

Automation upgrade

LTR-3 EDA -> eAir

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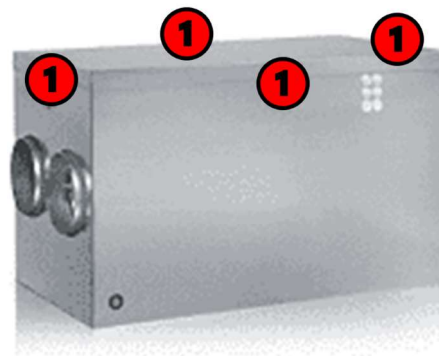
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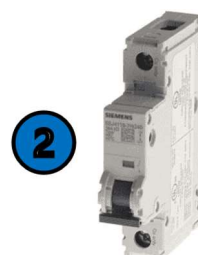
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Remove **the service door (1)** by releasing the locks.



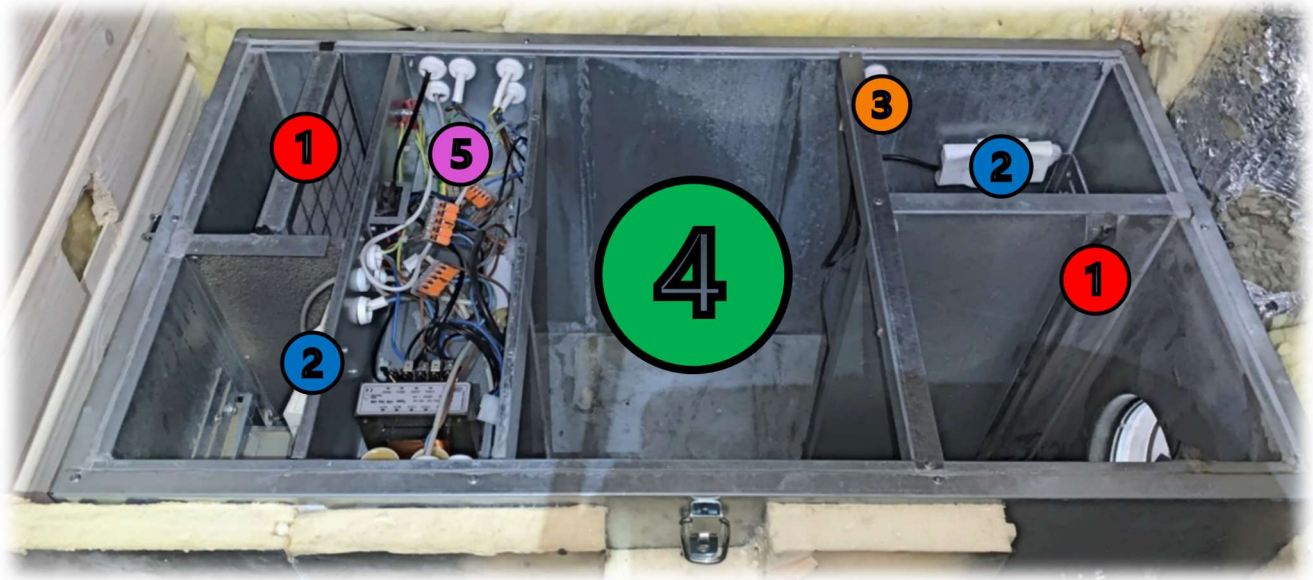
Cut **the power to the unit (2)** (and other power supplies if available).



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

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





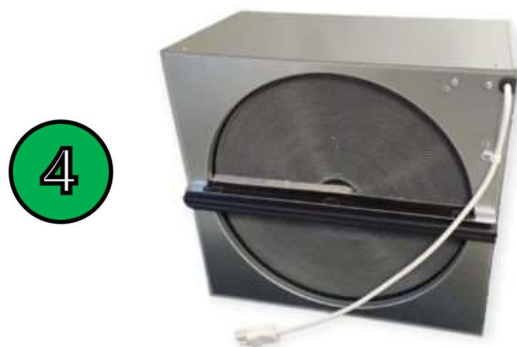
Remove **the filters (1)** by pulling.

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

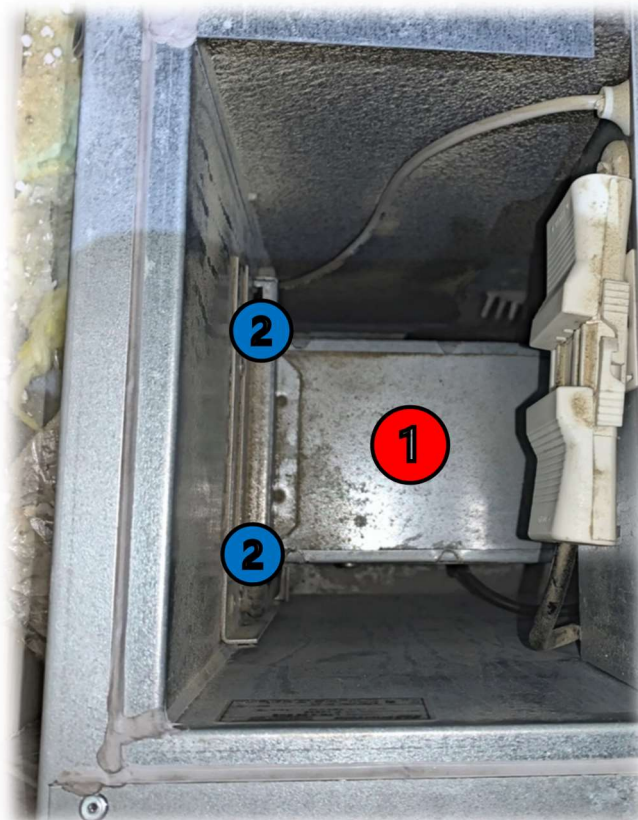
Disconnect **the HRW connector (3)**.

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

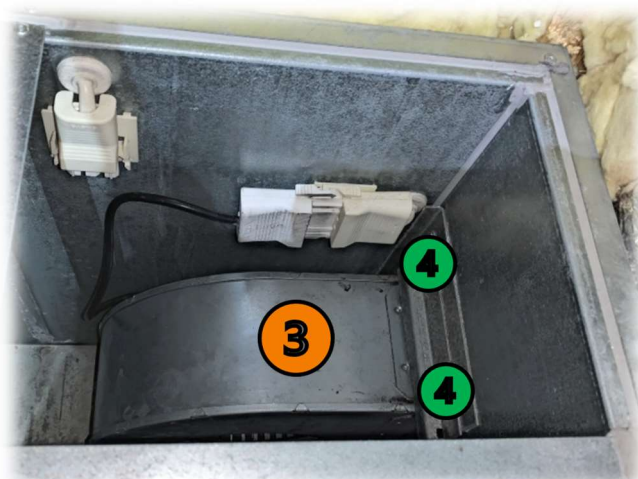
Disconnect the main switch power wires from **the terminals (5)**.



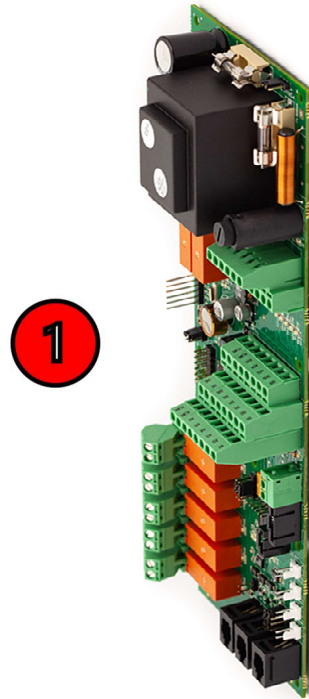
Remove **the supply air fan (1)**
by releasing **the screws (2)**.



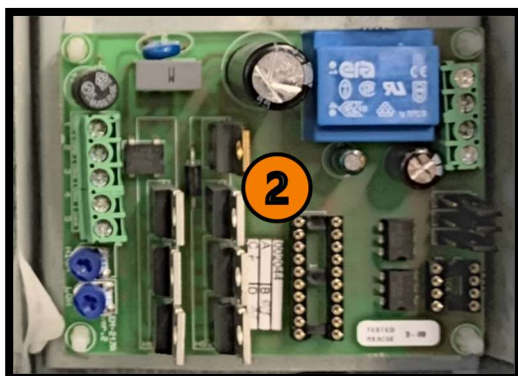
Remove **the extract air fan (3)**
by releasing **the screws (4)**.



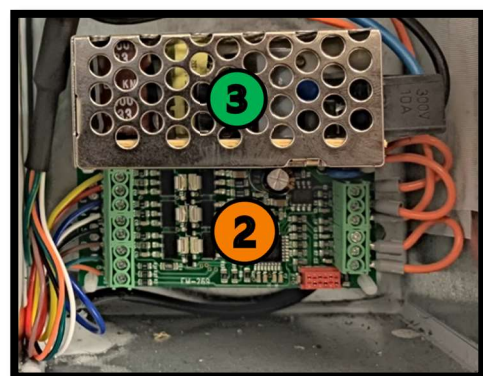
Mark all wires/sensors according to the marking on the main board and disconnect them from the **EDA main board (1)**.



Disconnect the wires (that were connected to the EDA main board) from **the HRW circuit board (2)** and **the transformer (3)**.
Type of HRW depends on year of manufacture.



AC HRW circuit board.



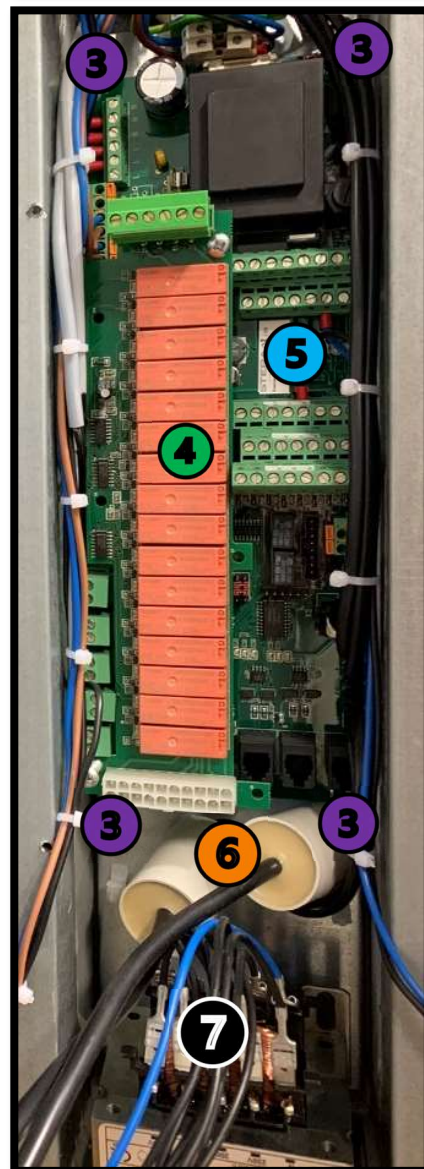
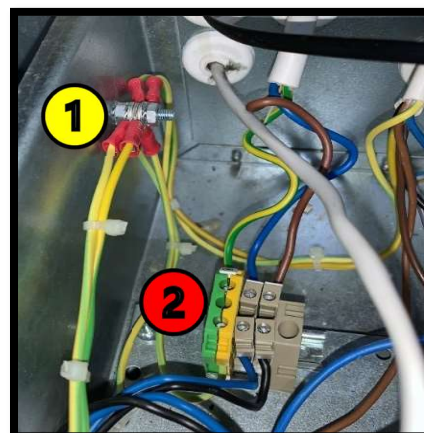
DC HRW circuit board.

