## 1. Description

The controlling module VNT20 is an integrated controller of the rotation speed of the ventilator and the room thermostat.

- has two functions: one of the controller of the rotation speed of the ventilator and that of the room thermostat;
- cooperates with the water heaters LEO type M;
- it is capable of controlling max 10 heater;
- compact, small and ergonomic casing;
- regulation of the rotations through the analogue output 0-10V (the voltage output);
- it has the following modes of work: MANUAL/AUTO.

**AUTO mode:**
the VNT20 controller automatically decreases the air throughput at the moment of approaching the temperature set for the room/hall. The temperature is regulated through the variable speed of the ventilator. **In this mode you can resign from the valve provided LEO heaters cooperate with a boiler with a modulated burner which controls the heating medium flow.**

**MANUAL mode:**
the VNT20 controller - the integrated thermostat with a smooth regulation of rotations, standby mode, ON/OFF mode, controlling the servomotor of the valves, **continuous** and **thermostatic** mode of work of the ventilator.

**continuous** - the ventilator works at the set speed, after reaching the set temperature the relay cuts off power from the valve while the ventilator continues its work.

**thermostatic** - after achieving the set temperature the ventilator is cut off, the valve is closed by the relay

## 2. Technical data

| | |
|---|---|
| Supply voltage | 230VAC/50Hz |
| Output controlling signal | Analogue 0-10V |
| Modes of control/regulation | Potentiometer |
| Range of temperature control | +5 ÷ +35℃ |
| Range of rotations control | 0-100% |
| Range of working temprature | -10 ÷ +60℃ |
| Temperatures sensor | Internal/External PT-1000 |
| Regulation parameters | Built-in PI regulator |
| Protection rating | IP20 |
| Mounting advice | Wall-mounted |
| Casing | ABS |
| Weekly programmer | No |
| Casing dimensions (HxWxL) | 25 x 70 x 120mm |
| Load carrying capacity of the contact | inductive 3A<br>resistivity 8A |

## 3. Installation and operation – general remarks

- the cables are to be ended with sleeves
- the power should be supplied by the OMY 2x0.5mm$^2$ cable, the controlling signal should be supplied by the shielded cable LIYCY 2x0.5 mm$^2$ (the shield must be connected to the G0 clamp both in VNT20 and in the junction box of LEO heaters);
- VNT20 must be mounted in the way allowing for the cable joint to be placed at the bottom
- the VNT20 module must be mounted far from the source of heat or cold; mounting it at the distance of 1,5 meters high above the ground is recommended
- VNT20 may be operated only when the casing is closed.

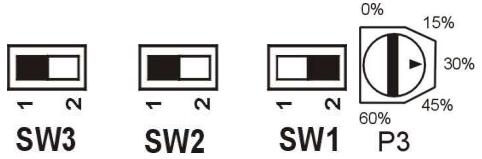
### 3.1. Mounting advice

Before the installation the front panel of the controller must be removed. The controller must be mounted onto the wall of the room/hall, connect the power supply cables and controlling cables following the charts below:

**ATTENTION:**

- before dismantling the casing, the power supply has to be disconnected,
- the installation of the controller should be performed by a specialist or qualified service team,
- the controller should be mounted far from the source of heat or cold at the height of approximately 1.5m above the ground.

## 4. Setting the options of the controller



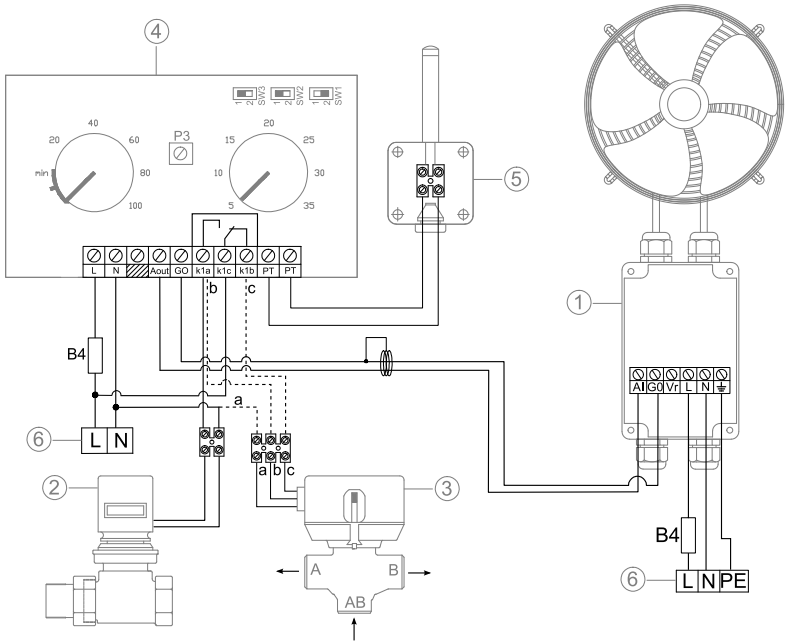

**SW3 – the switch of the mode of work: AUTO/MANUAL** (1 – MANUAL mode of work; 2 – AUTO mode of work)
default setting is: 1

**SW2 – the switch of the sensor of temperature**
(1 – internal sensor of temperature; 2 – external sensor of temperature)
default setting is: 1

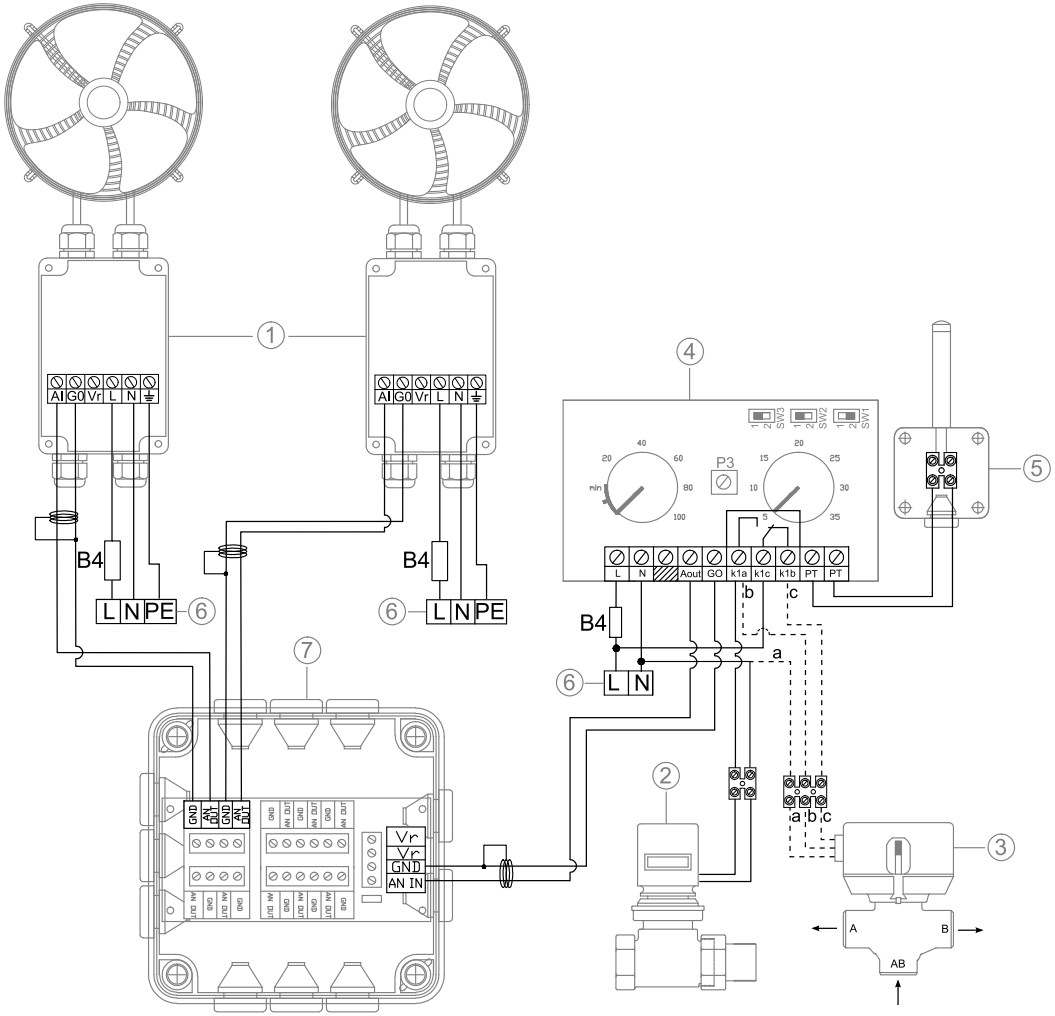
**SW1 – the switch of the mode of work of the ventilator**
(1 – the thermostatic mode of work; 2 – the continuous mode of work)
default setting is: 2

**P3 – sets the mimimal speed of the ventilator for the work in the AUTO mode**, the default setting is: 30%.

① fan junction box located outside on the cable
(power connection with OMY 3x1mm$^2$, steering with LIYCY 2x0,5mm$^2$ screened)
② SRV2d two-way valve (connection with OMY 2x0,5mm$^2$)
③ SRV3d three-way valve (connection with OMY 3x0,5mm$^2$)
④ VNT20 controller (power connection with OMY 2x1mm$^2$)
⑤ PT-1000 sensor (connection with LIYCY 2x0,5mm$^2$ screened)
⑥ power supply (switching station + disconnector) 230V/50Hz
⑦ R10 signal distributor
A – Supply of the heating medium to the heater
AB – Supply of the heating medium
B – The exit of the heat medium to the return line of the heater
a – blue
b – black
c – brown




**VNT20 connection diagram**




**VNT20 connection diagram for several heaters using R10 signal distributor**