
VAV FUNCTION

INSTALLATION MANUAL



komfovent

CONTENT

INTRODUCTION	3
PRESSURE SENSORS INSTALLATION	3
PIPES CONNECTION.....	4
ELECTRICAL CONNECTION TO THE UNIT	5
PRESSURE SENSORS SETTINGS	6
VAV FUNCTION CALIBRATION.....	8

INTRODUCTION

Variable Air Volume (hereafter called as „VAV“) control mode is when air handling unit operates depending on changeable ventilation demands in separate premises. By those demands controlled ventilation system ensures ventilation only where is needed, therefore such air volume control mode signally reduces unit’s exploitation costs, prolongs unit’s life time, filters are less polluted.

After unit have been installed and commissioned it must be appropriately prepared according to hereunder description clauses to ensure correct VAV mode operation.

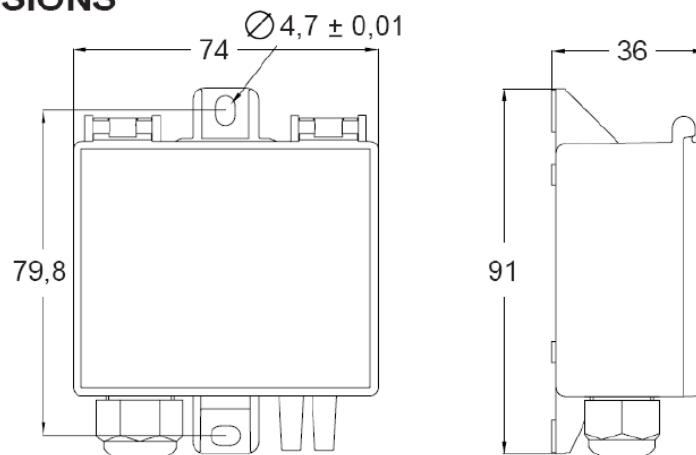
PRESSURE SENSORS INSTALLATION

For VAV function operation two duct pressure sensors are needed (they are supplied together with the air handling unit if VAV function is ordered) to be additionally installed with the unit: one on air supply duct, another on exhaust. Pressure sensors installation requirements:

- sensors must be installed on the straight duct part with recommended **minimum distance** of two diagonals for rectangular duct cross-section or two diameters of the circular duct correspondingly;
- it is recommended to install sensor vertically with air pipes directed downwards;
- sensor is screwed directly to the duct (refer to pic.1).

DIMENSIONS

(mm)

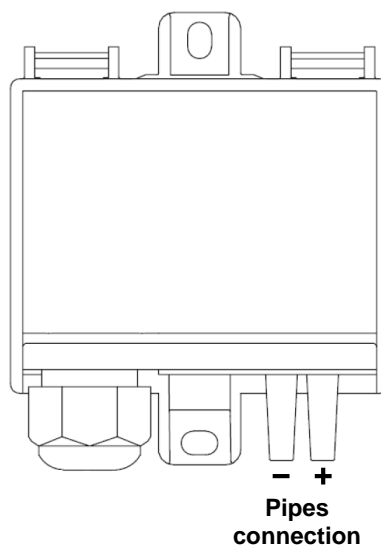


Pic.1. Pressure sensor dimensions

PIPES CONNECTION

After pressure sensors have been installed in the specified place, air pipes by which air pressure is supplied to the sensors must be connected. To each sensor one air pipe must be connected in such a way: one pipe end directly to the sensor (see pic.2.), another pipe end is passed through the gasket of drilled hole in the duct and inserted inside the duct.

To the sensor which is installed on supply air duct, pipe is connected to the place marked by “+” sign, another connection marked by “-“sign remains opened. To the sensor intended for the exhaust air, pipe is connected conversely, i.e. to “-“sign, and sensor connection marked by “+” is left opened.



