



SMARTY XP 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.

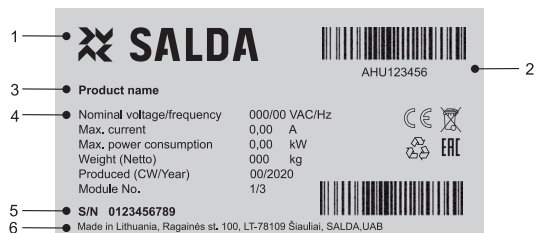


Figure 2.1 Technical label

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.

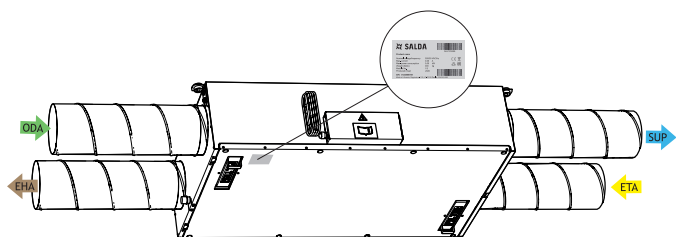


Figure 2.3 Smarty 2X P S300 Technical label location and air duct indication

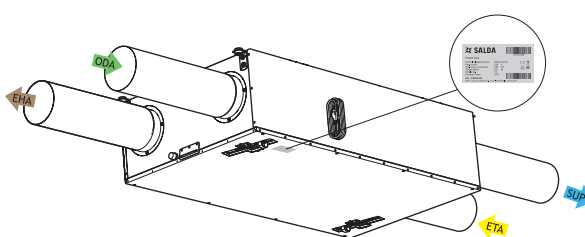


Figure 2.4 Smarty 2X P 1.1/1.2; 3X P; 4X P Technical label location and air duct indication

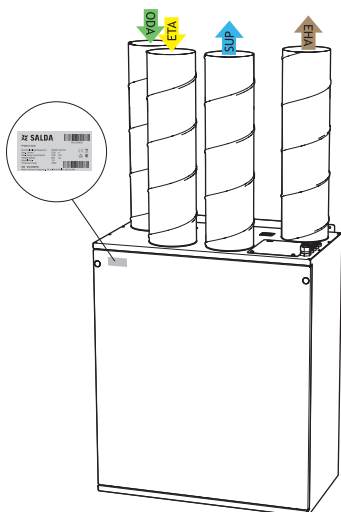


Figure 2.5 Smarty 2X V 1.1/1.2 Technical label location and air duct indication

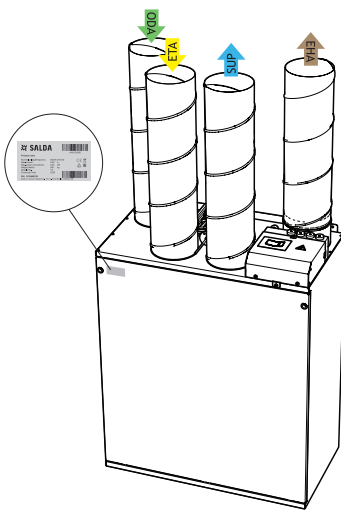


Figure 2.6 Smarty 2X V S300 Technical label location and air duct indication

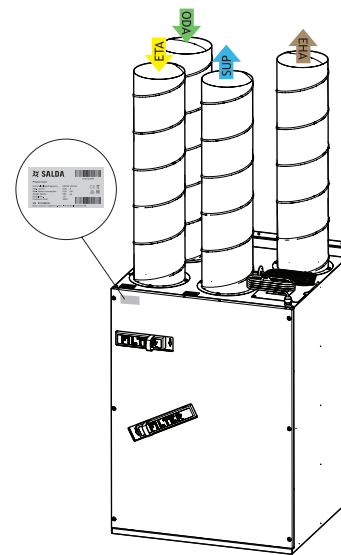



Figure 2.7 Smarty 3X V / 4X V 1.1/1.2; Smarty 3X V / 4X V S300 Technical label location and air duct indication

 **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, MiniMCB basic or Siemens S300.

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 2X P 1.1	Mini MCB	Premium	Condensation	+	+	+	+
Smarty 2X P 1.1 1kW PH	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 2X P 1.1 E	Mini MCB	Premium	Enthalpy	+	+	+	+
Smarty 2X P 1.1 E 1kW PH	Mini MCB	Premium	Enthalpy	+	+	-	+
Smarty 2X P 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 2X P 1.2 1kW PH	Mini MCB Basic	Advanced	Condensation	+	+	-	+
Smarty 2X P 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 2X P 1.2 E 1kW PH	Mini MCB Basic	Advanced	Enthalpy	+	+	-	+
Smarty 2X P S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 2X P S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+
Smarty 3X P 1.1	Mini MCB	Premium	Condensation	+	+	+	+
Smarty 3X P 1.1 E	Mini MCB	Premium	Enthalpy	+	+	+	+
Smarty 3X P 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 3X P 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 3X P S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 3X P S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+
Smarty 4X P F2 1.1	Mini MCB	Premium	Condensation	+	+	+	+
Smarty 4X P 1.1 E	Mini MCB	Premium	Enthalpy	+	+	+	+
Smarty 4X P F2 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 4X P 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 4X P S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 4X P S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+
Smarty 2X V 1.1	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 2X V 1.1 E	Mini MCB	Premium	Enthalpy	+	+	-	+
Smarty 2X V 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 2X V 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 2X V S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 2X V S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+
Smarty 3X V 1.1	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 3X V 1.1 E	Mini MCB	Premium	Enthalpy	+	+	-	+
Smarty 3X V 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 3X V 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 3X V S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 3X V S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+
Smarty 4X V F2 1.1	Mini MCB	Premium	Condensation	+	+	-	+
Smarty 4X V 1.1 E	Mini MCB	Premium	Enthalpy	+	+	-	+
Smarty 4X V F2 1.2	Mini MCB Basic	Advanced	Condensation	+	+	+	+
Smarty 4X V 1.2 E	Mini MCB Basic	Advanced	Enthalpy	+	+	+	+
Smarty 4X V S300	Siemens S300	Advanced	Condensation	+	+	+	+
Smarty 4X V S300 E	Siemens S300	Advanced	Enthalpy	+	+	+	+

*- only pre-heater or heater



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

4.2. DIMENSIONS AND WEIGHT

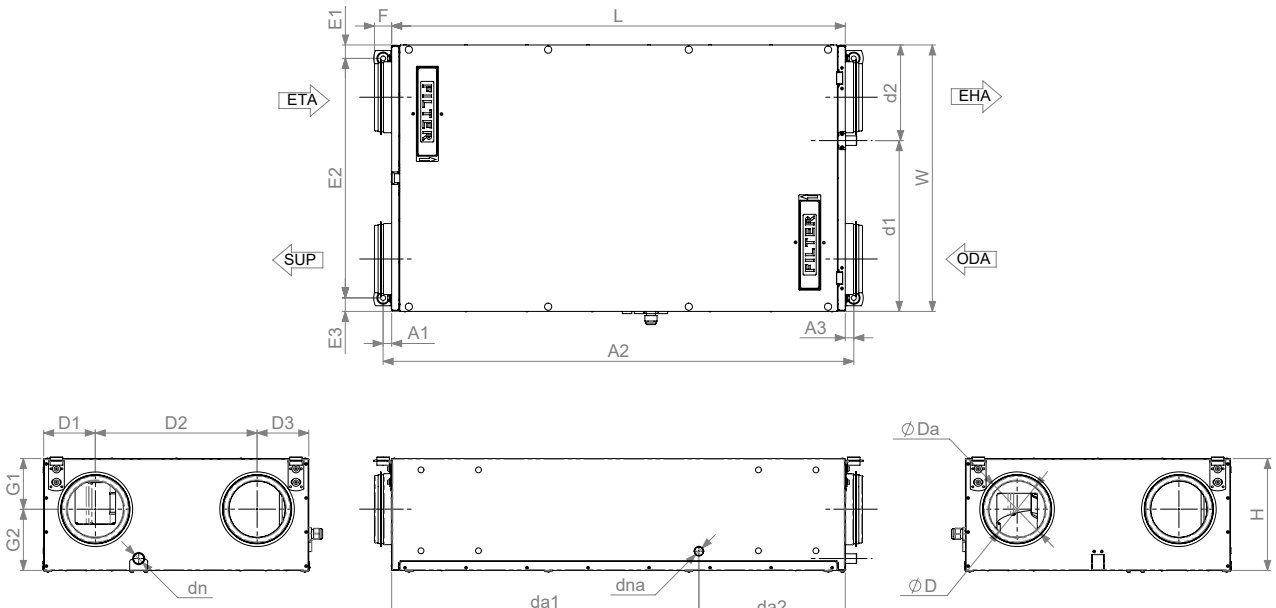


Figure 4.2.1 Smarty 2X P 1.1/1.2; Smarty 3X P / 4X P

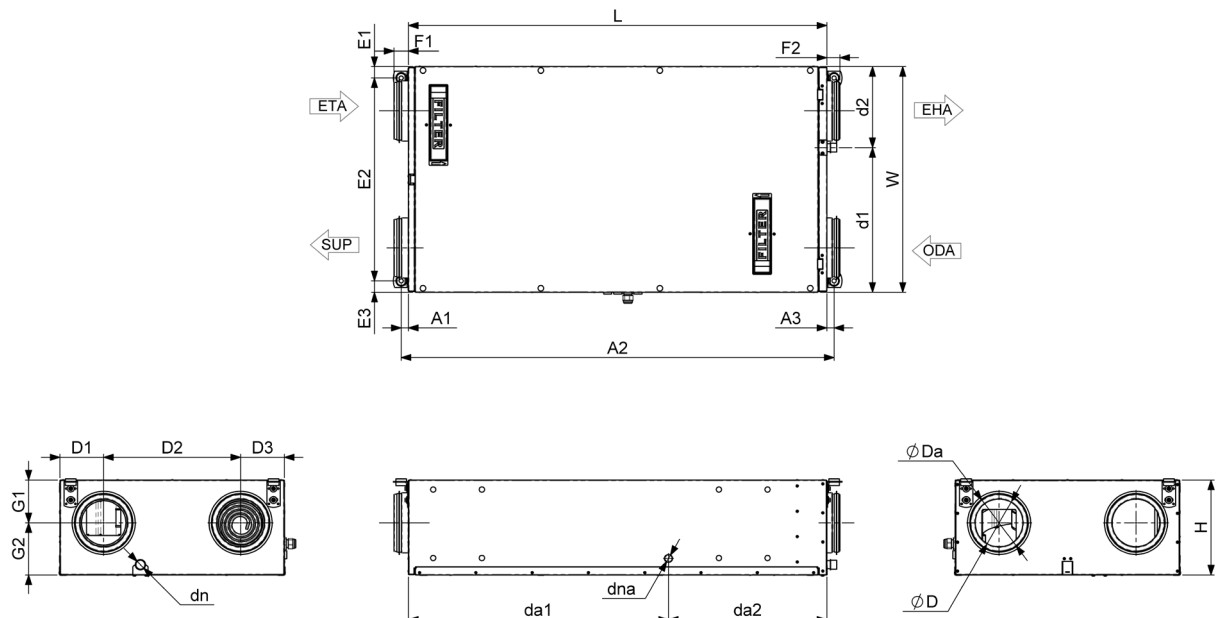


Figure 4.2.2 Smarty 2X P 1.1/1.2 1kW PH

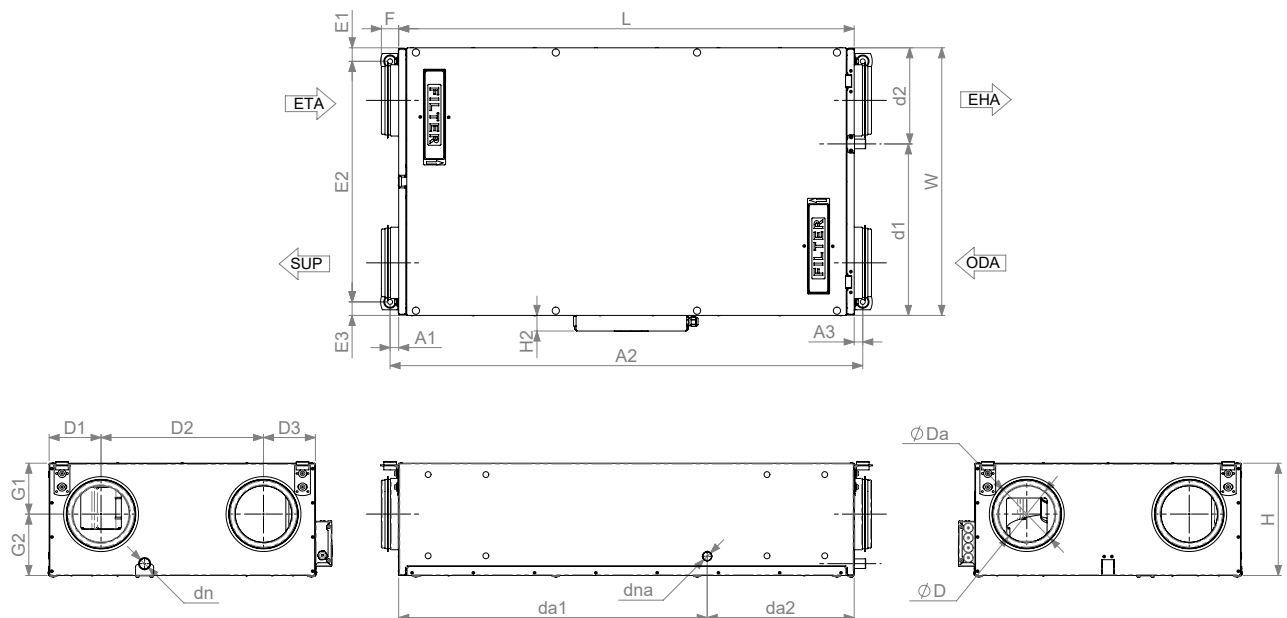


Figure 4.2.3 Smarty 2X P S300

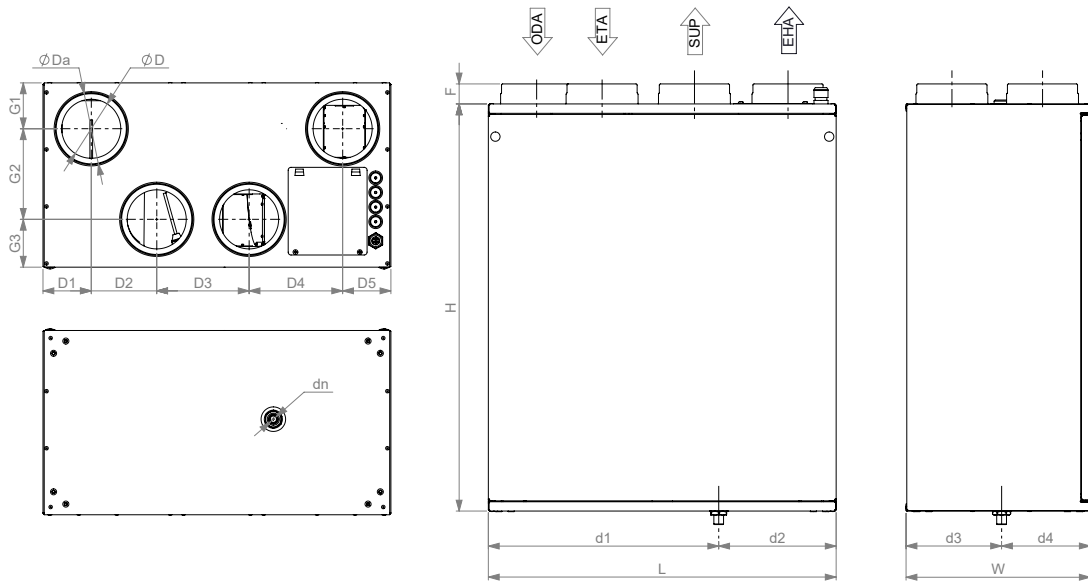


Figure 4.2.4 Smarty 2X V 1.1/1.2

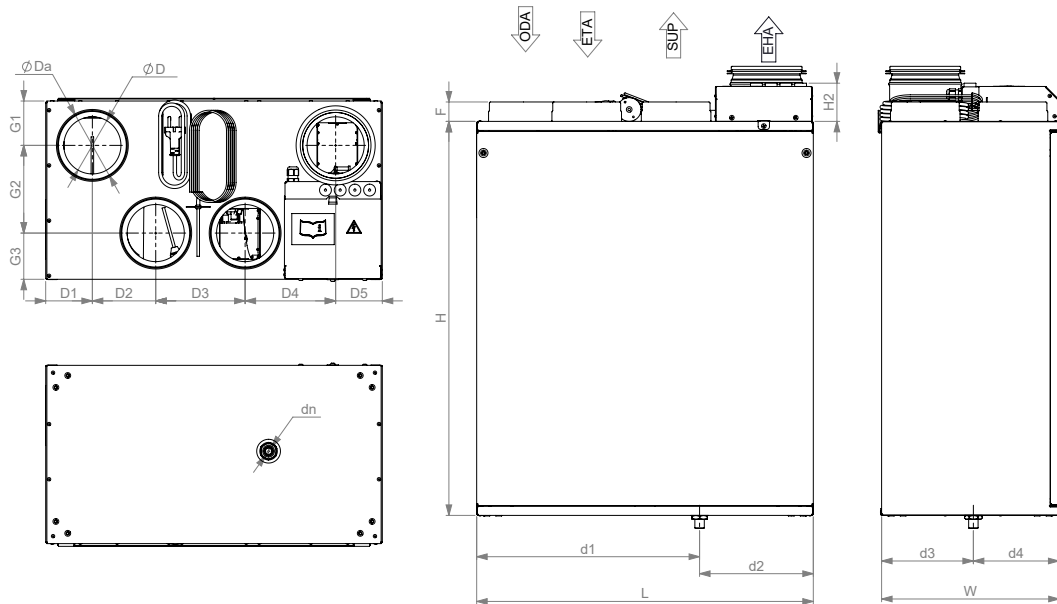


Figure 4.2.5 Smarty 2X V S300

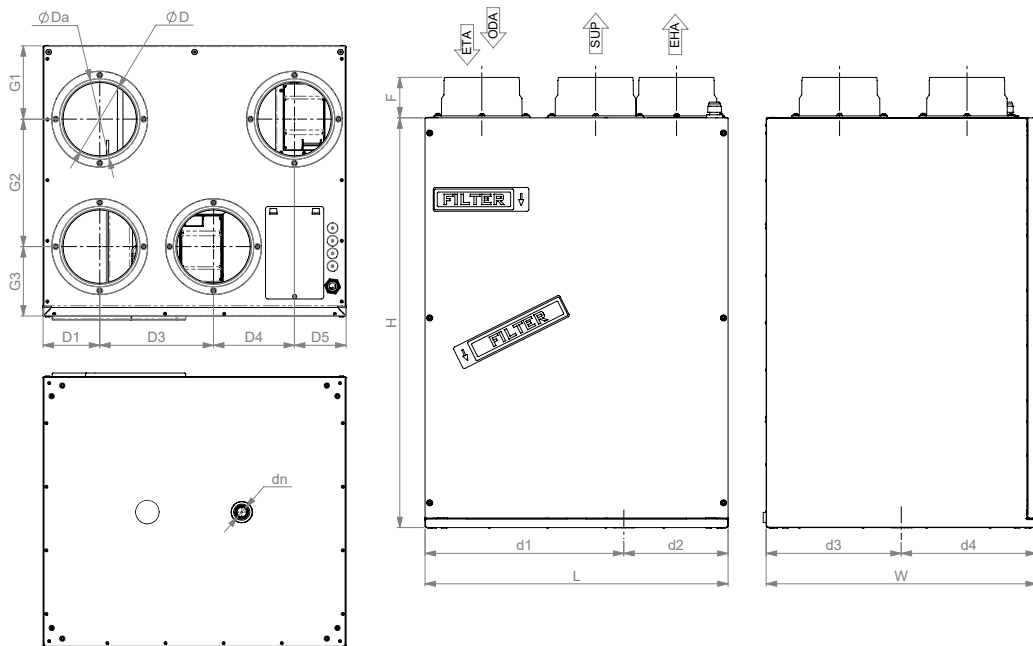


Figure 4.2.6 Smarty 3X V / 4X V 1.1/1.2

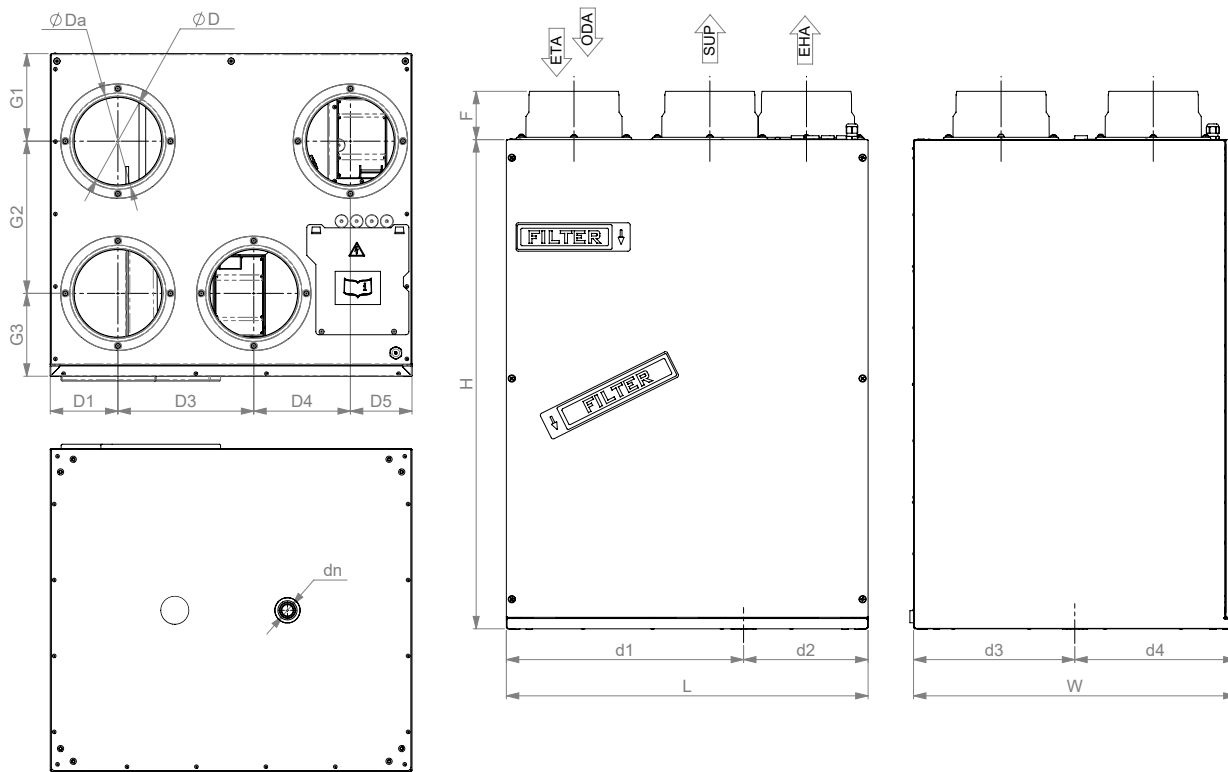


Figure 4.2.7 Smarty 3X V / 4X V S300

SMARTY		2X P 1.1/1.2 1kW PH	2X P 1.1/1.2	2X P S300	2X V 1.1/1.2	2X V S300	3X P / 4X P	3X V / 4X V
L	[mm]	1 100	1 010		595		1 228	599
W	[mm]	590			315		690	538
H	[mm]	250			698		324	810
H2	[mm]	-		35	68		-	
ØD	[mm]	125			100		150	
ØDa	[mm]	160			125		160	
F	[mm]	-		39	34		80	
F1	[mm]	38	-					
F2	[mm]	34	-					
dn	-	G1/2			G3/8		G1/2	
dna	-	G3/8			-		G3/8	-
A1	[mm]	21			-		21	-
A2	[mm]	1 138	1 047		-		1 268	-
A3	[mm]	21			-		21	-
E1	[mm]	29			-		37	-
E2	[mm]	532			-		611	-
E3	[mm]	29			-		37	-
d1	[mm]	379			394		419	391
d2	[mm]	211			201		271	206
d3	[mm]	-			163		-	267
d4	[mm]	-			152		-	271
da1	[mm]	684			-		817	-
da2	[mm]	416	326		-		409	-
D1	[mm]	115			83		128	112
D2	[mm]	360			112		429	112
D3	[mm]	115			158		128	225
D4	[mm]	-			160		-	160
D5	[mm]	-			83		-	102
G1	[mm]	113			77		148	145
G2	[mm]	136			155		170	252
G3	[mm]	-			81		-	137
WEIGHT	[kg]	36	40		25		53	46

4.3. TECHNICAL DATA

SMARTY	2X P 1.1		2X P 1.2		2X P		3X P		4X P F2		4X P	
	1kW PH	1kW PH	2X P 1.1	2X P 1.2	S300	3X P 1.1	3X P 1.2	S300	1.1	1.2	S300	S300
EXHAUST AIR FAN												
phase/voltage	[50 Hz/VAC]		1/230			1/230			1/230			
power/current	[kW/A]		0,05/0,4			0,09/0,75			0,17/1,35			
speed	[min ⁻¹]	4521		4525		3200			4120			
control input	[VDC]		0-10			0-10			0-10			
protection class			IP44			IP54			IP54			
SUPPLY AIR FAN												
phase/voltage	[50 Hz/VAC]		1/230			1/230			1/230			
power/current	[kW/A]		0,05/0,4			0,09/0,75			0,17/1,35			
speed	[min ⁻¹]	4521		4525		3200			4120			
control input	[VDC]		0-10			0-10			0-10			
protection class			IP44			IP54			IP54			
Integrated electrical preheater	[kW]	1,0	1,0	-	-	-	-	-	-	-	-	-
Total power/current consumption	[kW/A]	1,16/5,4	1,16/5,4	0,16/1,05	0,16/1,05	0,15/1,02	0,23/1,75	0,23/1,75	0,23/1,7	0,4/2,95	0,4/2,95	0,39/2,92
Automatic control integrated		miniMCB	miniMCB basic	miniMCB	miniMCB basic	S300	miniMCB	miniMCB basic	S300	miniMCB	miniMCB basic	S300
Insulation of walls	[mm]		20			30			30			
Exhaust air filter (class, dimensions LxWxH)	[mm]		MPL 185x168x25 Coarse 65%			MPL 225x195x25 Coarse 65%			MPL 225x195x25 Coarse 65%			
Supply air filter (class, dimensions LxWxH)	[mm]		MPL 185x168x25 Coarse 65%			MPL 225x195x25 Coarse 65%			MPL 225x195x25 Coarse 65%			
Device protection class			IP-34			IP-34			IP-34			

SMARTY	2X V 1.1		2X V 1.2		2X V		3X V		4X V F2		4X V	
	1.1	1.2	S300	3X V 1.1	3X V 1.2	S300	1.1	1.2	S300	S300	S300	S300
EXHAUST AIR FAN												
phase/voltage	[50 Hz/VAC]		1/230			1/230			1/230			
power/current	[kW/A]		0,04/0,35			0,08/0,75			0,17/1,35			
speed	[min ⁻¹]		4060			3200			4120			4600
control input	[VDC]		0-10			0-10			0-10			
protection class			IP54			IP54			IP54			
SUPPLY AIR FAN												
phase/voltage	[50 Hz/VAC]		1/230			1/230			1/230			
power/current	[kW/A]		0,04/0,35			0,08/0,75			0,17/1,35			
speed	[min ⁻¹]		4060			3200			4120			4600
control input	[VDC]		0-10			0-10			0-10			
protection class			IP54			IP54			IP54			
Integrated electrical preheater	[kW]	0,6	-	-	1,2	-	-	1,2	-	-		
Total power/current consumption	[kW/A]	0,74/3,62	0,14/0,95	0,13/0,92	1,43/7	0,23/1,75	0,23/1,7	1,6/8,15	0,4/2,95	0,39/2,92		
Automatic control integrated		miniMCB	miniMCB basic	S300	miniMCB	miniMCB basic	S300	miniMCB	miniMCB basic	S300		
Insulation of walls	[mm]		30			30			30			
Exhaust air filter (class, dimensions LxWxH)	[mm]		MPL 270x187x25 Coarse 65%			MPL 475x180x25 Coarse 65%			MPL 475x180x25 Coarse 65%			
Supply air filter (class, dimensions LxWxH)	[mm]		MPL 270x121x25 Coarse 65%			MPL 475x134x25 Coarse 65%			MPL 475x134x25 Coarse 65%			
Device protection class			IP-34			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	2X P 1.1 1kW PH	2X P 1.1 1kW PH E	2X P 1.2 1kW PH	2X P 1.2 1kW PH E
Outdoor air temp. without frost protection	-20 .. 40 °C	-23 .. 40 °C	-20 .. 40 °C	-23 .. 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

