



VENTILATION SYSTEM INSTALLATION

INDUSTRIAL SERIES

PRANA 250

● recuperators



Use the QR code or visit the website*1:
<http://prana.help/b22> to overview useful information such as
ventilation system information, owner's manual and other.

- Some content may vary from device and may vary by model, region, or software version, and is subject to change without prior notice warning.
- Read all safety information carefully to ensure safe and proper use of the device.

Before using and installing the product read the user's manual carefully.

After reading the user manual, keep it for as long as you use the product and be sure to provide the user manual when passing the control to another user.

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WARNING AND SAFETY MEASURES

- This appliance can be used by children aged from 8 years and above, people with reduced physical, sensory or mental capabilities or with lack of experience and knowledge as long as they are supervised or instructed on the safe use of the device and understand the hazards involved. Do not allow children to play with the unit.

Servicing and mounting of the system should not be performed by kids. The system has to be installed in places which are excluding kids acces.

- Asphyxiation danger. The appliance may contain small parts. Some of these small parts may need to be disassembled during the cleaning and operation maintenance. Be careful and keep small parts out of the reach of children.

- Begore the use make sure that the installation complies with the mechanical and electrical regulations which are in force in the country where the installation was carried out.

- Unqualified users must not install, move, disassemble, modify or repair the recuperator by themselves. Begore the use make sure that the installation complies with the mechanical and electrical regulations which are in force in the country where the installation was carried out.

- The presence of excessive windage can affect the performance of the system.

- The manufacturer is not responsible for the installation that is carried out by an unqualified specialist (or group of specialists) and all subsequent consequences connected with it. Incorrect installation will invalidate the warranty.

- The fan inside the device rotates during operation. Avoid putting foreign objects inside the device during operation. Doing so may result in personal injury.

- The product should only be serviced by a suitably qualified person with the appropriate electrical safety clearance who is familiar with the user manual.

- The power supply voltage must be supplied through a switch that disconnects all supply phases in accordance with wiring regulations. Do not operate the product without grounding.

- Before carrying out any maintaining operations, it is necessary to de-energize the unit (unplug it or turn off the main power switch and wait for the fans to stop completely).

- Do not dispose the ventilation system with household waste at the end of its useful life. Dispose of the unit at the appropriate collection points provided in your country.

- When connecting the product to the mains do not use damaged equipment and wires. If there is any extraneous noise, odor, or smoke, immediately turn off the power with the circuit breaker.

Continued use of the product can cause smoke, fire, electric shock or injury. Contact the manufacturer's service center or dealer in your area for repairs.

- The air ducts must be equipped with grills or other device preventing free access to the fans.

- Do not locate the junction box at the lowest point of the product to prevent condensation and risk of shorting. Do not expose the product to water. Do not install or maintain the product with wet hands.

Always keep the conductive parts of the network dry, insulated and inaccessible in order to prevent accidents or short-circuits in the network.

- Do not install heating equipment for air intake. Incomplete combustion products can cause an accident.

- When using the system with other ventilation systems in operation in the same room, the performance of the unit may differ.

- Use the product only for its intended use.

- The air being conveyed must not contain inflammable or explosive mixtures, chemically active vapors, sticky substances, fibrous materials, coarse dust, soot, grease, or media that promote the formation of harmful substances (poison, dust, pathogenic microorganisms).

- To avoid reverse draught in rooms where fireplaces, gas heaters and other equipment producing or different gas mixtures are in operation, the «Separate control» mode must not be used.

- Do not block the condensate drain, as this may cause equipment failure and water ingress into the room.

- The manufacturer declines responsibility for possible damage directly or indirectly caused by the ventilation system to people, animals, property if it is caused by failure of observing the operating rules and conditions, product adjustment, intentional or negligent actions of the buyer (user) or third parties

BASIC INSTALLATION RULES

There are three versions of PRANA 250 ventilation systems:

- Internal version;
- Wall version;
- Combined version (the system is mounted in the plane of the wall on the other side can have round or flat ducts for connecting ducts).

In the internal version of the ventilation system it is mounted under the ceiling on in a wall.

In the wall and combined version, the ventilation system is mounted in a wall opening of the appropriate diameter.

There are restrictions on the length of the operating module, so you must specify the thickness of the wall (required for installation) when making an order.

The mounting of the system in the internal version is made to a solid and stable surface.

The fixing of the PRANA 250 system to the wall must be made through vibration absorbers to avoid transmitting any minor vibrations to the ceiling or the wall.

The connection of the ducts to the ventilation system must be made through vibration-absorbing inserts to eliminate the transmission of vibration to the ducts.

The connection of the ducts and their designation

are determined by the instructions on the housing of the ventilation system.