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

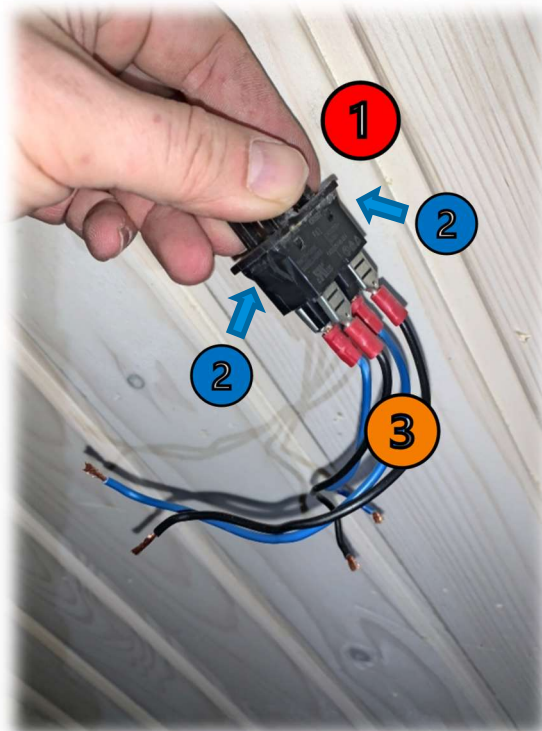
Disconnect the main power wires from **the terminals (2)**.

Remove **the screws (3)**, and remove the automation base incl. **terminals (2)**, **relay board (4)**, **EDA main board (5)**, **capacitors (6)** and **transformer (7)**.

If there is a **blue relay (9)** installed, remove the relay along with the wires and replace the electrical after heater with the new delivered one.



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



Remove **the supply air fan cable (4)**.





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)**.

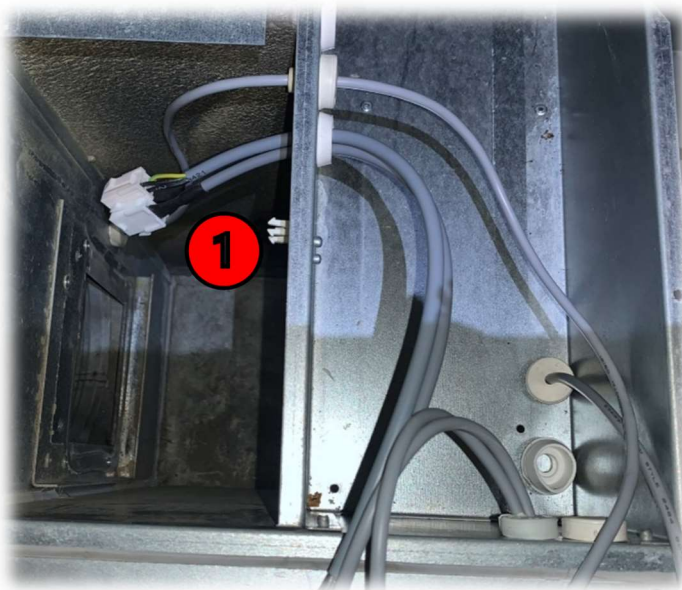
Install **the new extract air fan cables (2)** (40028803, 40028802) **to the electrical box (2)**.

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

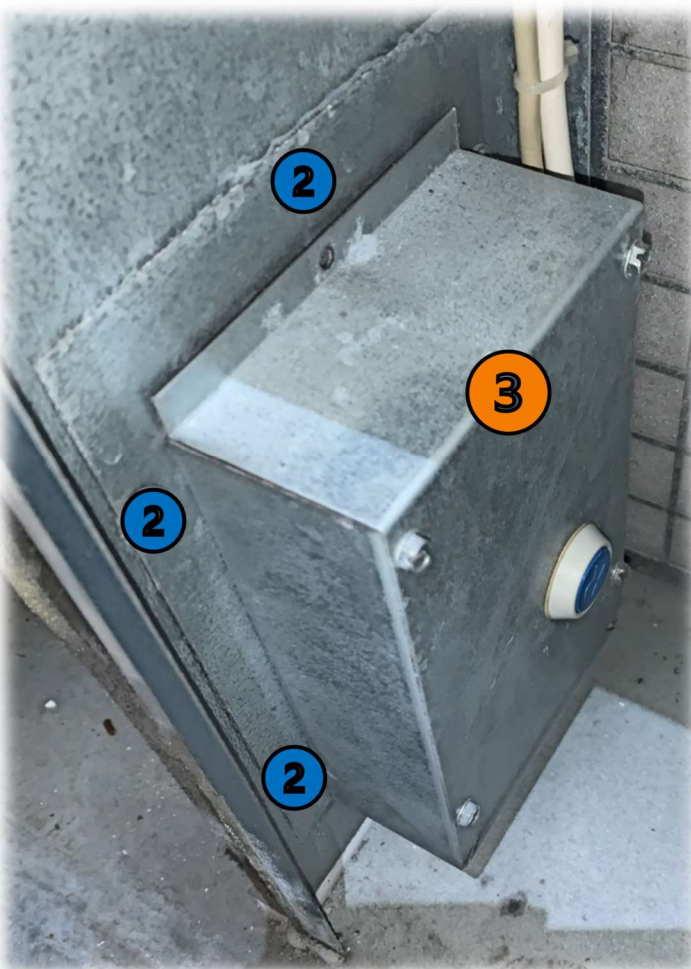


New extract air fan cables installed (1).

Install **the new supply air fan cables (1)** (40028782, 40028784) to the electrical box.



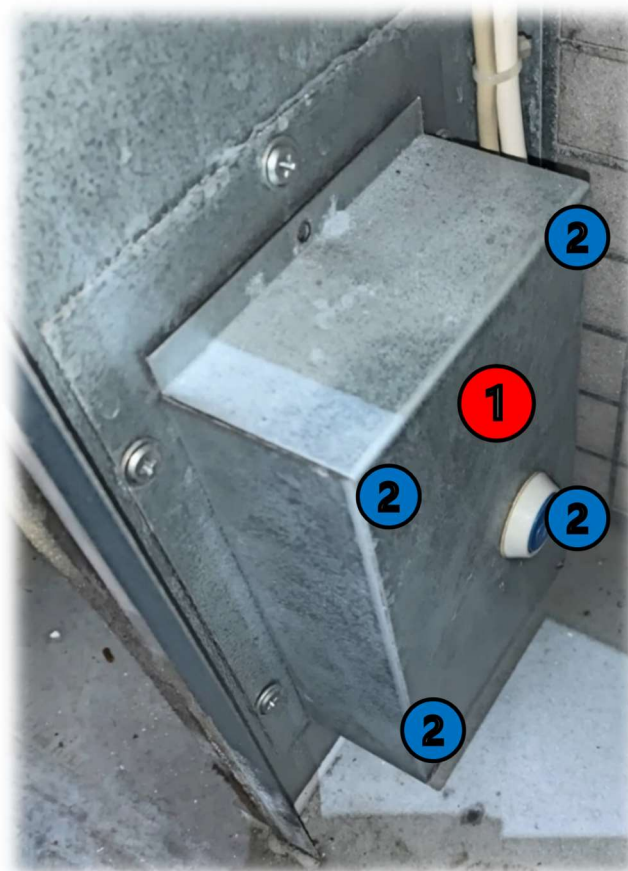
Release **the after heater (3)**, by releasing **the five screws (2)**.
Ignore if the unit has a water coil after heater installed.



Install the new after heater (10023290), if there was a blue relay installed in the electrical box. Otherwise:

Remove **the after heater cover (1)**, by releasing **the four screws (2)**.

Remove the old triac control cable and install **the new triac control cable (3)** (40030313).



Re-install the electrical after heater and install the cables in the electrical box. *Ignore if the unit has a water coil after heater installed.*

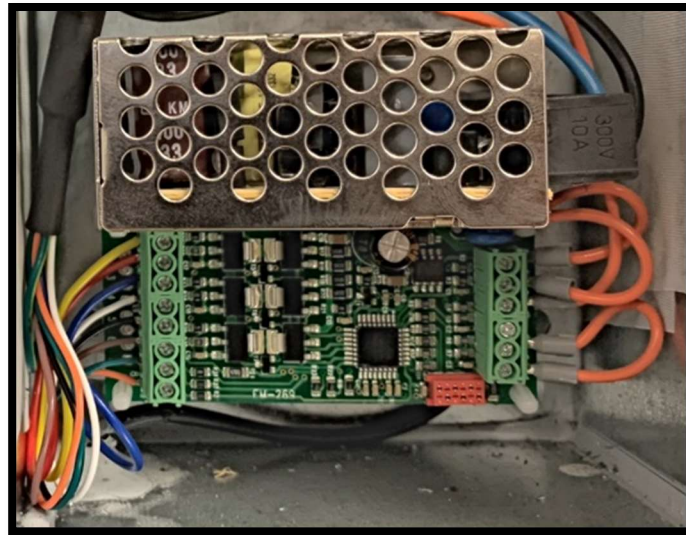
Remove **the old extract air sensor (4)** (two screws) and the cable.



Install **the new extract air sensor (5)** (40029223).

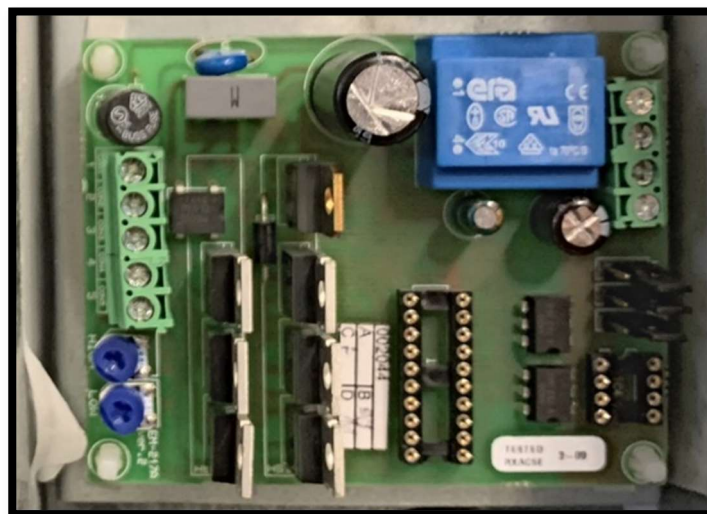


If the unit has a DC HRW installed, jump to page 19.

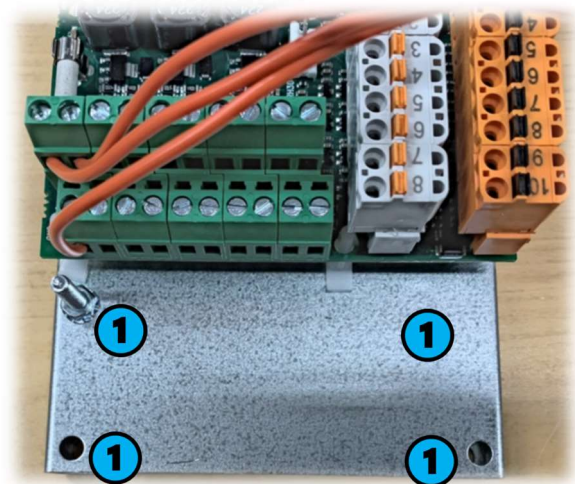


If the unit has an AC HRW installed, follow the instructions on the next page.

