Control system for ventilation device (with heat exchanger and electric heaters) and remote control

Working principles of control system for ventilation device with heat exchanger and electric heaters:

• Control board operates EC type of fans with 0-10 VDC signal. To the control system must be connected fans open collector return pulse signal, which shows that fans are working properly.

• Heating. Control board maintains set supply air temperature, using the power triac which is connected to control board controlling heating elements or transferring 0-10 VDC control signal to external electrical heater controller.

• Preheater is used to protect ventilation device from freezing in low temperature conditions.

• The bypass valve of heat exchanger operates together with antifrost function and helps to maintain the defined temperature.

• Intake/exhaust air valves will be opened not only when the fans are turned on but also 30 seconds before the fans are turned on.

• The antifrost function. When there are conducive conditions to freeze for heat exchanger, control system turns on defrosting of heat exchanger.

• The temperatures are measured with temperature sensor of NTC 10K thermistor.

• Filter pollution level is monitored by pressure relays, which are connected with NO contacts to the board, which also is counting the working hours.

• Fire protection function if the system gets the signal from fire protection systems, the ventilation device is stopped as soon as possible.

• Restart system after stopping the device for trouble, fire protection, connection loss, it is necessary to restart the system.

The user controls ventilation device by programming the settings on the remote control touch screen.

Working principles of remote control:

After connecting power supply touch screen turns on automatically.
When turning off condition window is pressed, the device turns on and displays the main menu screen.
1. Date and time setting
2. Temperature setting
3. To turn off device
4. Weekly work mode programming
5. Settings
6. Work mode selection
7. Information
8. Fan speed setting

In settings screen can be set date and time, turn on/off extra functions, navigate to the extra settings screen, to do system restart, delete data.
1. To return to the main screen
2. Automatic speed reduction function
3. Automatic device activation function
4. Extra settings
5. Filter pollution level reset
6. Date and time setting
7. System restart
8. Data erase function

After pressing time icon, user needs to enter date and time.

The table is in time setting screen, it is divided to 5 time periods and function rows: switching time, fans speed and temperature.

In this window you can monitor supply, extract, exhaust and intake air temperatures, dampers position, filters pollution level, fans mode and other information related with ventilation device.
Enter a correct password and confirm it in this window, you can navigate to locked settings window. It is possible to set max the supply and extract fans air speed in locked settings window.

After 40 clicks in 5 seconds, the calibration mode of touch screen is possible in inactive screen.

**Dimensions of control board and remote control:**

![Dimensions Diagram](image-url)