The ducts, the ventilation system housing, the ventilation system motor housing, are insulated with thermal insulation materials as intended (if necessary).

In order to avoid contamination of the heat exchanger of the ventilation system, a filter box must be installed on the outside air duct section and, if necessary, on the exhaust air ducts from the room.

If the outside air temperature is below +4°C the ventilation system in the wall and combination variants should be used with the «Winter mode» and «Mini-heating» functions activated.

To ensure the optimal operation of the ventilation system and to reduce aerodynamic losses associated with air flow turbulence, it is necessary to have at least 1 meter of straight

ductwork at the recuperator inlets and outlets, after which off takes, tees and other ductwork elements can be installed.

For efficient operation of the ventilation system to ensure the maximum efficiency of the ventilation system, it is recommended to make aerodynamic calculations of the duct network. For noise reduction, we recommend installing sound attenuators.

Aerodynamic calculation of air ducts, selection of ventilation grilles and other additional elements should be performed exclusively by a professional design engineer.

When the ventilation system is in operation, it is possible that condensate accumulates inside the unit. That way it is necessary to ensure condensate drainage from the recuperator (see details in «Condensate drainage» section).

The ventilation system is mounted under the ceiling or on the wall in the room using fasteners.

Operation of the system should be carried out in rooms with internal air temperature from +10 °C to +40 °C and relative humidity up to 80%.

In case of condensation on the housing and on the fan unit, additional thermal insulation should be done.

Prohibited installation and operation of the ventilation system to the outside that has direct contact with external factors.

For the intake of outside and exhaust air, grilles are installed on the façade of the building, connected to the ventilation system with air ducts.

The distance between the external grilles is determined according to the regulations in force in your country.

Make sure that the outdoor air intake grille is positioned so that no smoke or other harmful gases will enter the room.

If the intake air is contaminated, the quantity and quality of oxygen in the room may be reduced.

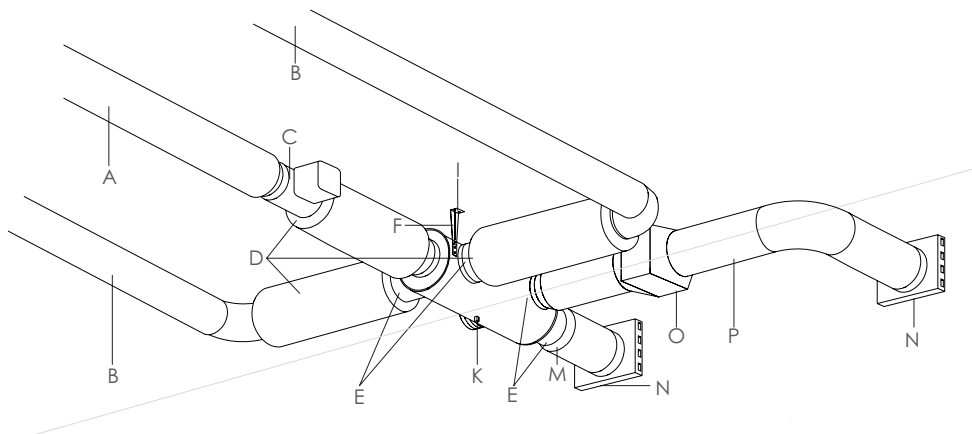
Access must be provided for maintenance of the ventilation system, calorifiers and filters.

If these elements will be hidden in the construction of ceiling - a revision door must be installed to access each of the elements.

To avoid discomfort to users the appliance is to be installed in technical rooms and install soundproofing materials if necessary.

A list of more installation options for the PRANA 250 ventilation systems can be viewed in the document «Design options» at the link:

(prana.help/b22).



Example of the correct installation of the PRANA 250 ventilation system (TYPE1).

Designation and location of air ducts or additional elements may vary depending on the version.

Unit designations:

- A – Tidal air duct;
- B – Extract air duct;
- C – Heat exchanger;
- D – Noise attenuator;
- E – Flexible insert;
- F – System attachment;
- I – Vibration absorber;
- J – PRANA-250;
- K – Condensate drain;
- M – Exhaust air duct;
- N – Outer grille;
- O – Filter;
- P – Exterior air duct.

INSTALLATION OF THE WALL MODULE PRANA-250

The ventilation system of the wall version is mounted in a hole of appropriate diameter (from 260 mm) with a 2-3° slope towards the street.

The casing (excluding the air intake grille in the rear of the unit) must protrude at least 1-2 cm outside the wall. Failure to do so may result in condensed moisture entering the room and causing failure of the ventilation system.

