

Automation upgrade

LTR-7 AC -> eAir

NOTE!

Fan rotation guards must be disabled in the new eAir settings.

Warning!

According to regulations, an ordinary electricity consumer is only allowed to perform some minor service tasks.

**According to Finnish regulations,
a list of the allowed tasks can be found at the Tukes home page (www.tukes.fi).**

Always make sure that the power supply is turned off before opening the service door.

Wait two minutes before beginning the maintenance work. The fans rotate for some time by themselves, and the heating element may be hot even if the power supply of the ventilation unit is switched off. Electrical housing may be opened only by a trained electrician.

Electrical installations must comply with local regulations.

**Continuously check and compare the electrical diagrams at the end
of this instruction as the upgrade progresses!**

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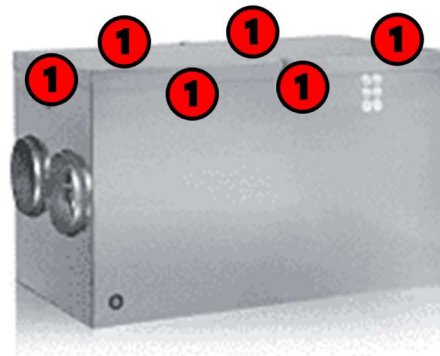
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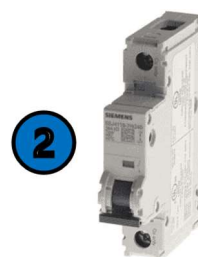
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Remove **the service door (1)** by releasing the locks.



Cut **the power to the unit (2)** (and other power supplies if available).



Remove **the cover to the electrical box (3)**.

NOTE! Ensure that no voltage is occurring in the electrical box before proceeding!



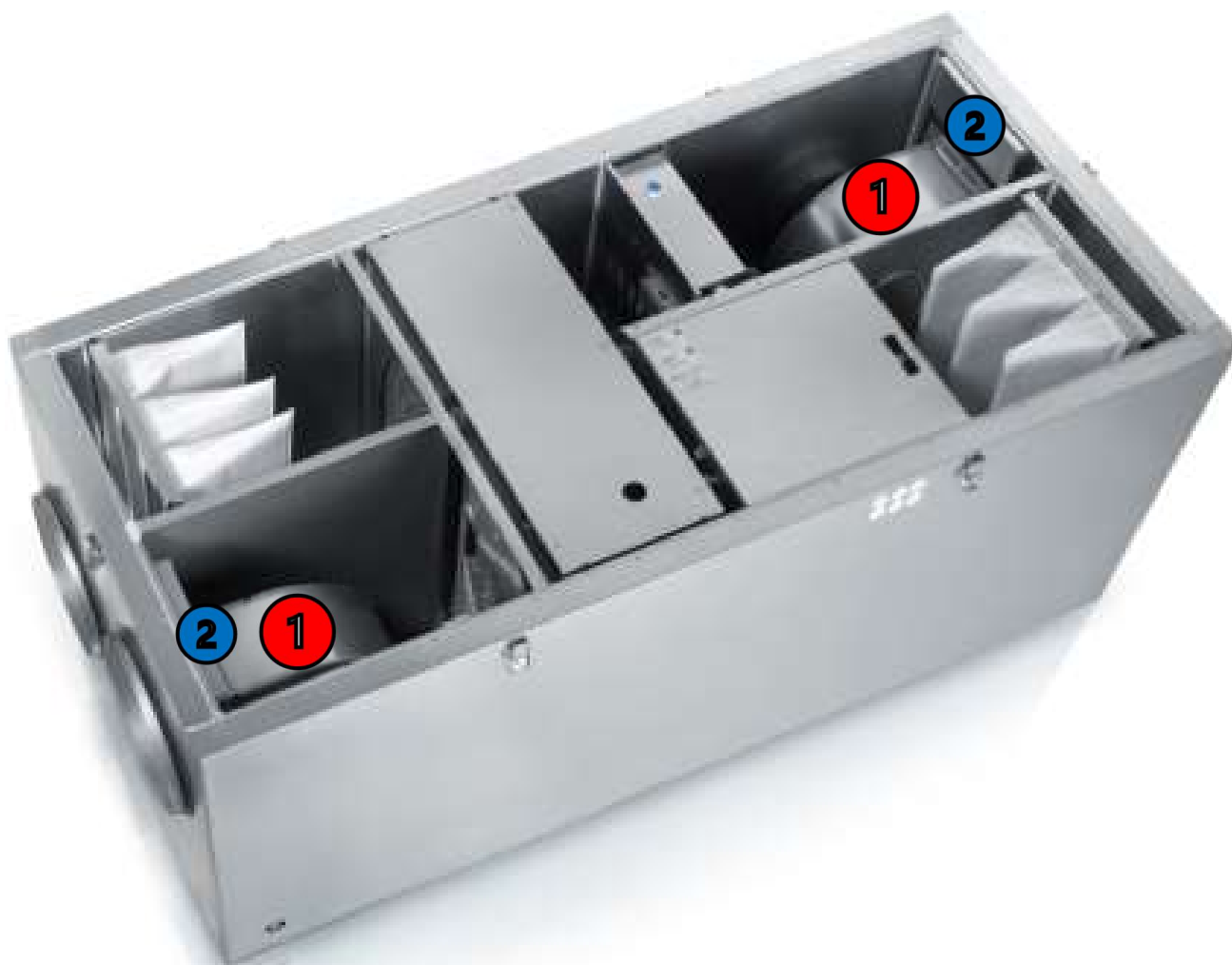


Remove **the filters (1)** by pulling.

Disconnect **the fan connectors (2)**.

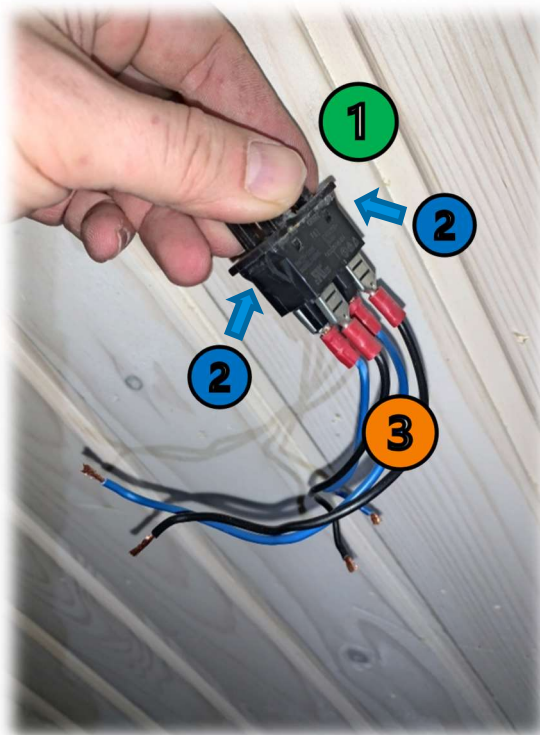
Disconnect **the HRW connector (3)**.

Remove **the HRW (4)** by pulling.

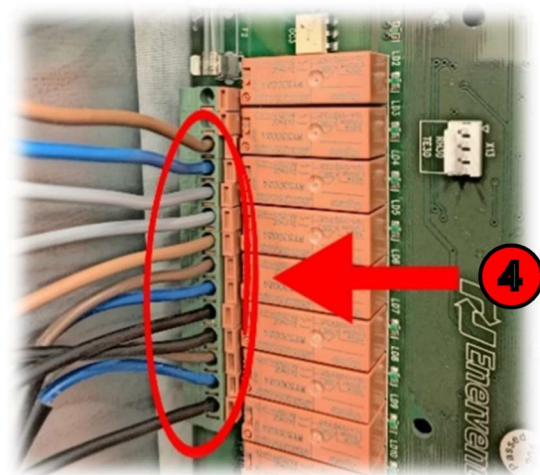


Remove **the fans (1)** by releasing **the fan rail locking parts (2)**.

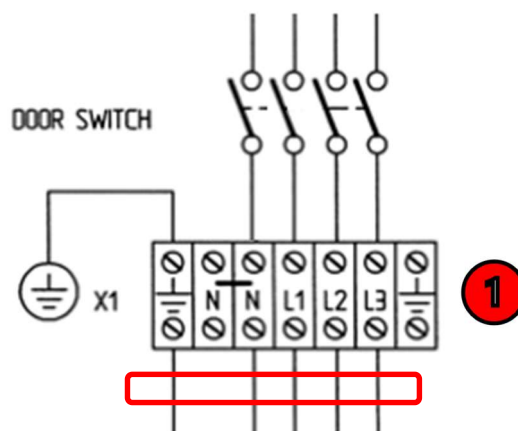
Remove **the main switches (1)** by pressing **the clips (2)**.
Disconnect **the wires (3)** from the switches.



Remove **the wires (4)** from the main board
by pressing the orange button next to the wire.



Disconnect the main power supply wires from **the terminals (1)**.



SUPPLY 10 A, 230 VAC
3x1,5s (ACW MODELS)

SUPPLY 3x16A A, 400 VAC
5x2,5s (ACE MODELS)

Disconnect **the ground wire (2)** from the main board and remove it.

If a water coil after heater is installed (ACW), the actuator is connected **here (3)**. Disconnect and remove the wires. The actuator can't be used anymore. Install the new actuator afterwards according to the electrical diagram (**page 39**).

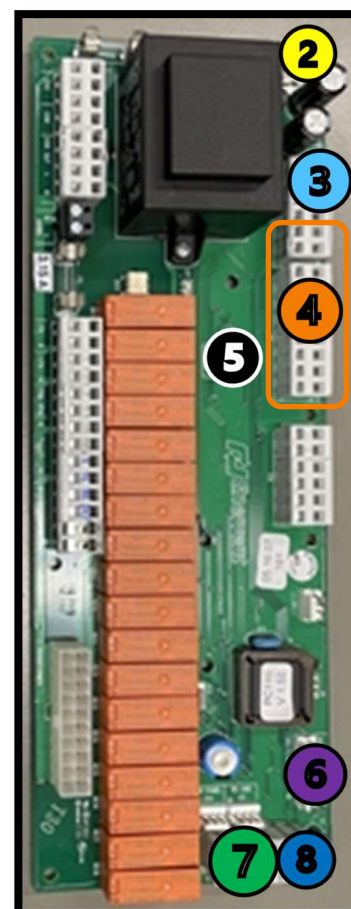
If there are wires connected **here (4)**, mark them according to the reading on the main board and disconnect.

Disconnect **the cable (5) and remove the extract air sensor (two screws) and reattach the two screws**.

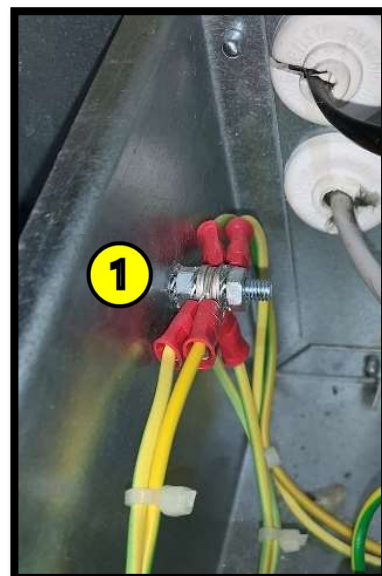
Disconnect **the sensors (6)**.

Disconnect **the wires (7)**. Don't remove this cable, it might be needed later.