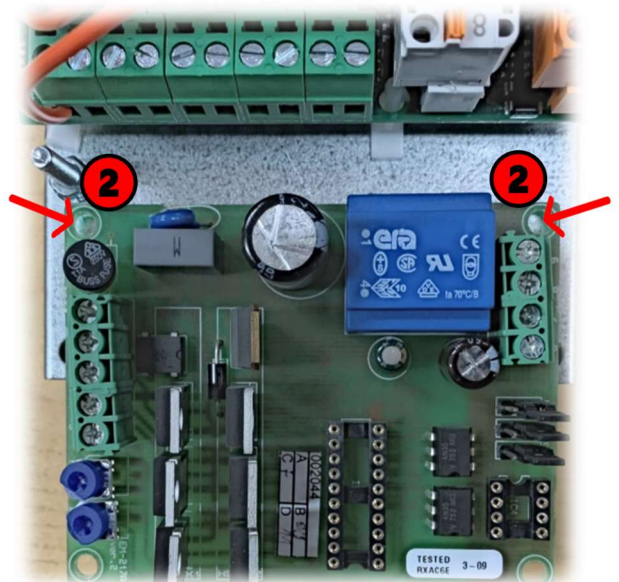
If the AC HRW control board is installed separately in the electrical box, there is no need to move it physically (if the new automation base fits). Just connect it like advised (page 17, 18, 25).



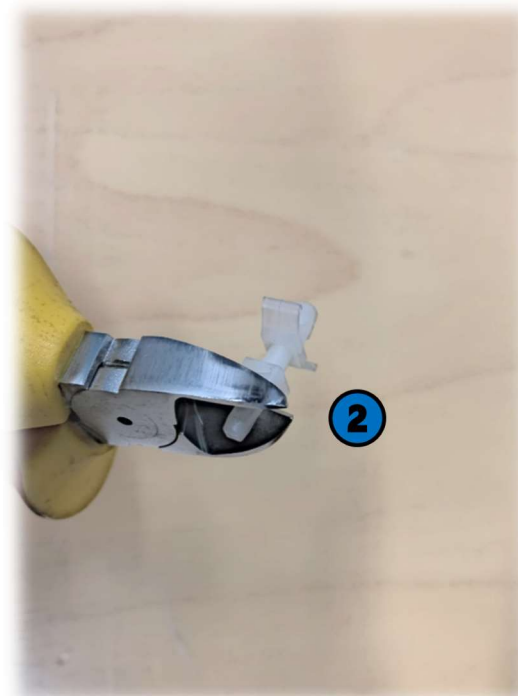
Remove *the PCB supports (1)* from the new automation base.



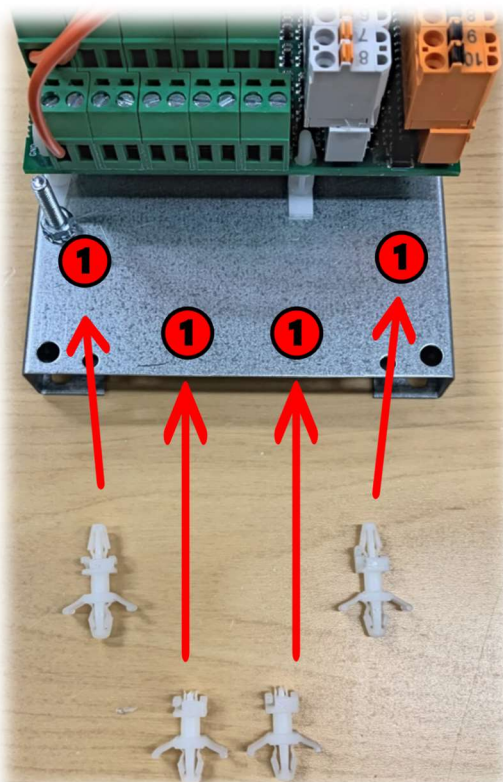
Mark *the holes (2)* to the automation base.



Cut **two of the PCB supports (2)** as shown in the picture.



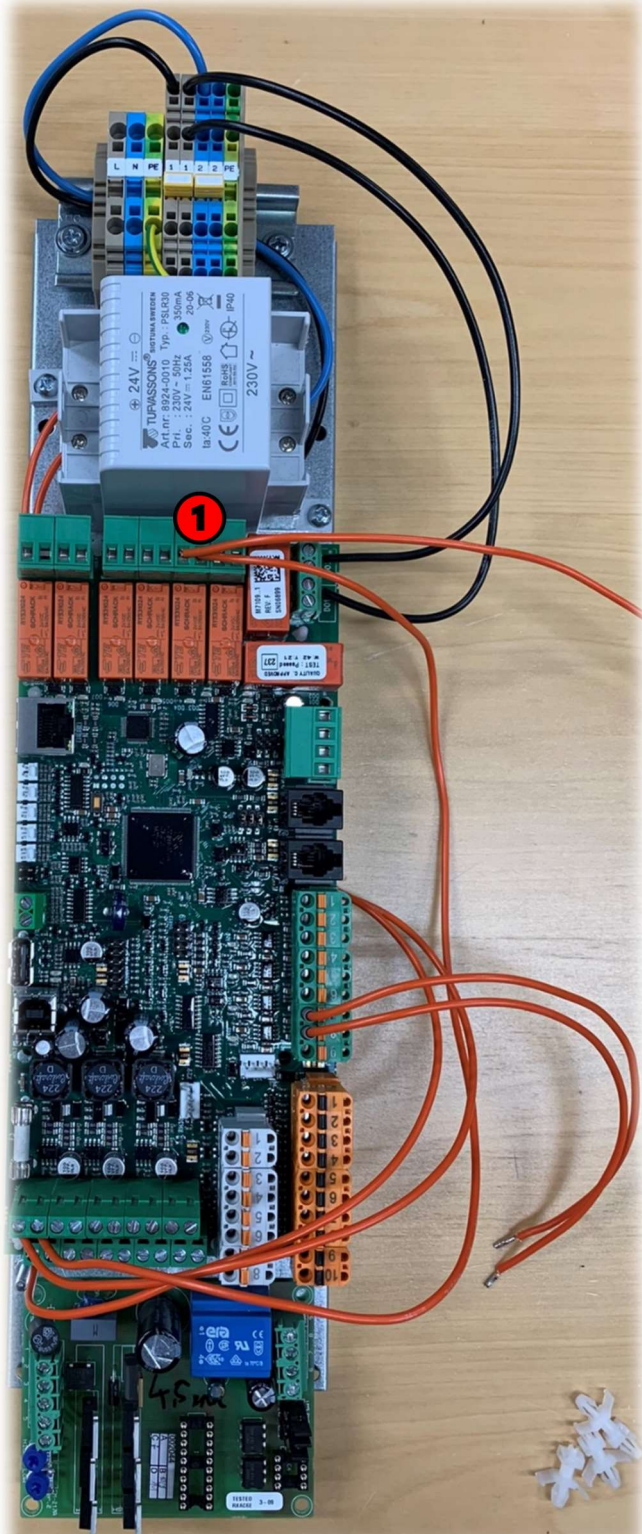
Drill **four 4,5mm holes (1)** according to the previous markings as shown in the picture.



Install the PCB supports into the drilled holes.

Attach the AC HRW circuit board to the PCB supports.

Disconnect and remove
the wires connected to "DO4" (1).



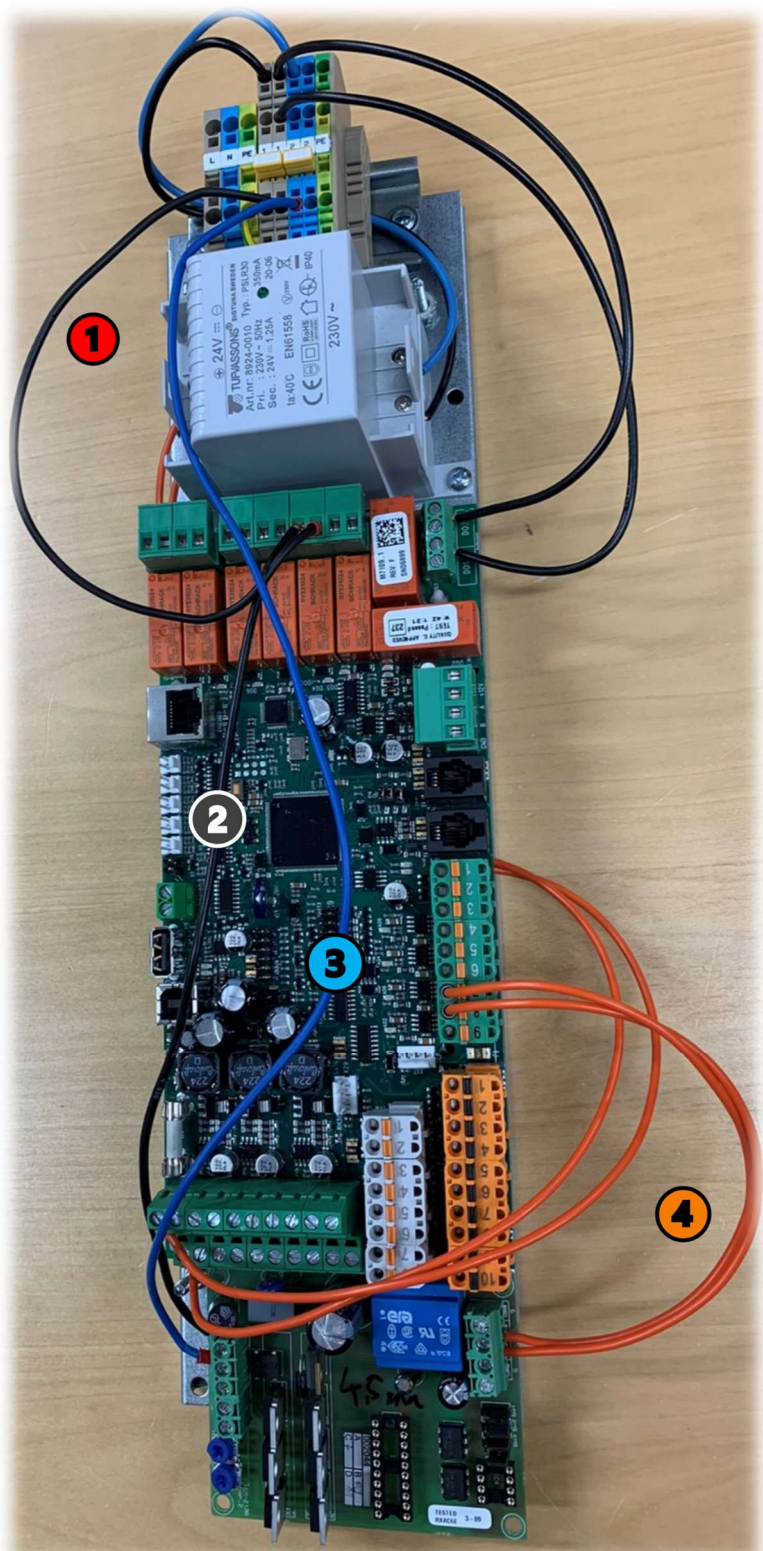
Connect **one black wire** (40028774)
to connection terminal "1" and to "DO4" (1).

Connect **another black wire** (40028774)
to "DO4" and to the AC HRW circuit board connector "1" (2).

Connect **the blue wire** (40028781)
to connection terminal "2" and to the AC HRW circuit board connector "2" (3).