SMARTY	2X P 1.1	2X P 1.1 E	2X P 1.2	2X P 1.2 E	2X P S300	2X P S300 E
Outdoor air temp. without frost protection	-2 .. 40 °C	-6 .. 40 °C	-2 .. 40 °C	-6 .. 40 °C	-2 .. 40 °C	-6 .. 40 °C
Ambient air temp.	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

SMARTY	3X P 1.1	3X P 1.1 E	3X P 1.2	3X P 1.2 E	3X P S300	3X P S300 E
Outdoor air temp. without frost protection	-2 .. 40 °C	-8 .. 40 °C	-2 .. 40 °C	-8 .. 40 °C	-2 .. 40 °C	-8 .. 40 °C
Ambient air temp.	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

SMARTY	4X P 1.1	4X P 1.1 E	4X P 1.2	4X P 1.2 E	4X P S300	4X P S300 E
Outdoor air temp. without frost protection	-2 .. 40 °C	-8 .. 40 °C	-2 .. 40 °C	-8 .. 40 °C	-2 .. 40 °C	-8 .. 40 °C
Ambient air temp.	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C	5 .. 40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

SMARTY	2X V 1.1	2X V 1.1 E	2X V 1.2	2X V 1.2 E	2X V S300	2X V S300 E
Outdoor air temp. without frost protection	-15..40 °C	-23..40 °C	-2..40 °C	-8..40 °C	-2 .. 40 °C	-8..40 °C
Ambient air temp.	5..40 °C	5..40 °C	5..40 °C	5..40 °C	5 .. 40 °C	5..40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

SMARTY	3X V 1.1	3X V 1.1 E	3X V 1.2	3X V 1.2 E	3X V S300	3X V S300 E
Outdoor air temp. without frost protection	-15..40 °C	-23..40 °C	-2..40 °C	-8..40 °C	-2 .. 40 °C	-23..40 °C
Ambient air temp.	5..40 °C	5..40 °C	5..40 °C	5..40 °C	5 .. 40 °C	5..40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

SMARTY	4X V 1.1	4X V 1.1 E	4X V 1.2	4X V 1.2 E	4X V S300	4X V S300 E
Outdoor air temp. without frost protection	-10..40 °C	-15..40 °C	-2..40 °C	-8..40 °C	-2 .. 40 °C	-8..40 °C
Ambient air temp.	5..40 °C	5..40 °C	5..40 °C	5..40 °C	5 .. 40 °C	5..40 °C
Min. extracted air temp.	15 °C	15 °C	15 °C	15 °C	15 °C	15 °C
Max. extracted air humidity	60 %	60 %	60 %	60 %	60 %	60 %
Max. ambient air humidity	70 %	70 %	70 %	70 %	70 %	70 %
Operation environment	Indoors	Indoors	Indoors	Indoors	Indoors	Indoors

4.5. STANDARD PACKAGE OF COMPONENTS

SMARTY	2X P	3X P	4X P	2X V	3X V	4X V
Bush caps BFG15	8	8	8	2	-	-
Key M4 Z-type	1	1	1	1	1	1
Outlet pipe G3/8	1	1	1	1	-	-
Anti-vibration rubber 313508000	4	4	4	-	-	-
Siphon	-	-	-	1	1	1
Bracket 2281027	-	-	-	1	1	1
Fix - PV gasket 6x20 (white)	-	-	-	605 mm	1300 mm	1300 mm
Sealing rubber 15x8x7 427021	-	-	-	66 mm	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	1

4.6. DESCRIPTION OF COMPONENTS

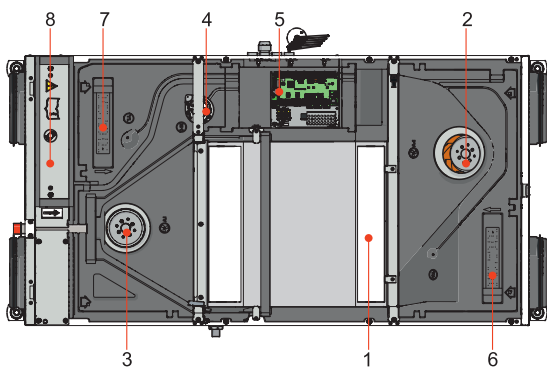


Figure 4.6.1 Smarty 2X P 1.1/1.2 1kW PH

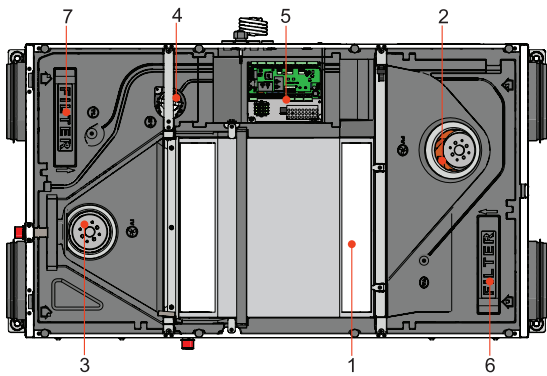


Figure 4.6.2 Smarty 2X P 1.1/1.2

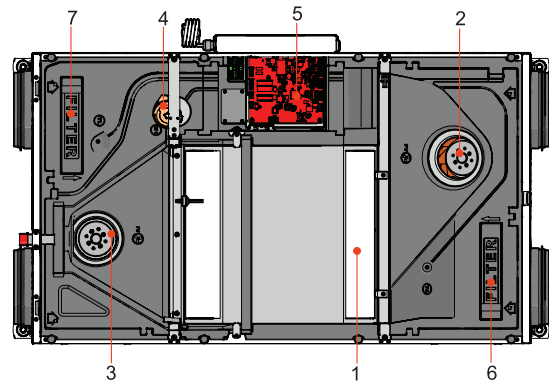


Figure 4.6.3 Smarty 2X P S300

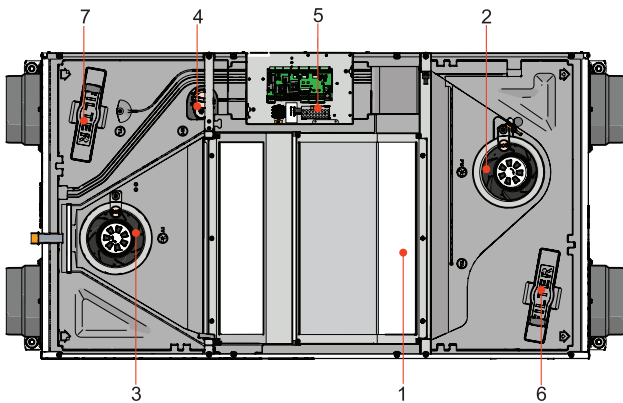


Figure 4.6.4 Smarty 3X P 1.1/1.2;
Smarty 4X P F2 1.1/1.2

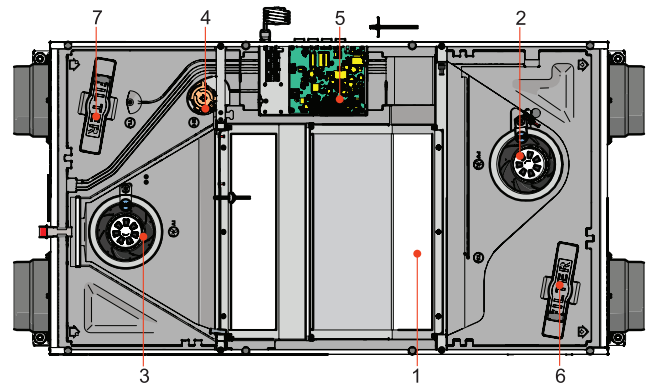


Figure 4.6.5 Smarty 3X P / 4X P S300

- 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.

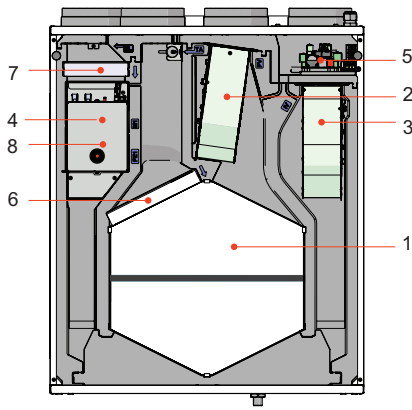


Figure 4.6.6 Smarty 2X V 1.1/1.2

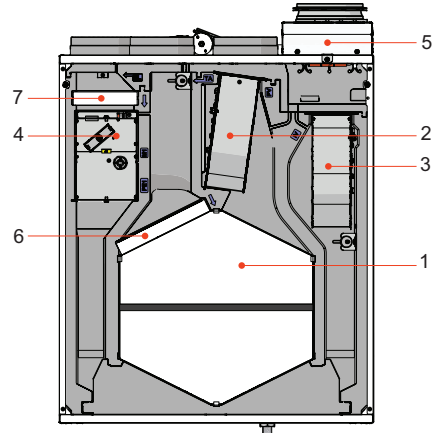


Figure 4.6.7 Smarty 2X V S300

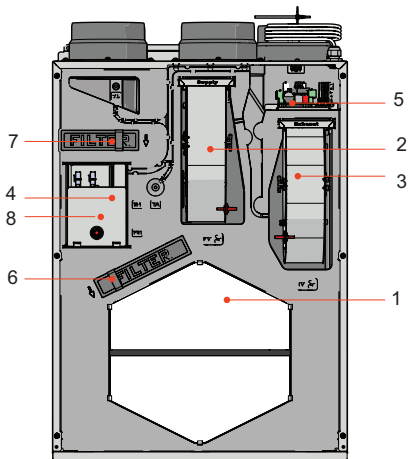


Figure 4.6.8 Smarty 3X V / 4X V F2 1.1/1.2

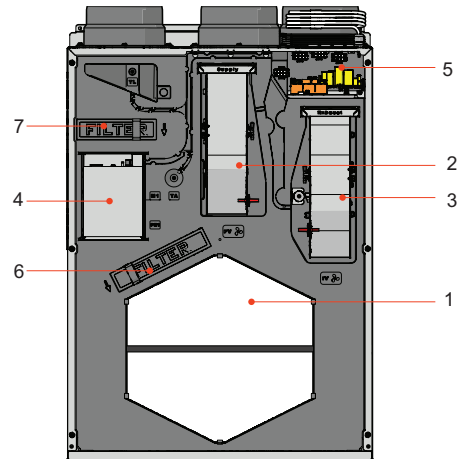


Figure 4.6.9 Smarty 3X V / 4X V S300

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.

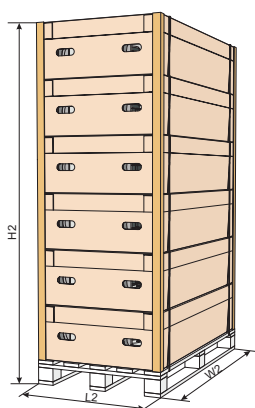


Figure 5.2.1 Smarty XP

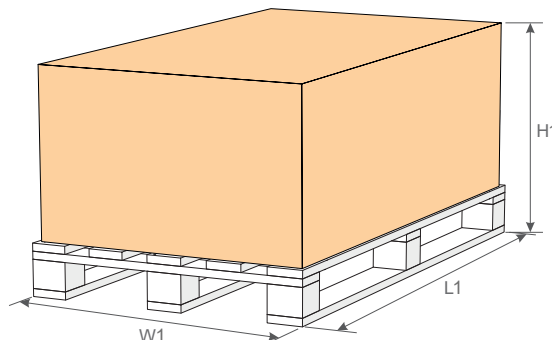
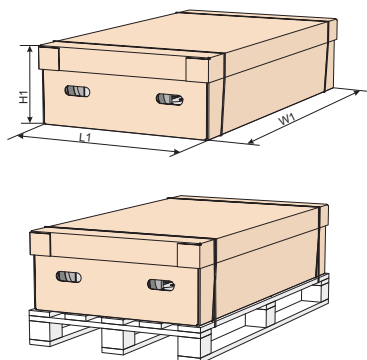


Figure 5.2.2 Smarty XV

UNIT	DIMENSIONS OF A SINGLE PACKAGE			DIMENSIONS OF MULTI-PACKAGE			MAX. NUMBER OF TRANSPORTED PACKAGES [PCS.]
	H1 [mm]	L1 [mm]	W1 [mm]	H2 [mm]	L2 [mm]	W2 [mm]	
Smarty 2X P	415	800	1200	2240	800	1200	8
Smarty 2X P 1kW PH	409	760	1345	2236	760	1345	8
Smarty 3X P	485	800	1450	2167	800	1430	6
Smarty 4X P	490	800	1450	2175	800	1200	6
Smarty 2X V	485	800	700	-	-	-	6
Smarty 3X V	1060	800	600	-	-	-	1
Smarty 4X V	1125	730	585	-	-	-	1

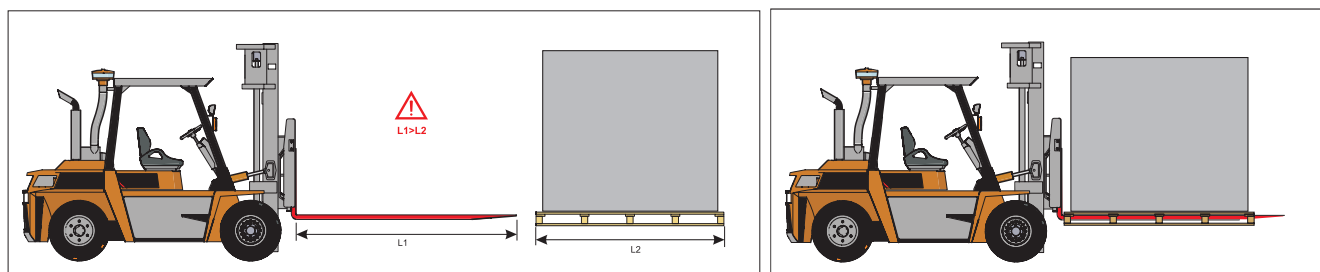


Figure 5.2.3 Lifting by forklift.



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.

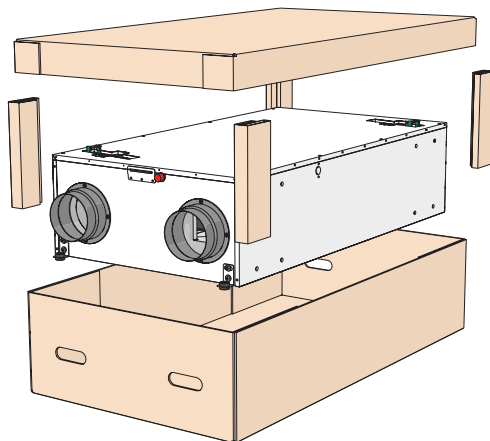


Figure 5.3.1 SmartY XP

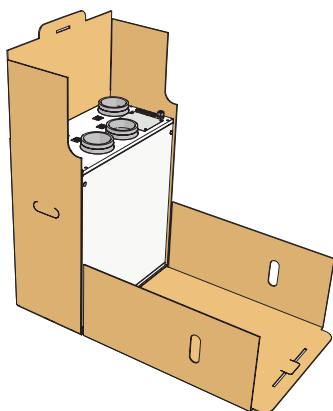


Figure 5.3.2 SmartY 2X V 1.1/1.2

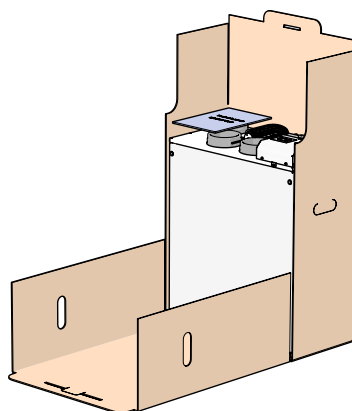


Figure 5.3.3 SmartY 2X V S300

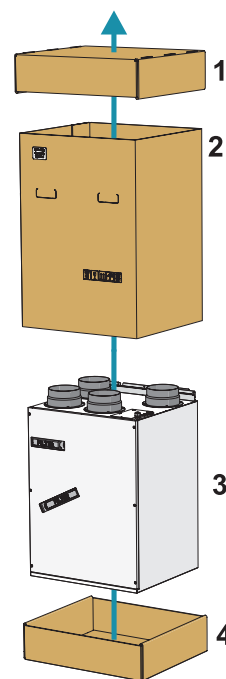


Figure 5.3.4 SmartY 3X V / 4X V

5.4. PIPING AND INSTRUMENTATION DIAGRAM

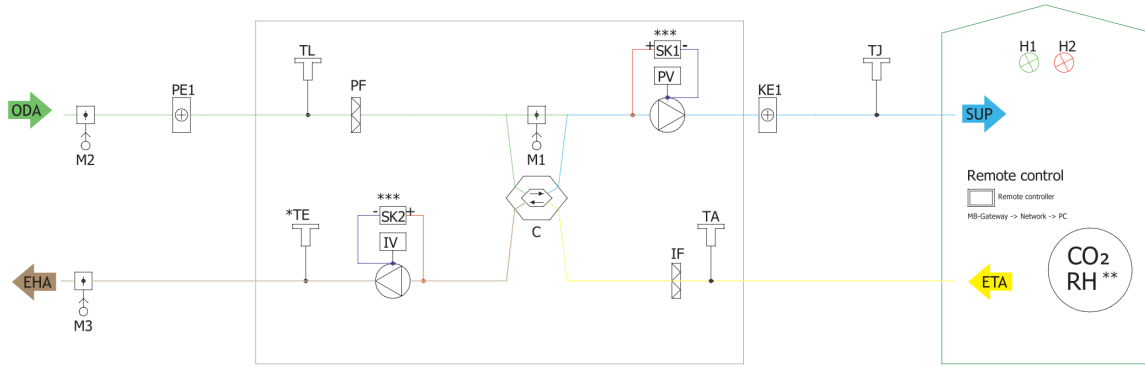


Figure 5.4.1 SMARTY XP 1.1 (* Exhaust air sensor is not included with a device and should be ordered as an accessory; ** Check the manual for details; ***Not available in Smarty 2X P V1.1 units)

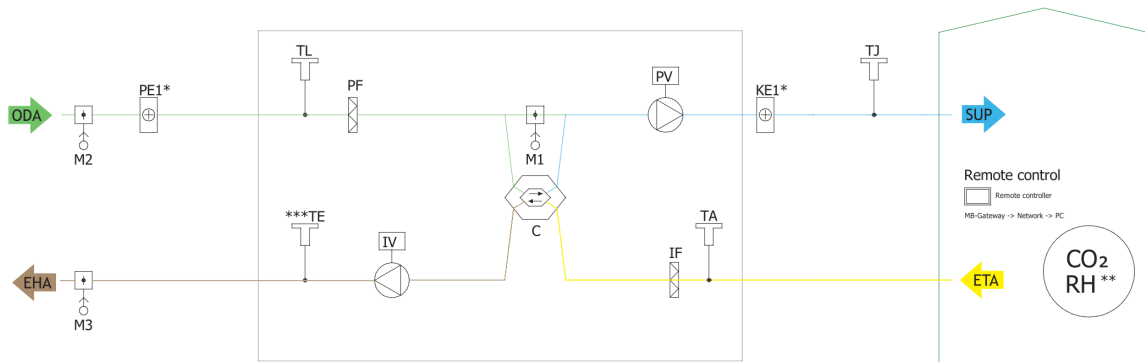


Figure 5.4.2 SMARTY XP 1.2 (* Only heater or preheater can be connected at a time; ** Check the manual for details; *** Exhaust air sensor is not included with a device and should be ordered as an accessory)

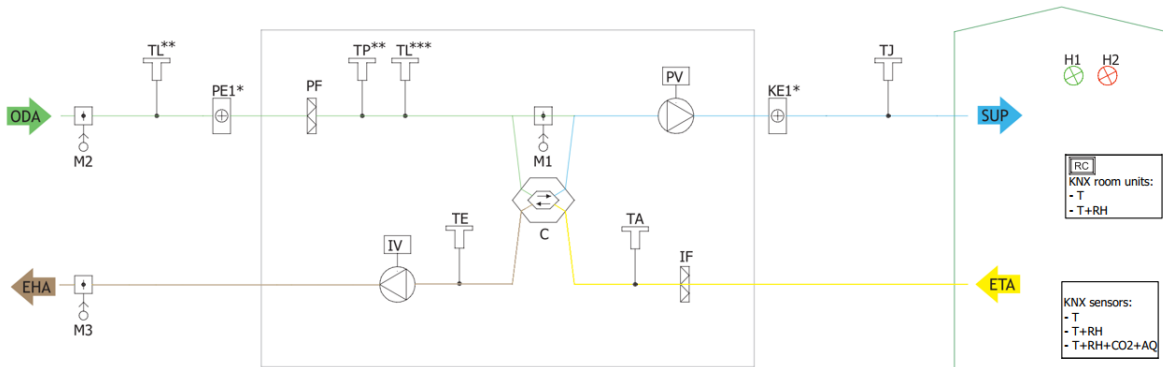


Figure 5.4.3 SMARTY XP S300 (* Only heater or preheater can be connected at a time; ** Components connection only with PE1; *** Components connection only without PE1)

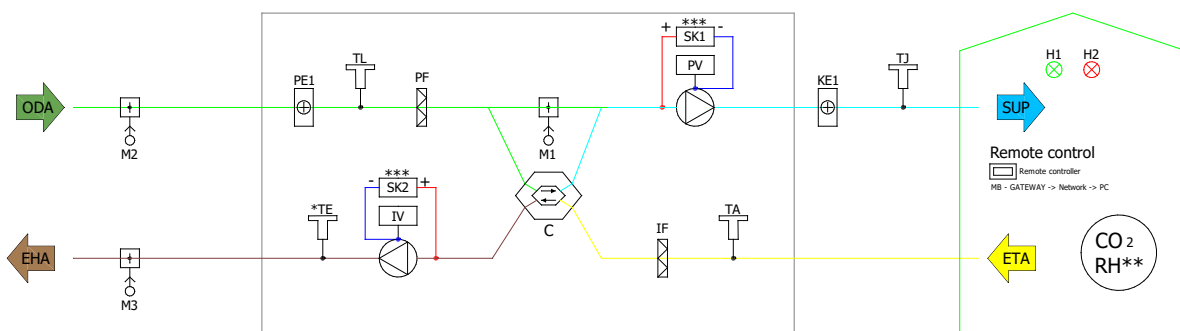


Figure 5.4.4 SMARTY XP 1.1 1kW PH (* Exhaust air sensor is not included with a device and should be ordered as an accessory; ** Check the manual for details; ***Not available in Smarty 2X P V1.1 units)

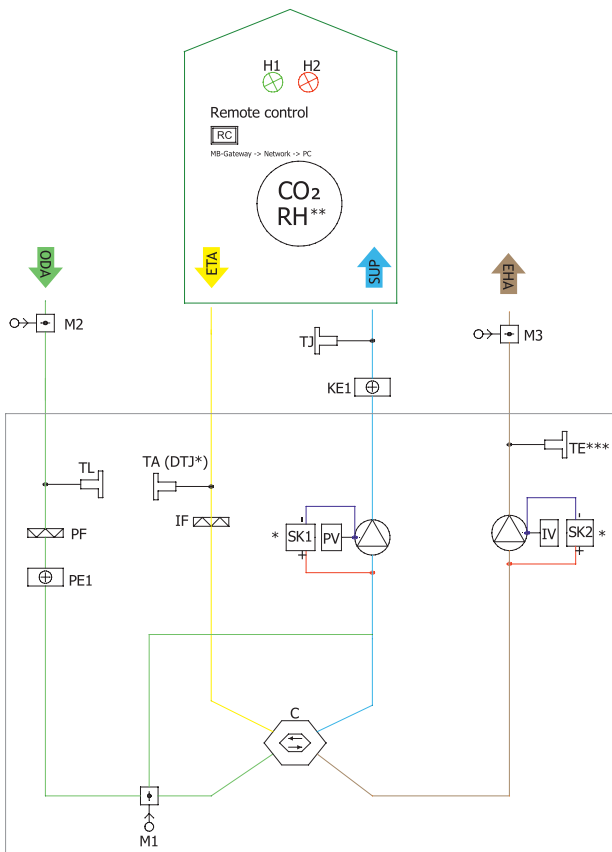


Figure 5.4.5 SMARTY XV miniMCB (* Available in 3X V / 4X V F2 1.1 models; ** Check the manual for details; *** Optional)

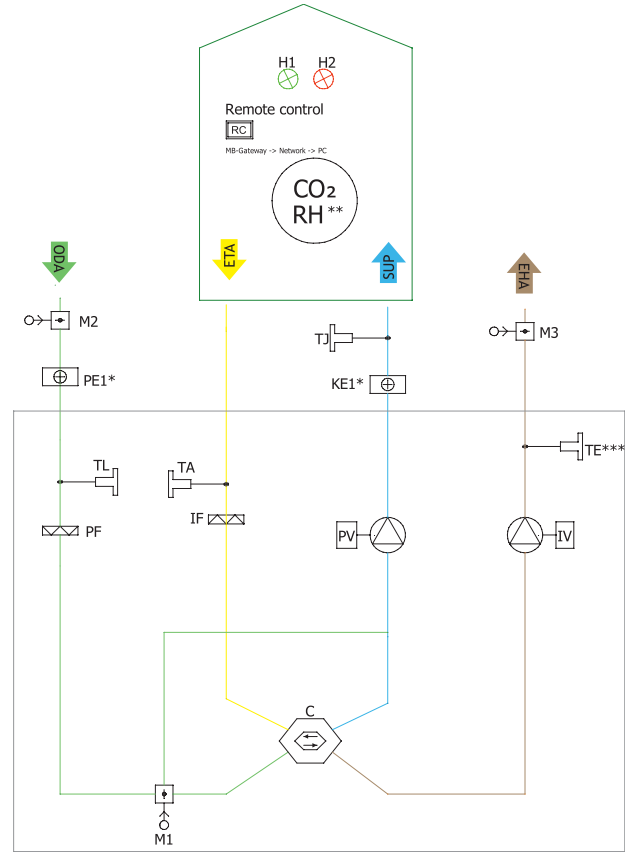


Figure 5.4.6 SMARTY XV miniMCB basic (* Only heater or preheater can be connected at a time; ** Check the manual for details; *** Optional)

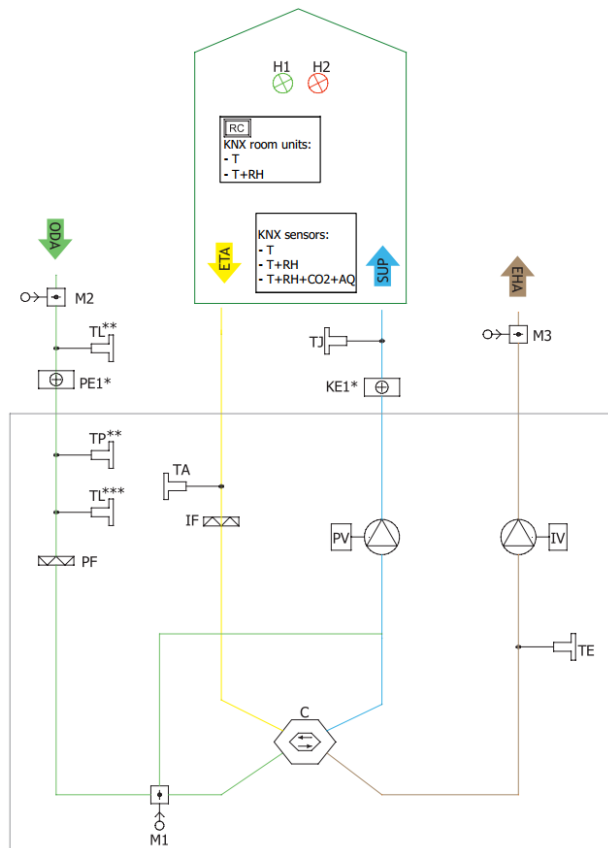



Figure 5.4.7 SMARTY XV S300 (* Only heater or preheater can be connected at a time; ** Components connection only with PE1; *** Components connection only without PE1)

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!

