



# VAV FUNCTIONS

## FOR AHU WITH MCB CONTROLLER

EN

INSTALLATION & CONFIGURATION INSTRUCTION



[www.salda.it](http://www.salda.it)

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The manufacturer reserves the right to change this technical passport at any time without prior notice if some typographic errors or inaccurate information is found, as well as after improving the apps and/or the devices. Such changes will be included in the new issues of the technical passport. All illustrations are just for information and thus may differ from the original device.

## 1. SAFETY INSTRUCTIONS AND PRECAUTIONS

Read these instructions very carefully before installing and using this equipment. Installation, connection and maintenance should be carried out by a qualified technician and in accordance with local regulations and legislation.

The company shall take no responsibility for the injuries or damaged property if the safety requirements are not followed.

### Main safety rules

#### Danger





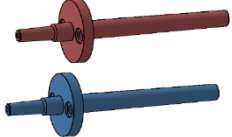
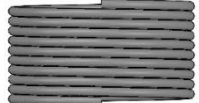
- Before carrying out any electrical or maintenance works, make sure that the device is disconnected from the mains and that all moving parts of the device have stopped.
- Make sure that the fans are not accessible through air ducts or branch openings.

#### Warnings



- In order to reduce the risk during installation and maintenance, suitable protective clothing must be worn.
- Beware of sharp angles while carrying out installation and maintenance works.
- Use appropriate safety equipment (gloves, goggles) when performing installation or repair works.
- The equipment must be installed in accordance with the installation and maintenance instructions.
- Do not drill into the unit's casing and do not use self-tapping screws if it is not pointed out in manual, as the internal components might be damaged.



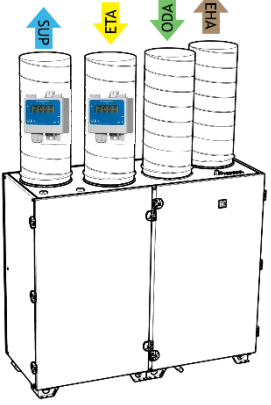
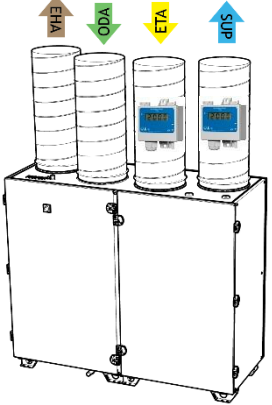
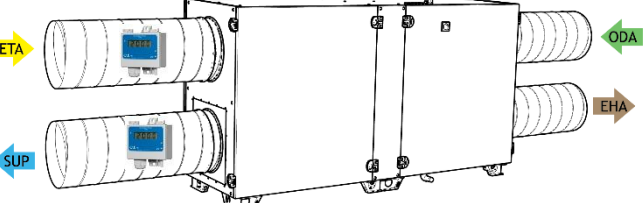
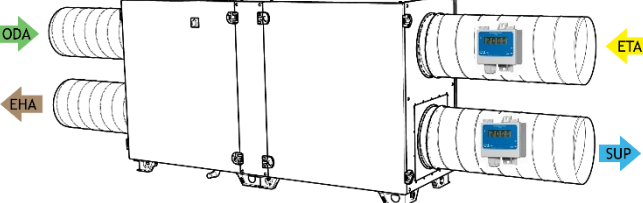
## 2. VAV KIT CONTENTS

<p>• Pressure transducers</p> <p>for 0-10V version (2psc) or for Modbus version (2 psc)</p> 	<p>• Hoses</p> <p>Blue (2m) and Red (2m)</p> 
<p>• Hose connection nozzles</p> <p>Red (1 pcs) and Blue (1pcs)</p> 	<p>• Cable (10m)</p> 

### 3. MOUNTING

Pressure transducers are installed on the supply and extract air ducts (Figure 1,2,3,4)

\*The example shows the version with 0-10V control. The mounting location of transmitters 0-10V and Modbus is the same

<ul style="list-style-type: none"> <li>Flow indication label on the supply air duct</li> </ul>	
<ul style="list-style-type: none"> <li>Flow indication label on the extract air duct</li> </ul>	
 <p>Fig. 1 Example show Compact S CX V left version</p>	 <p>Fig. 2 Example show Compact S CX V right version</p>
 <p>Fig. 3 Example show Compact S CX H left version</p>	 <p>Fig. 4 Example show Compact S CX H right version</p>

Pressure transducers hose connection points are oriented downwards (Figure 5)