Connect **the wire from eAir main board connector "7" to AC HRW circuit board "8".**

Connect **the wire from eAir main board connector "8" to AC HRW circuit board "7".**

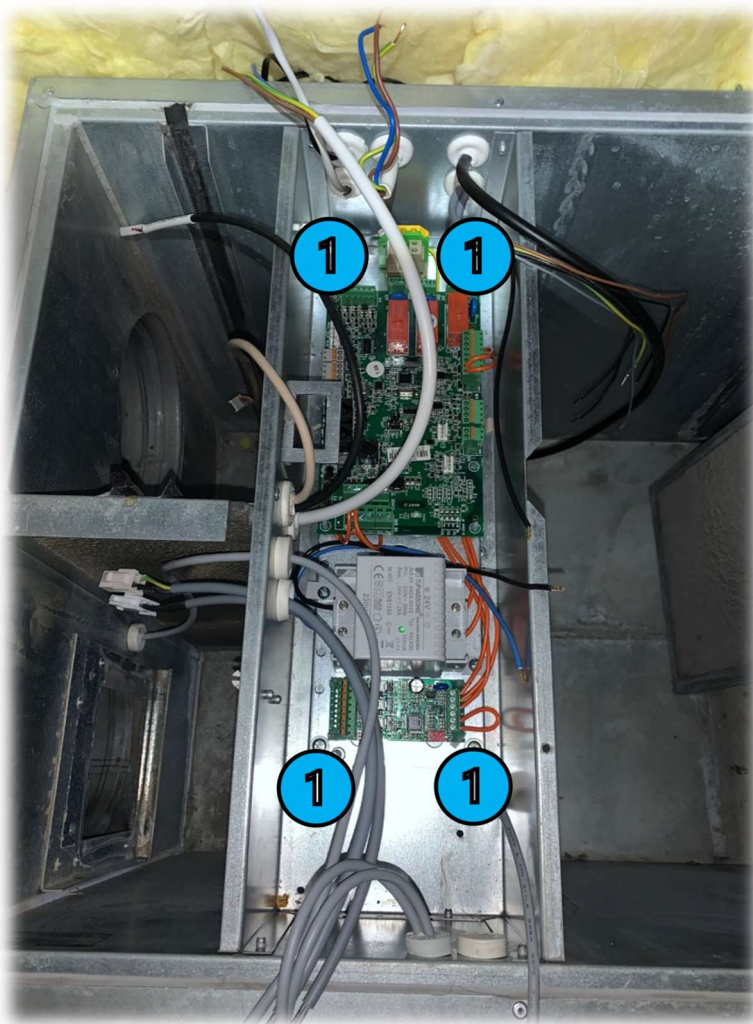


Install **the new automation base** (40029647) in the electrical box.

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 new automation base** (40029647) to the electrical box with **four self tapping screws (1)** (40031530).

If the new automation base doesn't fit in the electrical box; remove the old DC HRW control board from the electrical box and attach it to the new automation base (page 23).

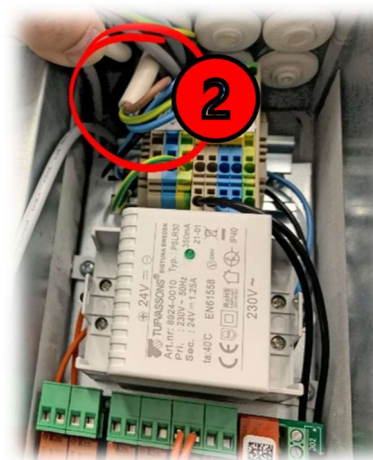


Connect **the main power cable to the terminals (2)**.

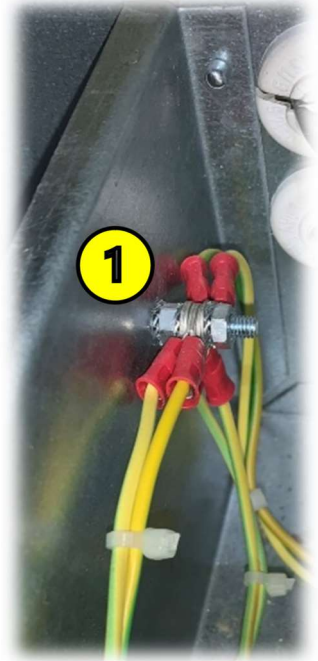
L: Brown

PE: Green/yellow

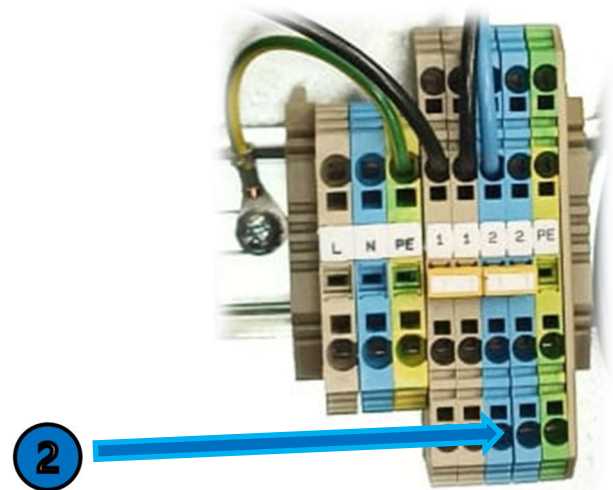
N: Blue



Connect **all ground wires** to **the ground point (1)**.
Supply air fan, extract air fan, after heater, (HRW), ground terminal.
 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.

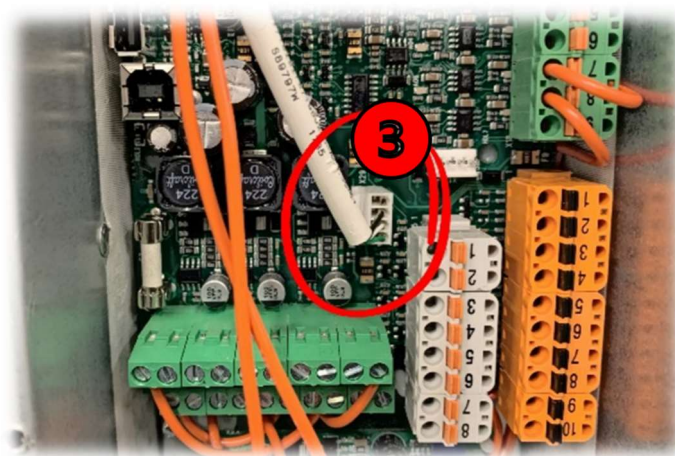
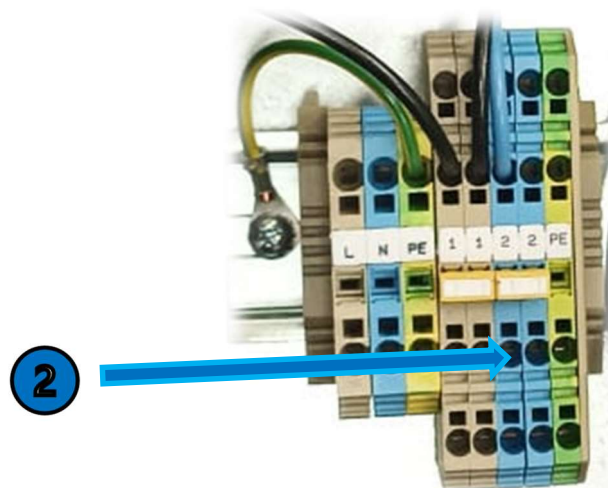
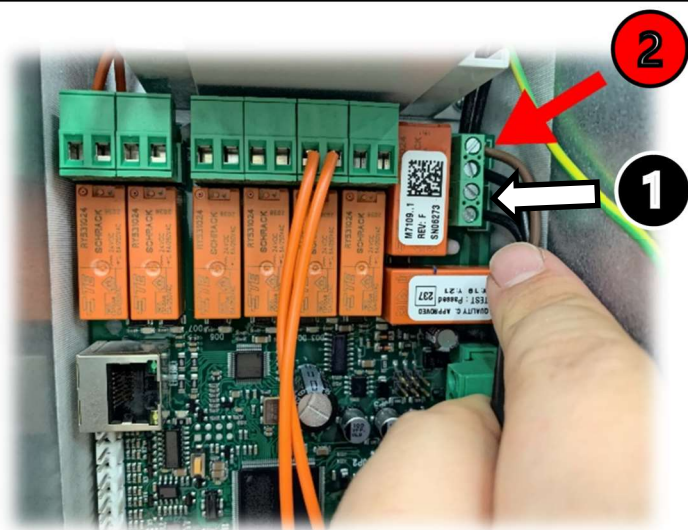


Connect **the brown wire** from the electrical after heater to **"DO2" (2)**.
If there is a water coil after heater installed, the circulation pump power wire (L) would be connected here.

Connect **the wires marked "1"** in the fan power cables (40028782, 40028803) to **"DO1" (1)**.

Connect **the wires marked "2"** in the fan power cables (40028782, 40028803) to **the blue "2" connection terminal (2)**.

Connect **the extract air sensor (3)** (40029223) to the main board (X29).



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

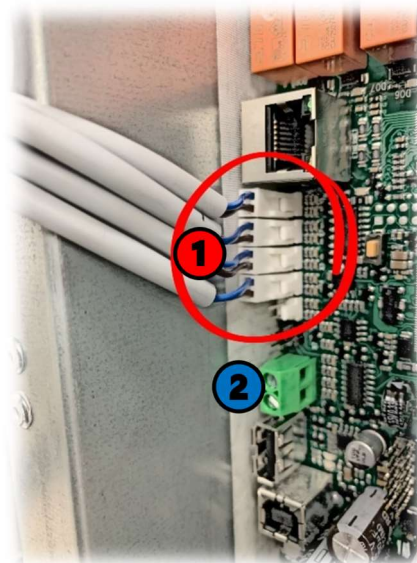
X1, TE01: Outside air

X2, TE05: HRW supply air

X3, TE10: Supply air

X4, TE32: Waste air

X12, TE45: Return water sensor (2),
if the unit has a water coil after heater installed.

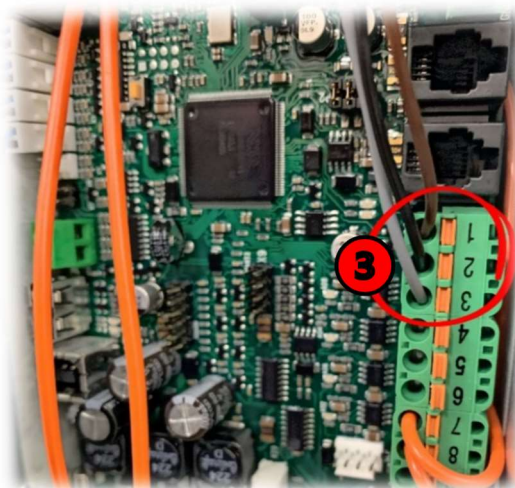


Connect **the wires from the supply air fan control cable (3)** (40028784) to the main board.

1: Brown

2: Black

3: Gray

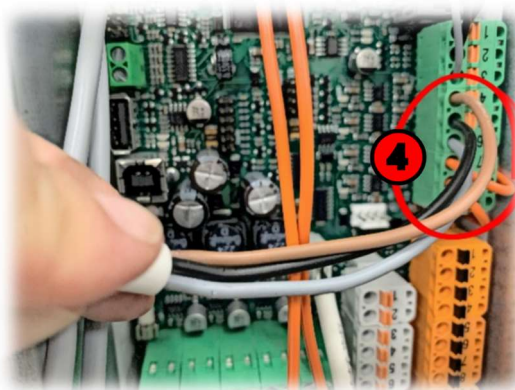


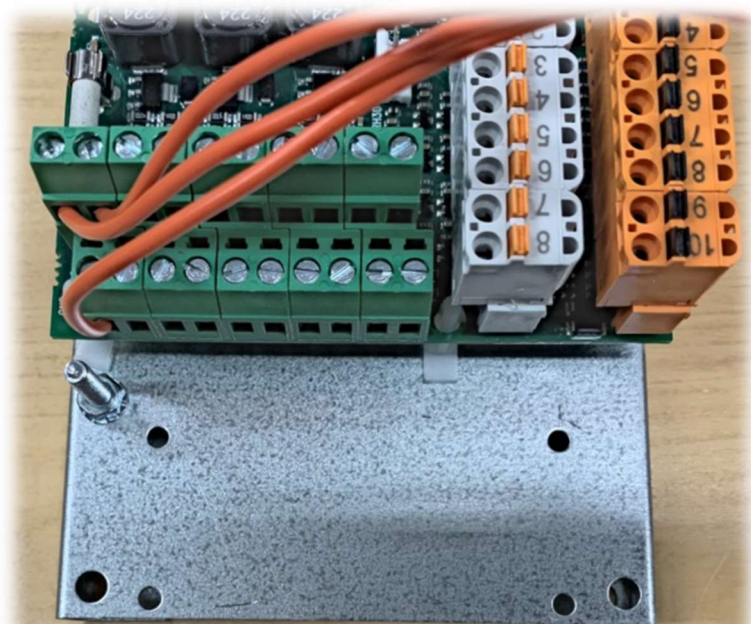
Connect **the wires from the extract air fan control cable (4)** (40028802) to the main board.