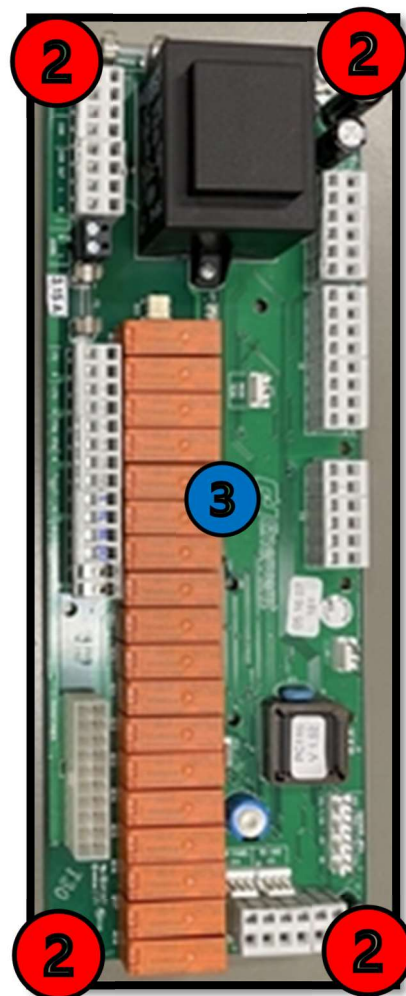
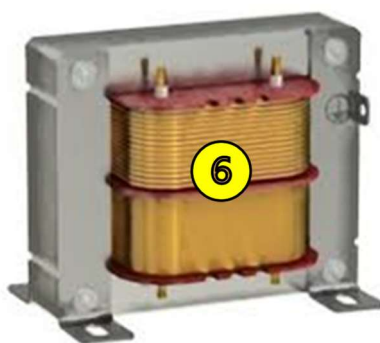
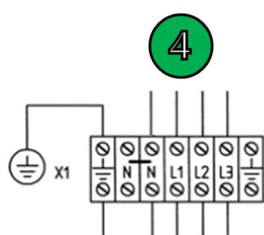
If a water coil after heater is installed (ACW), the return water sensor is connected **here (8)**. Disconnect and remove the wires. The sensor can't be used anymore.



Disconnect **all ground wires (1)** from the ground point.



Remove **the screws (2)** and remove the automation base including **main board (3)**, **terminals (4)**, **PCB supports (5)** and **transformer (6)**.



Remove **the supply air sensor (1)**.

Remove **the supply air fan cable (2)**.



Remove **the HRW supply air sensor (3)**.



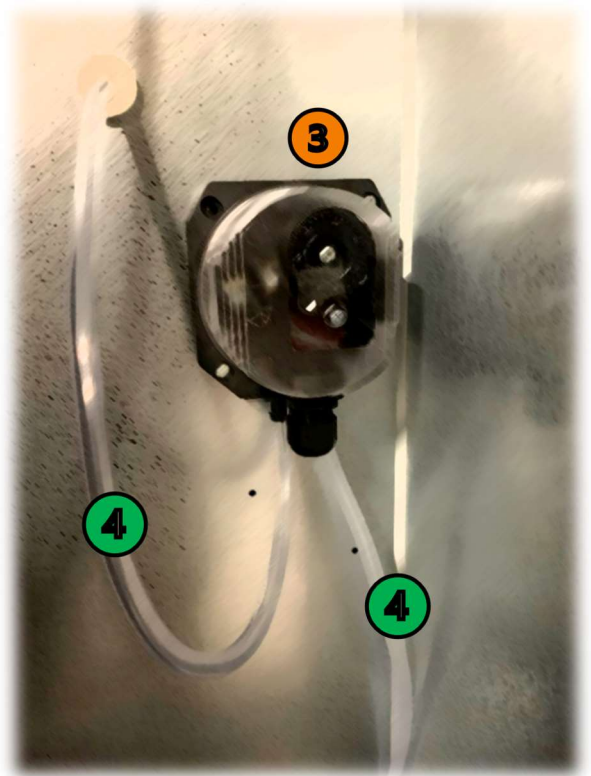


Remove **the electrical after heater and the cables (1)** by pulling.

Ignore if the unit has a water coil after heater installed.

If the unit has a water coil after heater installed; cut and remove **the sensor cable (2)**.

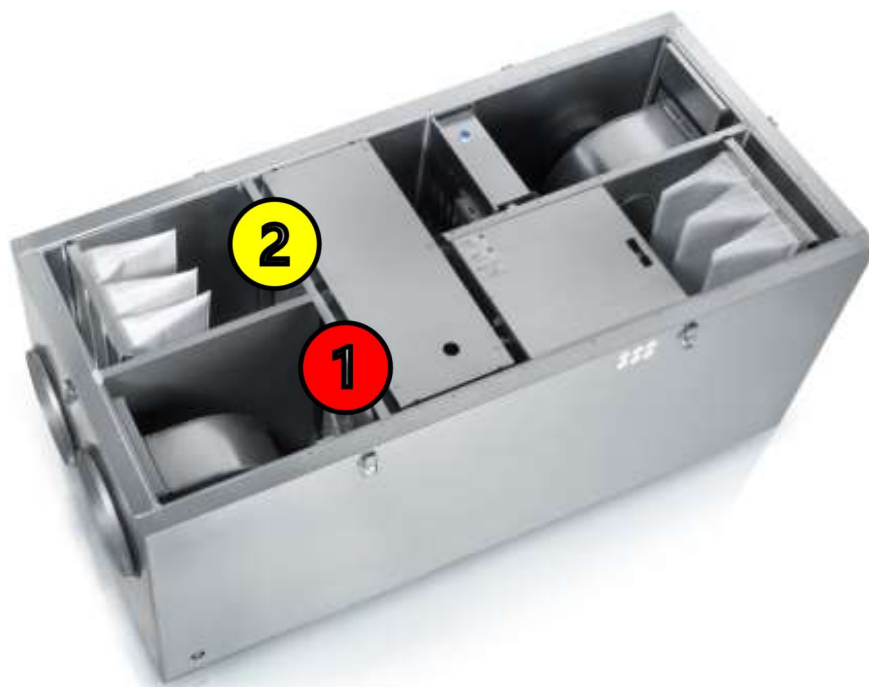
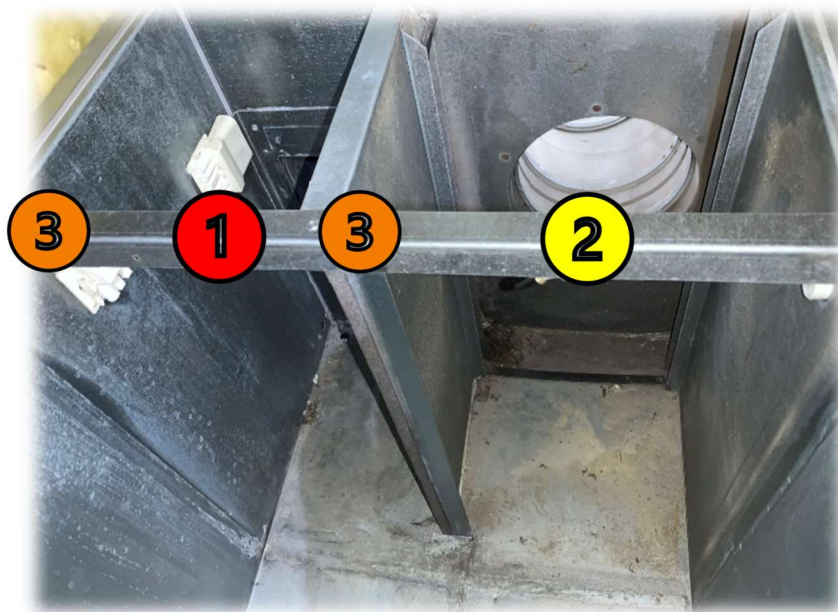
If the unit has an **electrical after heater (1)** installed; Disconnect and remove **the pressure difference switch (3)**. Disconnect but **don't uninstall the pressure hoses (4)**.



Release **the waste air sensor (1)**.

Release **the outside air sensor (2)**.

Remove **the cable sealings (3)**.





Attach **the new sensors (2400mm, 1700mm)**
(1) (40029170, 40029167)
to **the old sensors (2)** with strong tape.

Mark the new sensors in both ends:

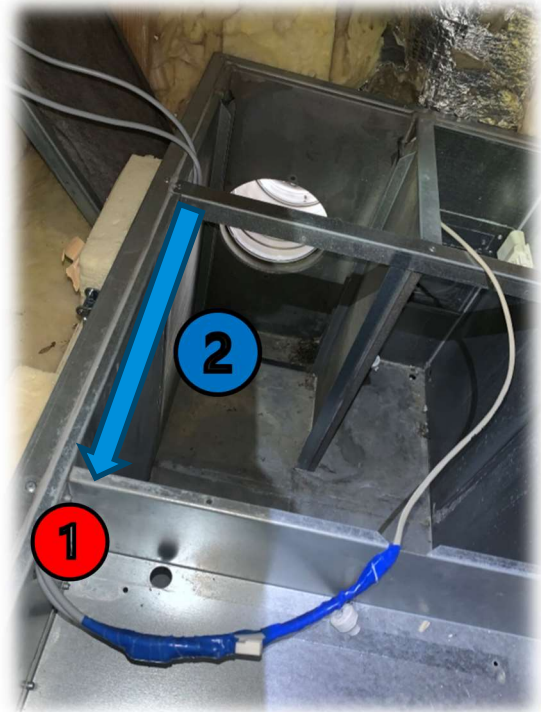
"TE01" (outside air) (40029170)

"TE32" (waste air) (40029167)



Remove **the cable sealings (1)**.

Install **the new sensor connectors**
(40029170, 40029167) **into the electrical box (2)**.



Install **new cable sealings (3)** (40030100).



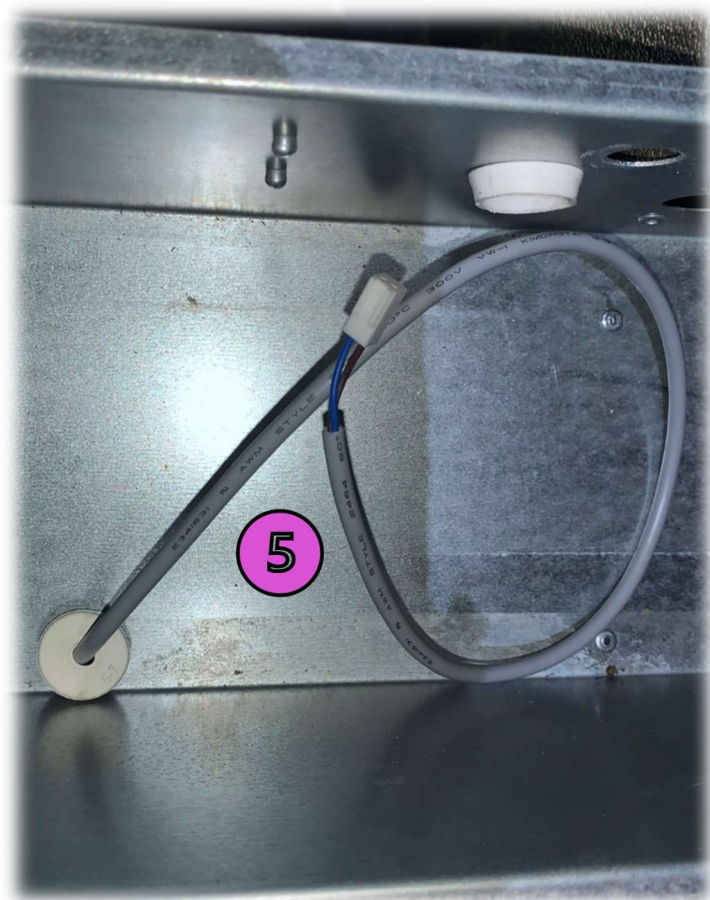
Install **new cable sealings (3)** (40030100).

Attach the sensors to **the frame (4)** with cable ties (40030997).



Install **the new HRW supply air sensor (850mm) (5)** (40029165).

Mark the sensor:
"TE05" (HRW supply air)



Install **the new supply air sensor (2400mm) (4)** (40029170).