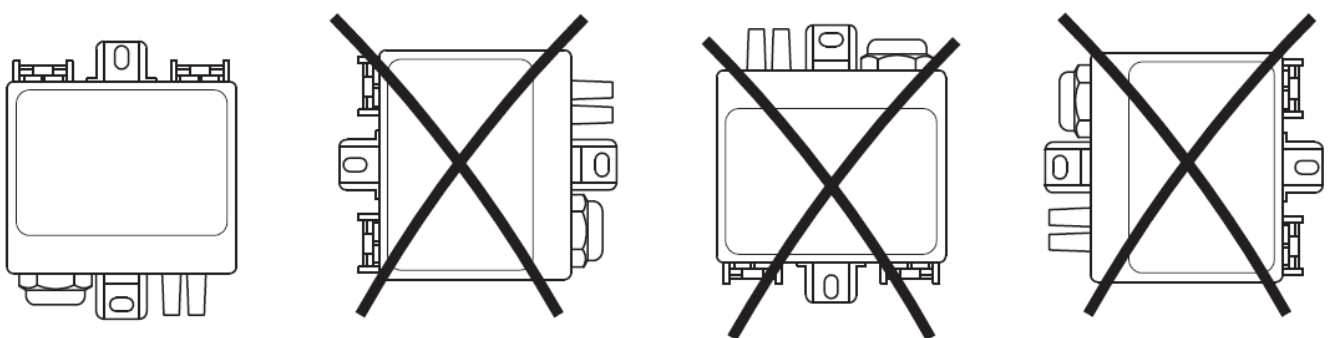


Fig. 5 Hose orientation

Please calculate the installation location according to the diameter of the air duct (Figure 6).

Diameter of the air duct =  $d_h$  Connection nozzles mounting location point from the AHU  $\geq 6 * d_h$

For example, the diameter of the air duct is 0.1 m, then connection nozzles mounting location point  $\geq 0,6$  m.

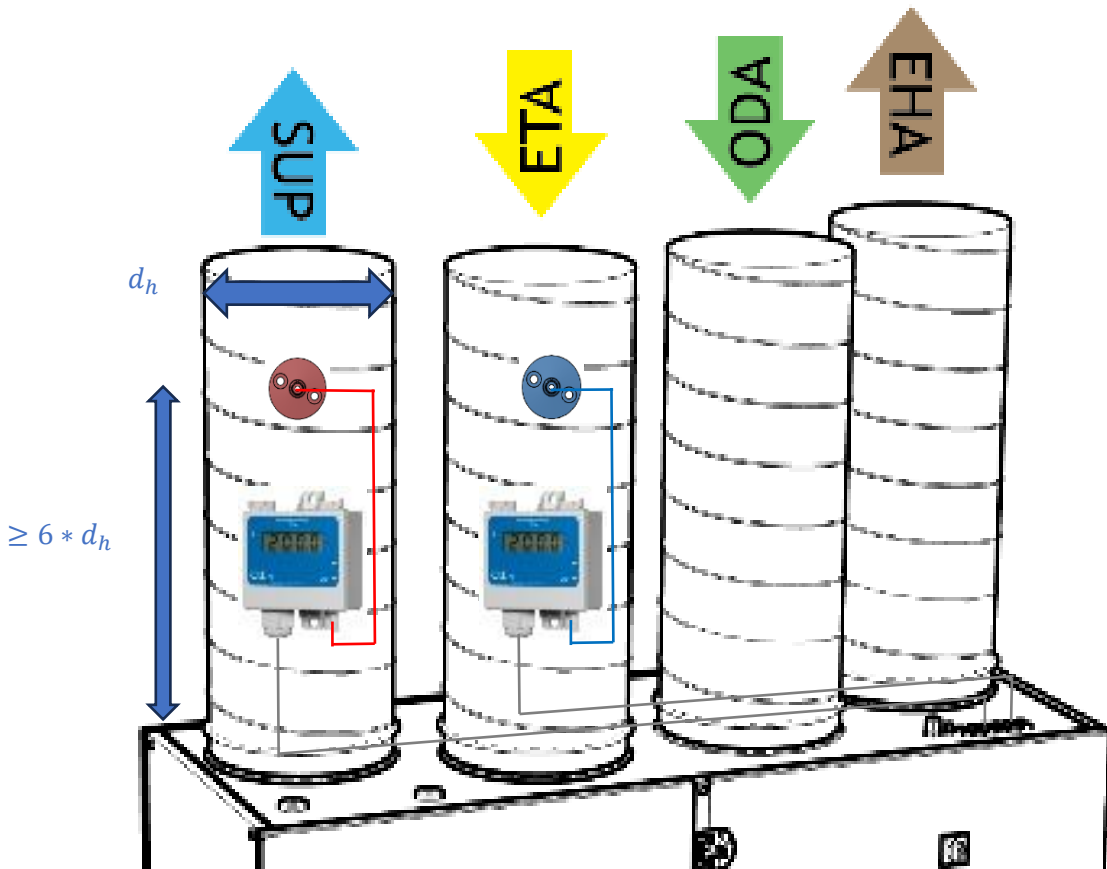


Fig. 6 Example show Compact S CX V left 0-10V version

#### 4. TRANSDUCER WITH 0-10V CONTROL

##### 4.1. CONNECTION AND CONFIGURATION

AmberAir Compact units come from the factory already controlled by constant air flow. Units can be converted to control fans by constant air pressure.