4: Brown

5: Black

6: Gray

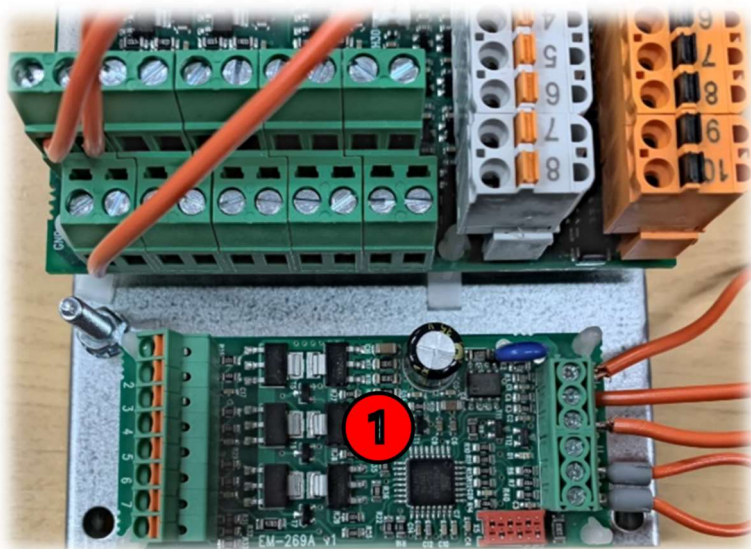




If DC HRW:

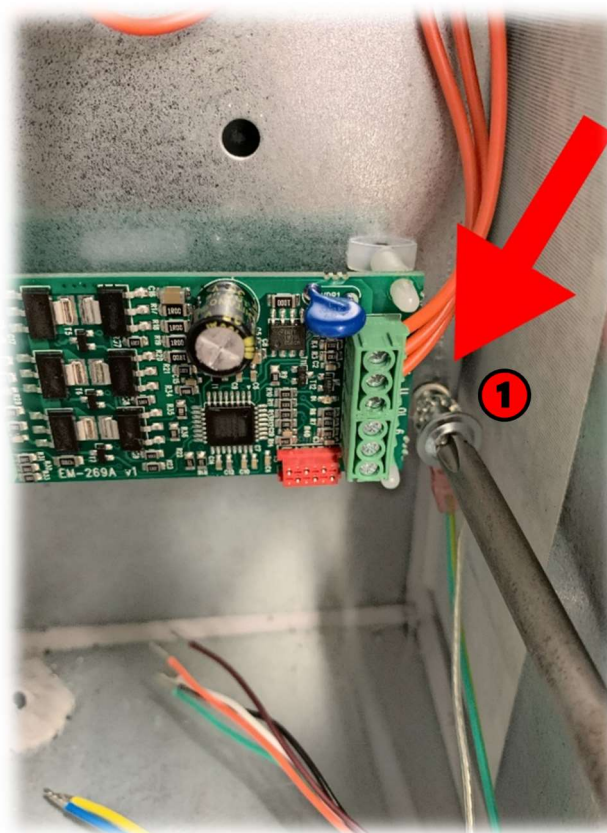
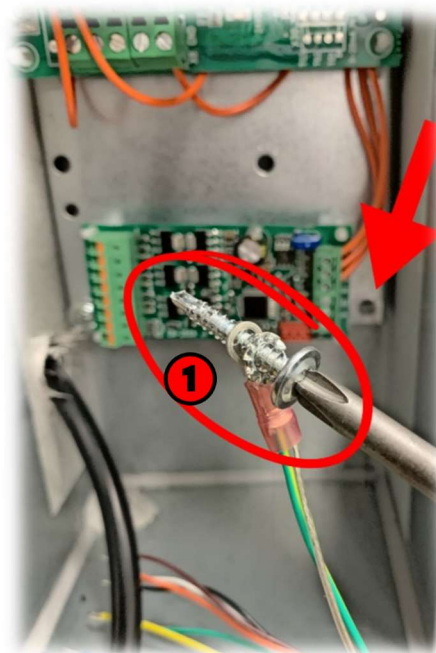
Install **the old DC HRW circuit board (1)** to the new automation base / or leave it in place if installed separately in the electrical box, and connect it to the main board according to the electrical diagram (**page 36**).

The old transformer won't be used anymore!



If DC HRW:

Release **the screw (1)** from the automation base and attach **the ground wire** from the HRW cable to the screw, along with **a washer** (40031537).



Reattach **the screw (1)** to the automation base.

If DC HRW:

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

1: Yellow

2: Red

3: Blue

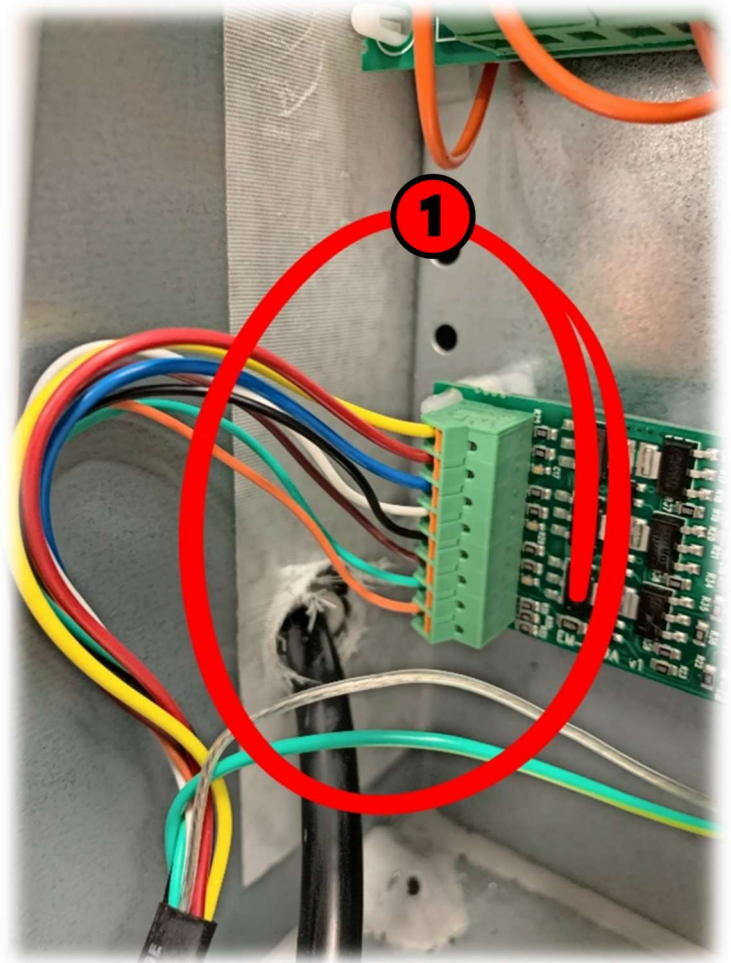
4: White

5: Black

6: Brown

7: Green

8: Orange



If AC HRW:

Connect **the wires from the HRW cable to the HRW control board (2).**

3: Brown

4: Gray

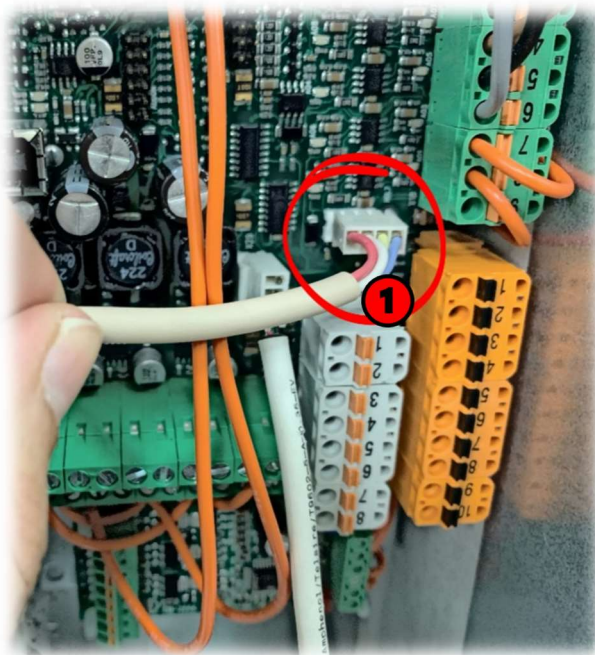
5: Black

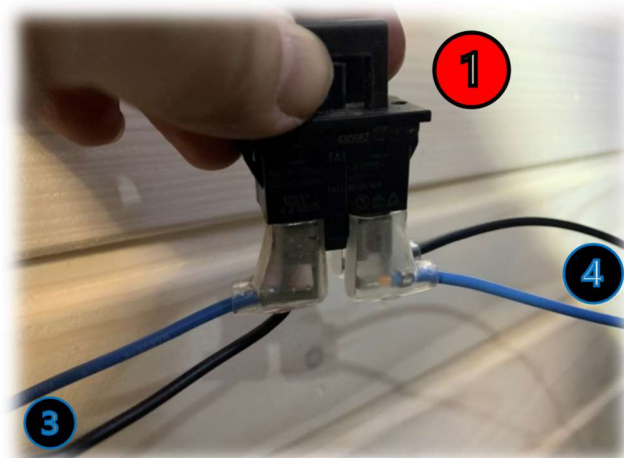


Connect **the after heater control cable (1)** to the main board (X17).

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 35-38).

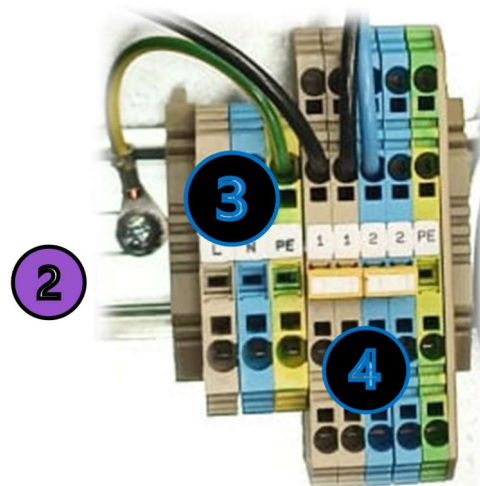




Connect the pairs of wires with flat connectors, (40028776, 40028777) to the **main switch (1)**, **install the main switch (5)** and connect the wires to **the connection terminals (2)**.