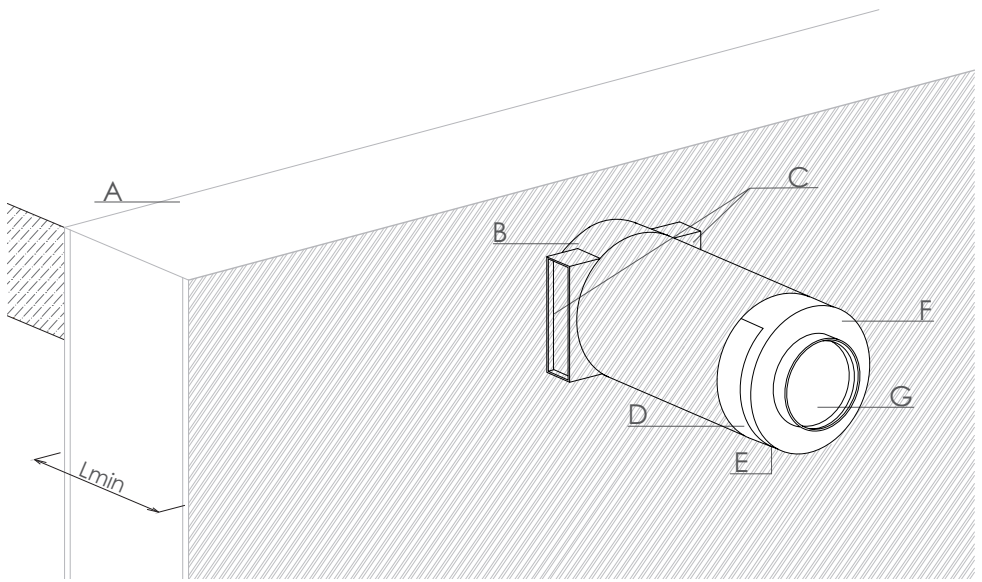
Before ordering this model it is necessary to note the thickness of the wall where the air handling unit is to be installed. The thickness of the wall must correspond to the distance between the air intake grilles, located on the case of the unit.

The minimum distance between the grids is 380 mm, in this case the wall thickness must be $L_{min} \leq 360$ mm. If the wall thickness is greater, the unit must be manufactured to order with the required grid spacing.

For service purposes, the ventilation system must be completely removed from the wall.

Wall-mounted ventilation systems must be equipped with a mini heater option to prevent the heat exchanger from icing up.

If a duct heater must be installed, an additional section of tidal ducting must be installed.



Unit designations:

- A - Exterior wall;
- B - Tidal air spigot;
- C - Exhaust air pipe;
- D - Grille for outside air intake;
- E - Condensate drain;
- F - PRANA-250;
- G - Exhaust air pipe.

INSTALLATION OF COMBINED MODULE PRANA-250

The ventilation system of the combined version is mounted similarly to the wall version in a hole of appropriate diameter (from 260 mm) with a 2-3° slope towards the street.

The casing (excluding the air intake grille in the back of the device) must protrude beyond the wall from the outside at least 1-2 cm. Failure to do so may result in condensed moisture entering the room and causing failure of the ventilation system.

Before ordering this model it is necessary to indicate the thickness of the wall where the ventilation system is to be installed.

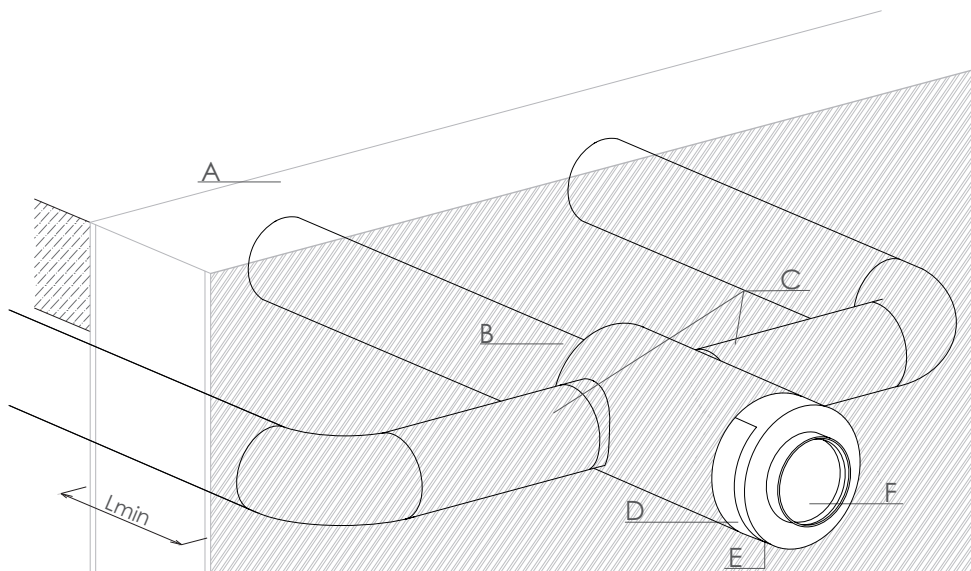
The thickness of the wall must correspond to the distance between the air intake grilles located on the body of the air handling unit. The minimum distance between these grilles and duct spigots is 400 mm, in which case the wall thickness must be $L_{min} \leq 380$ mm (for PRANA-250 TYPE3). The minimum distance between these grilles and duct spigots is 380 mm, in which case the wall thickness should be $L_{min} \leq 360$ mm (for the RANA-250 TYP6 system) If the wall thickness is greater, the unit must be custom made with the required distance between the grilles.

