

Awenta PRO

Operation and Installation Manual



Air handling unit with heat recovery ZEPHYR 405 / 605

Air handling unit equipped with Aero 4 ventilation controller with NANO COLOR 8 control panel

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OPERATOR'S MANUAL**1. 1. IMPORTANT INFORMATION**

Please read the Operating Manual carefully before assembling it or any other activity related to work with the device! AWENTA shall not be liable for any damage resulting from incorrect operation, non-intended use or unauthorised repairs or modifications of the product.

This installation manual is an essential part of the product and contains important technical information and instructions regarding the occupational safety. Carefully read the operation and installation manual and keep it available in a readily accessible place for future reference. The manual is also available at www.awentapro.pl

Safety precautions:

- This product can be used by children at least 8 years old, by people with impaired physical and/or mental abilities, and by people without any experience in or understanding of the operation of the product, if supervised or instructed by a competent adult in the safe use of the product so that they understand the relevant operating risks. This product is not a toy and children should not play with it. Children should not be allowed to clean or maintain the product without supervision of an adult.
- The unit is intended for a fixed indoor electrical installation provided with means or devices having contact breaks at all poles, ensuring complete isolation under category III overvoltage conditions in accordance with the regulations for such installation. The device should be connected directly to an earthed 230 VAC mains socket.
- When installing and using the unit, it is mandatory to observe the provisions specified in this manual and all the applicable local and national building, electrical and technical standards.
- It is mandatory to read all warnings in this manual and become familiar with the warning signs located on the air handling unit, as they contain information for your safety.
- Failure to follow the instructions and warnings contained in this manual may result in personal injury and damage to the unit.
- If the unit is handed over/sold etc. to another user, this manual must also be handed over.
- Assembly and repairs of the unit may only be carried out after it has been effectively disconnected from the power network.
- It is forbidden to operate the unit beyond the temperature range specified in the user manual, as well as in aggressive and potentially explosive environments.
- Do not place heating or other devices near the power supply cable of the unit.
- When connecting the unit to the power grid, it is absolutely forbidden to use the damaged equipment, if the power supply cable is found to be damaged.
- The OHS rules must be observed, when using electrical equipment during the assembly of the unit.
- Exercise care, when unpacking/unloading of the unit.
- Do not bend the power cord, avoid damaging it.
- The unit must be used only for its intended purpose.

1.2. INTENDED USE

The unit is equipped with a cross-flow plate heat exchanger, electric heater (optional) and is designed to save thermal energy by its recuperation, being one of the elements used in energy-saving technology systems. The unit is considered a supplementary device and must not be used as a stand-alone, independent heating source.

The unit is intended for securing continuous air exchange by means of forced ventilation in houses, offices, hotels, cafés and other residential and public premises, as well as for recuperation of heat energy from discharged air to heat up clean air coming from the outside. The unit is not intended for industrial use, nor for use as an air treatment in swimming pools or saunas.

Air flowing through the unit must not contain volatile flammable or explosive substances, chemically active vapours, dust with large particles, soot, fats or media conducive to the formation of harmful substances (toxic substances, dust, pathogenic microorganisms), sticky substances and fibrous materials.

The unit is designed for installation in a closed building, in the ambient air temperature from 0°C to +40°C, the relative humidity of up to 90%.

1.3. TRANSPORT AND STORAGE

Permissible storage and transport temperatures range from -30 to +60°C.

Transport and unpack the unit with care. Dispose of the packaging in an environmentally friendly manner.

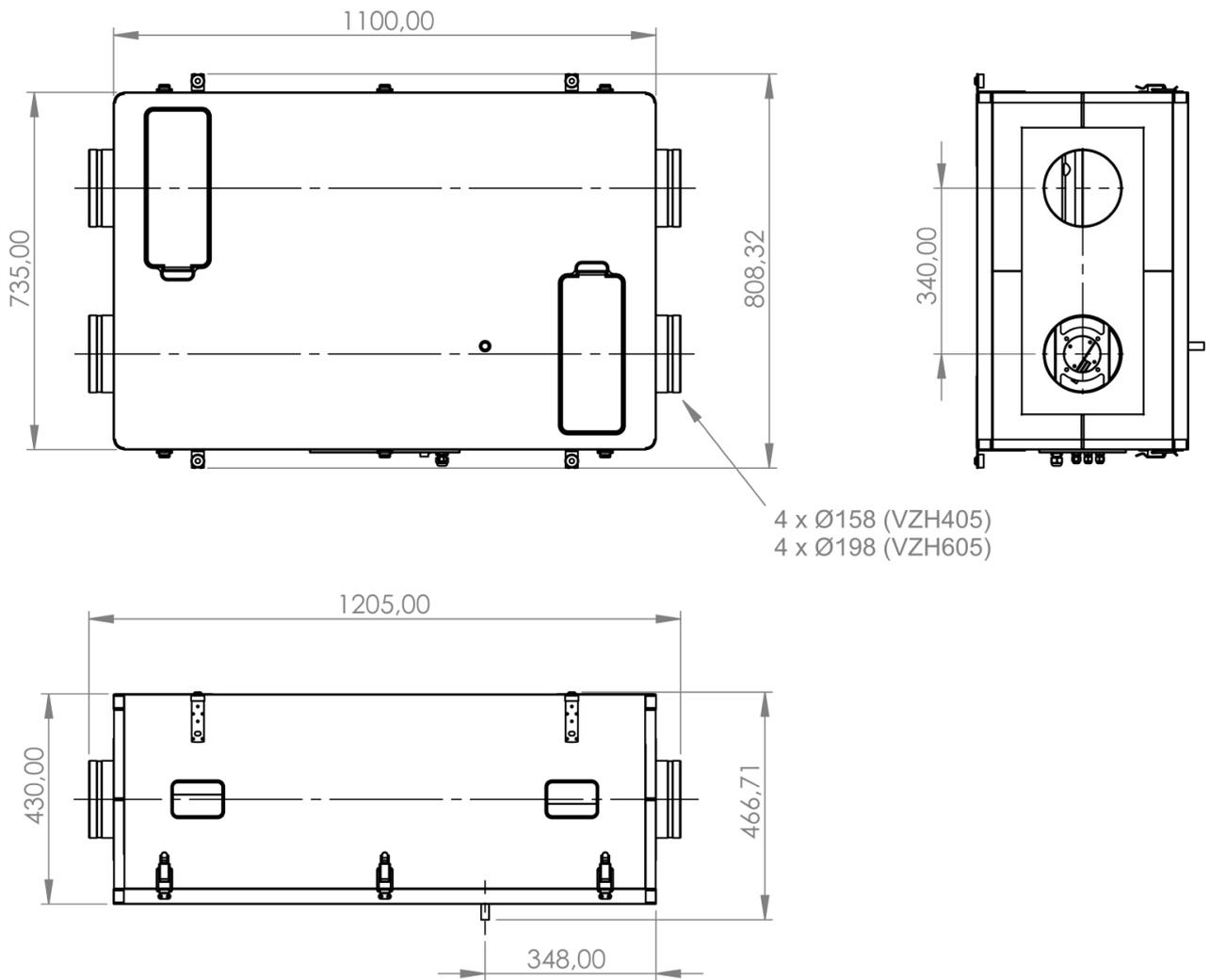
1.4. SAFETY MEASURES REGARDING OPERATING OF THE UNIT

- Always and absolutely observe the safety regulations, warnings, comments, and cautions as recommended herein. Failure to observe the safety regulations, warnings, and cautions and instructions in this document may result in personal injury or damage.
- Do not touch the control panel or the electric feeder box with wet hands.
- It is forbidden to operate the unit with wet hands.
- The use of a high-pressure washer or water jet to clean the control panel is prohibited.
- Avoid any contact between the electric parts of the unit with water.
- It is not allowed to block the inlets and outlets of air conduits, when the unit is in operation.
- Maintenance of the unit may only be carried out, after it has been effectively disconnected from the power network.
- Children must not be allowed to use the unit without adult supervision.
- Avoid damage to the power supply cable, during use.
- It is forbidden to place any objects on the power supply cord, which could cause abrasion, cut or other damage to the cord.
- It is forbidden to store explosive or flammable substances in the vicinity of the unit.
- It is forbidden to open the unit, when it is in operation.
- If there are strange, unusual sounds, odour and smoke, immediately turn the control panel off and contact the service centre.
- The installation of the unit must always be carried out in compliance with the general and local construction, safety and installation regulations issued by the relevant official institutions and the energy and water supply companies.
- The unit should be connected to the ventilation system before commissioning. Ventilation ducts provide protection from access to rotating fan blades. The ducts shall be secured against slipping off its connections in a manner requiring the use of tools.

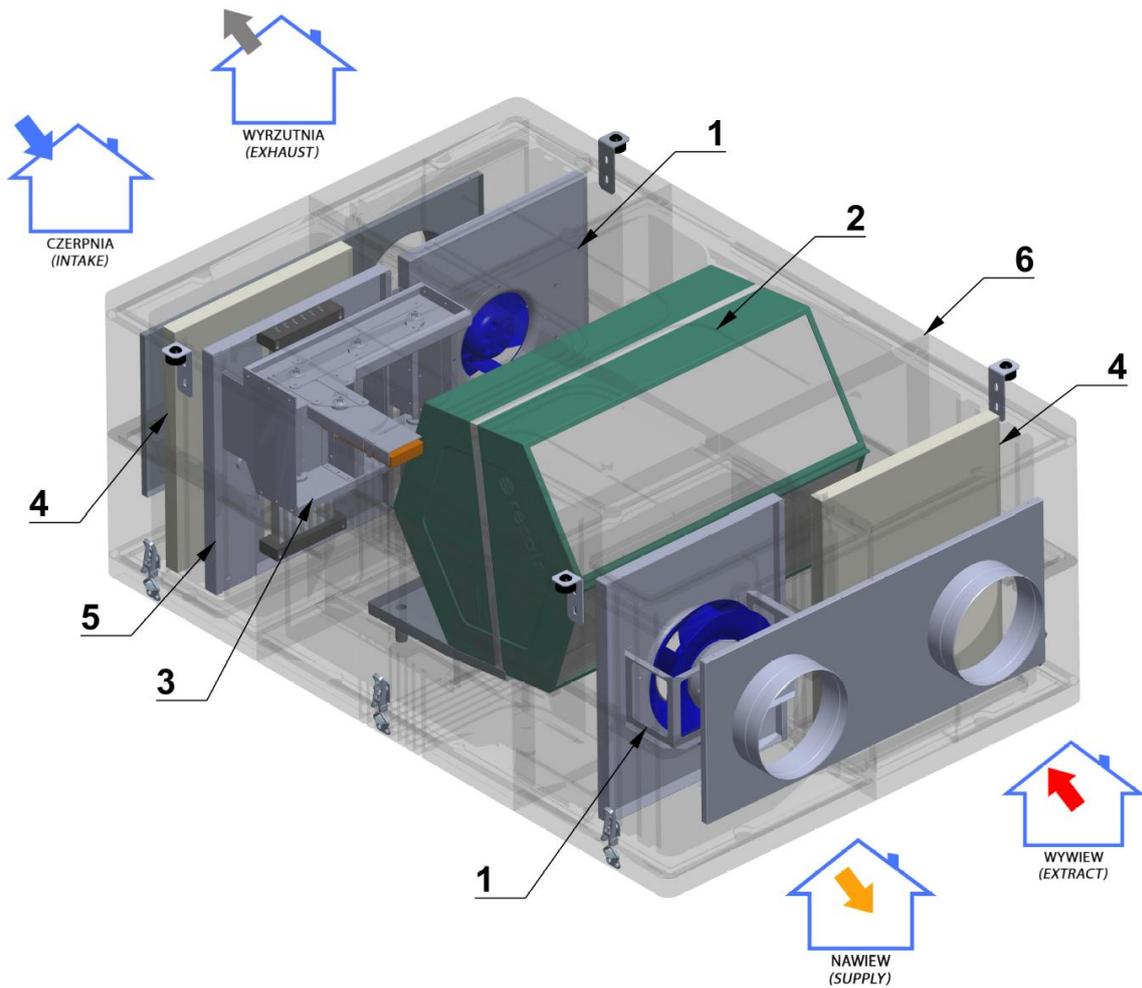
1.5. TECHNICAL SPECIFICATION

Specifications:	ZEPHYR 405	ZEPHYR 605
Supply voltage	230 V AC / 50 Hz	230 V AC / 50 Hz
Maximum power consumption (without preheat coil)	330 W	405 W
Preheat coil power (option)	2000 W	2000 W
Electrical protection class	I	I
IP protection class	IP24	IP24
Capacity (at 100 Pa)	417 m ³ /h	616 m ³ /h
Max. motor speed	4000 rpm	2400 rpm
Noise level	51.8 dB(A)	40.1 dB(A)
Type of heat exchanger	Cross-flow plate heat exchanger	Cross-flow plate heat exchanger
Max. heat recovery efficiency	up to 95%	up to 95%
Heat exchanger material	Polystyrene	Polystyrene
Housing material	EPP + powder coated steel	EPP + powder coated steel
Filter – intake vent	M5 ISO ePM10 (optional F7 ISO ePM1)	M5 ISO ePM10 (optional F7 ISO ePM1)
Filter – exhaust	M5 ISO ePM10	M5 ISO ePM10
Pre-filter intake/exhaust	VFWZH (optional)	VFWZH (optional)
Diameter of air connections	158 mm	198 mm
Diameter of condensate drain connector	16 mm	16 mm
Mounting position	Horizontal – under ceiling	Horizontal – under ceiling
Weight	35 kg	35 kg
Controller type	AERO 4	AERO 4
Dimensions Dimensions [width x length x height]	808 mm x 1205 mm x 430 mm	808 mm x 1205 mm x 430 mm
Bypass	Automatic (100%)	Automatic (100%)
Fans	2x radial fan with EC motor	2x radial fan with EC motor
Internet module	Optional	Optional
Air quality sensor	VACS-1 (optional)	VACS-1 (optional)
CO ₂ concentration and humidity sensor	VSHC (optional)	VSHC (optional)
Humidity sensor	VSHW (optional)	VSHW (optional)

1.6. TECHNICAL DRAWING



1.7. BASIC COMPONENTS OF THE UNIT/LAYOUT OF CONNECTIONS



1. Fans
2. Heat exchanger
3. By-pass dampers
4. Air filters
5. Preheater (optional)
6. EPP housing

Connection ports designation:



INTAKE – outdoor air intake duct



EXHAUST – used air exhaust duct



EXTRACT – duct removing used air from rooms



SUPPLY – duct supplying air to rooms

1.8. OPERATION PRINCIPLE

Fresh air is drawn in with the air intake located outside the building. Then, using ventilation ducts, the air is transported to the air handling unit. After filtering, it flows to the heat exchanger where heat energy exchange from the exhaust stream takes place. The air is heated in winter and cooled in the summer. Next, the supplied air flows to the so-called "clean" areas such as a living room or bedroom.

Used, polluted air is extracted from the so-called "dirty" areas such as a toilet, bathroom, kitchen or laundry by means of exhaust grilles or diffusers, and then directed to the air handling unit by means of exhaust ducts. After filtering, it goes to the heat exchanger, where the heat or cold is "recovered" from the used air. The air is then moved to an outlet located outside the building.