L: Black (3)
N: Blue (3)

1: Black (4)
2: Blue (4)

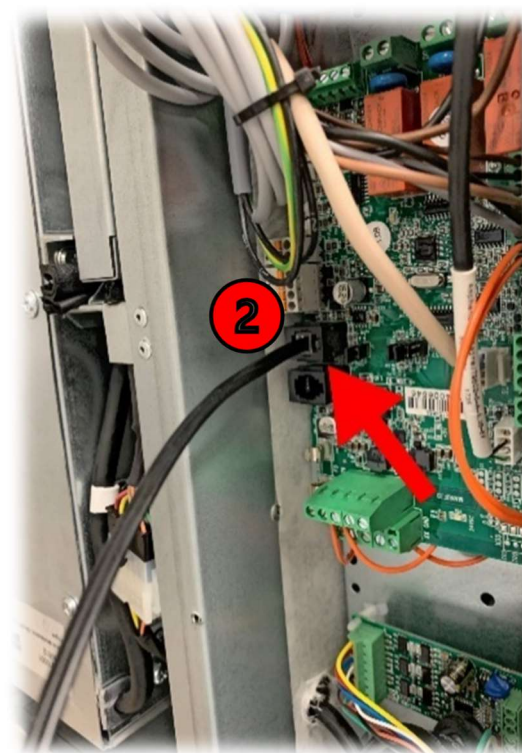


Attach the cables together with **cable ties** (40030997).

Install and connect **the new fans (1)** (10023157).



Connect **the display cable (2)** to the main board.
Close the cover to the electrical box.



Replace the old display with **the new display (1)** (40031114).



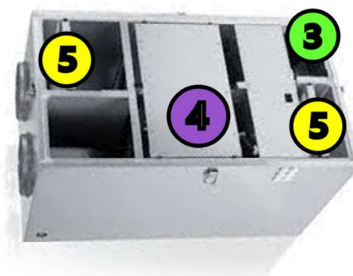
Install **the WiFi module (2)** (40034288).



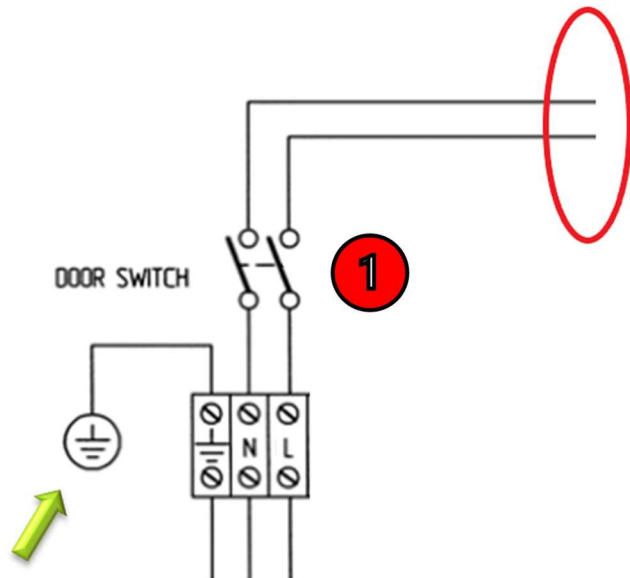
Install **the new type plate sticker (3)**.

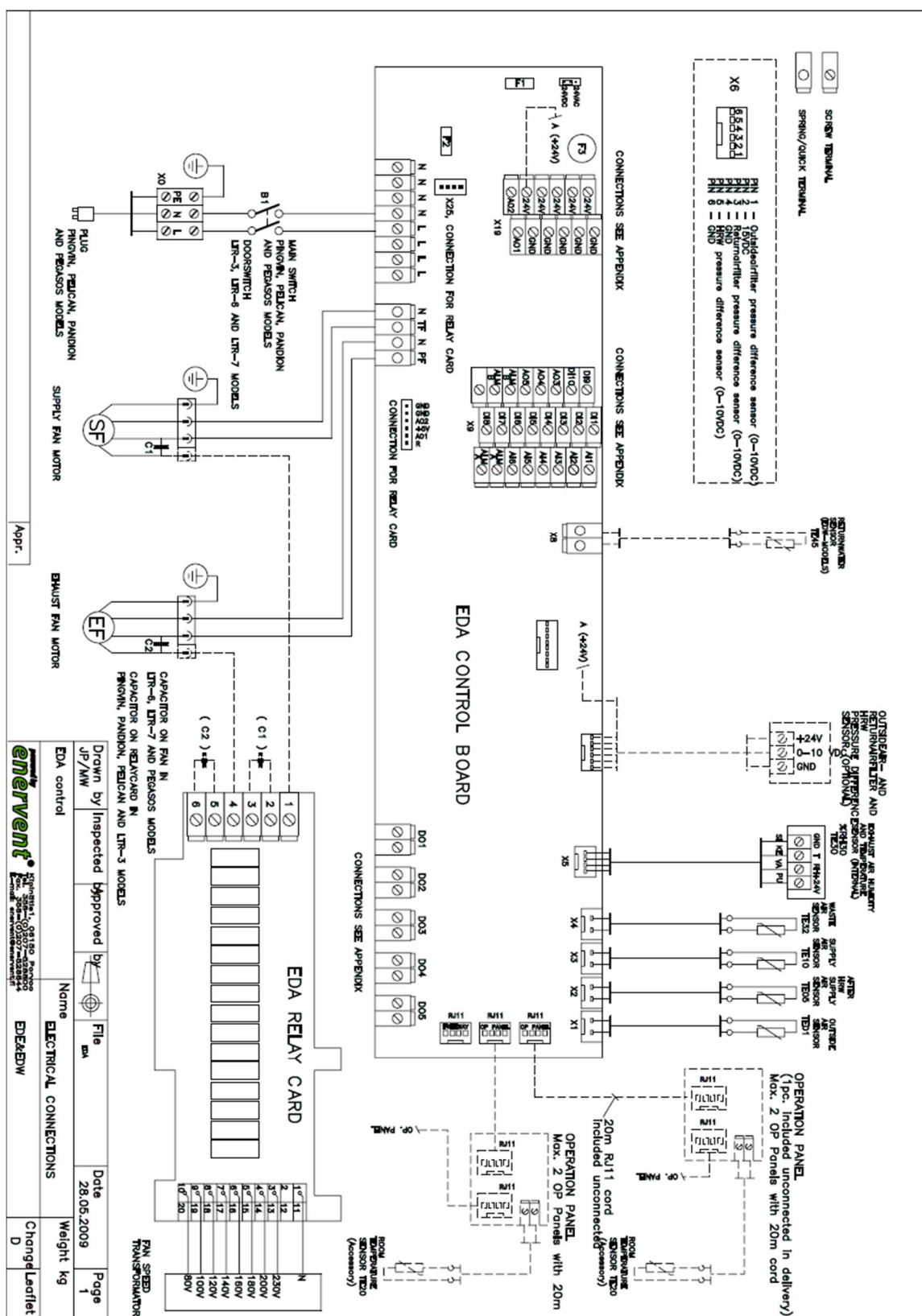
Install and connect **the HRW (4)**.

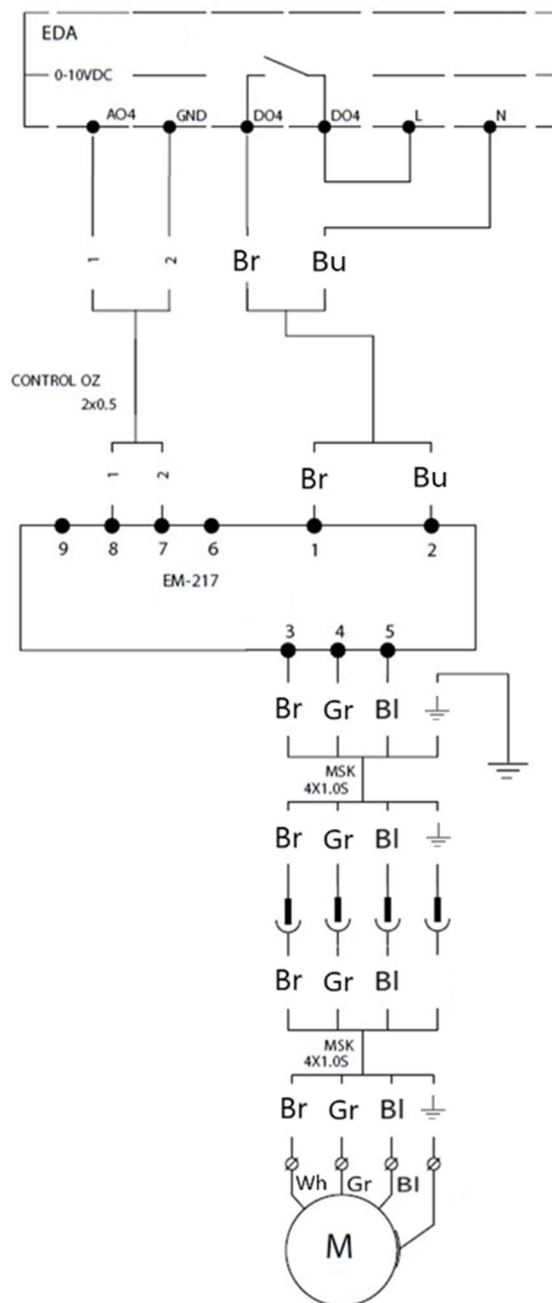
Install **the filters (5)**.



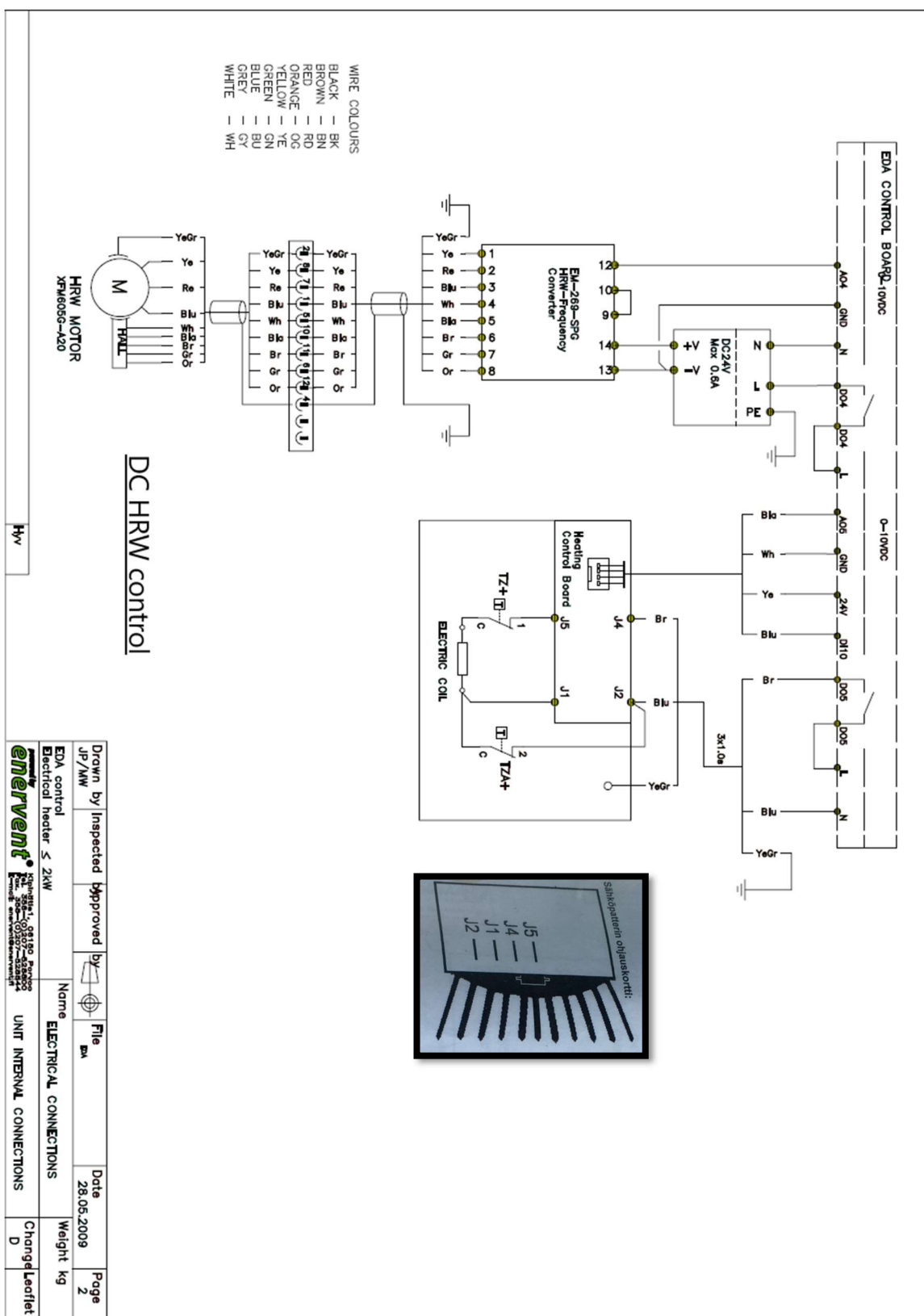
Press down **the main switch (1)** and perform insulation and ground continuity test according to regulations.

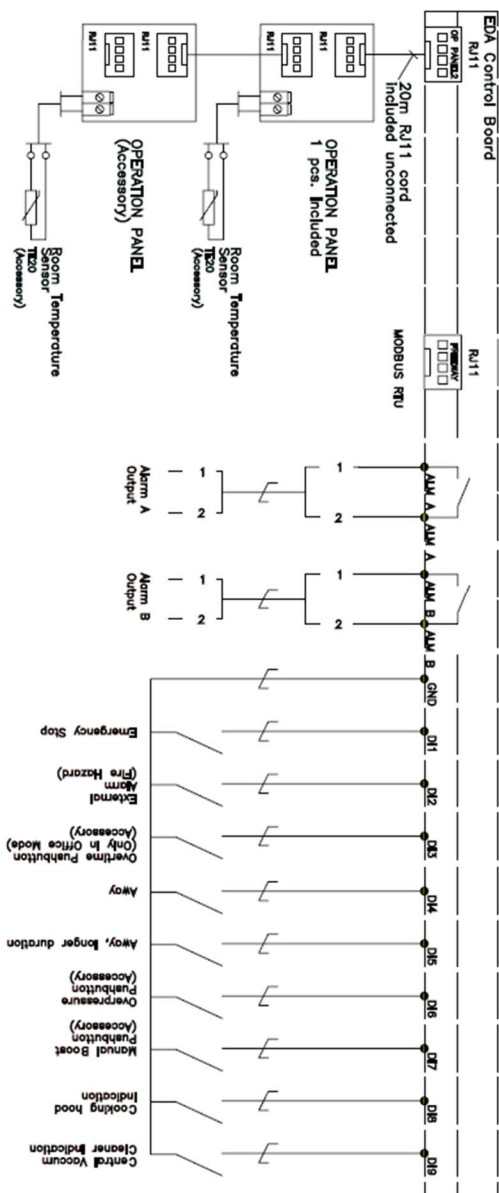
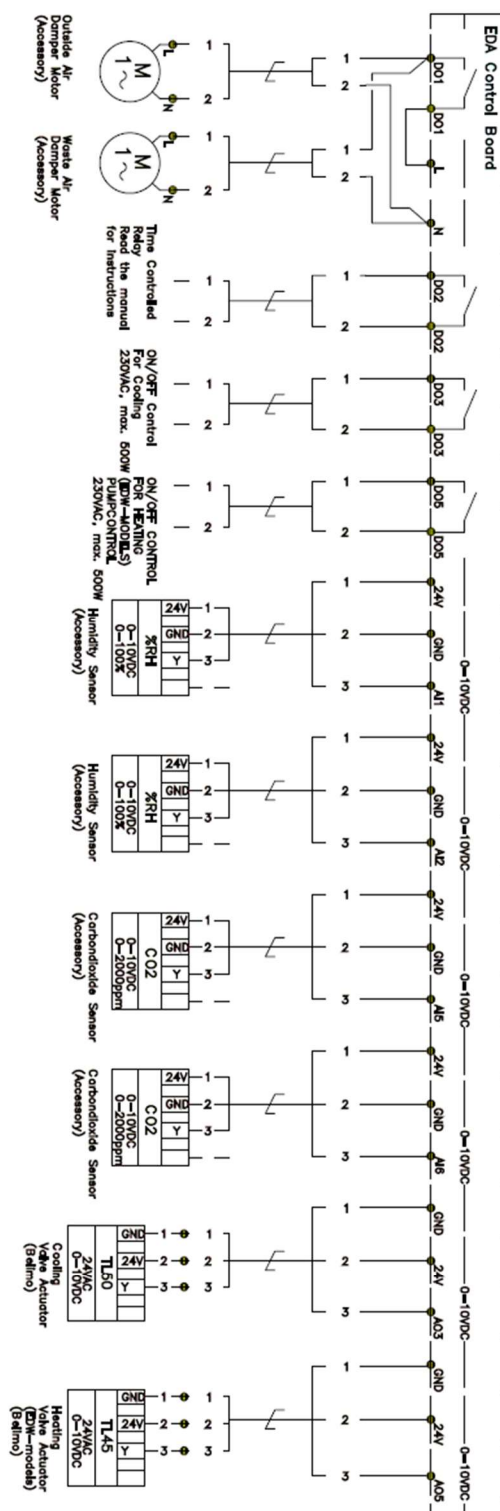