Mark the sensor:
"TE10" (supply air)

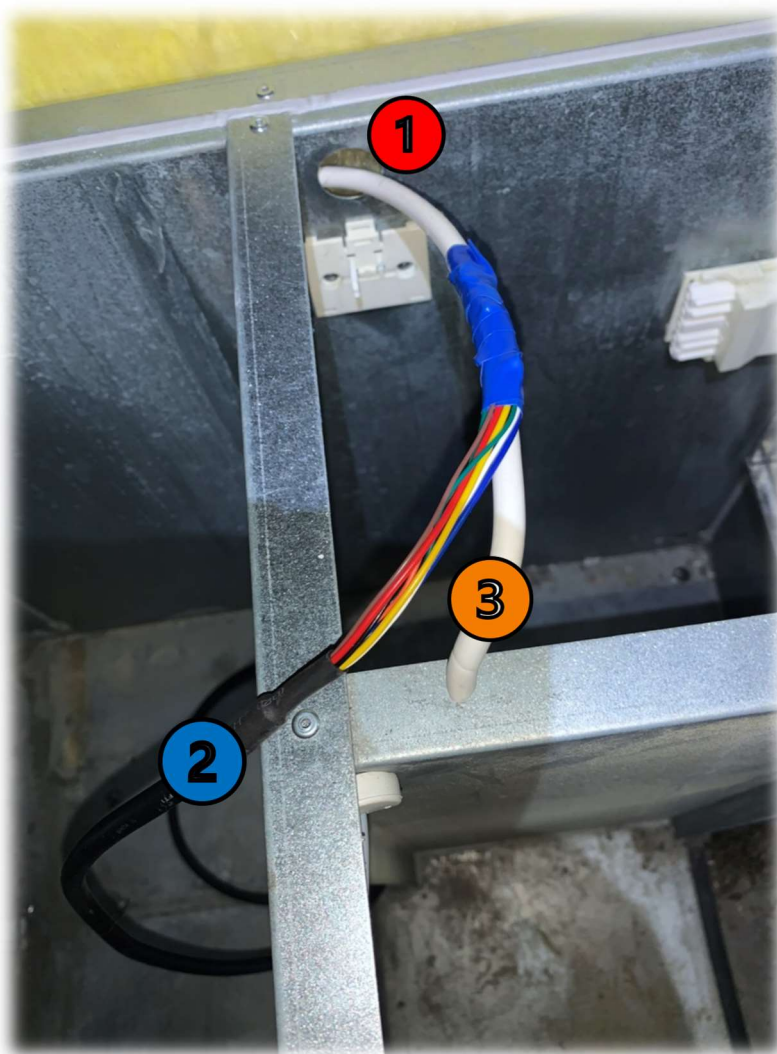


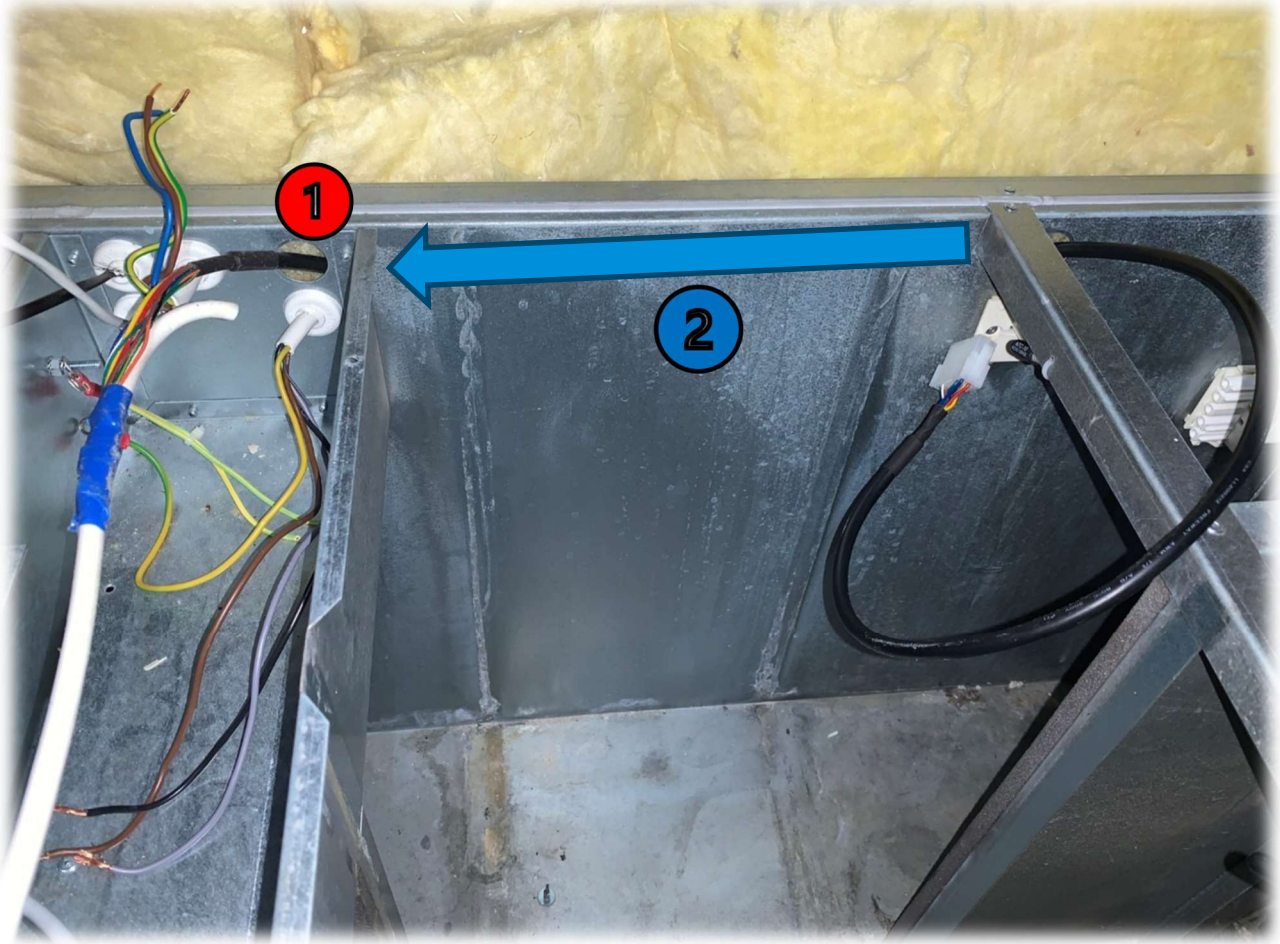
Remove **the cable sealing (1)**.

Cut **the old HRW cable (3)**.

Install **a new cable sealing (40029244)**
to the new HRW cable (2) (40028738).

Attach **the new HRW cable (2)**
(40028738) to **the old HRW cable (3)**
with strong tape.





Remove **the cable sealing (1)**.

Install **the new HRW cable (40028738)** **into the electrical box (2)**.

Install **a new cable sealing (1)** (40029244).



Remove **the cable sealing (1)**.

Cut **the old extract air fan cable (3)**.

Install **a new cable sealing (40029244) to the new extract air fan cables (2) (40028803, 40028802)**.

Attach **the new extract air fan cables (2) (40028803, 40028802)**
to **the old extract air fan cable (3)** with strong tape.



Remove **the cable sealing (1)**.

Install **the new extract air fan cables (2)** (40028803, 40028802) **into the electrical box (2)**.

Install **a new cable sealing (1)** (40029244).



New cables installed.

Install **the new supply air fan cables (1)**
(40028803, 40028802).



Install **the new electrical after heater (2)**
(10023273 / 10023272)
and install the cables in the electrical box.
Ignore if the unit has a water coil after heater installed.

If the unit has a water coil after heater installed;
install **the new return water sensor (3)**
(40029228) on the return water pipe of the
water coil and isolate it from surrounding air.

Install **the new extract air sensor (4)**
(40029224).

If electrical after heater installed:

Install **the new pressure difference switch (5)**
(40034055) and connect it
with the wires (40028780) to the mainboard
according **to the electrical diagram (page 40)**.
Connect the pressure hoses to the switch:

(-) in airflow before supply air fan
(+) in airflow after supply air fan

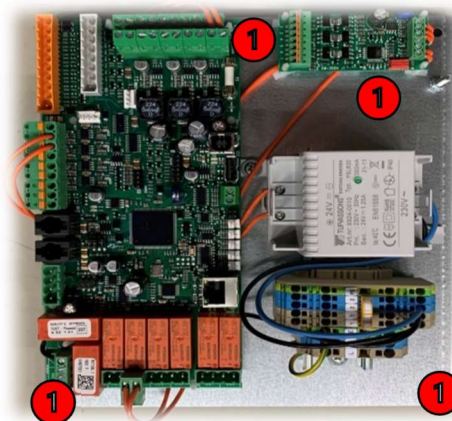


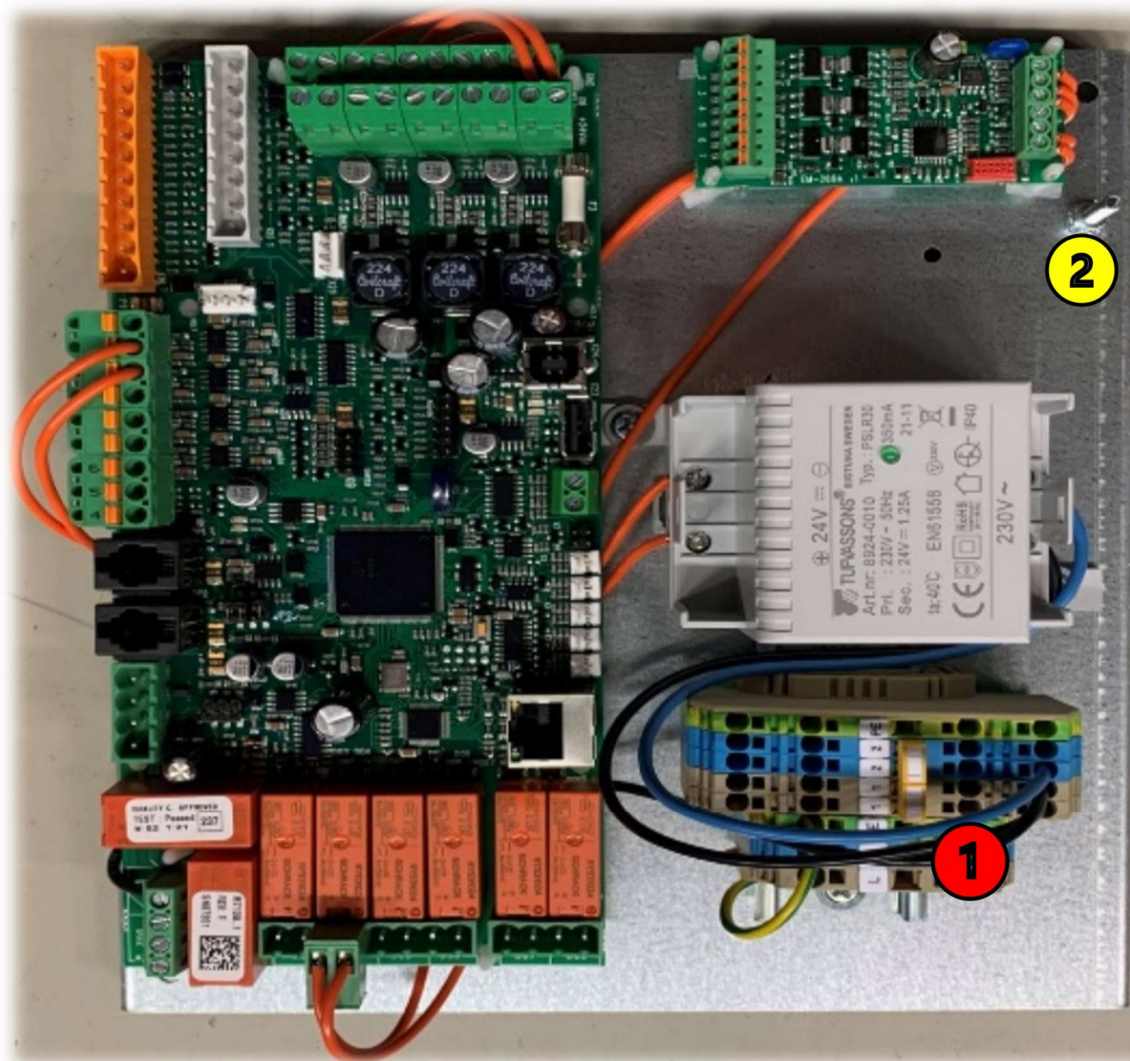


Install **the new automation** in the electrical box.

