OPERATING MANUAL

Ventilation supply unit

INTRODUCTION

This operating manual is joined with technical description, operation instruction and technical certificate for **Ventilation Intake Unit** (hereinafter referred to as **«VPA»**) and contains information concerning the mounting, rules and warnings essential for proper and safety **VPA** operation.

Prior to commencement of operation, carefully read this manual and observe the instructions given in it.

DESIGNATION

VPA is designed for supplying the cleaned and heated outer air, free of flammable or explosive substances, chemically active fumes, dust, carbon black, etc., to residential and public buildings (individual houses, offices, hotels, conference-halls and other premises), and for providing the required quality of the air. The unit is mounted in enclosed and dry room with ambient temperature + 1 °C to + 40 °C.

VPA is mounted in the air-distributing system by connecting to round air ducts.

VPA is a component part and is not a subject of independent operation.

DELIVERY SET

Delivery set contents:

- VPA (appropriate type) - 1 pc.
- remote control panel with temperature sensor - 1 pc.
- duct temperature sensor - 1 pc.
- operating manual - 1 pc.
- transportation package: wooden box - 1 pc.

PROTECTION RATE

According to type of protection against the access to dangerous parts and water penetration:

the motors used in **VPA** are related to devices of Class IP 44 (protection against the bodies with size more than or equal to 1,0 mm; protected against the water splashes);
— **VPA** installed in the pipeline is related to devices of Class IP 22 (protection against the bodies with size more than or equal to 12.5 mm; protected against the water drops falling down vertically when the casing is deVPAted at angle of 15 °).

DESIGN LETTERS DIAGRAM

VPA XXX X.X X

Number of supply voltage phases:

1.3

Heater power, kW

1.8 2.4 3.4 3.6 5.1 6.0 9.0

Diameter of connecting tubes, mm:

100, 125, 150, 200, 250, 315

Device type:

VPA - ventilation inlet unit

Example of design letters:

Ventilation input unit VPA, diameter of connecting tubes 150 mm, heater power 6.0 kW, phase connection: **«VENTS VPA 150-6.0-3»**

BASIC PARAMETERS AND DIMENSIONS

Basic technical parameters correspond to values shown in table 1. Overall and mounting dimensions are shown in table 2 and in fig. 1.

VPA design is improved continuously and, therefore, some models can slightly differ from those described in this operating manual.

Table 1

	VPA 100-1.8-1	VPA 125-2.4-1	VPA 150-2.4-1	VPA 150-3.4-1	VPA 150-5.1-3	VPA 150-6.0-3	VPA 200-3.4-1	VPA 200-5.1-3	VPA 200-6.0-3
Voltage [V / 50 Hz]	1~ 230		1~ 230		3~ 400		1~ 230	3~ 400	
Maximum fan power [W]	73	75	98				193		
Fan current [A]	0.32	0.33	0.43				0.84		
Electric heater power [kW]	1.8	2.4	2.4	3.4	5.1	6.0	3.4	5.1	6.0
Electric heater current [A]	7.8	10.4	10.4	14.8	7.4	8.7	14.8	7.4	8.7
Number of electrical heating elements	3	3	2	2	3	3	2	3	3
Total unit power [kW]	1.873	2.475	2.498	3.498	5.198	6.098	3.593	5.293	6.193
Total unit current [A]	8.12	10.73	10.83	15.23	7.83	9.13	15.64	8.24	9.54
Air capacity [m³/h]	190	285	425				810		
RPM	2830	2800	2705				2780		
Noise level at 3 m [dBA]	27	28	29				30		
Transported air temperature [°C]	-25 up to +55		-25 up to +55				-25 up to +45		
Casing material	aluzinc		aluzinc				aluzinc		
Insulation	25 mm mineral wool		25 mm mineral wool				25 mm mineral wool		
Filter	G4		G4				G4		
Connected air duct size [mm]	100	125	150				200		
Weight [kg]	50		50				52		

	VPA 250-3.6-3	VPA 250-6.0-3	VPA 250-9.0-3	VPA 315-6.0-3*	VPA 315-9.0-3*	VPA-1 315-6.0-3*	VPA-1 315-9.0-3*
Voltage [V / 50 Hz]	3~ 400			3~ 400			
Maximum fan power [W]	194			171		296	
Fan current [A]	0.85			0.77		1.34	
Electric heater power [kW]	3.6	6.0	9.0	6.0	9.0	6.0	9.0
Electric heater current [A]	5.3	8.7	13.0	8.7	13.0	8.7	13.0
Number of electrical heating elements	3	3	3	3	3	3	3
Total unit power [kW]	3.794	6.194	9.194	6.171	9.171	6.296	9.296
Total unit current [A]	6.15	9.55	13.85	9.47	13.77	10.04	14.34
Air capacity [m³/h]	990			1190		1520	
RPM	2790			2600		2720	
Noise level at 3 m [dBA]	30			30		30	
Transported air temperature [°C]	-25 up to +50			-25 up to +50		-25 up to +45	
Casing material	aluzinc			aluzinc			
Insulation	25 mm mineral wool			25 mm mineral wool			
Filter	G4			G4			
Connected air duct size [mm]	250			315			
Weight [kg]	52			62			

Table 2

Type	Max. dimensions, mm					
	ØD	B	B1	H	L	L1
VPA 100…	99	382	421.5	408	800	647
VPA 125…	124	382	421.5	408	800	647
VPA 150…	149	455	496.5	438	800	647
VPA 200…	199	487	526.5	513	835	684
VPA 250…	249	487	526.5	513	835	684
VPA 315…	314	527	566.5	548	900	750

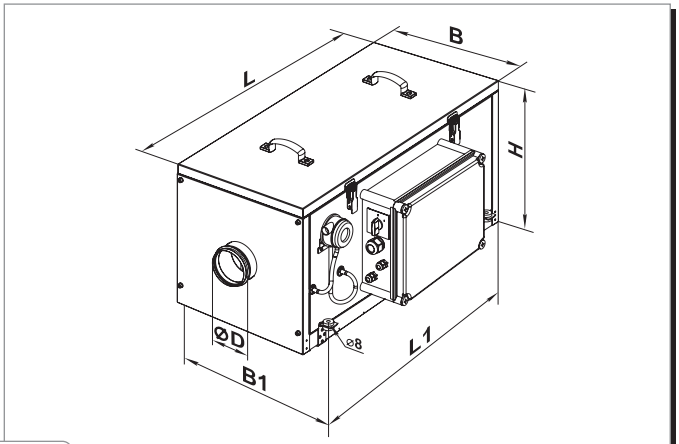


Fig. 1

SAFETY REQUIREMENTS

During installation and operation of **VPA**, there must be fulfilled the requirements of this operating manual, «Electric installations arrangement rules», «Rules of consumers» electric installations technical operation», «Rules of consumers» electric installations safe operation», valid construction codes, and «Rules of fire safety in Ukraine» as well.