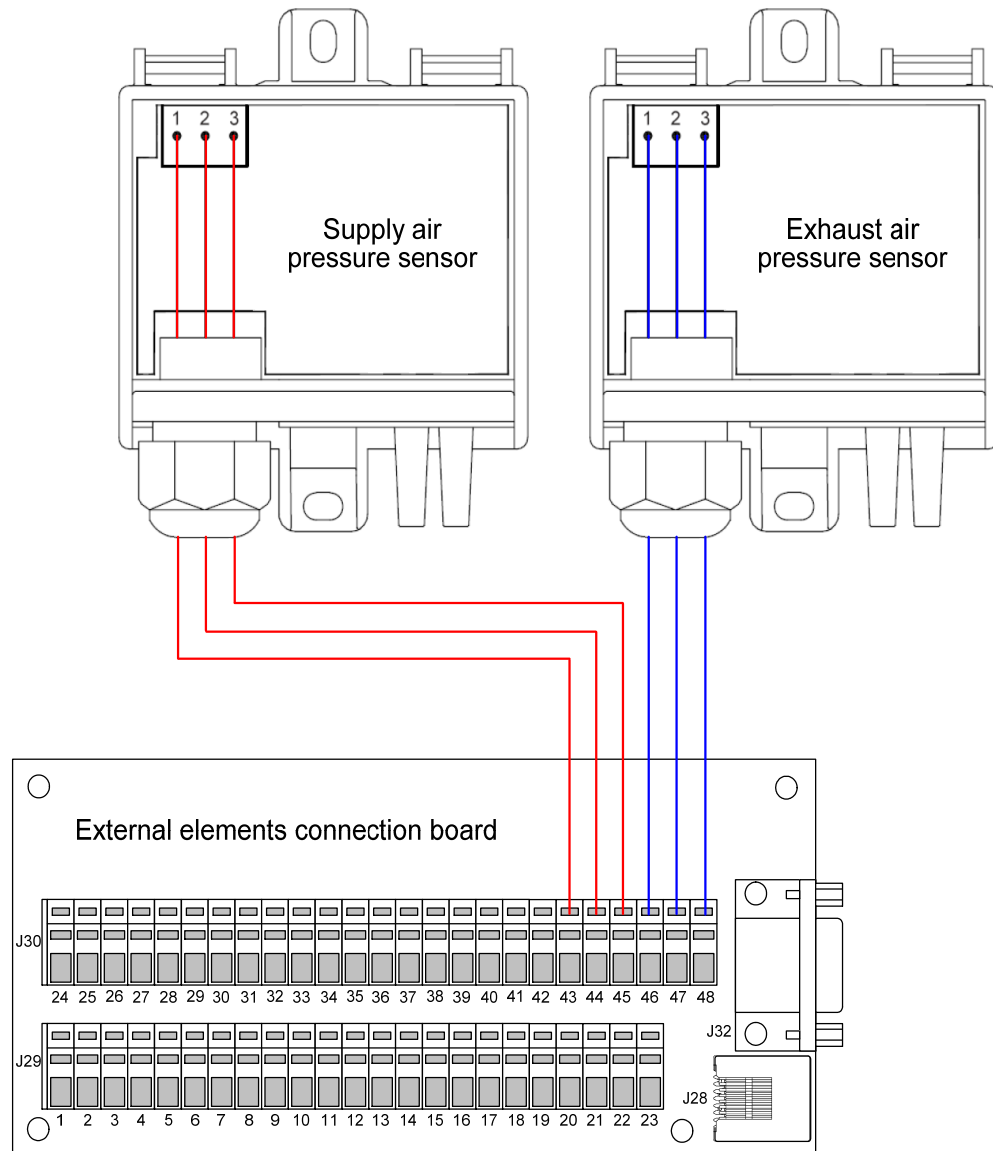
Pic.2. Pressure sensor pipes connection



It is recommended to keep the length of pipes connecting sensors with ducts as short as possible.

ELECTRICAL CONNECTION TO THE UNIT

After sensors have been installed they must be connected with external connection box located on unit wall (refer to “Unit Control System Installation Manual”) with three wires. Connection is done in accordance with the scheme hereunder (Pic.3.)

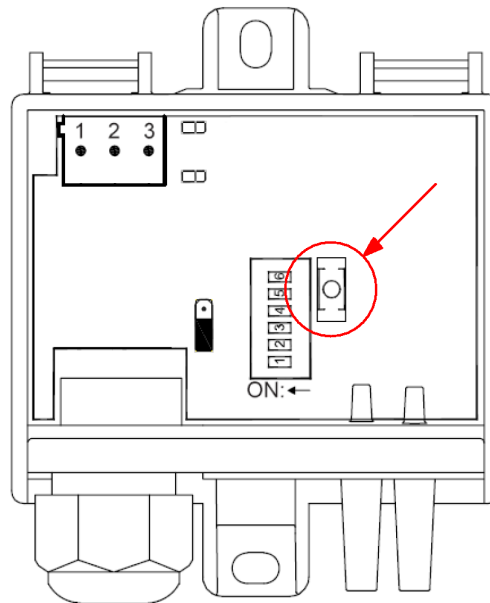


Pic.3. Pressure sensors connection to the unit

PRESSURE SENSORS SETTINGS

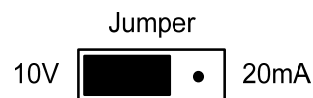
To ensure correct VAV mode operation after sensors installation such settings must be done:

1. After electric power has been supplied to the non-switched unit it is recommended to set each sensor to initial (zero) position. To do that „ZERO SET“ button located inside the sensor must be pushed.

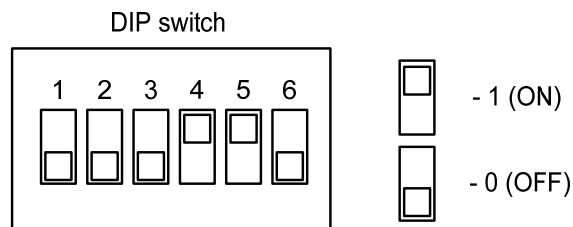


Pic.4. Pressure sensors settings

2. Jumper must be so placed that it would be set 0...10V control:



3. Set „DIP“ switches located inside the sensor to initial position:



Note: In this way maximum pressure range 0...2500 Pa will be set.

4. Enter to controller's panel menu (refer to „Unit Control Operation Manual) and set constant air volume control mode („CAV“):

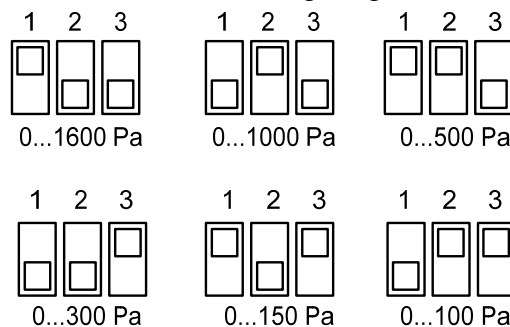
AIR VOLUME :
CAV, VAV

5. In the following menu window maximum ventilation intensity must be set:

VENTILATION: 3
SUPP100% EXH100%

6. Set unit manual operation mode and switch on the air handling unit by controller panel button.
7. When the operating unit air flow will reach nominal value (100%), voltage (DC) between 2 and 3 contacts of pressure sensors must be measured by digital multimeter (see pic.3.). If voltage does not reach 5V, smaller pressure range must be chosen with three first “DIP” switches. After reducing the range, voltage must be measured again. If it does not reach 5V, pressure range must be reduced so many times until the voltage will reach 5V.

Pressure setting ranges:





After setting pressure interval in the sensor it is recommended to have output voltage a little bit less than 5V, but not higher than this value.



Sensor pressure range can be also set without referring to the descriptions presented above. In order to do that special device for measuring maximum pressure in the ducts must be used.

VAV FUNCTION CALIBRATION

When all described above actions are done, VAV function calibration becomes necessary.

1. Before starting unit calibration, air supply and exhaust devices of the ventilation system must be regulated and settled to supply air to all ventilated premises, i.e. all ducts, branches, dampers, etc. must be opened.
2. Enter the menu while unit operating and check if CAV mode is chosen and being at the same menu window,   buttons must be pressed together. After pressing two buttons together, calibration will last 3 minutes and during this time unit will start to work on maximum ventilation intensity.
3. After finishing the calibration process, air handling unit further will operate in the previously settled mode.

After correct executing of all mentioned actions unit is ready for the exploitation in VAV mode.