Make sure no installed cable / sensor get stuck behind the automation base and that they are available in front of the main board.

Attach **the automation base** (40029740) to the electrical box with **four self tapping screws (1)** (40031530).





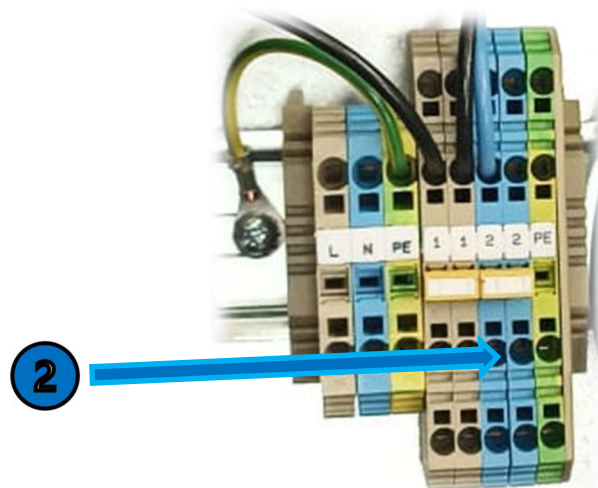
Connect **the main power cable to the terminals (1)**.

Connect **all ground wires to the automation base ground point (2)**.

Supply air fan, extract air fan, (after heater), HRW.

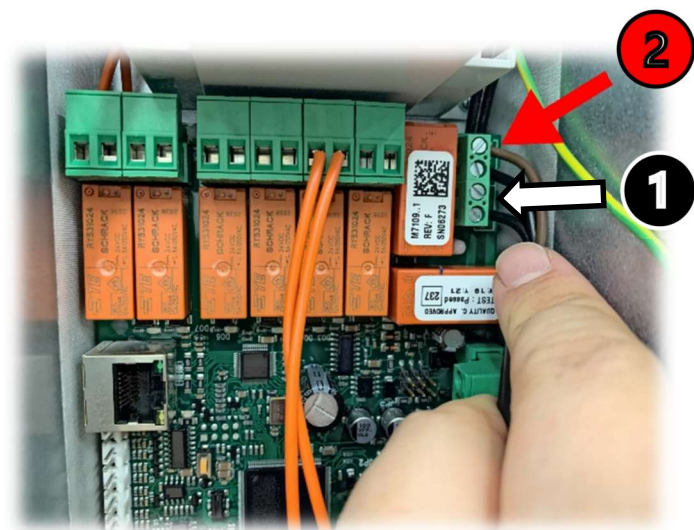
Tighten with **the nut (40031489)**.

Connect **the blue wire** from the electrical after heater to **the blue "2" connection terminal (2)**.
Ignore if the unit has a water coil after heater installed.

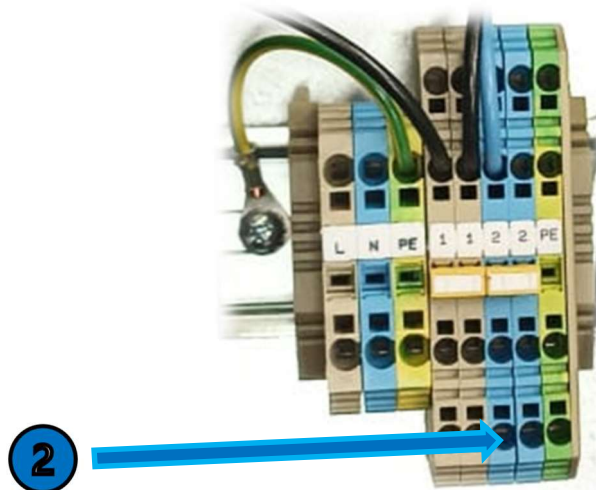


Connect **the brown wire** from the electrical after heater to **"DO2" (2)**.
If there is a water coil after heater installed, the circulation pump power wire (L) would be connected here.

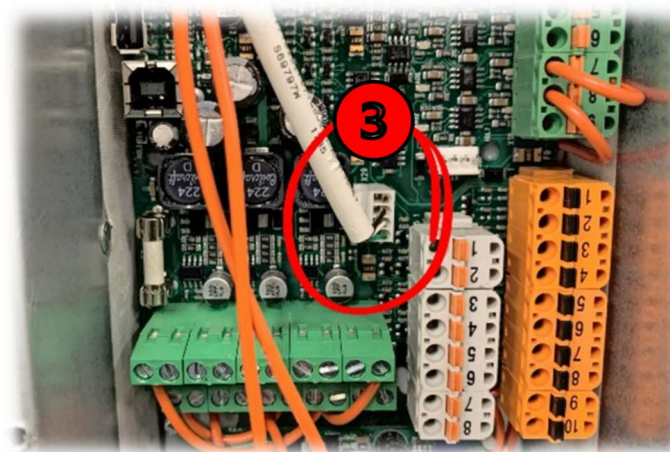
Connect **the wires marked "1"** in the fan power cables (40028803) to **"DO1" (1)**.



Connect **the wires marked "2"** in the fan power cables (40028803) to **the blue "2" connection terminal (2)**.

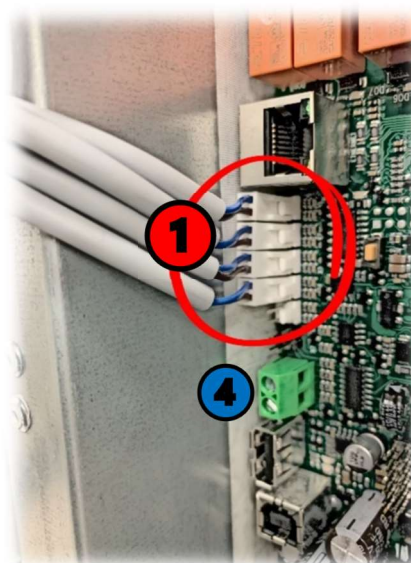


Connect **the extract air sensor (3)** (40029224) to the main board (X29).



Connect **the sensors (1)** to the main board according to the markings.

X1, TE01: Outside air (40029170)
 X2, TE05: HRW supply air (40029165)
 X3, TE10: Supply air (40029170)
 X4, TE32: Waste air (40029167)
 X12, TE45: Return water sensor (4),
 if the unit has a water coil after heater installed.

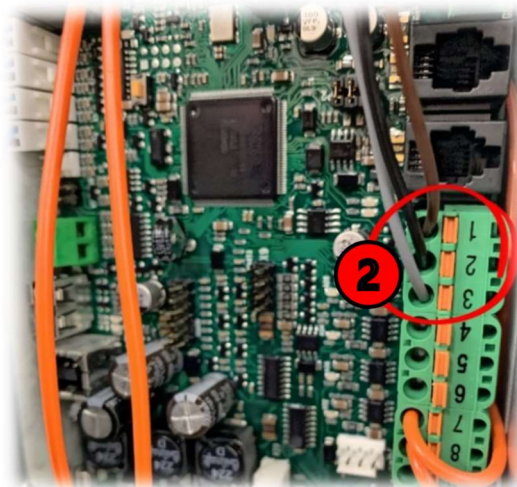


Connect **the wires from the supply air fan control cable (2)** (40028802) to the main board.

1: Brown

2: Black

3: Gray

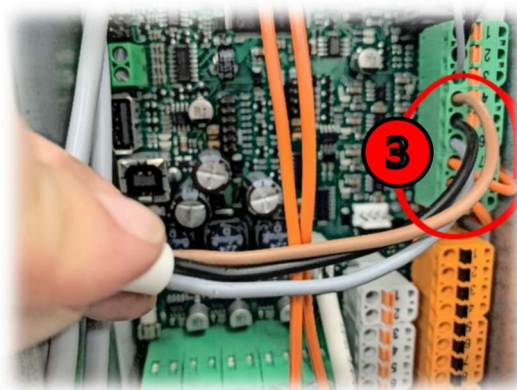


Connect **the wires from the extract air fan control cable (3)** (40028802) to the main board.

4: Brown

5: Black

6: Gray



Connect **the wires from the HRW cable** (40033952) **to the HRW control board (1)**.

1: Yellow

2: Red

3: Blue

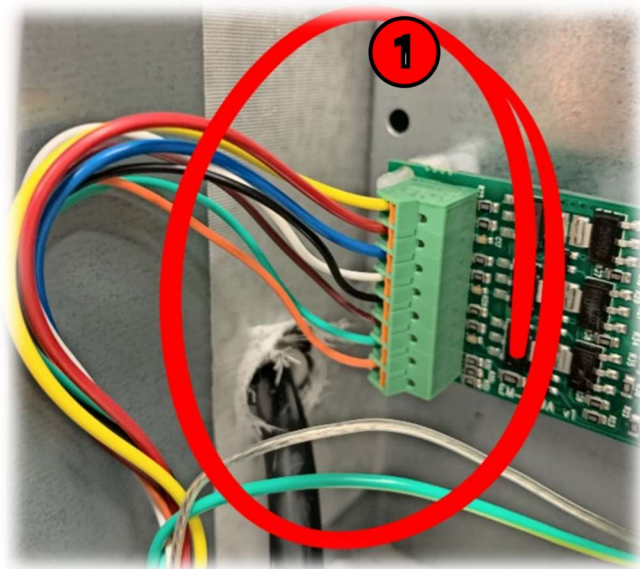
4: White

5: Black

6: Brown

7: Green

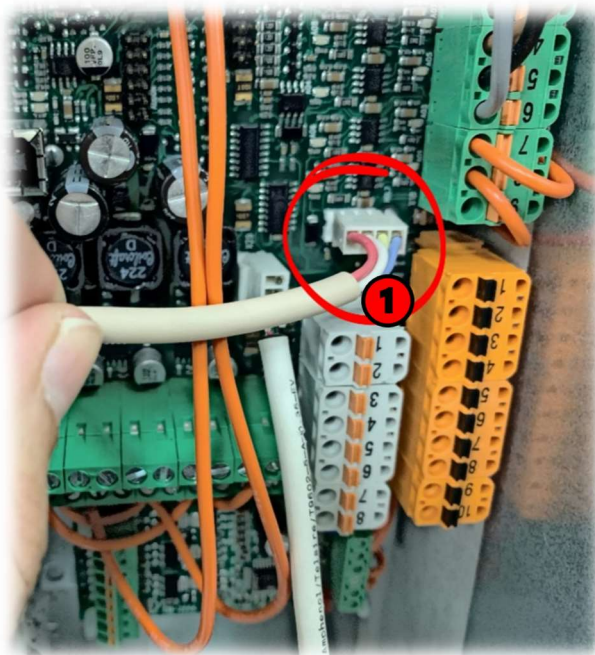
8: Orange



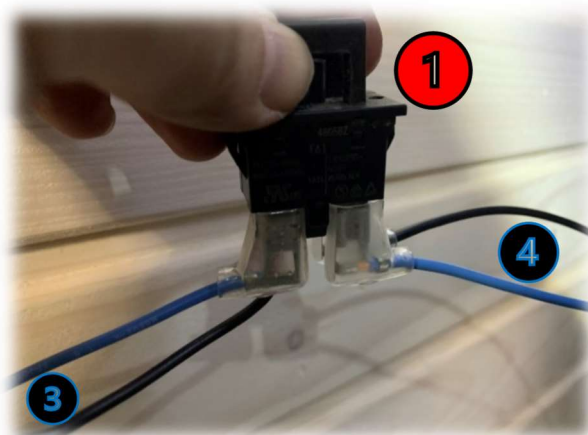
Connect **the after heater control cable (1)** to the main board (X17).

Ignore if no electrical after heater installed.

Connect other components (for example actuator for water coil after heater or cooling coil) according to the electrical diagrams (pages 38-41).



Connect **the pairs of wires with flat connectors**, (40028820, 40028819) to **the main switch (1)**, install the main switch and connect the wires to **the connection terminals (2)**.

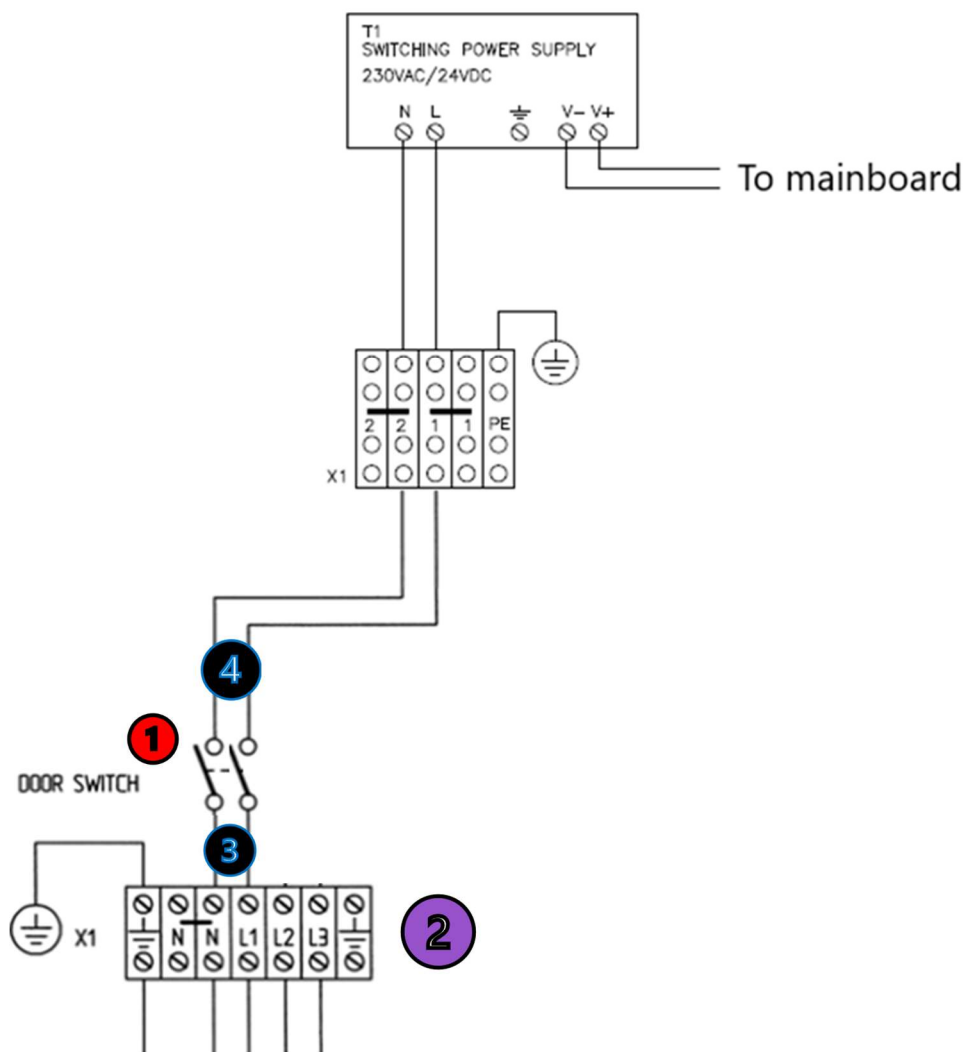


L1: Black (3)

N: Blue (3)

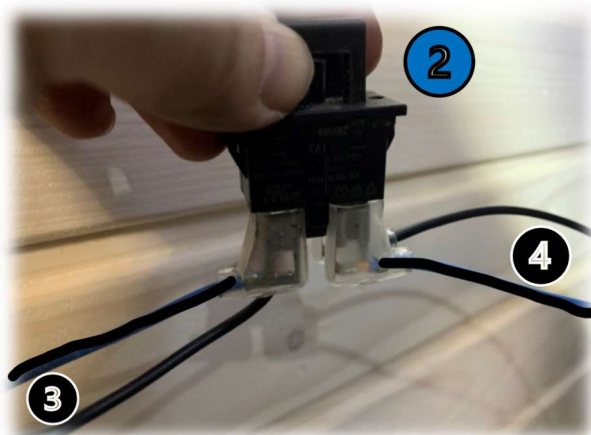
1: Black (4)

2: Blue (4)



If electrical after heater installed:

Connect **the other pairs of wires with flat connectors**, (40028820) to **the after heater switch (2)**, install the switch and connect the wires to **the connection terminals (5) & (6)**.

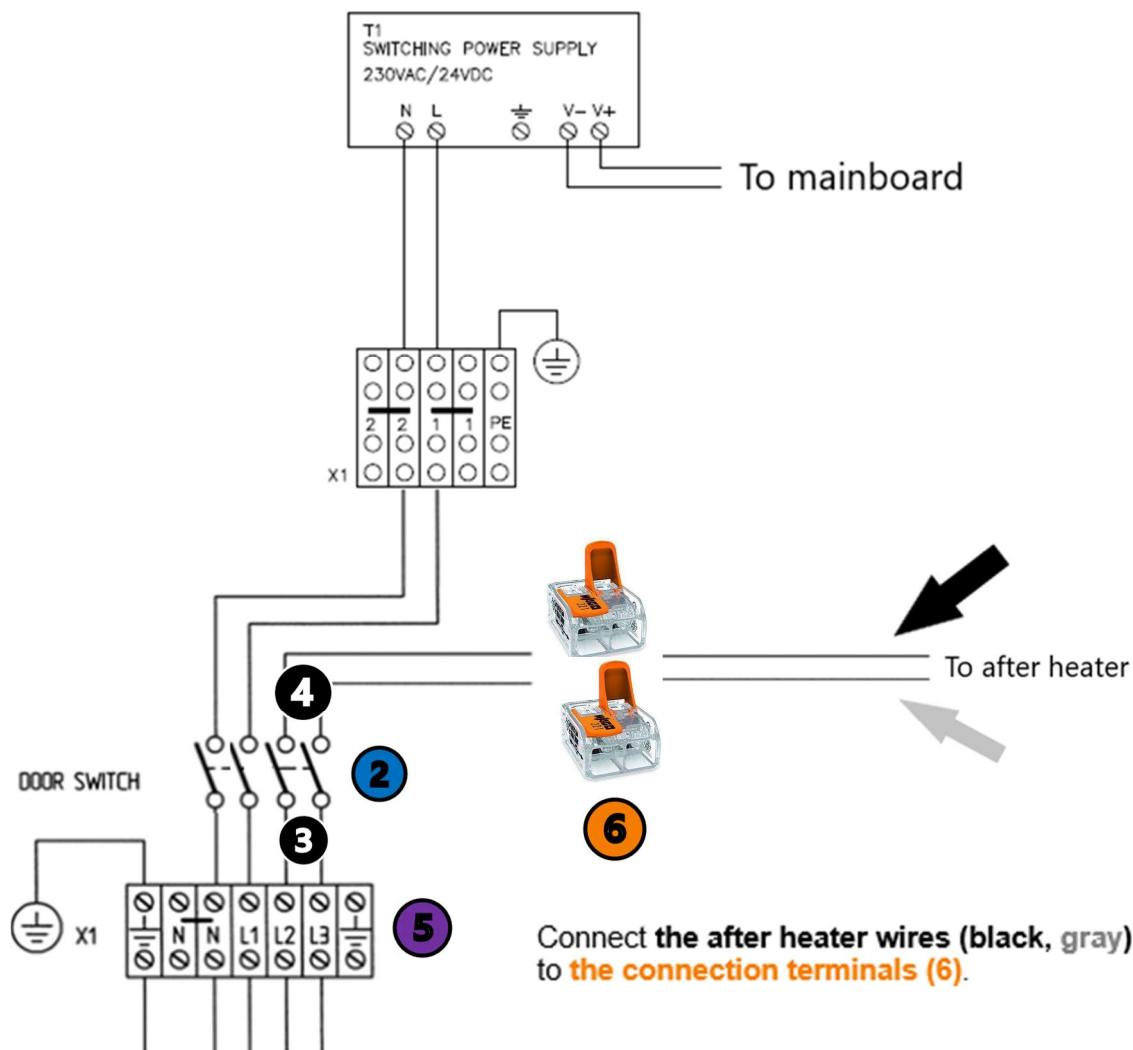


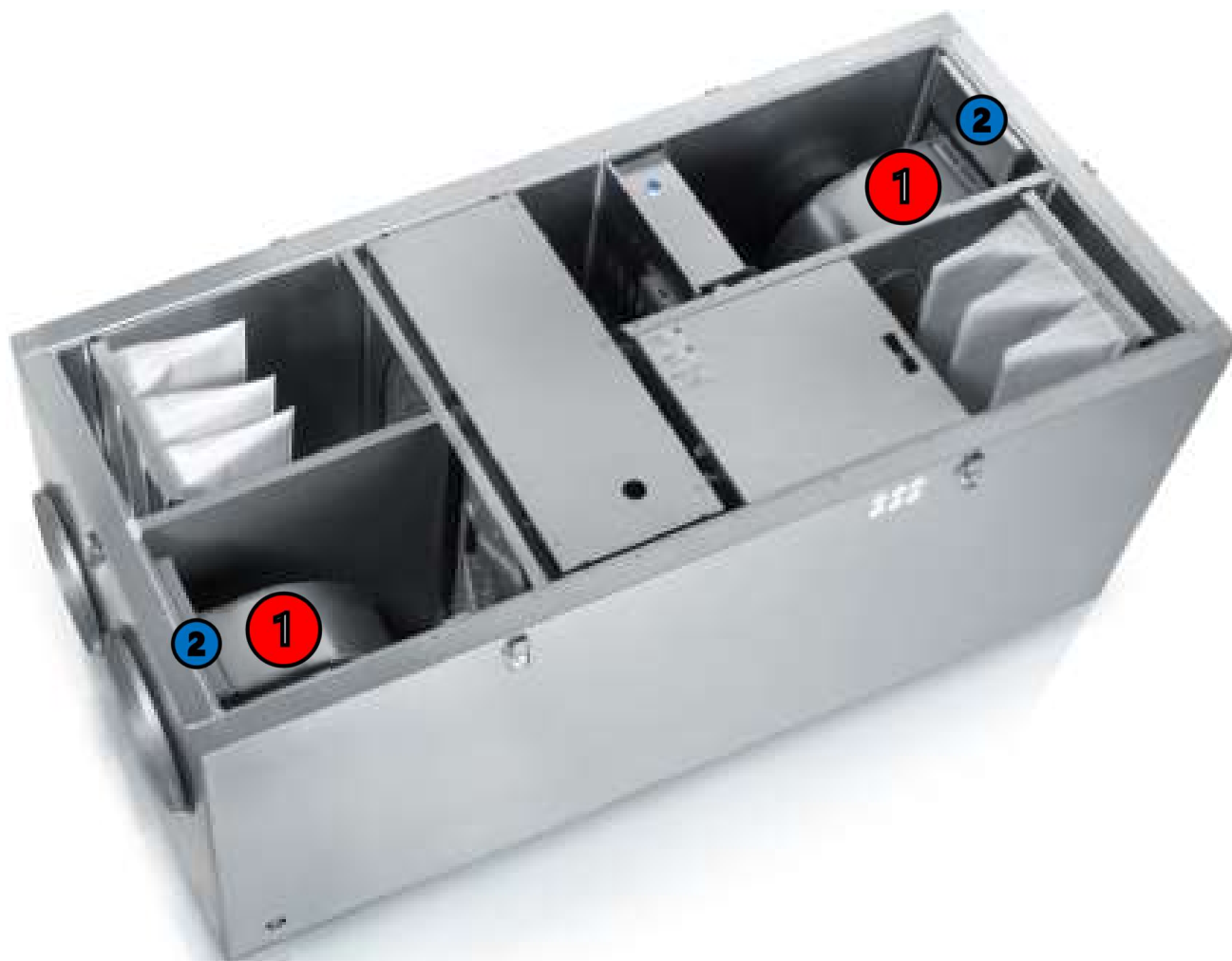
L2: Black (3)

L3: Black (3)

L2: Black (4)

L3: Black (4)



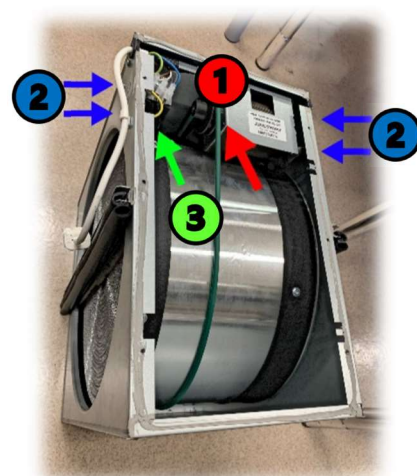


Install and connect **the new fans (1)** (10023152) / (10023151) / (10023144)
and **the fan rail locking parts (2)**.