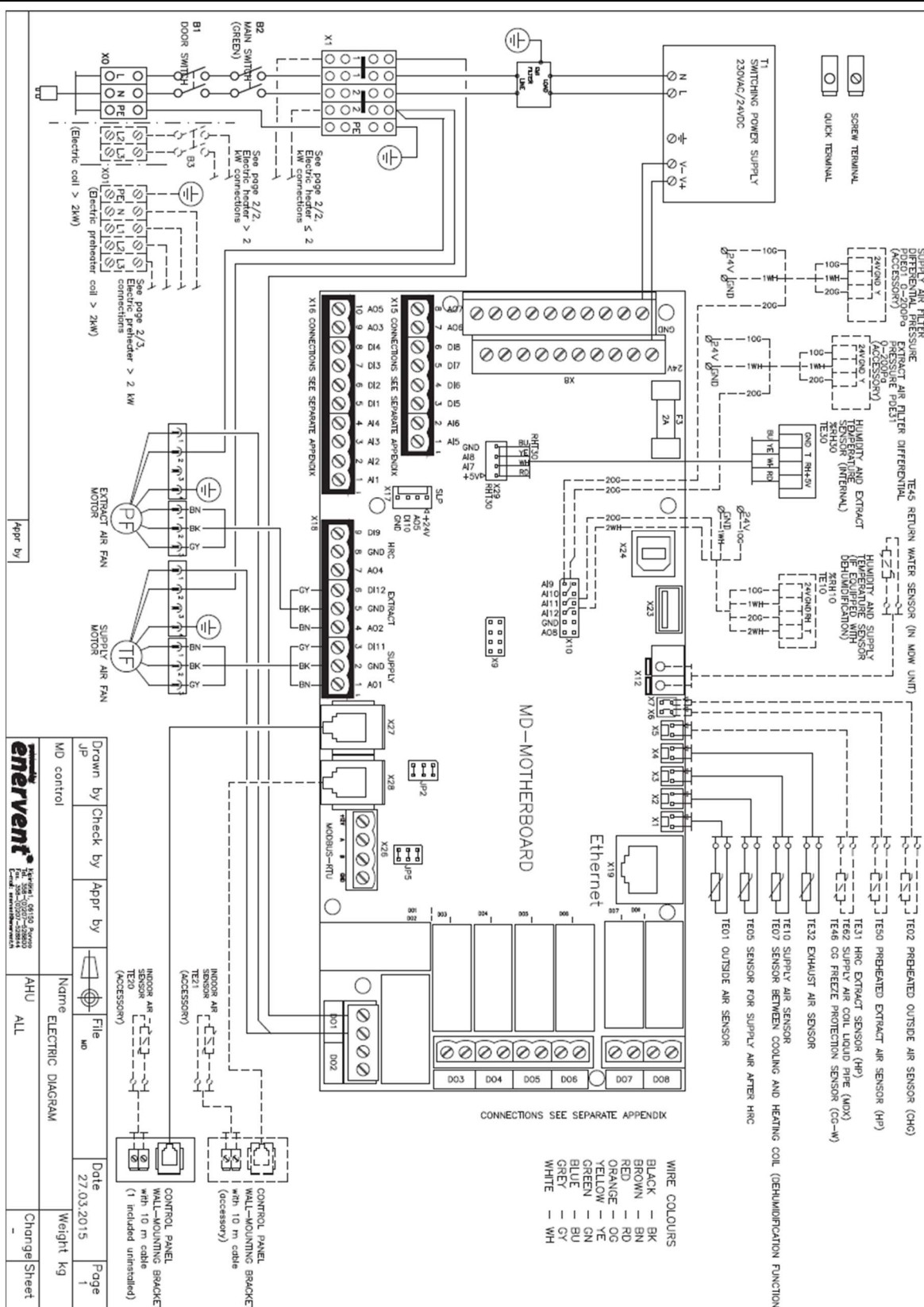


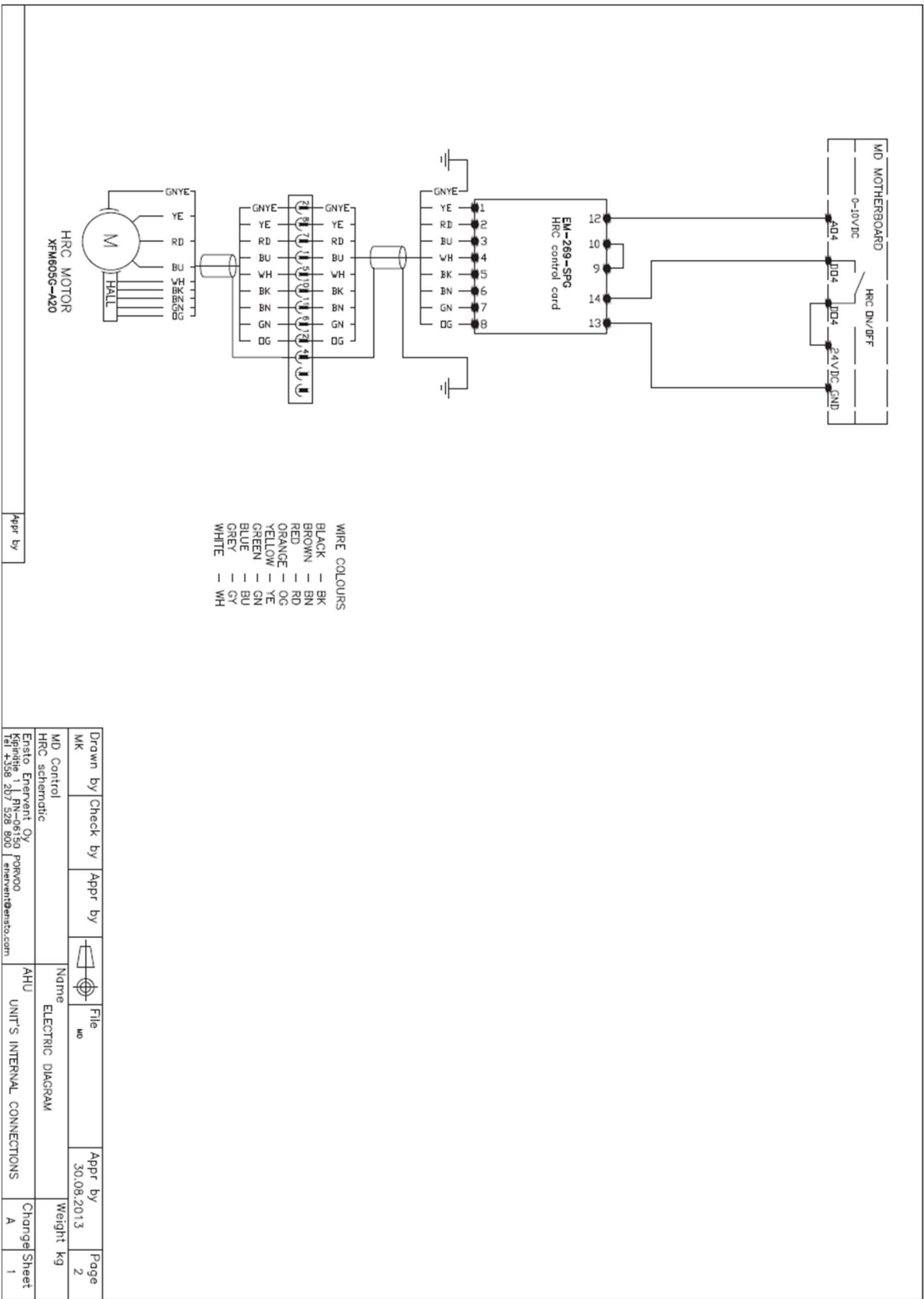
HRW MOTOR

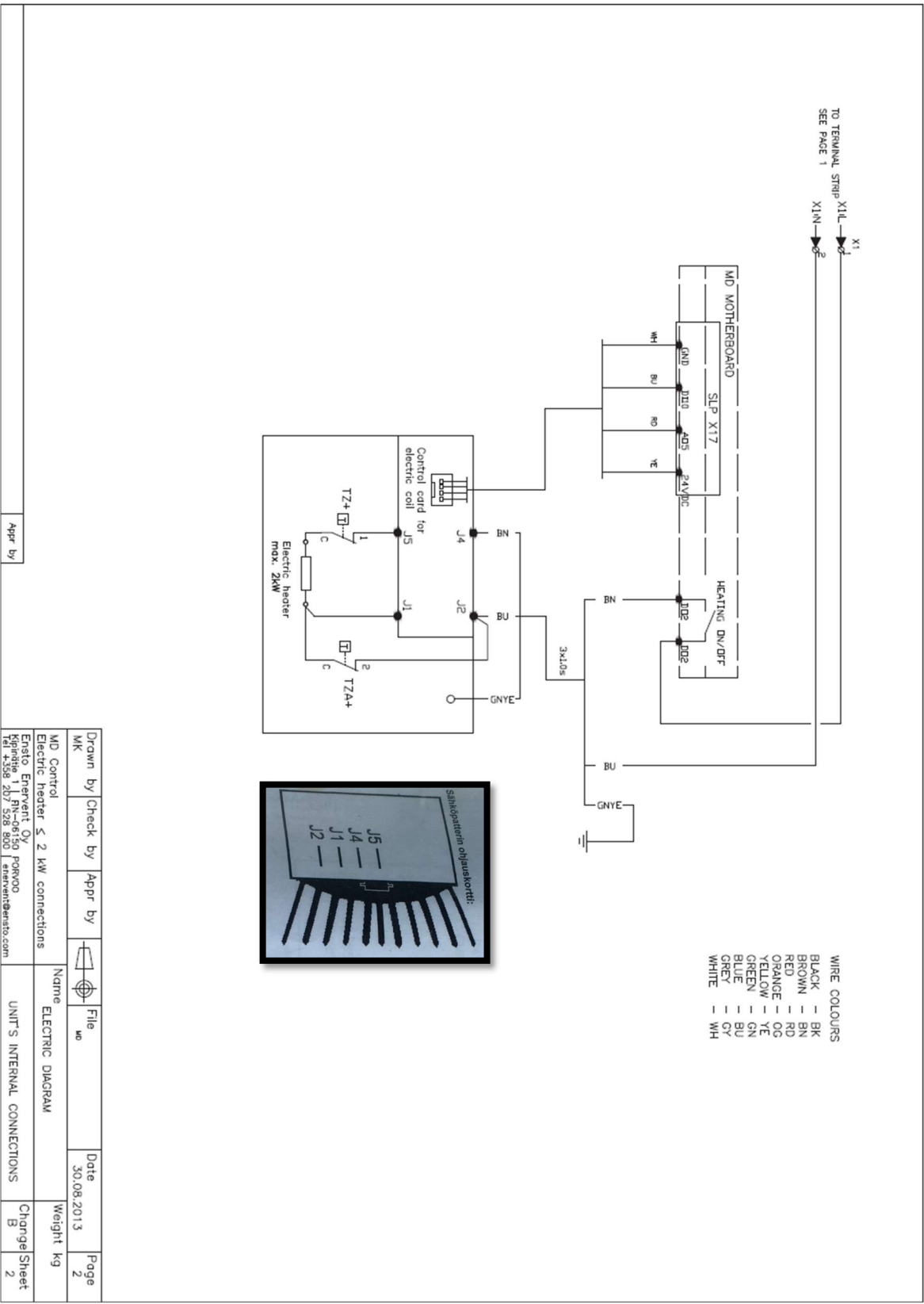


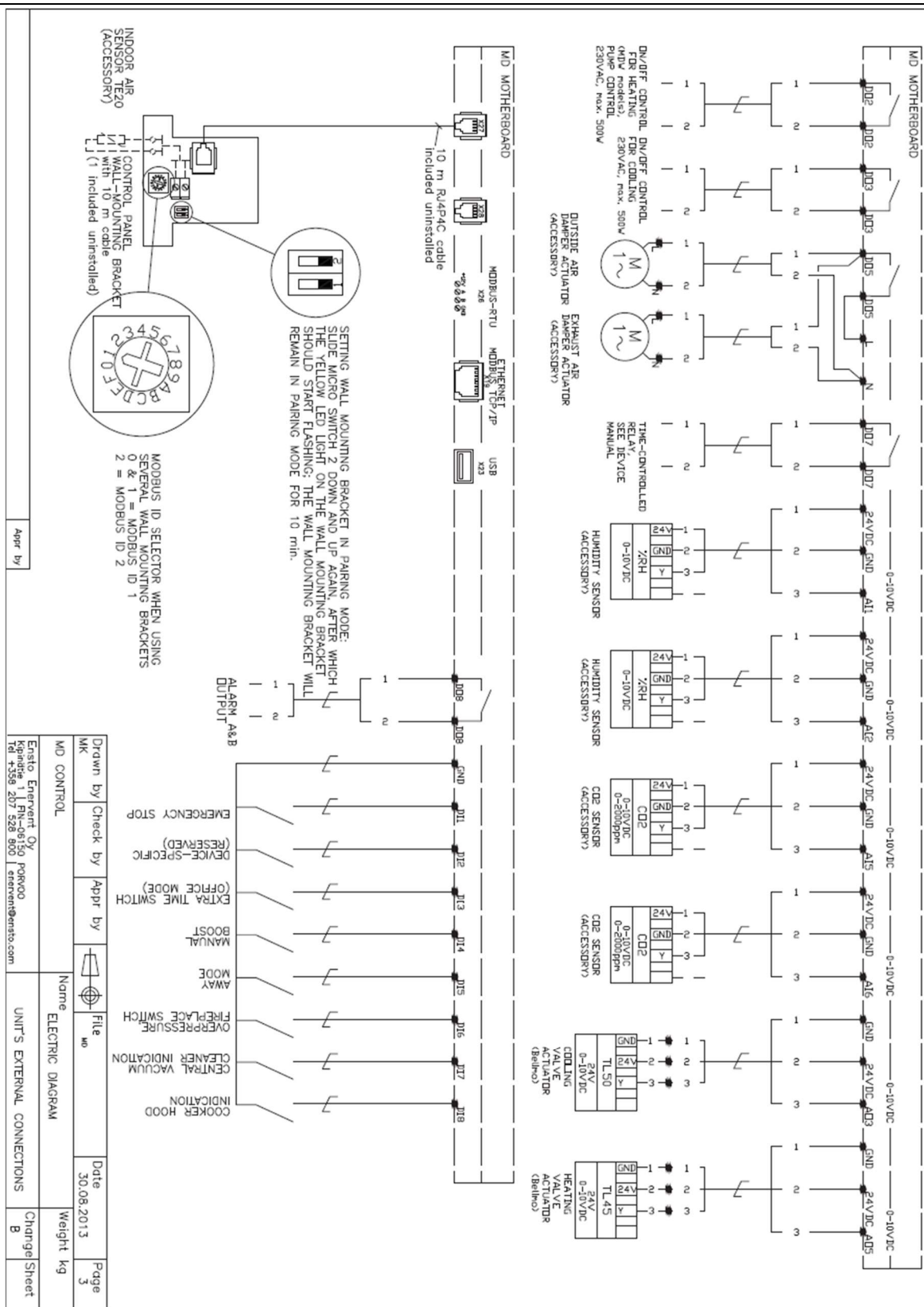


Drawn by	Inspected	Approved	by	File	Date	Page
JP / MW				Pa	28.05.2009	3
EDA Control				Name	Weight	kg
				ELECTRICAL CONNECTIONS		
				UNIT EXTERNAL CONNECTIONS	Change	leaflets
					D	









MANDATORY PARTS

10024022	CONTROL UPDATE KIT LTR-3 EDA → EAIR	1
10023157	FAN PACKAGE ECO 118W	2

OPTIONAL PARTS

10023290	ELECTRICAL HEATER 0,5kW	1
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<u>Code</u>	<u>Description</u>	<u>Pcs.</u>
10024022	CONTROL UPDATE KIT LTR-3 EDA → EAIR	

Automation

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
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
40029647	Automation base	1
40029344	Terminal package	1

Components

40030100	Cable sealing VET 5-7	5
40029244	Cable sealing PMR 615 AVL140	8
40028782	Fan power cable supply air	1
40028803	Fan power cable extract air	1
40028784	Fan control cable supply air	1
40028802	Fan control cable extract air	1
40029223	Humidity/temperature sensor Amphenol 350mm	1
40031530	Screw ZN 4,2x25	4
40028776	Wire 250mm black	2
40028777	Wire 250mm blue	2
40028774	Wire 255mm 1mm ² black	3
40028781	Wire 600mm 1mm ² blue	1
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8 ZN M4	1
40030997	Cable tie 2,5x200mm	10
40031114	eAir panel package	1
40030313	Triac cable 1000mm 4-pole	1
40034288	WiFi module package	1

Manuals etc. (depends on model)

eAir installation manual	1
eAir user manual	1
eAir electrical diagrams	1

MANDATORY PARTS

10024022	CONTROL UPDATE KIT LTR-3 EDA → EAIR	1
10023157	FAN PACKAGE ECO 118W	2

<u>Code</u>	<u>Description</u>	<u>Pcs.</u>
10024022	CONTROL UPDATE KIT LTR-3 EDA → EAIR	

Automation

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
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
40029647	Automation base	1
40029344	Terminal package	1

Components

40030100	Cable sealing VET 5-7	5
40029244	Cable sealing PMR 615 AVL140	8
40028782	Fan power cable supply air	1
40028803	Fan power cable extract air	1
40028784	Fan control cable supply air	1
40028802	Fan control cable extract air	1
40029223	Humidity/temperature sensor Amphenol 350mm	1
40031530	Screw ZN 4,2x25	4
40028776	Wire 250mm black	2
40028777	Wire 250mm blue	2
40028774	Wire 255mm 1mm ² black	3
40028781	Wire 600mm 1mm ² blue	1
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8 ZN M4	1
40030997	Cable tie 2,5x200mm	10
40031114	eAir panel package	1
40030313	Triac cable 1000mm 4-pole	1
40034288	WiFi module package	1

Manuals etc. (depends on model)

eAir installation manual	1
eAir user manual	1
eAir electrical diagrams	1

Notes: