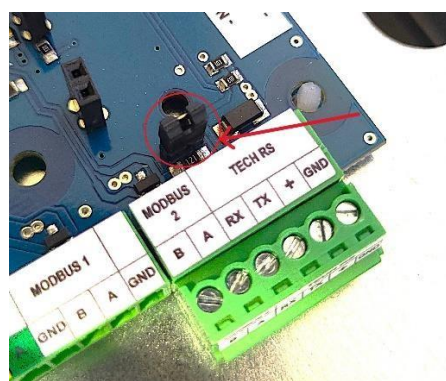
3127	0x0C37
0 0 0 0 1 1 0 0 0 0 1 1 0 1 1 1	

UINT16 (unsigned 16-bits integer, unsigned short)

3127	0x0C37
0 0 0 0 1 1 0 0 0 0 1 1 0 1 1 1	

Above is the code for setting the time to 12:55. Similarly, the date should be set using: year (7 bits), month (4 bits), and day (5 bits).

NOTE: In case of a communication failure via the Modbus RTU protocol, the jumper must be removed.



8. Maintenance

8.1. Inspection and maintenance

Maintenance work should be performed with the unit disconnected from the power supply. Maintenance of the unit involves replacing filters, humidifier mats, and checking the condition of the external intake and humidifier spray nozzles. It is recommended to replace the filters every 180 days. Additionally, they should be vacuumed every 90 days. Excessively dirty filters can cause the ventilation unit to operate more loudly and less efficiently. Periodically, twice a year, the dirt on the external intake of the system should be checked. In the summer season, the water level in the traps should also be checked.

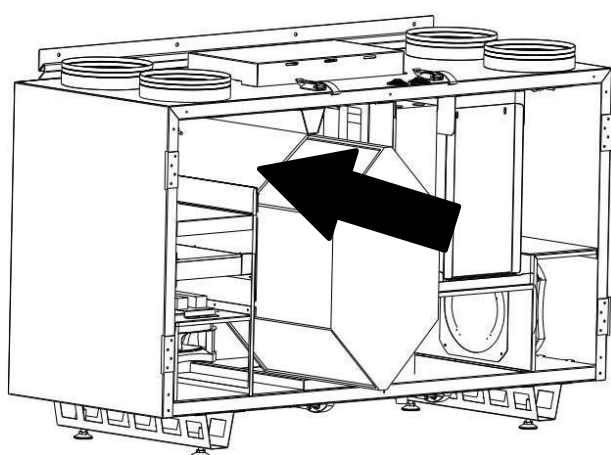


8.2. Dissassembly of the exchanger.

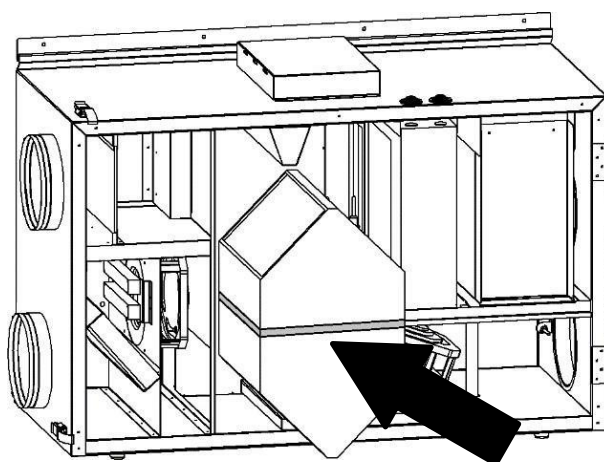
Dismantling of the heat exchanger should be carried out with the ventilation unit disconnected from the 230 V power supply. Since the exchanger is precisely fitted, the installation and dismantling of the exchanger should be performed by two people.

COMBO H: To dismantle the exchanger, grasp its strap at the indicated location in the drawing and pull towards yourself while simultaneously securing the heat recovery unit to prevent it from moving.

COMBO V: To dismantle the exchanger, grasp its rear wall at the indicated location in the drawing and pull towards yourself while simultaneously securing the heat recovery unit to prevent it from moving. For **COMBO 1330**, dismantling is performed in the same manner as for **COMBO H 430/630**.



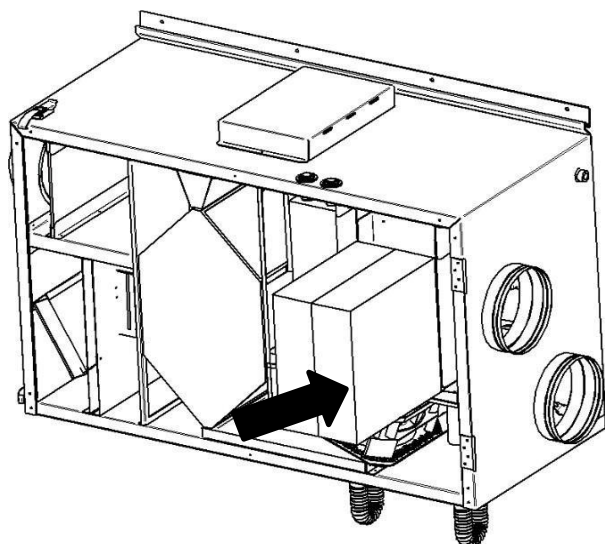
COMBO H 430/630



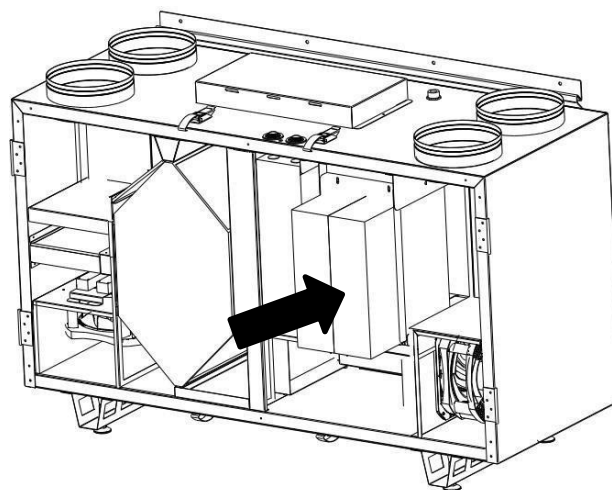
COMBO V 430/630

8.3. Dissassembly of the humidifier mat.

In the humidifier, the evaporative pads should be replaced at least once a year. During the summer, the condensate drain siphon should be topped up with water as needed. All maintenance work must be performed with the device disconnected from the 230V power supply. The pads must be replaced without fail if any parts are separating from each other. When replacing the pads, they should be positioned according to the direction shown in the diagram below. To remove the pads, open the door, then detach the pad pressure fixture. Pull out the humidifier pads. Reassembly should be done in the reverse order. For COMBO 1330, the disassembly is analogous to that of COMBO H 430/630.



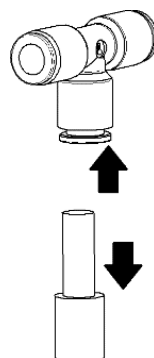
COMBO H 430/630



COMBO V 430/630

8.4. Dissassembly of Spray Nozzles

In the case of excessively hard water, the spray nozzle may become blocked. A clogged nozzle should be disassembled, taken apart, and cleaned with a descaling agent or replaced with a new one. To disassemble the spray nozzles, remove the humidifier mats according to section 6.1. Unscrew the screws holding the spray nozzle cover and remove the cover. To remove the nozzle, press the locking ring while pulling the nozzle in the opposite direction. Reassemble the nozzles in the reverse order.



9. Warranty and Service

9.1. Service

All malfunctions should be reported via email to WANAS at serwis@wanas.pl, with a detailed description of the problem in the "Service Request" form available on the website www.wanas.pl in the "Contact" section. Malfunctions caused by the manufacturer will be repaired free of charge within 14 days from the date of the report. The unlock code for the controller can be obtained from the device seller. Wszystkie awarie należy zgłaszać e-mailem do firmy WANAS serwis@wanas.pl z dokładnym opisem problemu w arkuszu „[Zgłoszenia serwisowego](#)” dostępnej na stronie www.wanas.pl w zakładce „Kontakt”. Awarie powstałe z winy producenta zostaną bezpłatnie naprawione w ciągu 14 dni od daty zgłoszenia. Kod odbezpieczający działanie sterownika jest do uzyskania od sprzedawcy urządzenia.

9.2. Warranty

- The manufacturer provides a 24-month warranty for the proper operation of the device.
- The warranty period begins from the date of purchase by the user.
- The warranty is granted and valid upon presentation of the purchase document of the unit and a completed warranty card.
- The warranty does not cover defects arising from improper use, maintenance, or installation of the device.
- The ventilation unit should be continuously powered from the moment of the first start-up, except during service activities. The manufacturer is not responsible for malfunctions resulting from power outages.
- The cost of unjustified service calls is covered by the person making the complaint.
- The company provides service support throughout Poland.

Type of the ventilation unit		
Fabric number		
Date of purchase	Date and signature of seller	
Date of installation	Date and signature of installer	
Result of performance measurements of the unit on speed II.	Supply [m ³ /h]	Exhaust [m ³ /h]

<p>I declare that I have read the user manual for the ventilation unit.</p>	<p>Date and signature of user</p>
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SERWIS **WANAS:**

E-MAIL: **serwis@wanas.pl**

TEL: **+48 535 958 222**