VPA relates to electric equipment and, therefore, it is necessary to observe the safety rules concerning the electric equipment handling.

To servicing and mounting this product there are admitted the persons authorized to independent work on electric installations up to 1000 V and carefully studied this operating manual.

VPA must be used according to its designation only.

It is prohibited to connect control panel and sensors to control panel and to carry out the works inside **VPA** if it is connected to power supply and the switch is in «I» position.(On).

Never remove the cover if **VPA** is energized.

*Before commissioning **VPA** check:*

- correctness of mounting in ducts, correctness of connection to power supply including grounding and external safety circuit-breakers.

In case of sensor-thermal switch operation it is necessary to de-energize **VPA**, identify the cause of this operation, eliminate this cause, and only then reenergize the unit.

Do not use **VPA** for operation with air-dust mixture.

VPA operation without reliable grounding is prohibited.

In the event of fire the **VPA** is extinguished by means of materials with CO_2 or the powder filler.

USING THE WATER FILLER IS PROHIBITED UNDER ANY CIRCUMSTANCES

DESIGN AND OPERATION PRINCIPLE

VPA provides controlling the air flow rate, air temperature (preheating) and to filter it as well. VPA exterior view is shown in fig. 2.

Inside the case 1 there is installed the centrifugal-axial fan 2 equipped with the motor with external rotor and integrated thermal protection. The motor is inside the operating turbine and doesn´t require any maintenance. The air flow rate is controlled by means of the fan 2 speed switch with 3 speed steps. The air filter 3 of EU4 filtration class per DIN 24185 is located in the case 1 guiding rails from the fan 2 tube. For air preheating, the electric heater 4 with circular tube is mounted from the pressure tube.

The electric heater 4 has the thermal protection against the overheating: safety device with automatic restart of **VPA** and emergency shutoff with manual recovery:

- 50° thermostat for VPA automatic switching-off and consequent switching-on after the heater housing has cooled.
- 90° thermal switch with automatic restart of VPA using manual recovery

Sensors of the emergency thermal switch shutoff circuits and don›t return **VPA** to operating condition. To recover **VPA** it is necessary to push the manual restart **«RESET»** button.

Standard set has the remote control panel 5 connected by the communication cable 6 to control system located inside the control unit 7. The filter contamination is monitored by pressure drop differential sensor 8. The filter replacement frequency is set on control panel. the emergency alarm is generated by LED indicator 9 located on the control panel 5.

To monitor and maintain the temperature in the channel, **VPA** is equipped with channel temperature sensor. To disconnect **VPA** from the electric network the power switch is located on the control unit. **VPA** is connected to standard circular channels of the air network.

Special function: to control the fan capacity and the heater operation and to monitor the filter contamination.

The hinged (pos. 10) or removable cover uses the place for mounting **VPA** in optimal manner.

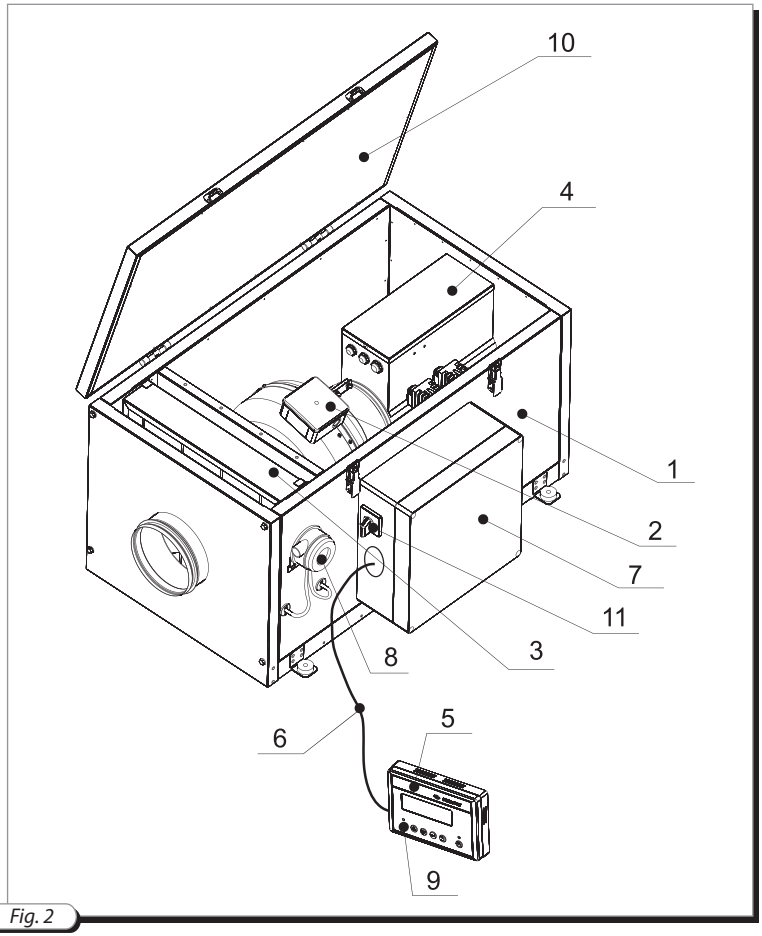


Fig. 2

VPA shall be mounted by qualified person or company properly trained and having the required tools and materials.

MOUNTING

VPA shall be mounted in such way that the arrow on the cover coincides with air flow direction in the system and there is the sufficient space for access for maintenance, service or replacement.

Especially, it concerns the access to cover, which should be open completely, and control unit located on the side part of case.

VPA can be mounted on flat surface or hanged at threaded rod; the unit shall be thoroughly secured to eliminate the risk of releasing or falling down (it is necessary to take into consideration the **VPA** weight and material to which the unit is attached), using all mounting L-holders containing the antivibration inserts and attached to unit base (fig. 3)

VPA is designed for mounting in the round ducts; we recommend to attach the pipeline **VPA** the flexible fitting to prevent the noise and random oscillation transmission;

- the size of connected channel must coincide with the size of hole in **VPA.**

VPA distance to duct turns shall be at least by two times less than the channel connecting diameter.

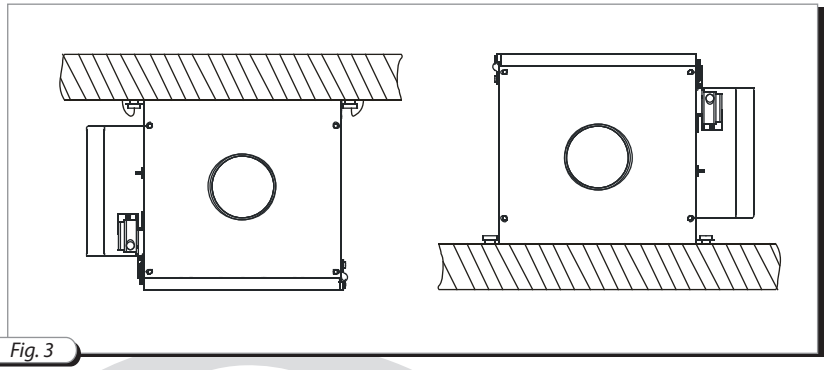


Fig. 3

PRIOR TO ANY WORKS IN VPA, IT MUST BE DISCONNECTED FROM THE POWER SUPPLY AND THE POWER SWITCH SHOULD BE IN «O» POSITION (SWITCHED-OFF)!

CONNECTING TO ELECTRIC NETWORK

Depending on **VPA** type, 230 V / 50 Hz AC or 400 V / 50 Hz AC power supply is used.

Connecting **VPA** to electric network is performed by the qualified electrician only.

VPA is connected to electric network by means of durable insulated and thermoresistant wires with the appropriate cross-section area.

All wires should pass **VPA** the insulators on the side part of the control unit box in order to ensure the electric protection class.

Diagram of connecting **VPA** to single-phase electric network is shown in fig. 4, diagram of connecting **VPA** to three-phase electric network is shown in fig. 5.

Connecting **VPA** is carried out using the terminal block inside the control unit according to electric connection diagram and terminals designation (fig. 4 or fig. 5).

All power supply phases should be connected VPA the circuit-breaker having the gap between the open contacts not less than 3 mm for all poles and built-in the fixed wiring.

Rated values of **VPA** electric parameters are shown in the manufacture´s label.

Any changes in internal connection are prohibited and lead to warranty cancellation.

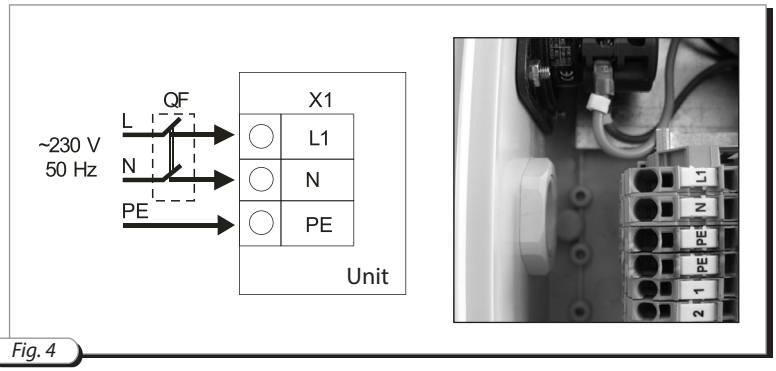


Fig. 4

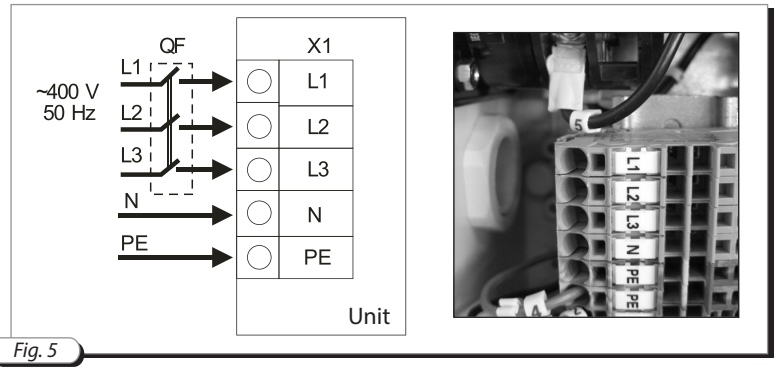


Fig. 5

QF — external switch with thermal-magnetic tripper (circuit-breaker),

X1 — terminal box for connecting the electric network wires and external devices: sensors, shutter drive, control panel, etc.

Circuit-breaker **QF** shall be located in a manner which ensures free access to it for the unit operative shutoff.

Number wires and their cross-section area (mm^2), as well as the values (recommended) of circuit-breaker current, are specified in table 3.

Cross-section area values in table 3 are guiding only!

While selecting the cross-section area, take into consideration the wire maximum allowable heating dependent on the maximum current, the wire length and its location (air, wall).

Table. 3

Type	Circuit-breaker	Copper cable	
		single-phase	three-phase
VPA 100-1.8-1	230 V; 10 A	3x2.5	
VPA 125-2.4-1	230 V; 16 A	3x2.5	
VPA 150-2.4-1	230 V; 16 A	3x2.5	
VPA 150-3.4-1	230 V; 25 A	3x2.5	
VPA 150-5.1-3	400 V; 10 A		5x2.5
VPA 150-6.0-13	400 V; 16 A		5x2.5
VPA 200-3.4-1	230 V; 25 A	3x2.5	
VPA 200-5.1-3	400 V; 10 A		5x2.5
VPA 200-6.0-3	400 V; 16 A		5x2.5
VPA 250-3.6-3	400 V; 10 A		5x2.5
VPA 250-6.0-3	400 V; 16 A		5x2.5
VPA 250-9.0-3	400 V; 25 A		5x2.5
VPA 315-6.0-3	400 V; 16 A		5x2.5
VPA 315-9.0-3	400 V; 25 A		5x2.5
VPA-1 315-6.0-3	400 V; 16 A		5x2.5
VPA-1 315-9.0-3	400 V; 25 A		5x2.5

EXTERNAL DEVICES

Control panel structurally is integrated with the room temperature sensor in single case and, therefore, while installing the control panel position it in operating zone but not closer than at 1 m from the heating devices, doors and windows.

Control panel is mounted on a wall with the help of supplied screws. To control unit the panel is connected by means of supplied standard four-core cable 10 m long.

Communication cable between the control panel and **VPA** must not be laid together with the power wires. Minimum recommended distance between them is 150 mm.

Execute the following actions on the panel's side to connect the control panel:

- open the control panel box pressing on its end parts;
- run the cable into technological hole in the lower cover;
- fix the panel's lower cover in desired place; the screw head should tightly press the cover to wall and under no circumstances contact with the panel electronic board since otherwise the risk of equipment damage appears!
- remove protective insulation from the cable (~ 20 mm);
- remove insulation from the wires (~ 6 mm);
- connect the wires to terminals located on the board according to color code and designations shown on label:

white (black) wire ..... ⊥ (connected to contract X1:13)
brown (red) wire ..... A (connected to contract X1:12)
green wire ..... B (connected to contract X1:11)
yellow wire ..... + (connected to contract X1:10)

- secure the cable on the mounting base with the help of supplied clamp;
- snap the panel covers;
- on VPA side run the cable VPA the gland in the control panel case and connect the cable wires to terminal box contacts X1:10, X1:11, X1:12, X1:13 (see above) according to circuit designation and the wire color code (see fig. 9).

Originally, the control panel is connected at the manufacture's factory.

Channel temperature sensor

Channel temperature sensor is mounted at distance not less than 2 m from the **VPA** output tube in place where the heated air intensive flow with balanced temperature around the sensor is ensured (fig. 6).

The channel sensor is connected to control unit with the help of supplied cable 4 m long. The contacts X1:8 and X1:9 (polarity is indifferent) located in the terminal block are used for channel temperature sensor connection.

Originally, the channel temperature sensor is connected at the manufacture´s factory.

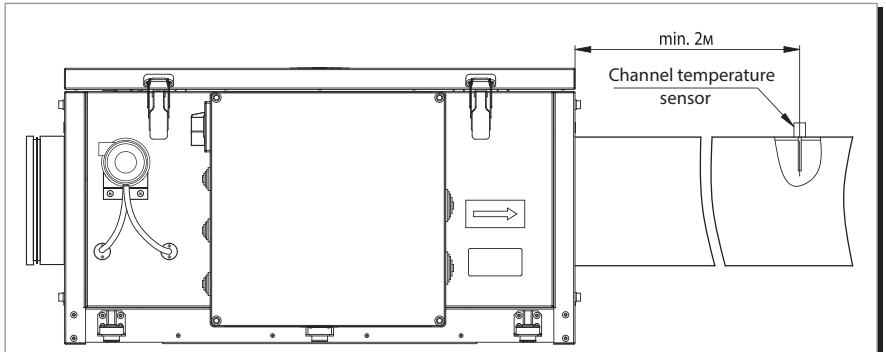


Fig. 6

Differential pressure sensor

Characteristic

Operating pressure range:	500 - 500 kPa
Max. operating pressure:	5.0 kPa within the entire range
Temperature range:	0 °C to + 85 °C
Electric load:	max. 1.5 A (0.4 A / 250 V AC
Electric protection:	IP 54 with protective cover

Differential pressure sensor is supplied previously installed on **VPA** case.

To avoid the unforeseen situation, make sure that the rubber tube before the filter (in the flow direction) is connected to sensor output P1 and the tube after the filter — to output P2.

Default setting corresponds to sensor operation at pressure drop of 200 kPa.

Control unit

Control unit is produced in several versions: for single-phase electric network 230 V/50 Hz fig. 7) and three-phase electric network 400 V / 50 Hz (fig. 8). In figures there are presented the tables showing all possible connections to the control unit. Not all terminals may be used in particular version.

Connection of all circuits is executed using two terminal blocks installed on the control unit (see fig. 7 and 8). Fan, heater, heater control opto-triac unit, control unit, channel temperature sensor and differential pressure sensor are connected originally by the manufacturer. There are envisaged the additional options of external device connections: contact of automatic fire extinguishing system and contact of humidity relay — hygrostat. To connect the contact of automatic fire extinguishing system it is necessary to remove the jumper installed between the terminals X1:17 and X1:18 in terminal block X1; in this case there is used normally closed «dry contact» which in the event of fire opens, at central fire extinguishing board, the VPA control circuit and de-energizes it. Hygrostat is connected to terminals X1:19 and X1:20 in terminal block X1; there is used normally open «dry contact», and in the event of its closing VPA is switched to maximum speed mode. Connection of additional contacts is provided by the consumer. The external view of terminal block X1 and the contacts for external connections are shown in fig. 9.

Control unit for single phase electric network 230 V / 50 Hz
Cover is not shown

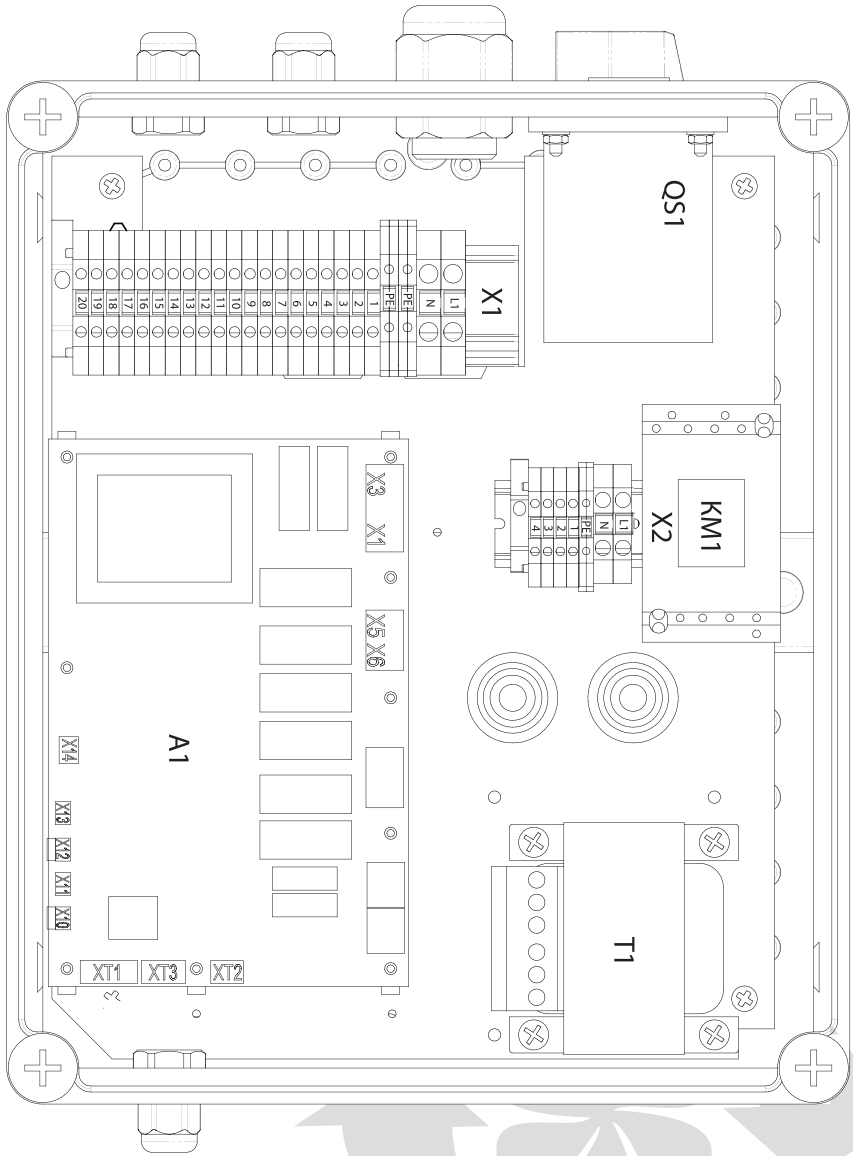


Fig. 7

Terminal block X1

Terminal marking	Circuit	External connection
L1	L1	Network ~ 230 V
N	N	Network ~ 230 V
PE	PE	Protective earthing
PE	PE	Protective earthing
1	M-L	Motor - phase
2	M-N	Motor - zero
3	+10V	Motor control circuit
4	CTR	Motor control circuit
5	GND	Motor control circuit
6	BP1-1	Differential pressure sensor
7	BP1-2	Differential pressure sensor
8	RK1-1	Temperature sensor
9	RK1-2	Temperature sensor
10	+	Control panel
11	B	Control panel
12	A	Control panel
13	⏚	Control panel
14	Y-N	Shutter drive
15	Y-LC	Shutter drive
16	Y-LO	Shutter drive
17	PK1	Fire fighting system NC contact
18	PK2	Fire fighting system NC contact
19	H-1	Hygrostat NO contact
20	H-2	Hygrostat NO contact

Terminal block X2

Terminal marking	Circuit	External connection
L1	LK1	Opto-triac module
N	N	Heater
PE	PE	Protective earthing (heater)
1	A+	Opto-triac module (ctrl)
2	A-	Opto-triac module (ctrl)
3	TS1	Thermal switch
4	TS4	Thermal switch

Control unit for single phase electric network 400 V / 50 Hz
Cover is not shown

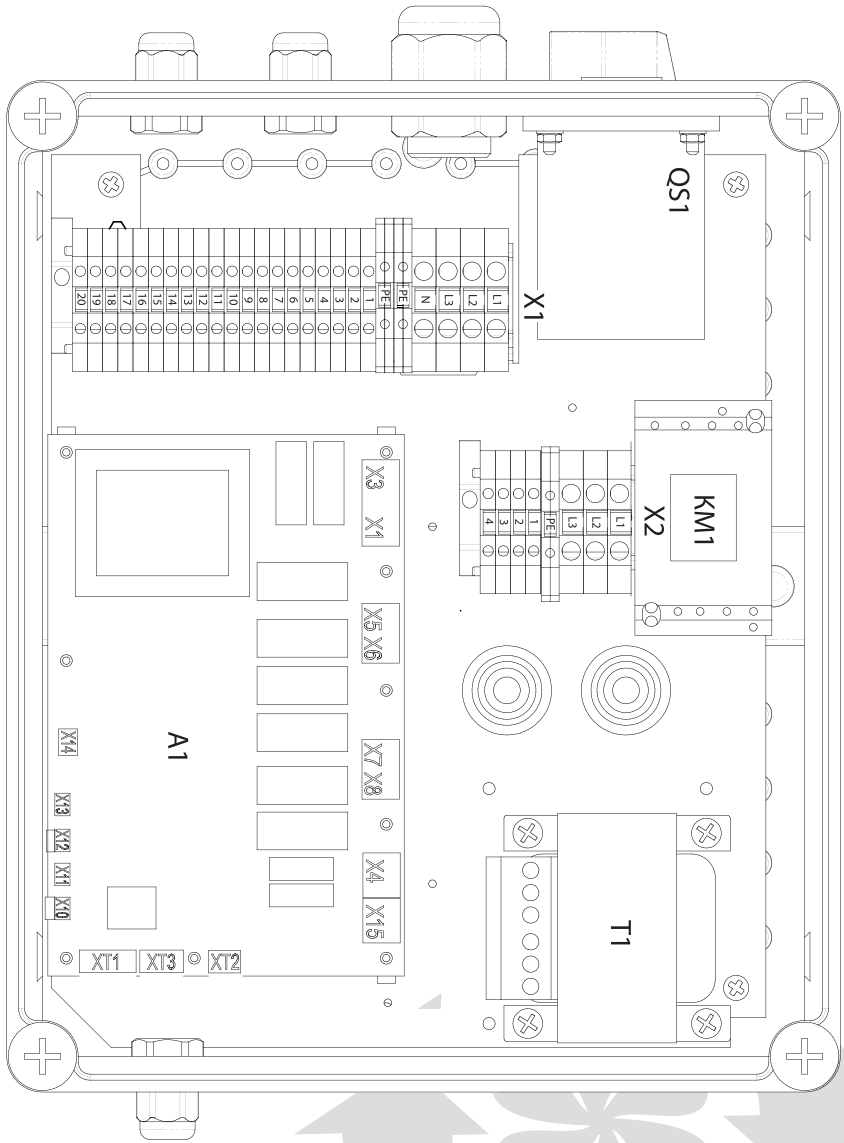


Fig. 8

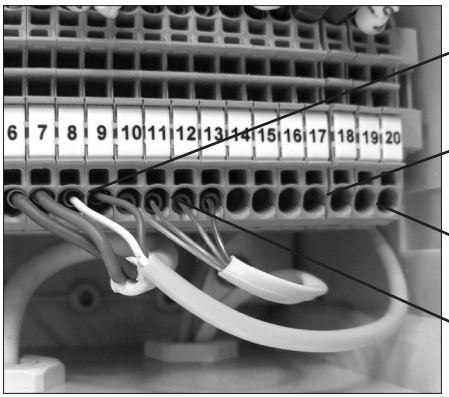
Terminal block X1

Terminal marking	Circuit	External connection
L1	L1	Network ~ 400 V
L2	L2	Network ~ 400 V
L3	L3	Network ~ 400 V
N	N	Neutral
PE	PE	Protective earthing
PE	PE	Protective earthing
1	M-L	Motor - phase
2	M-N	Motor - zero
3	+10V	Motor control circuit
4	CTR	Motor control circuit
5	GND	Motor control circuit
6	BP1-1	Differential pressure sensor
7	BP1-2	Differential pressure sensor
8	RK1-1	Temperature sensor
9	RK1-2	Temperature sensor
10	+	Control panel
11	B	Control panel
12	A	Control panel
13	⏚	Control panel
14	Y-N	Shutter drive
15	Y-LC	Shutter drive
16	Y-LO	Shutter drive
17	PK1	Fire fighting system NC contact
18	PK2	Fire fighting system NC contact
19	H-1	Hygrostat NO contact
20	H-2	Hygrostat NO contact

Terminal block X2

Terminal marking	Circuit	External connection
L1	LK1	Opto-triac module
L2	LK2	Opto-triac module
L3	LK3	Heater
PE	PE	Protective earthing (heater)
1	A+	Opto-triac module (ctrl)
2	A-	Opto-triac module (ctrl)
3	TS1	Thermal switch
4	TS4	Thermal switch

Connecting the external devices



contacts X1:8, X1:9 for channel temperature sensor connection

contacts X1:17, X1:18 for connecting the automatic ire extinguishing circuit signal

contacts X1:19, X1:20 for hygrostat connection

contacts X1:10, X1:11, X1:12, X1:13 for control panel connection

Fig. 9

VPA CONTROL

VPA control is carried out by means of remote control panel.

Physical channel for «panel-unit» communication is realized using the standard four-core cable. Data exchange is executed in digital form on basis of RS-485 standard.

Functional capabilities

The system allows controlling the intake air capacity and has 3 steps of rotation speed.

- 1-st — minimum speed used on days off and holidays in nonresidential premises and at nights in residential premises;
- 2-nd — normal ventilation;
- 3-rd — intensified ventilation when the additional air flow is required.

The channel temperature sensor allows selecting the optimal mode of tubular electric heating elements operation to maintain the required temperature in the channel.

The control panel is equipped with temperature sensor that allows maintaining desired (set by the user) temperature in the premise at selected fan capacity.

The optimal energy saving program calculates the heater power for stable maintaining of temperature in the premise with accuracy up to 1 °C; the heater power is governed with accuracy up to 1 %.

Program of the system condition monitoring follows up the **VPA** operation parameters and performs the emergency shutoff with transmission of appropriate signal to control unit in the event of dangerous situation occurrence (tubular electric heating element overheating, filter critical clogging, «panel-unit» communication line break).

CONTROL PANEL

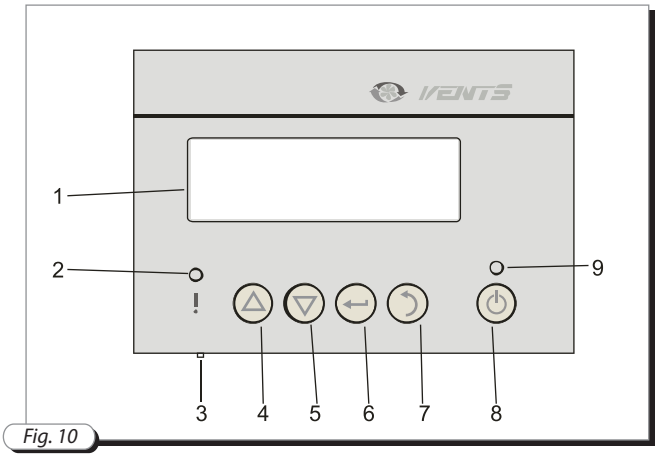


Fig. 10

1. Graphical indicator.
2. Red LED signals the emergency situation occurrence or faulty (lights) or need to replace the filter (flashes).
3. Temperature sensor.
4. «Up» button — selecting position in menu (cursor moves upwards) or decreasing the current parameter.
5. «Down» button — selecting position in menu (cursor moves downwards) or increasing the current parameter.
6. «Enter» button — selecting parameter for change or switching to lower level of menu (in the main operating window — menu activation).
7. «Escape» button — returning to higher level of menu (in the main operating window - interface language change mode).
8. «Power» button — **VPA** status change control (On / Off).
9. Green LED signals **VPA** status (lights — On, flashes — tubular electric heating elements blowing mode, doesn´t light - Off).

SWITCHING-ON AND SWITCHING-OFF VPA

Turn the **VPA** power switch to position **«1»**; logo VENTS is displayed on indicator — de-energized status of unit. To switch-on the **VPA** it is necessary to press **Power** button; menu of the **VPA** current status selection **(On/Off)** menu is displayed on indicator. Required option is selected by sequential pressing the **«Power»** button or **Up/Down** buttons.

Select option **«On»** and press the **«Enter»** button. Main operating window — setup in operating mode — is displayed on the screen.

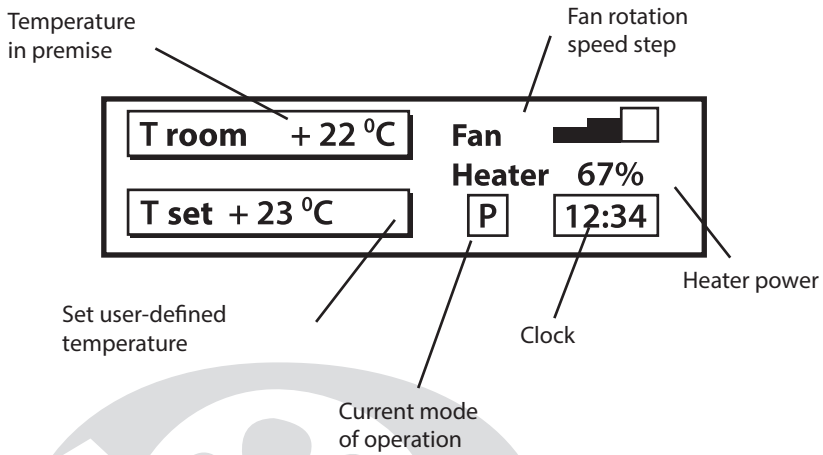
To switch-off **VPA** it is necessary to press the **«Power»** button (indicator will display the **VPA** current status selection menu), select option **«Off»** and press Enter button. The screen displays information on switching to «Tubular electric heating elements blowing mode», the power indicator flashes.

In two minutes **VPA** will switch-off.

To ensure physical disconnection of **VPA** from the electric network it is necessary to turn the power switch to «0» position.

PROGRAMMING THE MODES FROM CONTROL PANEL

During VPA normal operation the screen displays the main operating window and the user has the access to following information:



Pressing the **Escape** button allows switching to interface language selection mode.

Language selection is carried out using the **Up/Down** buttons. The language change is executed at pressing the **Enter** button. If during 10 seconds no button is pressed, as well as at pressing the **Escape** button, the switching to main operating window without changing the interface language occurs.

User´s menu consists of two levels: **«main menu»** and **«service menu».**

Entering into menu from the main operating window is carried out by pressing the **«Enter»** button.

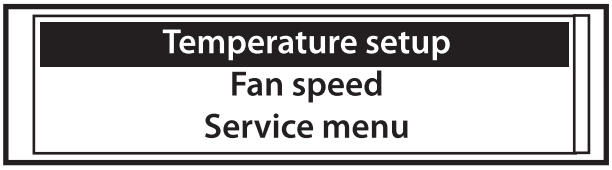
Up/Down buttons are used for switching between the items.

Return to previous level and exit to the main operating window is executed by means of the **Escape** button.

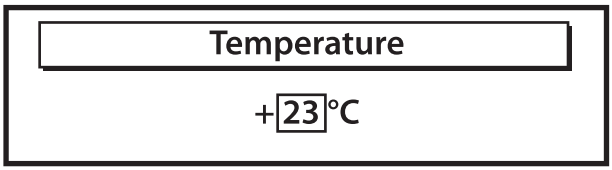
Entering into current item of menu for the values changing is executed by means of the **Enter** button.

The main menu allows to user to change the most important parameters of **VPA** operation:

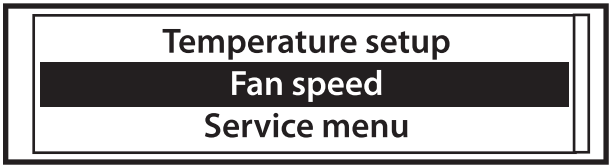
«Temperature setup»



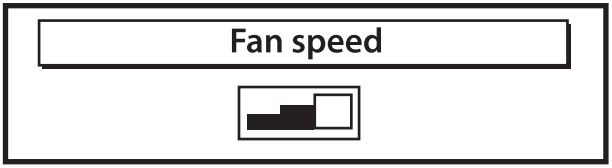
This parameter allows changing the value of temperature governing (**Up/Down** buttons).



«Fan speed»



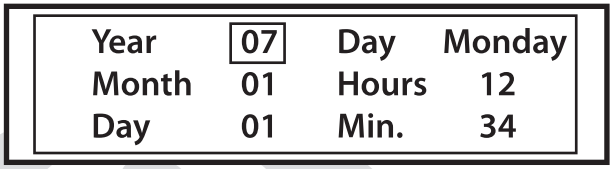
This parameter allows changing the value of fan speed (**Up/Down** buttons).



Service menu allows to user to enable and set the «service» functions:

«Clock and calendar»

Date and time setup is required for correct operation of the «day timer» and the «week timer».

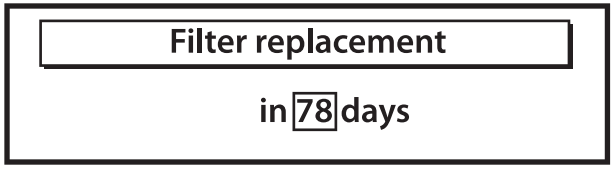


Selection of the changed position (Year, Month, Day, Day of week, Hours, Minutes) is carried out using the **Enter** button.

Change of the selected position is carried out using the **Up/Down** buttons.

«Filter replacement timer»

Allows to user to determine the time interval after which the control panel will be switched to **«reminding mode»** for timely filter replacement.



Change of the time interval is carried out using the **Up/Down** buttons.

Table containing the reminder periodically (for short time period) substitutes for the **«main operating window»**; the red LED is flashing. To disable the reminder it is necessary to enter into **«timer of filter replacement»** menu and press the **Enter** button.

The following reminder will appear in time interval set by the user. In reminding mode, the unit operates in the same way such as in normal mode.

«Day timer»

This parameter allows to user to set the **VPA** switching-on and switching-off time. After activation of this mode, **VPA** will be switched-on and switched-off automatically at set time every day until this mode is disabled. At enabled day timer, the symbol **«C»** is displayed in the **«current operating mode»** position of the main operating window.

Selection of changed position (switching-on time, switching-off time, Hours, Minutes) is carried out using the Enter button.

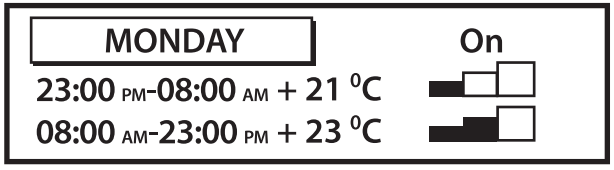
Change of the selected position value is carried out using the **Up/Down** buttons.

«Week timer»

This parameter allows to user to set the program of **VPA** operation for any day of week.

After activation of this mode, VPA will automatically (according to set parameters) change the fan speed and temperature of governing at set time of set days of week. At enabled week timer, the symbol «CH» is displayed in the **«current operating mode»** position of the main operating window.

Day timer priority is HIGHER and, therefore, at enabled day timer, the symbol «C» is displayed in the «current operating mode» position of the main operating window independently on the «week timer» mode.



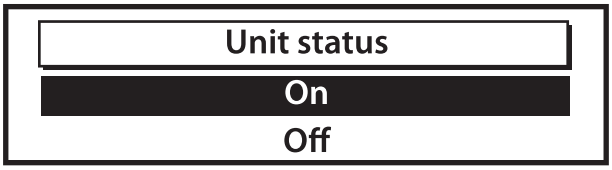
Selection of changed position (day of week, **ON/Off** state of timer on given day of week, time period of the unit operation in given mode, temperature of governing, fan speed) is carried out using the **Enter** button.

Change of the selected position value is carried out using the **Up/Dow**n buttons.

«Seasonal mode»

This mode is not available in **VPA.**

Pressing the **Power** button leads to switching to **VPA** On/Off-mode.



Up/Down buttons and **Power** button allow selecting the desired position, **Enter** button allows switching **VPA** to corresponding status (On/Off). At switching-off VPA, the following algorithm is enabled:

tubular electric heating elements are switched-off, the fan is switched to low-speed mode **«tubular electric heating elements blowing»**. Green LED is flashing.

This mode is required for removing the heat energy from the tubular electric heating elements and eliminating the possibility of sensors-thermal switches operation.

"Tubular electric heating elements blowing"
(2 minutes)

VPA is switched-off In 2 minutes.

EMERGENCY SITUATION

In case of operation of one from two (either) sensor-thermal switch of the tubular electric heating elements, as well as at filter clogging (operation of the differential pressure) or communication line fault, the unit is switched to emergency shutoff mode **«tubular electric heating elements blowing»** with further shutoff in 2 minutes. Red LED lights and the control panel screen displays the message about the failure occurred and its cause:

FAILURE!!!
"Tubular electric heating elements overheating" Unit was shutoff

FAILURE!!!
"Filter clogging"
Unit was shutoff

FAILURE!!!
"Communication absence"
Unit was shutoff

Perform the following actions in case of emergency situations:

Disconnect **VPA** from the power source (turn the switch to «0» position);

- wait for **VPA** fan complete stop;
- open and check the heater and filter, remove the emergency shutoff cause;
- remove the control unit cover and check the safety devices, replace the faulty devices by the new ones with the same parameters;
- if you failed to eliminate the failure, don't switch-on **VPA** and invite the specialists;
- after eliminating the failure reset the emergency sensor-thermal switch by pressing the button located at its case. This button has the **RESET** letters;
- close **VPA** and switch-on it again.

STORAGE AND TRANSPORTATION RULES

VPA should be stored in the factory package in well ventilated dry premise at temperature of - 5 °C to + 40 °C.

Presence of the fumes and impurities in the air, leading to corrosion and breaking the insulation and fittings sealing, is not admitted.

During the unloading and storage, it is necessary to use lifting equipment in order to avoid the product damage due to falling down or strong oscillation.

Transportation is allowed by any transport type providing the product protection against precipitation and mechanical damage.

Loading and unloading shall be executed without knocks and impacts.

MANUFACTURER'S WARRANTY

Manufacturer guarantees the normal operation of **VPA** during two years from the on-sale date through retail distribution network under the condition of transportation, storage, mounting and operation rules observation.

In the event of absence of on-sale date, the warranty period is calculated from release date.

In case of **VPA** abnormal operation during the warranty period the manufacturer accepts the customer's claims only at receiving from the customer the technically reasonable act with the failure characteristic specified.

In case of unauthorized modification of electric circuit, the product is terminated to be a subject of warranty service.

Warranty (at presence of warranty card with trading organization stamp and operating manual for product) and post-warranty repair of **VPA** is executed at manufacturing factory.

THE CLAIMS WITHOUT THE OPERATING MANUAL FOR PRODUCT WITH FILLED-IN COMMISSIONING CERTIFICATE ARE NOT ACCEPTED.

MANUFACTURER is not responsible for damages resulting from VPA misuse or gross mechanical intervention.
VPA owner must follow the guidelines.

ACCEPTANCE CERTIFICATE

Ventilation inlet unit «VPA_____» complies with technical requirements and is judged as ready for operation.

Acceptor mark **Release date**

Seller
Name of trading organization, shop stamp

On-sell date

COMMISSIONING CERTIFICATE

Ventilation inlet unit «VPA_____» is connected to electric network according to requirements of this Operating Manual by specialist:

Name_____

Date_____ **Signature**_____

_____

_____

_____

_____

WARRANTY CARD

_____

_____

_____

_____

_____

_____

_____

_____

_____ **V29-1EN-03**