



SMARTY XV

EN MOUNTING AND INSTALLATION INSTRUCTION



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2. SYMBOLS AND MARKING



Warning – pay attention



Additional information

Apply the technical label on the unit (in an easily accessible location) or on the dashed location of the technical manual to keep the important information about the unit.

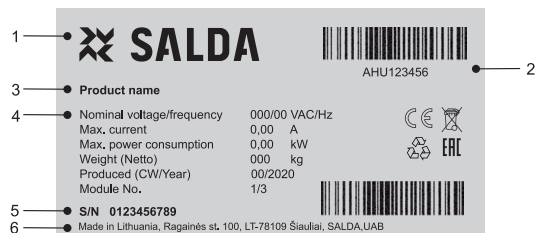


Figure 2.1 Technical label

1 - Logo; 2 - Product code (SKU); 3 - Product name; 4 - Technical data; 5 - Serial number; 6 - Production place.



Figure 2.2 Indication for duct connection.

ODA - outdoor air; SUP - supply air; ETA - extract air; EHA - exhaust air.

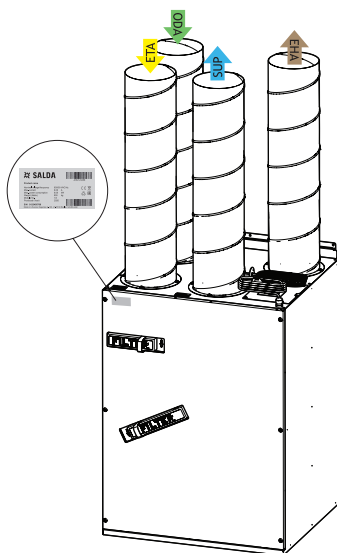


Figure 2.3 Smarty 3X V / 4X V 1.1/1.2 Technical label location and air duct indication



NOTE. Ducts are not parts of the unit.

3. 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, or the device is modified without the permission of the manufacturer.

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.
- If any liquids on electric parts or connections that bear voltage are noticed, stop the operation of the device.
- Do not plug the device into the mains that differ from the one indicated on the label or on the housing.
- Voltage of the mains should comply with the electrotechnical parameters indicated on the label.
- The device should be earthed in accordance with the regulations on the installation of electric devices. Turning on and using an un-earthed device is not allowed. Follow the requirements specified on the device's labels that indicate danger.

Warnings



- Connection of electricity and maintenance of the device should be performed by qualified personnel only and in accordance with the manufacturer's instructions and safety requirements.
- 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.
- Do not touch heating elements until they haven't cooled down.
- Some devices are heavy, you should be very careful while transporting and installing them. Use suitable lifting equipment.
- When connecting electricity to the mains, a circuit breaker of suitable size must be used.

Warning!



- If the device is installed in a cold environment, make sure that all connections and tubes are properly isolated. Intake and discharge air ducts should be isolated in all cases.
- Openings of the ducts should be covered during transportation and installation.
- Make sure not to damage the heater when connecting the piping of the water heater. For tightening up, use a wrench/spanner.

Before starting up the device



- Make sure, that there are no strange objects inside the device;
- Manually check fans to make sure they are not stuck or blocked;
- If rotary heat exchanger is installed in the device, make sure that it is not stuck or blocked;
- Check the earthing;
- Make sure that all components and accessories are connected in accordance with the wiring diagram or provided instructions.

Danger: Fumes



Salda Antifrost system uses dis-balancing of an airflow and it may cause negative pressure in premises. Care must be taken when using the device in the premises together with another heating appliance that depends on the air in the premises. Such appliances include gas, oil, wood or coal-fired boilers and heaters, fireplaces, continuous flow or other water heaters, gas hobs, cookers or ovens that draw the air in from the room and the duct-exhaust gases out through chimney or extraction ducting. The heating appliance can be starved of oxygen, impairing combustion. In exceptional cases, harmful gases could be drawn out of the chimney or extraction ducting back into the room. In such case we strictly recommend to turn off *Salda Antifrost* and use an external preheater for heat exchanger anti-frost protection (see *Salda Antifrost* function in the Remote Controller Operation Manual).

4. INFORMATION ABOUT THE PRODUCT

4.1. DESCRIPTION

Smarty is the residential air handling unit with a high efficiency (up to 90%) counterflow heat exchanger. The unit supplies ventilation in home and takes the heat from exhaust air. AHU complies with ErP 2018 and Passivhaus requirements. The unit is operated by a separate remote control panel or through separate MB-Gateway by PC (version 1.1 / 1.2). Remote control panel and MB-Gateway (version 1.1 / 1.2) are optional and not included in the standard package.

Control functions depend on selected control board type: MiniMCB or MiniMCB basic.

PRODUCT NAME	CONTROL BOARD	TYPE	HEAT RECOVERY TYPE	TEMPERATURE CONTROL	BYPASS DAMPER	OPTIONAL HEATING ELEMENTS	
						DUCT BASED AIR PRE-HEATER	DUCT BASED AIR HEATER
Smarty 3X V 1.1	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 3X V 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 4X V 1.1	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 4X V 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+

*- only pre-heater or heater



Not suitable for operation in pools, saunas and other similar premises.

4.2. DIMENSIONS AND WEIGHT

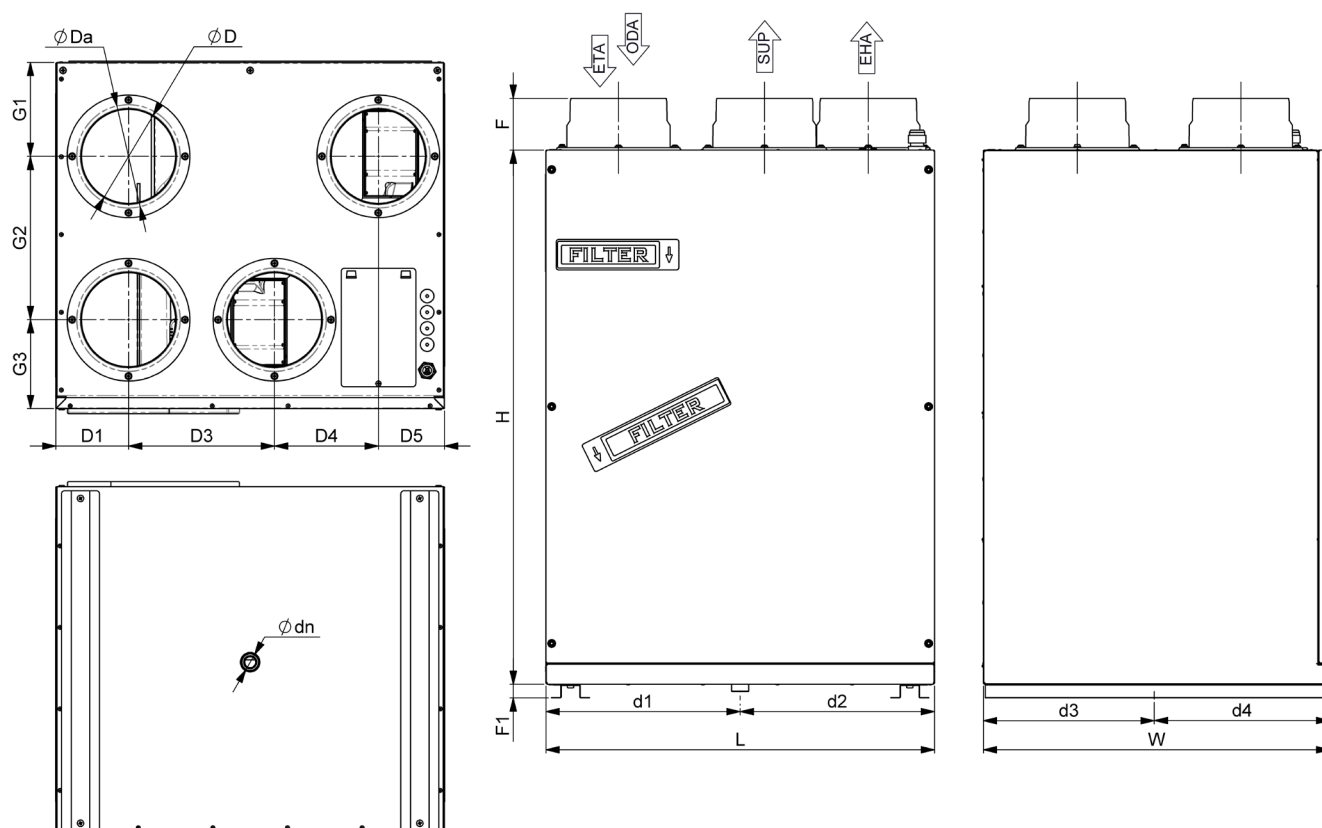


Figure 4.2.1 Smarty 3X V / 4X V 1.1/1.2

SMARTY		3X V 1.1	3X V 1.2	4X V 1.1	4X V 1.2
L	[mm]	599		599	
W	[mm]	538		538	
H	[mm]	824		824	
øD	[mm]	150		150	
øDa	[mm]	160		160	
dn	-	G1/2		G1/2	
F	[mm]	80		80	
F1	[mm]	21		21	
D1	[mm]	112		112	
D2	[mm]	112		112	
D3	[mm]	225		225	
D4	[mm]	160		160	
D5	[mm]	102		102	
G1	[mm]	145		145	
G2	[mm]	252		252	
G3	[mm]	137		137	
d1	[mm]	300		300	
d2	[mm]	300		300	
d3	[mm]	264		264	
d4	[mm]	271		271	
WEIGHT	[kg]	45	44	45	44

4.3. TECHNICAL DATA

SMARTY		3X V 1.1	3X V 1.2	4X V 1.1	4X V 1.2
EXHAUST AIR FAN					
phase/voltage	[50 Hz/VAC]	1/230		1/230	
power/current	[kW/A]	0,08/0,65		0,08/0,65	
speed	[min ⁻¹]	3150		3150	
control input	[VDC]	0-10		0-10	
protection class		IP54		IP54	
SUPPLY AIR FAN					
phase/voltage	[50 Hz/VAC]	1/230		1/230	
power/current	[kW/A]	0,08/0,65		0,08/0,65	
speed	[min ⁻¹]	3150		3150	
control input	[VDC]	0-10		0-10	
protection class		IP54		IP54	
Integrated electrical preheater	[kW]	1,2	-	1,2	-
Total power/current consumption	[kW/A]	1,42/6,8	0,2/1,55	1,42/6,8	0,4/2,95
Automatic control integrated		miniMCB	miniMCB basic	miniMCB	miniMCB basic
Insulation of walls	[mm]	30		30	
Exhaust air filter (class, dimensions LxWxH)	[mm]	MPL 475x180x25 Coarse 65%		MPL 475x180x25 Coarse 65%	
Supply air filter (class, dimensions LxWxH)	[mm]	MPL 475x134x25 Coarse 65%		MPL 475x134x25 Coarse 65%	
Device protection class		IP-34		IP-34	

According to EN 13141-7.

Acoustic data: check the product page on www.salda.it



Not suitable for installation in living rooms: additional noise insulation required.

4.4. OPERATING CONDITIONS

SMARTY	3X V 1.1	3X V 1.2	4X V 1.1	4X V 1.2
Outdoor air temp. without frost protection	-15..40 °C	-2..40 °C	-10..40 °C	-2..40 °C
Ambient air temp.	5..40 °C	5..40 °C	5..40 °C	5..40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors

4.5. STANDARD PACKAGE OF COMPONENTS

SMARTY	3X V	4X V
Key M4 Z-type	1	1
Siphon	1	1
Bracket 2281027	1	1
Fix - PV gasket 6x20 (white)	1300 mm	1300 mm
Sealing rubber 15x8x7 427021	610 mm	610 mm
Straight Fiting With O-ring F 1/2 M/M	1	1
Rubber gasket d20xD28 s2mm	1	1
Pipe	1	1

4.6. DESCRIPTION OF COMPONENTS

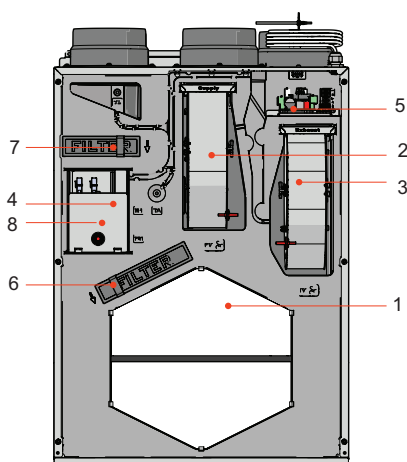


Figure 4.6.1 Smarty 3X V / 4X V 1.1/1.2

1 - Plate heat exchanger; 2 - Supply fan; 3 - Exhaust fan; 4 - By-pass damper; 5 - Control board; 6 - Extract air filters (panel); 7 - Supply air filter (panel); 8 - Electrical pre-heater (version 1.1 only).

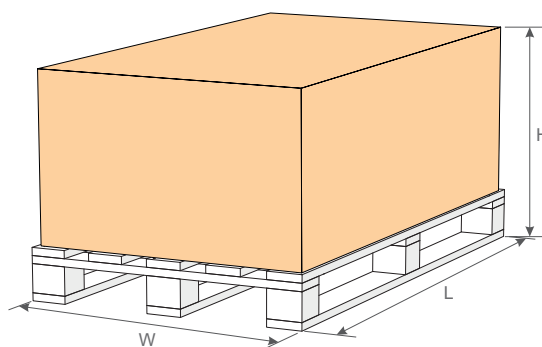
5. INSTALLATION

5.1. RECEPTION OF GOODS

Each device is carefully checked before transportation. When receiving the goods, checking the devices for any damage made during transportation is recommended. If any damage to the unit is observed, immediately contact the representatives of a transport company. Please inform the representative of the manufacturer, if any deviation of the device is noticed.

5.2. TRANSPORTATION AND STORAGE

- All units are factory-packaged to withstand normal conditions of transportation.
- When unpacking, check the unit for any damage made during transportation. Installing the damaged units is not allowed!
- **The packaging is used for protection purposes only!**
- When unloading and storing the units, use suitable lifting equipment to avoid damage and injuries. Do not lift units by holding on power supply cables, connection boxes, air extract or exhaust flanges. Avoid hits and shock overloads. Before installation, the units must be stored in a dry room with relative air humidity not exceeding 70 % (at +20 °C) and with an average ambient temperature ranging between +5 °C and +30 °C. The storage place must be protected against dirt and water.
- The units must be transported to the storage place or installation site using forklifts.
- The recommended storage period should not be longer than one year. In case of storing the units for a period longer than one year, checking if the fan bearings and motor rotate without difficulty (turning the impeller by hand) and if the electric circuit insulation is not damaged or the moisture has not accumulated must be performed before the installation of the unit.



UNIT	H	L	W	Max. number of transported packages	
	[mm]	[mm]	[mm]		[pcs.]
Smarty 3X V	1 110	730	585		1
Smarty 4X V	1 110	730	585		1

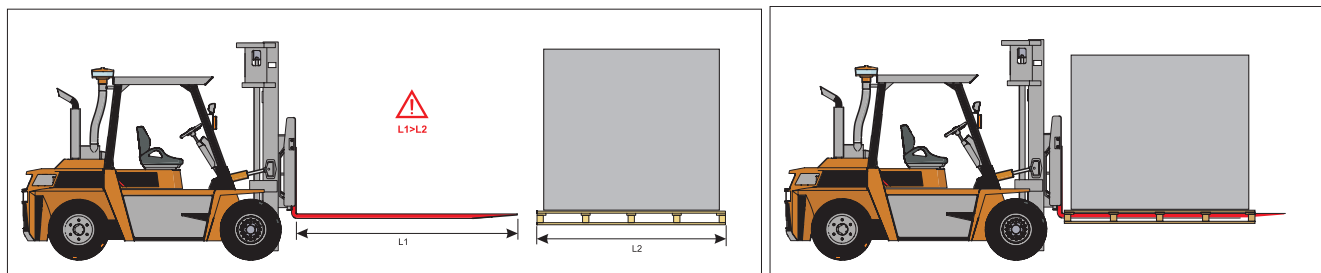


Figure 5.2.1 Lifting by forklift.