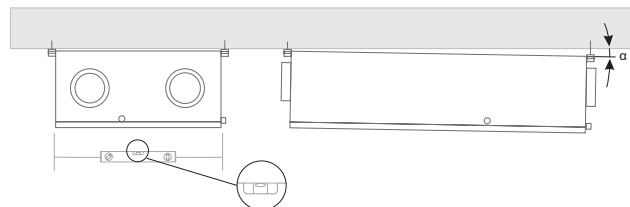


Figure 5.5.1 Smarty XP Ceiling-mounting positions ($\alpha > 1^\circ$) (only for units with condensation heat exchanger)

*The location of the condensate outlet for the specific product is indicated in the dimensional drawing

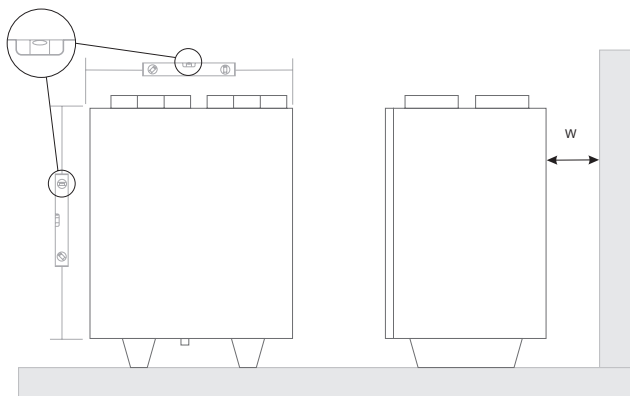


Figure 5.5.2 SmartY XV horizontal floor-mounting positions on floor (W=400 mm)

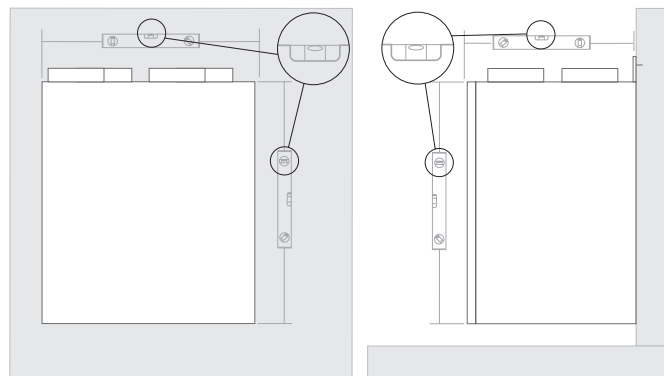


Figure 5.5.3 SmartY XV ceiling-mounting positions

5.5.1. UNIT PLACING AND MOUNTING POSITIONING REQUIREMENTS

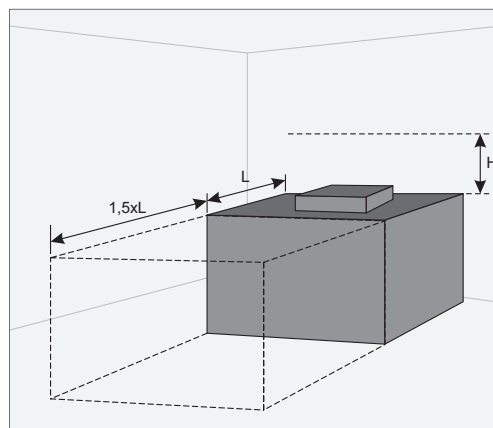
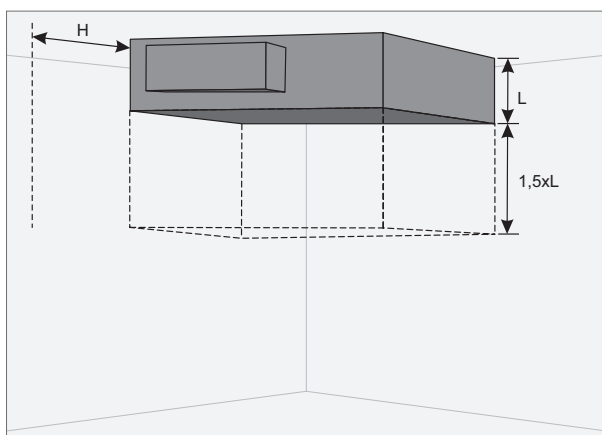


Figure 5.5.1.1 Min. distance to open the door - 1,5xL; Min. distance to open the control box door - H > 400 mm.

5.5.2. CEILING-MOUNTING OF THE UNIT (SMARTY XP)

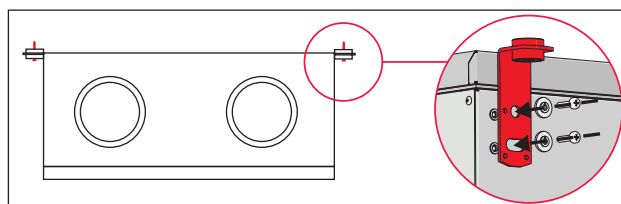


Figure 5.5.2.1 Ceiling-mounting of the unit

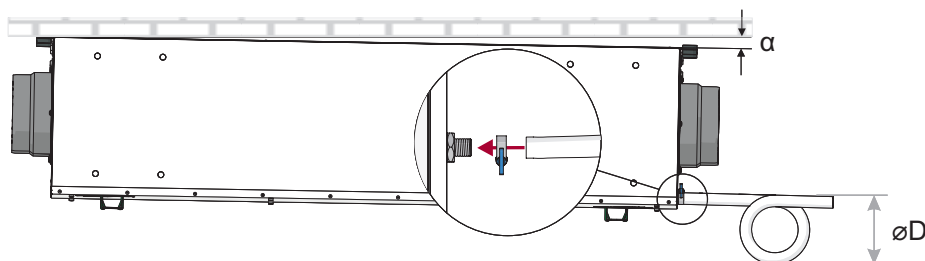





Figure 5.5.2.2 Drainage system installation (øD=150 mm) (only for units with condensation heat exchanger)

	SMARTY 2X P	SMARTY 3X P / 4X P
α [mm]	9	11

-  **NOTE.** If the collector is located upstream, install the system with the condensate pump (offered as an accessory).
-  The diameter of the condensate pipe can't be reduced.
-  The condensate drain connection and siphon **MUST** be visible and easily serviced, otherwise the warranty will not apply!

5.5.3. FLOOR MOUNTING (SMARTY XV)

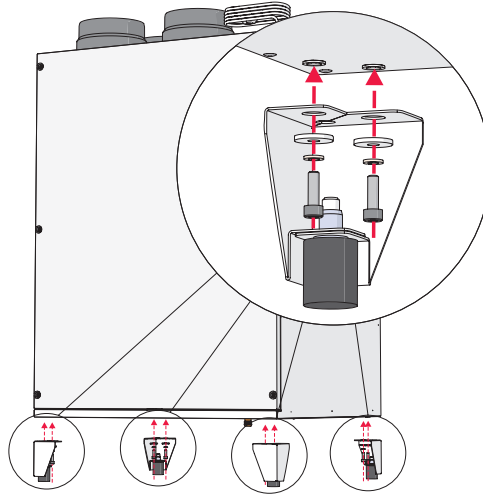


Figure 5.5.3.1 Floor mounting (optional accessory required)

5.5.4. WALL-MOUNTING OF THE UNIT (SMARTY XV)

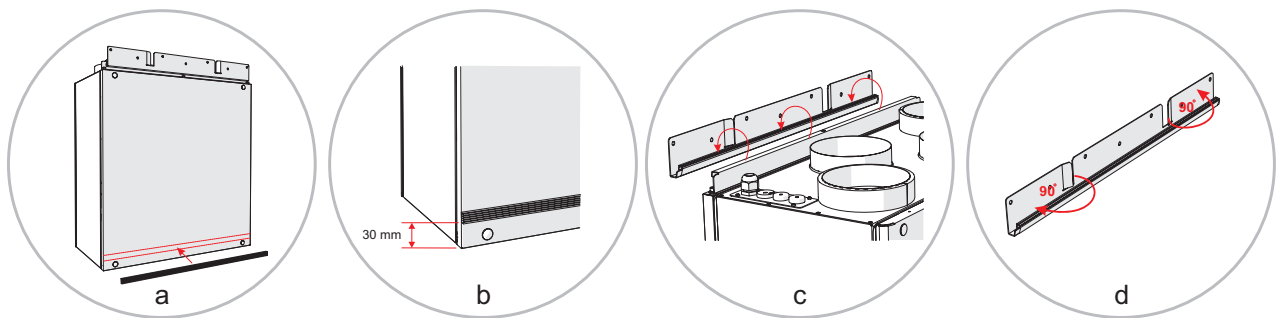


Figure 5.5.4.1 Mounting on the wall

5.5.5. DRAINAGE (SMARTY XV)

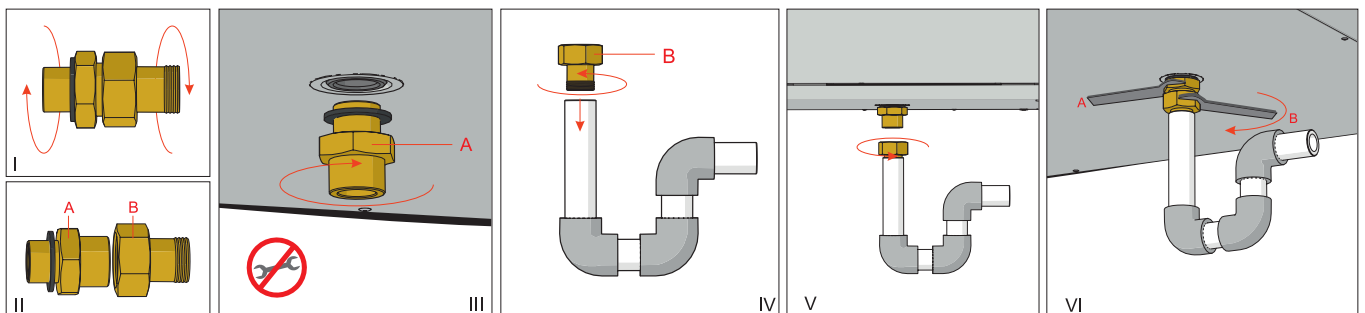


The condensate tube must be filled with water as indicated during the first start-up before every heating season!



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

DRAINAGE SYSTEM INSTALLATION SMARTY 2X V / 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.

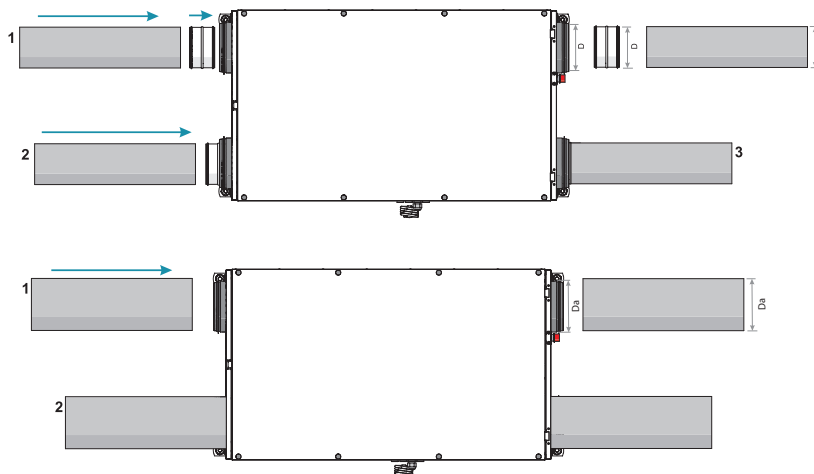


Figure 5.6.1 Smarty XP:



D or Da dimensions depend on unit.

For Smarty 2X P, air ducts of the following two sizes can be used: $\varnothing D$ - 125 mm (a), $\varnothing Da$ - 160 mm (b).
 For Smarty 3X P, air ducts of the following two sizes can be used: $\varnothing D$ - 150 mm or 160 mm (b).



NOTE. In case air ducts of $\varnothing D$ - 125 mm are used, using of NPU 125 coupling is required.

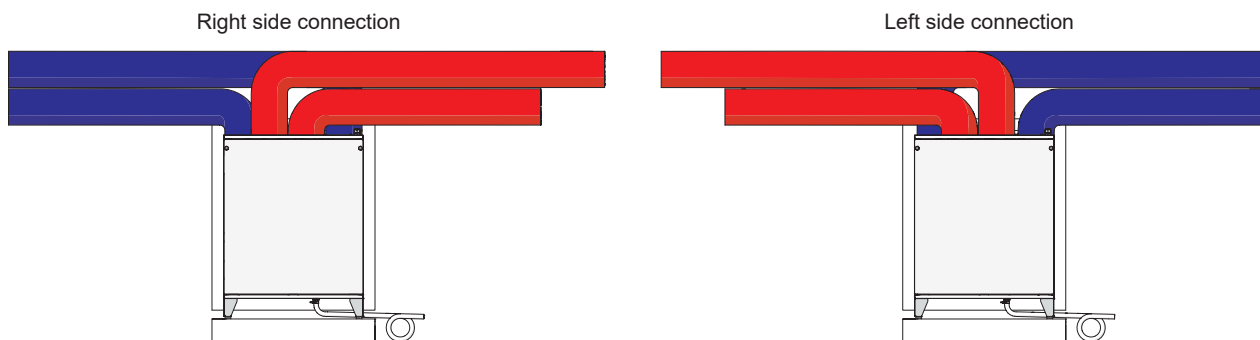


Figure 5.6.2 Smarty XV side connection

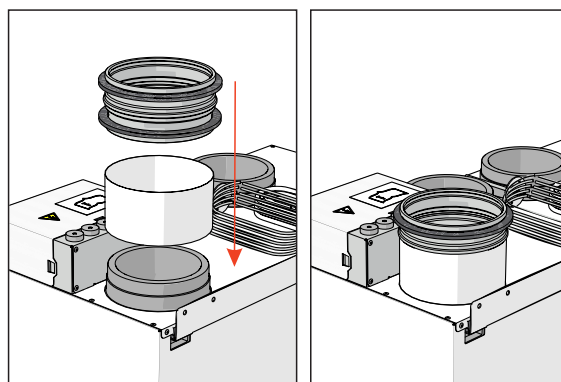


Figure 5.6.3 Smarty 2X V S300 connection of the air duct



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	2X P 1.1	2X P 1.2	2X P S300	3X P 1.1	3X P 1.2	3X P S300	4X P F2 1.1	4X P F2 1.2	4X P S300
Mains Fuse	16A	16A	16A	16A	16A	16A	16A	16A	16A

SMARTY	2X V 1.1	2X V 1.2	2X V S300	3X V 1.1	3X V 1.2	3X V S300	4X V F2 1.1	4X V F2 1.2	4X V S300
Mains Fuse	10A	16A	16A	16A	16A	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 or S300 controller's terminal blocks,
- Cable and wire connection to miniMCB, EX1 or S300 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. Check cleanliness. Clean, if necessary. Make sure that the impellers are not unbalanced.
Fans	Check the connections and the direction of rotation	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

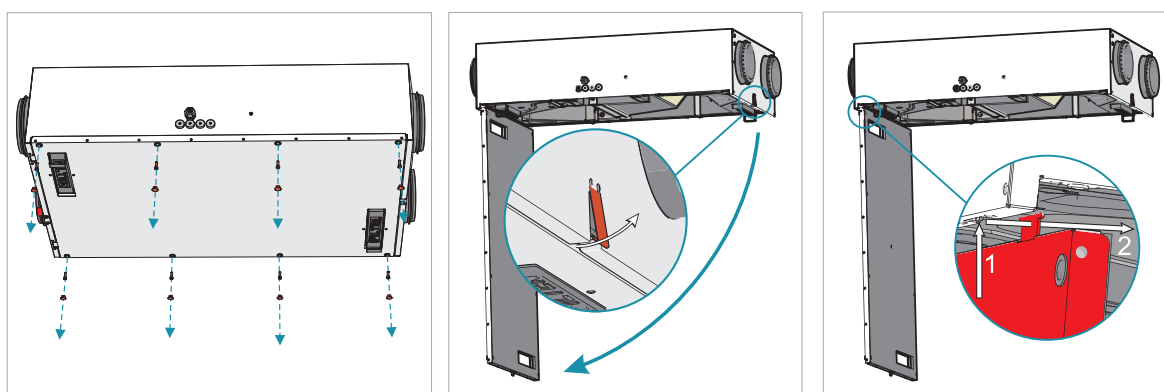


Figure 6.3.1 Smarty 2X P

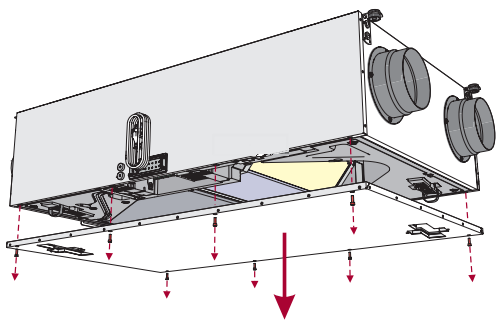


Figure 6.3.2 Smarty 3X P / 4X P

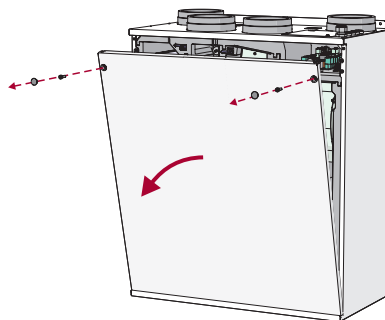


Figure 6.3.3 Smarty 2X V

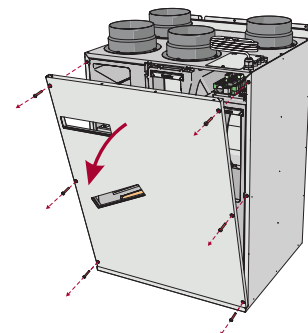


Figure 6.3.4 Smarty 3X V / 4X V

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.

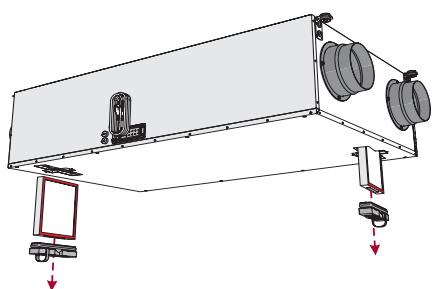


Figure 6.4.1 Smarty XP

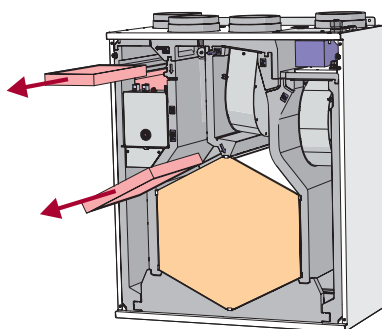


Figure 6.4.2 Smarty 2X V

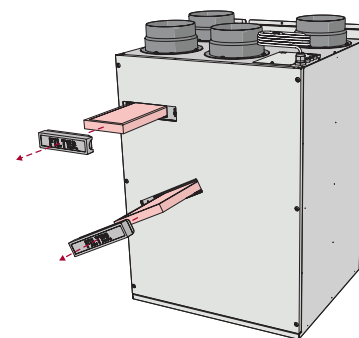


Figure 6.4.3 Smarty 3X V / 4X V



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.

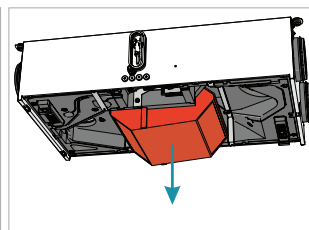
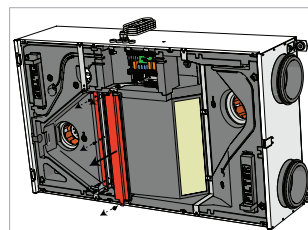
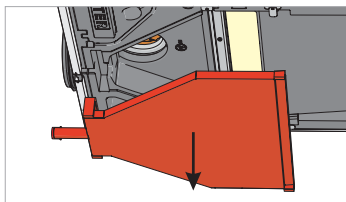
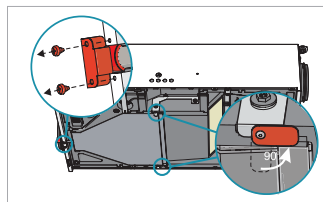


Figure 6.5.1 Smarty 2X P

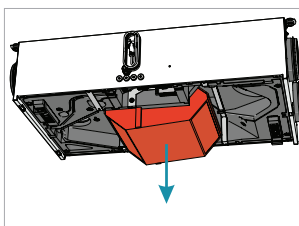
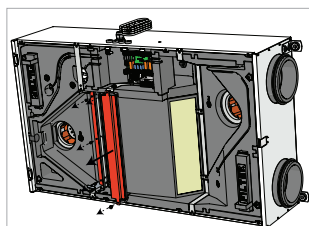


Figure 6.5.2 Smarty 2X P E

NOTE. Prior to performing steps in Figure 6.5.1 / Figure 6.5.2, steps in Figure 6.3.1 should be carried out.

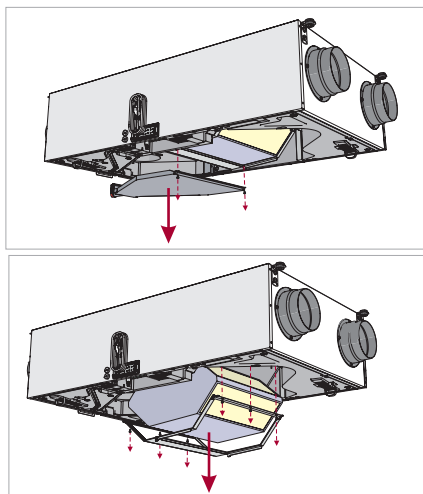


Figure 6.5.3 Smarty 3X P / 4X P

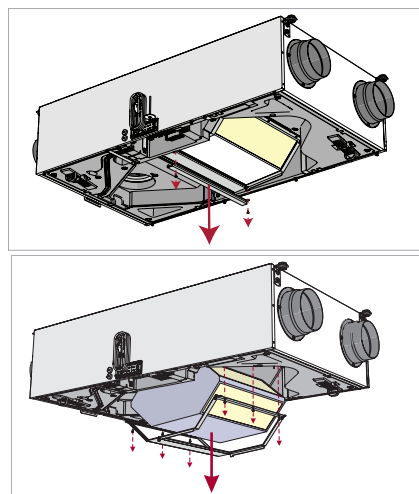


Figure 6.5.4 Smarty 3X P E / 4X P E

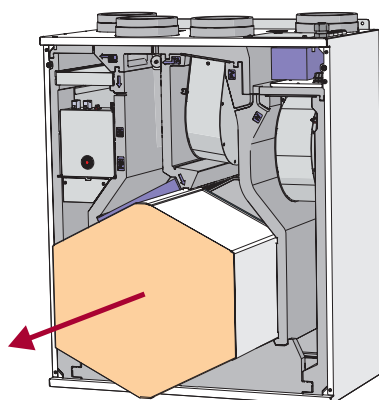


Figure 6.5.5 Smarty 2X V

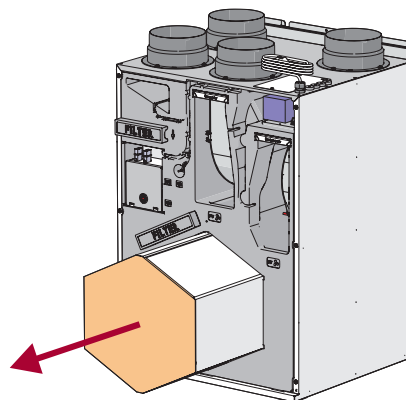


Figure 6.5.6 Smarty 3X V / 4X V

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.

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

SMARTY XP (version 1.1 / 1.2):

- Remove the fan connectors from the control board. Supply air fan connects to X15, X2, X4 connectors. Extract air fan connects to X16, X2, X4 connectors.

SMARTY XV (version 1.1 / 1.2):

- 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 F2 fans can be disconnected by unplugging X32, X33 connectors located on the fans housing.

NOTE:

- X2 and X4 are the same for both fans.

SMARTY XP (version S300):

- Disconnect cable wires of supply and extract air fans from control board. Fans control signals connect to T2 and T18 controller terminals. Fans power signals connect to XP1 terminal blocks.

SMARTY 2/3X V (version S300):

- Disconnect X1F and X2F connectors (located in the control board compartment) from the control board harness.
- Remove cables of fans from the casing;
- Pull out fans assemblies.

SMARTY 4X V (version S300):

- Disconnect cables of the AHU harness from fans connectors (X32, X33);
- Pull out fans assemblies.



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.

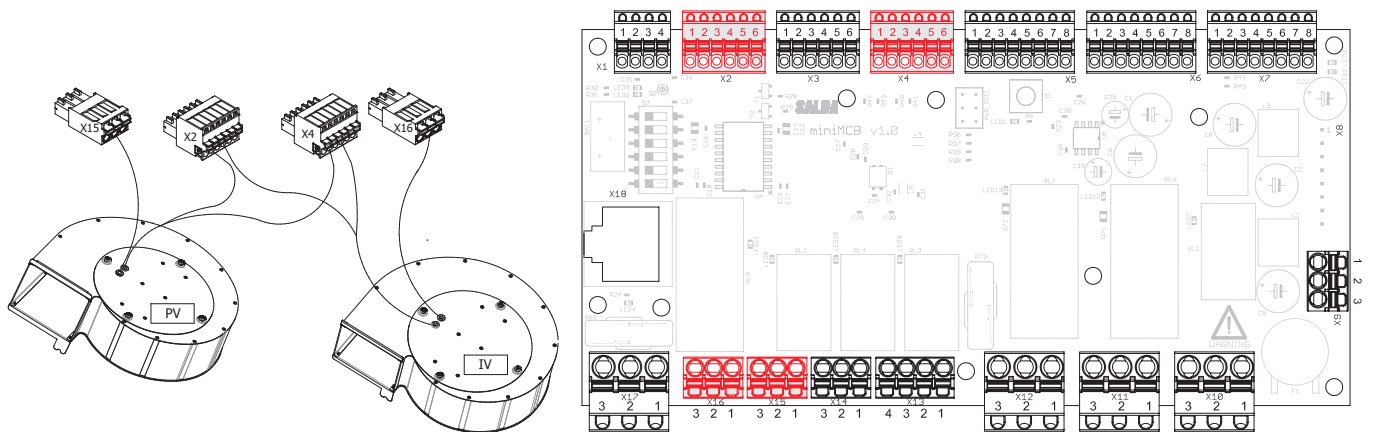


Figure 6.6.1 Smarty 2X P 1.1/1.2; 3X P 1.1/1.2; 4X P F2 1.1/1.2

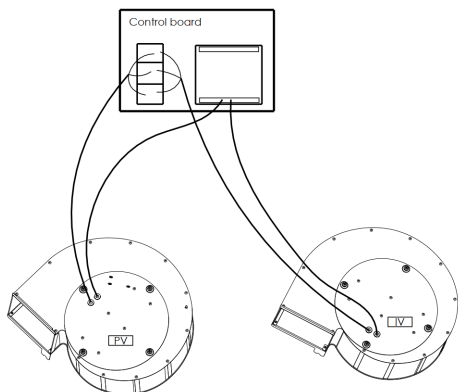


Figure 6.6.2 Smarty XP S300

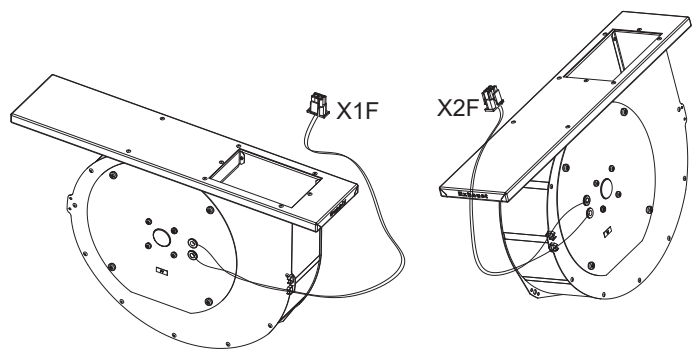


Figure 6.6.3 Smarty 2X V / 3X V S300

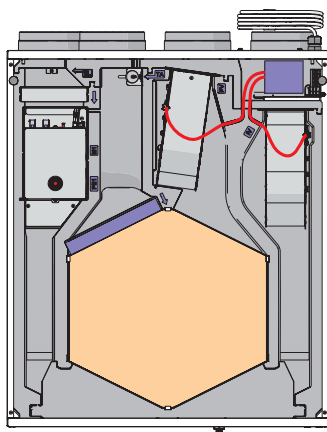


Figure 6.6.4 Smarty 2X V / 3X V

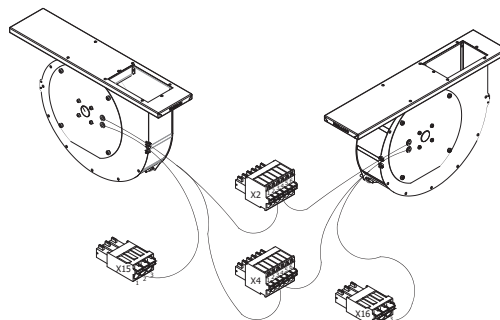


Figure 6.6.5 Smarty 2X V / 3X V

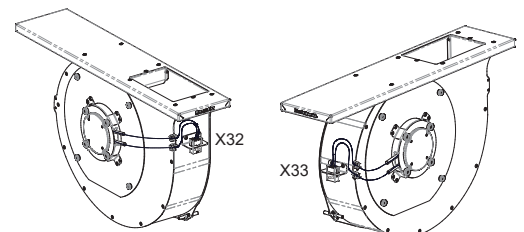


Figure 6.6.6 Smarty 4X V

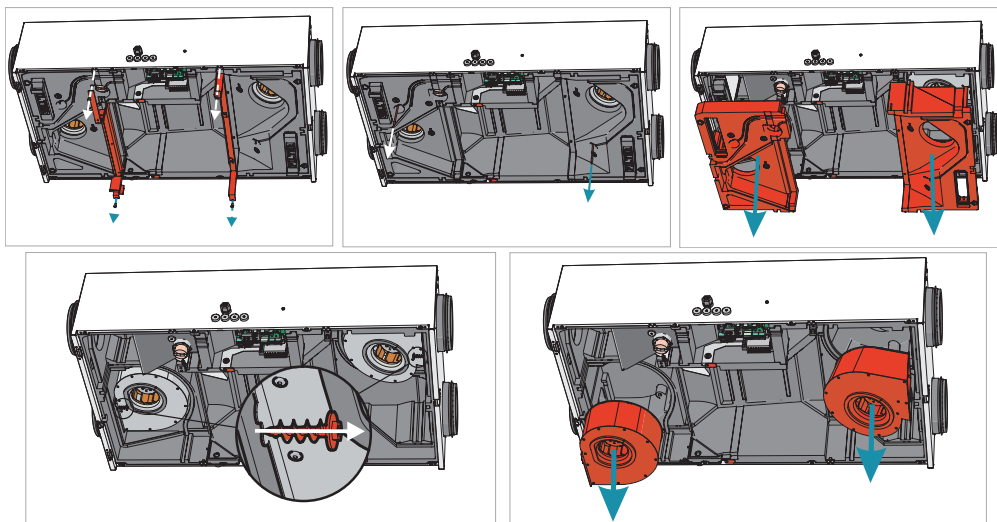


Figure 6.6.7 Smarty 2X P

NOTE. Prior to performing steps in Figure 6.6.7, steps in Figure 6.3.1 (1-3) and Figure 6.5.1 (1-4) / Figure 6.5.2 (1-2) should be carried out.

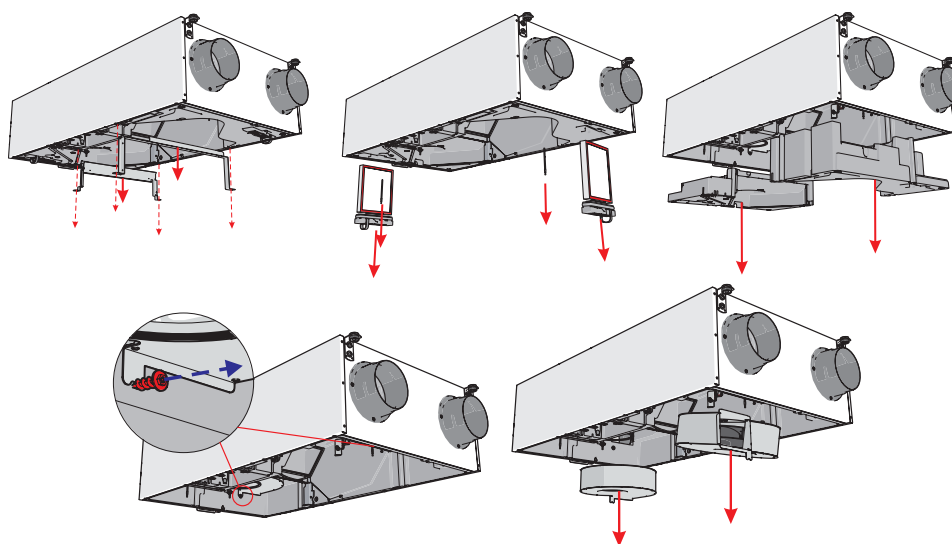


Figure 6.6.8 Smarty 3X P / 4X P

NOTE. Prior to performing step in Figure 6.6.8, steps in Figure 6.3.2 and Figure 6.5.4 (1-3) should be carried out.

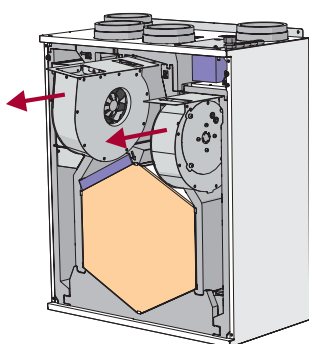


Figure 6.6.9 Smarty 2X V

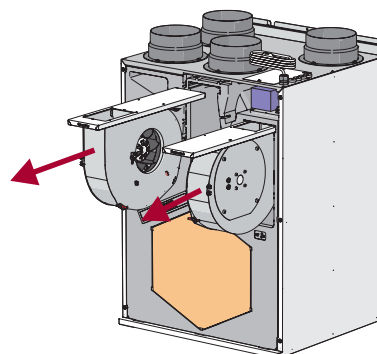


Figure 6.6.10 Smarty 3X V / 4X V

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

- Bypass damper must be disconnected from control board (connections X3 and X5 (version 1.1 / 1.2); connection X4 (version S300)).
- When removing the damper, steps in Figure 6.3.1 (1-3), Figure 6.5.1 or Figure 6.5.2 (1-3), Figure 6.6.7 (1-3) should be performed for Smarty 2X P, and steps in Figure 6.3.2, Figure 6.5.3 or Figure 6.5.4 (1-3), Figure 6.6.8 (1-2) for Smarty 3-4X P.
- Having removed the damper, loosen the screw supporting lugs. Disconnect contacts from the rear switch.
- Remove sealant with the wires and connections.
- Remove the screws.
- Remove the drive with all the wires.

- Reassembling must be executed in the reverse order: insert the wires with a rear switch connection through a hole, install back the sealant, insert the drive lug into the damper axis (the milled plate of the drive lug must be parallel to the damper axis plate, where the tightening screw hole is located).

SMARTY XP:

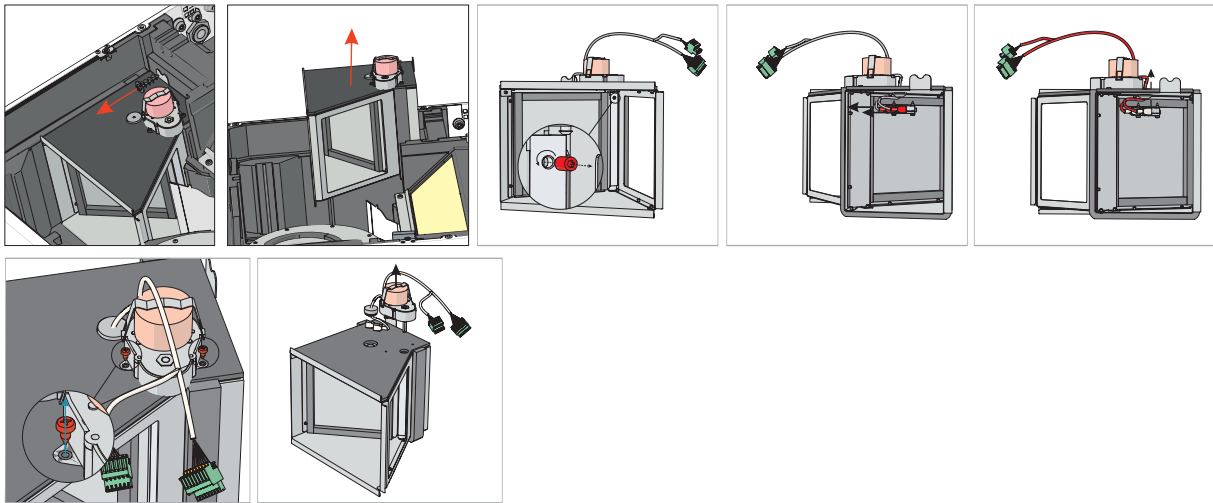


Figure 6.7.1 Smarty XP bypass damper

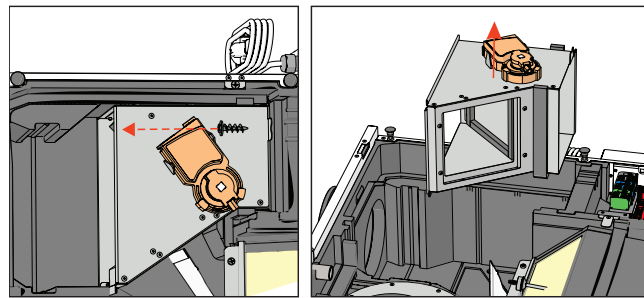


Figure 6.7.2 Smarty XP S300 bypass damper

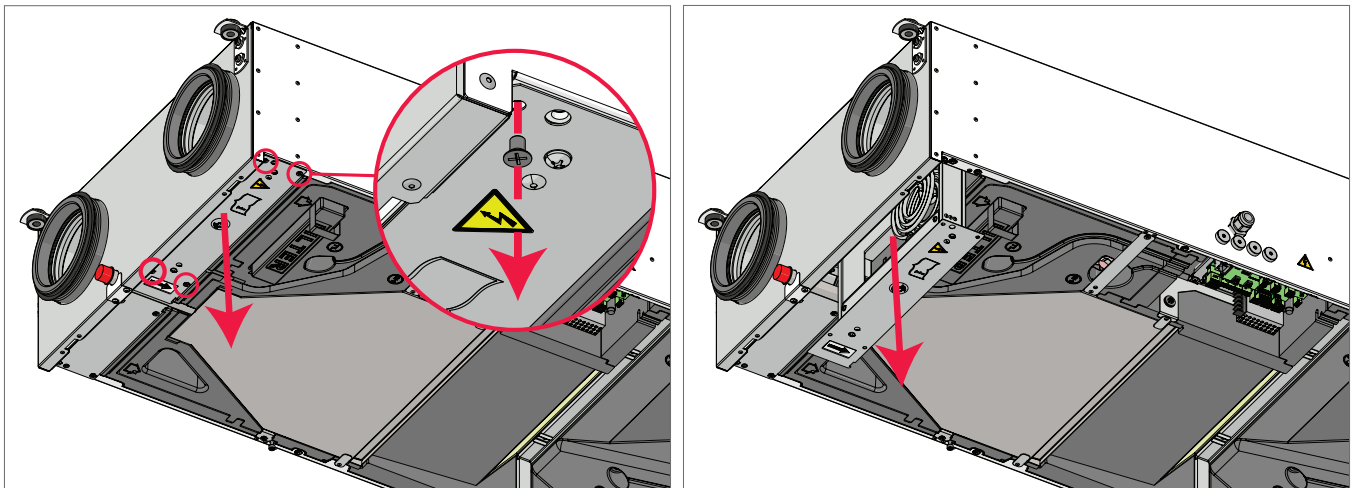


Figure 6.7.3 Smarty 2X P 1kW PH pre-heater maintenance

NOTE. Prior to performing step in Figure 6.7.3, steps in Figure 6.3.1 should be carried out.

SMARTY XV (version 1.1 / 1.2):

- 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.

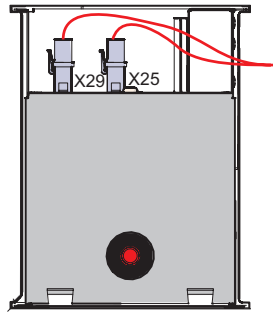


Figure 6.7.4 Bypass damper and pre-heater on one block

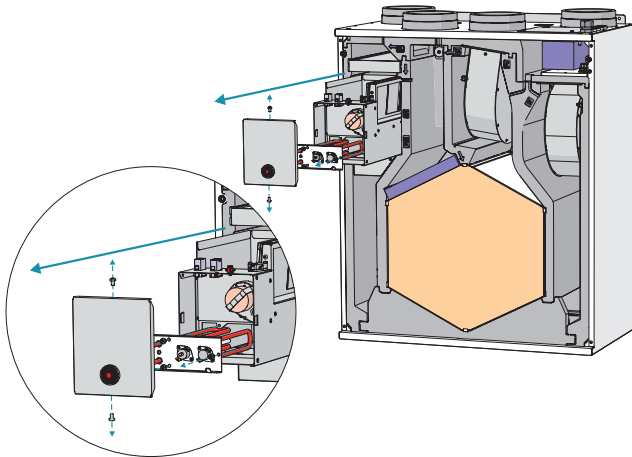


Figure 6.7.5 Smarty 2X V 1.1/1.2

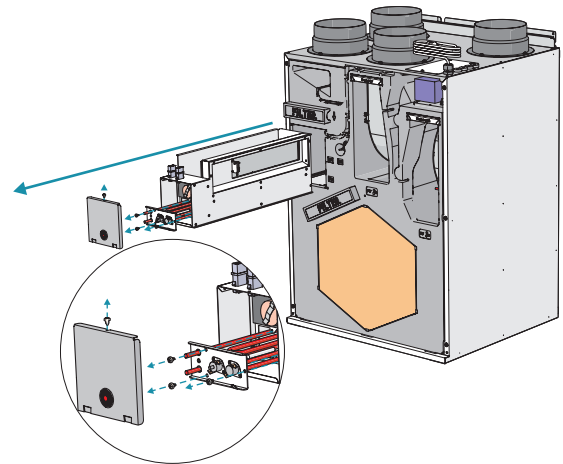


Figure 6.7.6 Smarty 3X V / 4X V F2 1.1/1.2

SMARTY XV (version S300):

To remove Bypass damper follow these steps:

- Unscrew damper actuator's cover bolt and remove cover.
- Disconnect connector (X4) from the actuator.
- Disconnect actuator's wires from bypass damper's case.
- Remove bypass damper.
- To reassemble follow steps in reverse order.

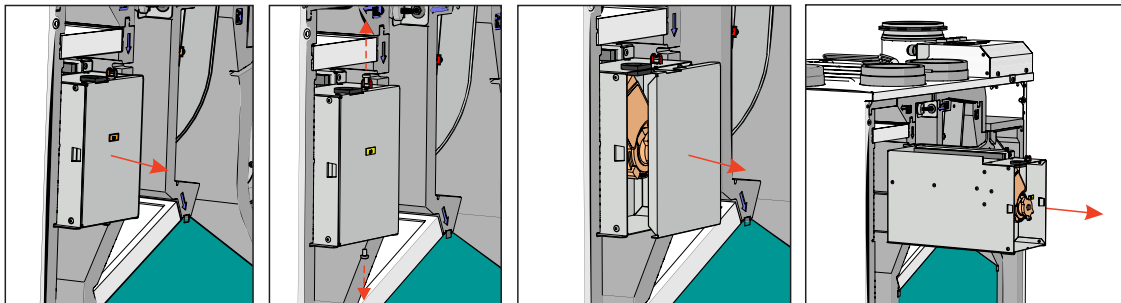


Figure 6.7.7 Smarty 2X V S300

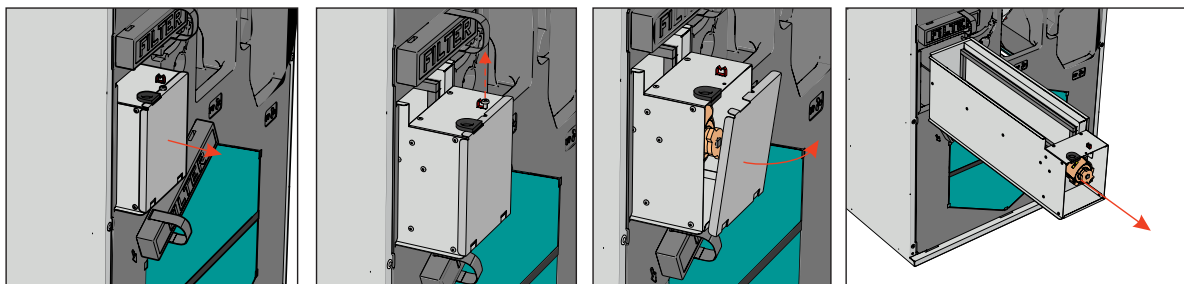


Figure 6.7.8 Smarty 3X V / 4X V S300

6.8. CONTROL BOARD MAINTENANCE

SMARTY XP:

- Loosen the front screw that tightens the automation sole to the housing of the device.
- Disconnect all necessary cables, wires, connectors and pressure hoses for control board removal.
- Remove the control board through the front part of the device.
- To reassemble, follow all maintenance steps in reverse order. When re-connecting cables, wires, connectors and hoses, make sure to match each wire, connector and hose to corresponding connection terminal, connector and hose adapter.

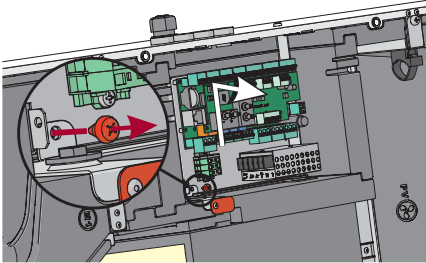


Figure 6.8.1 Smarty 2X P

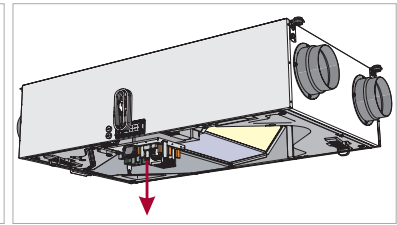
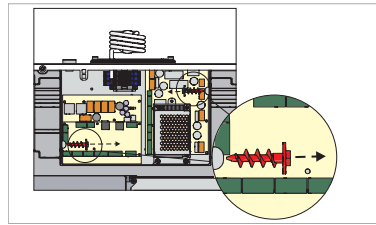


Figure 6.8.2 Smarty 3X P / 4X P

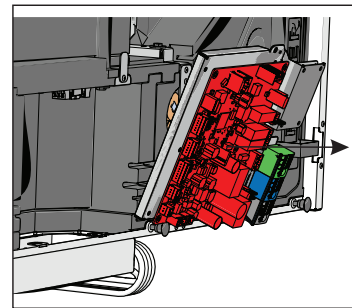
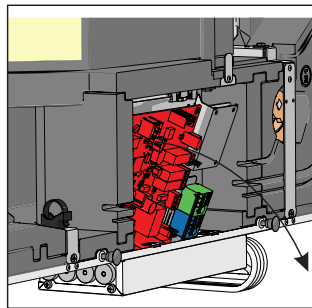
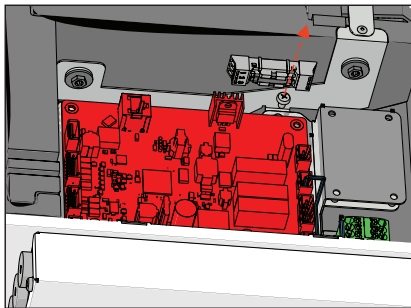


Figure 6.8.3 Smarty 2X P S300

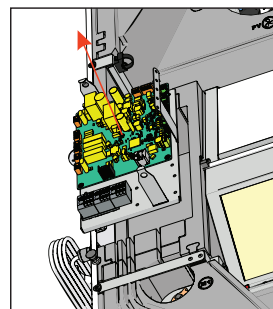
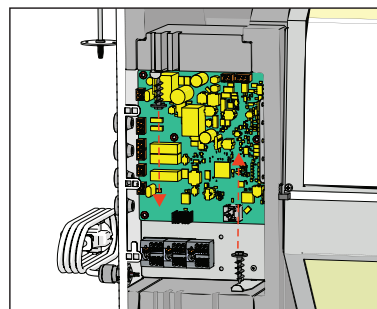


Figure 6.8.4 Smarty 3/4X P S300

SMARTY XV (version 1.1 / 1.2):

- 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"**.

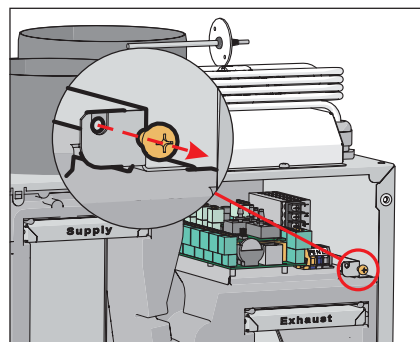


Figure 6.8.5 Smarty 2/3/4X V 1.1/1.2

SMARTY XV (version S300):

To remove control board follow these steps:

- Unscrew control board cover and mounting bolt(s).
- Remove control board cover.
- Disconnect control board's wire connectors from the rest of the unit's wire connectors.
- Remove the control board.

Power supply cable for AHUs with S300 is connected permanently and needs to be cut of from the power distribution terminals and re-crimped with PKC sleeves when reconnecting.

To reassemble follow steps in reverse order. When reconnecting connectors make sure to match each male connector with corresponding female connector.

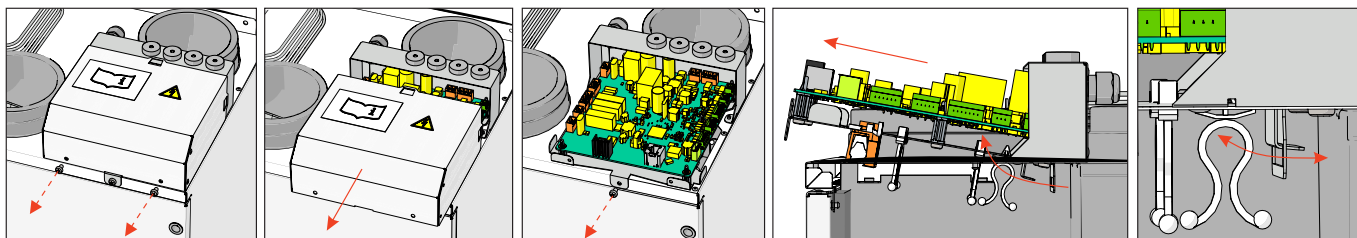


Figure 6.8.6 Smarty 2X V S300 control board

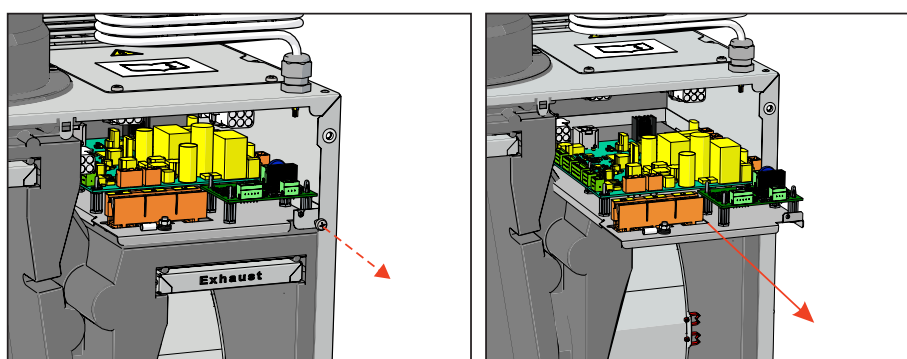


Figure 6.8.7 Smarty 3/4X V S300

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

Ventilation unit equipped with S300 control board can be controlled with remote control panel, mobile app via WIFI and BMS (Building Management System). More information provided in the table below.

With MB-GATEWAY	Remote control panels	BMS direct connection	Wireless communication
BMS over Modbus TCP/IP	POS8.4420 POS8.4440	Modbus RTU (485) BACnet IP	WIFI stick + mobile app

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).

Smarty S300 units have integrated efficient microprocessor-based Siemens S300 controller (full controller's function list and description you can find on the Siemens S300 technical manual). All unit's active components are controlled by Siemens controller. It has a lot of functions that can efficiently operate air handling unit. Users have access to the controller configuration where the control settings can be changed or new controllable devices can be added to the air control system. Users can also connect to the controller and monitor unit's status or change preferred environment settings.

Operation and control of the device depends on the following factors:

1. Selected control interface. The selected interface affects access to the information and settings, however, it does not affect the logic of the control. Remote controller have access of only basic user functions. Full access to the unit's configuration settings is available on ABT Go mobile application for installer and service users.
2. Unit configuration (internal/external components, sensors and controller settings).



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

8. CONNECTION OF ACCESSORIES

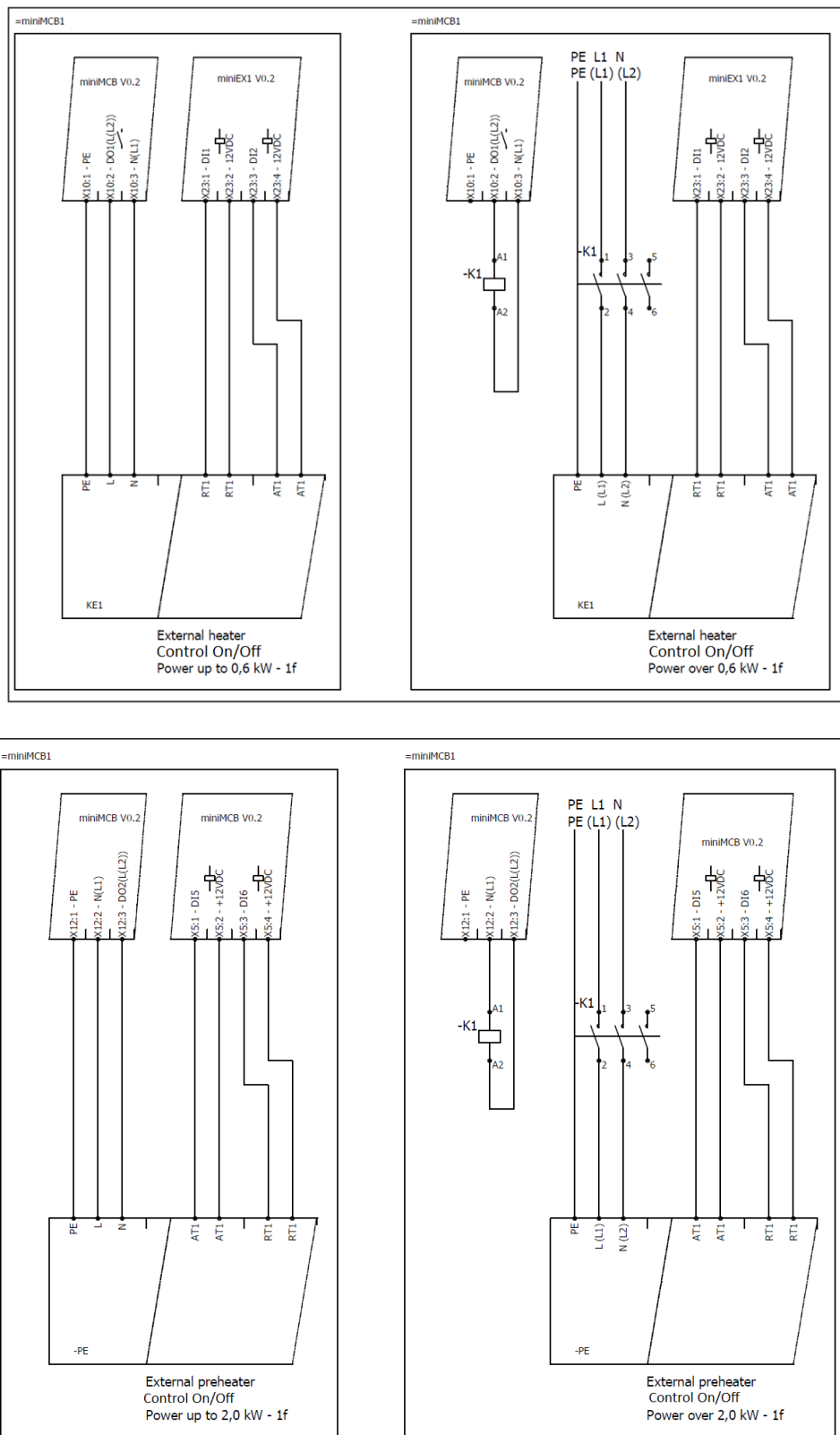
8.1. HEATER AND PRE-HEATER

8.1.1. VERSION 1.1

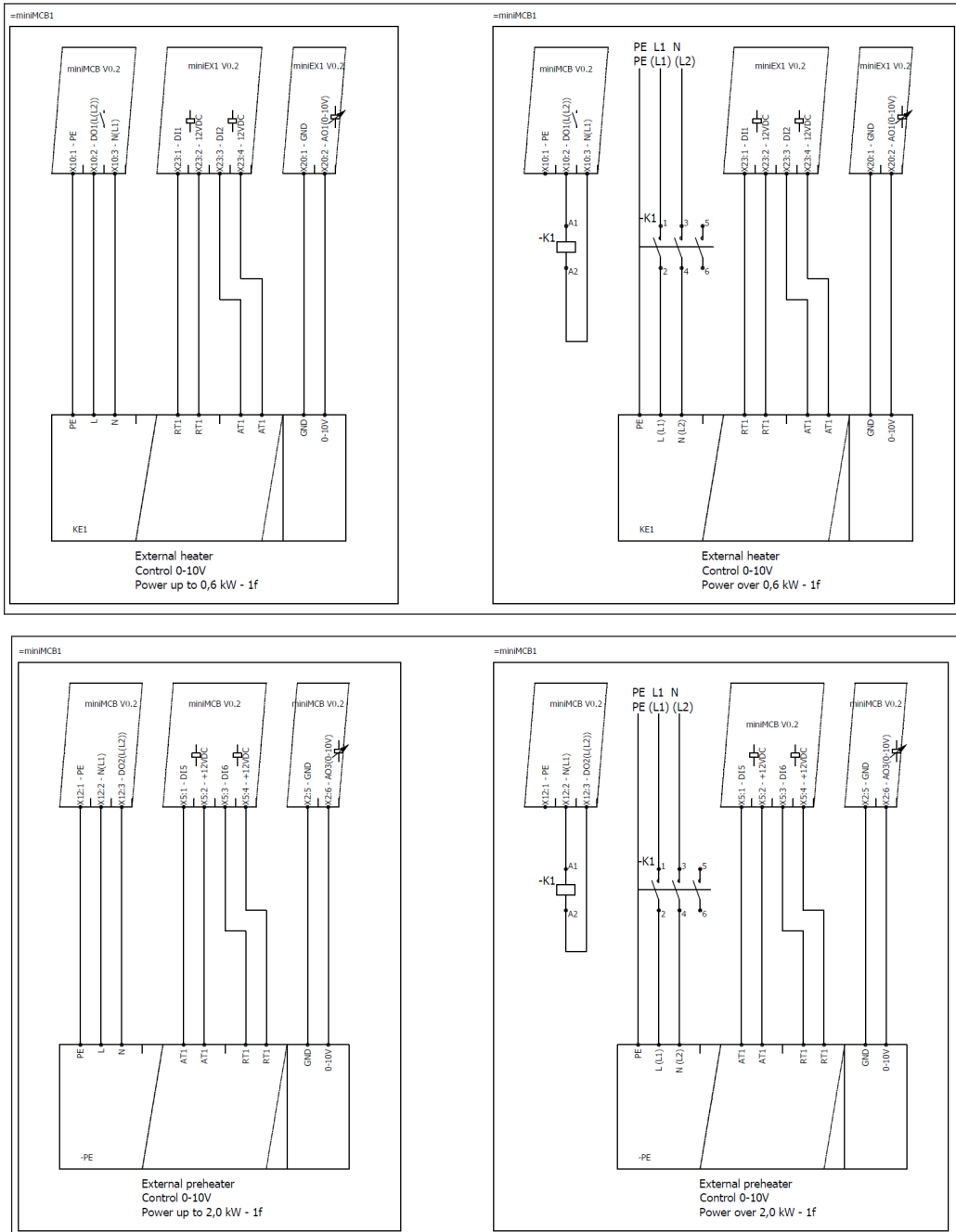
Smarty 1.1 units feature one connection for external electrical air heater and one for external air pre-heater. Pre-heater is integrated inside the product. Heater/pre-heater can be controlled by the following signals:

- 0-10V – EKA NIS
- On-Off – EKA

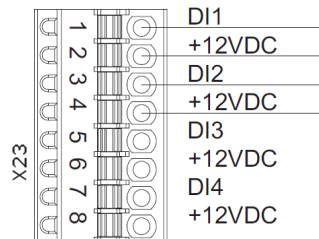
EKA connection:



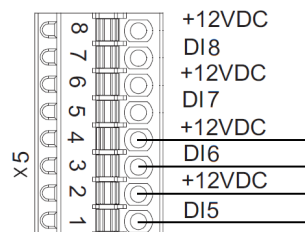
EKA NIS connection:



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.