For service, it will be necessary to completely remove the ventilation system from the wall.

The wall-mounted air handling units must be equipped with heater elements to prevent the heat exchanger from icing up.

If it is necessary to install a heater, a section of tidal air duct must be additionally installed.

The system has a supply and exhaust grille on one side and a duct connection on the other (internal) side.



Unit designations:

- A - Exterior wall;
- B - Tidal air spigot;
- C - Internal air intake spigot;
- D - Grille for outside air intake;
- E - Bottom condensate drain;
- F - Exhaust air pipe.

CONNECTION TO THE POWER SUPPLY

At the external input (230 V/50 Hz or 400 V/50 Hz) there must be a circuit breaker built into the fixed power supply network which breaks all phases of the network.

The external circuit breaker must be located so that it is freely accessible for quick disconnection.

The protection tripping current shall correspond to the maximum consumption current of the control unit, the ventilation system and the heater.

The control unit is connected to a 240V or 400V supply (3x2.5 or 5x2.5) depending on the model and application of the unit.

The ventilation system is connected to the control unit with 4x0,75 or 6x0,75 wires, 2 supply (L,N) wires, 2 exhaust (L,N) wires and 2 mini-heat (L,N) wires (optional).

To connect the supply air afterheating, 5x1,5 (up to 3,6 kW) 5x2,5 (up to 6,0 kW) conductors are used.

To connect the overheating sensor of the heating element 2x0.75 conductors are used.

To connect the temperature sensor in the supply duct, 2x0.75 conductors are used.

The system is controlled by remote control, mobile app, details can be viewed in the brief user manual.

STANDARD ELECTRICAL CONNECTION SCHEME

Connection scheme in the «STANDARD» equipment.

Terminal (INPUT): power connection ~230V (Connection is made to the power supply unit and to the control unit).

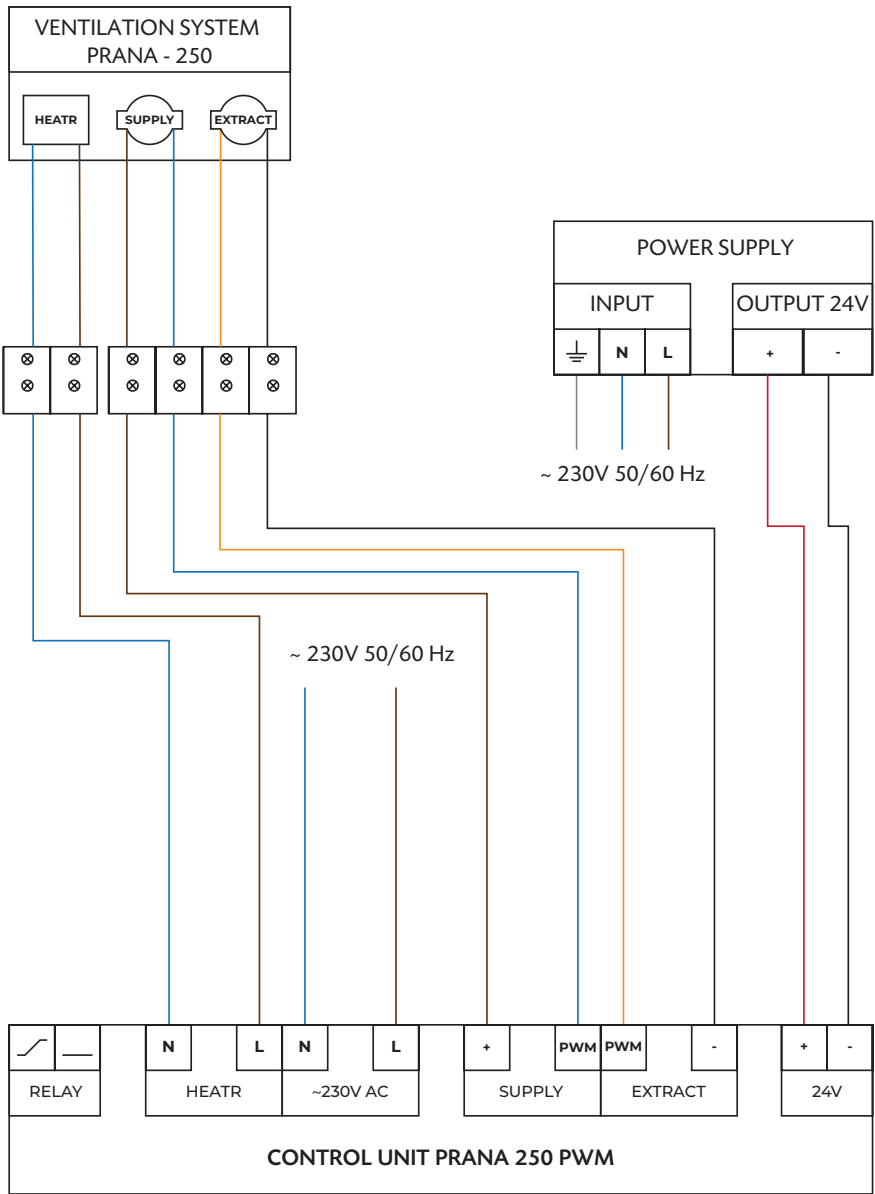
Terminal (OUTPUT 24V): connects to the contact group 24V to the control unit (with polarity preserved).