To prevent damage to the casing, only a product placed on a pallet should be lifted.

5.3. UNPACKING



Accessories may be packed together with the product. Prior to transporting the unit, the accessories should be unpacked first.

- Remove the film from the unit.
- Remove the bracing packaging tape that keeps the protective profiles in place.
- Remove the protective profiles.
- After unpacking the unit, examine it to make sure that no damage was made during transportation. Installation of damaged units is not allowed!
- Before commencing the installation of the unit, please check if all ordered equipment has been delivered. Any deviation from the ordered equipment list must be reported to the product supplier.

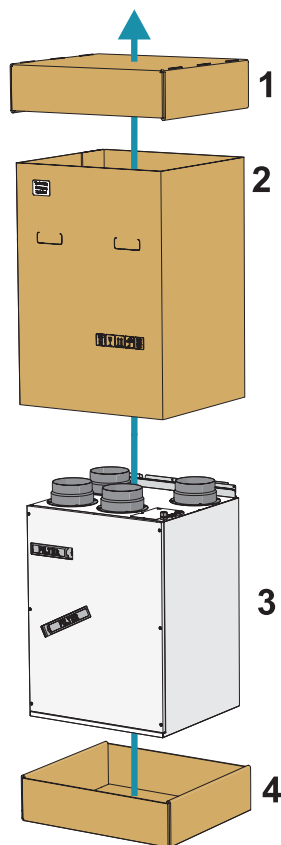


Figure 5.3.1 Smarty 3X V / 4X V

5.4. PIPING AND INSTRUMENTATION DIAGRAM

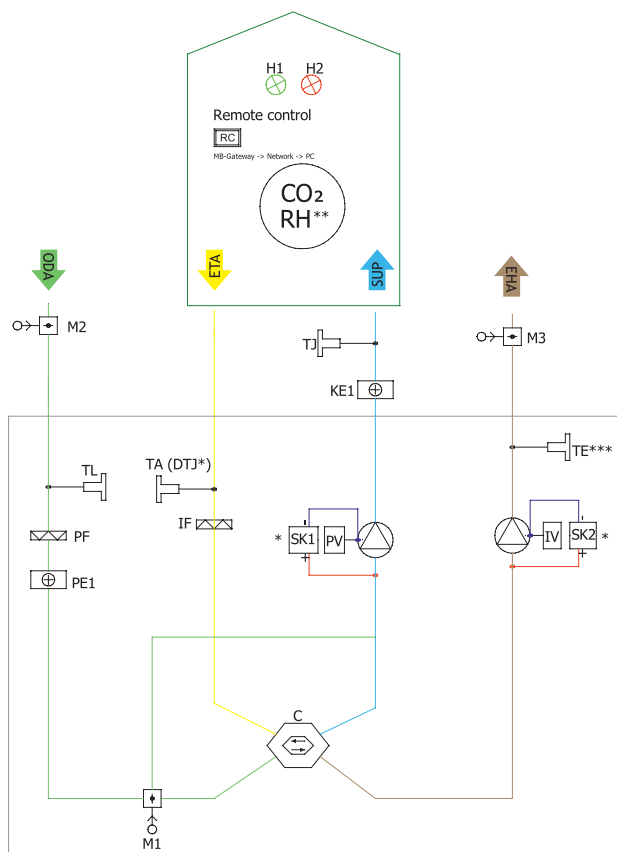


Figure 5.4.1 SMARTY XV miniMCB (* Available in 3X V / 4X V 1.1 models; ** Check the manual for details; *** Optional)

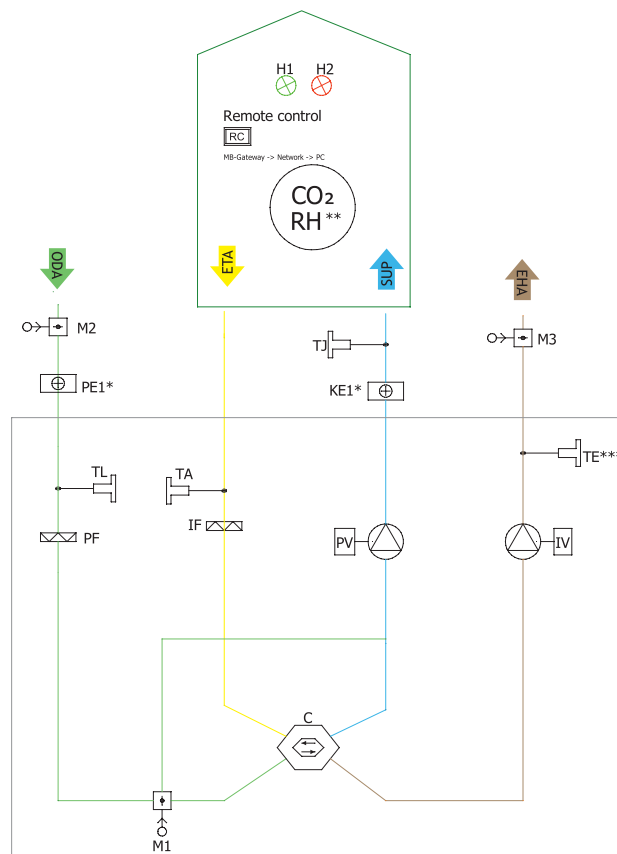


Figure 5.4.2 SMARTY XV miniMCB basic (* Only heater or preheater can be connected at a time; ** Check the manual for details; *** Optional)

THE LIST OF COMPONENTS

C	Plate heat exchanger	PV	Supply air fan
IF	Extract air filter	PF	Supply air filter
IV	Exhaust fan	TA	Extract air temperature sensor
TE	Exhaust air temperature sensor	TJ	Supply air temperature sensor
DTJ	Extract air temperature and humidity sensor*	CO₂	CO ₂ sensor*
RH	Air humidity sensor*	PC	Computer*
KE1	Electric heater	PE1	Electric pre-heater
M1	By-pass damper	M2	Outdoor air damper actuator
M3	Exhaust air damper actuator	SK1	Supply air pressure sensor*
SK2	Exhaust air pressure sensor*	TL	Outdoor air temperature sensor
	Ventilated premises	MB-Gateway	Network module*
NET	Network*	RC	Stouch, ST-SA-Control, POS8.4420 or POS8.4440 remote control panel*
TP	Air temperature after preheating coil sensor*	AQ	Air quality sensor*
T	Temperature sensor*		

* Component/possibility to connect it depends on model.

POSSIBLE PCB INPUTS/OUTPUTS

FA	Fire alarm	FPP	Fireplace protection
H1	Operation/Working indication output	H2	Alarm indication output
	System mode switch		Fans speed switch

5.5. MOUNTING

- Installation works should be carried out by qualified and trained staff only.
- When connecting air ducts, consider the labels on the casing of the unit.
- Before connecting to the air duct system, the connection openings of the ventilation unit should be closed.
- When connecting the ducts, the air-flow direction indicated on the device housing should be observed.
- Do not connect the bends close to the connection flanges of the unit. The minimum distance of the straight air duct between the unit and the first branch of the air duct in the supply and exhaust air ducts must be 3xD, where D is the diameter of the air duct.
- It is recommended to use the brackets (accessories). This will reduce the vibration transmitted by the unit to the air duct system and environment.
- Sufficient space must be provided for opening the device door and filter covers.
- If the ventilation unit is a wall-mounted device, it may transmit noise vibrations to the premises. Though the level of noise generated by the fans is admissible, we recommend mounting the unit at a distance of 400 mm from the nearest wall. Where this is not possible, we recommend mounting the unit on the wall of the room where the level of noise is not significant.
- Ducts are connected to the unit in such a way that they could be easily disassembled, and the coil could be removed from the unit when carrying out maintenance, service and/or repair works.



The protective film is used to protect the unit during transportation. It is recommended to remove the film; otherwise, oxidation signs may occur.



The condensate tube must be filled with water as indicated during the first start-up before every heating season!

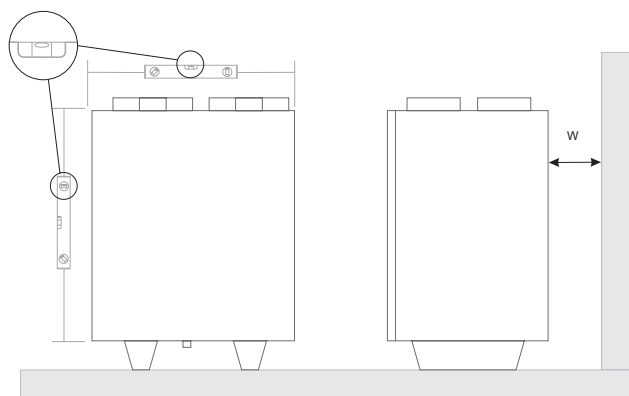


Figure 5.5.1 Smarty XV horizontal floor-mounting positions on floor (W=400 mm)

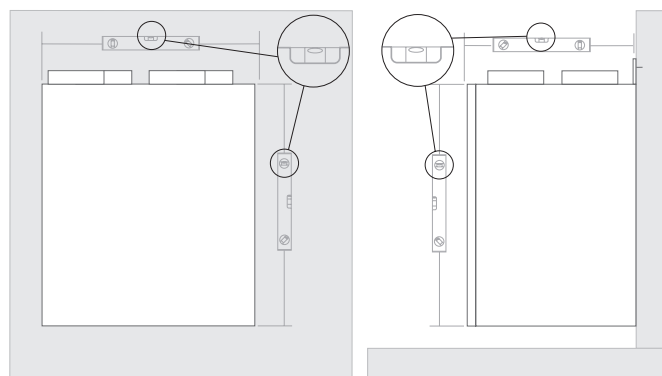


Figure 5.5.2 Smarty XV ceiling-mounting positions

5.5.1. UNIT PLACING AND MOUNTING POSITIONING REQUIREMENTS

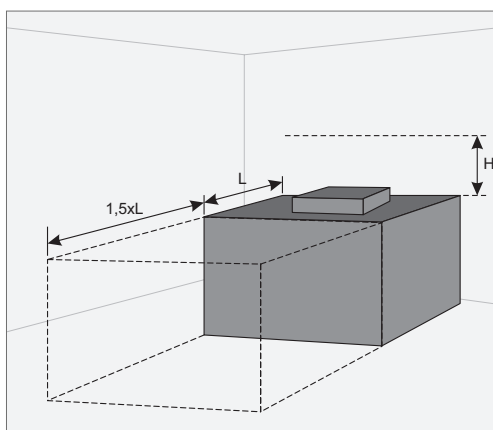


Figure 5.5.1.1 Min. distance to open the door - 1,5xL; Min. distance to open the control box door - $H > 400$ mm.

5.5.2. FLOOR MOUNTING

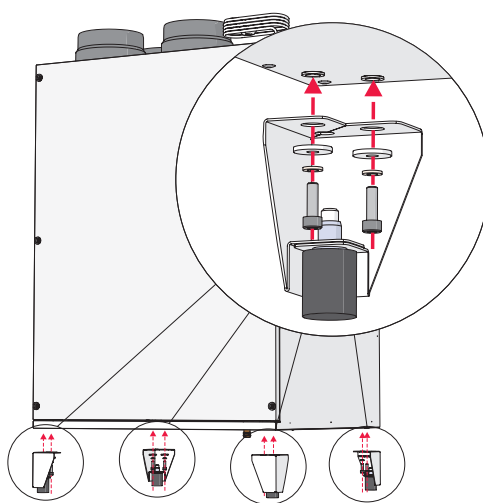


Figure 5.5.2.1 Floor mounting (optional accessory required)

5.5.3. WALL-MOUNTING OF THE UNIT

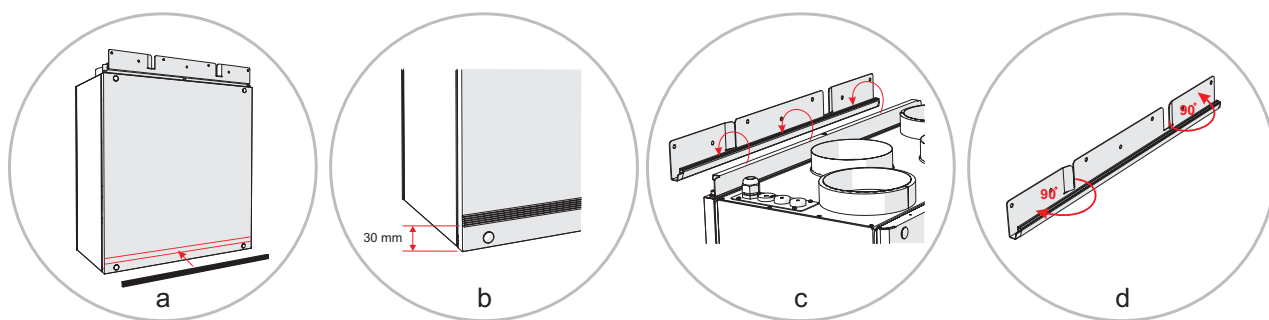


Figure 5.5.3.1 Mounting on the wall

5.5.4. DRAINAGE

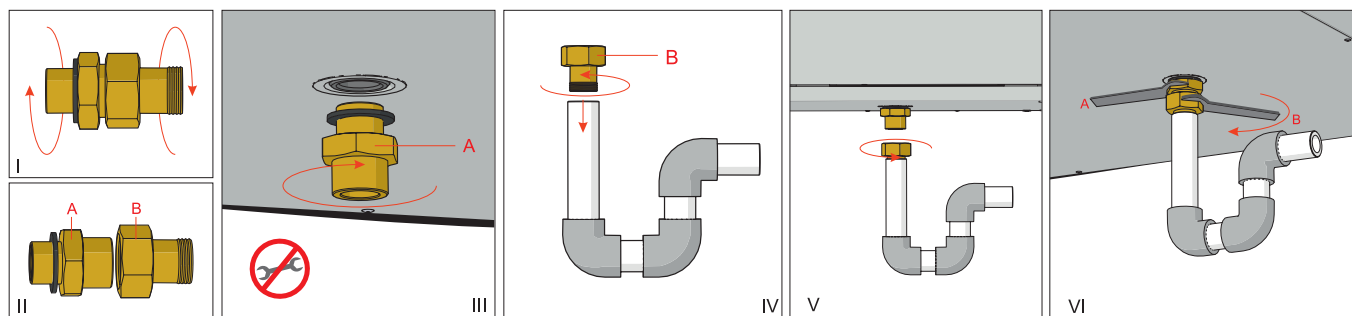


The condensate tube must be filled with water as indicated during the first start-up before every heating season!



NOTE. If the collector is located upstream, install the system with the condensate pump (offered as an accessory).

DRAINAGE SYSTEM INSTALLATION SMARTY 3X V / 4X V



1. Connect the drain couplings (ZPGGM056) part A (G ½ male) to drainage connection into the unit, by turning it clockwise by hand. Do not use any tools (I-III)!
2. Connect drain couplings part B (G ½ male) to condensate syphon (IV-V).
3. Connect drain couplings A and B parts. Hold back the part A with the key during connection (VI).

5.6. CONNECTION OF THE AIR DUCTS

- The connected air ducts must not be bent and must be fixed separately.
- Make sure that the fans may not be accessed through air duct heads. Otherwise, a protective grid should be installed. You may choose the grid from the range of products provided on our website <https://select.salda.it>.
- Do not reduce the diameter of the piping near the air inlet or exhaust ducts. If you want to reduce the airflow speed in the system, also to reduce pressure and noise level, you can increase the diameter.
- In order to reduce the level of noise in the air supply system, install silencers (see the chapter on air supply system installation).
- In order to reduce air loss in the system, the air ducts and profile components should be of class C or higher. The catalogue of the above-mentioned items can be found on our website <https://select.salda.it>.
- External air and exhaust system piping should be isolated in order to prevent heat loss and condensation.
- We recommend to maintain a distance of up to 8 meters between air intake and air exhaust ducts. The air intake point should be installed away from potential air pollution sources.
- When installing air ducts next to the ventilation equipment, brackets must be used. They suppress vibrations and assure secure installation of the various system parts. The necessary brackets can be found in our catalogue or on our website <https://select.salda.it>.
- Air ducts are often mistakenly connected in an inappropriate location. The ventilation units bear the labels indicating the correct air duct connection layout. Before starting up the system, carefully check if all related works have been performed properly.

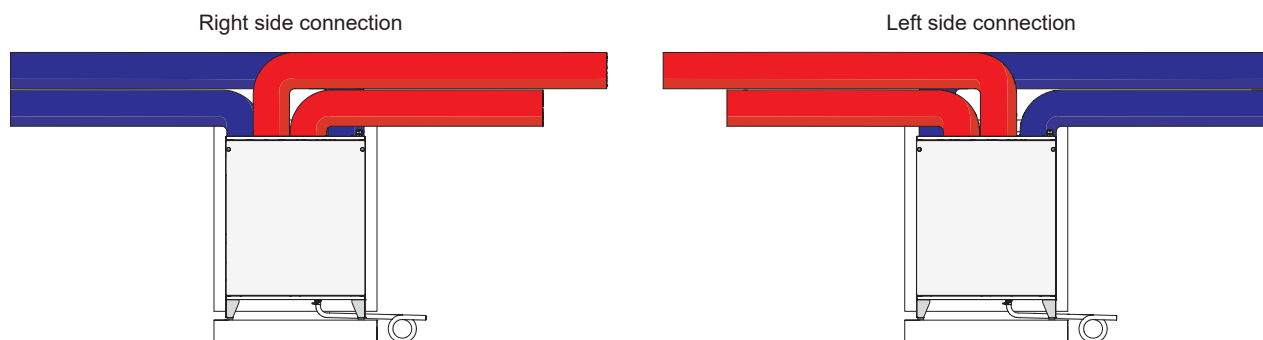


Figure 5.6.1 Smarty XV side connection



For flange diameters see chapter "DIMENSIONS AND WEIGHT".

5.7. CONNECTION OF THE UNIT TO THE ELECTRIC NETWORK

- Supply voltage to the unit must be connected by a qualified specialist following the manufacturer's instructions and applicable safety guidelines.
- The unit's power network voltage must correspond to the electro-technical specifications of the unit indicated in the technical decal.
- The unit's voltage, power and other technical specifications are provided in the unit's technical decal (on the unit casing). The unit must be connected to the voltage plug socket of the grounded power network in accordance with the applicable requirements.
- The unit must be earthed according to electrical equipment installation regulations.
- Using extension wires (cables) and power network plug socket distribution devices is not allowed.
- Prior to carrying out any ventilation unit installation and connection works (before the unit is commissioned), the unit must be disconnected from the power network.

- After installation of the ventilation unit, the power network plug socket must be accessible at any time and disconnection from the power network must be performed through the two-pole circuit breaker (by disconnecting phase pole and neutral).
- Before it is connected to the power network, the unit must be carefully checked for any damage (operation, control, and measurement nodes) made during transportation.
- The power cable can be replaced only by a qualified technician, having evaluated the rated power and current.



The manufacturer does not assume any liability for personal injuries and property damage due to non-conformance with the provided instructions.

5.8. START-UP RECOMMENDATIONS

5.8.1. SYSTEM PROTECTION

The control automatics of the unit (version 1.1 / 1.2) have integrated protection against short circuit of those assemblies.
The controllers have the following protections:

miniMCB

F1 - 1A(5x20) miniMCB protection;

All units must be used with external protection device.

SMARTY	3X V 1.1	3X V 1.2	4X V 1.1	4X V 1.2
Mains Fuse	16A	16A	16A	16A



To ensure safe maintenance of the unit, it is necessary to turn off the main switch and/or external protection device.

5.8.2. PRE START-UP RECOMMENDATIONS OF THE UNIT (IN THE PRESENCE OF THE END-USER)

Prior to start-up, the system must be carefully cleaned. Check for the following:

- Operation systems and unit elements as well as automation and automation devices were not damaged during installation,
- All electrical devices are connected to power supply and fit for service,
- All necessary automation elements are installed and connected to power supply and miniMCB, EX1 controller's terminal blocks,
- Cable and wire connection to miniMCB, EX1 controller's terminal blocks comply with the existing wiring diagrams,
- All electrical equipment protection components are properly connected (if they are additionally used),
- Cables and wires correspond to all applicable safety and functional requirements, diameters, etc.,
- Earthing and protection systems are properly installed,
- Condition of all seals and sealing surfaces is proper.

6. MAINTENANCE

6.1. SAFETY INSTRUCTION



Unplug the unit from the mains before opening the door (disconnect the power plug from the outlet or in case a two-pole automatic circuit breaker is installed, disconnect it as well. Make sure that it cannot be turned on by the third parties) and wait until the fans completely stop (for about 2 min.).

6.2. GENERAL RECOMMENDATIONS FOR THE MAINTENANCE OF VENTILATION SYSTEM

In order to ensure the proper functioning of the system, maintenance requirements and its periods should be observed. Otherwise, the warranty shall be void. Some recommendations are provided in the table below, but they are just advisory, as the need for system maintenance depends on the location of the unit installation, the pollution of the atmosphere, population, working hours, etc.

COMPONENT	DURING START-UP	AT LEAST EVERY 6 MONTHS
Filters	Check the cleanliness of the filters	Replace filters every 3 to 4 months or according to the control device indications.
Fans	Check the connections and the direction of rotation	Check cleanliness. Clean, if necessary.
		Make sure that the impellers are not unbalanced.
		Make sure that the impellers do not cause noise when rotated by hand.
		Make sure that the fastening screws are not loose and free of mechanical damage.
		Check electrical connections and make sure that these are secured properly and are free of signs of corrosion.
Plate Heat exchanger	Check the cleanliness of the heat exchanger	Check cleanliness and clean, if necessary.
Control panel	Check the connections	Check the connections.
Electric heater	Check the connections	Clean off dust, and check the electrical components and connections of the heater.
Pressure sensor	Check electrical connections	Check the operation.
Temperature sensor	Check electrical connections	Check the operation.
Air supply and extract system	Check the connections	Clean.
Air duct system	Check the tightness	Clean.
Dampers, diffusers, grid	Check the tightness of connections	Clean.
Switching unit (contactor)		Every 3 to 4 months, visually assess the functioning of the switching unit (contactor), i.e., make sure that its casing has no signs of melting or is not thermally damaged and does not produce any unusual sounds. All the contactors in the product or in its accessories must be checked.
Condensate trap and discharge assembly	Check the condensate discharge assembly and make sure that water runs from the drip tray properly.	Clean.

6.3. COVER OPENING

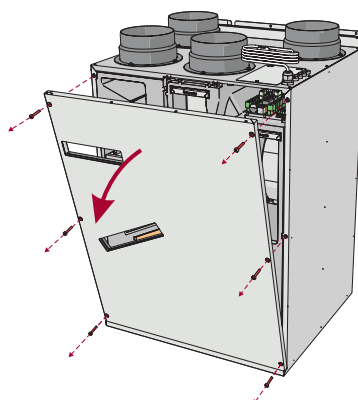


Figure 6.3.1 Smarty 3X V / 4X V

6.4. FILTERS MAINTENANCE

- In order to remove the filters, open filter cover by pulling the strap and take out the filters. Use Coarse 65% filters or optionally the ePM1 70% filter for outdoor air filtration and the Coarse 65% filter for the exhaust air filtration.
- Dirty filters increase air resistance, this decreases the airflow into the rooms.

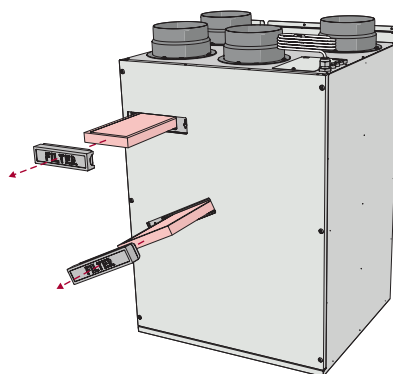


Figure 6.4.1 Smarty 3X V / 4X V



After changing the filters, please reset the filters timer. The instruction on reloading is provided in the particular unit's control environment's documentation.
Operation of the unit without filters is not allowed.



Change the filters every 3-4 months or according to the notification on the control device.

6.5. HEAT EXCHANGER MAINTENANCE

- Proceed to maintenance and repair after any rotation in the fan stopped.
- Clean the heat exchanger once per year.
- Prior to any maintenance, carefully remove the heat exchanger cassette. Submerge it in a bath and wash with warm soapy water (do not use soda). Then flush it under a small jet of hot water (too fast jet of water may cause folding of the plates). Install the heat exchanger back only when it is completely dry.

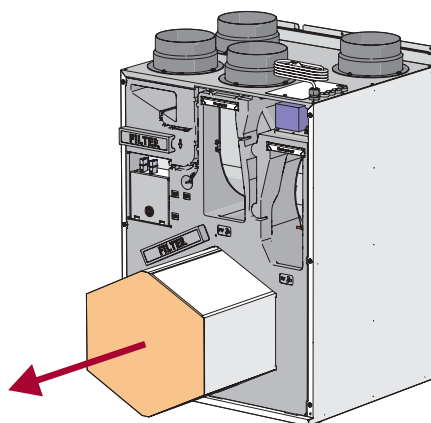


Figure 6.5.1 Smarty 3X V / 4X V



CAUTION: the heat exchanger cannot be used when the filters are removed!

6.6. FAN MAINTENANCE

- Fan maintenance should be performed by experienced and trained staff only.
- The fan should be inspected and cleaned at least once per year.
- Observe staff safety regulations during the maintenance and repair works.
- The fans features a heavy-duty ball bearing design. The motor is completely sealed and free of maintenance.
- Detach the fan from the unit.
- The impeller should be particularly checked for built-up material or debris that may cause an imbalance. An excessive imbalance may lead to accelerated wear on the motor bearings and cause vibration.
- Clean the impeller and inside the housing with a mild detergent and a damp soft cloth.
- Do not use high-pressure cleaners, abrasive materials and sharp tools or caustic solvents that may scratch or damage the housing and impeller.
- Do not plunge the motor in any fluid while cleaning the impeller. Make sure the impeller's balance weights are in place.
- Make sure the impeller is free of any obstacles.
- Install the fan back into the unit. Connect fan power and control signals.

- In case the fan does not automatically start up or stop after maintenance, contact the manufacturer. The malfunction of the fan can be identified by the pressure in the system (when pressure switches are connected). In case of any fault in the fan motor, a notice will appear on the control panel.



Prior to commencing any maintenance or repair works, make sure the unit is disconnected from the power source.

- Remove the fans connectors from the control board or fan housing. Supply air fan connects to control board's X15, X2, X4 connectors. Extract air fan connects to control board's X16, X2, X4 connectors. Smarty 4X V fans can be disconnected by unplugging X32, X33 connectors located on the fans housing.
- X2 and X4 are the same for both fans.

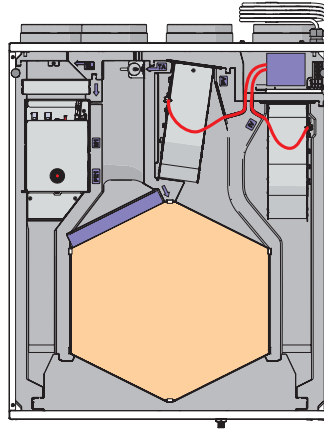


Figure 6.6.1 Smarty 3X V



NOTE. For all units reassembling must be executed in the reverse order. Make sure to connect cable wires of the fans to exact terminals they were disconnected from.

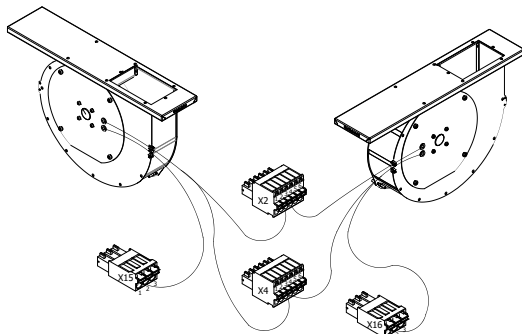


Figure 6.6.2 Smarty 3X V

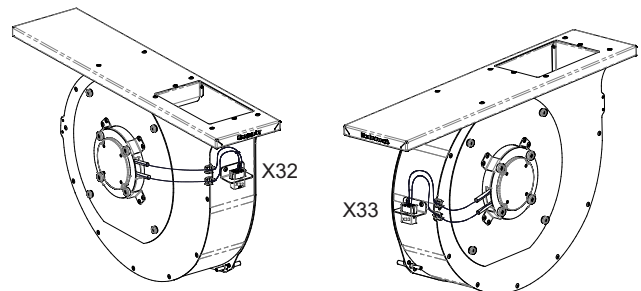


Figure 6.6.3 Smarty 4X V

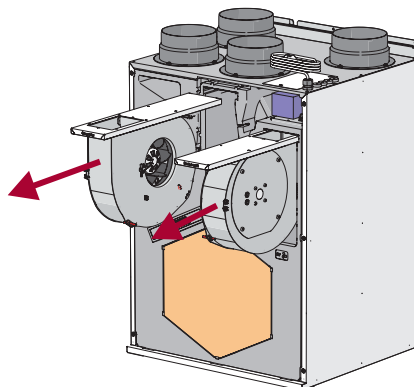


Figure 6.6.4 Smarty 3X V / 4X V

6.7. BYPASS DAMPERS AND PRE-HEATER (VERSION 1.1) MAINTENANCE

- If the manual protection is activated, check for a fault before pressing the RESET button. If the fault is identified after it has been rectified, press the RESET button using a screwdriver or similar object.
- Bypass damper and pre-heater are mounted on one block. The pre-heater shall be disconnected by removing X29 connector. The bypass damper shall be disconnected by removing X25.

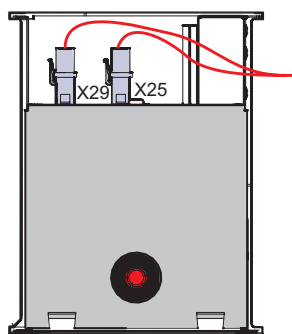


Figure 6.7.1 Bypass damper and pre-heater on one block

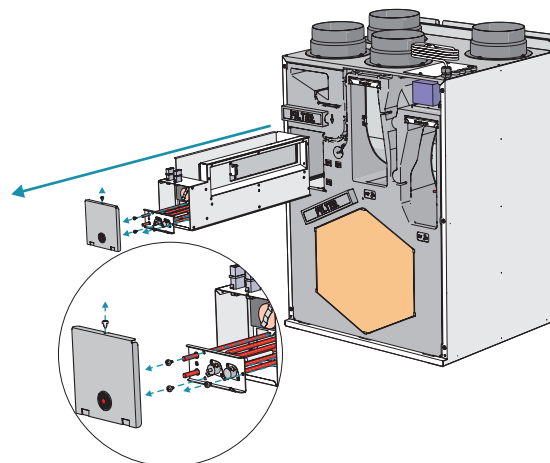
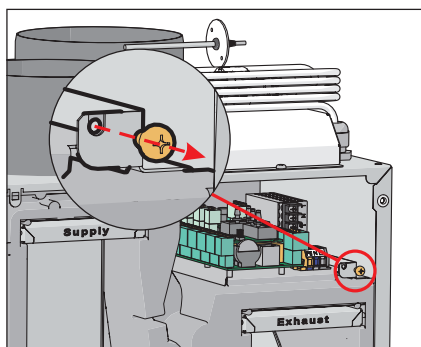


Figure 6.7.2 Smarty 3X V / 4X V 1.1/.12

6.8. CONTROL BOARD MAINTENANCE

- Unscrew the front bolt securing the control board holder to the unit casing.
- Withdraw the automation through the front part.
- Disconnect the connectors from the control board.
- The connectors are marked according to connection location. Thus during automation reassembly please observe the marking of the connection location of connectors and controller. If the marking on the controller terminals is not visible follow the PCB information provided in **"MINIMCB TECHNICAL MANUAL"**.



7. CONTROL

7.1. DEVICE CONTROL

Ventilation unit equipped with miniMCB control board can be controlled with remote controller, WEB interface or mobile app via MB-GATEWAY and BMS (Building Management System). More information provided in the table below.

With MB-GATEWAY	Remote control panels	BMS direct connection	Wireless communication
Web interface SALDA AIR mobile application BMS over Modbus TCP/IP BMS over BACnet TCP/IP	Stouch ST-SA-Control	Modbus RTU (RS485)	MB-GATEWAY + WIFI router

7.2. DEVICE FUNCTIONS

All miniMCB control boards are run by the same software with all functions included. Full function list and description you can find on the MiniMCB technical manual. However, operation and control of the device depends on the following factors:

1. Selected control interface (remote control panel, MB-GATEWAY, etc.). The selected interface affects access to the information and settings, however, it does not affect the logic of control. Full access to the information and settings is available on ST-SA-Control, MB-GATEWAY WEB application and SALDA AIR mobile application.
2. Unit configuration (internal/external components, sensors and control board settings).



For unit control instructions, refer to the operation manual of the existing control device.

8. CONNECTION OF ACCESSORIES

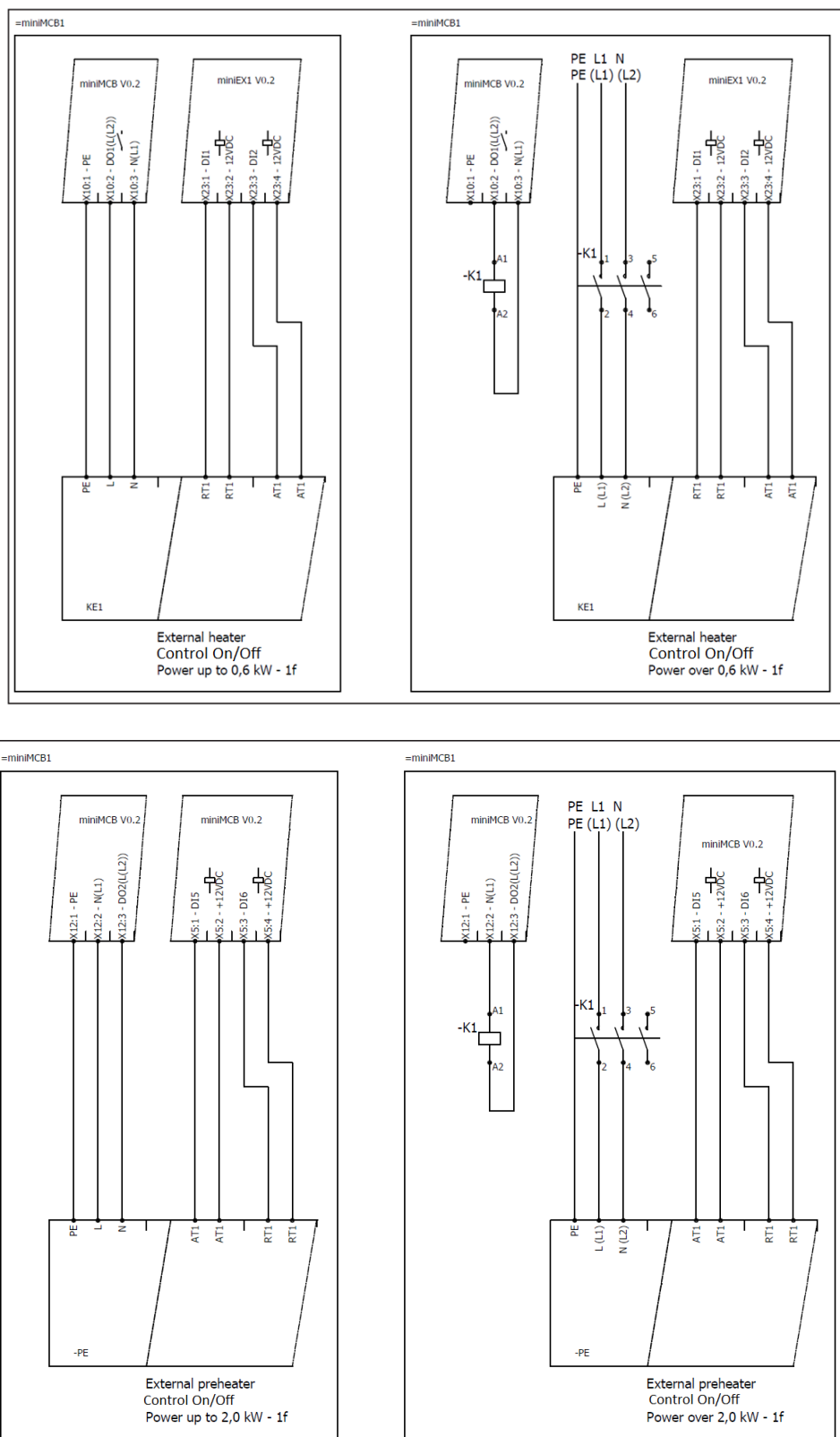
8.1. HEATER AND PRE-HEATER

8.1.1. VERSION 1.1

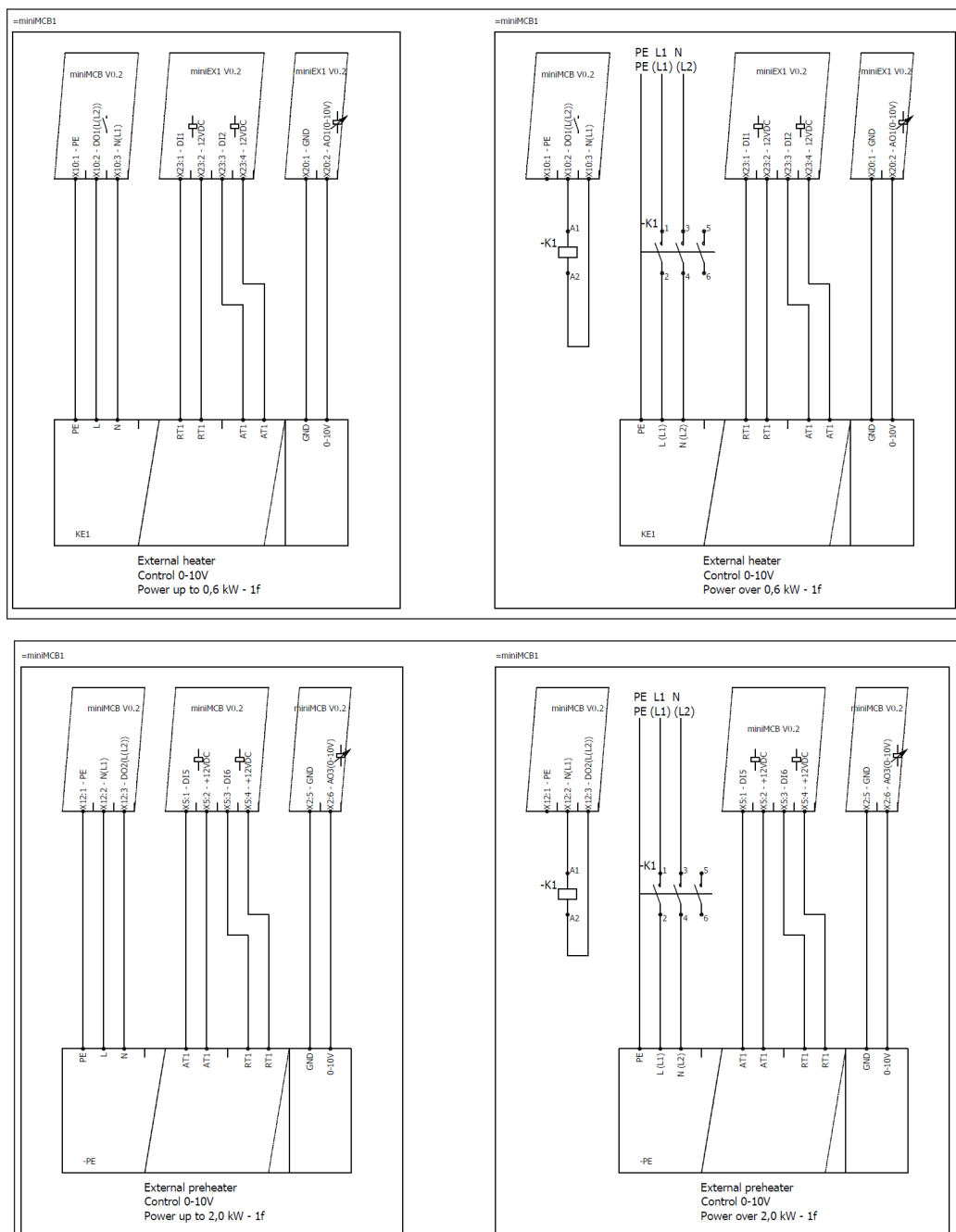
Smarty 1.1 units feature one connection for external electrical air heater and one for external air pre-heater. Pre-heater is integrated inside the product. Heater/pre-heater can be controlled by the following signals:

- 0-10V – EKA NIS
- On-Off – EKA

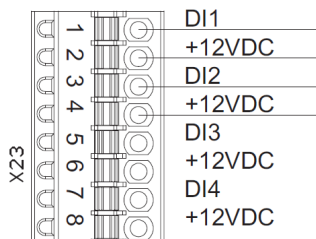
EKA connection:



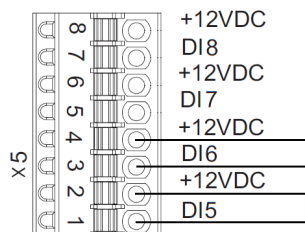
EKA NIS connection:



Automatic and manual protection devices must be connected to EX1 controller 's X23 connector when an electric heater is equipped with these connection terminals. Otherwise, jumpers are installed on the X23 connector protection inputs.



Automatic and manual protection devices must be connected to the controller's X5 connector when an electric pre-heater is equipped with these connection terminals. Otherwise, jumpers are installed on the X5 connector protection inputs.

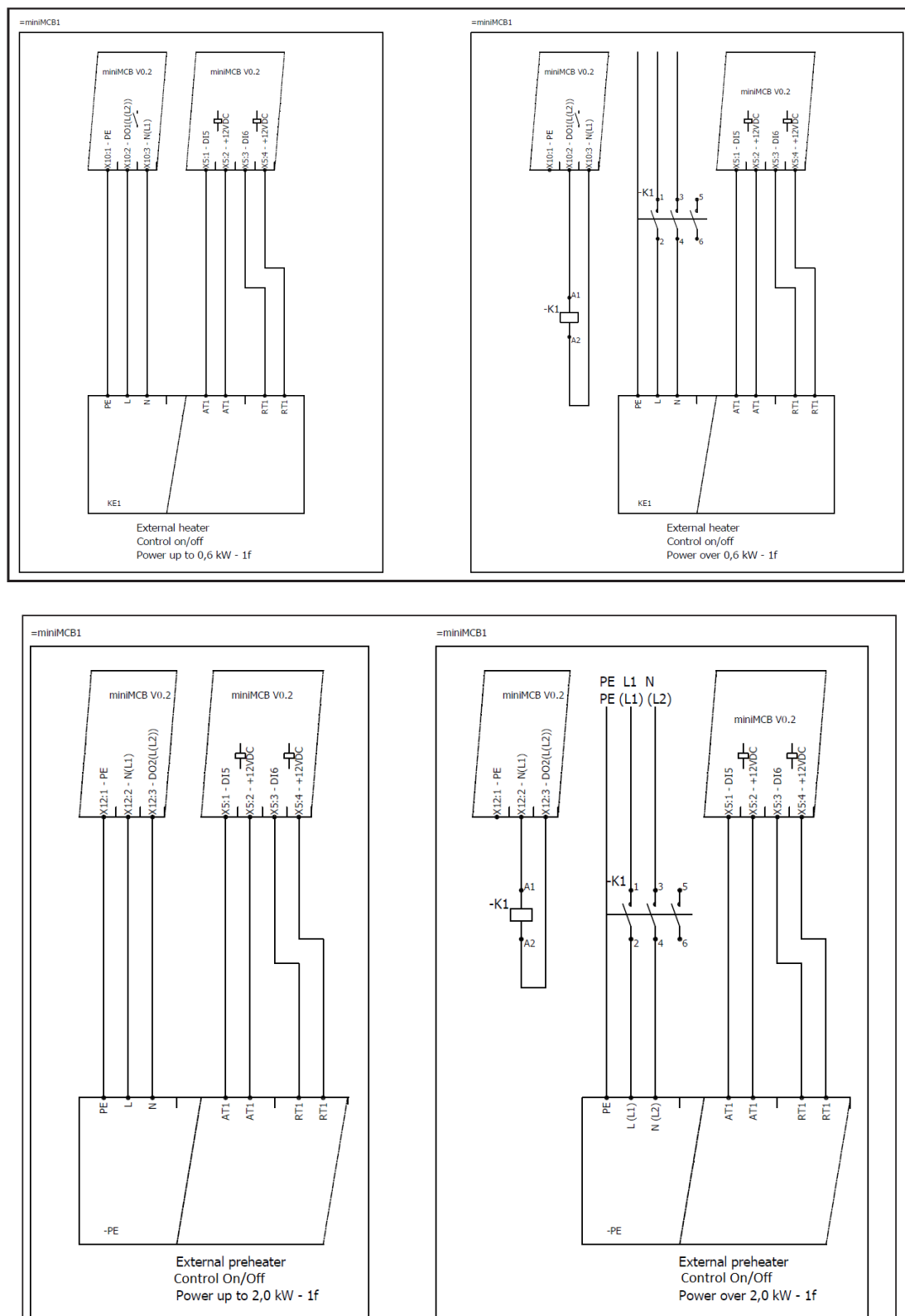


8.1.2. VERSION 1.2

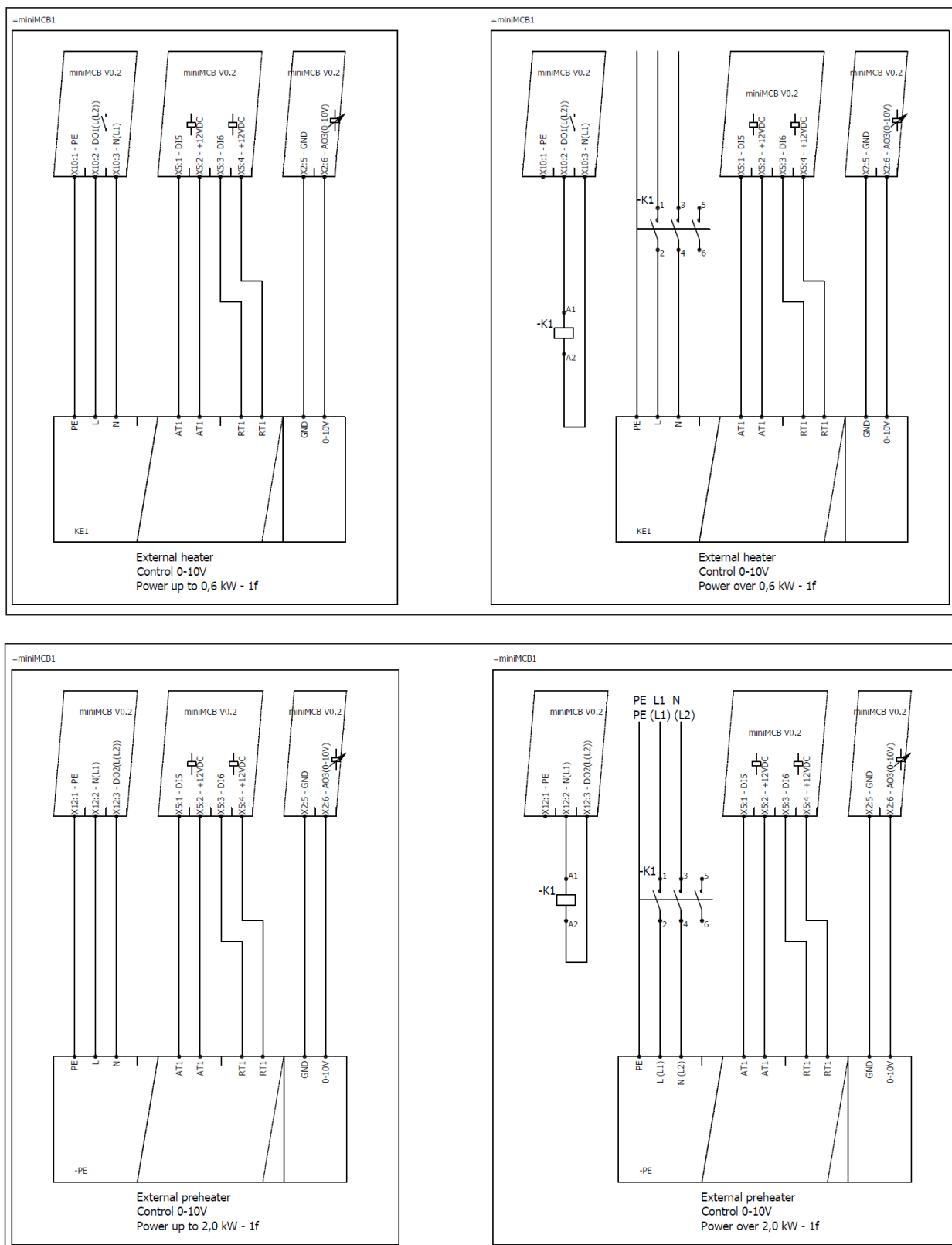
Smarty 1.2 units feature one connection of external electrical heater/pre-heater. In factory settings, the connection is intended for the pre-heater, however, it can be configured for the heater. Heater/pre-heater can be controlled by the following signals:

- 0-10V – EKA NIS
- On-off – EKA

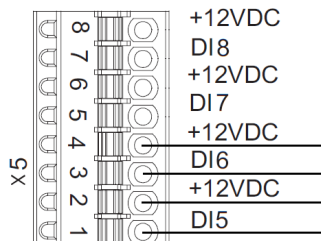
EKA connection:



EKA NIS connection:



Automatic and manual protection devices must be connected to the controller's X5 connector when an electric heater/pre-heater is equipped with these connection terminals. Otherwise, jumpers are installed on the X5 connector protection inputs.



Since the pre-heater must be connected according to the factory settings, the settings should be changed in the environment of the MB-Gateway WEB application service or on the ST-SA-Control panel.

SETTINGS IN THE ENVIRONMENT OF THE MB-GATEWAY WEB APPLICATION SERVICE

Change the settings as follows:

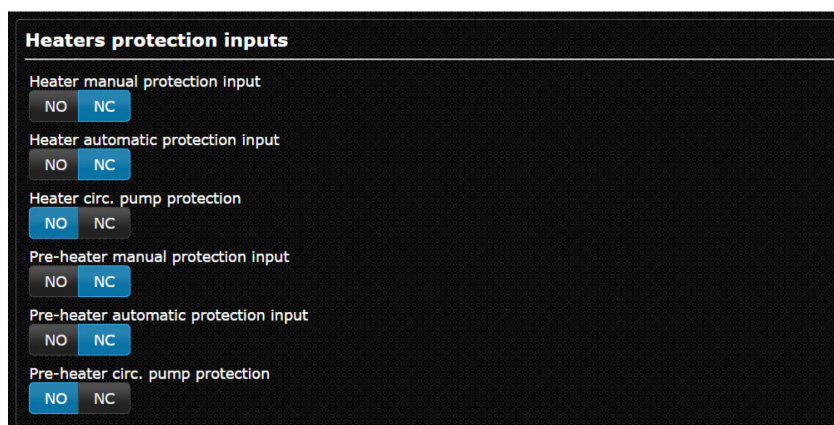
- Service password 4444;
- Service > Heaters > Heater and pre-heater position;
- Select either the heater or pre-heater to be switched on the MiniMCB basic.



¹For the Stouch control panel, changing of the settings is not possible

- Service > Digital inputs > Heater protection inputs

Set the manual and automatic protection device modes of the heater or pre-heater (NC by default).



- Service > Heaters > Supply air heater or outdoor air pre-heater

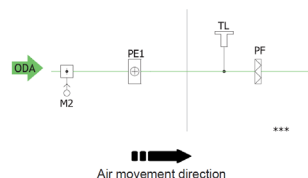
Set either a heater or pre-heater and the type of the heater or pre-heater as well as the steps to be performed in case of protection signal activation.

SETTINGS WITH THE ST-SA-CONTROL PANEL

1. Go to Menu / Service / Heaters. Enter the Service password (the initial password – 4444);
2. Select Control Position as 'Heater on basic' or 'Pre-heater on basic'.
3. Go to Menu / Service / Heaters / Heaters and set the heater type
 - 0..10VDC – 0-10 control,
 - ON/OFF – On/Off control,
 - None – heater switch-off, and also specify the system response protection signal.
4. Go to Menu / Service / Heaters / Preheater. Set type '0..10VDC' 0-10 control, 'ON/OFF' On/Off control, 'None' – pre-heater switch-off. Set the system response protection signal.
5. Go to Menu / Service / Digital inputs / Heater protection. Set the manual and automatic protection device modes (NC by default).
6. Go to Menu / Service / Digital inputs / Preheater protection. Set the manual and automatic protection device modes (NC by default).

Pre-heater installation diagram

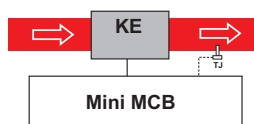
Installation based on air direction Air Damper M2 > Pre-Heater PE1 > Air Handling Unit.



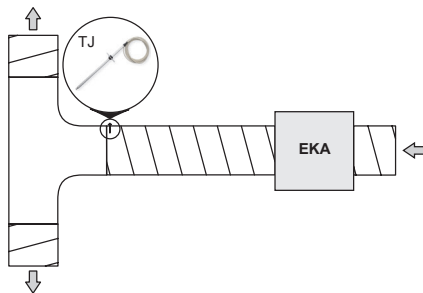
Only pre-heaters with up to 2 kW power circuit can be connected directly to the control board. The pre-heaters of higher power must be connected to separate electric power circuit.

Heater Installation Diagram

Electric heater must be installed inside the air duct. The layout is based on airflow direction **ELECTRIC HEATER > SUPPLY AIR SENSOR (TJ)**.



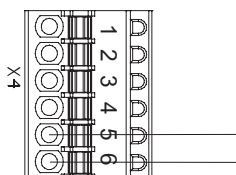
When using the supply air heater, the supply air sensor (TJ) must be installed downstream the heater (or cooler) at the length of sensor cable allows or up to the first branching or bend of air transportation system.



Only heaters with up to 0.6 kW power circuit can be connected directly to the control board. The heaters of higher power heaters must be connected to separate electric power circuit.

8.2. FIRE PROTECTION SIGNAL INPUT (FIRE PROTECTION INPUT (NC))

Fire protection signal input must be normally closed, until the fire protection system is not connected a jumper is installed in the factory.
Automation controller A zone X4

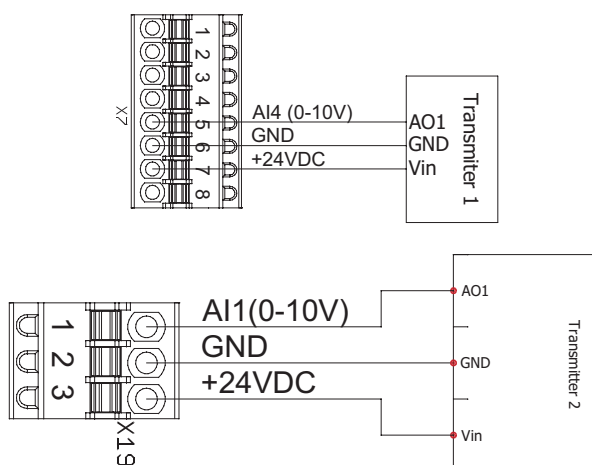


More information can be found in the MiniMCB Technical Manual.

8.3. EXTERNAL CO₂/RH SENSORS

Smarty XV 1.1 units feature two connections for external CO₂ /RH (input 0-10VDC) sensors.

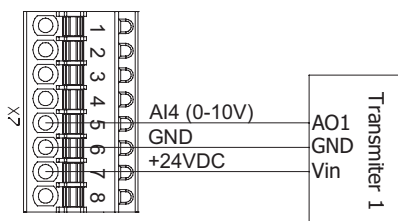
Sensors connection:



Smarty 3X V 1.1 and Smarty 4X V F2 1.1 come with the integrated RH sensor connected.

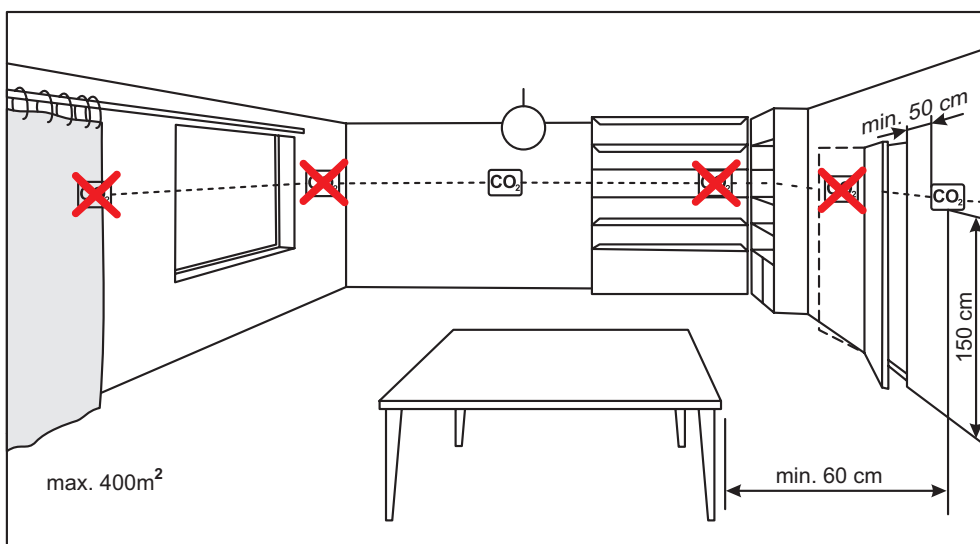
Smarty XV 1.2 units feature one connection for external CO₂ /RH (input 0-10VDC) sensors.

Sensors connection:



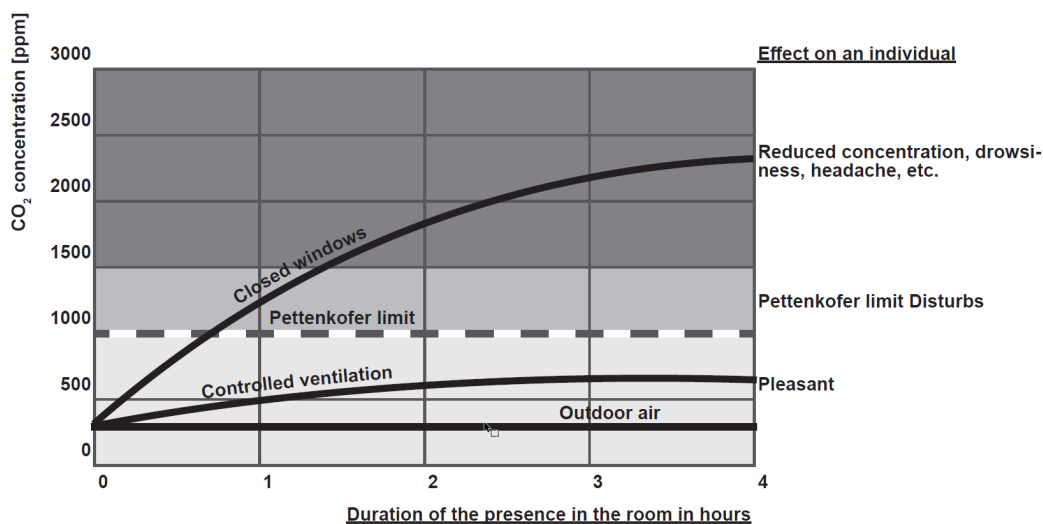
These sensors feature 3 functions: Supply RH, Extract RH and Extract CO₂.
Supply RH transmitter shall be installed inside supply air duct.
Extract RH and Extract CO₂ transmitters shall be installed inside extract air duct or room.

8.4. ROOM CO₂ TRANSMITTER INSTALLATION RECOMMENDATION



If the duct CO₂ transmitter is used, it must be installed in the extract air duct. To install duct transmitters, hole drilling tools are required.

8.5. CO₂ CONCENTRATION ACCORDING TO PETTENKOFER LIMIT



8.6. CONNECTION OF SUPPLY AND EXHAUST AIR DAMPERS

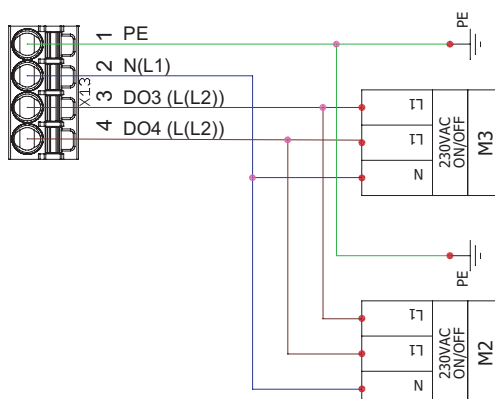
All versions of Smarty can be equipped with outdoor air and exhaust air dampers. Dampers are operated by Open/Close actuators.

Installation diagram

See **"PIPING AND INSTRUMENTATION DIAGRAM"**.

Wiring diagram

Automation controller D zone. Upon activation of output X13:3, the dampers open. Upon activation of output X13:4, the dampers close.

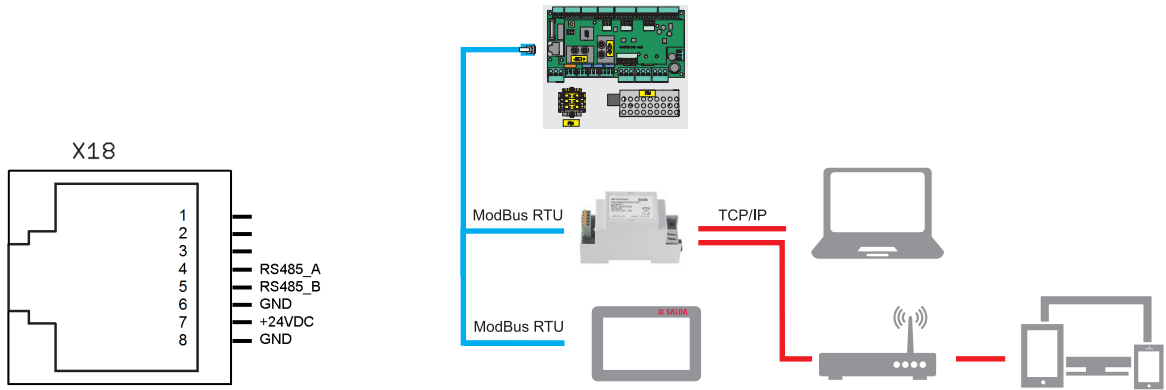


8.7. CONNECTION OF REMOTE CONTROL PANEL OR MODBUS

Wiring diagram.

Automation controller F zone, X18 connector.
Switch position for X18 connector configuration

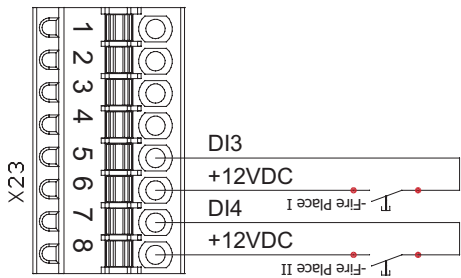
Switch	Position	Purpose
S2	1	120R line termination resistor (On/Off)



8.8. FIRE PLACE PROTECTION (VERSION 1.1)

Wiring diagram.

Automation controller C zone, X23 connector.



LED INDICATION

miniMCB		miniEX1	
LED1	3.3V miniMCB power indication (1W mode)	LED1	EX1 status LED
LED2	12V miniMCB power indication		
LED3	3.3V miniMCB power indication (ON mode)		
LED4	MiniMCB status LED		
LED5	Communication line Transmit indication		
LED6	Communication line Receive indication		
LED7	24V peripheral POWER ON indication		

8.9. RECOMMENDED SCHEMES FOR CONNECTION OF INTERNAL AND EXTERNAL COMPONENTS



***Only Smarty 1.1 versions have N2 module.**

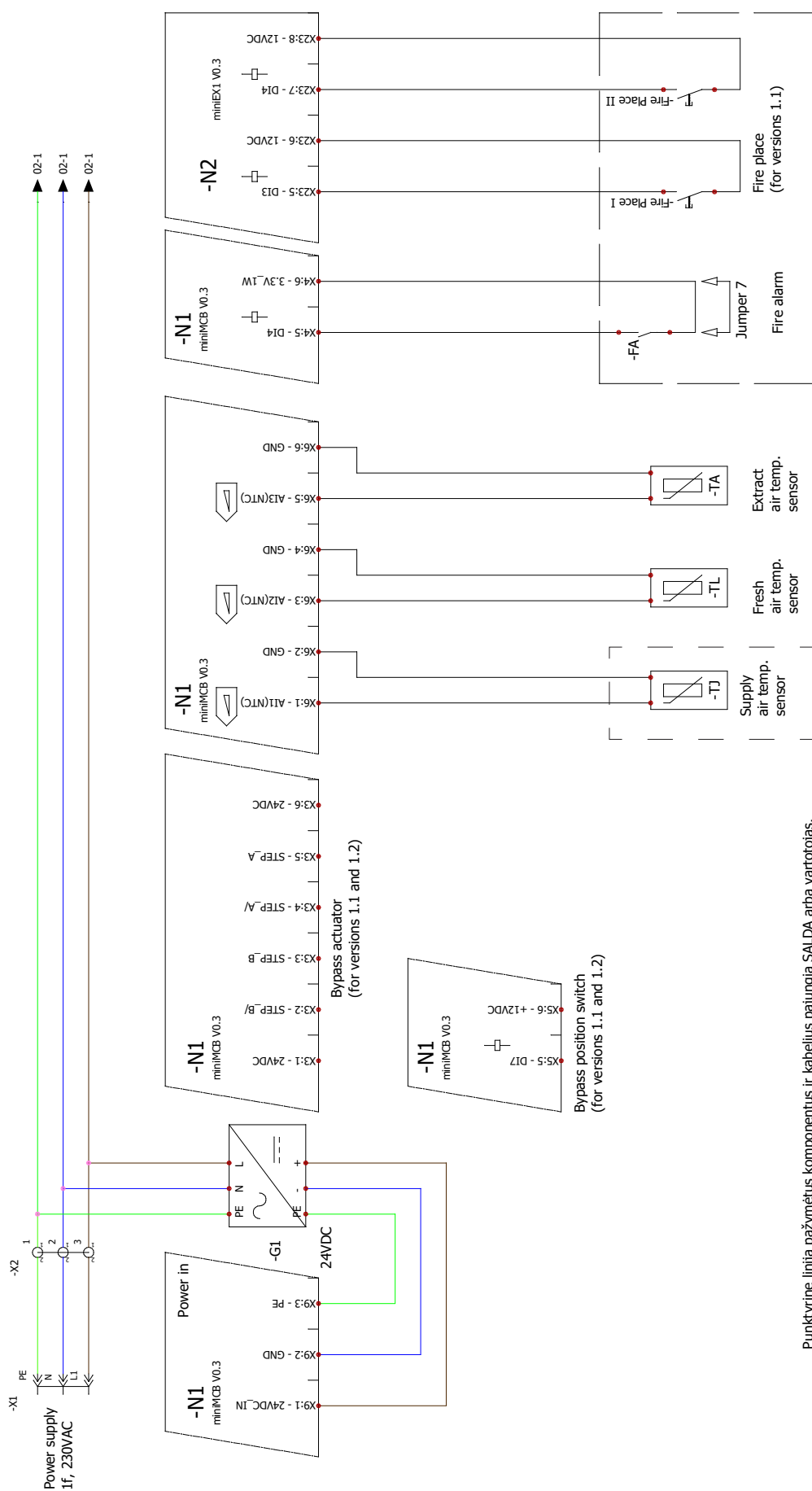
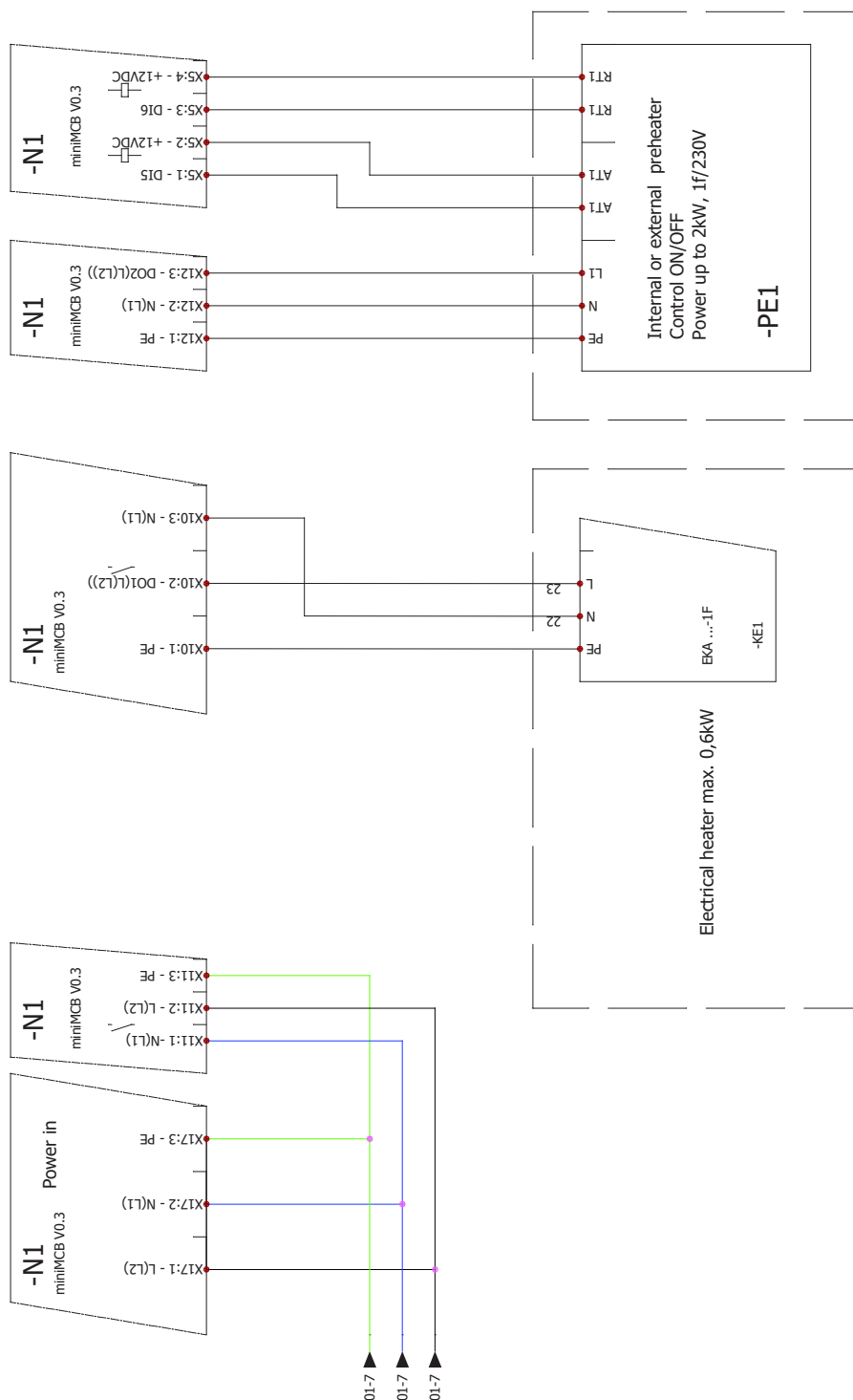


Figure 8.9.1 Smarty 3X V / 4X V 1.2 (219.1017.0.1.1-PS)

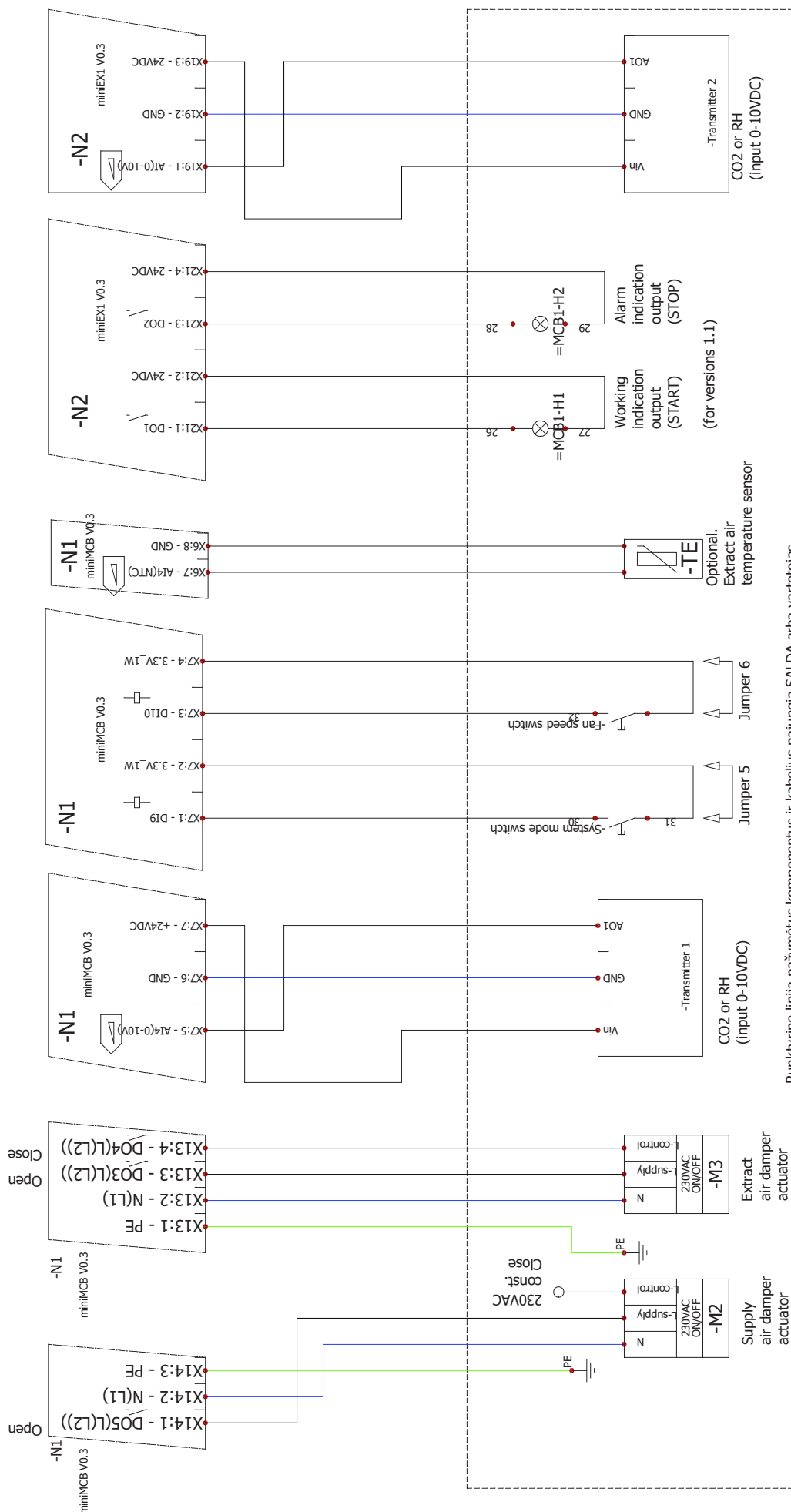
Punktyrinė linija pažymėtus komponentus ir kabelius pajungia SALDA arba vartotojas. Components and cables marked with the dash line connected by SALDA or customer.

Electrical preheater
DI5 - automatic protection
DI6 - manual protection



Punktyrine linija pažymėtus komponentus ir kabelius pajungia SALDA arba vartotojas.
Components and cables marked with the dash line connected by SALDA or customer.

Figure 8.9.2 Smarty 3X V / 4X V 1.2 (219.1017.0.1.2-PS)



Punktyrinė linija pažymėtus komponentus ir kabelius pajungia SALDA arba vartotojas.
Components and cables marked with the dash line connected by SALDA or customer.

Figure 8.9.3 Smarty 3X V / 4X V 1.2 (219.1017.0.1.3-PS)

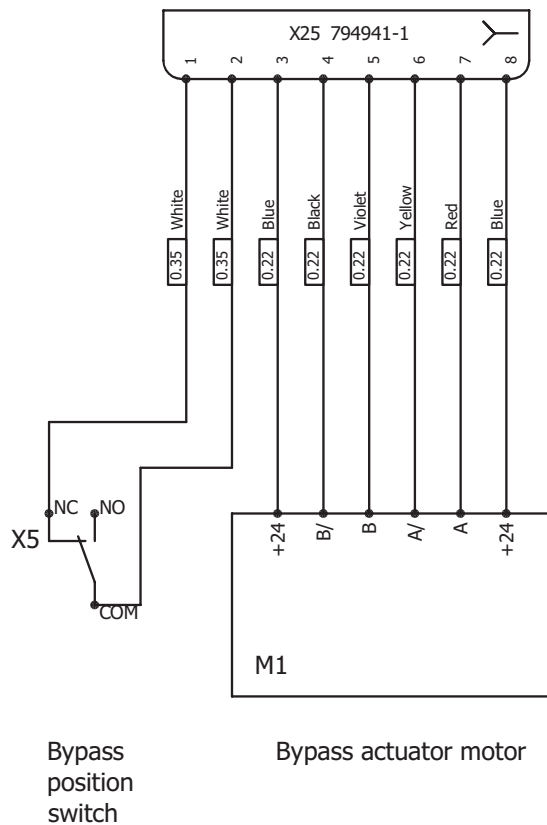


Figure 8.9.4 Bypass (SMARTY ZP3XV-0k)

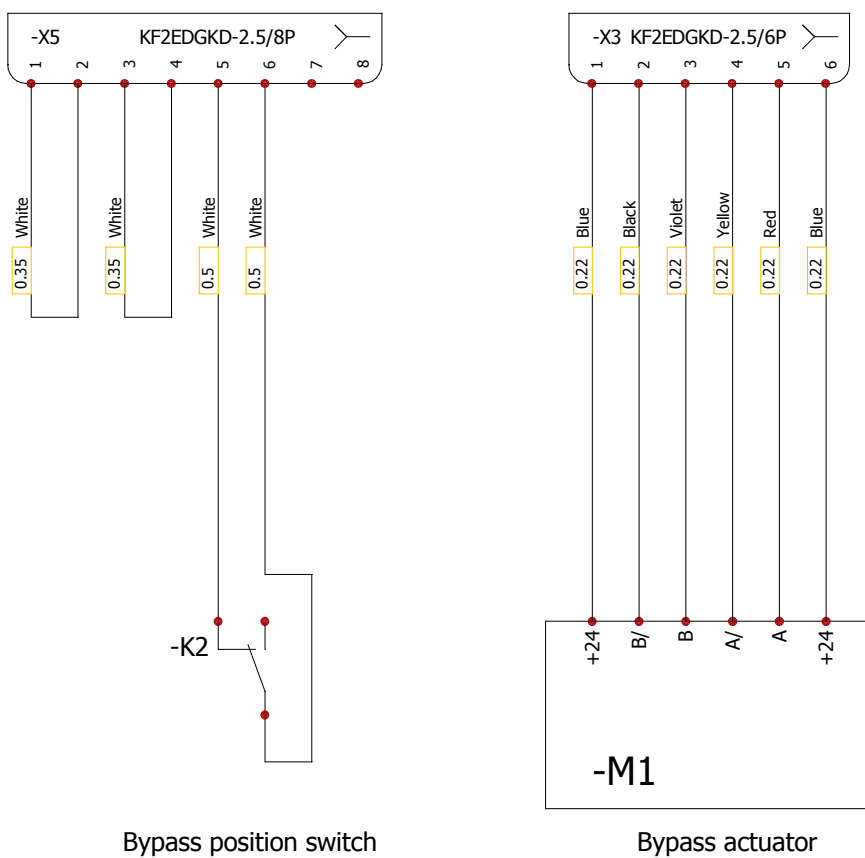


Figure 8.9.5 Bypass wiring (version 1.1 / 1.2) (221.1055.0.1.0-PS)

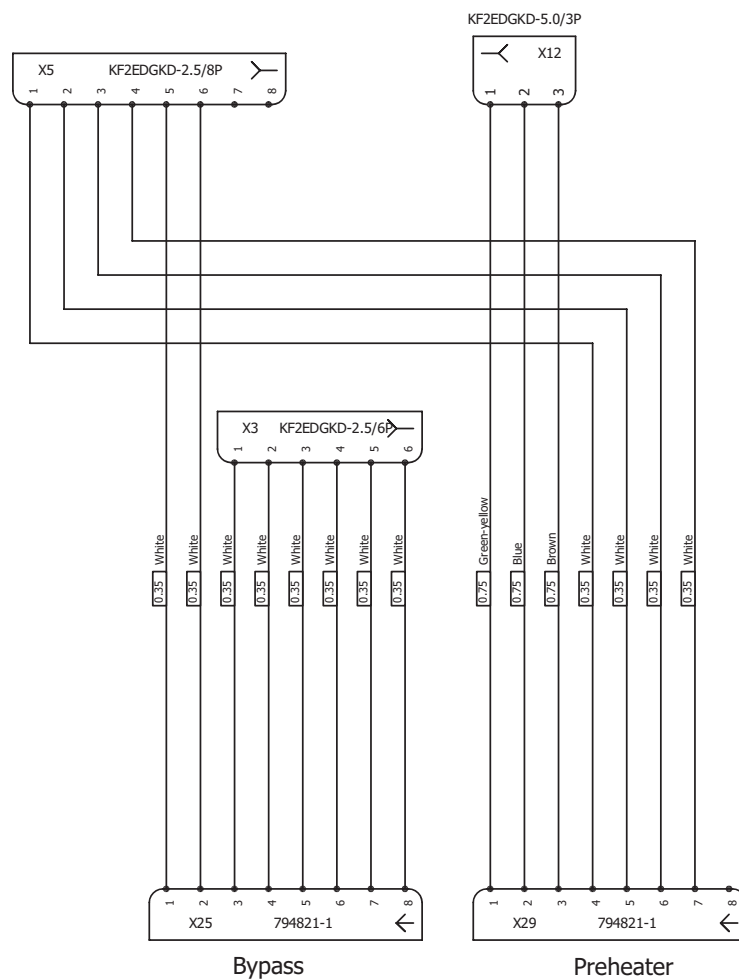


Figure 8.9.6 Preheater, Bypass wiring (Smarty 3XV-PE-0k)

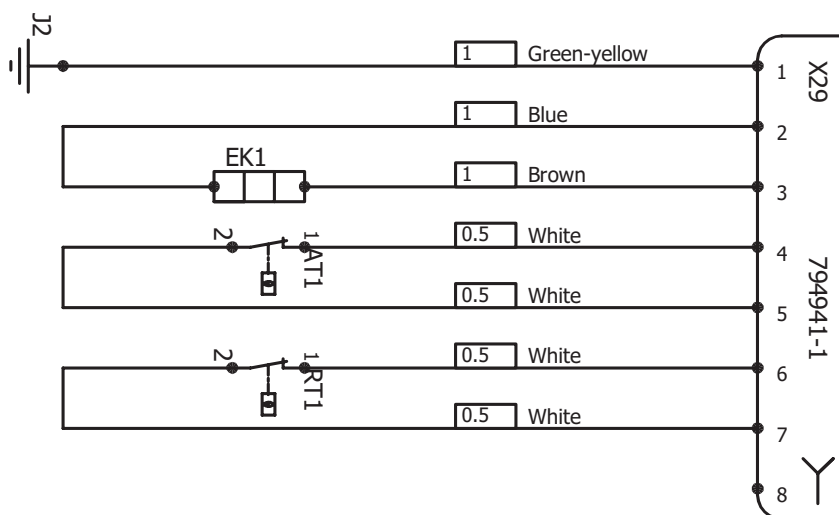


Figure 8.9.7 Preheater (SP35)

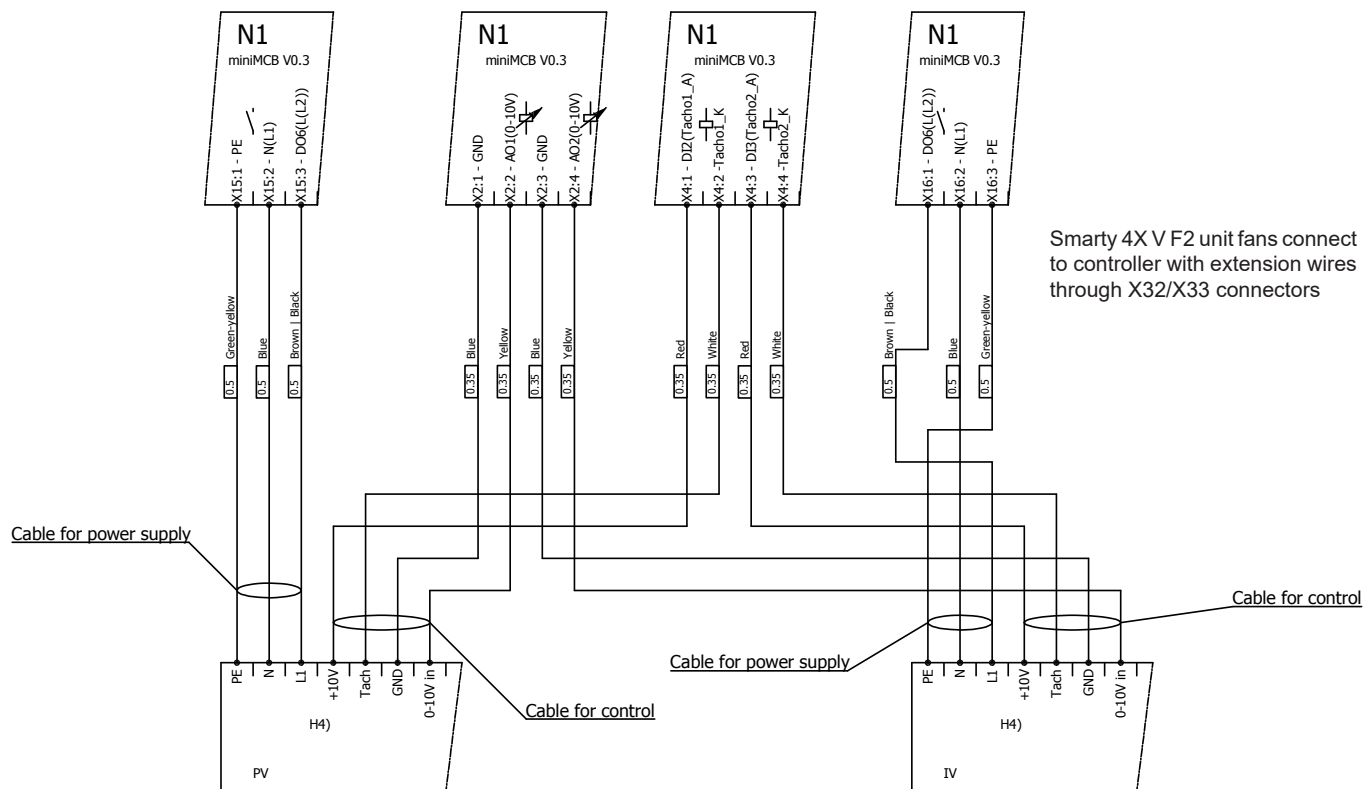


Figure 8.9.8 Fans (version 1.1 / 1.2) (MiniMCB)

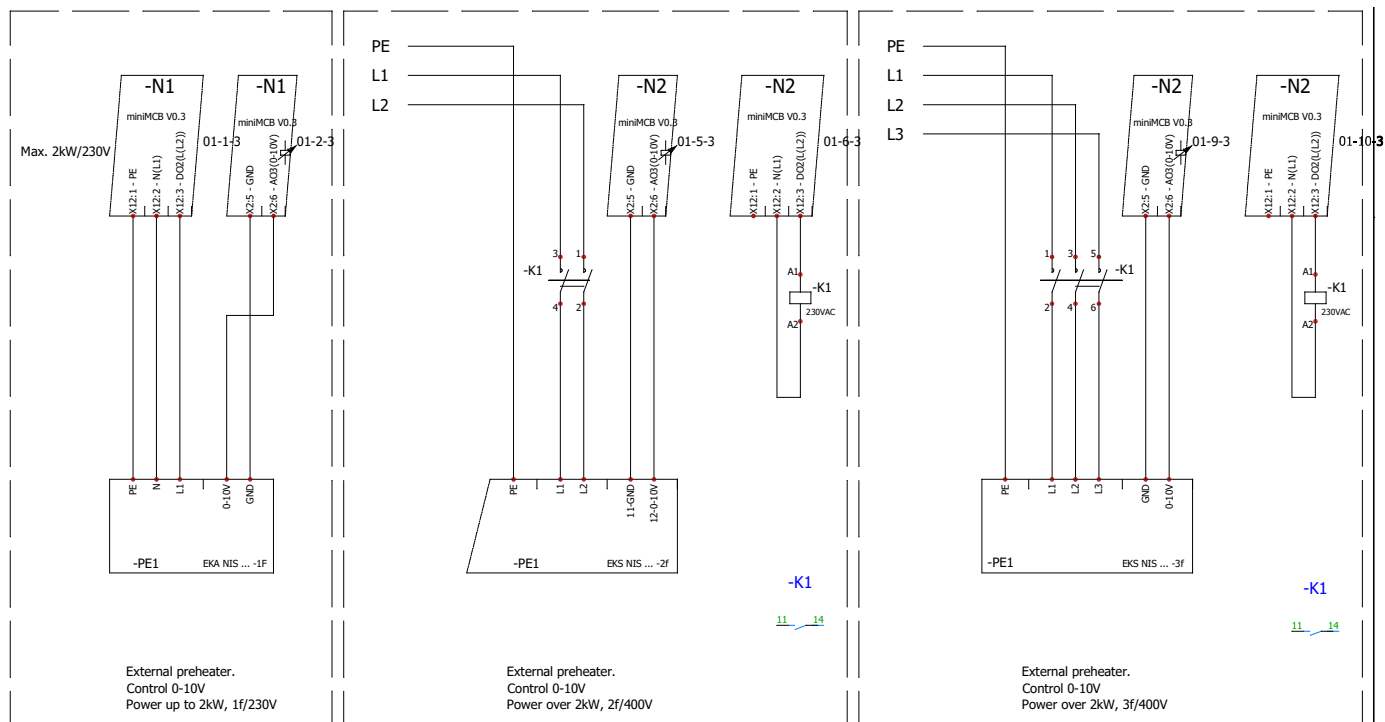
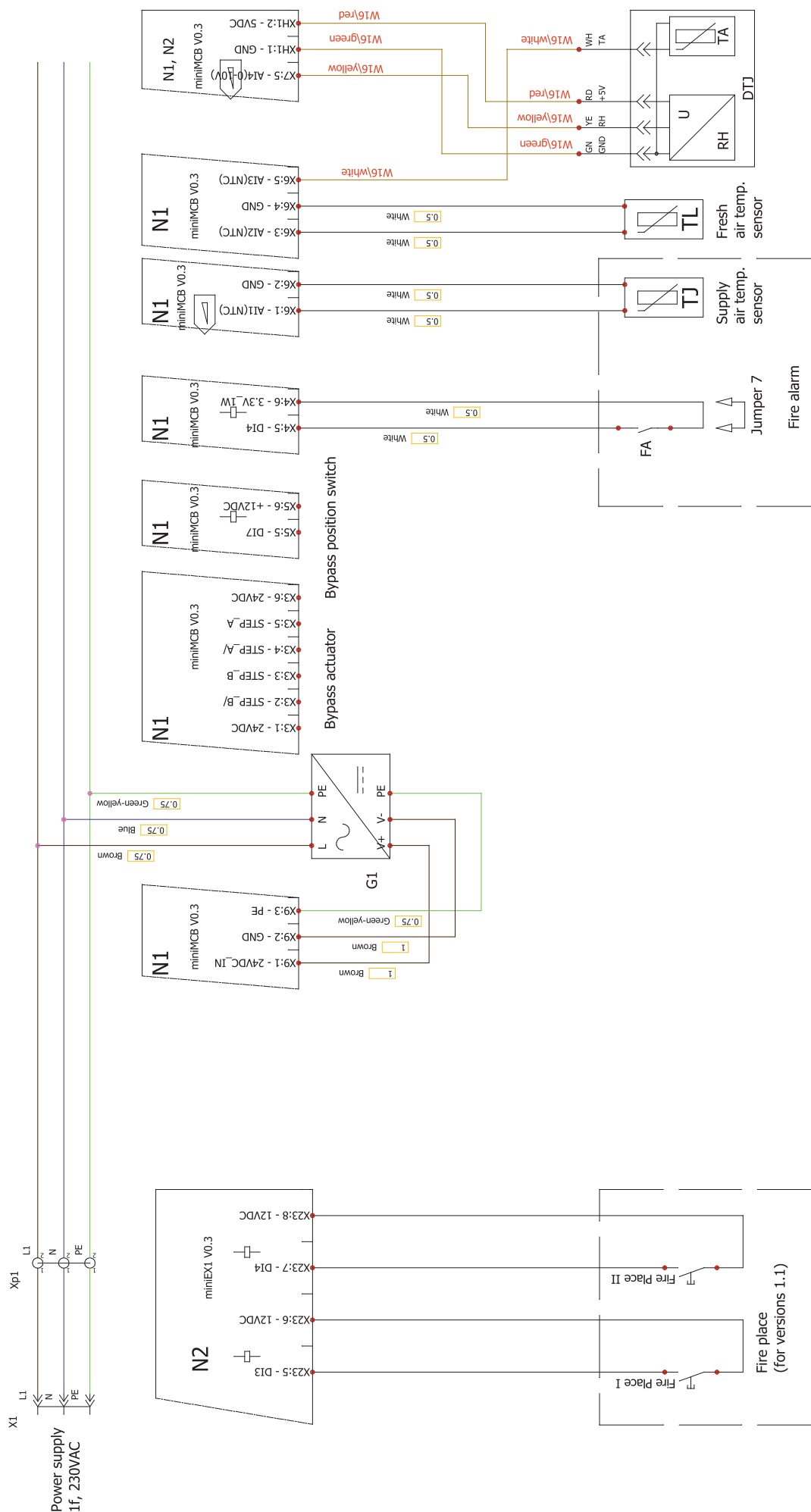


Figure 8.9.9 External preheater (version 1.1 / 1.2) (SP45)



Components and cables marked with the dash line connected by SALDA or customer.

Figure 8.9.10 Smarty 3X V / 4X V 1.1 (219.1349.0.1.1-PS)

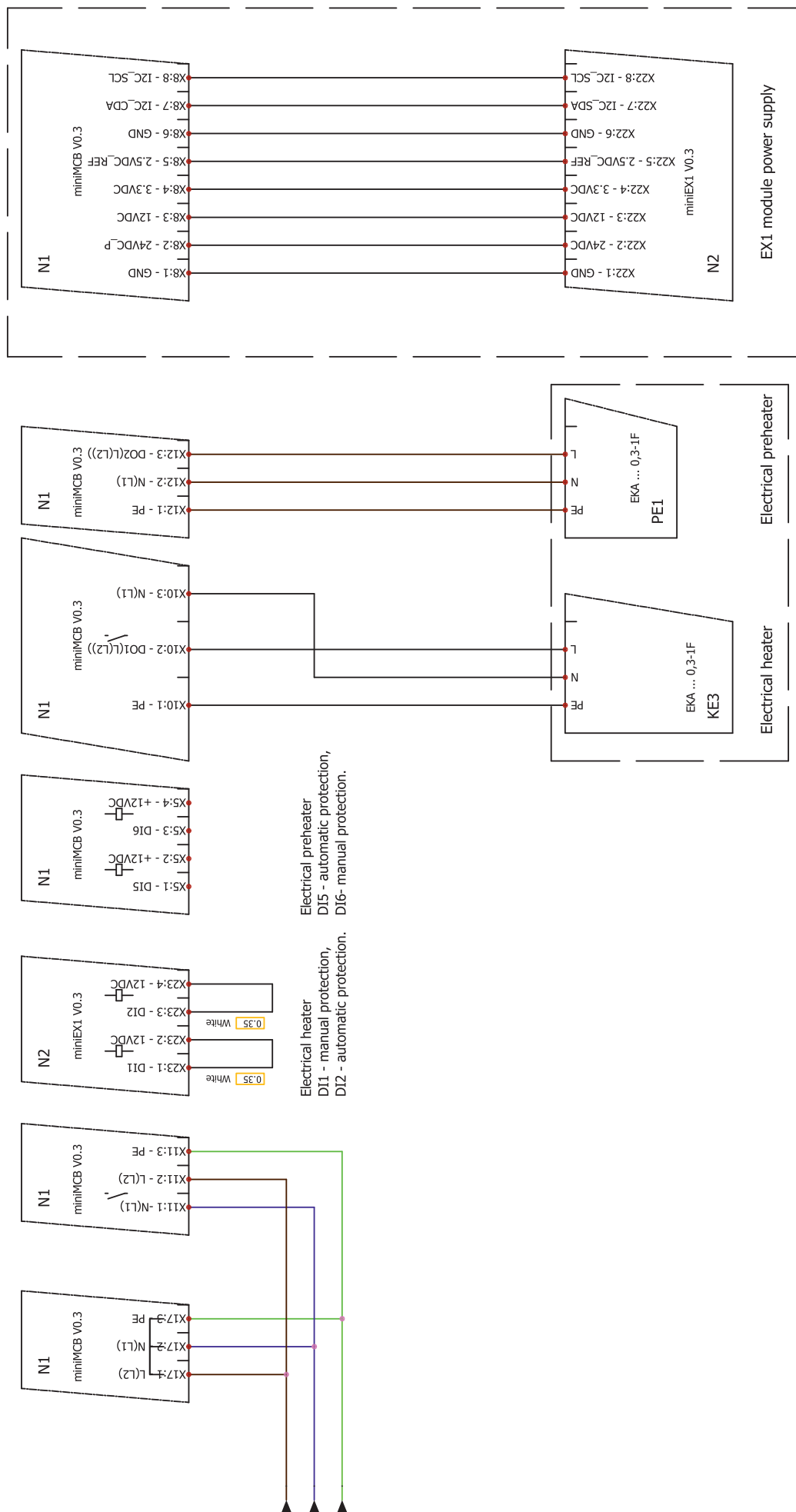
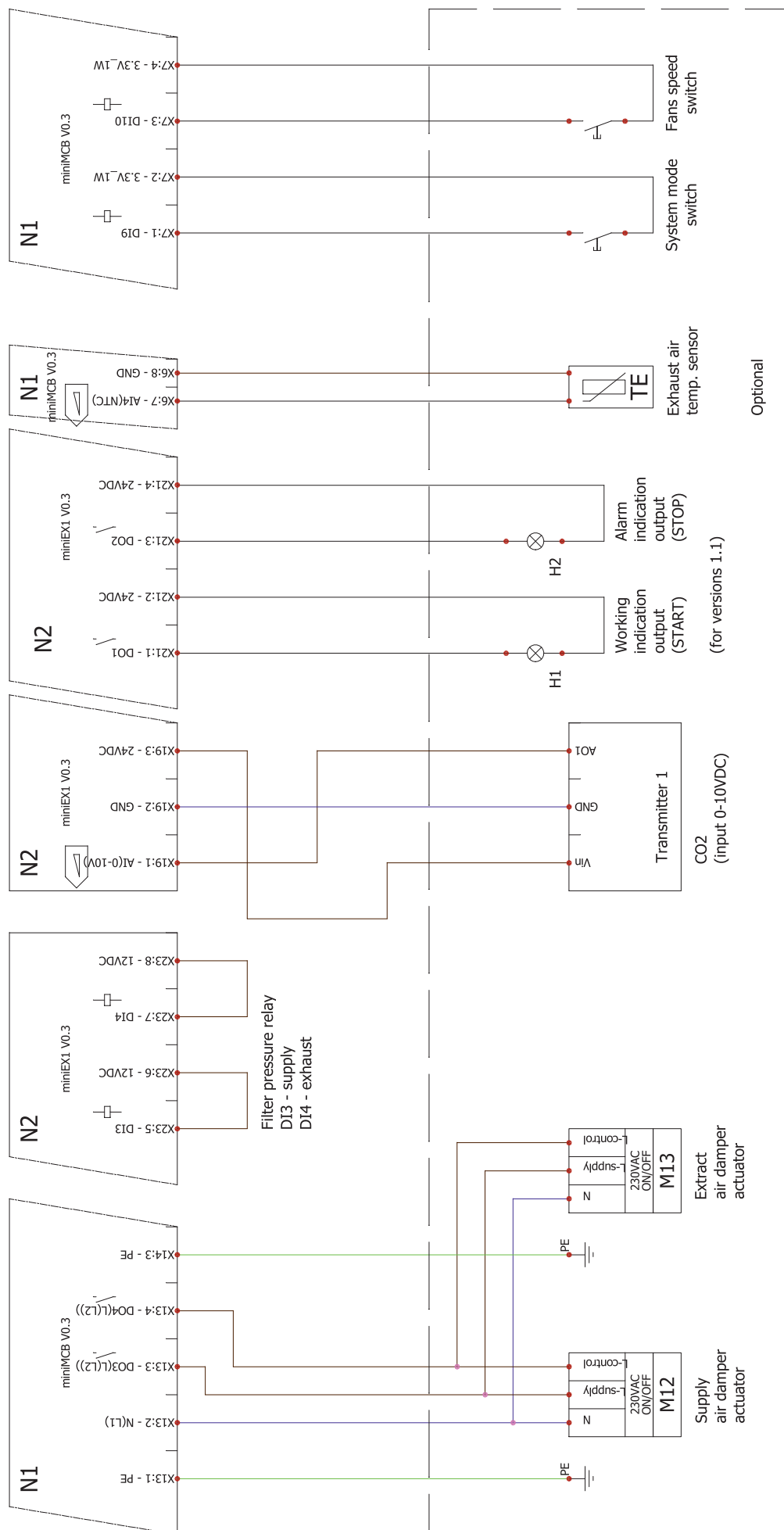


Figure 8.9.11 Smarty 3X V / 4X V 1.1 (219.1349.0.1.2-PS)

Components and cables marked with the dash line connected by SALDA or customer.



Components and cables marked with the dash line connected by SALDA or customer.

Figure 8.9.12 Smarty 3X V / 4X V 1.1 (219.1349.0.1.3-PS)

9. POSSIBLE FAULTS AND TROUBLESHOOTING

FAILURE	CAUSE	EXPLANATION / CORRECTIVE ACTIONS
The unit is not operating	No supply voltage	Check whether the device is connected to the power network.
	The protection device is off or a current leakage relay is active (if installed by the installer)	Switch on only if the unit condition has been evaluated by a qualified electrician. If the system failed, the failure MUST BE rectified prior to switching the system on.
The air supply heater or pre-heater is not operating or malfunctioning (if installed)	Too low airflow in air ducts activates automatic protection	Check if the air filters are not clogged. Check if the fans are rotating.
	Manual safety device is activated	Possible heater or unit failure. MUST contact the servicing staff for failure detection and its elimination.
Too low air flow at rated fan speed	Clogged supply and/or extract air filter(s)	Filter replacement needed
The filters are clogged and no message is shown on the remote control	Wrong time in filter timers or their switch is broken, or its pressure is set improperly	Shorten filter timer time till the message of clogged filters appears or replace the pressure switch of the filters, or set their proper pressure.

10. ECODESIGN DATA TABLE

Climate zone			SMARTY			
			3X V 1.1	3X V 1.2	4X V 1.1	4X V 1.2
Average	Specific energy consumption (SEC)	[kWh/m²a]	-42,7	-39,4	-40,3	-35,9
	SEC Class		A+	A	A	A
	AEC	[kWh/a]	189	291	234	368
	AHS	[kWh/a]	4672	4602	4550	4443
Cold	Specific energy consumption (SEC)	[kWh/m²a]	-82	-78,1	-78,5	-73
	SEC Class		A+	A+	A+	A+
	AEC	[kWh/a]	726	828	771	905
	AHS	[kWh/a]	9141	9003	8902	8691
Warm	Specific energy consumption (SEC)	[kWh/m²a]	-17,5	-14,7	-15,9	-12
	SEC Class		E	E	E	E
	AEC	[kWh/a]	144	246	189	323
	AHS	[kWh/a]	2113	2081	2058	2009
Topology			Bidirectional	Bidirectional	Bidirectional	Bidirectional
Recovery type			Recuperative	Recuperative	Recuperative	Recuperative
Type of drive (fan)			Variable	Variable	Variable	Variable
Thermal efficiency		[%]	89	89	83,1	83,1
Maximum airflow		[m³/h]	409	409	560	560
Fan power at max airflow		[W]	177	177	349	349
Casing sound power level (Lwa)		[dB(A)]	49	49	58	58
Reference airflow		[m³/s]	0,08	0,08	0,109	0,109
Reference pressure		[Pa]	50	50	50	50
SPI		[W/(m³/h)]	0,27	0,27	0,36	0,36
Control factor			0,65	0,85	0,65	0,85
Declared maximum internal leakage rates			[%]	1,2	1,2	1,2
Declared maximum external leakage rates			[%]	1,2	1,2	1,2
Visual filter warning			Timer	Timer	Timer	Timer
ErP Compliance			2018	2018	2018	2018
Internet address for disassembly instructions				https://select.salda.it		

11. DECLARATION OF CONFORMITY

Manufacturer

SALDA, UAB
Ragainės g. 100
LT-78109 Šiauliai, Lithuania
Tel.: +370 41 540415
www.salda.lt

Hereby confirms that the following products - Air handling units:

SMARTY *

(where by „**“ indicates possible unit installation type and modification)

Provided it was delivered and installed in the facility in accordance with the included installation instructions, comply with all applicable requirements in the following directives:

Machinery Directive 2006/42/EC
EMC Directive 2014/30/EU
Low Voltage Directive 2014/35/EU
Ecodesign Directive 2009/125/EC
RoHS 2 Directive 2011/65/EU

The following regulations are applied in applicable parts:

Ecodesign requirements for ventilation units Nr. 1253/2014
Energy labelling of residential units Nr. 1254/2014

The following harmonized standards are applied in applicable parts:

13141-7:2021 - Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings.
EN308-2022 - Heat exchangers. Test procedures for establishing performance of air to air heat recovery components.
EN ISO 12100:2012 - Safety of machinery - General principles for design - Risk assessment and risk reduction.
EN 60204-1:2018 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
EN 60335-1:2012 - Household and similar electrical appliances. Safety. Part 1: General requirements.
EN 60529:1999/A2:2014/AC:2019 - Degrees of protection provided by enclosures (IP code).
EN 61000-6-1:2019 - Electromagnetic compatibility (EMC). Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.
EN 61000-6-4:2019 - Electromagnetic compatibility (EMC). Part 6-4: Generic standards - Emission standard for industrial environments.

Should any alterations be made in the products, this declaration will no longer apply.

Quality: SALDA UAB activities are in line with the international quality management system standard **ISO 9001:2015**.

Date 2024-09-02



Giedrius Taujenis
Product Manager

12. WARRANTY

1. All equipment manufactured in our factory is checked in operating conditions and tested before delivery. The test protocol is supplied together with the unit. The equipment is shipped in good working condition to the end client. The unit is warranted for the period of two years from the date of the invoice.
2. If equipment is found to have been damaged during transportation, a claim should be made against the carrier, as we assume no responsibility for such damage.
3. This warranty does not apply:
 - 3.1. when transportation, storage, installation and maintenance instructions of the unit are violated;
 - 3.2. when the equipment is improperly maintained, mounted - inadequate maintenance;
 - 3.3. when the equipment without our knowledge and permission has been upgraded or unskilled repairs were made;
 - 3.4. when the unit was used not for its original purpose.
 - 3.5. Company SALDA UAB is not responsible for potential loss of property or personal injury in cases where the Air Handling unit is manufactured without the control system and the control system is installed by the client or the third parties. The manufacturer's warranty does not cover devices that will be damaged by installing the control system.
4. This warranty does not apply to these malfunction cases:
 - 4.1. mechanical damage;
 - 4.2. damage caused by entering outside objects, materials and liquids;
 - 4.3. damage caused by natural disasters, accidents (voltage change in the electricity network, lightning, etc.).
5. The company assumes no liability for the damage to its products neither directly nor indirectly, if the damage is caused by failure to comply with the installation and mounting regulations, deliberate or careless users or third-party behaviour.

These conditions are readily discernible when the equipment is returned to our factory for inspection.

If the direct client determines that equipment is found to be faulty, or a breakdown occurred, he should inform the manufacturer within five working days and deliver the equipment to the manufacturer. Delivery costs should be covered by the customer.



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. The newest manual version is available at <https://select.salda.lt>

12.1. LIMITED WARRANTY COUPON

Warranty term

24 months*

I received the complete package and technical manual of the product ready for usage. I have read the warranty terms and conditions and agree with them:

.....
Customer's signature

*Refer to WARRANTY CONDITIONS

Dear User, we appreciate your choice and do hereby guarantee that all ventilation equipment manufactured by our Company is inspected and thoroughly tested. An operational and high-quality product is sold to the direct buyer and shipped from the territory of the factory. It is provided with a 24-month warranty from the issue date of the invoice.

Your opinion is important to us, thus we always look forward to hearing your comments, feedback, or suggestions regarding technical and operational characteristics of the Products.

In order to avoid any misunderstandings, please read the instructions for installation and operation of the product as well as other technical documents of the product carefully. The number of the Limited Warranty Coupon and the serial number of the product specified on the silver identification sticker attached to the housing must match.

The Limited Warranty Coupon shall be valid provided that the seller's stamps and records are clear. It is not allowed to change, delete, or rewrite the data specified on it in any manner – such a coupon shall be invalid.

With this Limited Warranty Coupon the manufacturer confirms his obligations to implement the imperative requirements established by effective laws on protection of consumer rights in the event of identification of any defects of the products.

The manufacturer reserves the right to refuse provision of free warranty servicing in cases when the warranty conditions listed below are disregarded.

PRODUCT MAINTENANCE TABLE

Product name*

SERIAL number*

Installation	Interval	Date
Fan cleaning	Once per year**	
Heat-exchanger cleaning	Once per year**	
Filter replacement	Every 3-4 months**	

* - Look at the product label.

** - At least.



NOTE. The customer shall be required to complete the Product Maintenance Table.

LINKS TO OTHER DOCUMENTS

DE MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-de>

DK MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-dk>

FR MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-fr>

IT MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-it>

LT MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-lt>

NL MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-nl>

PL MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-pl>

RU MANUAL



<https://select.salda.lt/file/smarty-x-w-drain-pan-ru>



MAN000506



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