1.9. ITEMS OF EQUIPMENT

The standard accessories of the unit include the following:

- Cross-flow plate heat exchanger.
- M5 class supply and exhaust air filters.
- EC fans: centrifugal fans (supply and exhaust) with maintenance-free electric motors with electronic commutation and a built-in thermal protection.
- NANO COLOR remote control panel which is connected, with a communication cable, to the control system, located inside the electric compartment of the air handling unit.

1.10. INSTALLING AND PREPARING THE UNIT FOR OPERATION

Installation of the air handling unit

- The panel should be attached to the ceiling in a horizontal position. Installation should be done with original brackets equipped with anti-vibration dampers.
- Use anchor bolts suitable for the surface type for installation. Check whether the mounting structure can support the weight of the unit. Otherwise, the location intended for installation must be reinforced with additional beams. The unit must be installed on a rigid and stable surface.
- The unit should be installed in such a way that it will be possible to freely open the unit for the replacement of filters, cleaning the exchanger and perform fan maintenance.
- Make sure the power supply system is suitable for the maximum power of the appliance. The permissible intake air temperature is between -20 and +50°C. Make sure the mounting location is free from frost.
- The air handling unit should be installed in rooms where the temperature is min. 0°C.

Minimum lengths of ventilation ducts

During installation, it is necessary to provide minimum access to the unit for maintenance or repair purposes.

To ensure the best efficiency of the air handling unit and to reduce aerodynamic losses due to turbulence, it is recommended to install a straight section of air duct at the entry and exit of the unit.

The minimum recommended lengths of such straight sections:

- 25 cm of an air conduit at the inlet side;
- 60 cm at the outlet side.

In case of lack or short air ducts on one or several ports of the air handling unit it is necessary to protect the unit's internal parts against entry of foreign objects, for example, install a protective grid or other device with mesh size not larger than 12.5 mm, to prevent free access to the fans.

If the source of noise is where the spiral air duct is connected, replace the spiral air duct with a flexible duct to avoid resonance. Flexible inserts can also be used to prevent resonating.

Draining of condensate

The condensate drip tray provided with a pipe to drain the condensate outside the unit.

The condensate drain pipe should be connected to the building's drainage system via a trap. The pipes have to be arranged with a slope of approximately 2%.

NOTE: Fill the drain system with water, before connecting the unit to the power network! The drain trap must be filled with water during operation at all times.

Make sure that water flows into the drain, otherwise condensate may accumulate inside the unit when the recuperator operates, which in turn may damage the unit and cause water leakage into the room.

The condensate drain system must be used in all rooms, in which air temperature is above 0°C! If the room temperature is below 0°C the condensate drainage system has to be thermally insulated and equipped with a heating device to prevent it from freezing.

Connecting to the mains power supply

The unit must be connected to a 230 V/50 Hz single-phase AC power supply network, using the original power cord provided with the unit. Before connecting to the mains, check the cable for any mechanical damage caused by crushing, cutting etc., which may result in an electric shock.

The unit must be connected to the power network, in compliance with the regulations and standards in force.



NOTE! Before performing any work on the control panel, it is absolutely necessary to disconnect it from the power supply. The control panel should be connected to a properly installed socket equipped with an earthing contact. The panel ratings are given on the manufacturer's factory label. Any changes to the internal connection are prohibited and will void the warranty.

Installation of air ducts

- The ventilation ducts should be secured against slipping from the connection stubs with cable ties.
- The distance between the air intake and the outlet should be at least 1.5 m.
- The air intake should be located on the shadiest side as far as possible from sources of stale air (street, chimney, etc.)
- Install the exhaust air duct with a slope to the unit.
- All ducts should be insulated to avoid inside condensation and excessive moisture accumulation.
- When installing the ducts, minimise the number of sharp bends, etc., to reduce resistance of the ducts.
- The ducting should be airtight. Use fittings with gaskets or seal the joints with e.g. adhesive aluminium tape.
- To reduce the transmission of vibrations and to make the unit run more quietly, connect it to the system with flexible dampers on the intake and exhaust sides.
- The installation should follow a design prepared by an authorised designer.
- Make flow adjustments on the diffusers, based on measurements taken with an anemometer according to the air balance obtained.
- Ceiling diffusers should be installed min. 30 cm from the walls.
- To ensure adequate flow between rooms:
 - The gap under the internal door should have a minimum surface area of 7600 mm²
 - At least 10 mm gap under a standard internal door with a width of 760 mm
 - **Do not cover the openings as this will disturb air circulation**
- Recommended duct thickness depending on ambient temperature:

Air duct type:	Ventilation duct ambient temperature		
	from -20°C to 0°C	from 1°C to 14°C	from +15°C to 20°C
	Insulation thickness for a given temperature range		
Supply	20 mm + (200 mm)*	50 mm	20 mm
Extract	20 mm + (200 mm)*	50 mm	20 mm
Intake	50 mm	50 mm	50 mm
Exhaust	20 mm + (200 mm)*	20 mm	20 mm

*20 mm mineral wool insulation covered with aluminium foil on one side + a minimum of 200 mm of mineral wool as a covering or casing for pipes laid in the attic without thermal insulation.

1.11. MAINTENANCE

It is absolutely necessary to disconnect the control panel from power supply before performing any maintenance operations.

Filter replacement/cleaning

Fouled filters increase air flow resistance which reduces the amount of air supplied to the rooms, and increases power consumption by the fans.

The filters should be cleaned as they become dirty, but at least 3-4 times per year. It is permitted to clean the filters with a vacuum cleaner. After cleaning twice, the filters should be replaced with new ones.

Fan maintenance (once a year)

Even with regular maintenance of the filters and recuperator, dust deposits may accumulate in the fans, which reduces the efficiency of the air handling unit and the amount of air supplied to the rooms.

Use a soft cloth or brush to clean the fans. In order to avoid possible damage to the rotor, do not use water, chemically aggressive solvents, sharp objects etc.

Heat exchanger maintenance (once a year)

Even with regular filter maintenance, dust deposits can form in the unit. In order to maintain high heat transfer efficiency, the heat exchanger should be cleaned regularly. Remove the heat exchanger from the air handling unit and wash it with warm water solution of neutral detergent, then reinstall the dried heat exchanger.

Maintenance of the condensate drain system (once a year)

The condensate drain system (drain pipe) may be contaminated by particles from the evacuated air. Check the function of the drain pipe, by filling the drain tank with water and, if necessary, removing dirt from the drain trap and drain pipe.

Maintenance of air intake and exhaust ducts (twice a year)

Leaves and other impurities can clog ventilation grates and reduce both the efficiency of the unit and air flow. Check the ventilation grate twice a year and clean it, if necessary.

Maintenance of the air ducting (every 5 years)

Even if all the aforementioned maintenance activities of the air handling unit are performed properly, dust deposits may build up inside the air ducts, which reduces the air handling unit's efficiency. Air ducts are maintained by periodic cleaning or changing them.

1.12. PREHEATER

The unit can be equipped with a preheater which is one of the means of preventing freezing of the heat exchanger when temperatures outside are negative. Other defrosting methods include temporary stopping of the supply fan or opening the by-pass damper.

Preheater installation procedure:

- *Unfasten the clamps and then remove the unit main hatch;*
- *Slide the preheater into the guide closest to the bypass hatch;*
- *Make the electrical connection at the preheater junction box;*
- *Unscrew the electronics cover screws;*
- *Remove the electronics cover;*
- *Attach the heater solid state relay in the electrical compartment;*
- *Attach the heater relay in the electrical compartment;*
- *Make the electrical connections in accordance with the diagram shown in the CONNECTIONS DIAGRAMS section*
- *Configure the service settings*
 - *preheater (set to "PWM operation")*
 - *defrosting temperature (default 5°C)*
 - *defrosting method (set to HEATER)*
 - *defrosting control range (default 1.5°C)*

NOTE: A missing or damaged ejector sensor shuts down the heater.

1.13. WASTE MANAGEMENT NOTICE

Do not dispose of waste electrical equipment with household waste.



The crossed-out wheeled bin symbol on this product indicates that it is waste electrical and electronic equipment (WEEE) at the end of its operating life and shall not be disposed of with household waste. The crossed-out wheeled bin symbol specifies that the product is subject to obligatory waste segregation schedules for proper disposal. The product is made from recyclable materials and components. The product user shall be required to return the product which has become WEEE to a WEEE collection unit. The operators of WEEE collection units, including local WEEE locations, product resellers and other WEEE collection locations managed by local authorities form a proper waste disposal system. Proper WEEE disposal helps avoid harmful effects to humans and the environment from the risk caused by hazardous components this product may contain. Your household can make an important contribution to the recovery and recycling of WEEE. This

contribution fosters a behaviour which helps conserve the natural environment, which is a common asset for the mankind. Households are among the leading consumers of small appliances and equipment. A rational management of operation and disposal of small appliances and equipment will contribute to efficient recycling.

NANO COLOR CONTROL PANEL

2.1. OPERATION PRINCIPLE

The NANO COLOR determines the set room temperature and ventilation performance based on the selected operating program.

Possible programs:

- **By clock zones.** You can set up two Comfort operation zones and one Out of Home zone (no is one in the apartment). Outside of these zones the Economy zone applies.
- **Holiday mode.** As above, but according to a separate daily program.
- **Manual mode.** One manually set temperature and one ventilation rate apply all the time.
- **Out of Home.** The settings as for the Out of Home zone apply all the time. This mode can only be set with the thermostat number 1. The other thermostats adopt this mode from the thermostat number 1. Cooling in the Out of Home program is turned off.

The set and ventilation temperature can still be affected:

- Enabling the URLOP mode. The thermostat and ventilation work as in the Out of Home mode.
- The Out of Home EXT signal, e.g. the one coming from a control panel. The thermostat and ventilation work as in the Out of Home mode.

The difference between the HOLIDAY and the Out of Home in NANO 1 and Out of Home in the EXT software lies in different interpretation of these states by the remaining equipment, e.g. the HOLIDAY mode switches off the DHW generation in boiler controllers and heat pumps, while solar collectors stop accumulating heat and switch to the collector overheating protection mode.

All of the above modes can only be set to NANO number 1. NANO1 then transfers them to the other NANOs and other devices.

NANO COLOR can work in one of the three system operation modes:

- **WINTER** - NANO COLOR functions as the heating thermostat. The related equipment tends to achieve the set temperature in the room, e.g. switching on the heating. The ventilation heats up the supplied air to the appropriate temperature. The particular reaction depends on the configuration of the related equipment
 - **SUMMER** – heating and cooling functions are off
 - **COOLING** – heating is off. NANO COLOR functions as the cooling thermostat. The related equipment tends to cool the room to the set temperature, e.g. by switching on fan coils, supply air cooler, opening the recuperator BY-PASS if the conditions so require. The HOLIDAY, Out of Home and Out of Home EXT modes block the cooling operation.
- The system operation mode can be changed manually or can change automatically depending on the outside temperature.

2.2. INSTALLATION

General

The work related to connecting and assembling should only be carried out by persons with the appropriate qualifications and permissions, and in line with the valid standards and regulations.

NOTE: Any connection work must only be carried out when the supply voltage is isolated, make sure that the electrical conductors are isolated.

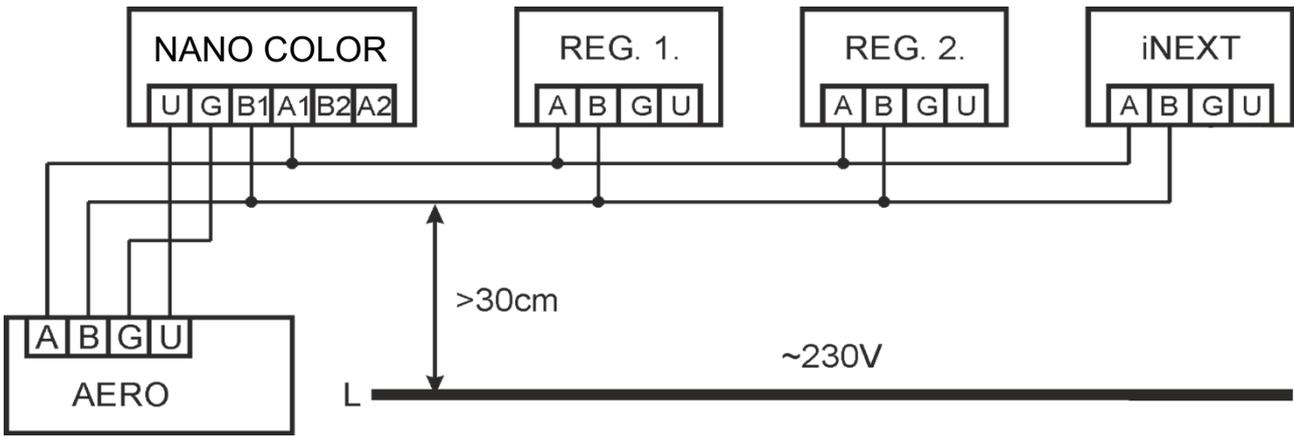
Power supply

The NANO COLOR control panel should be powered directly from AERO 4 controller outputs marked with “U” and “G” symbols (12 VDC)

Connecting

The NANO COLOR control panel should be wired with a conductor of the minimum cross-section of 0.5 mm² according to the diagram in section CONNECTION DIAGRAMS. The minimum distance between conductors connecting the panel with the module and other devices connected to the C14 network and parallel conductors supplied with 230 VAC is 30 cm. A shorter distance may cause communication interference or damage to the device.

The following figure shows an example of a C14 network connection.



NOTE: In order to ensure smooth data transmission it is necessary to install a ferrite filter on the power and communication wires between the AERO module and the NANO COLOR thermostat. When leading the conductors through the filter loop them around the ring as shown in the photo at the side.



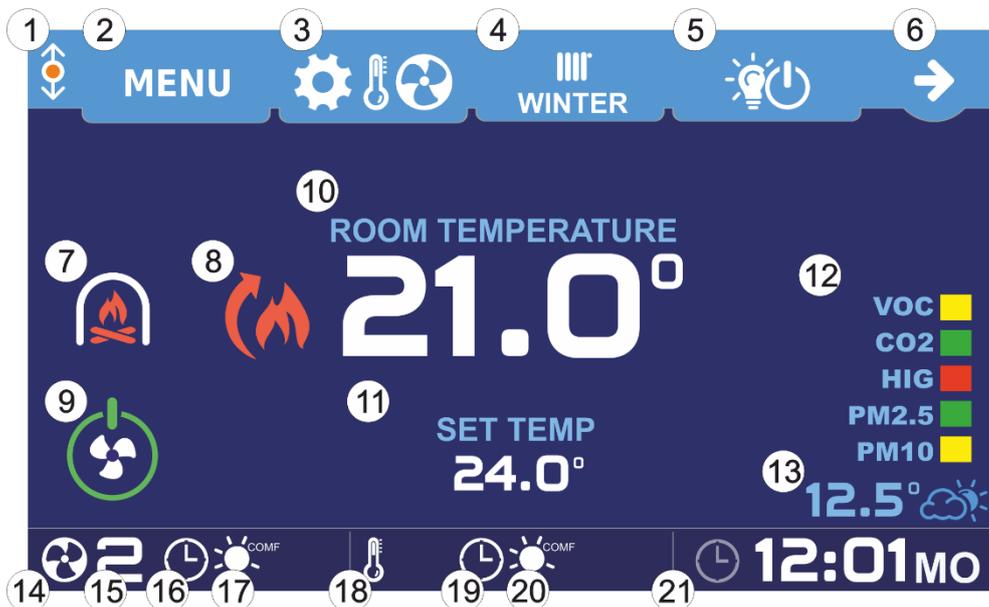
Installation site

The NANO COLOR control panel should be installed at the height of about 150 cm from the floor, away from sources of heat (e.g. radiators, TV set) and cold (e.g. external doors).