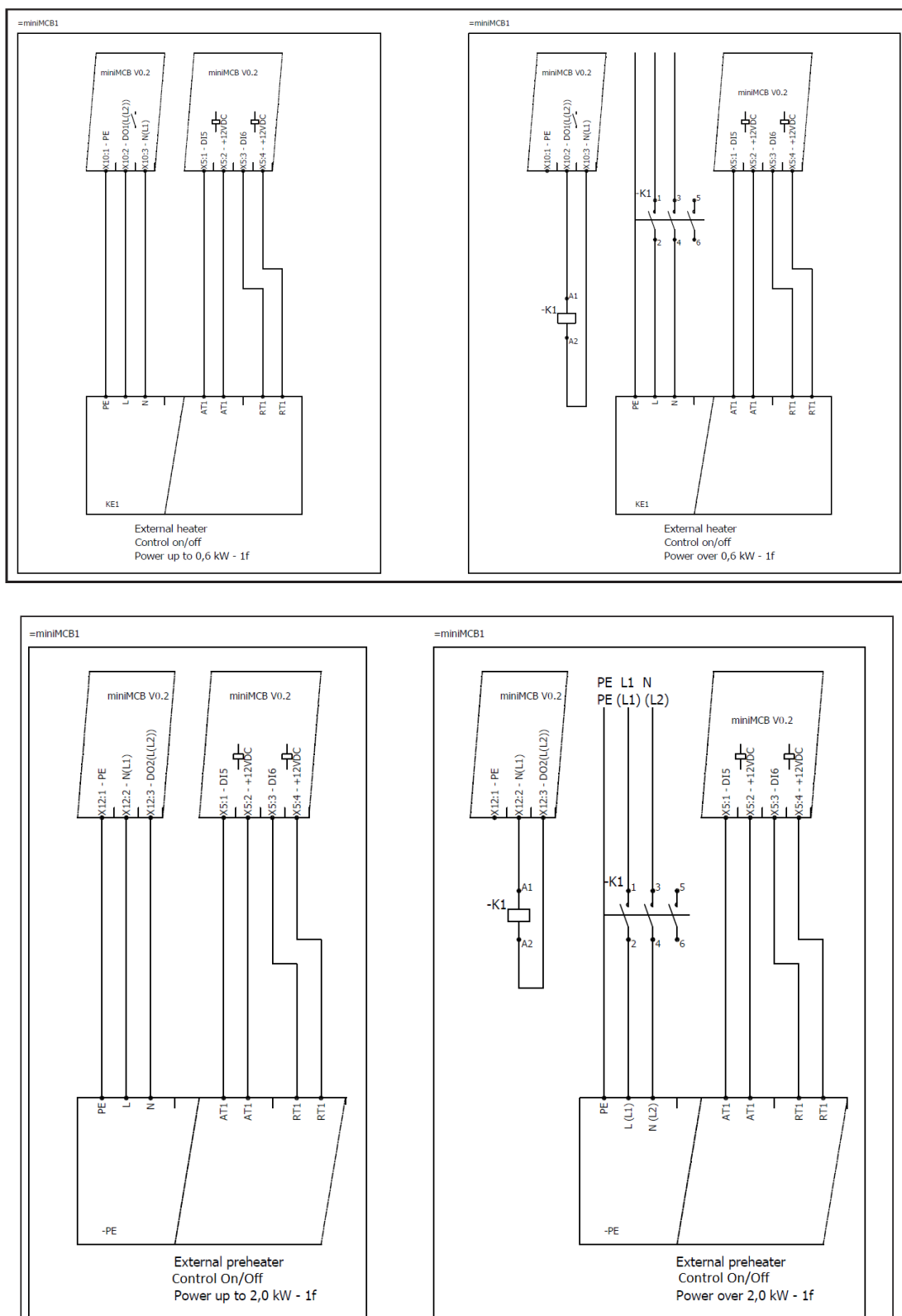
8.1.2. VERSION 1.2

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:

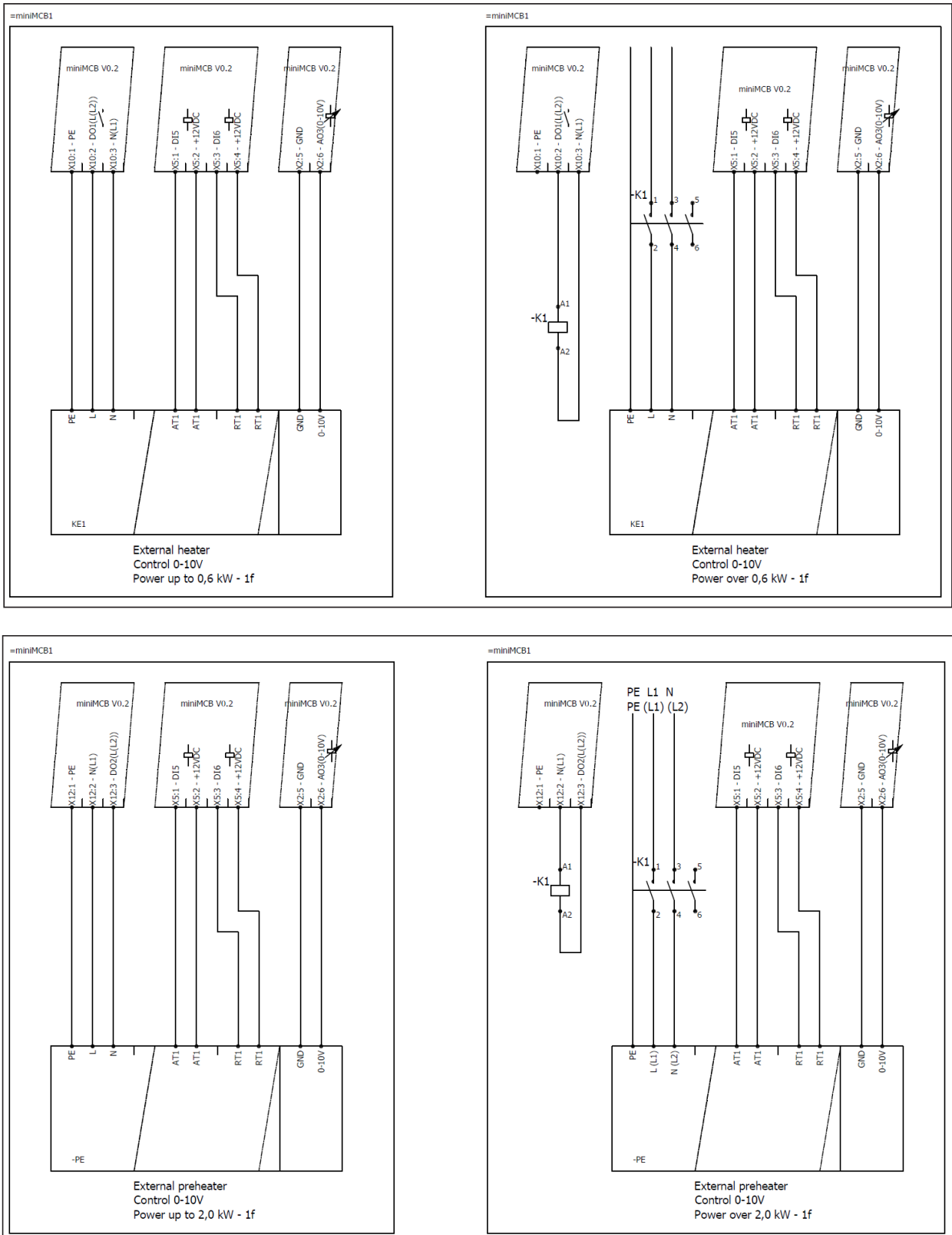
- 0-10V – EKA NIS
- On-off – EKA

NOTE. Units **Smarty 2X P 1.2 1kW PH** and **Smarty 2X P 1.2 E 1kW PH** have an integrated pre-heater and no additional heater can be connected.

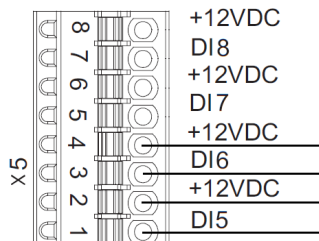
EKA connection:



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:

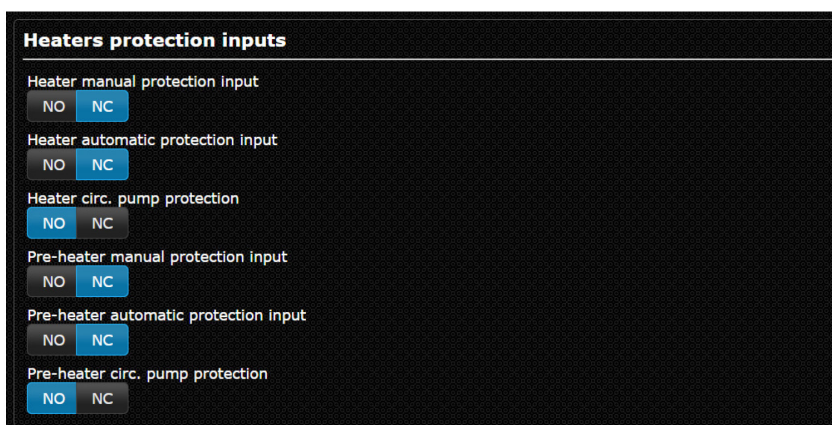
- Service password 4444;
- Service > Heaters > Heater and pre-heater position;
- Select either the heater or pre-heater to be switched on the MiniMCB basic.



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

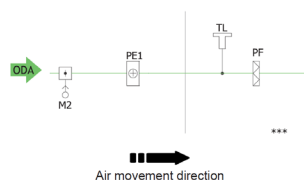
Set either a heater or pre-heater and the type of the heater or pre-heater as well as the steps to be performed in case of protection signal activation.

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

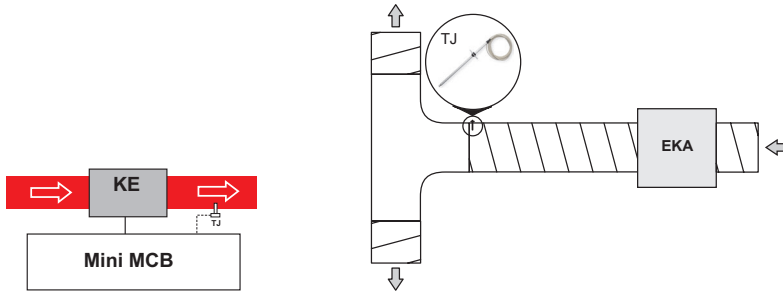
Installation based on air direction Air Damper M2 > Pre-Heater PE1 > Air Handling Unit.



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.

8.1.3. VERSION S300

SMARTY air handling units are able to control one heater or preheater coil at a time. When the preheater is used, one more temperature sensor has to be installed to the system. After connection, configuration has to be performed. For more information see section **"ACCESSORIES SETUP (VERSION S300)"**.

8.1.3.1. HEATER

In order to use a heating coil, following signals are required to be connected to the control board:

1. Electric heating coil command;
2. Heating coil overtemperature detector;
3. Heating coil position signal.

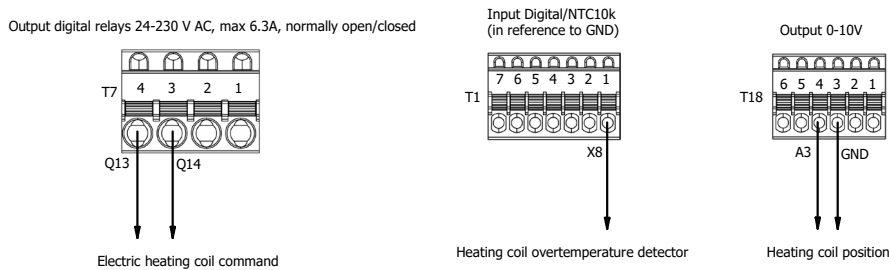


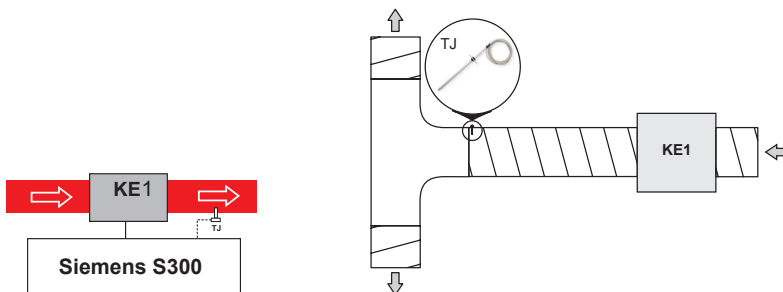
Figure 8.1.3.1.1 Signals for electrical heater



NOTE: Power supply for the heater is not shown.

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.

8.1.3.2. PREHEATER

In order to use a preheating coil, following signals are required to be connected to the control board:

1. Electric preheating coil command;
2. Air temperature after preheating coil;
3. Preheating coil overtemperature detector;
4. Preheating coil position signal.

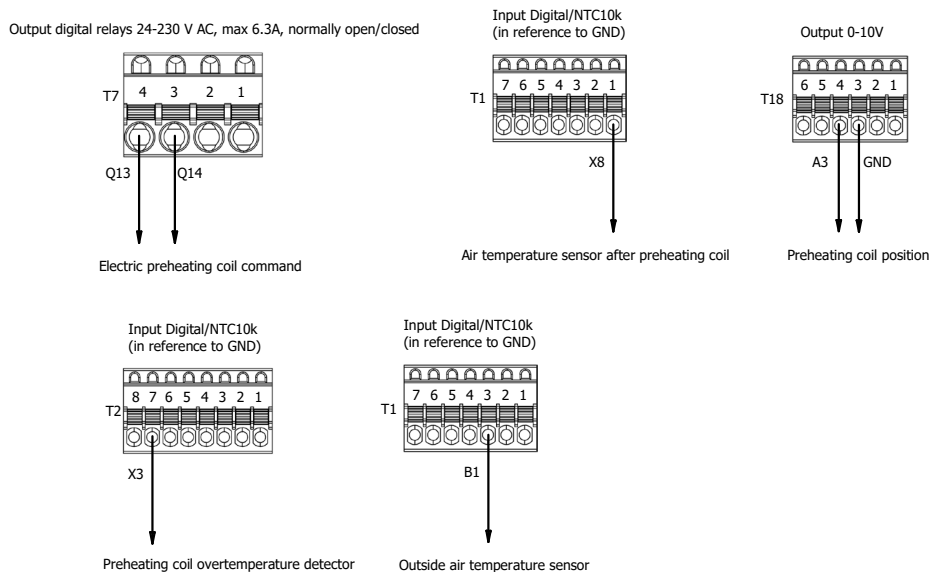


Figure 8.1.3.2.1 Signals for electrical preheater

Air temperature after preheater can be measured by TL sensor, which is already installed in AHU. For this purpose, its signal has to be switched to T1:1 (X8 analog input) from T1:3 (B1). This sensor then is called TP, see the piping and instrumentation diagram. Additionally, temperature sensor before preheater must be installed and connected to T1:3 (B1 analog input). It will become TL (Outside air temperature) sensor.

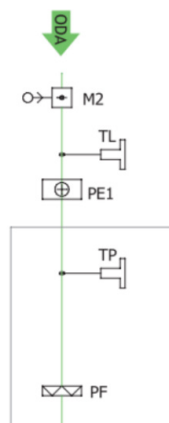
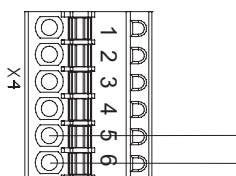


Figure 8.1.3.2.2 Temperature sensors when preheater is used

8.2. FIRE PROTECTION SIGNAL INPUT (FIRE PROTECTION INPUT (NC)) (VERSION 1.1 / 1.2)

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. FIRE PROTECTION SIGNAL INPUT (VERSION S300)

For fire safety function it is available to connect smoke detector to T3 connector by principle, shown in the figure below.

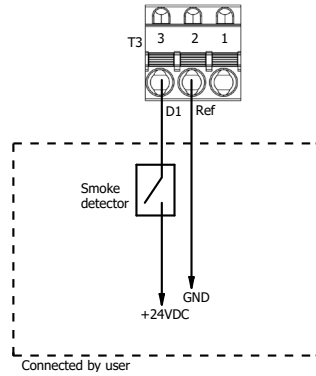


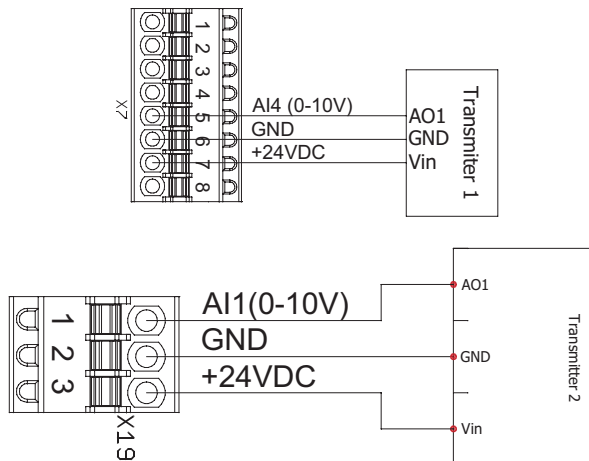
Figure 8.3.1 Connection of smoke detector

By default, D1 digital input is configured as Smoke detector input and set to NO, if needed NC contact type, then it must be reconfigured. See section "ACCESSORIES SETUP (VERSION S300)".

8.4. EXTERNAL CO₂/RH SENSORS (VERSION 1.1 / 1.2)

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

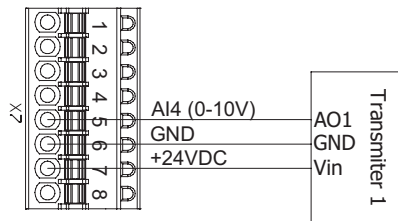
Sensors connection:



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

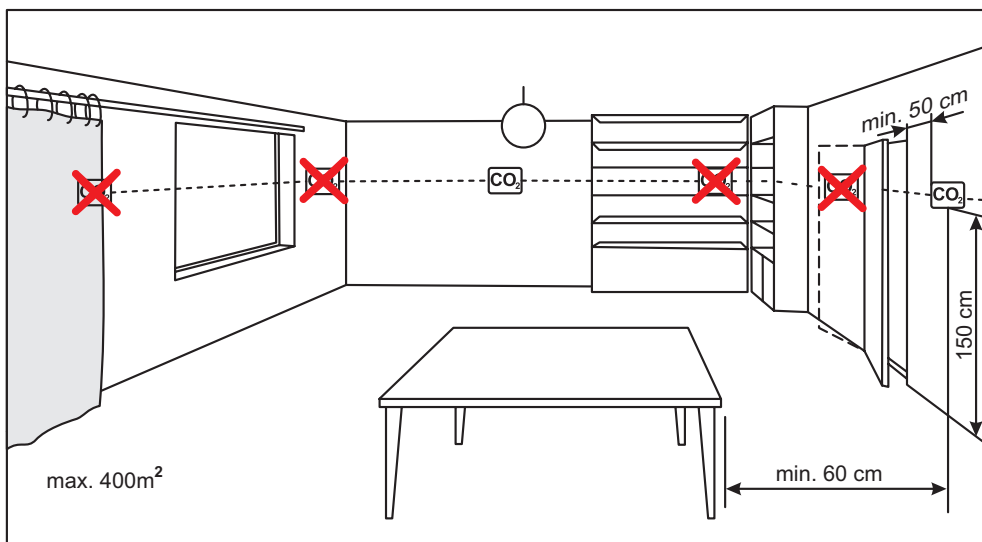
Smarty XP 1.2 / Smarty XV 1.2 units feature one connection for external CO₂ /RH (input 0-10VDC) sensors.

Sensors connection:



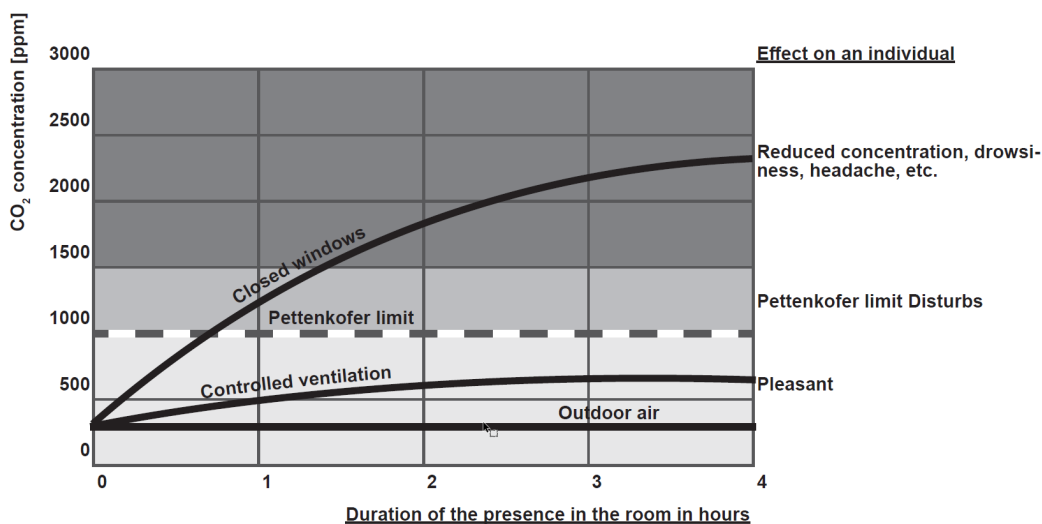
These sensors feature 3 functions: Supply RH, Extract RH and Extract CO₂.
 Supply RH transmitter shall be installed inside supply air duct.
 Extract RH and Extract CO₂ transmitters shall be installed inside extract air duct or room.

8.5. ROOM CO₂ TRANSMITTER INSTALLATION RECOMMENDATION



i 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.

8.6. CO₂ CONCENTRATION ACCORDING TO PETTENKOFER LIMIT

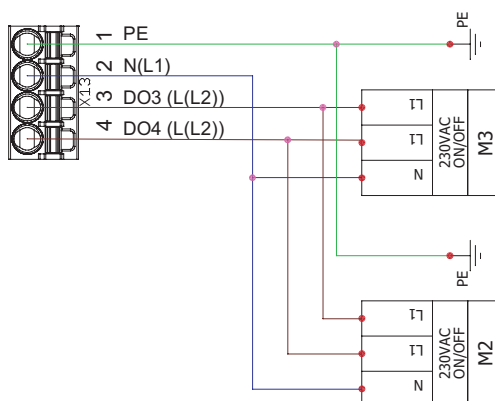


8.7. CONNECTION OF SUPPLY AND EXHAUST AIR DAMPERS (VERSION 1.1 / 1.2)

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.



8.8. OUTSIDE AIR DAMPERS (VERSION S300)

Outside air dampers can be used with Smarty products. Dampers should be controlled by On/Off or Spring-return actuators. Upon activation of output Q34 (T14:1), dampers shall open. Upon deactivation of output, dampers shall close. When activated, 230V voltage is applied to Q34 output. By default, damper control output is already activated in configuration.

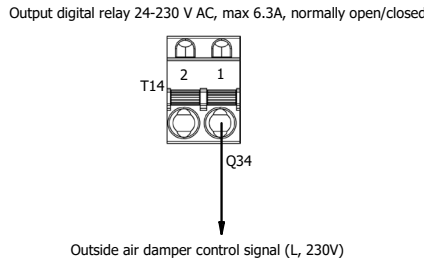


Figure 8.8.1 Connection for outside dampers



WARNING: High voltage on output.

8.9. CONNECTION OF REMOTE CONTROL PANEL, KNX ROOM SENSORS AND MODBUS (VERSION S300)

Air Handling unit can be controlled with remote control panel POS8. Remote controller connects with S300 controller via KNX PL-Link interface. T15:1;2 – terminals of AHU's controller for KNX devices. Same interface and controller terminals are used for QMX3 room sensors P30, P40 and P70 connection.

Air Handling unit can be connected to the Building Management System via BACnet IP or Modbus (RS485). BACnet is connected to the T5 connector (RJ45) of S300 controller which has default BACnet settings:
 BACnet Vendor Identifier: 7
 BACnet Vendor Name: Siemens Building Technologies
 Default BACnet/IP port: 47808 (0xBAC0)
 Default Device Object Instance number: 1



All S300 devices of the same BACnet system must have different device object instance numbers.

Modbus RTU connects to the T12:1;2;3 terminals (Modbus Slave Port1) of the S300 controller which has default RS485 port1 settings:

Baudrate: 19200 bps
 Data: 8 Bit
 Parity: Even
 Stop bit: 1
 Slave address: 1

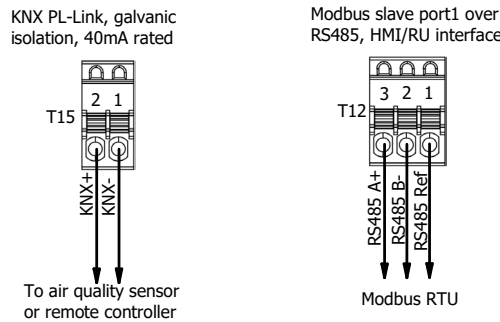


Figure 8.9.1 Air quality sensor, remote controller and BMS connection to the S300 controller

After connection of air quality sensor or remote controller, configuration has to be performed. For more information see section **"ACCESSORIES SETUP (VERSION S300)"**.

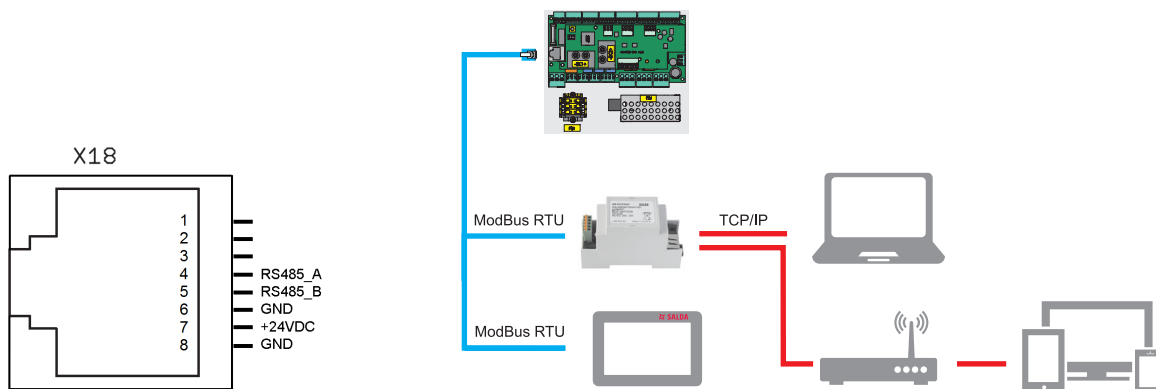
Modbus TCP/IP connection can only be implemented via additional device - MB-Gateway. Controller's Modbus Slave Port1 or Port2 can be used for Modbus TCP/IP connection (see section **"CONNECTION TO WIRING TERMINALS (VERSION S300)"** for location of the Port2). USB connector for S300 controller is used to connect WIFI stick and make controller as WIFI access point to control the unit with smartphone or tablet using ABT Go application. USB connector can also be used for S300 controller firmware updates.

8.10. CONNECTION OF REMOTE CONTROL PANEL OR MODBUS (VERSION 1.1 / 1.2)

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)



8.11. FIREPLACE PROTECTION/SYSTEM MODE SWITCH/RAPID VENTILATION SWITCH INPUT (VERSION S300)

T3 connector can be used for connecting one of the following function to D2 digital input:

1. Fireplace protection;
2. System mode switch;
3. Rapid ventilation switch.

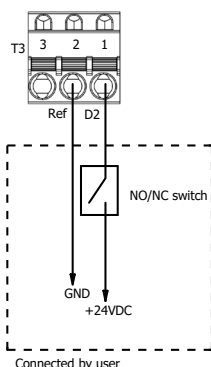


Figure 8.11.1 D2 digital input connection

After connection, configuration has to be performed. For more information see section **"ACCESSORIES SETUP (VERSION S300)"**.

8.12. OPERATION INDICATION OUTPUT (VERSION S300)

If indication about the status of the air handling unit is needed, it can be connected to dedicated Q24 signal on T7:1. When AHU is ON, indication output will provide voltage for indicating device.

After connection, configuration has to be performed. For more information see section **"ACCESSORIES SETUP (VERSION S300)"**.

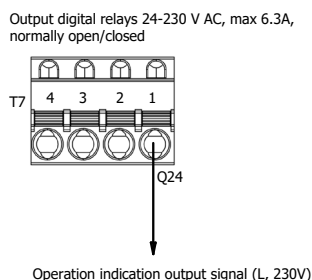


Figure 8.12.1 Operation indication output connection



WARNING: High voltage on output.

8.13. ALARM INDICATION OUTPUT (VERSION S300)

In the same way as operation indication, alarm indication signal can be provided by the control board. Indicator has to be connected to Y1 output on T19:1.

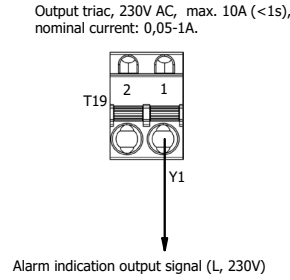


Figure 8.13.1 Alarm indication output connection



WARNING: High voltage on output.

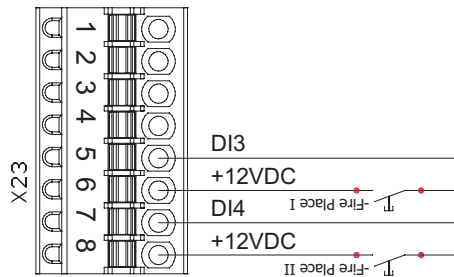


NOTE: lower than 0,05A loads can operate incorrectly.

8.14. FIRE PLACE PROTECTION (VERSION 1.1)

Wiring diagram.

Automation controller C zone, X23 connector.



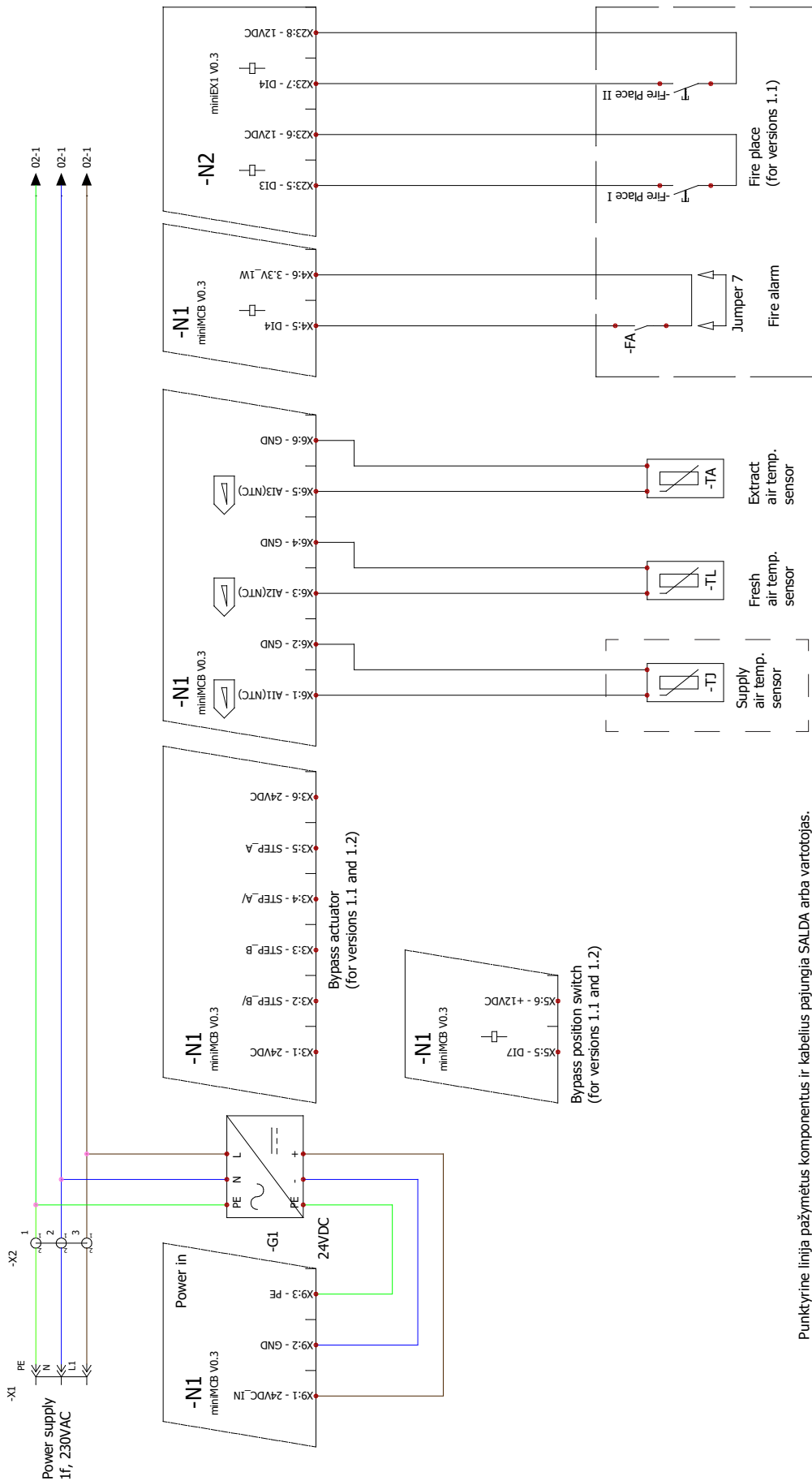
LED INDICATION

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		

8.15. RECOMMENDED SCHEMES FOR CONNECTION OF INTERNAL AND EXTERNAL COMPONENTS



*Only Smarty 1.1 versions have N2 module.



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

Figure 8.15.1 SMARTY XP 1.1/1.2; Smarty 2X V 1.1; Smarty 2X V / 3X V / 4X V F2 1.2 (219.1017.0.1.1-PS)

Electrical preheater
 DI5 - automatic protection
 DI6 - manual protection

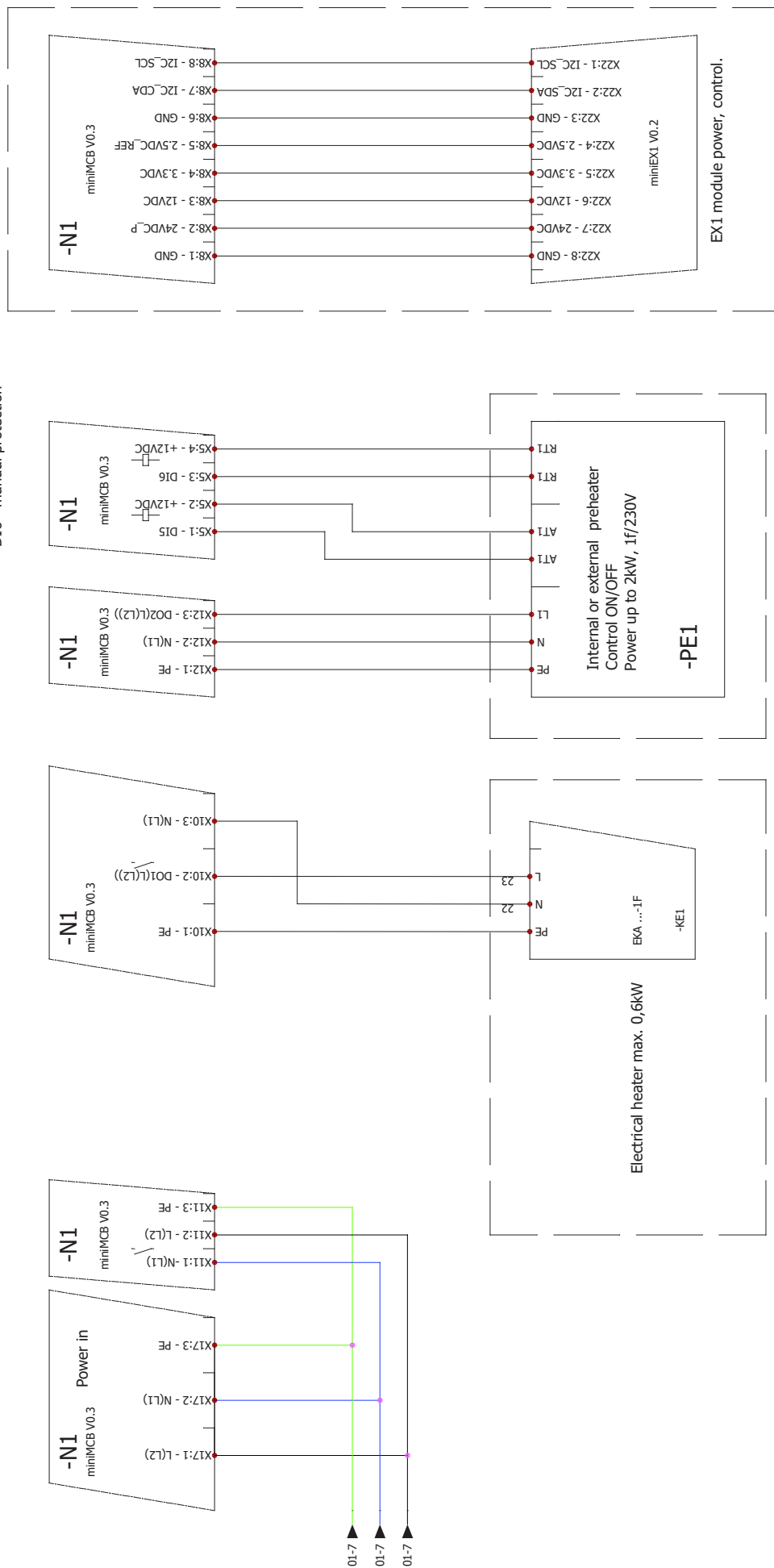
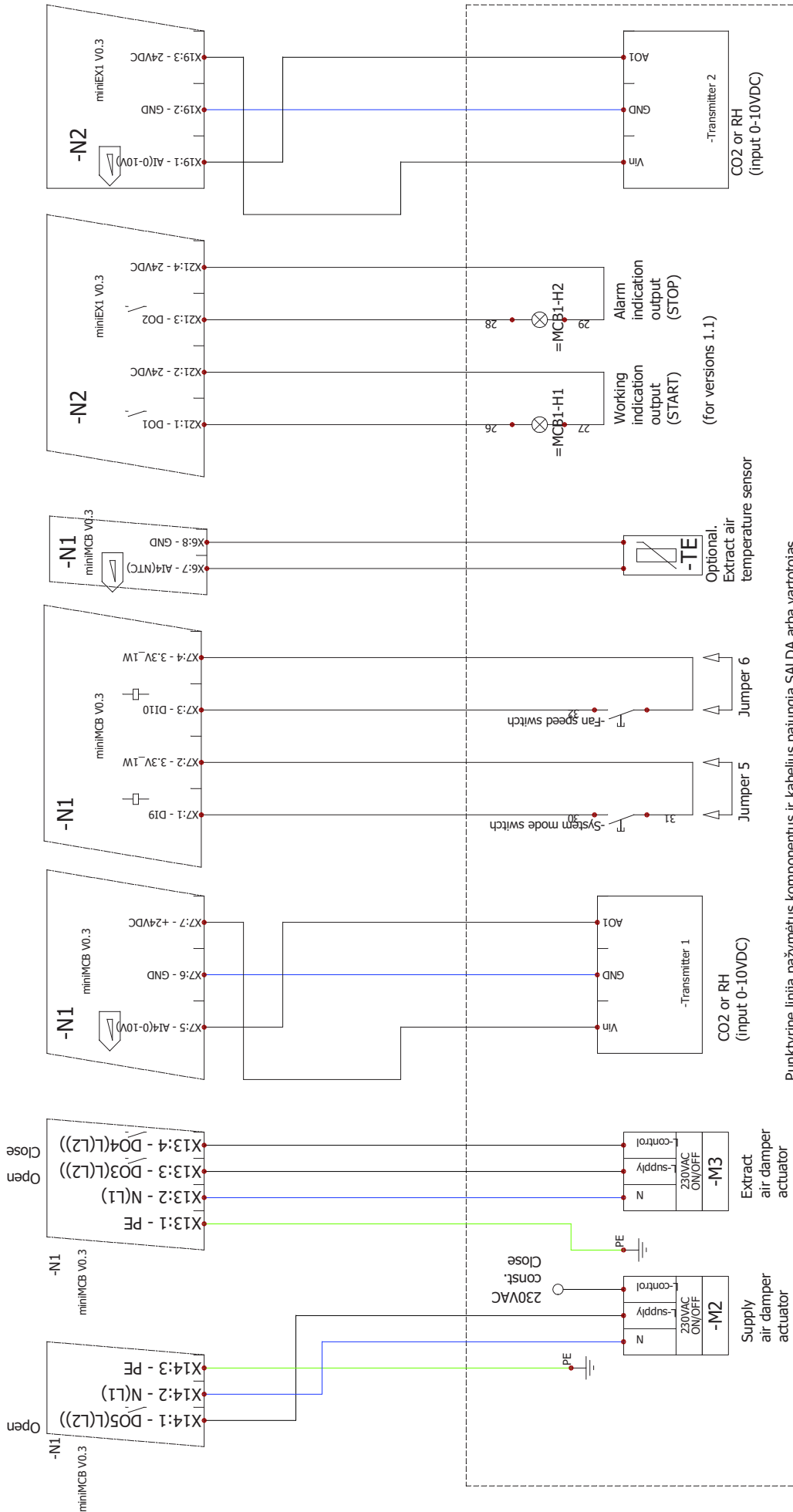


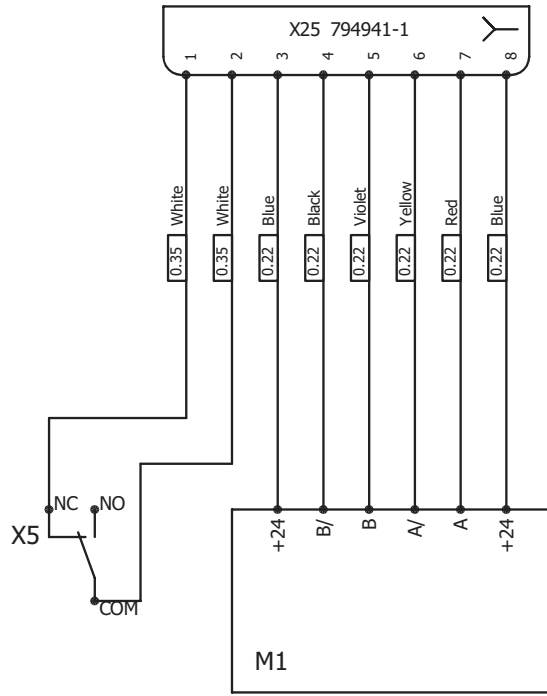
Figure 8.15.2 SMARTY XP 1.1/1.2; Smarty 2X V 1.1; Smarty 2X V / 3X V / 4X V F2 1.2 (219.1017.0.1.2-PS)

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



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

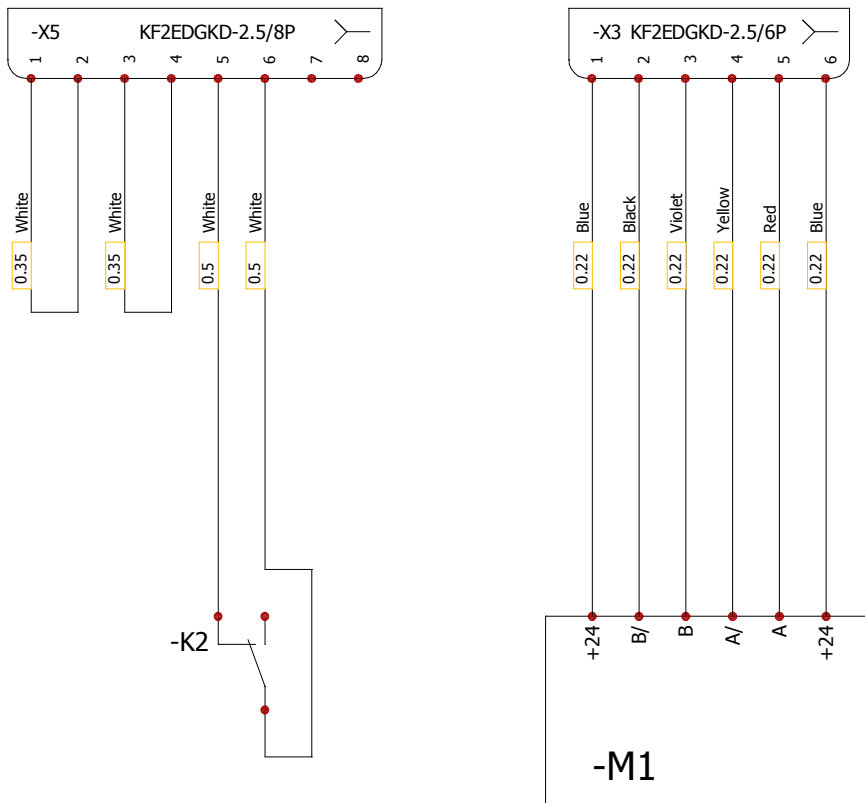
Figure 8.15.3 SMARTY XP 1.1/1.2, Smarty 2X V 1.1; Smarty 2X V / 3X V / 4X V F2 1.2 (219.1017.0.1.3-PS)



Bypass position switch

Bypass actuator motor

Figure 8.15.4 Bypass (SMARTY ZP3XV-0k)



Bypass position switch

Bypass actuator

Figure 8.15.5 Bypass wiring (version 1.1 / 1.2) (221.1055.0.1.0-PS)

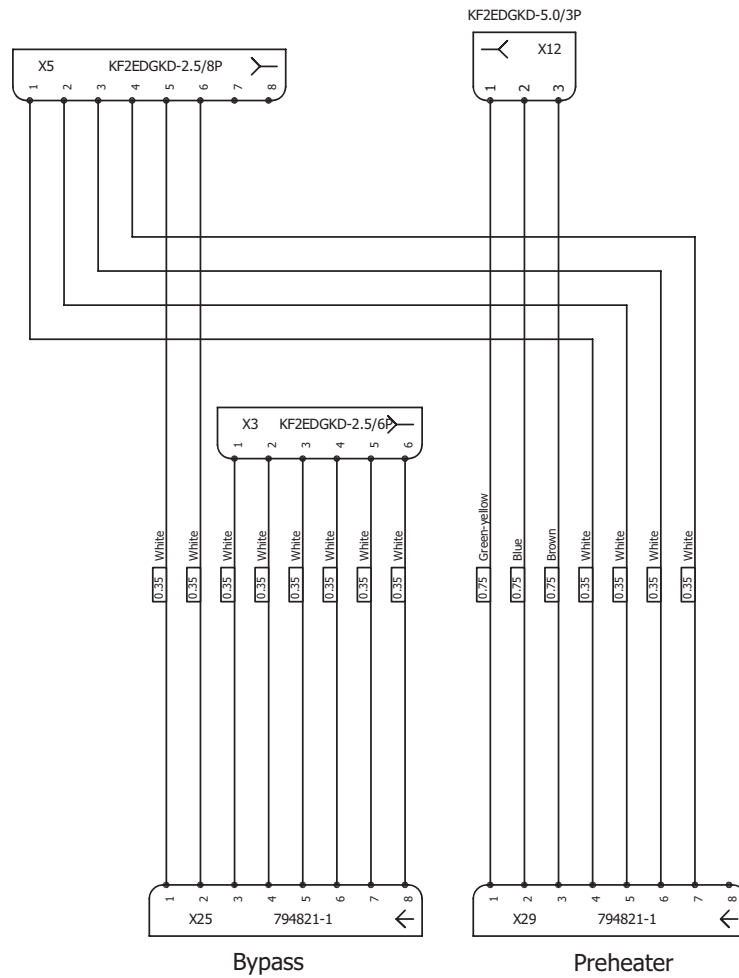


Figure 8.15.6 Preheater, Bypass wiring (Smarty 3XV-PE-0k)

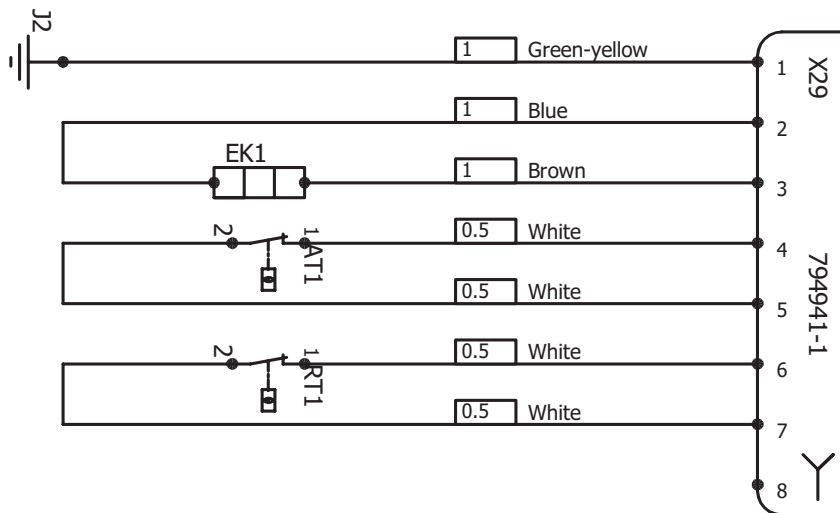


Figure 8.15.7 Preheater (SP35)

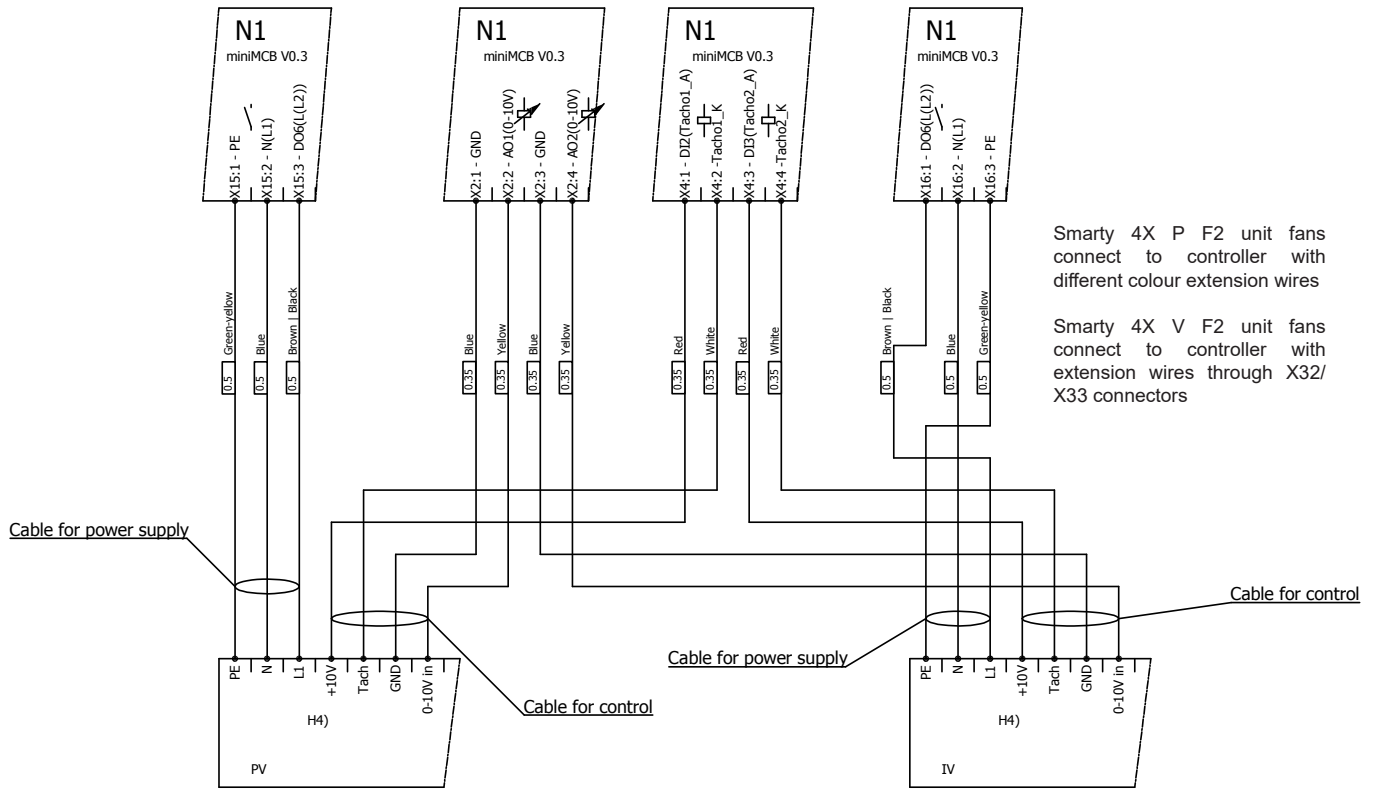


Figure 8.15.8 Fans (version 1.1 / 1.2) (MiniMCB)

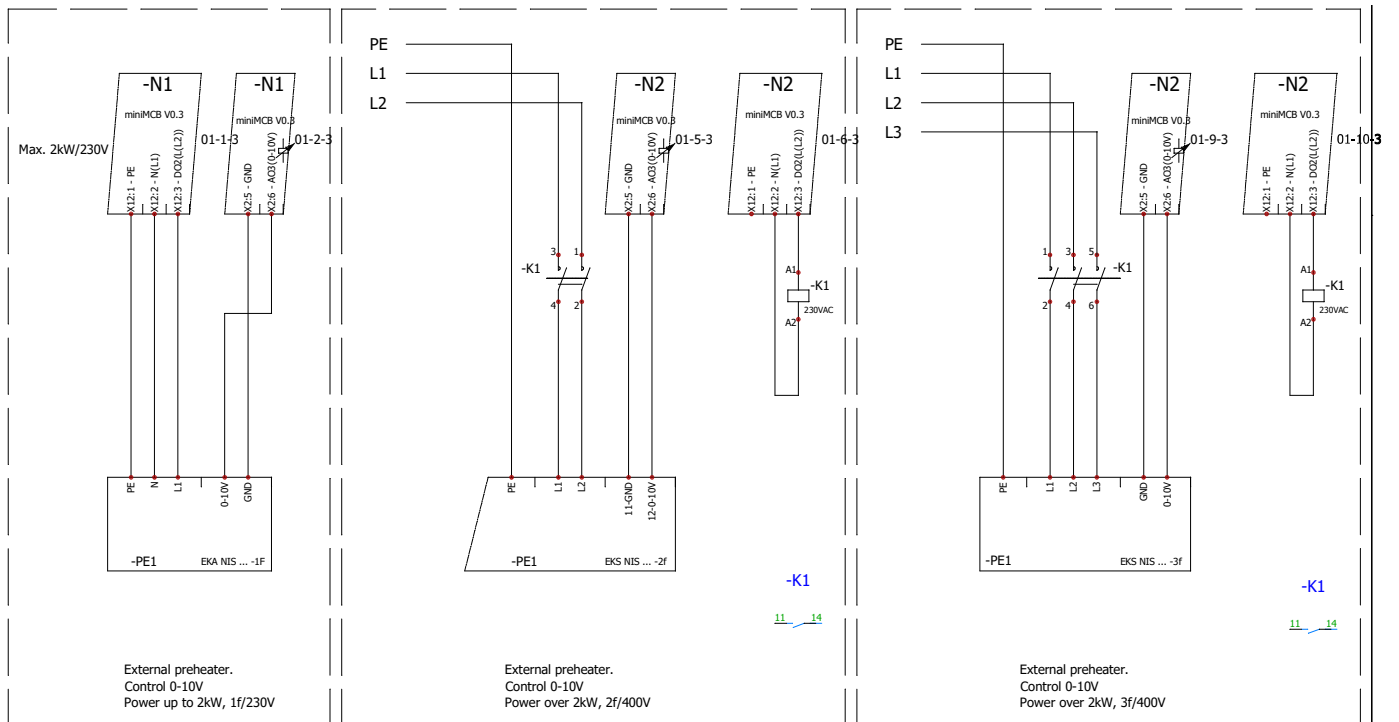
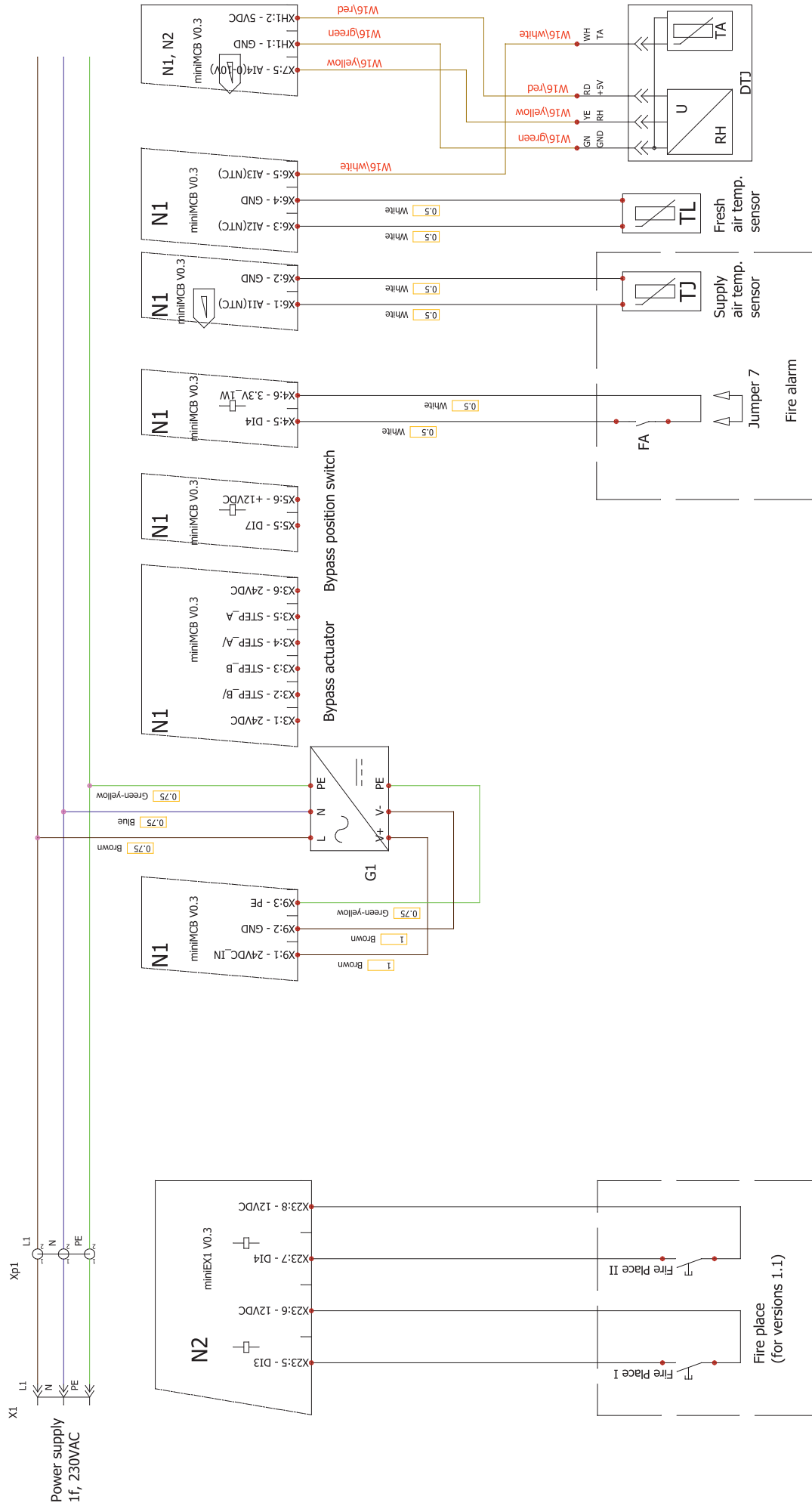


Figure 8.15.9 External preheater (version 1.1 / 1.2) (SP45)



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

Figure 8.15.10 Smarty 3X V / 4X V F2 1.1 (219.1349.0.1.1-PS)

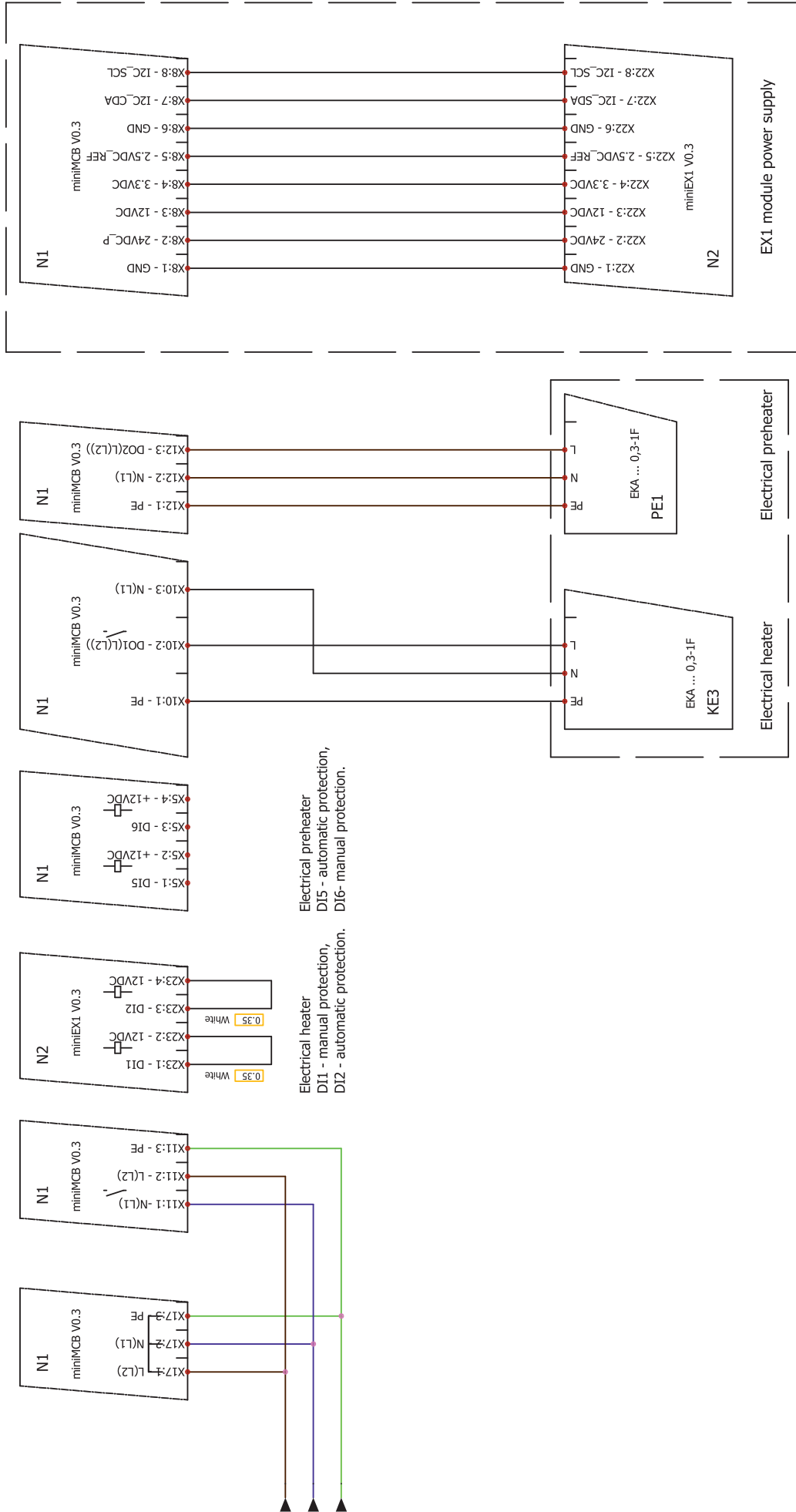
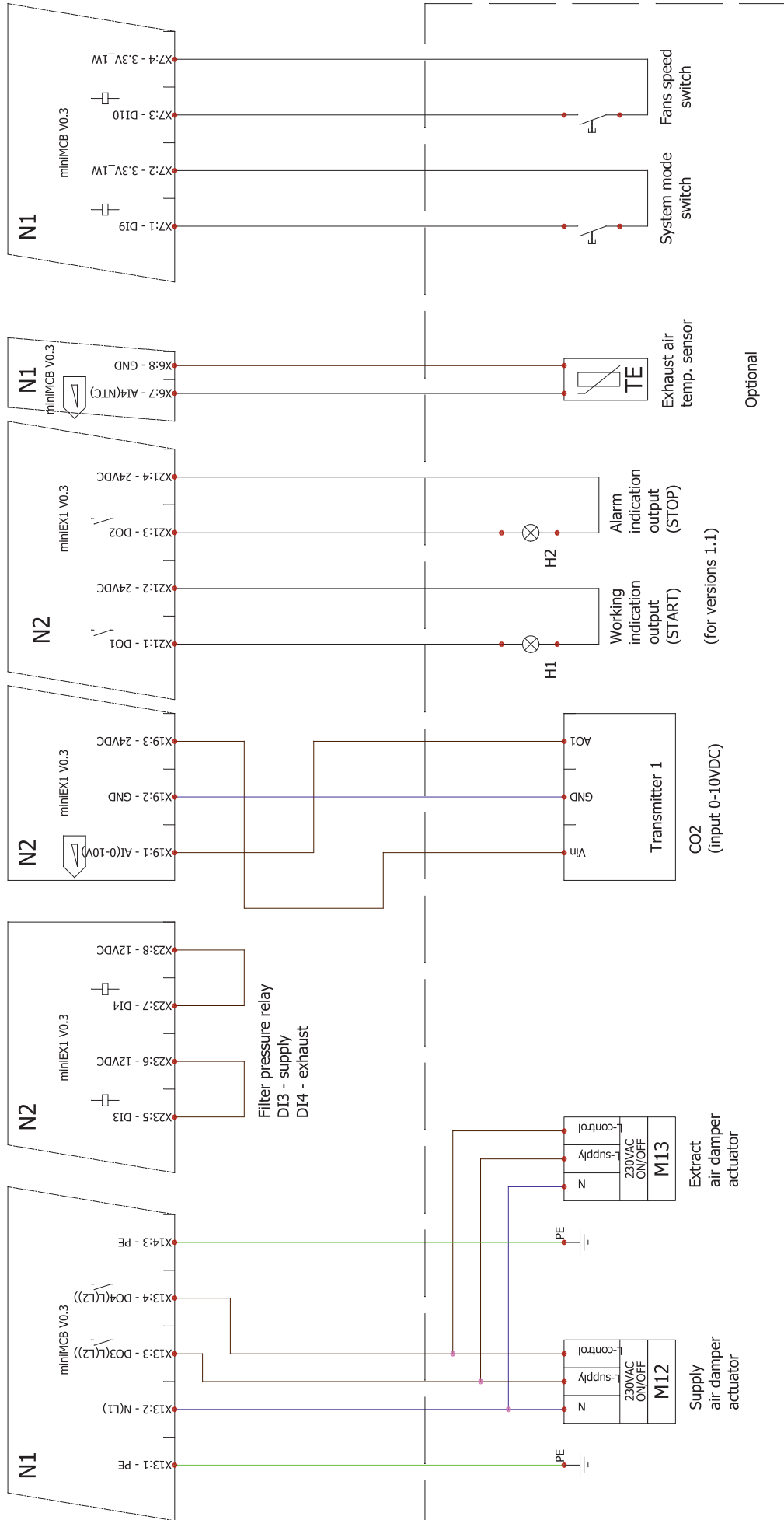


Figure 8.15.11 Smarty 3X V / 4X V F2 1.1 (219.1349.0.1.2-PS)

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 8.15.12 Smarty 3X V / 4X V F2 1.1 (219.1349.0.1.3-PS)

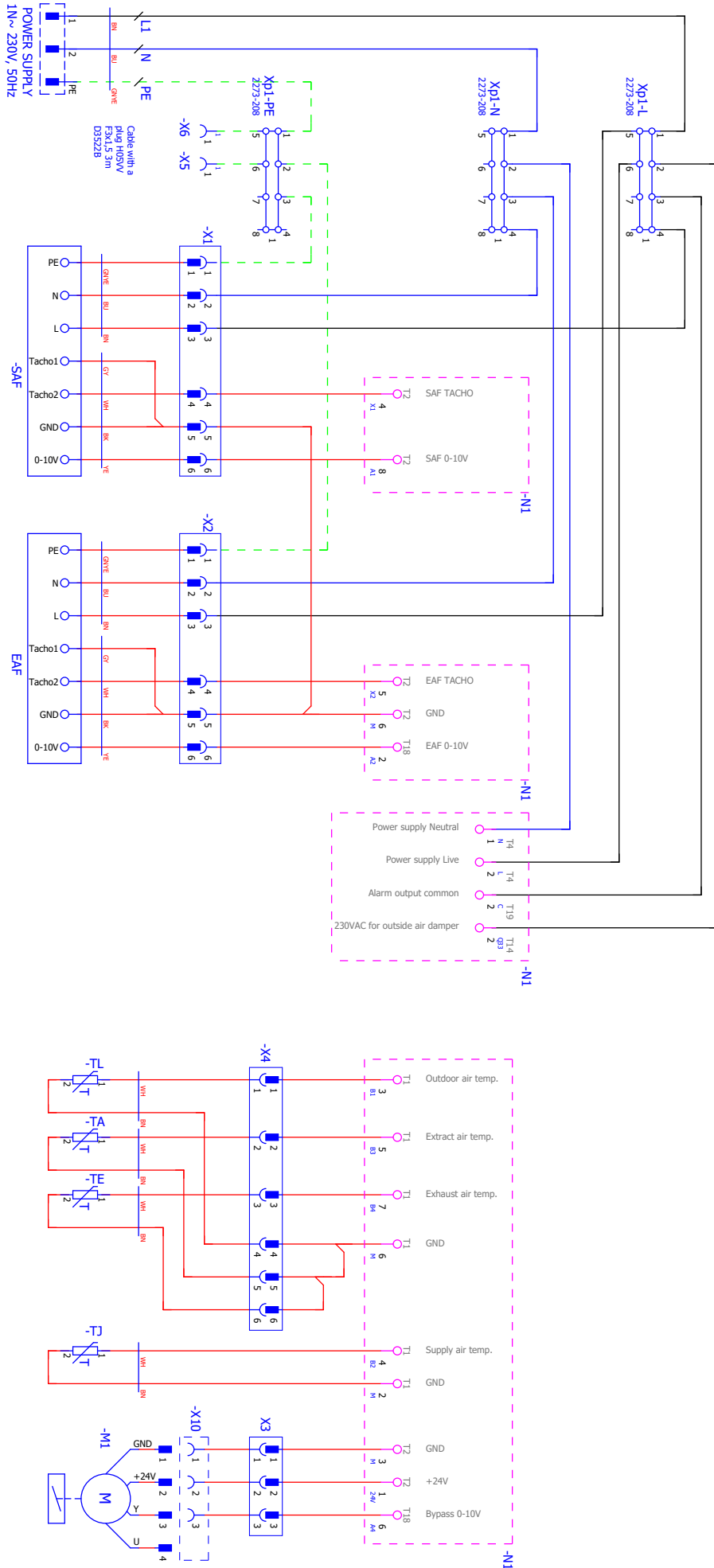


Figure 8.15.13 Smarty 3X V S300 (only for units AHU002808, AHU003255)

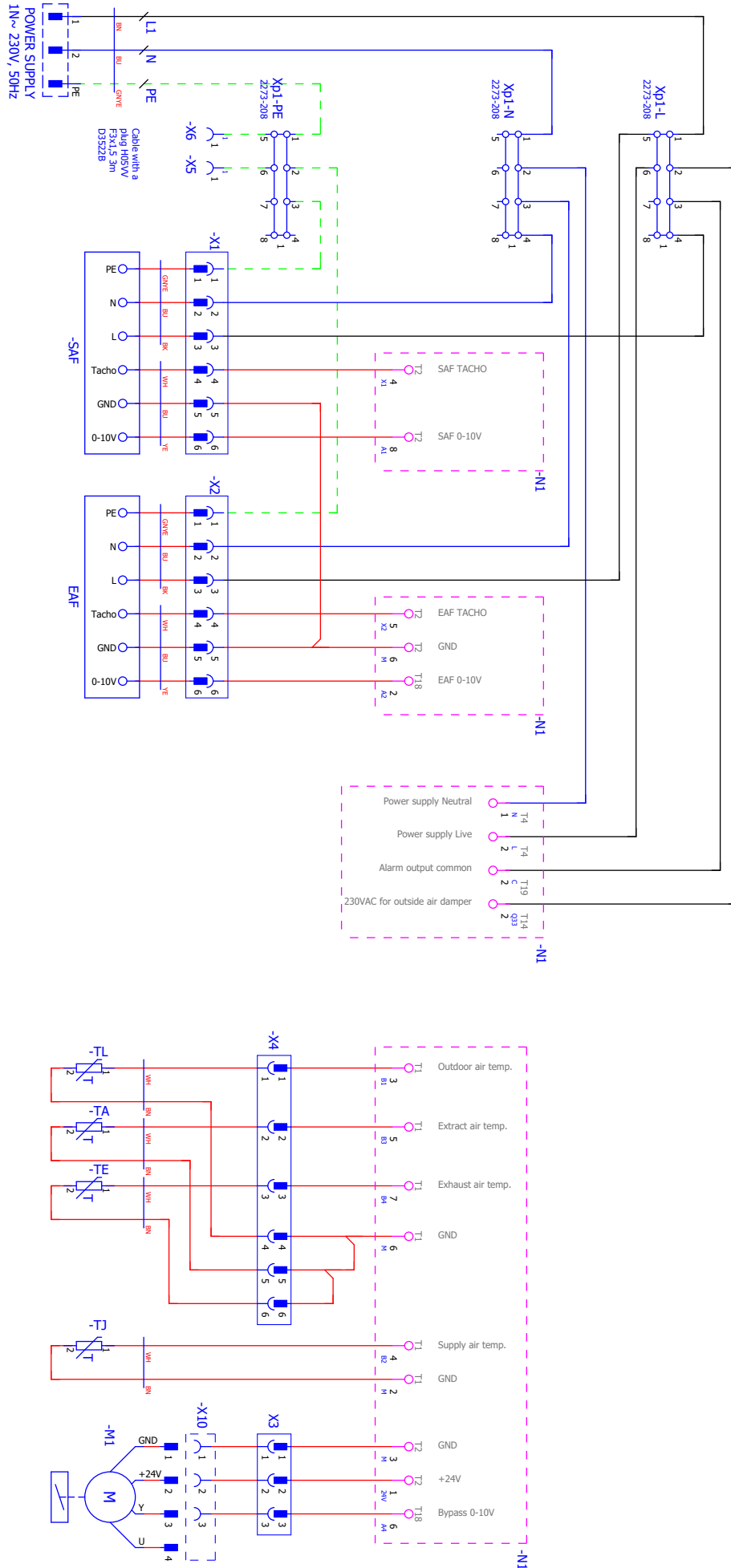


Figure 8.15.14 Smarty 2X V / 3X V S300

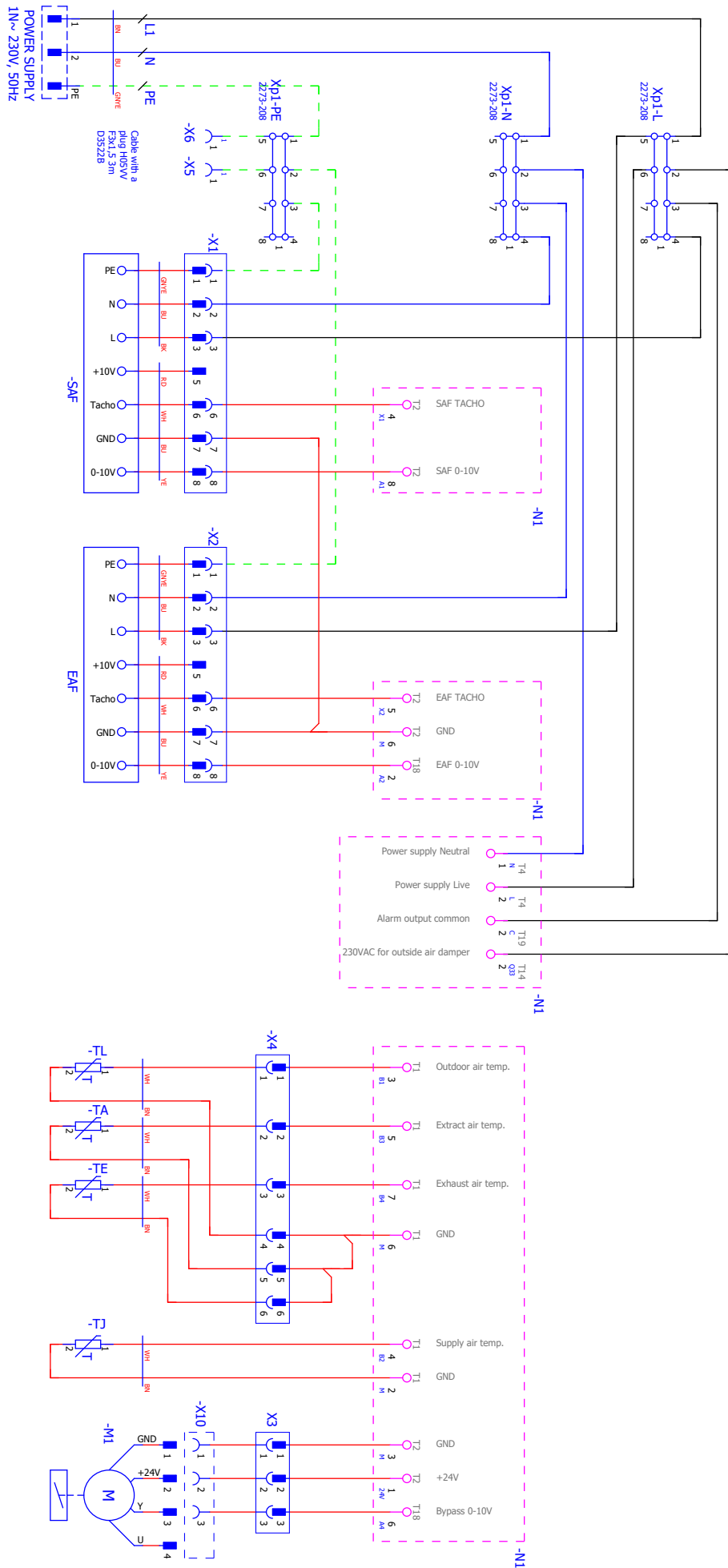


Figure 8.15.15 Smarty 4X V S300

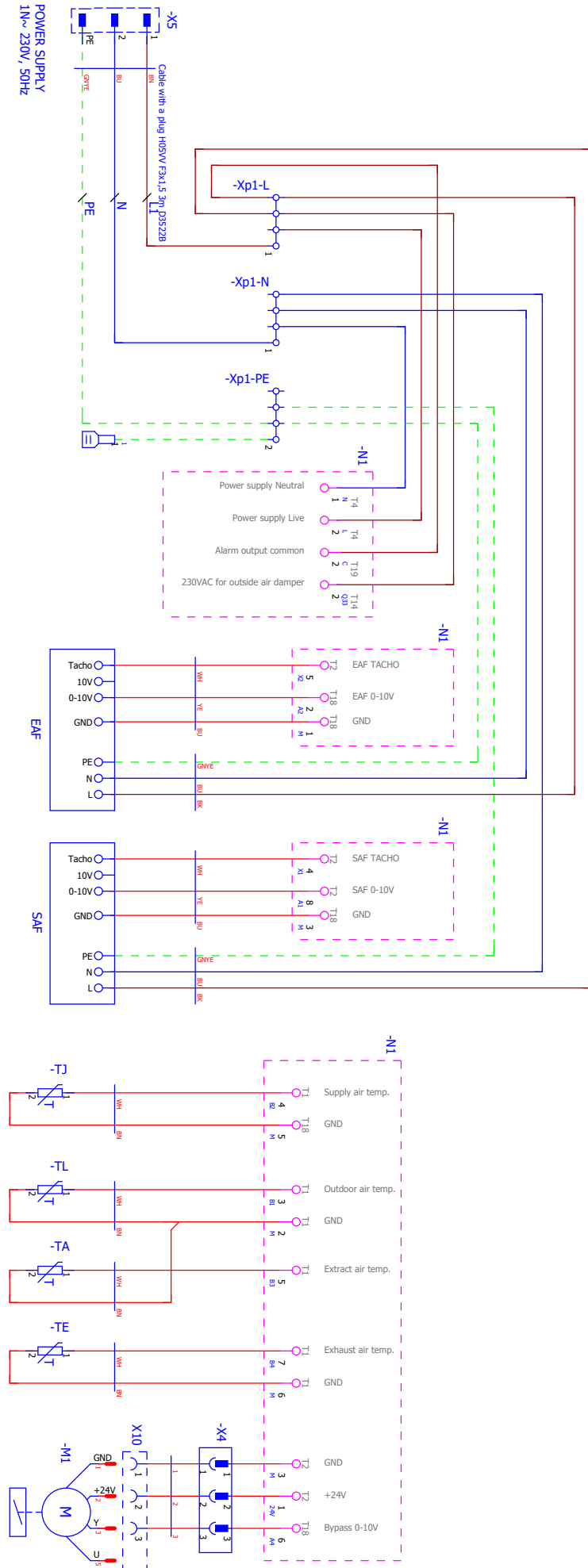


Figure 8.15.16 Smarty 2X P / 3X P S300

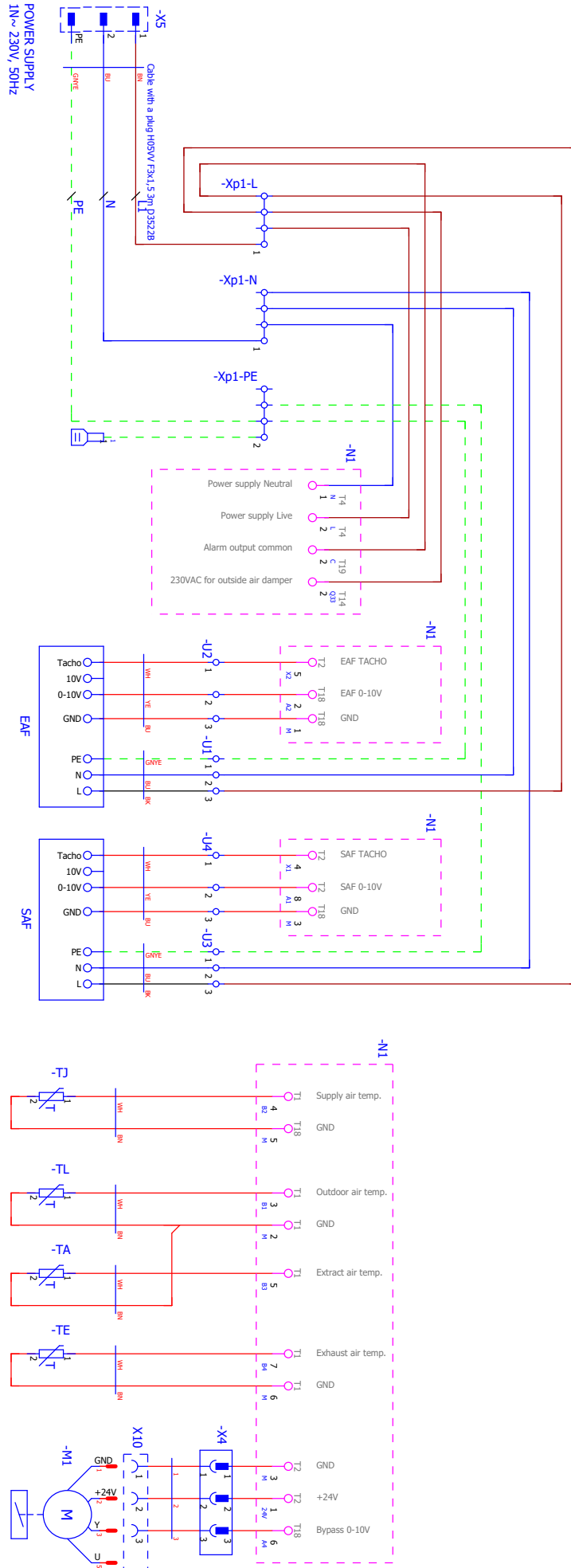


Figure 8.15.17 Smarty 4X P S300

9. CONNECTION TO WIRING TERMINALS (VERSION S300)

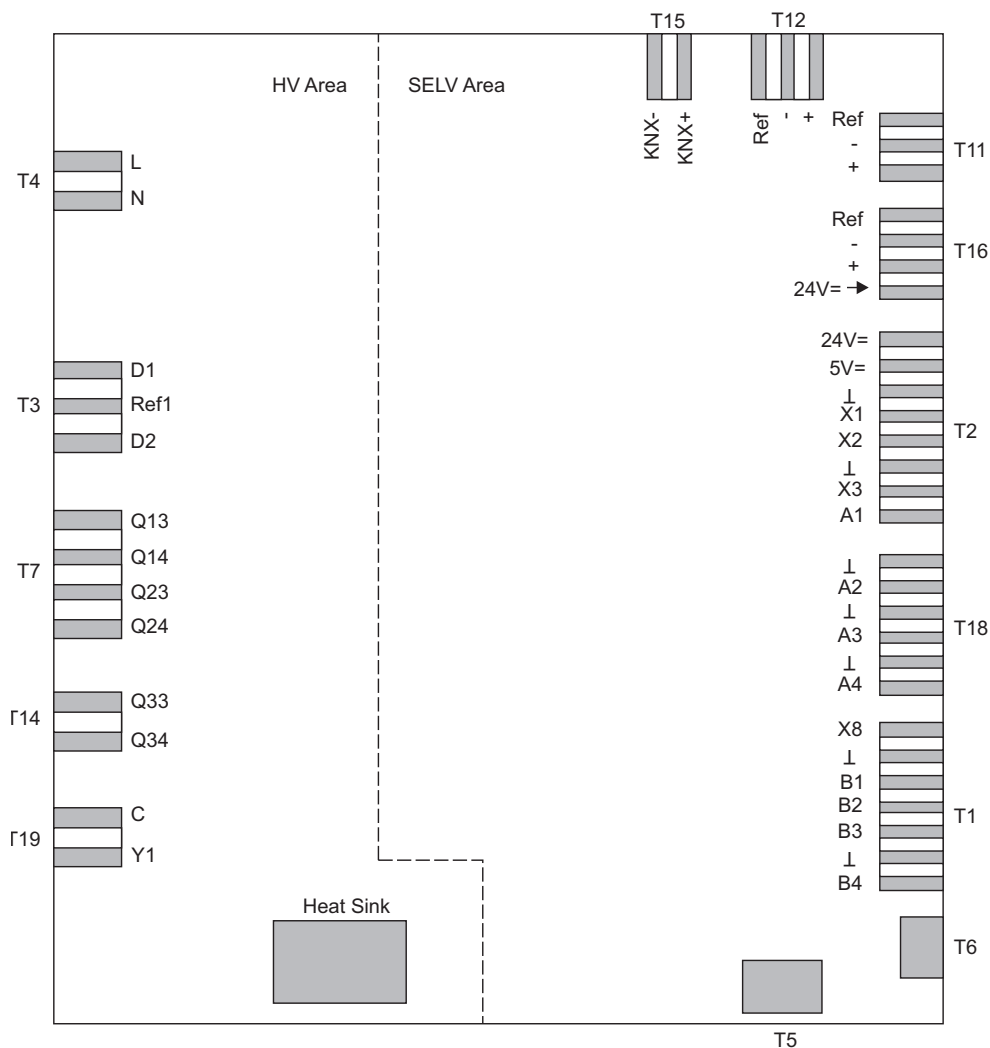


Figure 9.1 S300 controller

10. ACCESSORIES SETUP (VERSION S300)

Some accessories or functions of connected external components must be additionally configured to work properly in the Air Handling unit's system. Configuration is performed via ABT Go application which can be found on play.google.com/store/apps.

10.1. ACCESS OF CONFIGURATION PARAMETERS

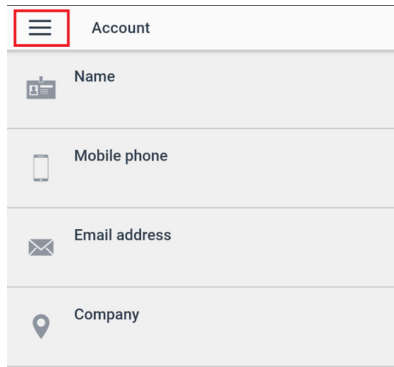
To access configuration parameters follow these steps:

- Connect Siemens WLAN stick (POL903.00/100) to the Air Handling unit's controller's USB connector T6 or connect Wi-Fi router to the Air Handling unit's controller's RJ45 connector T5 using UTP cable.
- Download and install ABT Go application on smartphone or tablet.

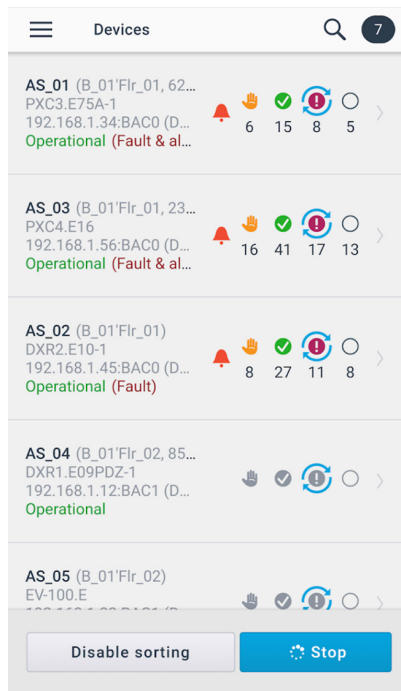


ABT Go

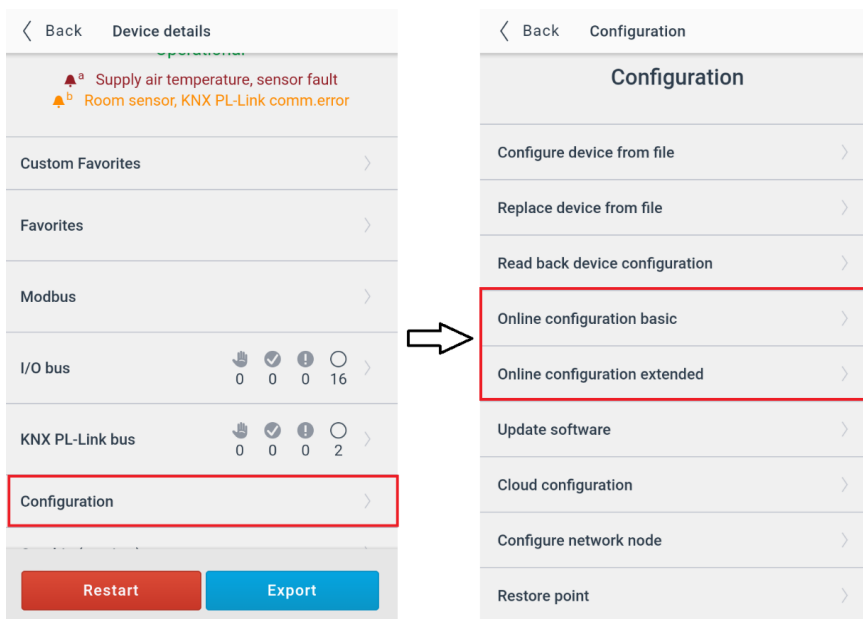
- Turn on the unit.
- Connect to the WLAN stick's or router's Wi-Fi network (default password of Siemens WLAN stick is *SIBPAdmin*).
- Start ABT Go application and open menu.



- Open **DEVICES** and select product you want to change configuration for.



- Log in to access the device (by default: user name is *Administrator*, password is *OneBT*). It is required to change password when you connect to the device for the first time.
- Go to **CONFIGURATION** window. All necessary parameters for setting up accessories are located in **ONLINE CONFIGURATION BASIC** and **ONLINE CONFIGURATION EXTENDED** locations.



10.2. HEATER

In order to control electrical heater, it has to be configured by following steps:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION BASIC** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Set **HEATING COIL** parameter to **ELECTRIC HEATING COIL 21Y**.
- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation, press **DONE**.
- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **Q1** as **ELECTRIC HEATING COIL COMMAND**, **X8** as **HEATING COIL OVERTEMPERATURE DETECTOR** and **A3** as **HEATING COIL ELECTRIC POSITION**.
- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation press **DONE**.

10.3. PREHEATER

In order to control electrical preheater, which has been connected as required in section **"8.1.3.2. PREHEATER"**, it has to be configured by following steps:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION BASIC** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Set **PREHEATING COIL** parameter to **ELECTRIC PREHEATING COIL 21Y**.
- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation, press **DONE**.
- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **Q1** as **ELECTRIC PREHEATING COIL COMMAND**, **X8** as **SUPPLY AIR TEMP. AFTER PREHEATING COIL**, **B1** as **OUTSIDE AIR TEMPERATURE**, **A3** as **PREHEATING COIL ELECTRIC POSITION** and **X3** as **PREHEATING COIL OVERTEMPERATURE DETECTOR**.
- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation press **DONE**.

10.4. SMOKE DETECTOR

By default, smoke detector input is activated and configured as **NO** input. In order to use a NC switch, input must be reconfigured to NC by following steps:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **D1** as **SMOKE EXTRACTION NORMALLY CLOSED**.

10.5. FIREPLACE PROTECTION, SYSTEM MODE SWITCH OR RAPID VENTILATION SWITCH INPUT

In order to configure **D2** input as Fire place protection:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **D2** as **FIREPLACE VENTILATION INPUT**.

System mode switch function can be used to enable one pre-selected system mode. System mode for this switch can be set by following steps:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **D2** as one of the selections available:
 1. **INPUT ROOM OPERATING MODE COMFORT**;
 2. **INPUT ROOM OPERATING MODE ECONOMY**;
 3. **INPUT ROOM OPERATING MODE UNOCCUPIED**;
 4. **INPUT ROOM OPERATING MODE PROTECTION**.

Rapid ventilation switch function can be used to boost fan speed. In order to configure **D2** input as Rapid ventilation switch:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Select **D2** as **RAPID VENTILATION INPUT**.

After **D2** input is configured press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation press **DONE**.

10.6. ALARM INDICATION OUTPUT

By default, indication output is configured to indicate if any type of unit's alarm (A or B) is triggered. It is possible to reconfigure output to indicate triggered only B type alarm, only:

- In **CONFIGURATION** window select **ONLINE CONFIGURATION EXTENDED** and press **OK** on warning. Wait for the device to switch in configuration mode.
- Change **Y1** with value **A - ALARM INDICATION OUTPUT**, **B - ALARM INDICATION OUTPUT** (depending on preferred indication function).
- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation press **DONE**.

10.7. REMOTE CONTROLLER AND KNX ROOM SENSORS

- In **CONFIGURATION** window select **ONLINE CONFIGURATION BASIC** and press **OK** on warning. Wait for the device to switch in configuration mode.

To configure remote controller:

- Set **SELECTION FOR ROOM OPERATOR UNIT POS8** parameter with value **POS8.4420** or **POS8.4440** (depending on remote controller type).

To configure QMX3.P30 room sensor:

- Set **SELECTION FOR ROOM SENSOR QMX3.P30** as **ACTIVE**.

To configure QMX3.P40 room sensor:

- Set **SELECTION FOR ROOM SENSOR QMX3.P40** as **ACTIVE**.

To configure QMX3.P70 room sensor:

- Set **SELECTION FOR ROOM SENSOR QMX3.P70** as **ACTIVE**.

- Press **APPLY – RESTART DEVICE** button and wait for configuration to be applied. After confirmation of successful device activation, press **DONE**.

11. OPERATING THE UNIT

The air handling unit can be controlled via POS8 remote control panel or ABT Go application. The unit have three different control modes:

- **AUTO** – operating modes are controlled via time switch program which changes between operating modes. Time switch program can be set by user.
- **MANUAL** – operating modes are switched manually by user.
- **TEMPORARY** – control mode used for special operating modes (Fan boost, Fire place). These operating modes can be activated for a limited, configurable time.

Four different operating modes can be selected when unit is in **MANUAL** control mode:

- **COMFORT** – used when building is occupied and the system operates to the needs of the user.
- **ECONOMY** – used when the building is occupied but the system operates saving energy.
- **UNOCCUPIED** – used when building is unoccupied and only with the needed most essential settings of the system.
- **PROTECTION** – this mode switches the system into off where the fans no longer run.



More advanced details of operating and control modes can be found in Air Handling unit's controller (S300) manual, section "APPLICATION FUNCTIONALITIES". Follow the link on the last page of this document.



If the unit is going to be started for the first time be aware to follow instructions on section "OPERATIONS PRIOR FIRST START".

12. 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.

13. ECODESIGN DATA TABLE

Climate zone	SMARTY						
		2X P 1.1 / 2X P 1.1 1KW PH	2X P 1.1 E / 2X P 1.1 E 1KW PH	2X P 1.2 / 2X P 1.2 1KW PH	2X P 1.2 E / 2X P 1.2 E 1KW PH	2X P S300	2X P S300 E
Average	Specific energy consumption (SEC) [kWh/m ² a]	-40,5	-40,4	-36,3	-36,2	-36	-34,5
	SEC Class	A	A	A	A	A	A
	AEC [kWh/a]	218	218	341	341	341	346
	AHS [kWh/a]	4531	4518	4417	4401	4386	4243
Cold	Specific energy consumption (SEC) [kWh/m ² a]	-78,5	-78,2	-73,2	-72,9	-72,6	-69,7
	SEC Class	A+	A+	A+	A+	A+	A+
	AEC [kWh/a]	755	755	878	878	878	883
	AHS [kWh/a]	8864	8839	8641	8609	8580	8299
Warm	Specific energy consumption (SEC) [kWh/m ² a]	-16,2	-16,1	-12,6	-12,5	-12,4	-11,7
	SEC Class	E	E	E	E	E	E
	AEC [kWh/a]	173	173	296	296	296	301
	AHS [kWh/a]	2049	2043	1997	1990	1983	1918
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable
Thermal efficiency [%]		82,2	81,6	82,2	81,6	81	75,7
Maximum airflow [m ³ /h]		219	219	219	219	219	219
Fan power at max airflow [W]		103	103	103	103	103	103
Casing sound power level (Lwa) [dB(A)]		49	49	49	49	49	49
Reference airflow [m ³ /s]		0,043	0,043	0,043	0,043	0,043	0,043
Reference pressure [Pa]		50	50	50	50	50	50
SPI [W/(m ³ /h)]		0,33	0,33	0,33	0,33	0,33	0,33
Control factor		0,65	0,65	0,85	0,85	0,85	0,85
Declared maximum internal leakage rates [%]		1,2	1,2	1,2	1,2	1,2	1,2
Declared maximum external leakage rates [%]		1,2	1,2	1,2	1,2	1,2	1,2
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer
ErP Compliance		2018	2018	2018	2018	2018	2018
Internet address for disassembly instructions		https://select.salda.it					

Climate zone			SMARTY					
			2X V 1.1	2X V 1.1 E	2X V 1.2	2X V 1.2 E	2X V S300	2X V S300 E
Average	Specific energy consumption (SEC)	[kWh/m ² a]	-42,2	-41,2	-38,7	-37,3	-38,7	-37,3
	SEC Class		A+	A	A	A	A	A
	AEC	[kWh/a]	205	203	319	315	319	315
	AHS	[kWh/a]	4668	4559	4596	4454	4596	4454
Cold	Specific energy consumption (SEC)	[kWh/m ² a]	-81,5	-79,4	-77,3	-74,6	-77,3	-74,6
	SEC Class		A+	A+	A+	A+	A+	A+
	AEC	[kWh/a]	742	740	856	852	856	852
	AHS	[kWh/a]	9131	8918	8991	8713	8991	8713
Warm	Specific energy consumption (SEC)	[kWh/m ² a]	-17,1	-16,7	-13,9	-13,4	-13,9	-13,4
	SEC Class		E	E	E	E	E	E
	AEC	[kWh/a]	160	158	274	270	274	270
	AHS	[kWh/a]	2111	2061	2078	2014	2078	2014
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable	
Thermal efficiency	[%]	88,8	83,5	88,8	83,5	88,8	83,5	
Maximum airflow	[m ³ /h]	182	182	182	182	182	182	
Fan power at max airflow	[W]	83	83	83	83	83	83	
Casing sound power level (Lwa)	[dB(A)]	52	51	52	51	52	51	
Reference airflow	[m ³ /s]	0,035	0,035	0,035	0,035	0,035	0,035	
Reference pressure	[Pa]	50	50	50	50	50	50	
SPI	[W/(m ³ /h)]	0,3	0,3	0,3	0,3	0,3	0,3	
Control factor		0,65	0,65	0,85	0,85	0,85	0,85	
Declared maximum internal leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Declared maximum external leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer	
ErP Compliance		2018	2018	2018	2018	2018	2018	
Internet address for disassembly instructions		https://select.salda.it						

Climate zone		SMARTY					
		3X P 1.1	3X P 1.1 E	3X P 1.2	3X P 1.2 E	3X P S300	3X P S300 E
Average	Specific energy consumption (SEC) [kWh/m ² a]	-41	-39,8	-37,2	-35,7	-38,2	-35,7
	SEC Class	A	A	A	A	A	A
	AEC [kWh/a]	192	192	297	296	297	296
	AHS [kWh/a]	4512	4393	4393	4237	4490	4237
Cold	Specific energy consumption (SEC) [kWh/m ² a]	-78,8	-76,5	-73,8	-70,8	-75,7	-70,8
	SEC Class	A+	A+	A+	A+	A+	A+
	AEC [kWh/a]	729	729	834	833	834	833
	AHS [kWh/a]	8827	8594	8593	8289	8784	8289
Warm	Specific energy consumption (SEC) [kWh/m ² a]	-16,7	-16,2	-13,6	-12,9	-14	-12,9
	SEC Class	E	E	E	E	E	E
	AEC [kWh/a]	147	147	252	251	252	251
	AHS [kWh/a]	2040	1987	1986	1916	2030	1916
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable
Thermal efficiency [%]		81,3	75,5	81,3	75,5	84,8	75,5
Maximum airflow [m ³ /h]		397	397	397	397	397	397
Fan power at max airflow [W]		182	182	182	182	182	182
Casing sound power level (Lwa) [dB(A)]		44	44	44	44	44	44
Reference airflow [m ³ /s]		0,077	0,077	0,077	0,077	0,077	0,077
Reference pressure [Pa]		50	50	50	50	50	50
SPI [W/(m ³ /h)]		0,28	0,28	0,28	0,28	0,28	0,28
Control factor		0,65	0,65	0,85	0,85	0,85	0,85
Declared maximum internal leakage rates [%]		1,2	1,2	1,2	1,2	1,2	1,2
Declared maximum external leakage rates [%]		1,2	1,2	1,2	1,2	1,2	1,2
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer
ErP Compliance		2018	2018	2018	2018	2018	2018
Internet address for disassembly instructions		https://select.salda.it					

Climate zone			SMARTY					
			3X V 1.1	3X V 1.1 E	3X V 1.2	3X V 1.2 E	3X V S300	3X V S300 E
Average	Specific energy consumption (SEC)	[kWh/m ² a]	-42,7	-41,3	-39,4	-37,6	-39,4	-37,6
	SEC Class		A+	A	A	A	A	A
	AEC	[kWh/a]	189	189	291	289	291	289
	AHS	[kWh/a]	4672	4532	4602	4418	4602	4418
Cold	Specific energy consumption (SEC)	[kWh/m ² a]	-82	-79,3	-78,1	-74,5	-78,1	-74,5
	SEC Class		A+	A+	A+	A+	A+	A+
	AEC	[kWh/a]	726	726	828	826	828	826
	AHS	[kWh/a]	9141	8866	9003	8644	9003	8644
Warm	Specific energy consumption (SEC)	[kWh/m ² a]	-17,5	-16,9	-14,7	-13,9	-14,7	-13,9
	SEC Class		E	E	E	E	E	E
	AEC	[kWh/a]	144	144	246	244	246	244
	AHS	[kWh/a]	2113	2049	2081	1998	2081	1998
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable	
Thermal efficiency	[%]	89	82,2	89	82,2	89	82,2	
Maximum airflow	[m ³ /h]	409	409	409	409	409	409	
Fan power at max airflow	[W]	177	177	177	177	177	177	
Casing sound power level (Lwa)	[dB(A)]	49	49	49	49	49	49	
Reference airflow	[m ³ /s]	0,08	0,08	0,08	0,08	0,08	0,08	
Reference pressure	[Pa]	50	50	50	50	50	50	
SPI	[W/(m ³ /h)]	0,27	0,27	0,27	0,27	0,27	0,27	
Control factor		0,65	0,65	0,85	0,85	0,85	0,85	
Declared maximum internal leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Declared maximum external leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer	
ErP Compliance		2018	2018	2018	2018	2018	2018	
Internet address for disassembly instructions		https://select.salda.it						

Climate zone		SMARTY						
		4X P F2 1.1	4X P 1.1 E	4X P F2 1.2	4X P 1.2 E	4X P S300	4X P S300 E	
Average	Specific energy consumption (SEC)	[kWh/m ² a]	-39,8	-37,9	-35,3	-32,8	-36,3	-32,8
	SEC Class		A	A	A	B	A	B
	AEC	[kWh/a]	224	224	351	352	351	352
	AHS	[kWh/a]	4476	4286	4345	4096	4440	4096
Cold	Specific energy consumption (SEC)	[kWh/m ² a]	-77,3	-73,5	-71,5	-66,6	-73,4	-66,6
	SEC Class		A+	A+	A+	A+	A+	A+
	AEC	[kWh/a]	761	761	888	889	888	889
	AHS	[kWh/a]	8755	8384	8500	8013	8686	8013
Warm	Specific energy consumption (SEC)	[kWh/m ² a]	-15,8	-14,9	-12	-10,9	-12,4	-10,9
	SEC Class		E	E	E	E	E	E
	AEC	[kWh/a]	179	179	306	307	306	307
	AHS	[kWh/a]	2024	1938	1965	1852	2008	1852
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable	
Thermal efficiency	[%]	79,5	70,3	79,5	70,3	83	70,3	
Maximum airflow	[m ³ /h]	573	573	573	573	573	573	
Fan power at max airflow	[W]	352	352	352	352	352	352	
Casing sound power level (Lwa)	[dB(A)]	52	52	52	52	52	52	
Reference airflow	[m ³ /s]	0,111	0,115	0,111	0,115	0,115	0,115	
Reference pressure	[Pa]	50	50	50	50	50	50	
SPI	[W/(m ³ /h)]	0,34	0,34	0,34	0,34	0,34	0,34	
Control factor		0,65	0,65	0,85	0,85	0,85	0,85	
Declared maximum internal leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Declared maximum external leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer	
ErP Compliance		2018	2018	2018	2018	2018	2018	
Internet address for disassembly instructions		https://select.salda.it						

Climate zone			SMARTY					
			4X V F2 1.1	4X V 1.1 E	4X V F2 1.2	4X V 1.2 E	4X V S300	4X V S300 E
Average	Specific energy consumption (SEC)	[kWh/m ² a]	-40,3	-39,4	-35,9	-34,7	-35,9	-34,7
	SEC Class		A	A	A	A	A	A
	AEC	[kWh/a]	234	233	368	366	368	366
	AHS	[kWh/a]	4550	4453	4443	4316	4443	4316
Cold	Specific energy consumption (SEC)	[kWh/m ² a]	-78,5	-76,6	-73	-70,6	-73	-70,6
	SEC Class		A+	A+	A+	A+	A+	A+
	AEC	[kWh/a]	771	770	905	903	905	903
	AHS	[kWh/a]	8902	8712	8691	8442	8691	8442
Warm	Specific energy consumption (SEC)	[kWh/m ² a]	-15,9	-15,5	-12	-11,5	-12	-11,5
	SEC Class		E	E	E	E	E	E
	AEC	[kWh/a]	189	188	323	321	323	321
	AHS	[kWh/a]	2058	2014	2009	1951	2009	1951
Topology		Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	
Recovery type		Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	Recuperative	
Type of drive (fan)		Variable	Variable	Variable	Variable	Variable	Variable	
Thermal efficiency	[%]	83,1	78,4	83,1	78,4	83,1	78,4	
Maximum airflow	[m ³ /h]	560	560	560	560	560	560	
Fan power at max airflow	[W]	349	349	349	349	349	349	
Casing sound power level (Lwa)	[dB(A)]	58	58	58	58	58	58	
Reference airflow	[m ³ /s]	0,109	0,109	0,109	0,109	0,109	0,109	
Reference pressure	[Pa]	50	50	50	50	50	50	
SPI	[W/(m ³ /h)]	0,36	0,36	0,36	0,36	0,36	0,36	
Control factor		0,65	0,65	0,85	0,85	0,85	0,85	
Declared maximum internal leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Declared maximum external leakage rates	[%]	1,2	1,2	1,2	1,2	1,2	1,2	
Visual filter warning		Timer	Timer	Timer	Timer	Timer	Timer	
ErP Compliance		2018	2018	2018	2018	2018	2018	
Internet address for disassembly instructions		https://select.salda.it						

14. 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:

LST EN 13141-7:2011 - 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.

LST EN ISO 12100:2011 - Safety of machinery - General principles for design - Risk assessment and risk reduction.

LST EN 60204-1:2018 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements.

LST EN 60335-1:2012 - Household and similar electrical appliances. Safety. Part 1: General requirements.

LST EN 60529:1999/A2:2014/AC:2019 - Degrees of protection provided by enclosures (IP code).

LST EN 61000-6-1:2007 - Electromagnetic compatibility (EMC). Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.

LST EN 61000-6-4:2007/A11:2011 - 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 2022-05-17



Giedrius Taujenis
 Product Manager

15. 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>

15.1. 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

AHU'S CONTROLLER (S300)



<https://select.salda.lt/file/siemens-climatix-s300en>

ROOM OPERATOR UNIT POS8



<https://select.salda.lt/file/siemens-room-operator-unit-pos8en>

DE MANUAL



<https://select.salda.lt/file/smarty-de>

DK MANUAL



<https://select.salda.lt/file/smarty-dk>

FR MANUAL



<https://select.salda.lt/file/smarty-fr>

IT MANUAL



<https://select.salda.lt/file/smarty-it>

LT MANUAL



<https://select.salda.lt/file/smarty-lt>

NL MANUAL



<https://select.salda.lt/file/smarty-nl>

PL MANUAL



<https://select.salda.lt/file/smarty-pl>

RU MANUAL



<https://select.salda.lt/file/smarty-ru>



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