Terminal (HEATR): Connects to the similar «HEATR» terminal on the PRANA 250 ventilation system.

TERMINALS (SUPPLY) and (EXTRACT): Connect to similar contacts on the PRANA 250 ventilation system.

Binding in this case occurs by the colors of the conductors.

EXTRACT (-) Black, EXTRACT (PWM)) Yellow,
SUPPLY (PWM) Blue, SUPPLY (-) Brown.



ELECTRICAL CONNECTION SCHEME 250A

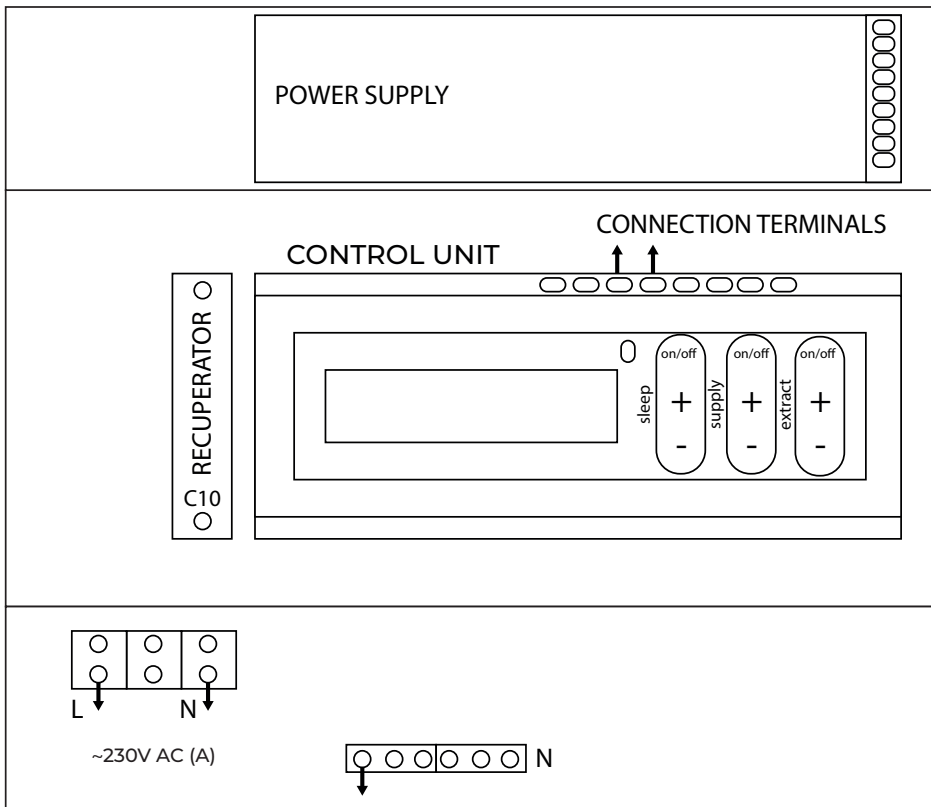
Connection scheme in «A» equipment.

Execution in an electrical box.

Terminal (~230V AC (A)): power supply connection ~230V.

BUS (N): Can be used as a circuit ground if required.

The ventilation system is connected to the control unit.



Terminals (~230V AC (B)) and (24V):

There is no need to connect. In this equipment, such performance has already been carried out. Reconnection may result in fire and/or failure of the control system, ventilation system, or electroconducting.

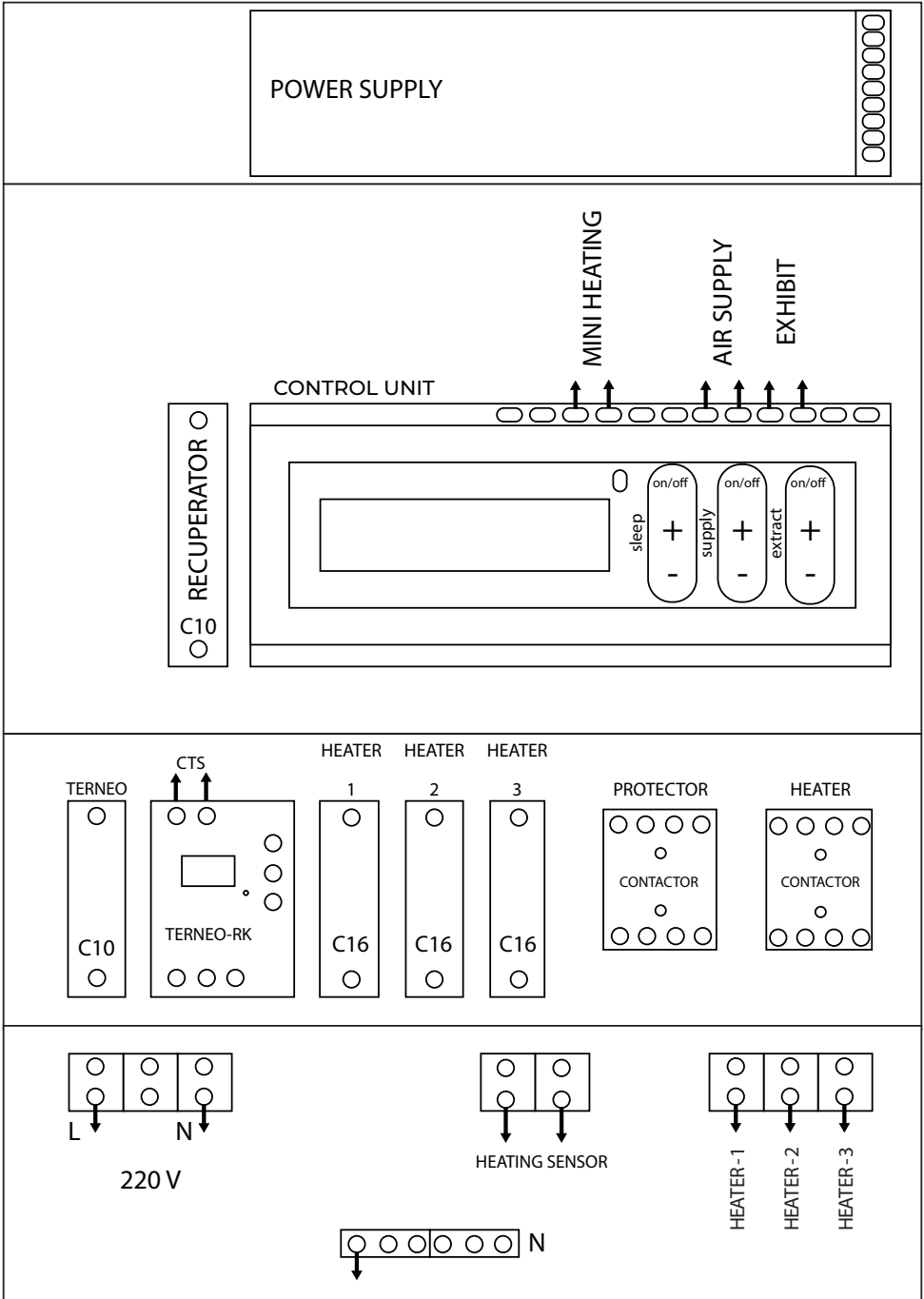
Terminal (HEATR): Connects to the similar «HEATR» terminal on the PRANA 250 ventilation system. (If the system is equipped with the mini-heating function).

TERMINALS (SUPPLY) and (EXTRACT): Connect to similar contacts on the PRANA 250 ventilation system.

Binding in this case occurs by the colors of the conductors.

EXTRACT (-) Black, EXTRACT (PWM) Yellow,
SUPPLY (PWM) Blue, SUPPLY (+) Brown.

ELECTRICAL CONNECTION SCHEME 250 DP H 220





		L	N	L	N	+	PWM	PWM	-	+	-
RELAY		HEATR	~230V AC (B)			SUPPLY	EXTRACT			24V	
CONTROL UNIT PRANA 250 DP											

Terminal (~230V AC (A)): power supply connection ~230V.
 BUS (N): Can be used as a circuit ground if needed.

Terminals (~230V AC (B)) and (24V): There is no need to connect. In this equipment, such performance has already been carried out. Reconnection may result in fire and/or failure of the control system, ventilation system, or electroconducting.

The «heating element sensor» terminal is connected to the terminal located in the heating element under number 1, 2.

Terminal TEN1, TEN2, TEN3: connected to the TEN terminal under numbers 5, 6, and 7.

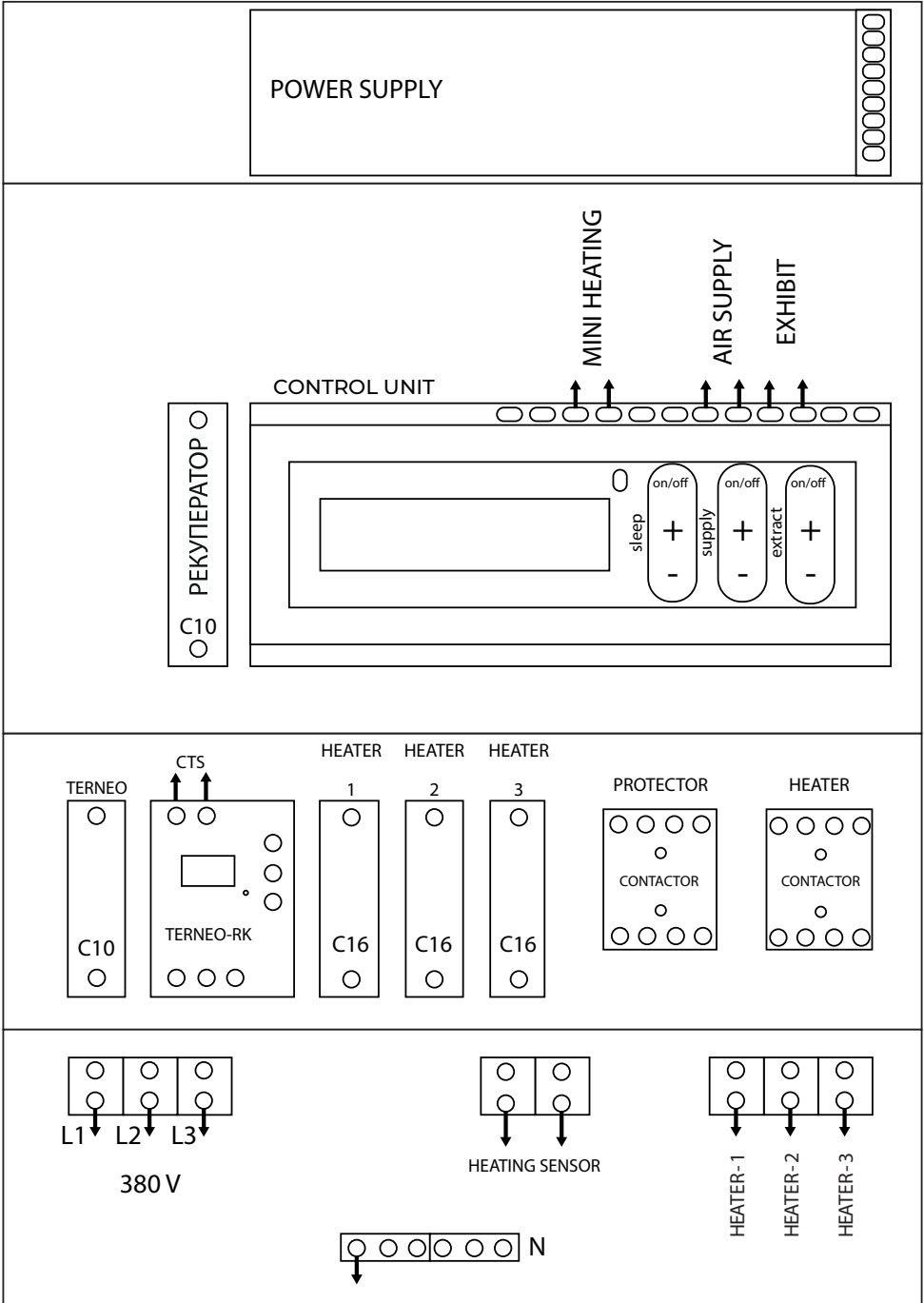
CTS – A channel temperature sensor on a wire is mounted in the ventilation channel.

THESE TERMINALS ARE LOCATED ON THE PRANA 250 DP CONTROL UNIT. The ~ventilation system is connected to the control unit.

Terminal (HEATR) MINI HEATING: It connects to the similar «HEATR» terminal on the PRANA 250 ventilation system. (If the system is equipped with a mini-heating function).
 TERMINALS (SUPPLY) and (EXTRACT): Connect to similar contacts on the PRANA 250 ventilation system.

Binding in this case occurs by the colors of the conductors. EXTRACT (-) Black, EXTRACT (PWM) Yellow, SUPPLY (PWM) Blue, SUPPLY (+) Brown.

ELECTRICAL CONNECTION SCHEME 250 DP H 380





		L		N		L		N		+		PWM	PWM		-		+		-
RELAY		HEATR		~230V AC (B)				SUPPLY		EXTRACT		24V							
CONTROL UNIT PRANA 250 DP																			

Terminals (L1, L2, L3): 380V power connection.

BUS (N):

Can be used as earthing circuit if needed.

Terminals (~230V AC (B)) and (24V): There is no need to connect. In this equipment, such performance has already been carried out. Reconnection may result in fire and/or failure of the control system, ventilation system, or electroconducting.

The terminal «heating sensor sensor» is connected to the terminal, which is in the heating sensor number 1,2.

The terminal of heating sensor 1,2,3:

Connects to the terminal that is on the STRAIN GAGE numbered 5,6,7.

KDT - channel temperature sensor on the wire is mounted in the ventilation duct.

THESE TERMINALS ARE LOCATED ON THE CONTROL UNIT PRANA 250 DP The ventilation system is connected to the control unit.

Terminal (HEATR) MINI HEATER: Connects to the same «HEATR» terminal on the PRANA 250 ventilation system. (If the system is equipped with the miniheat function).

CLEMES (SUPPLY) and (EXTRACT): Connects to

The same contacts on the PRANA 250 ventilation system.

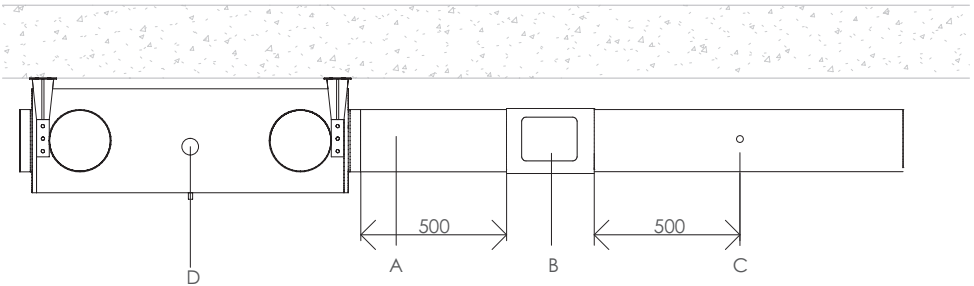
Binding in this case occurs by the colors of the conductors. EXTRACT (-) Black, EXTRACT (PWM) Yellow, SUPPLY (PWM) Blue, SUPPLY (+) Brown.

WIRING OF DUCT SENSOR TEMPERATURE (CDT)

When using ventilation systems with electric duct heater connection and using the CONTROL BLOCK PRANA-250 H control unit, a complete duct temperature sensor should be in the complete.

The complete sensor is housed in a dust and moisture-proof protective enclosure with a 2 metre-long conductor. If necessary, the wire can be extended to the required length using 2x0.75 conductors.

Channel temperature sensor - monitors the set temperature and regulates the power of heating elements by switching the heating element on and off alternately. The sensor is installed in the tidal air duct at a distance of 0.5 m after the duct heater.



Schematic diagram of installation of a duct temperature sensor.

Unit designations:

A – Supply air duct;

B – Duct heater;

C - Duct temperature sensor;

D - PRANA-250.

CONDENSATE DRAIN

In the wall version of the ventilation system the condensate is removed naturally to the outside, in the lower part of the housing through the air intake, when installing the unit at an angle of 2-3° inclination towards the street;

In the wall version of the ventilation system should be equipped with a «mini-heater» option to protect the heat exchanger from frosting and effective condensate removal;

In the combined version of the ventilation system condensate removal is carried out similarly to the wall version.

In the internal version of the ventilation system the condensate is drained at the bottom of the unit using a 10 mm diameter nozzle.

The unit is mounted in such a way that the recuperator side with the condensate drain pipe is in the lower part.

The ventilating system is mounted horizontally without any inclination. Condensate drainage into the existing sewage system. Condensate drainage pipes should have at least 3 cm per 1 meter of downward slope.

The condensate shall be drained into the sewage system via a siphon.

The condensate drain system shall not be operated in rooms where the temperature is below 0 °C! If the temperature is below 0 °C, the condensate drain system must be insulated with thermal insulation or equipped with heating.