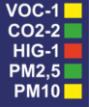
Installing the NANO COLOR panel:

- Place a 4 x 0.5 mm² cable between the air handling unit and the control panel installation location (the control cable should be led through one of the grommets located in the control panel electronics cover);
- Unscrew and remove the electrical compartment cover of the control panel;
- Make the electrical connection to the AERO4 controller (see the DIAGRAMS AND CONNECTIONS section);
- Screw the control panel bracket to the wall at a prepared location;
- Make electrical connections to the NANO COLOR panel (see the DIAGRAMS AND CONNECTIONS section)
- Clip the control panel into the holder;
- Install the electrical compartment cover

2.3. DESCRIPTION OF THE MAIN SCREEN

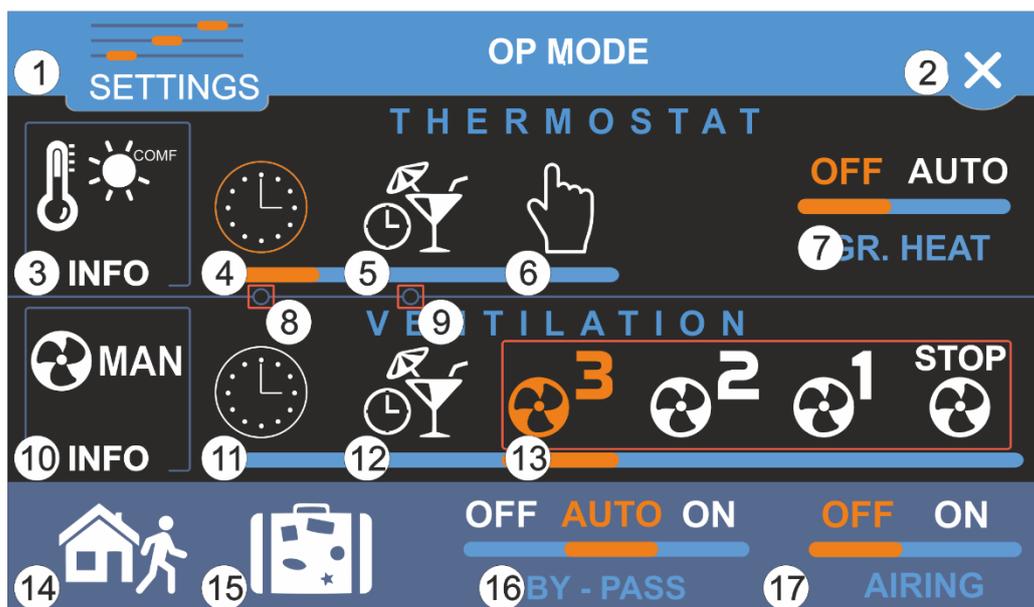


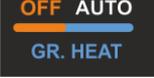
- 1  Digital communication indicating via C14 protocol, flashing orange dot indicates that communication is in progress.
- 2  Menu button.
- 3 Operating mode button. Depending on the configuration, one of the following symbols will appear:
 -  Operation without a thermostat and ventilation.
 -  Operation with a thermostat.
 -  Operation with ventilation.
 -  Operation with a thermostat and ventilation.
- 4 Installation mode button. Depending on the selected mode one of the icons shown below is displayed:
 -  Winter (heating).
 -  Summer (without heating and cooling).
 -  Cooling.
- 5  EX4 module (displayed when the option is enabled).
- 6  Screen button for detected devices (support for additional devices).
- 7 Fireplace mode. Activation of the FIREPLACE function in the ventilation service menu is required.
 -  Fireplace operation mode enabled.
 -  Fireplace operation mode disabled.
- 8 The symbols appear for the enabled thermostat operation with heating and/or cooling. In the INTAKE TEMPERATURE CONTROL MODE, the ROOM option should be set in the ventilation service menu.
 -  Signal to other devices that the room is not heated enough and the heating needs to be turned on.
 -  Signal to other devices that the room is at the correct temperature (grey).
 -  Signal to other devices that the room is overheated and cooling needs to be turned on.
 -  Signal to other devices that the room is at the correct temperature (grey).
- 9 Ventilation on/off button. It has to be turned on in the service parameter NANO / ON-OFF VENTILATION ON THE FIRST SCREEN.
 -  Ventilation is switched on (green).
 -  Ventilation is off (red). In addition to that, "OFF" will be displayed in field 14.

- 10 The current reading of the information configured in the service parameter NANO / GENERAL INFORMATION.
- 11 Current room temperature setpoint. Activation of the thermostat operation in service parameter VENTILATION / THERMOSTAT FUNCTION (Heating, Cooling, Heating+Cooling) is required.
- 12  Air quality and humidity. When pressed, a screen appears where detailed air parameters can be viewed. They are visible when sensors are connected. See section 2.11. for a detailed description.
- 13  Press to display a chart of the outside temperature variations over the last 24 hours, including the minimum and maximum temperatures recorded during that time. This information is not displayed if there is no outside temperature sensor.
- 14  Current ventilation operation status.
- 15  Current ventilation run. Displaying "OFF" means that the ventilation is switched off with the button 9.
- 16  Current ventilation operation mode (scheduled, holiday, manual).
- 17  Current work zone (comfort, eco, out of home, holiday).
- 18  Current operating status of the thermostat.
- 19  Current operating status of the thermostat (schedule, holiday, manual).
- 20  Current work zone (comfort, eco, out of home, holiday).
- 21  Clock. Press to display the date and time setting screen

2.4. OPERATION MODE

When the mode selection button (button 3 of the main screen) is pressed the mode screen appears, depending on the configuration.

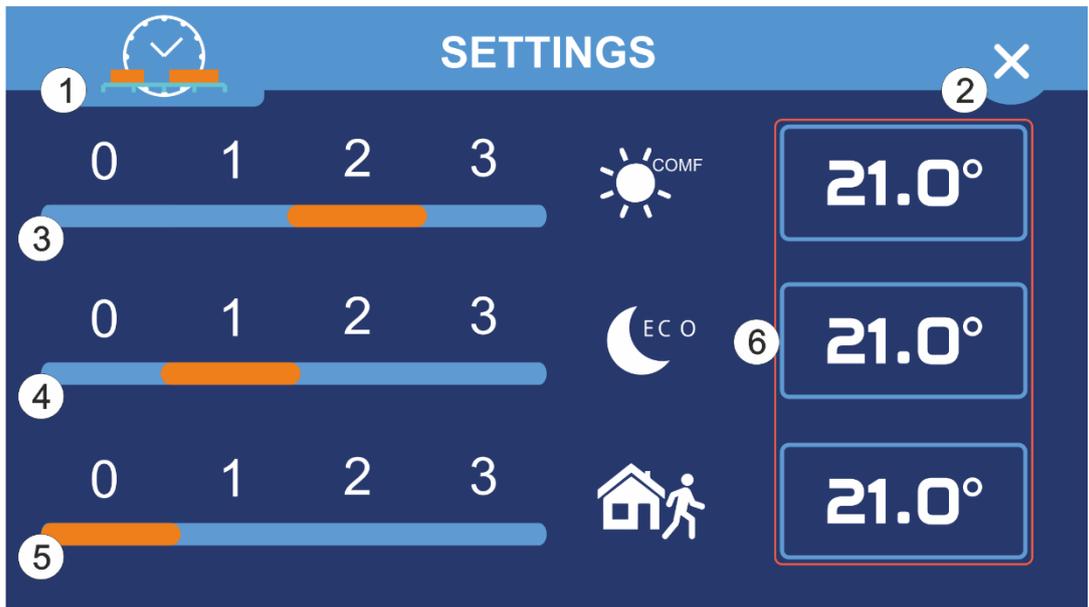


- 1  Moves to the thermostat and ventilation settings. See the SETTINGS section for a detailed description.
- 2  Returns to the main screen.
- 3  Moves to the thermostat information screen.
- 4  Scheduled mode.
- 5  Holiday mode.
- 6  Manual mode.
- 7  Activation of the GHE in automatic operation mode or deactivation. The GHE operation is possible after enabling the option.
- 8  Click to set the scheduled mode for the thermostat and ventilation simultaneously.
- 9  Click to set the holiday mode for the thermostat and ventilation simultaneously.
- 10  Moves to ventilation information screen.
- 11  Scheduled mode.
- 12  Holiday mode.
- 13  Manual selection of the ventilation operation mode.

- 14  Enables the OUT OF HOME (NANO1) program.
- 15  Enables the HOLIDAY program.
- 16  Switches the BY-PASS to automatic mode, constantly closing or opening it.
- 17  Switches the ventilation to air mode. The option is invisible when the OUT OF HOME (NANO1) or HOLIDAY mode is on.

2.5. SETTINGS

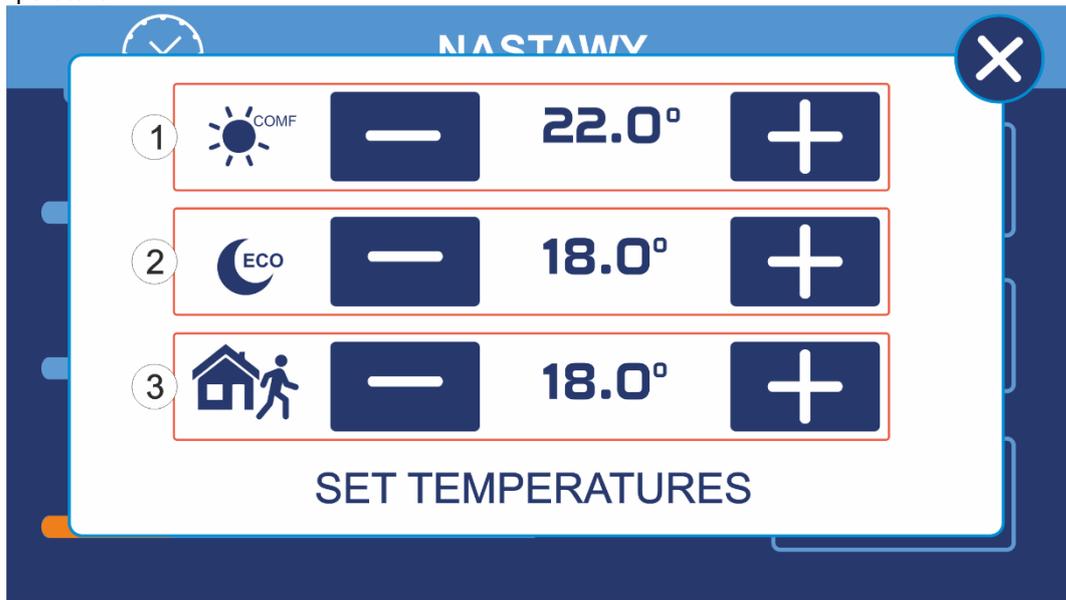
Clicking the button 1 from the OPERATION MODES section brings up the following screen:



- 1  Moves to the schedule settings.
- 2  Exit to the previous screen.
- 3  Sets the fan speed for the comfort zone.
- 4  Sets the fan speed for the economic zone.
- 5  Sets the fan speed for the OUT OF HOME mode.
- 6  Click to display the temperature setting screen. Appears after the option has been enabled.

2.6. TEMPERATURE SETTINGS

Clicking the button 6 from the SETTINGS section brings up the following screen. Use the **-** and **+** buttons to set the desired temperature.



- 1 **-** 22.0° **+** Setting comfort temperature.
- 2 **-** 18.0° **+** Setting the economic temperature.
- 3 **-** 18.0° **+** Setting the temperature in the OUT OF HOME mode.

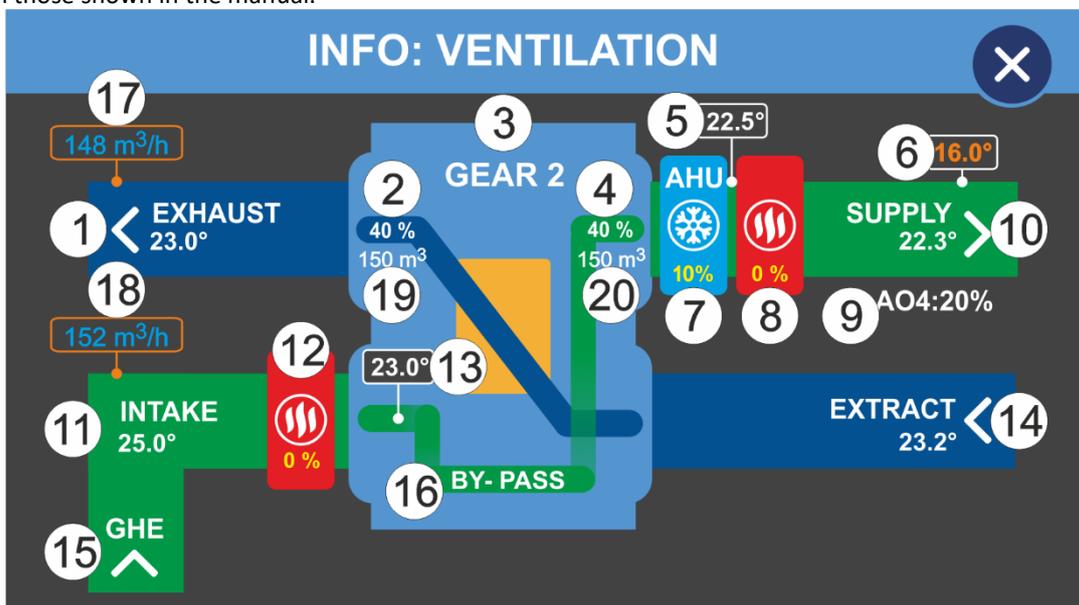
2.7. THERMOSTAT INFO

After clicking the button 3 from the OPERATION MODE section, the screen will display the details of the currently measured room temperature and the temperature setting.

2.8. VENTILATION INFORMATION SCREEN

After clicking the button 10 from the OPERATION MODE section, the ventilation screen shows a window with a graphical representation of the exchanger.

NOTE: Depending on the connected devices installed in the air handling unit (heaters, coolers, AHU Kit), the screen may differ from those shown in the manual.



- 1 Exhaust temperature.
- 2 Exhaust fan rpm.
- 3 Ventilation run.
- 4 Supply fan rpm.
- 5 Temperature downstream the AHU Kit (only for the operating scheme 2).
- 6 Calculated intake temperature.
- 7 AHU Kit or cooler (only for the operating scheme 2).
- 8 Secondary heater (when the SECONDARY HEATER CONTROL function is enabled).
- 9 AO4 rpm.
- 10 Air supply temperature.
- 11 Intake temperature.
- 12 Preheater (when the defrost method is set using the preheater).
Temperature upstream the recuperator (when the MINIMUM TEMP. BEFORE THE RECUPERATOR function is enabled)
Note: An additional temperature sensor downstream the preheater is required.
- 14 Exhaust air temperature.
- 15 Ground-air heat exchanger – open.
- 16 BY-PASS – open.
- 17 Measured air exhaust flow. **FUNCTION IS NOT AVAILABLE FOR THIS EQUIPMENT VERSION.**
- 18 Measured intake airflow. **FUNCTION IS NOT AVAILABLE FOR THIS EQUIPMENT VERSION.**
- 19 The set value of the exhaust airflow. **FUNCTION IS NOT AVAILABLE FOR THIS EQUIPMENT VERSION.**
- 20 The set value for the intake airflow. **FUNCTION IS NOT AVAILABLE FOR THIS EQUIPMENT VERSION.**

2.9. FIREPLACE MODE

The fireplace, when enabled, increases the supply fan speed in relation to the exhaust fan by the value set in the parameter FIREPLACE RPM CORRECTION. Activating the mode disables the RECUPERATOR DRYING function.

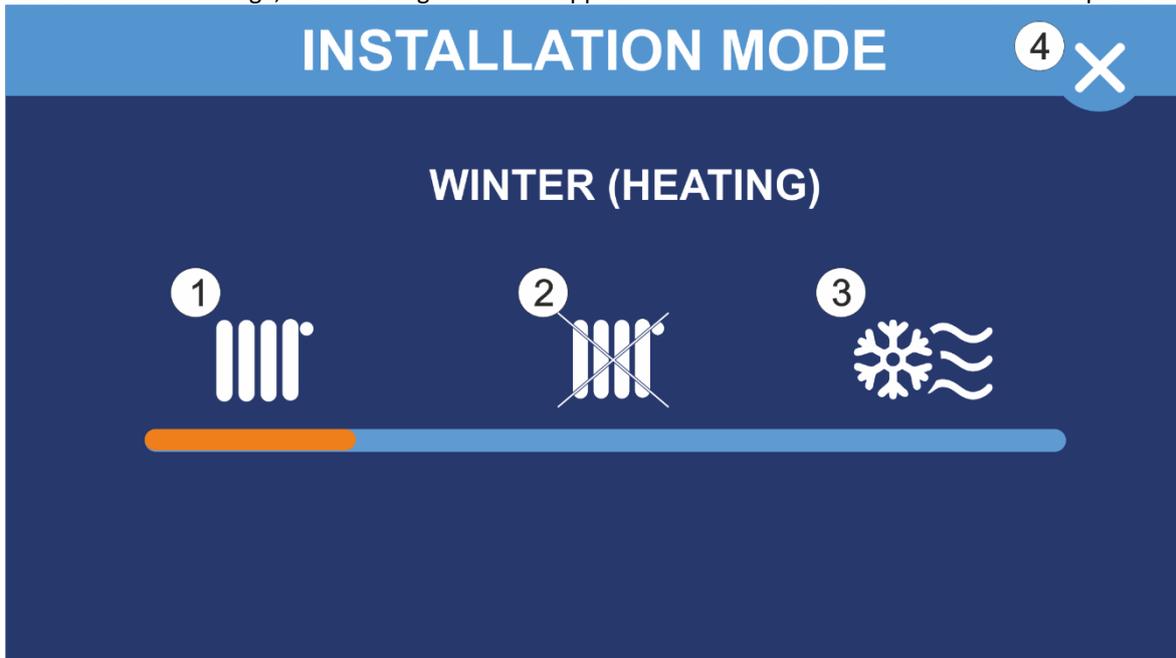
NOTE: The installation has to meet the following requirements for the mode to operate correctly and safely:

- for the BY-PASS, it is forbidden to set the simplified operation mode;
- it is forbidden to set the speed of the exhaust fan higher than that of the supply fan – it applies to each speed;
- it is forbidden to set the exchanger defrosting by switching off the supply fan;
- it is forbidden to set the exchanger defrosting by switching on the pre-heater and reducing the supply fan speed by 50%.

2.10. CHANGING THE SYSTEM OPERATION MODE

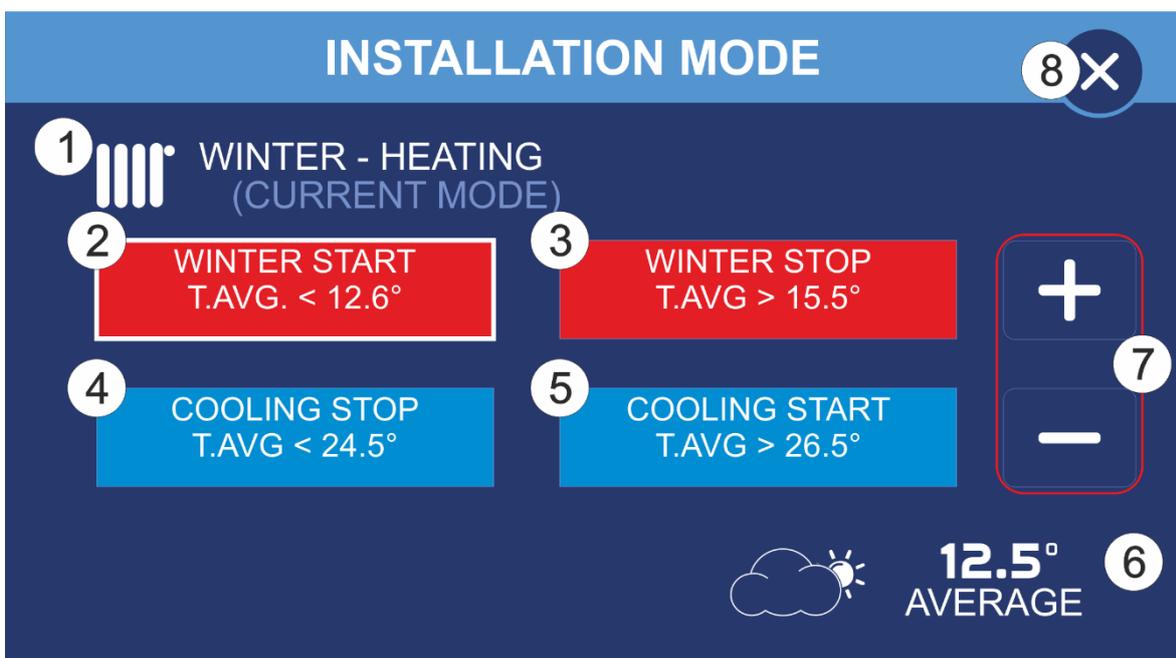
Changing the operation mode of the system can be done manually or automatically. The method is selected in the parameter WINTER/SUMMER MODE CHANGE METHOD.

In the case of a manual change, the following screen will appear on the main screen when the button 4 is pressed:



- 1  Activation of the WINTER mode (HEATING).
- 2  Activation of the SUMMER mode (NO HEATING AND COOLING).
- 3  Activation of the COOLING mode.
- 4  Exit to the main screen.

In case the parameter WINTER/SUMMER MODE CHANGE METHOD is set according to outdoor temperature or according to average temperature 1 or 2, the operation mode screen of the system will be as shown below



- 1  **WINTER - HEATING**
(CURRENT MODE) Current system operation mode.
- 2  **WINTER START**
T.AVG. < 12.6° Setting the temperature below which the WINTER mode is switched on. Highlighted item means that the parameter can be edited.
- 3  **WINTER STOP**
T.AVG > 15.5° Sets the temperature above which WINTER mode is switched off.
- 4  **COOLING STOP**
T.AVG < 24.5° Sets the temperature below which the COOLING mode will turn off.
- 5  **COOLING START**
T.AVG > 26.5° Sets the temperature above which COOLING mode is activated.
- 6  **12.5°**
AVERAGE Depending on the selection of the winter/summer mode change method, it displays the current outside temperature or the average temperature.
- 7  Decrease/increase the selected temperature by 0.1°C. The buttons are displayed when the parameter to be edited is selected.
- 8  Exit to the main screen.

NOTE: The difference between the temperatures WINTER START and WINTER STOP, WINTER STOP and COOLING STOP, COOLING STOP and COOL START must be at least 1°C. When increasing the temperature, this difference automatically transfers to the other settings.

2.11. SENSORS

Depending on the version, the device can additionally have built-in room humidity and/or CO2 level sensors. The device supports up to 5 sensors of different types to be connected.

NOTE: If more than 2 sensors are connected, select **MASTER** in the **NANO** menu under the **C14 NETWORK MODE** option. Connected sensors are displayed on the main screen (icon 12). Clicking the caption displays the readings from all connected sensors. The maximum measured value is highlighted. Below, a sample sensor information screen is shown:

SENSORS INFO				
Nr	SENSOR			
1	NANO1			
2	---			
3	---			
4	---			
5	ACS1	PM2.5: 80%	PM10: 45%	CO2: 63%
6	SH	HUMIDITY: 43%		
7	SH	HUMIDITY: 17%		
8	SH	HUMIDITY: 52.3%		
9	SHC	HUMIDITY: 43%	CO2: 76%	
10	---			

ACS1 – sensor VACS1 SH – sensor VSHW SHC – sensor VSHC

VACS-1 air quality sensor

If the maximum value of CO2 concentration in the air is exceeded, the fans' speed is increased by 1 stage. When the concentration returns to the optimum value, the fans run at the set speed.

VACS-1 is equipped with an automatic calibration algorithm. As to have proper reading, the room in which the sensor is located should be ventilated at least once a month, in order to correct the reference point. After connecting to the power supply the sensor shows the value of 500ppm CO₂. The proper reading will appear only after 30 minutes.

NOTE: Only one VACS-1 sensor can be connected to the air handling unit.

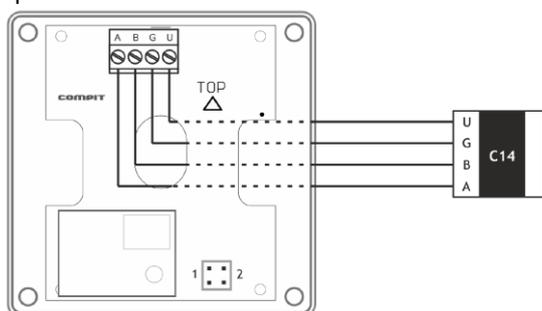


Signalling diode outside the housing:

- 1 green blink / pause - the sensor is working properly
- 2 green blinks / pause - no communication
- Red and green alternating blinks – one of the sensors broke down

CO₂ concentration and VSHC humidity sensor

If the maximum air humidity value is exceeded, the fans' speed is increased by 1 stage. When the maximum CO₂ concentration in the air is exceeded, the fans' speed is increased by 1 stage. If the maximum values of humidity and CO₂ concentration are exceeded simultaneously, the fans' speed is increased by 2 stages. After the humidity level and CO₂ concentration return to their optimum values, the fans operate at a set speed.



1	2	Sensor number
		Sensor No. 6
		Sensor No. 7
		Sensor No. 8
		Sensor No. 9

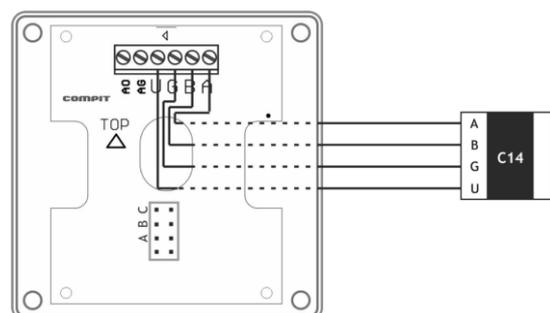
The setting of jumper links No. 1 and No. 2 defines the VSHC sensor address in C14 network. The sensors can have numbers from 6 to 9.

NOTE: A maximum of 4 VSHC or VSHW sensors can be connected.

VSHC is equipped with an automatic calibration algorithm. As to have proper reading, the room in which the sensor is located should be ventilated at least once a month, in order to correct the reference point. After connecting to the power supply the sensor shows the value of 500ppm CO₂. The proper reading will appear only after 30 minutes.

VSHW humidity sensor

If the maximum air humidity value is exceeded, the fans' speed is increased by 1 stage. The setting of jumper links B and C defines the VSHW sensor address in C14 network. The sensors can have numbers from 6 to 9.



A	B	C	Sensor number
			Sensor No. 6
			Sensor No. 7
			Sensor No. 8
			Sensor No. 9

NOTE: A maximum of 4 VSHW or VSHC sensors can be connected.

Signalling diodes inside the housing:

STAT (green):

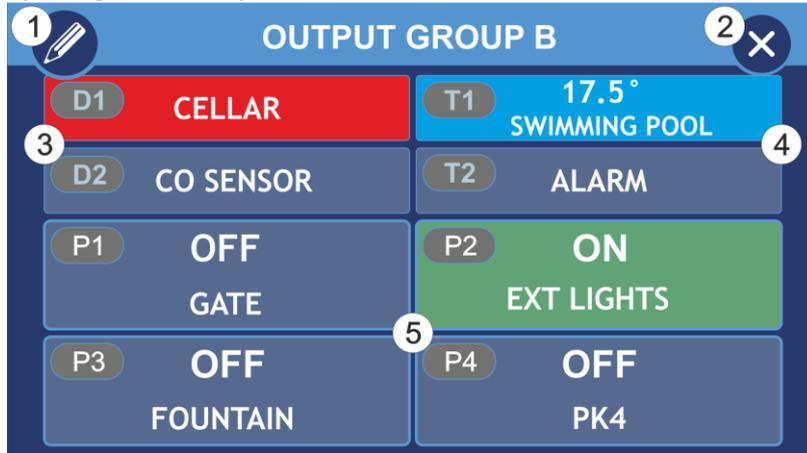
- 2 blinks and a long pause – no connection
- Continuous blinking – correct communication

RS (red)

- Each blink means a single data transmission to C14 network

2.12. VEX4 MODULE

The VEX4 add-on module extends the functionality of the NANO COLOR room panel with additional inputs and outputs. The module can be freely configured to suit your needs.



- 1  Edit subtitles (visible when the Allow to edit subtitles option is enabled)
- 2  Exit to the main screen.
- 3 Digital inputs.
- 4 Digital inputs for temperature measurement (PT1000 sensor required).
- 5 Relay outputs.

Digital inputs

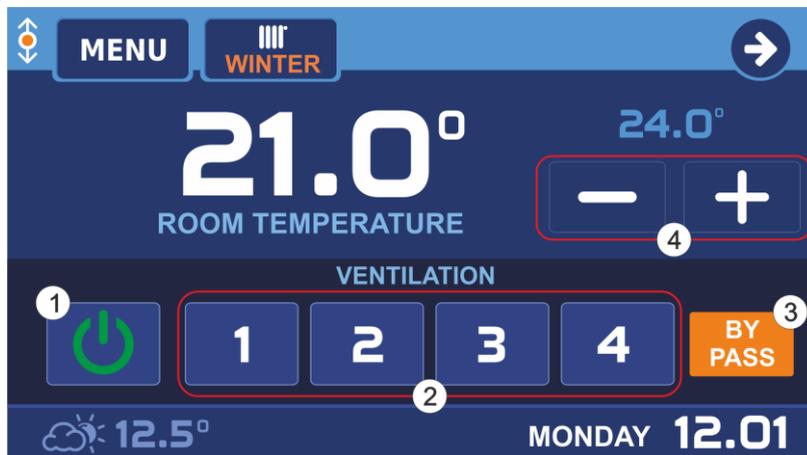
Digital inputs (D1-2, T1-2) allow you to monitor the status of any device equipped with a NO contact. When a signal is received, the field with the corresponding input number will illuminate red. If the input has been configured to display an alarm, the information will also appear on the home screen. Inputs T1 and T2 enable temperature measurement after proper configuration.

Relay outputs

The relay outputs enable control of external devices, home automation systems, e.g. lighting, roller-blinds, garage doors.

2.13. SMART MODE

It enables direct control of ventilation efficiency, and simplifies setting of temperature set-points. By default, it is deactivated, but it can be activated by selecting the **NANO/PANEL OPERATION IN SIMPLE MODE** option in the service menu.



- 1  Activation/deactivation of ventilation
- 2  Adjusting ventilation speed
- 3  Open/close the BY-PASS
- 4  Decrease/increase the current desired temperature

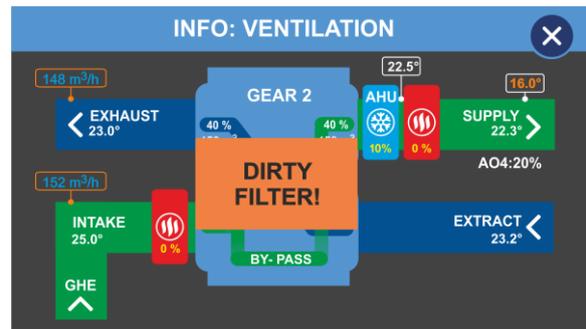
2.14. FOULED FILTER INDICATION

Filter fouling can be signalled in 2 ways:

1. Text flashing on the main screen:
CHANGE AIR FILTER

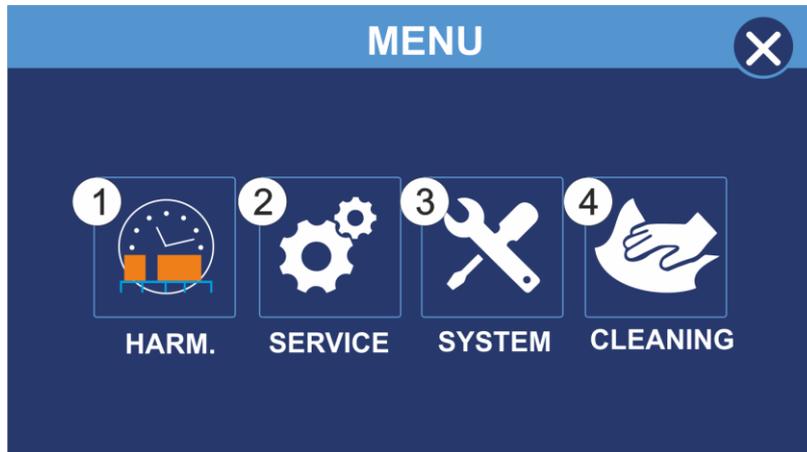


2. DIRTY FILTER! text flashing on the VENTILATION INFO screen.



2.15. MAIN MENU

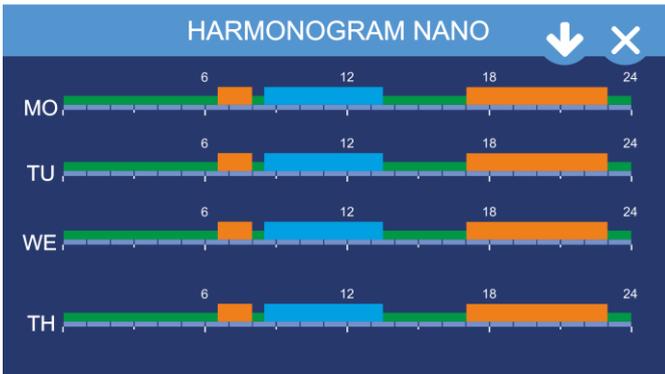
The main menu is accessed by pressing the MENU button on the main screen.



- 1  Setting the thermostat operating schedule (Section 2.16)
- 2  Maintenance settings. (Section 2.17)
- 3  System settings. After selecting this option, you can change the panel language, enable or disable sounds when alarms occur, set the brightness of the display and customise the device screens.
- 4  Screen cleaning function. When this option is selected, the screen locks for 30 seconds
- 5  Exit to the main screen

2.16. SCHEDULE SETTINGS

To access the schedule settings, press HARM in the menu.



View of the weekly schedule.

Press to move on to the remaining days of the week and holiday schedule settings.

By clicking the bar of the selected day schedule, you enter the edit window.

Pressing will take you to the main menu.



Edit schedule window for Monday

You can set 2 comfort zones and an out of home zone. Outside these zones, the economic zone applies. On the top, there is a graphical representation of the currently set zones.

To edit a zone, click the item you want to change.



Use and to set the start time

of the first zone () and its end (). The currently edited item will be highlighted. Similarly, you can set the subsequent zones.

If you want to have identical settings for the other days of the week, click .



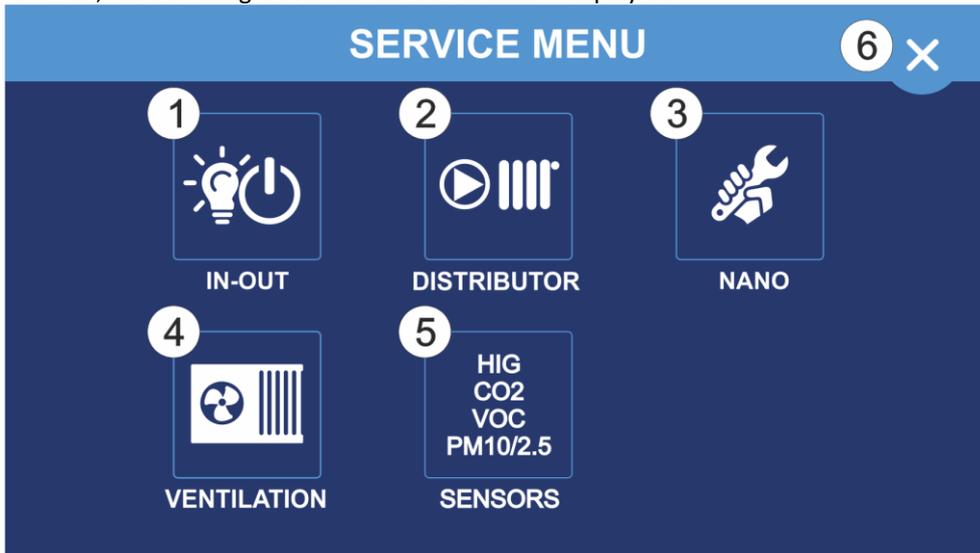
A window with the days of the week will open. Select the items to which you want to copy the settings and click .

2.17. SERVICE MENU

When you click on the SERVICE button in the main menu, the screen for setting the access code appears.

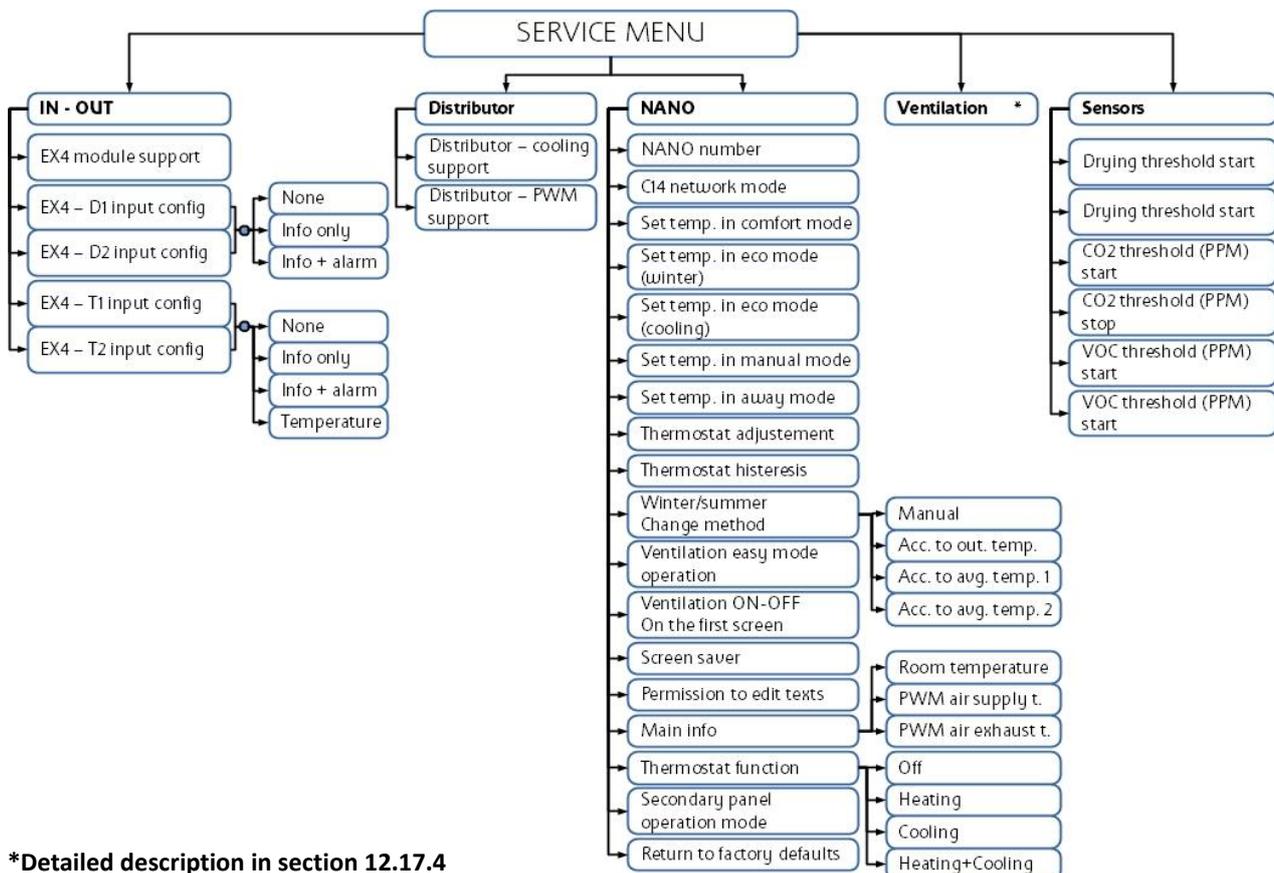
NOTE: When code 99 is entered, the service menu screen with user parameters will be displayed, while when the 199 code is entered, parameters for the service technician/installer will also be available.

After entering the code, the following service menu screen will be displayed.



- | | | | |
|--|---|--|--|
| <p>1 </p> <p>2 </p> <p>3 </p> | <p>IN-OUT settings. Configuration EX4 module of additional inputs and outputs.</p> <p>Distributor settings.</p> <p>NANO panel settings.</p> | <p>4 </p> <p>5 </p> <p>6 </p> | <p>Ventilation settings.</p> <p>Sensor settings.</p> <p>Exit to the main screen.</p> |
|--|---|--|--|

Below, a diagram of the service menu structure is shown:



*Detailed description in section 12.17.4

2.17.1. IN-OUT

Permission to operate the EX4

Enables operation with an additional VEX4 module.

Configuration of D1/D2 input of the EX4 module

Configures D1/D2 input settings

- None – input not supported, will not be displayed on the outputs screen.
- Info only – the input status will only be displayed on the outputs screen.
- Info+alarm – the input status will be displayed on the output screen and the main screen.

Configuration of T1/T2 input of the EX4 module

Configures T1/T2 input settings

- None – input not supported, will not be displayed on the outputs screen.
- Info only – the input status will only be displayed on the outputs screen.
- Info+alarm – the input status will be displayed on the output screen and the main screen.
- Temperature – an input configured to measure temperature.

2.17.2 DISTRIBUTOR

Distributor operation with the cooling function

Enables using a floor distributor with a cooling system. The parameter is related to working with the L1 and L2 blocks used to control the floor and wall circuits.

Distributor operation with the PWM function

The PWM control is based on cyclical switching on of the circuit for a specified period of time. The activation time depends on the difference between the temperature set-point and the room temperature. If the function is deactivated, the NANO controls the operation of distributor circuits just like a regular thermostat with active hysteresis. The parameter is related to working with the L1 and L2 blocks used to control the floor and wall circuits.

2.17.3. NANO

NANO Number

This parameter is used to set the NANO number. Each NANO in the C14 network must have its own unique number. Range 1...10

C14 network mode

- SLAVE – responds to inquiries from the MASTER.
- MASTER – manages communication between devices on the C14 network.
- MASTER MINI – manages communication between devices in the C14 network (recommended up to 2 devices in the C14 network). Information exchange between devices is faster.

There can be only one MASTER device in the C14 network.

Preset comfort temperature

Sets the comfort temperature.

Preset eco winter temperature

Sets the preset eco temperature when the WINTER mode is on.

Preset eco cooling temperature

Sets the preset eco temperature when the COOLING mode is enabled.

Preset manual operation temperature

Sets the preset temperature for manual operation.

Preset out of home temperature

Sets the preset temperature for the OUT OF HOME and HOLIDAY modes.

Thermostat adjustment

It is used to correct the temperature measurement in the room. Range: -10..+10°C.

Thermostat hysteresis

The thermostat hysteresis function prevents unnecessary activating of heating, if there are small temperature fluctuations. The greater the value of the hysteresis, the longer the cycles of the heating. Set-point range: 0.1...10.0°C.

Method of changing from the winter to summer mode

You can choose from any of the following options:

- Manual – the user changes the heating season setting individually.
- Based on the outside temperature:
 - when the thermostat is in WINTER mode, if the outside temperature rises above the set value it will automatically change to the SUMMER mode.
 - when the thermostat is in SUMMER mode, if the outside temperature drops below the set value it will automatically change to the WINTER mode.
- According to the average temperature 1 – measurement every 1 minute. When this option is selected, the measurements are averaged over the last 2.5 hours:
 - when the thermostat is in the WINTER mode, an increase in the average outside temperature above the set value causes an automatic change to the SUMMER mode.
 - when the thermostat is in SUMMER mode, a drop of the average daily outside temperature below the set value causes an automatic change to the WINTER mode.
- Based on the average temperature 2 – measuring every 10 minutes. When this option is selected, the measurements are averaged over the last 24 hours:
 - when the thermostat is in the WINTER mode, an increase in the average outside temperature above the set value causes an automatic change to the SUMMER mode.
 - when the thermostat is in SUMMER mode, a drop of the average daily outside temperature below the set value causes an automatic change to the WINTER mode.

Simplified panel operation

When switched on, the main screen displays a row of buttons to control ventilation.

Ventilation ON-OFF on the first screen

After switching on, a button enabling starting and stopping ventilation is displayed on the main screen.

Screen saver

This parameter enables activating a screen saver, which displays the time and temperature in the room.

Permission to edit texts

Permission to edit texts. Selecting this option enables editing the descriptions regarding outputs of the EX4 module and the names of heating circuits.

General

Displaying information on the home screen (item 10):

- room – displays the currently measured room temperature.
- ventilation supply – displays the current ventilation supply temperature.
- ventilation exhaust – displays the current exhaust temperature.

Thermostat function

You can choose from any of the following options:

- None – Nano COLOR does not perform thermostat function.
- Heating – only the heating function is performed.
- Cooling – only the cooling function is performed.
- Heating + cooling – the heating and cooling functions are performed.

Operation as an AERO support panel

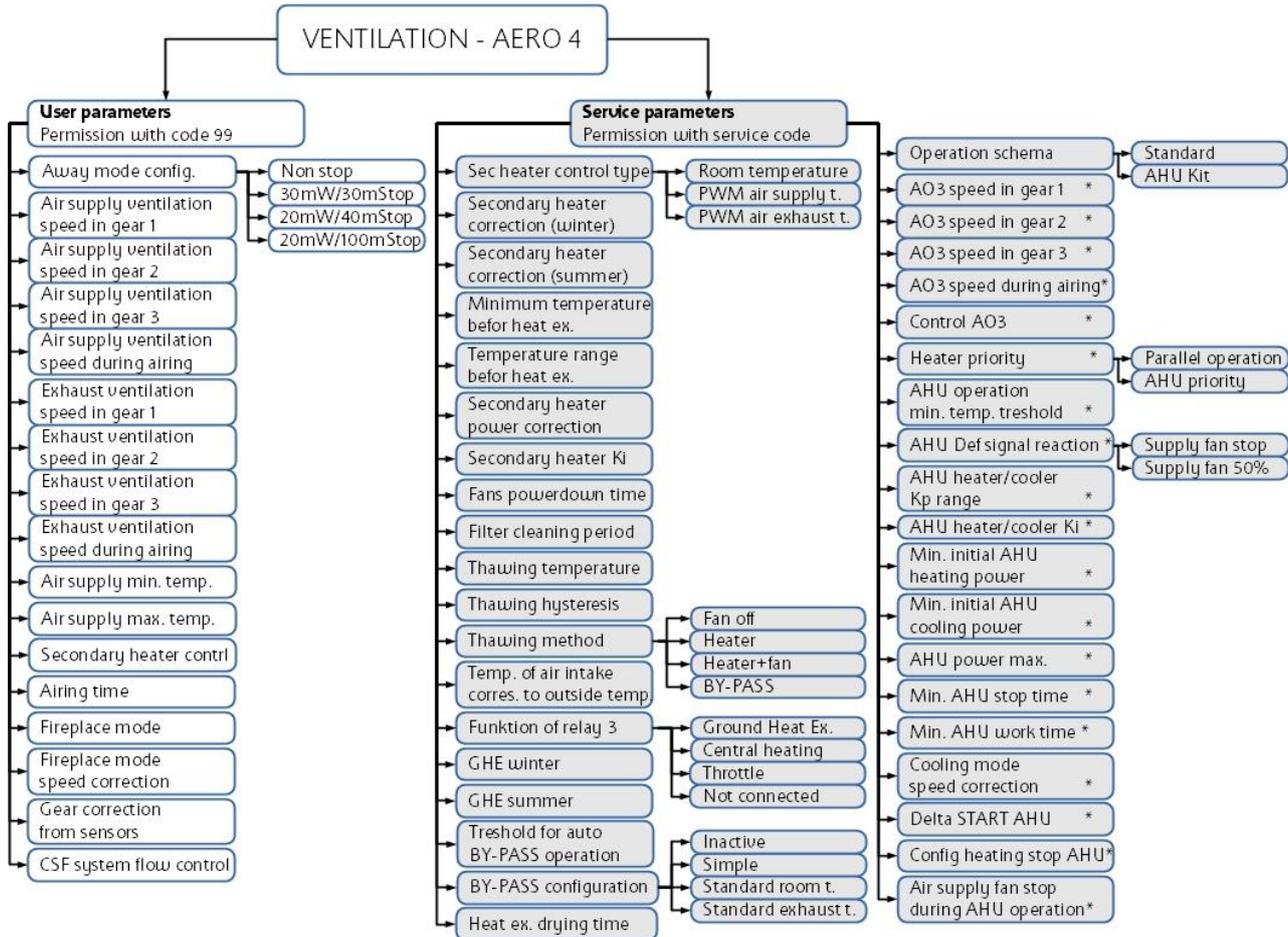
Allows the NANO COLOR panel to operate as an additional ventilation control panel. When this option is enabled, only the functions for changing the ventilation mode and thermostat, changing the capacity, BY-PASS and GHE control will be available.

Restore factory settings

Resets all settings and presets to factory default values.

2.17.4. VENTILATION

The VENTILATION menu structure is shown below:



***Options available only for Scheme 2. AHU KIT**

Away mode config

Sets the operation of fans in the OUT OF HOME AND HOLIDAY mode.

- Continuous operation – the fan runs all the time
- 30 minutes operation/30 minutes break (the unit starts up 30 minutes before the full hour)
- 20 minutes operation/40 minutes break (the unit starts up 20 minutes before the full hour)
- 20 minutes operation/100 minutes break (the unit starts up 20 minutes before the full odd hour)

Supply and exhaust fan settings

The parameters below define the capacity of the supply and exhaust fans at each speed.

- Supply fan speed I rpm
- Supply fan speed II rpm
- Supply fan speed III rpm
- Supply fan airing rpm
- Exhaust fan speed I rpm
- Exhaust fan speed II rpm
- Exhaust fan speed III rpm
- Exhaust fan airing rpm

Air supply min. temperature

When the air supply temperature is below the value set for this parameter, the controller activates the secondary heater. Set-point range: 0...50°C. Applies to WINTER mode.

Air supply max. temperature

Limitation of the maximum air supply temperature. After exceeding the set value of air supply temperature, the regulator switches off the secondary heater. Set-point range: 0...50°C. Applies to WINTER mode.

Secondary heater control

If this option is enabled, the reheater will operate in the PWM mode.

Airing time

Sets the activation time for the ventilation function activated via DI2 input (only available for connection scheme 1).

- 0 – operation ON/OFF.
- 1 – 100 – turns the fan on for the preset time in minutes.

Fireplace mode

Allows you to work with the fireplace mode.

Fireplace mode speed correction

Sets the increase in the supply fan rpm relative to the exhaust fan by the value set in this parameter.

Gear correction by sensors

Enabling this option increases the speed of the supply and exhaust fans on detecting the exceedance of the permissible levels by the sensors.

CSF system flow control

Activating the operating option of the balance flow for supply and extract air (Constant Flow).

NOTE: Function not available for this unit model.

Secondary heater control type

The supply air temperature is controlled by one of the following methods:

- room temperature function
- supply temperature function
- exhaust temperature function

Secondary heater correction (winter)

This parameter determines the value of the supply temperature correction gain in the winter mode.

Secondary heater correction (summer)

This parameter determines the value of the supply temperature correction gain in the summer/cooling mode.

Minimum temperature before heat exchanger

Defines the minimum air temperature upstream the recuperator. If the temperature drops below the setpoint, the preheater will be activated according to the selected operation mode. A setting of -10°C disables the function. (Connection of temperature sensor T5 is required for proper operation).

Temperature range before heat exchanger

Determines the temperature for which the output of the secondary heater is continuously controlled.

Secondary heater Ki

Determines the rate of secondary heater power adjustment. The higher the value, the faster the adjustment. (If oscillations occur the values should be reduced).

Fans powerdown time

This parameter defines the delay for the fans to switch off. This delay ensures that the heaters are cooled down or that cold is received from the cooler, when the unit is switched off. Set-point range: 0-100 seconds.

Filter cleaning period

This parameter sets the time after which the controller indicates the need to clean the filters. A setting of 0 disables the option. Set-point range: 1-365 days.

Thawing temperature

If the temperature measured at the exhaust duct is lower than that set in this parameter the controller initiates the defrosting procedure with the selected defrosting method.

Thawing control range

Determines the temperature for which the preheater power is continuously adjusted during defrosting of the exchanger.

Thawing method

Air handling unit defrosting can be done in one of the following ways:

- FAN OFF (supply air)
- HEATER – preheater is switched on
- HEATER + FAN (the preheater is switched on + the supply fan rpm is reduced by 50%)
- BY-PASS – the by-pass is opened

Temp. of air intake corres. to outside temp

When this function is activated, the temperature at the air intake is the same as the outside temperature, and this information is transmitted to other units in the C14 system.

Function of relay 3

Configuration of R3 relay function:

- GHE
- CH
- damper
- no function

GHE winter

The value of outside temperature below which the Ground Heat Exchange is switched on in the winter. Range: -20...+40°C.

GHE summer

The outside temperature above which the GHE is switched on in the summer. Range: -20...+40°C.

Threshold for auto BY-PASS operation

The outside (air intake) temperature that allows the BY-PASS to open with the automatic BY-PASS operation. Set-point range: -22...+60°C.

BY-PASS configuration

BY-PASS selection:

- Inactive.
- Simplified – operation based on fan control
- Tpom standard – enables operation in one of the following modes: closed, open, AUTO
- Twyw standard – enables operation in one of the following modes: closed, open, AUTO (temperature sensor T4 required)

Heat exchanger drying time

Setting a value above 0 activates the exhaust fan at 100% speed for the time set in this parameter. The function is activated 1 minute after switching on the OUT OF HOME mode, when the exhaust temperature was lower than 10°C since the last drying. Adjustment range 0-20 min.

Operating diagram

- Standard
- AHU KIT (unlocks additional options related to the AHU Kit)*

A03 output settings*

The following parameters define the rpm for each speed in the range 0...100%.

- A03 speed I rpm
- A03 speed II rpm
- A03 speed III rpm
- A03 airing rpm

Control A03*

Parameter correcting the device connected to the A03 output. Function not used.

Heater priority*

Choose one of the following options:

- Parallel operation – the heaters operate independently of the AHU Kit
- AHU priority – the heater is switched on when the AHU Kit cannot operate (e.g. due to AHU Kit failure, too low outside temperature, defective T6 sensor)

AHU operation min. temp. threshold*

Specifies the minimum temperature from which the AHU can operate.

AHU DEF signal reaction*

DEFROST signal issued by the AHU Kit:

- Supply fan STOP
- Supply fan rpm decrease by 50%

AHU heater/cooler kp range*

Specifies the temperature for which the power is continuously controlled.

AHU heater/cooler Ki*

Specifies the AHU Kit power control rate. The higher the value, the faster the adjustment. If oscillations occur, the value should be reduced.

Minimum initial AHU heating/cooling power*

Specifies the minimum power of the air conditioner needed to turn on the AHU Kit. If the compressor power drops to 0%, it will only restart after reaching the value set in this parameter.

AHU power max*

Defines the maximum power at which the AHU Kit can operate. Setting range 0...100%.

Min. AHU stop time*

Defines the minimum standstill time of the air conditioner from shutdown to restart.

Min. AHU work time*

Sets the minimum time the air conditioner will run after the power drops below 100%.

Cooling mode speed correction*

Specifies the minimum fan operation when cooling is on.

Delta START AHU*

Specifies the difference between the reference temperature and the AHU Kit switching temperature.

Configure heating stop AHU*

Specifies how to turn off the AHU Kit after the time set in the “Min AHU operation time” parameter when:

- 0 – the supply air temperature will be higher than the calculated supply air temperature
- 1 – the supply air temperature will be higher than the temperature set in the “Maximum supply air temperature” parameter

Switching off the supply air fan during AHU* operation

Turns off the supply fan.

***Options available only for the “AHU KIT” operating scheme**

2.17.5 SENSORS

Drying threshold start

Determines the humidity level which, when exceeded, causes the fans to increase speed 1 stage. A humidity sensor is required for the function to work properly.

Drying threshold stop

Determines the humidity level after which the fan speed returns to normal operation. A humidity sensor is required for the function to work properly.

CO2 threshold (PPM) start

Defines the level of CO2 concentration in the air, exceeding of which increases the speed of fans by 1 stage. It is necessary to have a VACS-1 or VSHCSensor for the function to work properly.

CO2 threshold (PPM) stop

Defines the level of CO2 concentration in the air after the decrease of which the fans speed returns to normal. It is necessary to have a VACS-1 or VSHCSensor for the function to work properly.

VOC threshold (PPM) start

Defines the level of VOC concentration in the air, exceeding of which increases the speed of fans by 1 stage. For the function to work properly, it is necessary to have the SVOC sensor

VOC threshold (PPM) stop

Defines the level of volatile organic compounds after which the fan speed returns to normal. It is necessary to have an SVOC sensor for the function to work properly.

3. NANO WIRELESS NETWORK

The NANO COLOR control panel can be connected also when cable connection is not possible. In that case, radium converters of the C14–VRS network should be used. Two converters must be used for proper operation. For the connection method, refer to the CONNECTION DIAGRAMS section.

4. VLAN iNext INTERNET MODULE

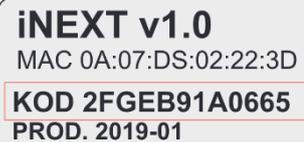
The iNEXT internet module allows remote control of the air handling unit. The control can be performed via a web browser. The method of connecting the INEXT module is presented in the CONNECTION DIAGRAMS section.

NOTE: Connection via a web browser besides basic functions also gives access to service parameters of the device.

Configuration of the VLAN INEXT Internet module

– control via a web browser

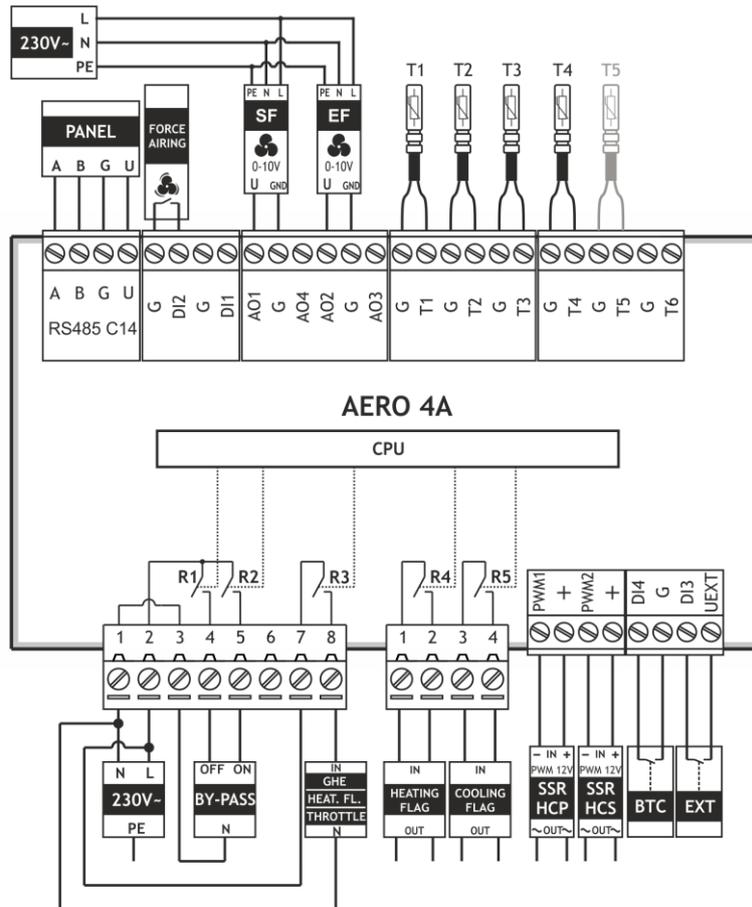
1. In order to properly use the INEXT Internet system the user has to register and create an account at the website <https://inext.compit.pl>
2. To register a new user account click the “Register” button, the page will automatically load the registration form.
3. After completing the registration process click the “ADD GATE” button which will be displayed on the welcome page or in the menu on the left side click “GATES” and then “ADD GATE”.
4. Enter the code found on the rating sticker of the INEXT VLAN Internet module in the “GATE CODE” field.
5. After entering a correct gateway code, additional fields will be revealed. After clicking in the “SELECT PRODUCER” field, select “AWENTA PRO” from the list, and in the “ENTER GATE’S LABEL” field enter any name of your device.
* Additionally tick the “MASTER MODE ENABLED” field.
6. After clicking the “ADD GATE” command a window for device addition appears. Select “NANO COLOR” as the device type and enter 41 in the standard field.



iNEXT v1.0
MAC 0A:07:DS:02:22:3D
KOD 2FGEB91A0665
PROD. 2019-01

5. WIRING DIAGRAMS

5.1 ELECTRICAL DIAGRAM OF THE AERO 4 CONTROLLER – version for operation scheme 1. Standard



- R1 – BY-PASS closing
- R2 – BY-PASS opening
- R3 – GHE, heat from thermostat or damper flag (depending on configuration)
- R4 – heating signal from NANO thermostat (room is cooled down in WINTER mode)
- R5 – cooling signal from NANO thermostat (the room is overheated in COOLING mode)
- PWM1 – PWM digital output (-) for connecting the secondary heater SSR relay
- PWM2 – PWM digital output (-) for connecting the preheater SSR relay
- AO1 – supply air fan
- AO2 – supply air fan

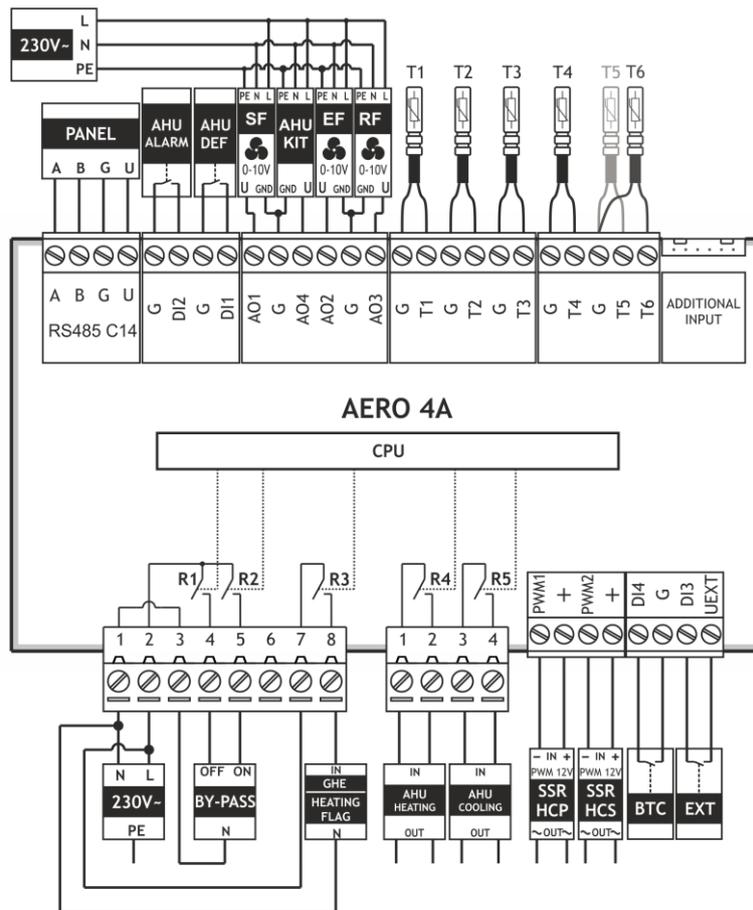
Inputs:

- DI2 – forced ventilation
- DI3 – digital input of the external device signal (e.g. control panel) to switch ventilation into the "Out of Home" mode (depending on configuration).
- DI4 – temperature limiter (**if there are no heaters, DI4 input should be connected to G**)
- UEXT – polarising output of EXT signal

Sensors:

- T1 – external temperature sensor
- T2 – supply temperature sensor
- T3 – discharge temperature sensor
- T4 – exhaust temperature sensor
- T5 – temperature sensor behind pre-heater (optional)

5.2 ELECTRICAL DIAGRAM OF THE AERO 4 CONTROLLER – version for operation scheme 2. AHU Kit



Outputs:

- R1 – BY-PASS closing
- R2 – BY-PASS opening
- R3 – GHE, heat from thermostat or damper flag (depending on configuration)
- R4 – heat signal for the AHU Kit
- R5 – cool signal for the AHU Kit
- PWM1 – PWM digital output (-) for connecting the secondary heater SSR relay
- PWM2 – PWM digital output (-) for connecting the preheater SSR relay
- AO1 – supply air fan
- AO2 – supply air fan
- AO3 – recirculation fan
- AO4 – AHU Kit

Inputs:

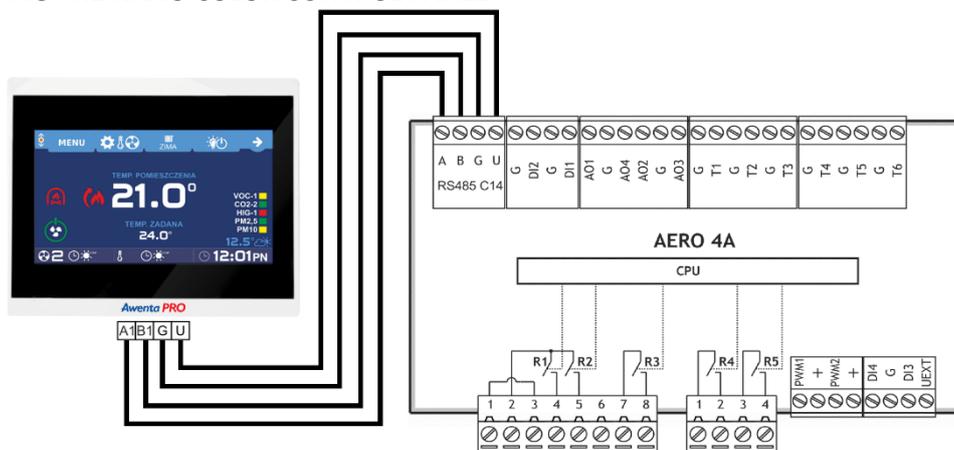
- DI1 – defrost signal input AHU Kit
- DI1 – alarm signal input AHU Kit
- DI3 – digital input of the external device signal (e.g. control panel) to switch ventilation into the "Out of Home" mode (depending on configuration).
- DI4 – temperature limiter (**if there are no heaters, DI4 input should be connected to G**)
- UEXT – polarising output of EXT signal

Sensors:

- T1 – external temperature sensor
- T2 – supply temperature sensor
- T3 – discharge temperature sensor
- T4 – exhaust temperature sensor
- T5 – temperature sensor behind pre-heater (optional)
- T6 – temperature sensor behind AHU Kit

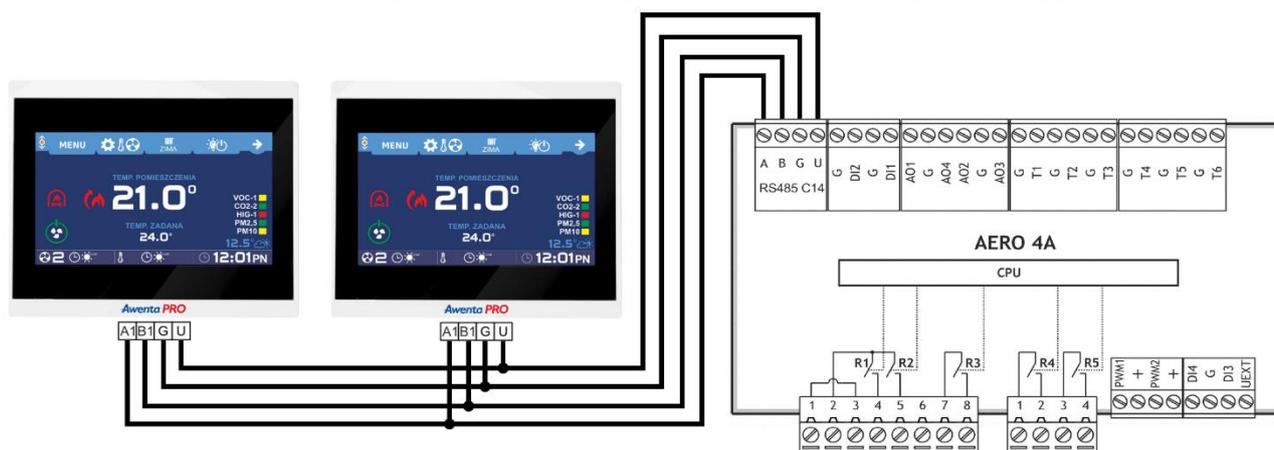
NOTE: Connect the control panel, the INEXT module and the air quality or humidity sensors to the corresponding terminals marked “U-G-B-A” using a 4 x 0.5 300/300 V cable. The total length of the cables should not exceed 30 m. Route the communication cables at least 30 cm away from the 230 VAC supply cables. Local crossing with 230 VAC cables is permissible.

5.3. CONNECTING THE NANO COLOR CONTROL PANEL



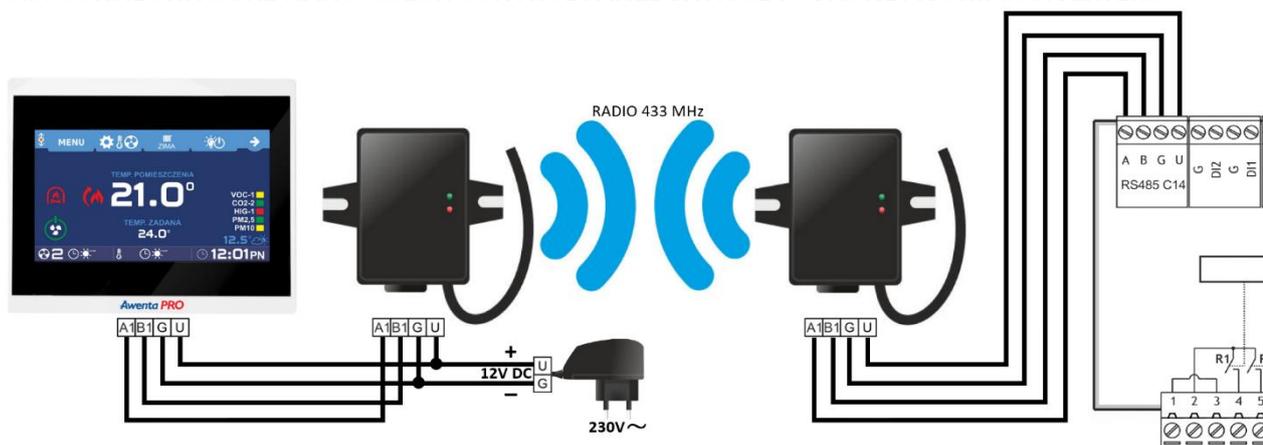
Note! The AERO 4 controller works only with NANO with number 1.

5.4. CONNECTING THE NANO COLOR CONTROL PANEL + NANO COLOR AUXILIARY PANEL

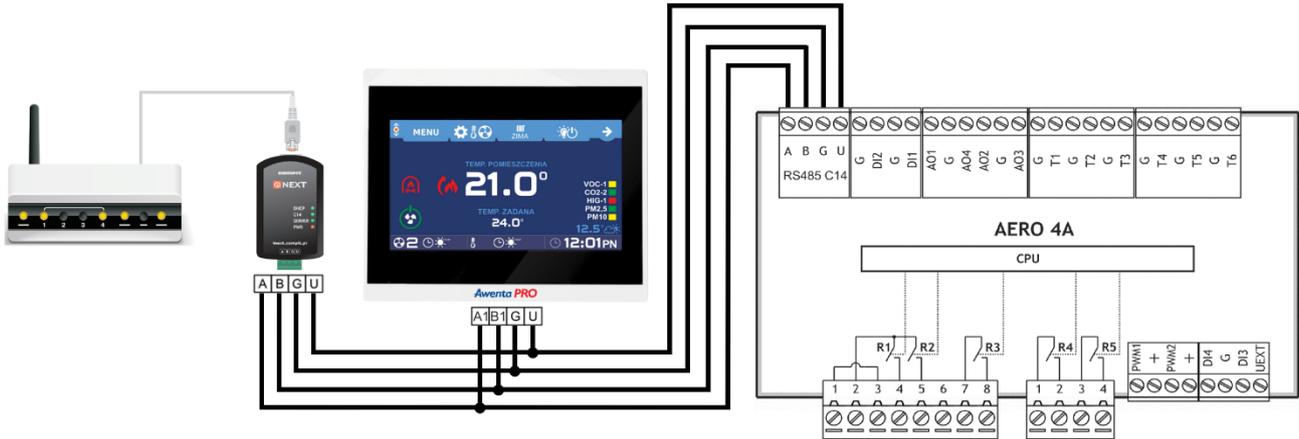


Note! The OPERATION AS AERO AUXILIARY PANEL option should be enabled on one of the control panels.

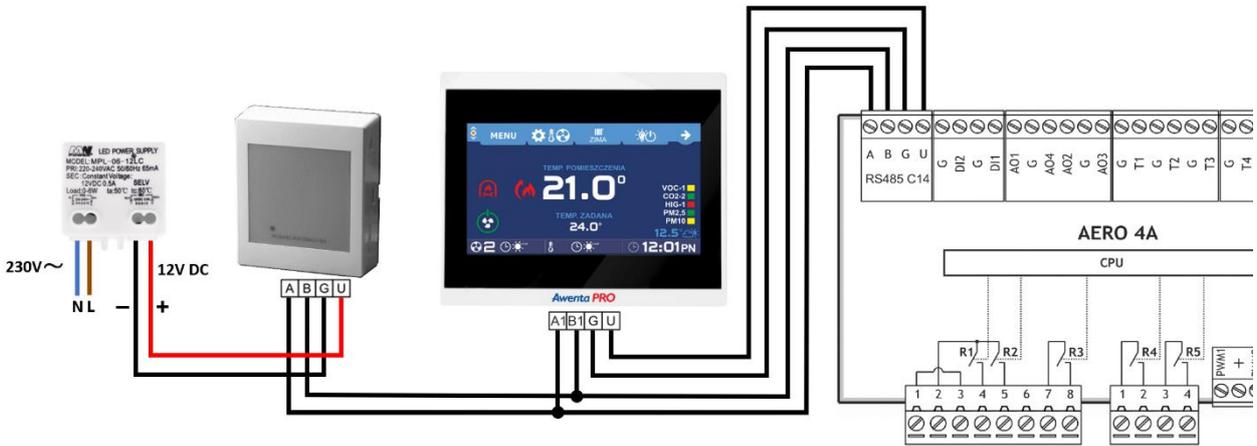
5.5. CONNECTING THE NANO COLOR CONTROL PANEL WITH C14 - VRS NETWORK CONVERTERS



5.6. CONNECTING THE NANO COLOR CONTROL PANEL WITH THE iNEXT VLAN INTERNET MODULE

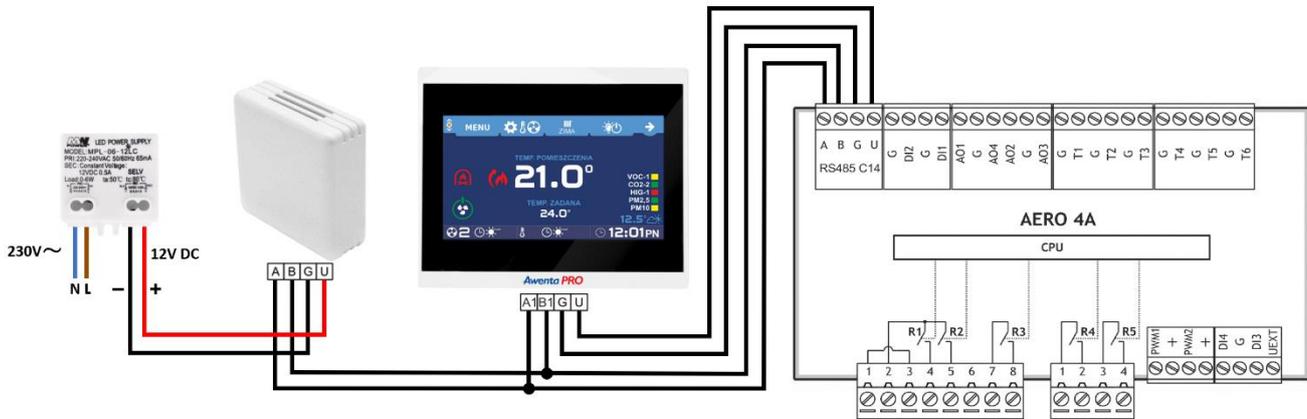


5.7. CONNECTING THE NANO COLOR CONTROL PANEL WITH VACS-1 AIR QUALITY SENSOR



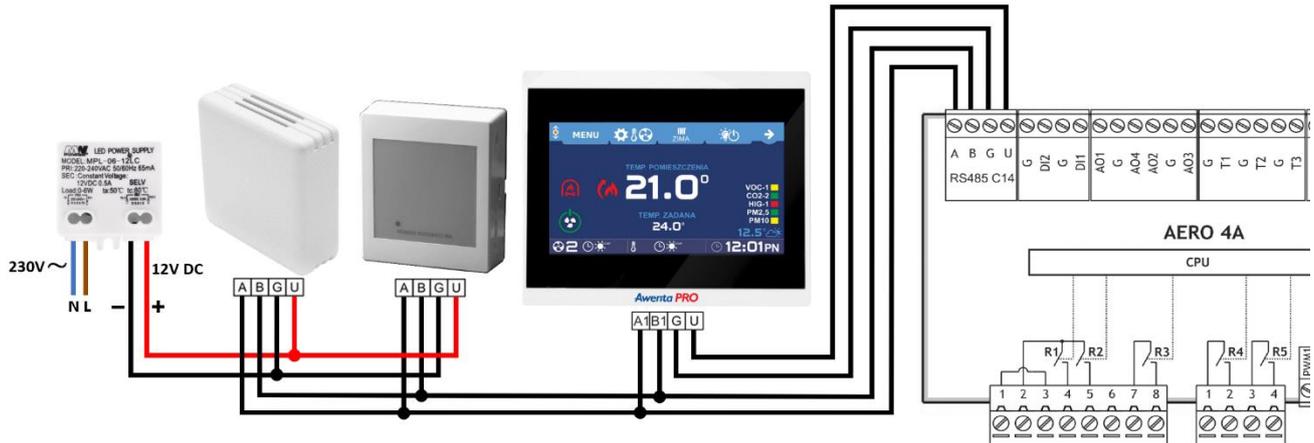
Note! Only one VACS-1 sensor can be connected to the device.

5.8. CONNECTING THE NANO COLOR CONTROL PANEL WITH THE VSHC or VSHW SENSOR



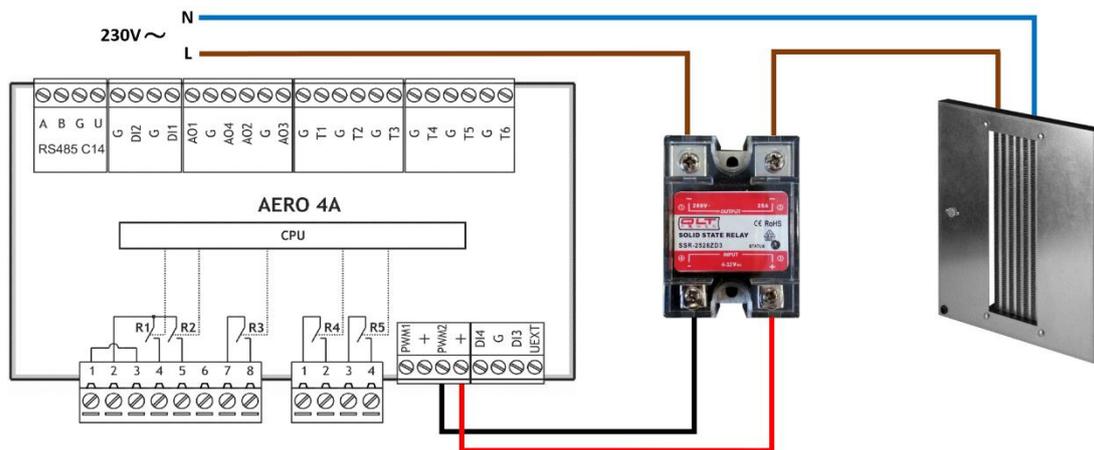
Note! Up to 4 VSHC or VSHW sensors and one VACS-1 sensor can be connected to the device.

5.9. CONNECTING THE NANO COLOR CONTROL PANEL WITH VSHC or VSHW and VACS-1 SENSORS



Note! Up to 4 VSHC or VSHW sensors and one VACS-1 sensor can be connected to the device.

5.10. CONNECTING THE VGRZH PREHEATER



Note!



It is also possible to connect a secondary heater. In this case, use the PWM1 and + outputs instead of PWM2. The secondary heater should be supplied from an external power source (do not use connectors inside the air handling unit). The secondary heater should be installed in the ventilation duct outside the unit.

Dane energetyczne wg załącznika IV ROZPORZĄDZENIA KOMISJI (UE) NR 1254/2014
 Energy data according to IV COMMISSION REGULATION (EU) No 1254/2014

Nazwa dostawcy / Supplier's name	AWENTA Spółka Jawna 05-300 Mińsk Mazowiecki Stojadła ul. Warszawska 99
Identyfikator modelu producenta / Supplier's model identifier	VZH405

Jednostkowe Zużycie Energii JZE / klasa [kWh/m ² /rok] / Specific Energy Consumption class SEC / class [kWh/m ² /yr]			
Rodzaj sterowania Type of control	Klimat / Climate		
	Chłodny / Cold	Umiarkowany / Average	Ciepły / Warm
Sterowanie czasowe * / Time control *	-67,8 / A+	-34,2 / A	-6,7 / F
Centralne sterowanie według zapotrzebowania** / Central control by demand **	-71,4 / A+	-34,9 / A	-9,6 / F
Lokalne sterowanie według zapotrzebowania *** / Local control by demand ***	-77,7 / A+	-39,2 / A	-14,5 / E

Deklarowany typ / Declared type	SWM dwukierunkowy / UVR bidirectional
Rodzaj napędu / Type of drive	Bezstopniowy / Stepless
Rodzaj układu odzysku ciepła / Type of heat recovery system	Przeponowy / Membranous
Sprawność ciepła odzysku ciepła / Thermal efficiency of heat recovery at reference air flow	85 %
Maksymalna wartość natężenia przepływu / Maximum flow rate	417 [m ³ /h]
Pobór mocy napędu wentylatora, w tym wszystkich układów sterowania silnika, przy maksymalnym natężeniu przepływu Electric power input of the fan drive, including any motor control equipment, at maximum flow rate	330 W
Poziom mocy akustycznej (L _{WA}) / Sound power level (L _{WA})	67,5 dB(A)
Wartość odniesienia natężenia przepływu / Reference flow rate	0,08 m ³ /s
Wartość odniesienia różnicy ciśnienia / Reference pressure difference	50 Pa
Jednostkowy pobór mocy JPM / Specific Power Input SPI	0,47 W/(m ³ /h)
Czynnik rodzaju sterowania / Control factor	System kanałowy / Duct system
Rodzaj sterowania / Control typology	Sterowanie czasowe * / Time control * Centralne sterowanie według zapotrzebowania** / Central control by demand ** Lokalne sterowanie według zapotrzebowania *** / Local control by demand ***
Deklarowany współczynnik maksymalnych wewnętrznych przecieków powietrza MISC / Maximum internal leakage rates MISC	2,1 %
Deklarowany współczynnik maksymalnych zewnętrznych przecieków powietrza MISC / Maximum external leakage rates MISC	2,3 %
Stopień mieszania / Mixing rate	Nie dotyczy / Not applicable
Umieszczenie i opis mechanizmu wizualnego ostrzeżenia o konieczności wymiany filtra / Position and description of visual filter warning	Ostrzeżenie na wyświetlaczu urządzenia / Warning on the device display
Adres strony internetowej / Internet address	www.awenta.pl
Podatność przepływu powietrza na zmiany ciśnienia +20Pa i -20Pa Airflow sensitivity to pressure variations at +20Pa and -20Pa	Nie dotyczy / Not applicable
Szczelność między wnętrzem i obszarem na zewnątrz budynku / Indoor / outdoor air tightness	Nie dotyczy / Not applicable

Roczne zużycie energii RZE [kWh/m ² /rok] / Annual Energy Consumption [kWh/m ² /yr] Roczna oszczędność w ogrzewaniu ROO [kWh/m ² /rok] / Annual heating saving [kWh/m ² /yr]						
Rodzaj sterowania Type of control	Klimat / Climate					
	Chłodny / Cold		Umiarkowany / Average		Ciepły / Warm	
	RZE	ROO	RZE	ROO	RZE	ROO
Sterowanie czasowe * / Time control *	13,4	81,2	13,4	44,0	13,4	20,1
Centralne sterowanie według zapotrzebowania** / Central control by demand **	10,7	82,1	10,7	44,5	10,7	20,3
Lokalne sterowanie według zapotrzebowania *** / Local control by demand ***	6,3	84,0	6,3	45,4	6,3	20,8

* wyposażenie standardowe / standard equipment

** opcja z czujnikiem CO₂ lub czujnikiem wilgotności / option with CO₂ sensor or humidity sensor

*** opcja z czujnikiem CO₂ oraz czujnikiem wilgotności / option with CO₂ sensor and humidity sensor

Dane energetyczne wg załącznika IV ROZPORZĄDZENIA KOMISJI (UE) NR 1254/2014
 Energy data according to IV COMMISSION REGULATION (EU) No 1254/2014

Nazwa dostawcy / <i>Supplier's name</i>	AWENTA Spółka Jawna 05-300 Mińsk Mazowiecki Stojadła ul. Warszawska 99
Identyfikator modelu producenta / <i>Supplier's model identifier</i>	VZH605

Jednostkowe Zużycie Energii JZE / klasa [kWh/m ² /rok] / <i>Specific Energy Consumption class SEC / class [kWh/m²/yr]</i>			
Rodzaj sterowania <i>Type of control</i>	Klimat / <i>Climate</i>		
	Chłodny / <i>Cold</i>	Umiarkowany / <i>Average</i>	Ciepły / <i>Warm</i>
Sterowanie czasowe * <i>/ Time control *</i>	-68,4 / A+	-34,7 / A	-9,6 / F
Centralne sterowanie według zapotrzebowania** <i>/ Central control by demand **</i>	-71,6 / A+	-35,3 / A	-11,8 / E
Lokalne sterowanie według zapotrzebowania *** <i>/ Local control by demand ***</i>	-77,3 / A+	-39,8 / A	-15,7 / E

Deklarowany typ / <i>Declared type</i>	SWM dwukierunkowy / <i>UVR bidirectional</i>
Rodzaj napędu / <i>Type of drive</i>	Bezstopniowy / <i>Stepless</i>
Rodzaj układu odzysku ciepła / <i>Type of heat recovery system</i>	Przeponowy / <i>Membranous</i>
Sprawność cieplna odzysku ciepła / <i>Thermal efficiency of heat recovery at reference air flow</i>	80,0 %
Maksymalna wartość natężenia przepływu / <i>Maximum flow rate</i>	616 [m ³ /h]
Pobór mocy napędu wentylatora, w tym wszystkich układów sterowania silnika, przy maksymalnym natężeniu przepływu <i>Electric power input of the fan drive, including any motor control equipment, at maximum flow rate</i>	405 W
Poziom mocy akustycznej (L _{WA}) / <i>Sound power level (L_{WA})</i>	57,6 dB(A)
Wartość odniesienia natężenia przepływu / <i>Reference flow rate</i>	0,12 m ³ /s
Wartość odniesienia różnicy ciśnienia / <i>Reference pressure difference</i>	50 Pa
Jednostkowy pobór mocy JPM / <i>Specific Power Input SPI</i>	0,35 W/(m ³ /h)
Czynnik rodzaju sterowania / <i>Control factor</i>	System kanałowy / <i>Duct system</i>
Rodzaj sterowania / <i>Control typology</i>	Sterowanie czasowe * / <i>Time control *</i> Centralne sterowanie według zapotrzebowania** / <i>Central control by demand **</i> Lokalne sterowanie według zapotrzebowania *** / <i>Local control by demand ***</i>
Deklarowany współczynnik maksymalnych wewnętrznych przecieków powietrza MISC / <i>Maximum internal leakage rates MISC</i>	2,1 %
Deklarowany współczynnik maksymalnych zewnętrznych przecieków powietrza MISC / <i>Maximum external leakage rates MISC</i>	2,3 %
Stopień mieszania / <i>Mixing rate</i>	Nie dotyczy / <i>Not applicable</i>
Umieszczenie i opis mechanizmu wizualnego ostrzeżenia o konieczności wymiany filtra / <i>Position and description of visual filter warning</i>	Ostrzeżenie na wyświetlaczu urządzenia / <i>Warning on the device display</i>
Adres strony internetowej / <i>Internet address</i>	www.awenta.pl
Podatność przepływu powietrza na zmiany ciśnienia +20Pa i -20Pa <i>Airflow sensitivity to pressure variations at +20Pa and -20Pa</i>	Nie dotyczy / <i>Not applicable</i>
Szczelność między wnętrzem i obszarem na zewnątrz budynku / <i>Indoor / outdoor air tightness</i>	Nie dotyczy / <i>Not applicable</i>

Roczne zużycie energii RZE [kWh/m ² /rok] / <i>Annual Energy Consumption [kWh/m²/yr]</i> Roczna oszczędność w ogrzewaniu ROO [kWh/m ² /rok] / <i>Annual heating saving [kWh/m²/yr]</i>						
Rodzaj sterowania <i>Type of control</i>	Klimat / <i>Climate</i>					
	Chłodny / <i>Cold</i>		Umiarkowany / <i>Average</i>		Ciepły / <i>Warm</i>	
	RZE	ROO	RZE	ROO	RZE	ROO
Sterowanie czasowe * <i>/ Time control *</i>	9,8	78,2	9,8	42,5	9,8	19,4
Centralne sterowanie według zapotrzebowania** <i>/ Central control by demand **</i>	7,9	79,5	7,9	43,1	7,9	19,7
Lokalne sterowanie według zapotrzebowania *** <i>/ Local control by demand ***</i>	4,6	81,9	4,6	44,4	4,6	20,3

* wyposażenie standardowe / *standard equipment*

** opcja z czujnikiem CO₂ lub czujnikiem wilgotności / *option with CO₂ sensor or humidity sensor*

*** opcja z czujnikiem CO₂ oraz czujnikiem wilgotności / *option with CO₂ sensor and humidity sensor*



Manufacturer:

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