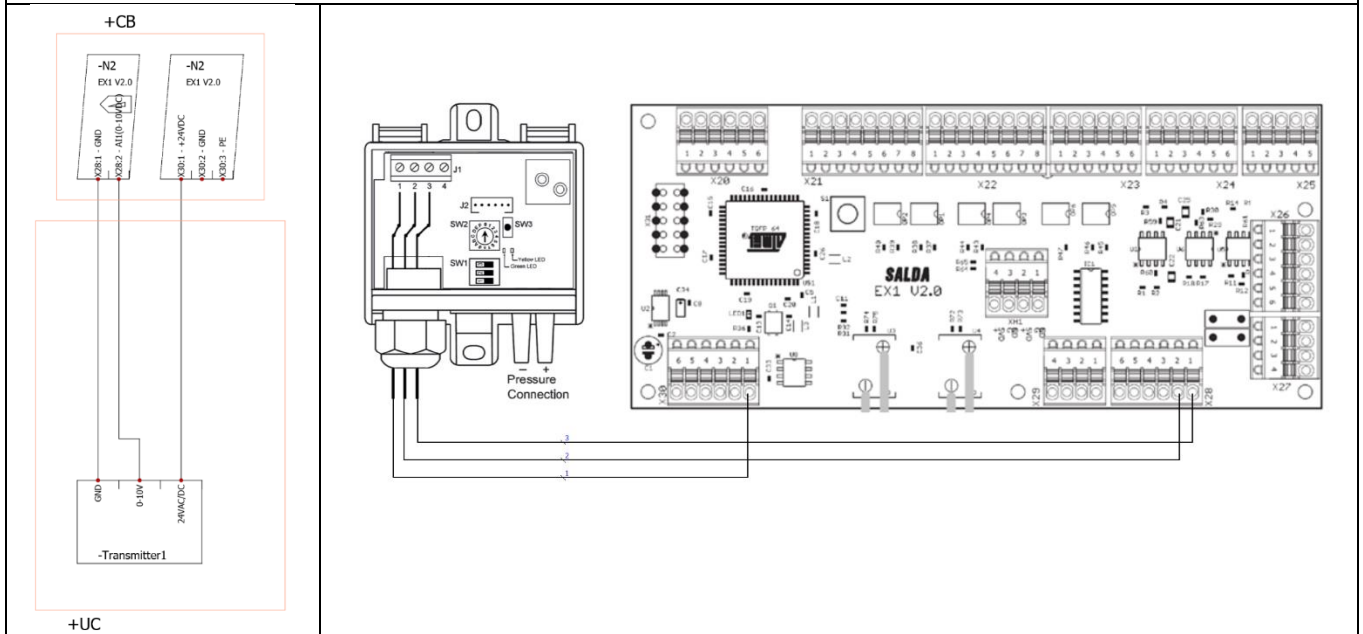
**Converting from flow to air pressure control type:**

- Disconnect the unit from the power source and wait until any fan rotation stops.
- Open the unit door and remove the control board cover.
- Route cables inside of the unit through the upper grommets.
- Connect cables to the transducers and MCB EX1 module.
- Connect hoses.

#### 4.1.1 SUPPLY AIR TRANSDUCER CONNECTION (TRANSMITTER 1)

SIGNAL	WIRE	TRANSDUCER SIDE	AHU SIDE
24VDC	1	J1:1	X30:1
0-10V	2	J1:2	X28:2
GND	3	J1:3	X28:1

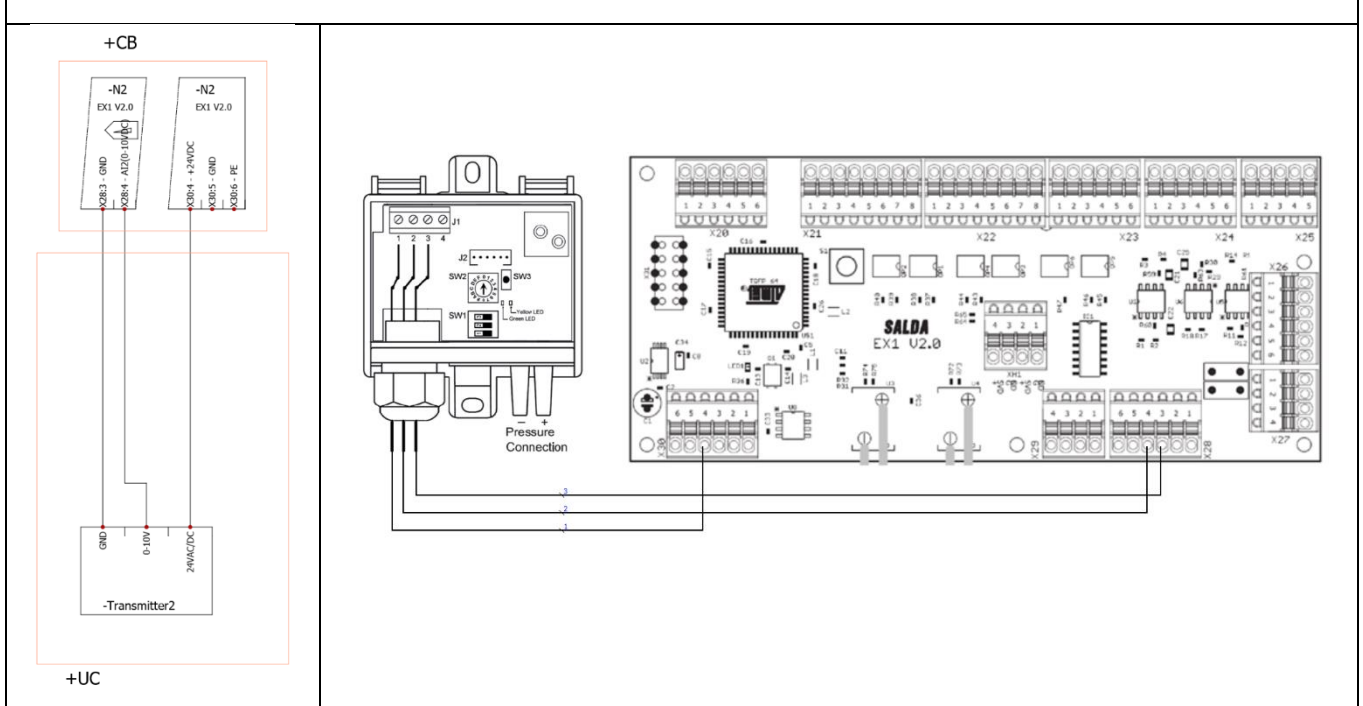
#### CONNECTION DIAGRAMS



#### 4.1.2 EXTRACT AIR TRANSDUCER CONNECTION (TRANSMITTER 2)

SIGNAL	WIRE	TRANSDUCER SIDE	AHU SIDE
24VDC	1	J1:1	X30:4
0-10V	2	J1:2	X28:4
GND	3	J1:3	X28:3

#### CONNECTION DIAGRAMS



### 4.1.3 TRANSDUCERS CONFIGURATION

Each transmitter must be configured.

Make sure the SW1 DIP switch settings are according to Table 1, if not please change it.

OBJECT	DIP	POSITION	FUNCTION	VALUE
	1	Off	Output	0-10V
	2	Off	Damping	0,4 Sec.
	3	Off	Not used	Not used

Tab. 1 - Dip position

Check the pressure limits in the technical documentation of your AHU or <https://select.salda.it/>

Set the pressure by turning the arrow with a screwdriver according to Table 2.

OBJECT	PRESSURE RANGE	POSITION
	-50..+50 Pa	0=On
	0..+100 Pa	1=On
	0..+150 Pa	2=On
	0..+300 Pa	3=On
	0..+500 Pa	4=On
	0..+1000 Pa	5=On
	0..+1600 Pa	6=On
	0..+2500 Pa	7=On

Tab. 2 - Pressure range

The transmitter can be zeroed after it has been mounted and the power supply connected.

Before zeroing the transmitter, it is important to ensure that the pressure on the + and - connectors is equal (e.g. by stopping the ventilation system). If the yellow LED is constantly lit, the transmitter is measuring a differential pressure of more than 50 Pa. This may be caused by unintended pressure within the system (draughts or compressed tubing).

It is recommended that tubes be removed from the + and - connectors during zeroing. Zeroing is activated by pressing the integrated zero-set switch SW3 (Figure 6), after which the yellow LED will continue to flash until zeroing has been completed.

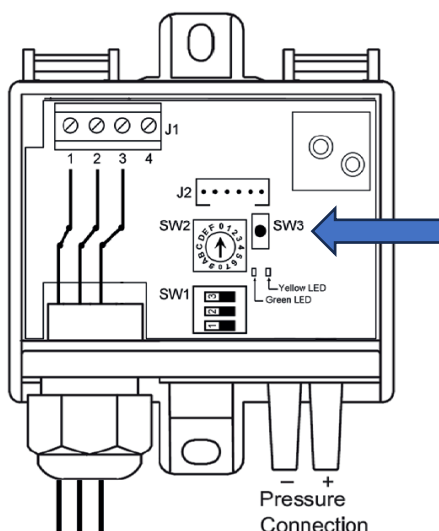


Fig. 7 – Transducer zero-set

## 4.2. MCB CONFIGURATION VIA WEB PAGE

### 4.2.1. CHANGE FANS CONTROL TYPE

- Open your web browser and go to the <http://salda.lt/mcb/control/service.htm>.
- Enter your MB-Gateway's IP, unit's ID, LOGIN, PASSWORD and press **Set**. E.g.

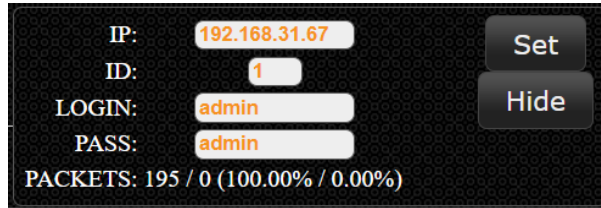


Fig. 8 Login

\*More information about MB-Gateway operation can be found on it's manual.

- Then MB-Gateway is connected, enter service space password (by default: **4444**) and press on key symbol.



Fig. 9 Password

- In the **Select Fans > Fans control type > Pressure**.
- And set the maximum airflow pressure for your system (Use the slider and keyboard keys ← →).
- \* This information you will find in data sheet on your system.

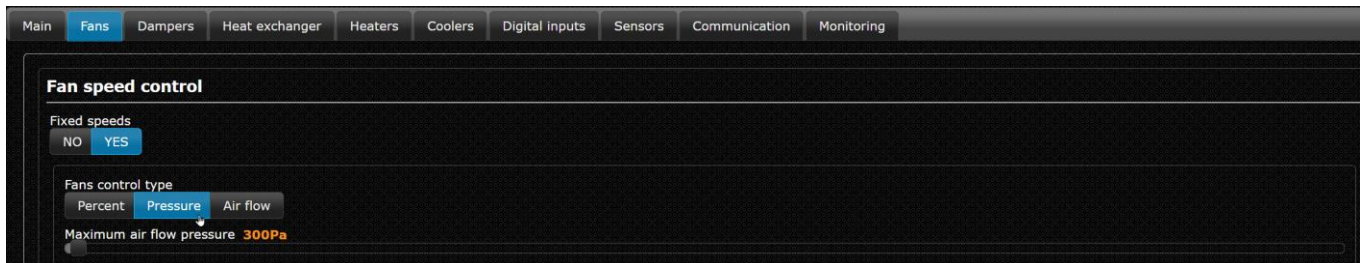


Fig. 10 Fans control type

- Press **Save Changes**.



Fig. 11 Save



### 4.2.2. ACTIVATE SENSORS

- In the **Service Space** go to **Sensors** tab

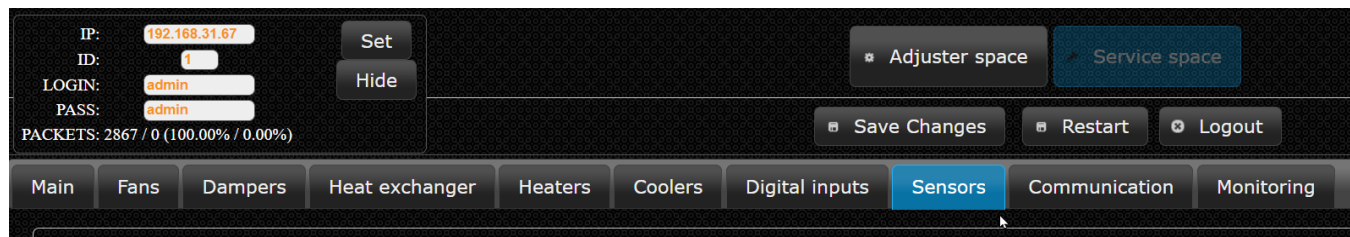


Fig. 12 Sensors tab

- Set up Air quality sensor 1.
- Press and select **Supply pressure, 0-10V**, set the **MIN** and **MAX** pressure. (Use the sliders and keyboard keys ← →).
- \* MIN and MAX pressure must be the same as you set on transducer by Tab.2. (For example 0..1250 Pa)

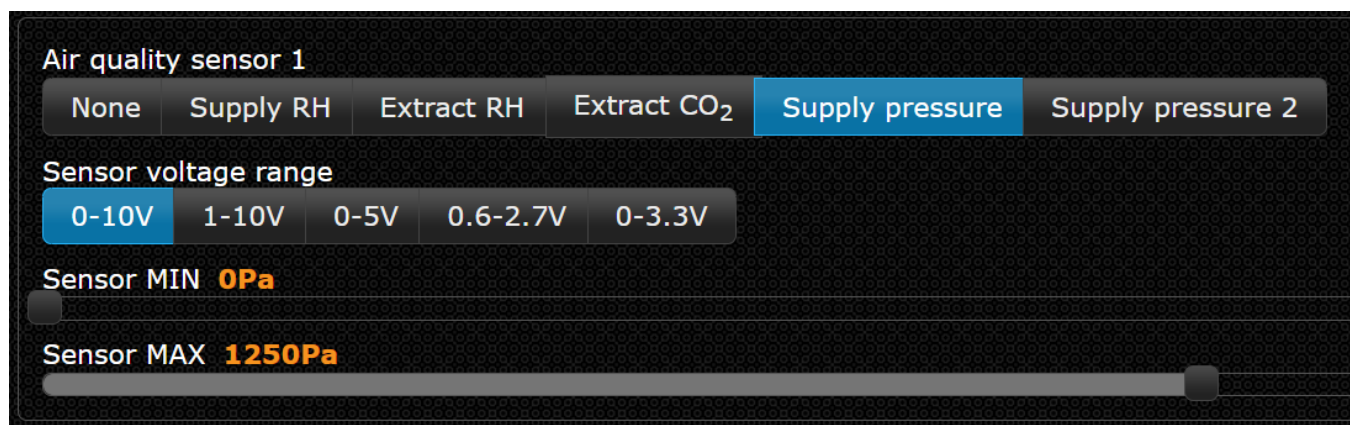


Fig. 13 Air quality sensor 1

- Set up Air quality sensor 2.
- Press and select **Extract pressure, 0-10V**, set the **MIN** and **MAX** pressure. (Use the sliders and keyboard keys ← →).
- \* MIN and MAX pressure must be the same as you set on transducer by Tab.2. (For example 0..1250 Pa)

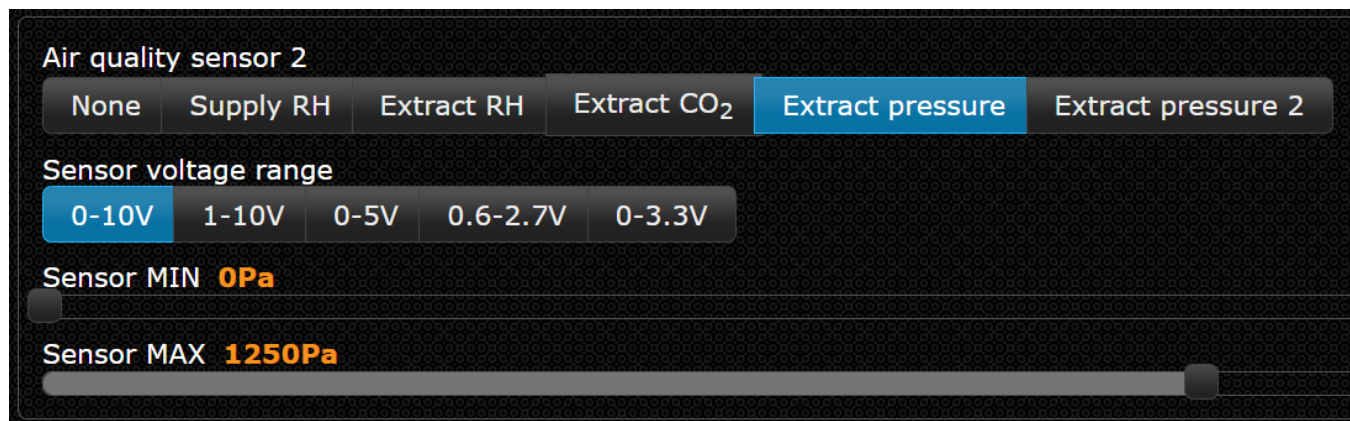


Fig. 14 Air quality sensor 2

- Press **Save Changes**.

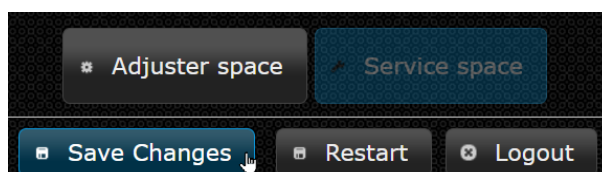


Fig. 15 Save

### 4.2.3. AIR FLOWS ADJUSTING

You can adjust the air flows for different work modes as needed.

- In the **Adjuster Space** go to **Air Flows Adjusting** tab



Fig. 16 Air flows adjusting

- Adjust flows of work modes (Use the sliders and keyboard keys ← →).
- \* Boost mode Maximum range you can change (See Chapter 4.1.1).

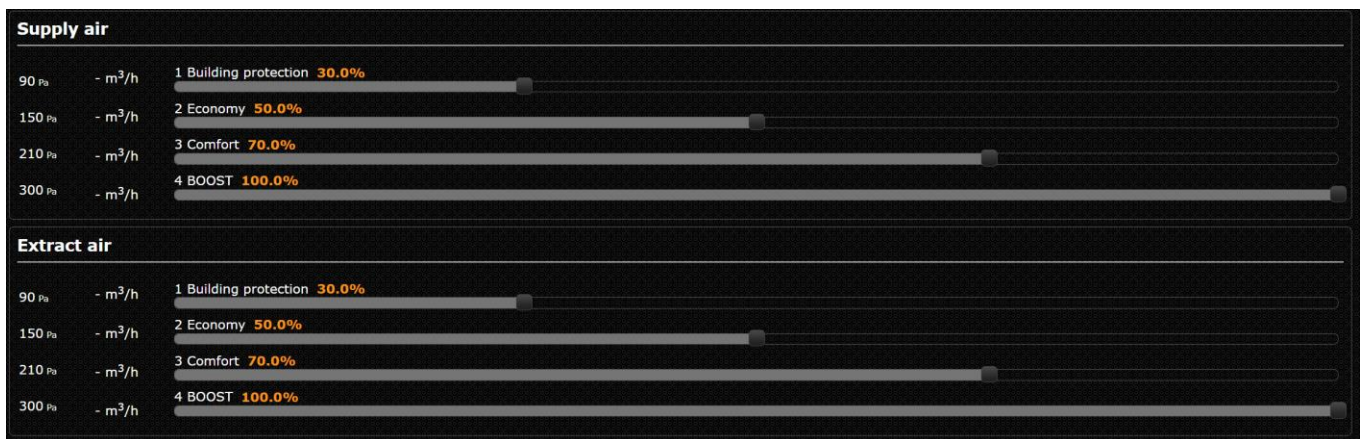


Fig. 17 Flow of work modes

- Press **Save Changes & Restart**

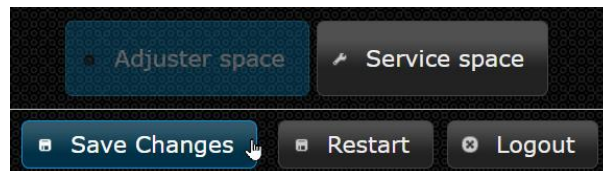


Fig. 18 Save & Restart

### 4.3. MCB CONFIGURATION VIA SA-CONTROL REMOTE CONTROL PANEL

#### 4.3.1. CHANGE FANS CONTROL TYPE

- Go to **Menu > Service** and enter service password (by default: **4444**)



Fig. 19 Service password

- Go to **Menu > Service > Fans > Fans speed control** and move **Fans control type** slider to the right, changing from **Percents** to **Pressure**



Fig. 20 Fans speed control 1

#### 4.3.2. ACTIVATE SENSORS

- Go to **Menu > Service > Sensors > 0-10V DC sensors > Air quality sensor 1** and move **Sensor type** slider to the right, changing to **Supply pressure**
- Move **Minimum** and **Maximum** sliders to the right or left to set pressures
- \* MIN and MAX pressure must be the same as you set on transducer by Tab.2. (For example 0..1250 Pa)
- \* MIN and MAX pressure units will change when you change **Sensor type**

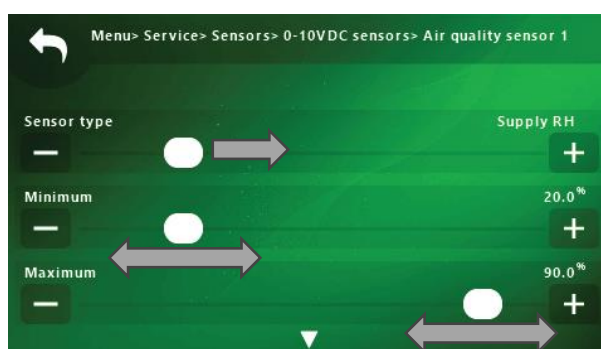


Fig. 21 Air quality sensor 1 (Supply)

- Go to **Menu > Service > Sensors > 0-10V DC sensors > Air quality sensor 2** and move **Sensor type** slider to the right, changing to **Extract pressure**
- Move **Minimum** and **Maximum** sliders to the right or left to set pressures
- \* MIN and MAX pressure must be the same as you set on transducer by Tab.2. (For example 0..1250 Pa)
- \* MIN and MAX pressure units will change when you change **Sensor type**

## 5. TRANSDUCERS CONTROL VIA MODBUS

### 5.1. CONNECTION AND CONFIGURATION

AmberAir Compact units come from the factory already controlled by constant air flow. Units can be converted to control fans by constant air pressure.

Check the pressure limits in the technical documentation of your AHU or <https://select.salda.it/>

#### Converting from flow to air pressure control type:

- Disconnect the unit from the power source and wait until any fan rotation stops.
- Open the unit door and remove the control board cover.
- Route cable inside of the unit through the upper grommets.
- Connect cables to the transducers and MCB EX1 module.
- Connect hoses.

#### 5.1.1. TRANSDUCERS CONNECTION

Connect the components in sequence (Figure 22)

MCB MAIN BOARD → MB-GATEWAY → SUPPLY TRANSDUCER → EXTRACT TRANSDUCER

Connect by user

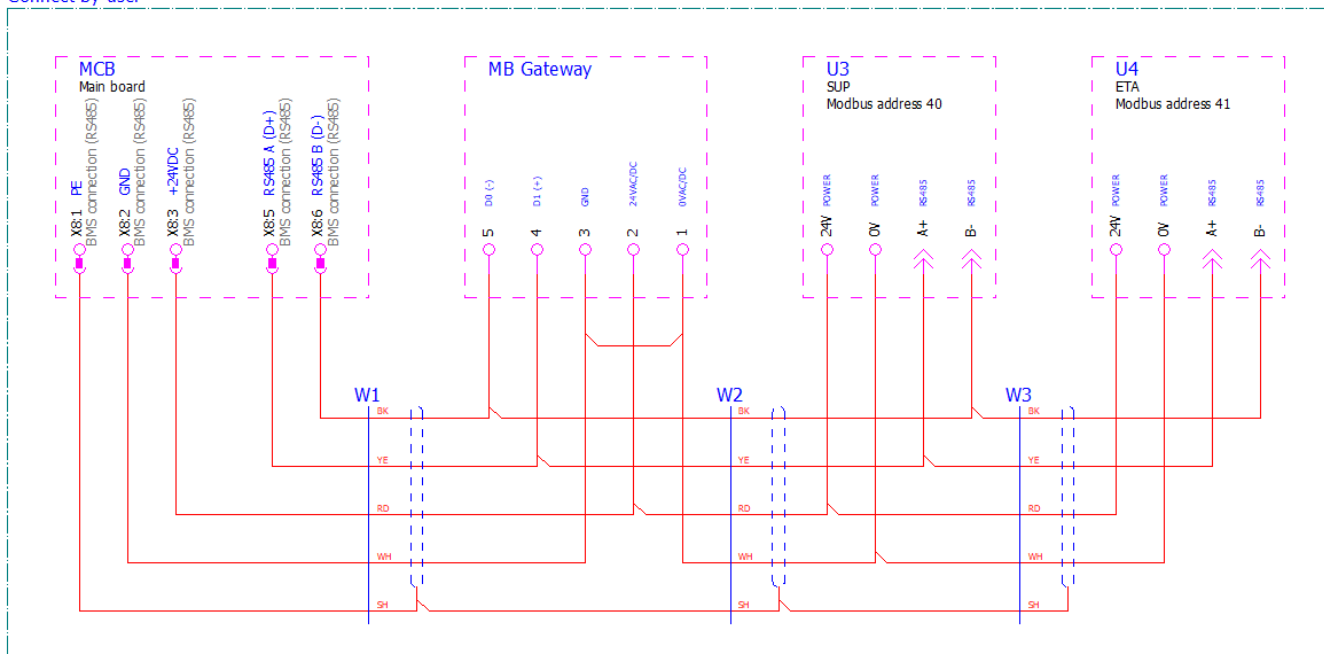




Fig. 22 Connection diagram

### 5.1.2. SUPPLY AIR TRANSDUCER CONFIGURATION



Set the pressure range settings by switching DIP switch A and B according to Table 3.

DIP SWITCH A	PRESSURE RANGE SETTINGS	SWITCH NUMBER							
		1	2	3	4	5	6	7	8
	Dampning 1s	OFF							
	0...100 Pa		OFF	OFF	OFF	The position of the switch does not matter			
	0...200 Pa		ON	OFF	OFF				
	0...300 Pa		OFF	ON	OFF				
	0...500 Pa		ON	ON	OFF				
	0...700 Pa		OFF	OFF	ON				
	0...1000 Pa		ON	OFF	ON				
	0...1250 Pa		OFF	ON	ON				
	-100...100 Pa		ON	ON	ON				
	Modbus termination								
DIP SWITCH B	SET MODBUS ADDRESS	1	2	3	4				
	40	OFF	OFF	OFF	The position of the switch does not matter				

Tab. 3 Supply air transducer settings

### 5.1.3. EXTRACT AIR TRANSDUCER CONFIGURATION

Set the pressure range settings by switching DIP switch A and B according to Table 4.

DIP SWITCH A	PRESSURE RANGE SETTINGS	SWITCH NUMBER							
		1	2	3	4	5	6	7	8
	Dampning 1s	OFF							
	0...100 Pa		OFF	OFF	OFF	The position of the switch does not matter			
	0...200 Pa		ON	OFF	OFF				
	0...300 Pa		OFF	ON	OFF				
	0...500 Pa		ON	ON	OFF				
	0...700 Pa		OFF	OFF	ON				
	0...1000 Pa		ON	OFF	ON				
	0...1250 Pa		OFF	ON	ON				
	-100...100 Pa		ON	ON	ON				
	Modbus termination								
DIP SWITCH B	SET MODBUS ADDRESS	1	2	3	4				
	41	ON	OFF	OFF	The position of the switch does not matter				

Tab. 4 Extract air transducer settings

### 5.1.4. MB-GATEWAY CONFIGURATION

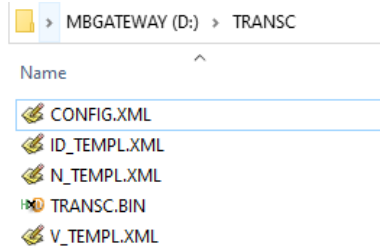
Download zip file from link below:

[https://select.salda.lt/Download/Download?input=LJF2u-XglUKatC7HjRs9xQ\\_\\_\\_.zip](https://select.salda.lt/Download/Download?input=LJF2u-XglUKatC7HjRs9xQ___.zip)

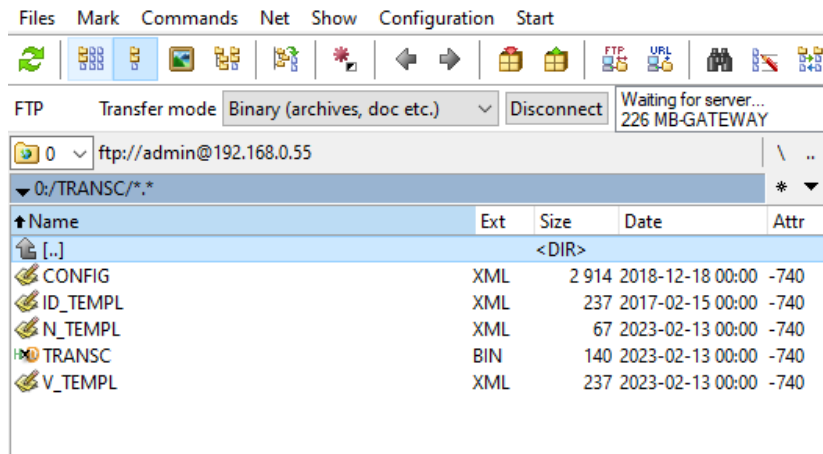
Extract zip file.

Copy CONFIG.XML file to MB-Gateway SD card catalog TRANSC.

You can copy the file using SD card reader:



Also you can copy the file using FTP client (for example Total commander). To connect to MB-Gateway via FTP you should use MB-Gateway IP address and login credentials.



Restart MB-Gateway for changes to take effect.