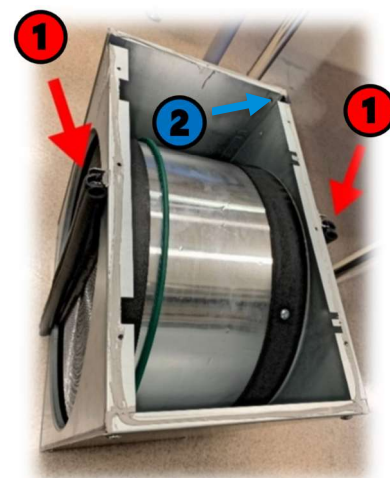
Remove **the screws (1)** from the HRW cover.



Remove **the belt (1)** from the wheel.
Remove **the screws (2)** from the motor package.
Remove **the ground wire (3)**.

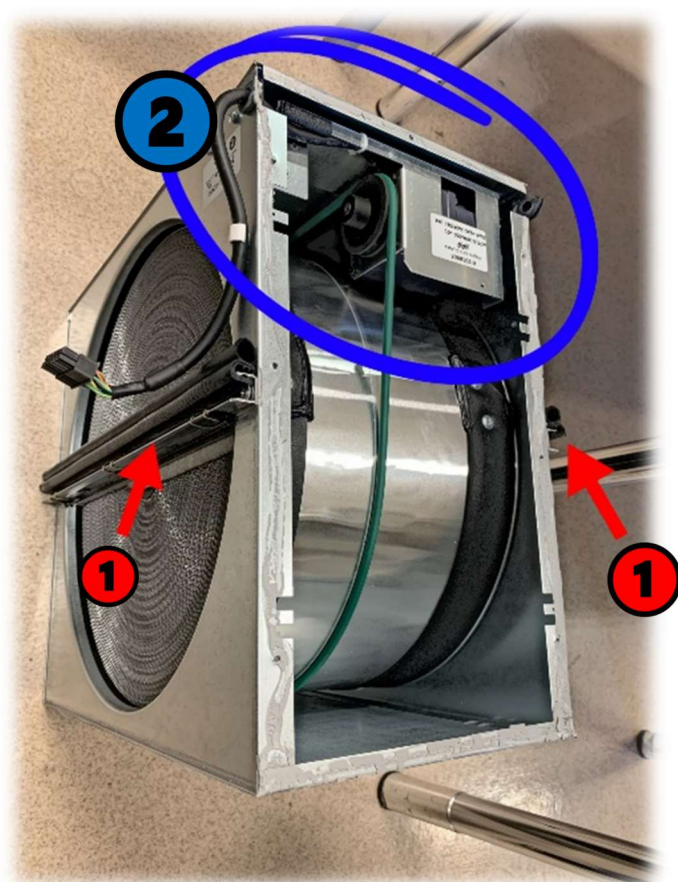


Remove **the motor package**.
Cut a gap for the new motor cable (2).
Check that **the brush clips (1)** are in place.

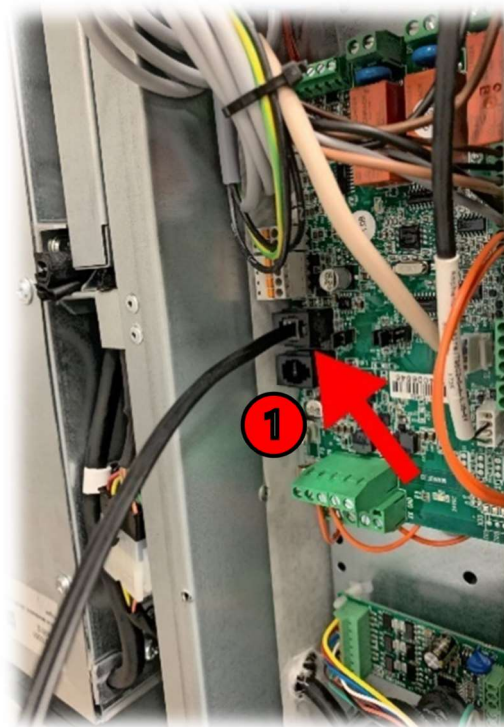


Install **the new motor package (2)** (40028738).
Check that **the brush clips (1)** are in place.

Install the HRW cover.



Connect **the new display cable (1)** to the main board. The old display cable may also be used, but the joints has to be done carefully and in a proper way. Close the cover to the electrical box.



Install **the new display (2)** (40031114) in a desired place.

2



Install **the WiFi module (3)** (40034288).

3



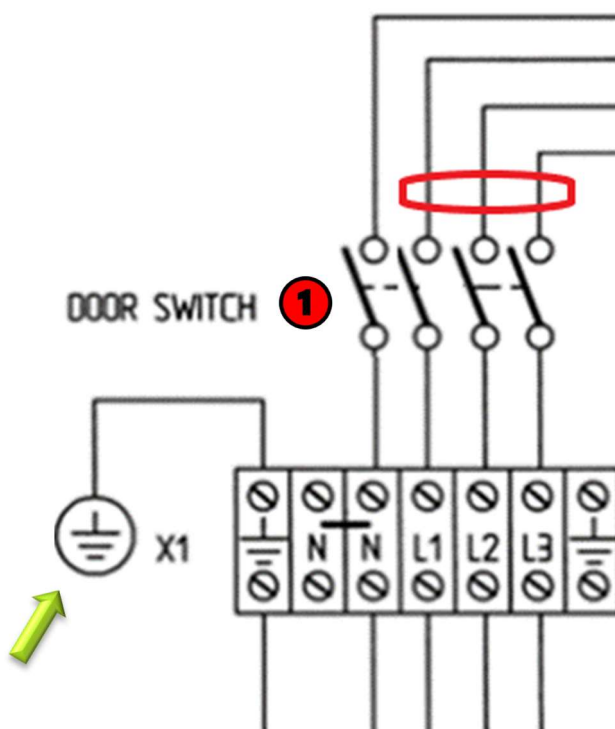
Install **the new type plate sticker (2)**.

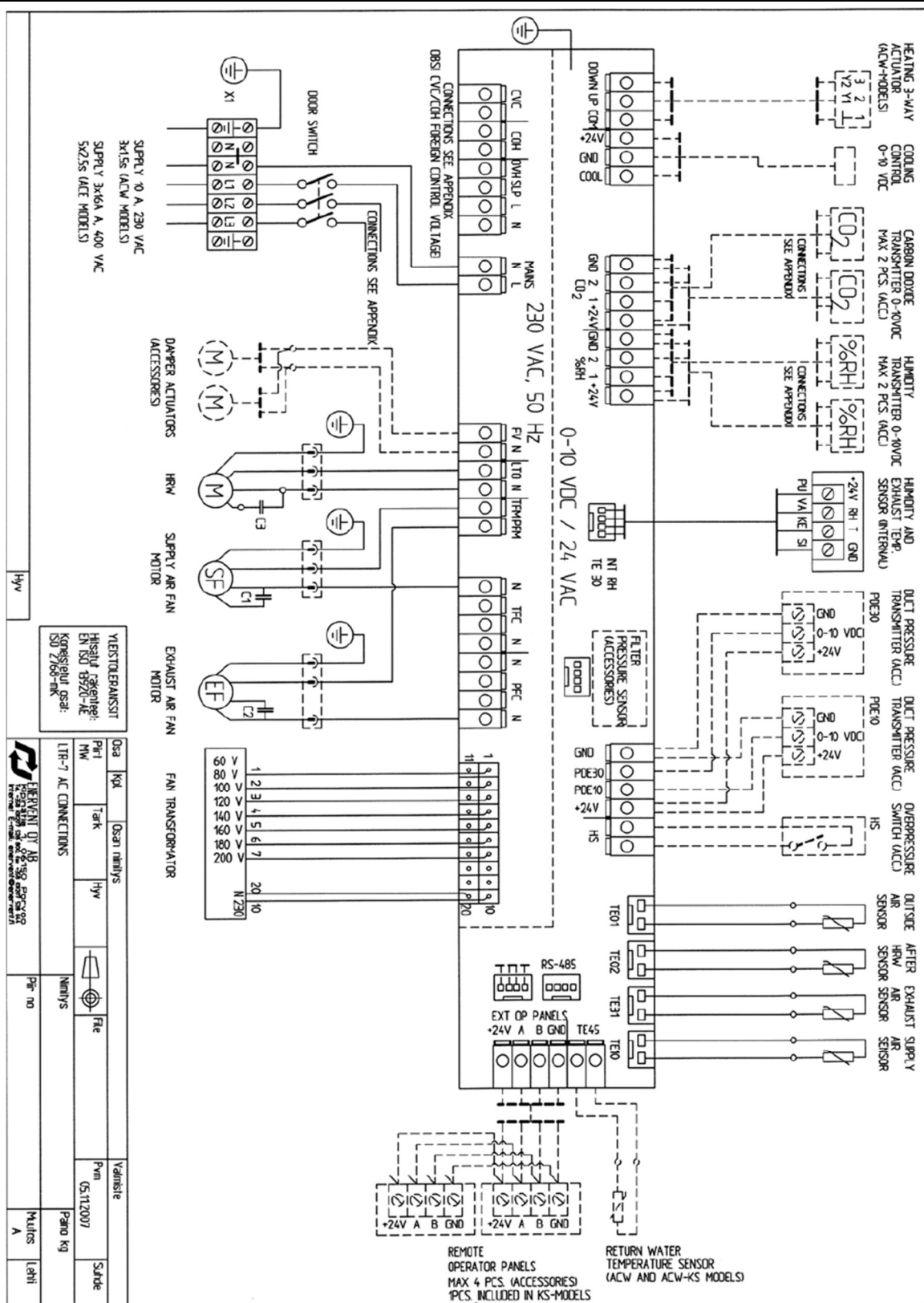
Install and connect **the HRW (3)**.

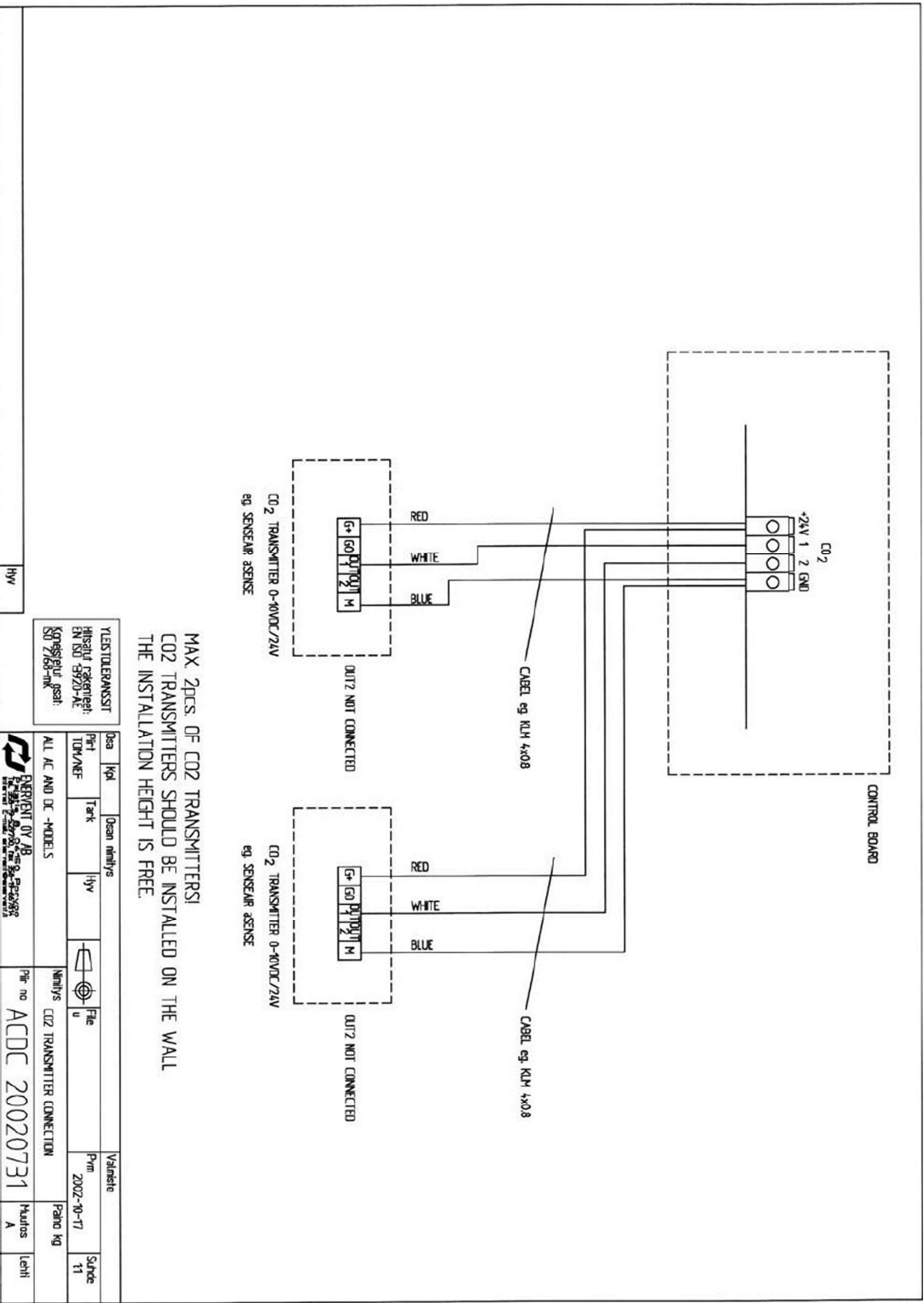
Install **the filters (4)**.

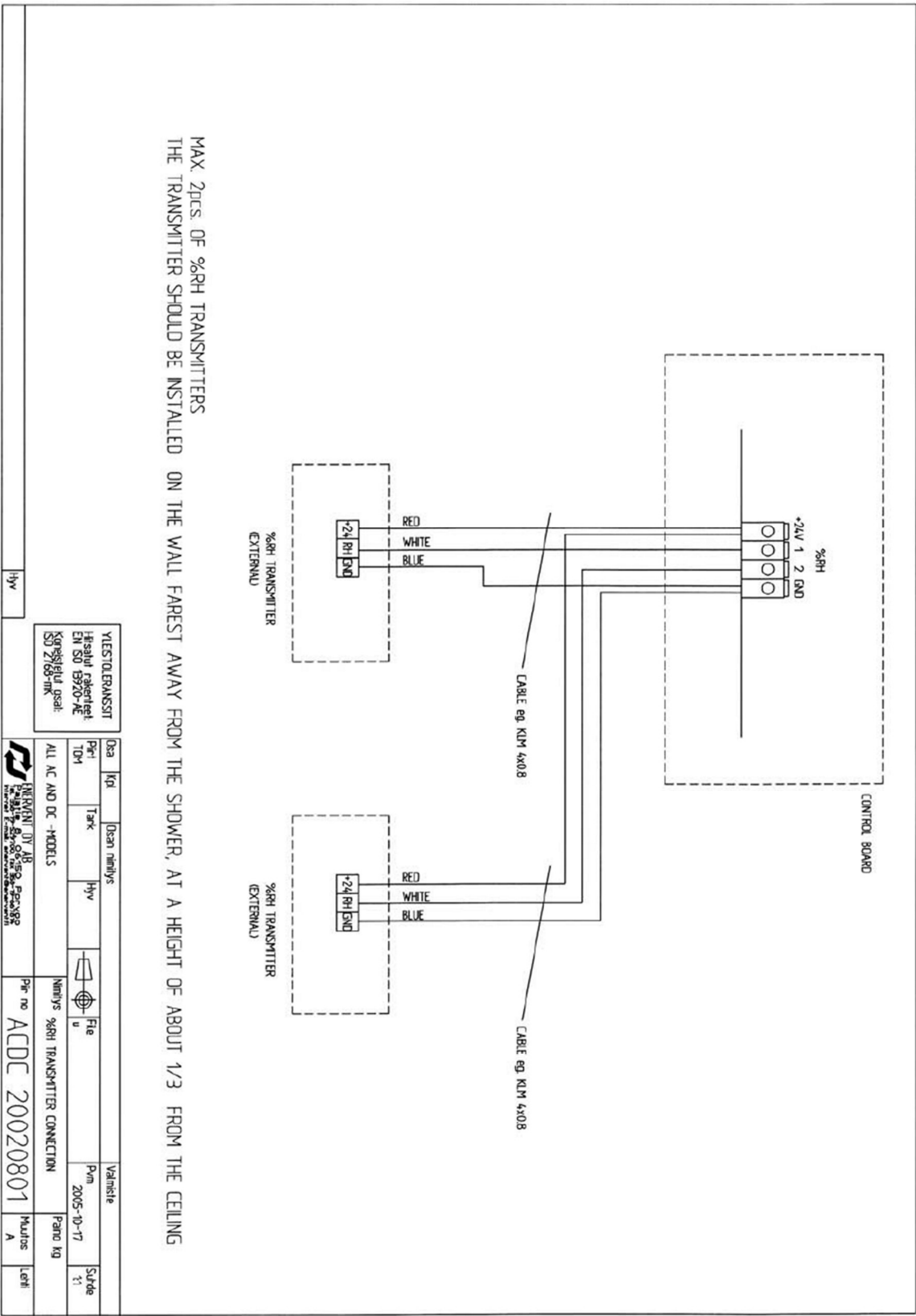


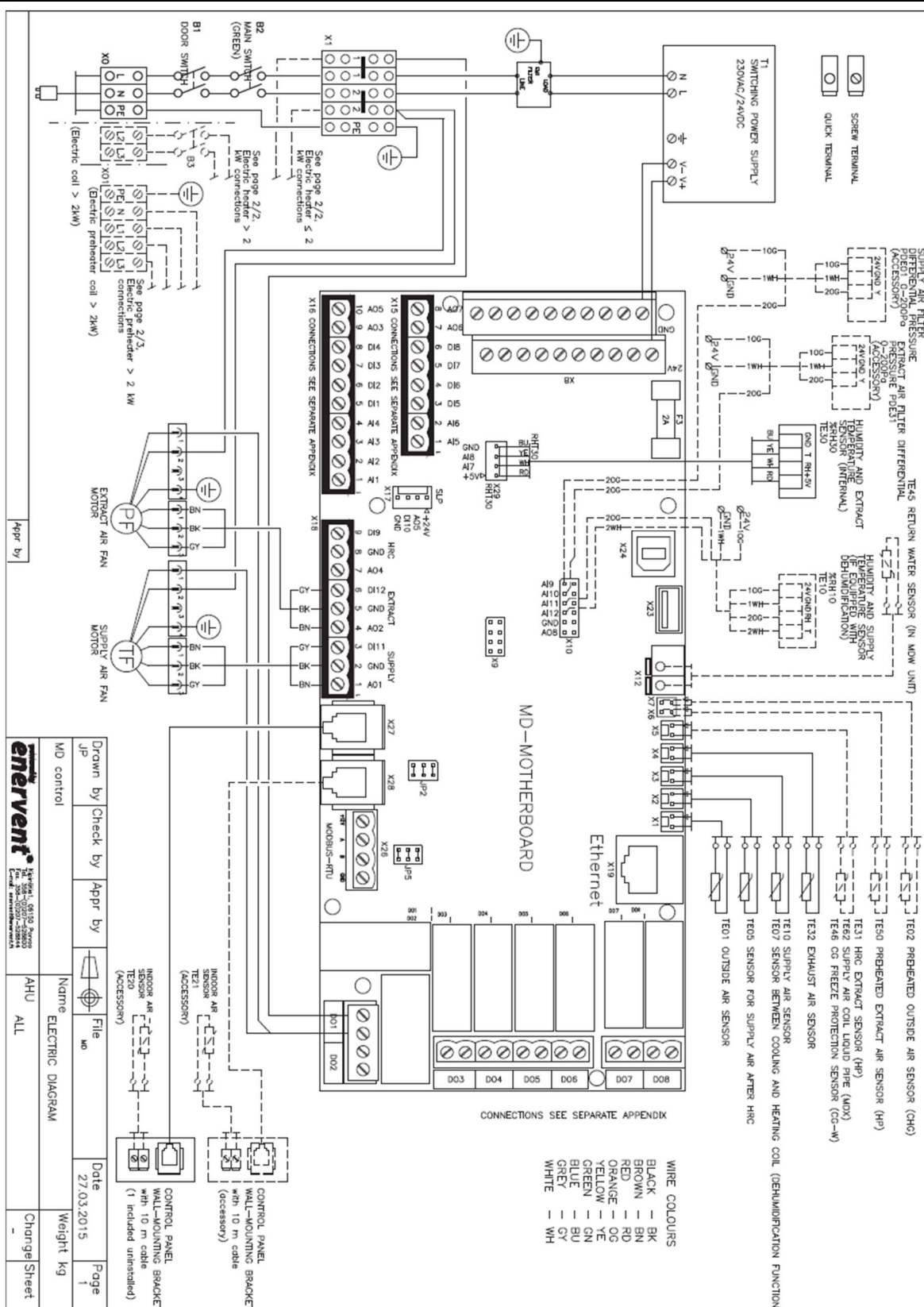
Press down **the door switches (1)** and perform insulation and ground continuity test according to regulations.

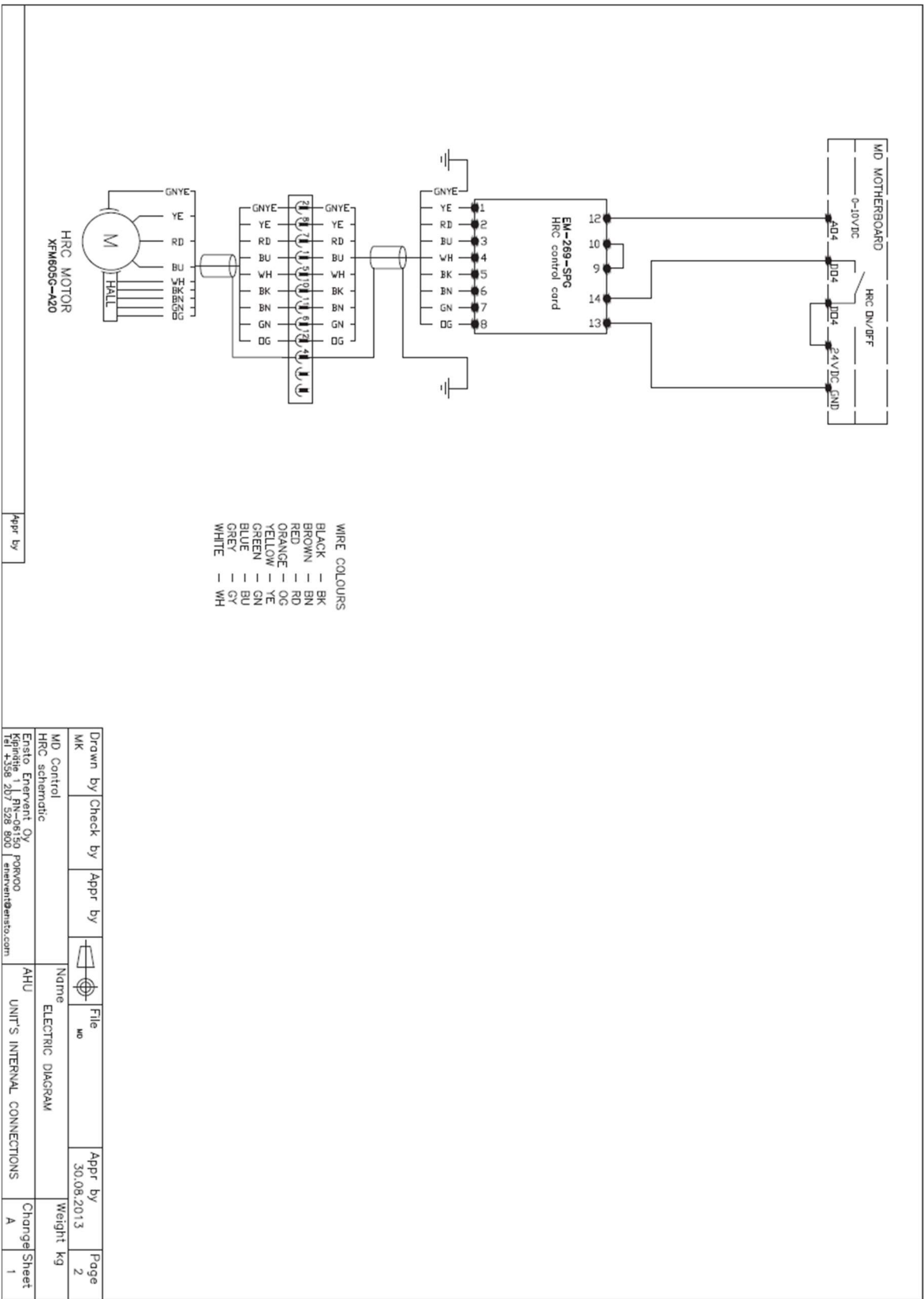


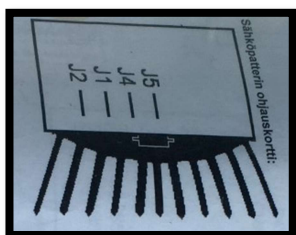
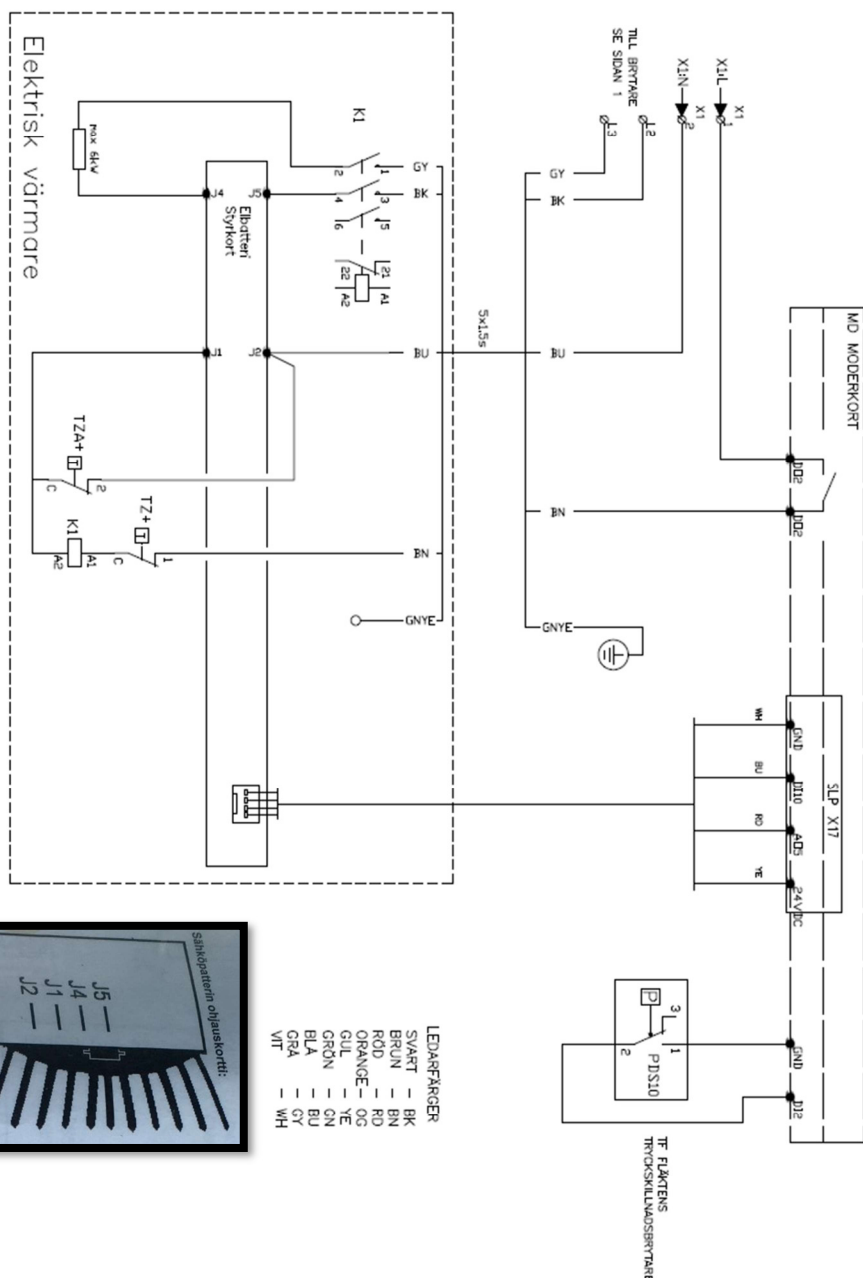












Stad av	Kontroll av	Code av	Fil	Datum	Sida
MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL
MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL
MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL
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MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL
MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL
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MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL	MD-KONTROLL

MANDATORY PARTS

10024012	CONTROL UPDATE KIT LTR-7(XL) ACE/ECE → eAIR E	1
10023152	FAN PACKAGE LTR-7 EBM 520W	2
	or	
10023151	FAN PACKAGE LTR-7 XL EBM 545W	2
	or	
10023144	FAN PACKAGE LTR-7 Z 500W	2
10023273	ELECTRICAL HEATER 4kW	1
	or	
10023272	ELECTRICAL HEATER 6kW	1

Code	Description	Pcs.
10024012	CONTROL UPDATE KIT LTR-7(XL) ACE/ECE → eAIR E	
	Automation	
40029189	Control board EM-240-M	1
40030936	PCB support KGLS-6S	5
40030937	PCB support LCBSM-6-01	4
40031695	Screw DIN 7981 ZN 3,9x9,5	4
40031631	Screw DIN 7985 ZN M4x20	1
40031537	Washer 6798-A ZN M4x8	3
40031489	Nut DIN 934/8 ZN M4	1
40028772	Wire 65mm orange 0,75mm2	1
40028773	Wire 340mm orange 0,75mm2	6
40028774	Wire 255mm 1mm2 black	3
40028779	Wire 255mm 1mm2 blue	1
40031093	eAir main board	1
40029985	eAir main board connectors	1
40029195	Power supply Tufvassons PSLR24	1
40028788	Ground wire 100mm	1
40029740	Automation base	1
40029344	Terminal package modified	1
40029297	Terminal WT4, 58.504.0055.0	3
40029331	Terminal WT4, BL, 50010106	1
40029332	Terminal WT4, PE, 50010186	1
40029339	Terminal 9708/2535, 50013525	2
40029337	Terminal AP WT 2,5 - 10 GR	1
40028818	Ground wire 170mm	1
40031440	Terminal marking L1 (25ARK/LTK) 9705A / 6 / 10 B	1
40029325	Terminal marking L2 (25ARK/LTK) 9705A / 6 / 10 B	1
40029326	Terminal marking L3 (25ARK/LTK) 9705A / 6 / 10 B	1
40031441	Terminal marking N (25ARK/LTK) 9705A / 6 / 10 B	1
40031442	Terminal marking PE (25ARK/LTK) 9705A / 6 / 10 B	1
	Components	
40030100	Cable sealing VET 5-7	10
40029244	Cable sealing PMR 615 AVL140	8
40028803	Fan power cable	2
40028802	Fan control cable	2
40029170	EDA temperature sensor 2400mm	2
40029167	EDA temperature sensor 1700mm	1
40029165	EDA temperature sensor 850mm	1
40029234	Humidity/temperature sensor Amphenol 600mm	1
40031530	Screw ZN 4,2x25	4
40029982	WaGo 221-415	2
40028820	Wire 600mm black (main switch)	6
40028819	Wire 600mm blue (main switch)	2
40028780	Wire 600mm 1mm2 black	2
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8 ZN M4	1
40030997	Cable tie 2,5x200mm	10
40028738	HRW motor package stepless DC	1
40033952	Rotor cable DC 105cm	1
40031114	eAir panel package	1
40034288	WiFi	

MANDATORY PARTS

10024013	CONTROL UPDATE KIT LTR-6/7(XL) ACW → EAIR W	1
10023152	FAN PACKAGE LTR-7 EBM 520W	2
	or	
10023151	FAN PACKAGE LTR-7 XL EBM 545W	2
	or	
10023144	FAN PACKAGE LTR-7 Z 500W	2

Code	Description	Pcs.
10024013	CONTROL UPDATE KIT LTR-6/7(XL) ACW → EAIR W	
	Automation	
40029189	Control board EM-240-M	1
40030936	PCB support KGLS-6S	5
40030937	PCB support LCBSM-6-01	4
40031695	Screw DIN 7981 ZN 3,9x9,5	4
40031631	Screw DIN 7985 ZN M4x20	1
40031537	Washer 6798-A ZN M4x8	3
40031489	Nut DIN 934/8 ZN M4	1
40028772	Wire 65mm orange 0,75mm ²	1
40028773	Wire 340mm orange 0,75mm ²	6
40028774	Wire 255mm 1mm ² black	3
40028779	Wire 255mm 1mm ² blue	1
40031093	eAir main board	1
40029985	eAir main board connectors	1
40029195	Power supply Tufvassons PSLR24	1
40028788	Ground wire 100mm	1
40029740	Automation base	1
40029344	Terminal package	1
	Components	
40030100	Cable sealing VET 5-7	5
40029244	Cable sealing PMR 615 AVL140	8
40028803	Fan power cable	2
40028802	Fan control cable	2
40029170	EDA temperature sensor 2400mm	2
40029167	EDA temperature sensor 1700mm	1
40029165	EDA temperature sensor 850mm	1
40029228	Return water sensor, surface	1
40029224	Humidity/temperature sensor Amphenol 600mm	1
40031530	Screw ZN 4,2x25	4
40028820	Wire 600mm black (main switch)	2
40028819	Wire 600mm blue (main switch)	2
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8 ZN M4	1
40030997	Cable tie 2,5x200mm	10
40028738	HRW motor package stepless DC	1
40033952	Rotor cable DC 105cm	1
40031114	eAir panel package	1
40034288	WiFi module package	1
40034505	Valve actuator TR24-SR	1
	Manuals etc. (depends on model)	
	eAir installation manual	1
	eAir user manual	1
	eAir electrical diagrams	1

Notes: