

Automation upgrade

LTR-3 AC -> 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!**

Table of contents

Upgrade.....3

Electrical diagrams AC automation.....31

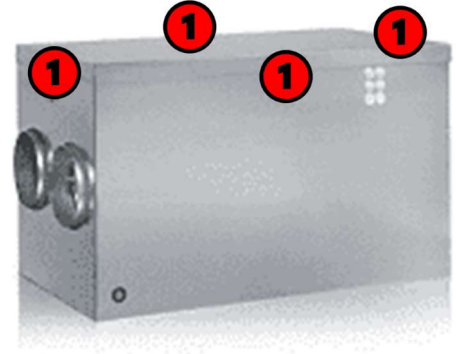
Electrical diagrams eAir automation35

Parts list eAir E.....39

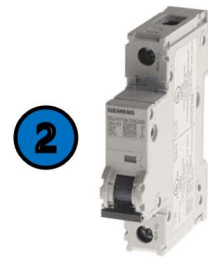
Parts list eAir W.....40

Notes41

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



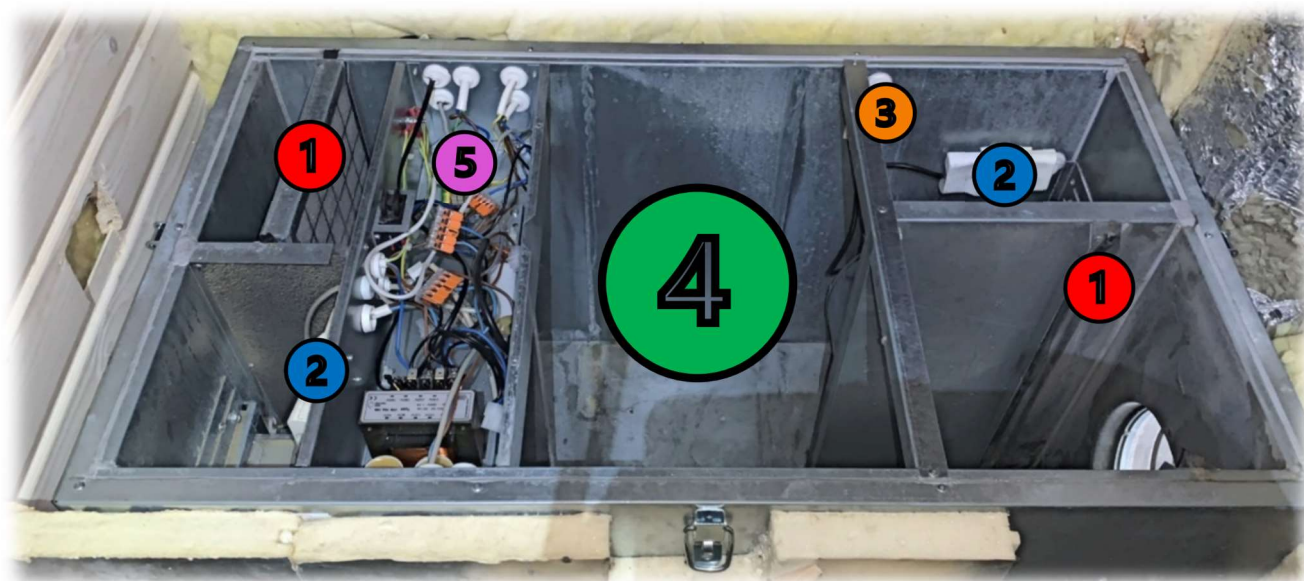
Cut **the power to the unit (2)** (and other power supplies if available).



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

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





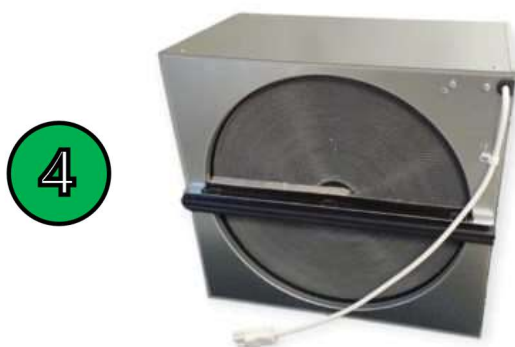
Remove **the filters (1)** by pulling.

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

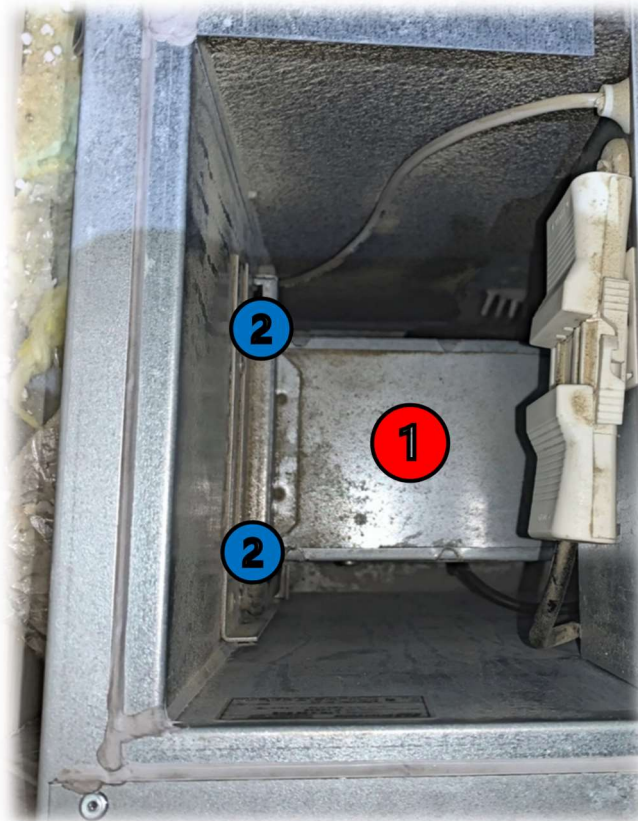
Disconnect **the HRW connector (3)**.

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

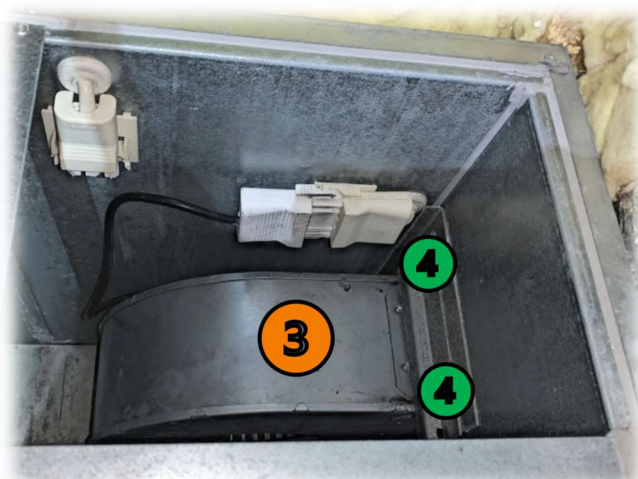
Disconnect the main switch power wires from **the terminals (5)**.



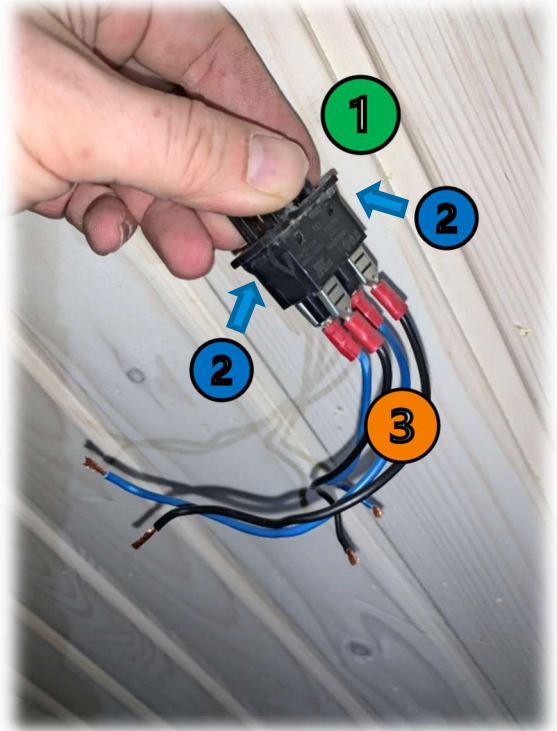
Remove **the supply air fan (1)**
by releasing **the screws (2)**.



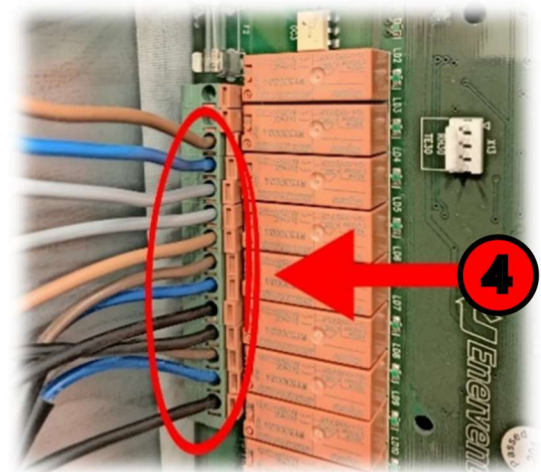
Remove **the extract air fan (3)**
by releasing **the screws (4)**.



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



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



Disconnect **the ground wire (1)** from the main board and remove it.

If a water coil after heater is installed (ACW), the actuator is connected **here (2)**. Disconnect and remove the wires. The actuator can't be used anymore. Install the new actuator afterwards according to the electrical diagram (**page 38**).

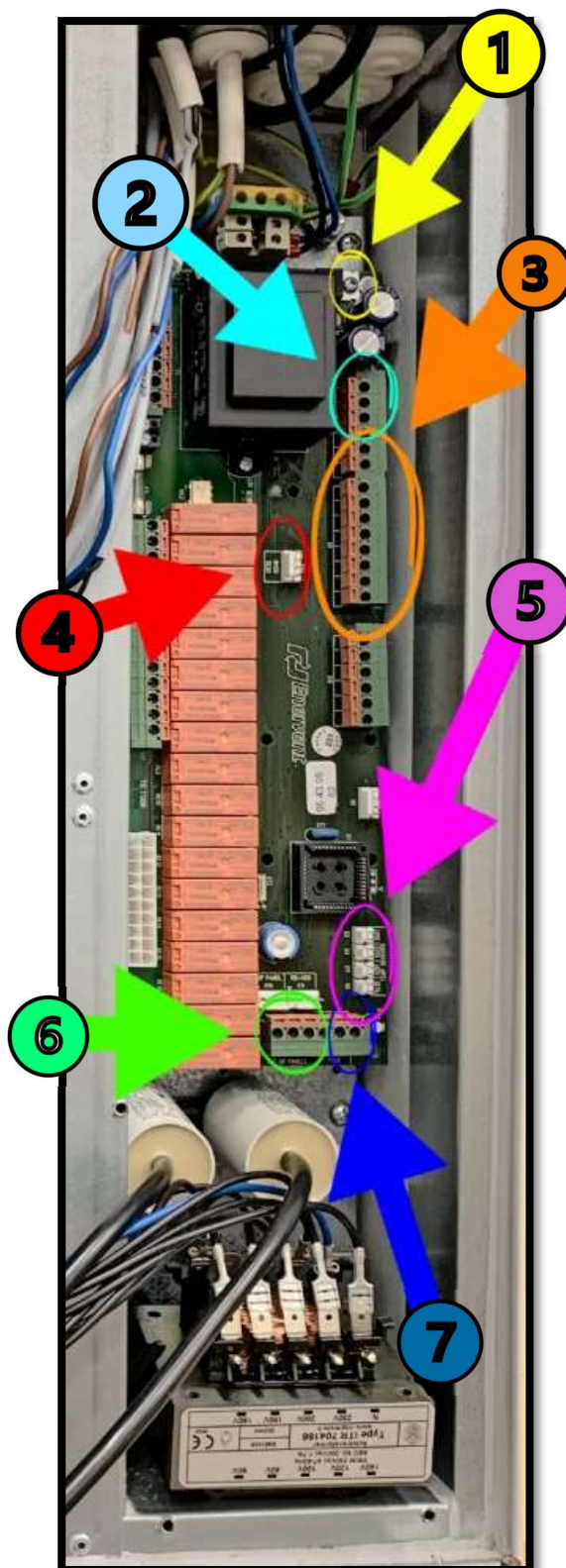
If there are wires connected **here (3)**, mark them according to the reading on the main board and disconnect.

Disconnect **the cable (4) and remove the extract air sensor (two screws) and reattach the two screws**.

Disconnect **the sensors (5)**.

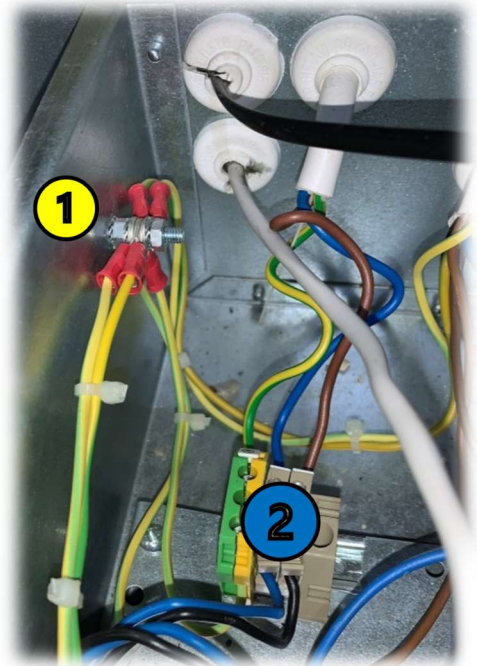
Disconnect **the wires (6)**. Don't remove this cable, it might be needed later.

If a water coil after heater is installed (ACW), the return water sensor is connected **here (7)**. Disconnect and remove the wires. The sensor can't be used anymore.



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

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



Remove **the screws (2)** and remove the automation base, incl. **terminal blocks (1)**, **main board (3)**, **capacitors (4)** and **transformer (5)**.

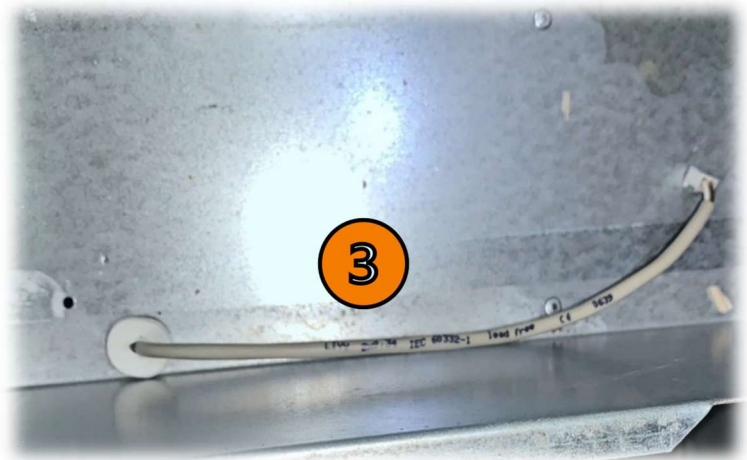


Remove **the supply air sensor (1)**.
*Ignore if the unit has a water coil
after heater or a cooling coil installed.*

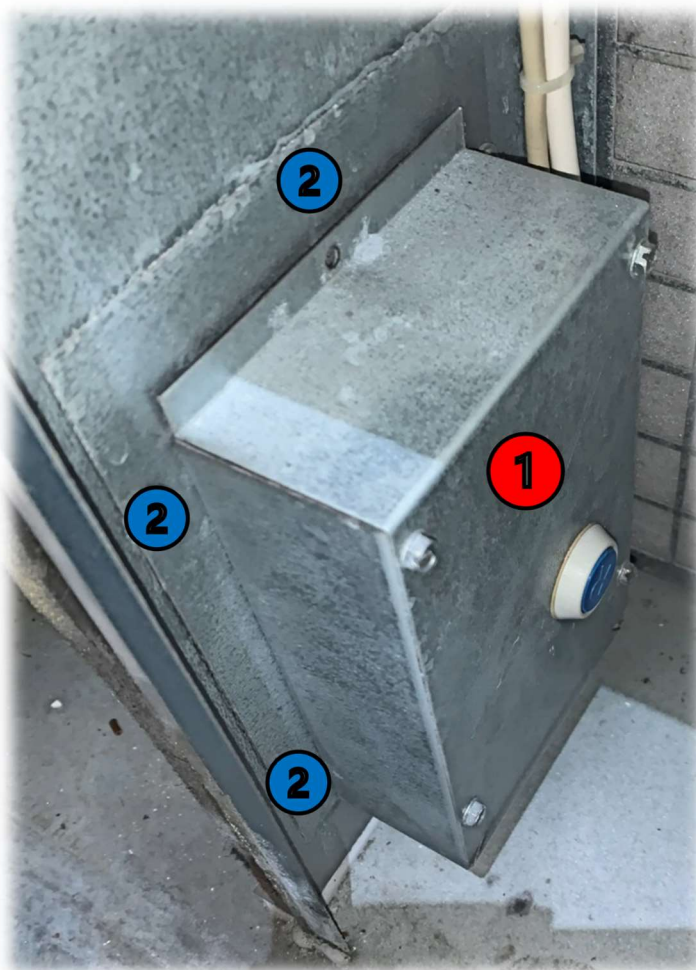
Remove **the supply air fan cable (2)**.



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



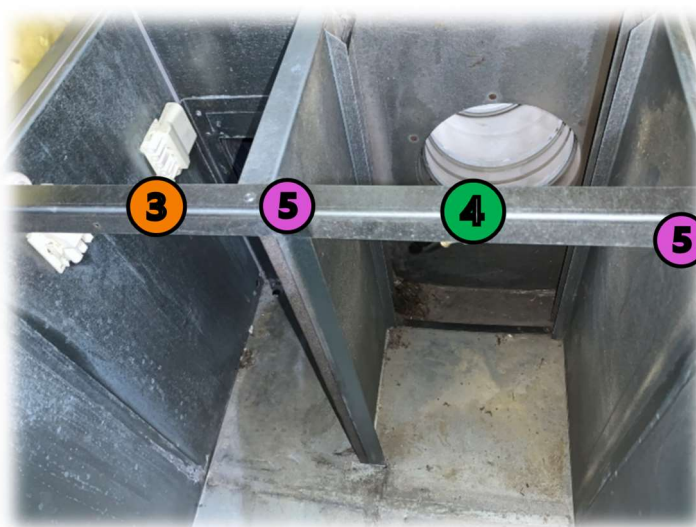
Remove **the after heater and the cables (1)**,
by releasing **the five screws (2)**.
*Ignore if the unit has a water coil
after heater installed.*



Release **the waste air sensor (3)**.

Release **the outside air sensor (4)**.

Remove **the cable sealings (5)**.





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

Mark the new sensors in both ends:

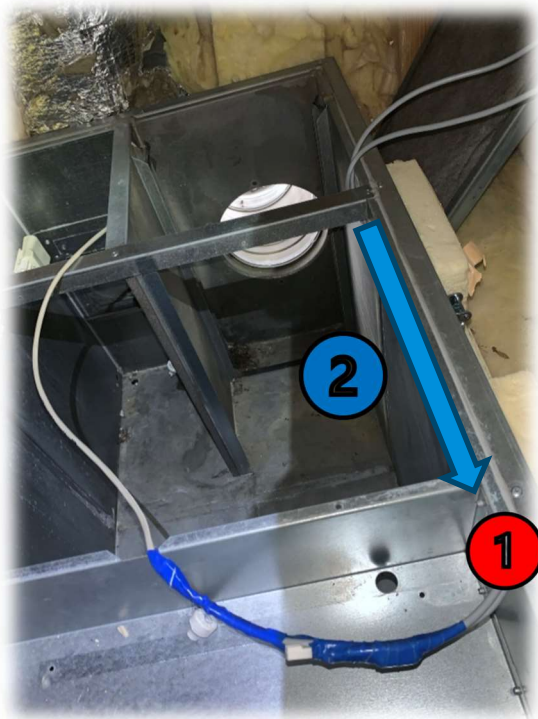
"TE01" (outside air)

"TE32" (waste air)



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

Install **the new sensors (1700mm) (40029167)**
into the electrical box (2).



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



Install **new cable sealings (1)** (40030100).

Attach the sensors to the frame with **cable ties (2)** (40030997).



Install **the new HRW supply air sensor (850mm) (3)** (40029165).

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



Install **the new supply air sensor (850mm) (4)** (40029165).

Mark the sensor:
"TE10" (supply air)

*Ignore if the unit has a water coil after heater or a cooling coil installed. Replace the old supply air sensor with **the new supply air sensor (3000mm)** (40029168).*

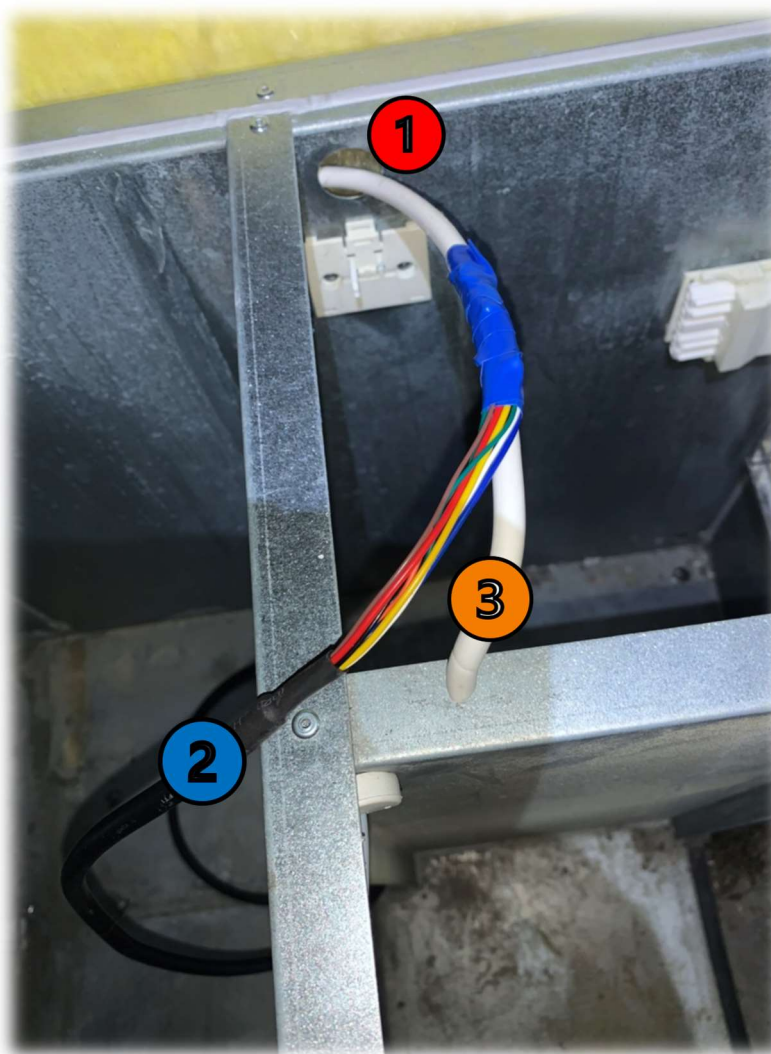


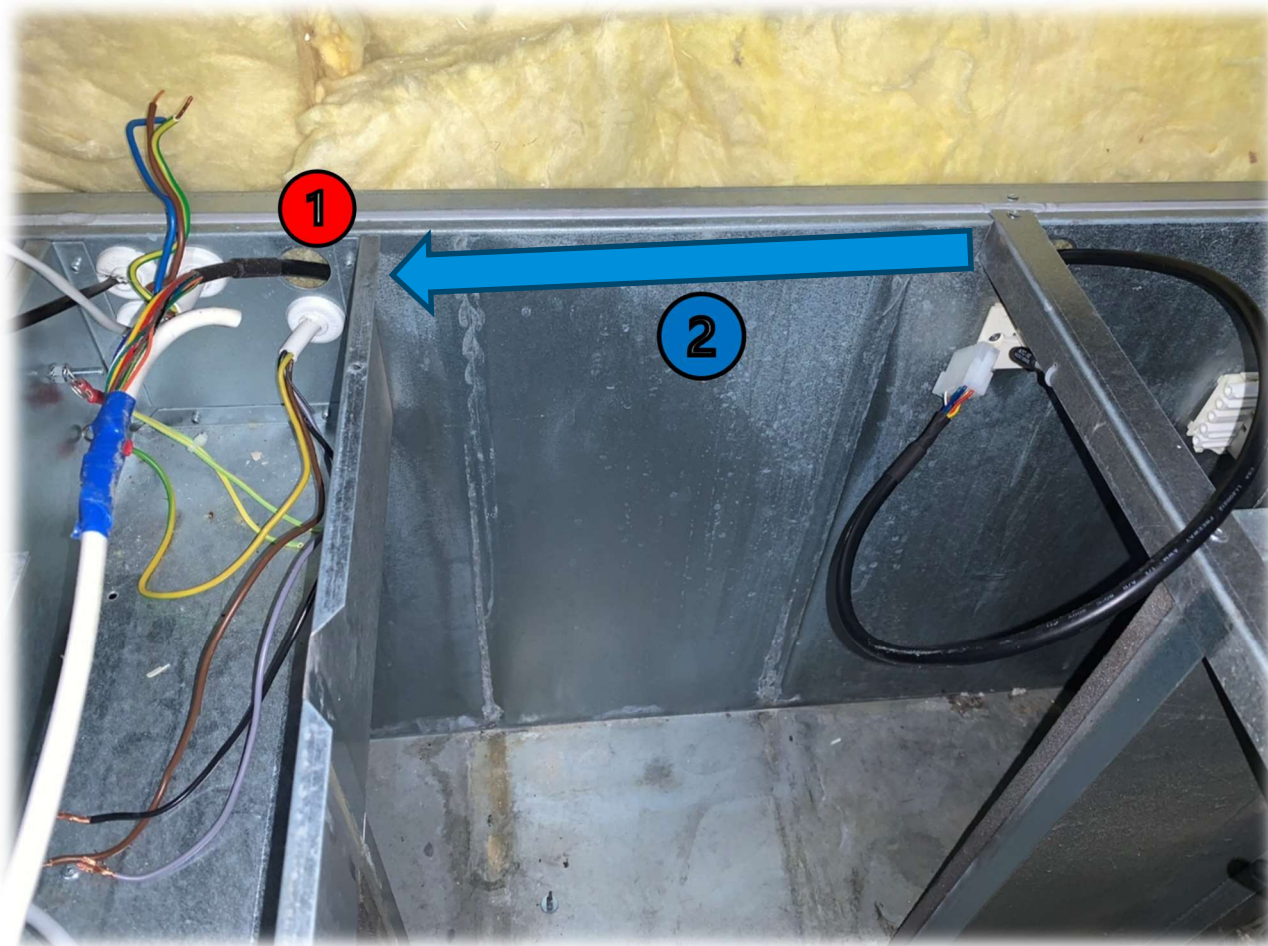
Remove **the cable sealing (1)**.

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

Install **a new cable sealing (40029244)**
to the new HRW cable (2) (40033952).

Attach **the new HRW cable (2)**
(40033952) to **the old HRW cable (3)**
with strong tape.





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

Install **the new HRW cable** (40033952) **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)**.

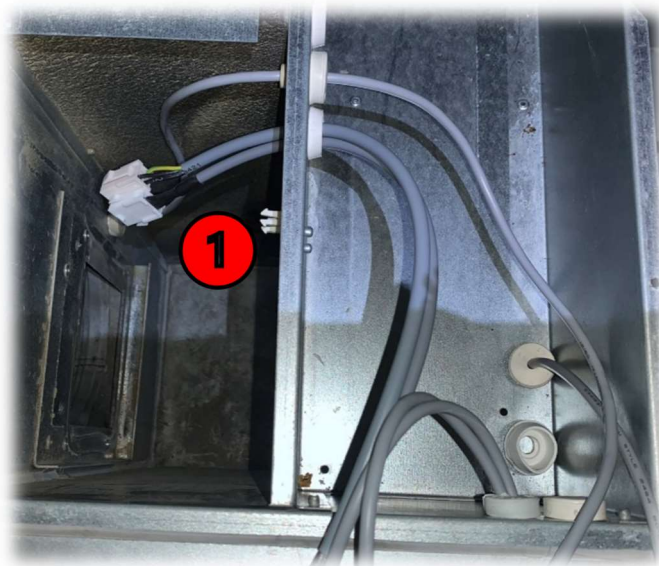
Install **the new extract air fan cables (2)** (40028803, 40028802) **into the electrical box (2)**.

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



New cables installed.

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



Install **the new electrical after heater (2)** (10023290) and install the cables in the electrical box.
Ignore if the unit has a water coil after heater installed.



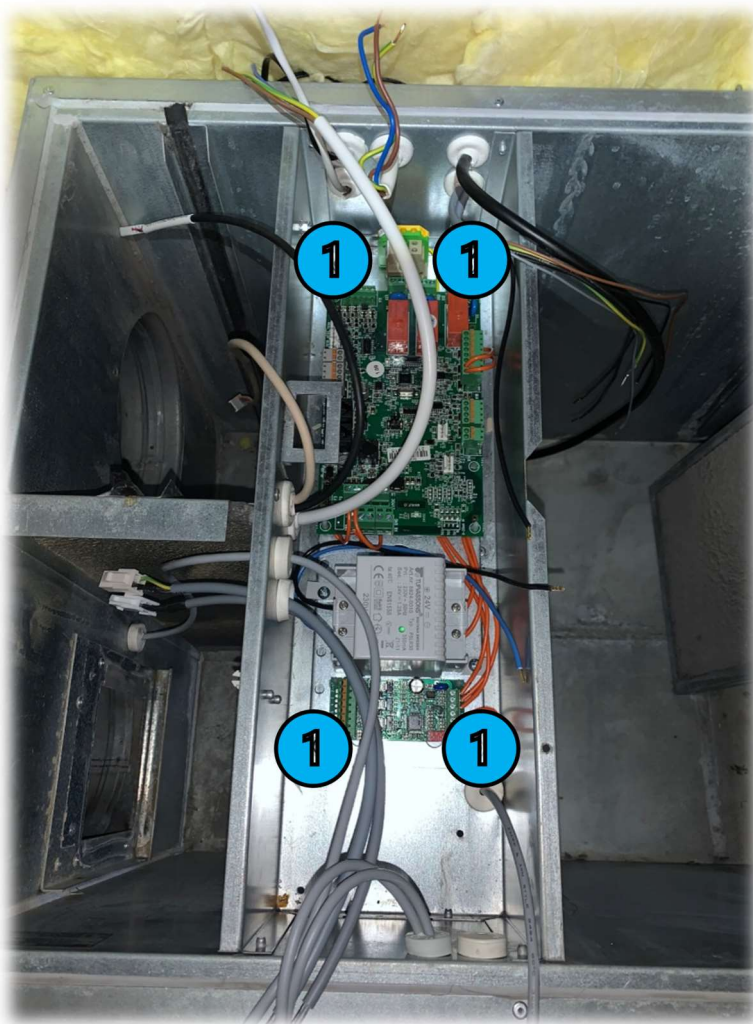
Install **the new extract air sensor (3)** (40029223).



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).

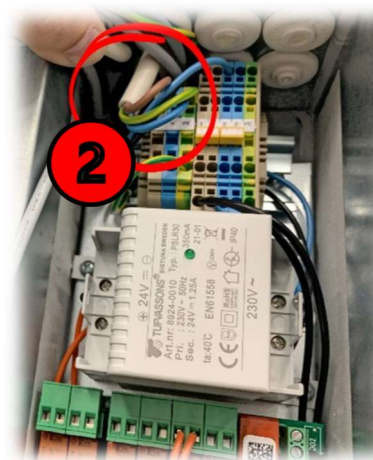


Connect **the main power wires to the terminals (2)**.

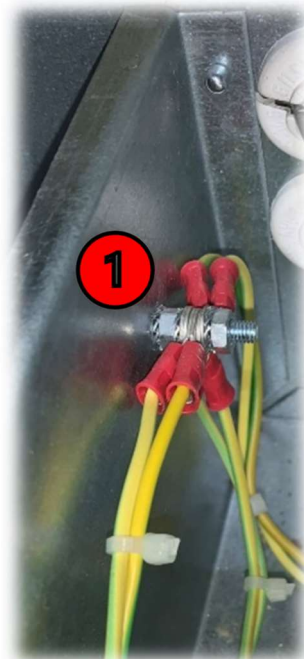
L: Brown

PE: Green/yellow

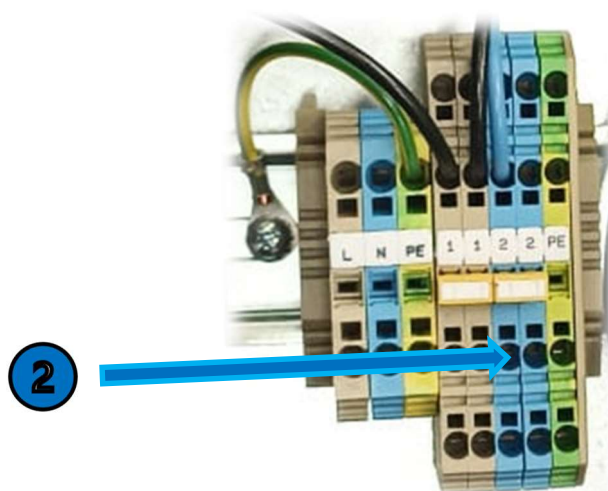
N: Blue



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

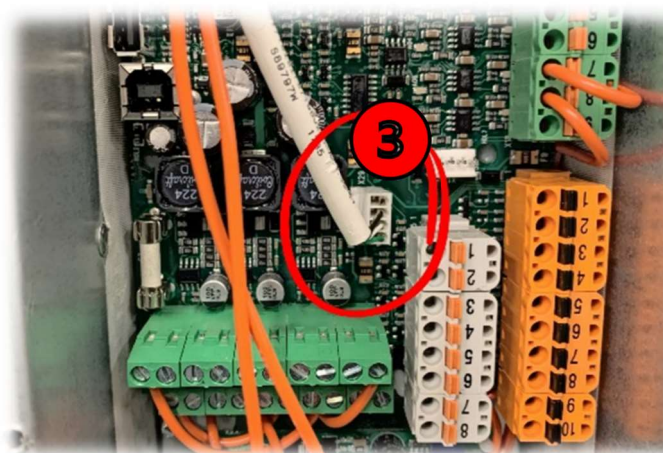
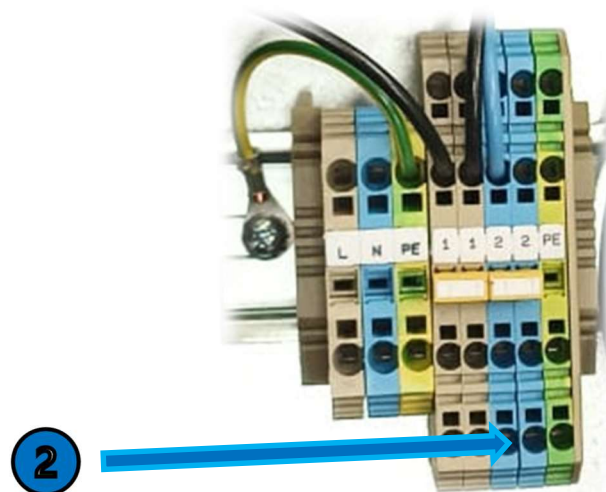


Connect **the brown wire** from the electrical after heater to **"DO2" (2)**.
If there is a water coil after heater installed, the circulation pump power wire (L) would be connected here.

Connect **the wires marked "1"** in the fan power cables (K750010301, K750030812) 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 (40029167)

X2, TE05: HRW supply air (40029165)

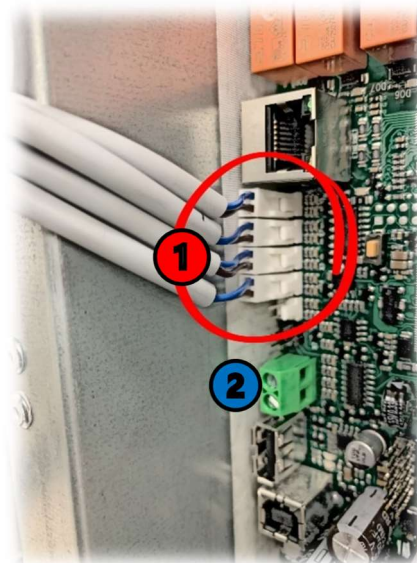
X3, TE10: Supply air (40029165 / 40029168)

(to be installed in the supply air duct as the last measuring point)

- after the water coil (ACW)
- after the cooling coil (ACW-CG)
- after the cooling coil (ACE-CG)

X4, TE32: Waste air (40029167)

X12, TE45: Return water sensor (2) (4029228),
if the unit has a water coil after heater installed.

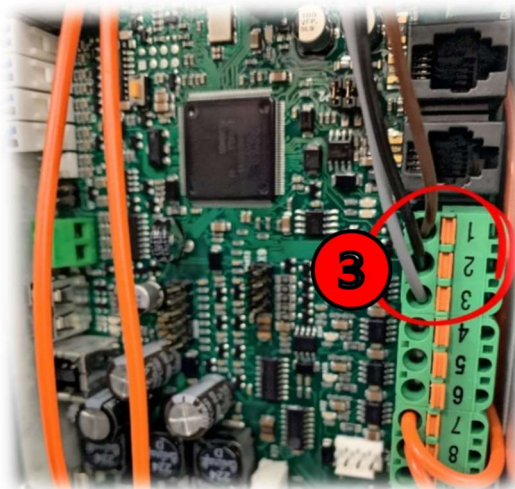


Connect **the wires from the supply air fan control cable (3)** (40028784) to the main board.

1: Brown

2: Black

3: Gray

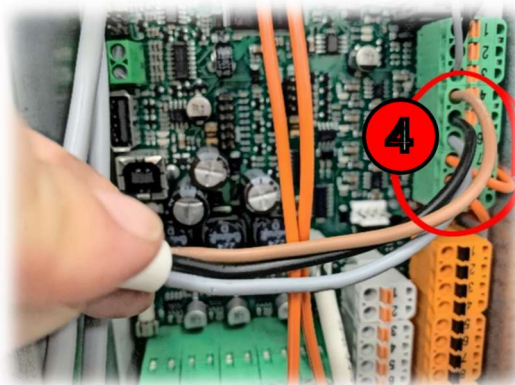


Connect **the wires from the extract air fan control cable (4)** (40028802) to the main board.

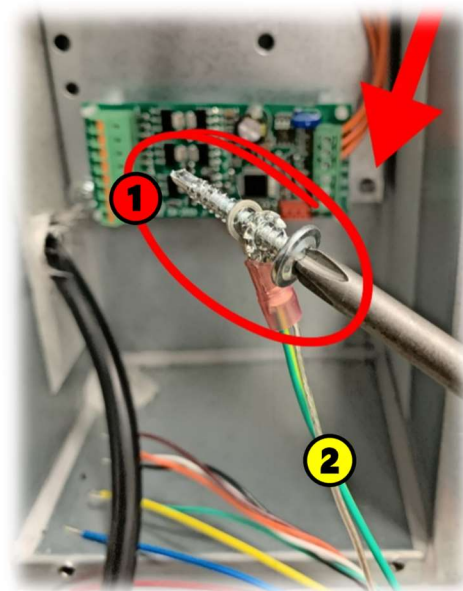
4: Brown

5: Black

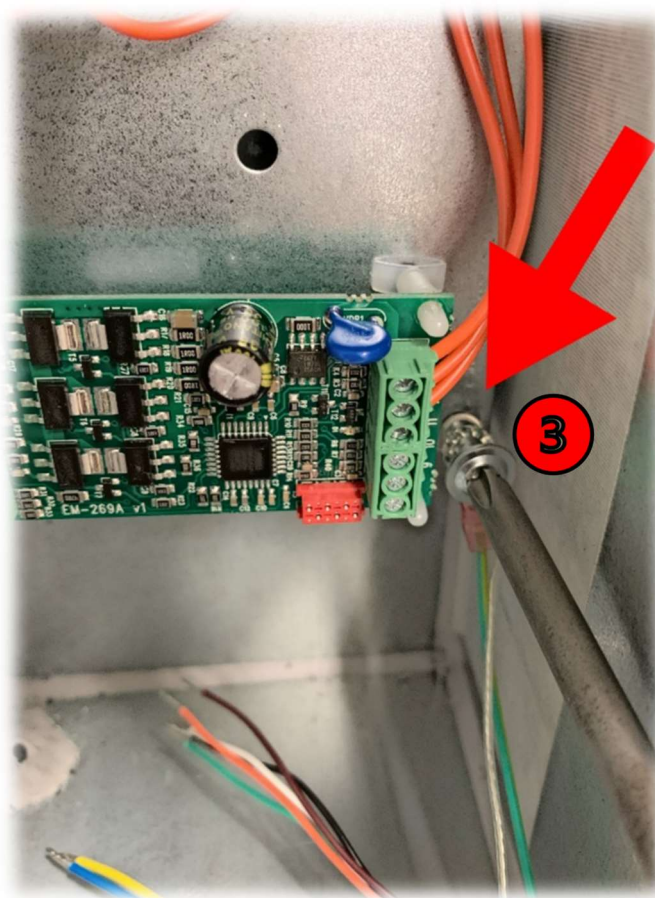
6: Gray



Release **the screw (1)** and attach **the ground wire (2)** from the HRW cable to the screw, along with **a washer (40031537)**.



Reattach **the screw (3)** to the automation base.



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

1: Yellow

2: Red

3: Blue

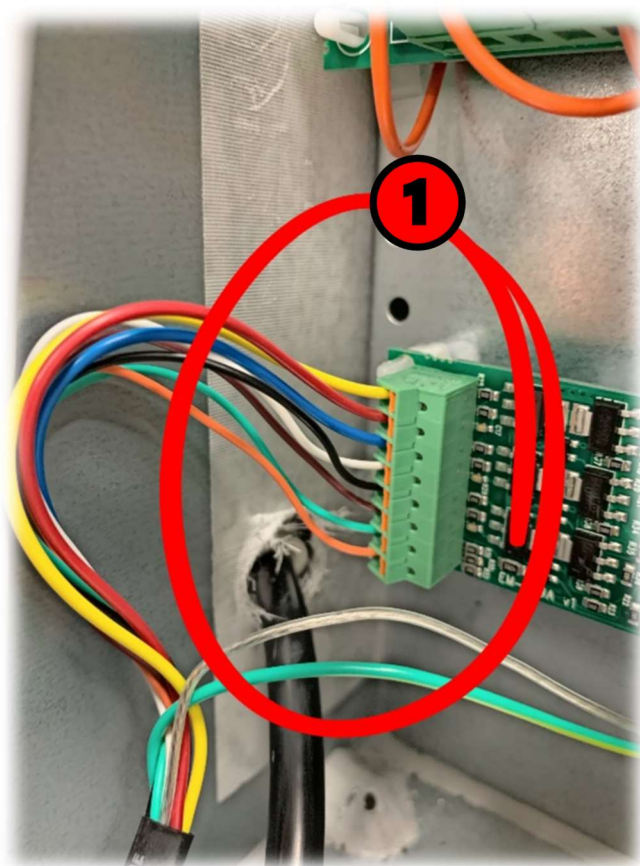
4: White

5: Black

6: Brown

7: Green

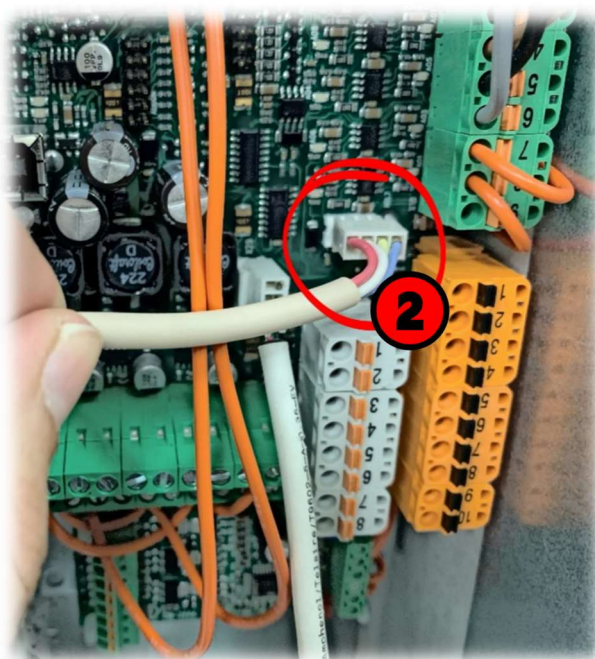
8: Orange

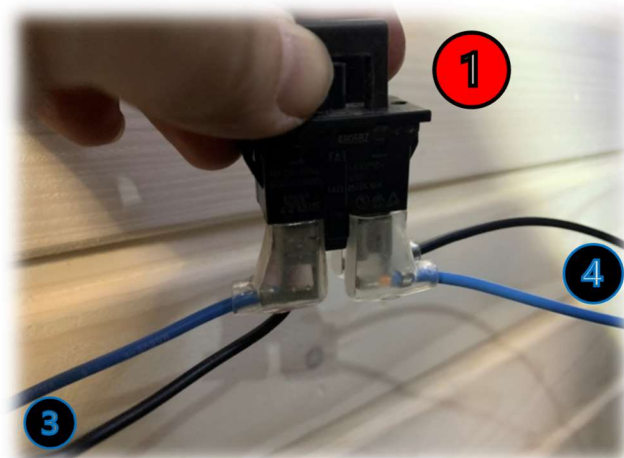


Connect **the after heater control cable (2)** to the main board (X17).

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).





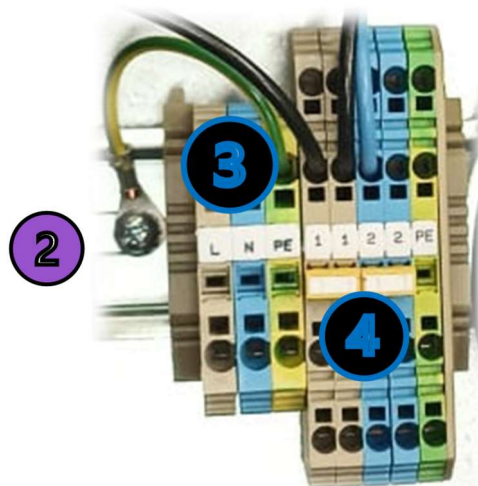
Connect the pairs of wires with flat connectors, (40028776, 40028777) to the **main switch (1)**, **install the main switch (5)** and connect the wires to **the connection terminals (2)**.

L: Black (3)

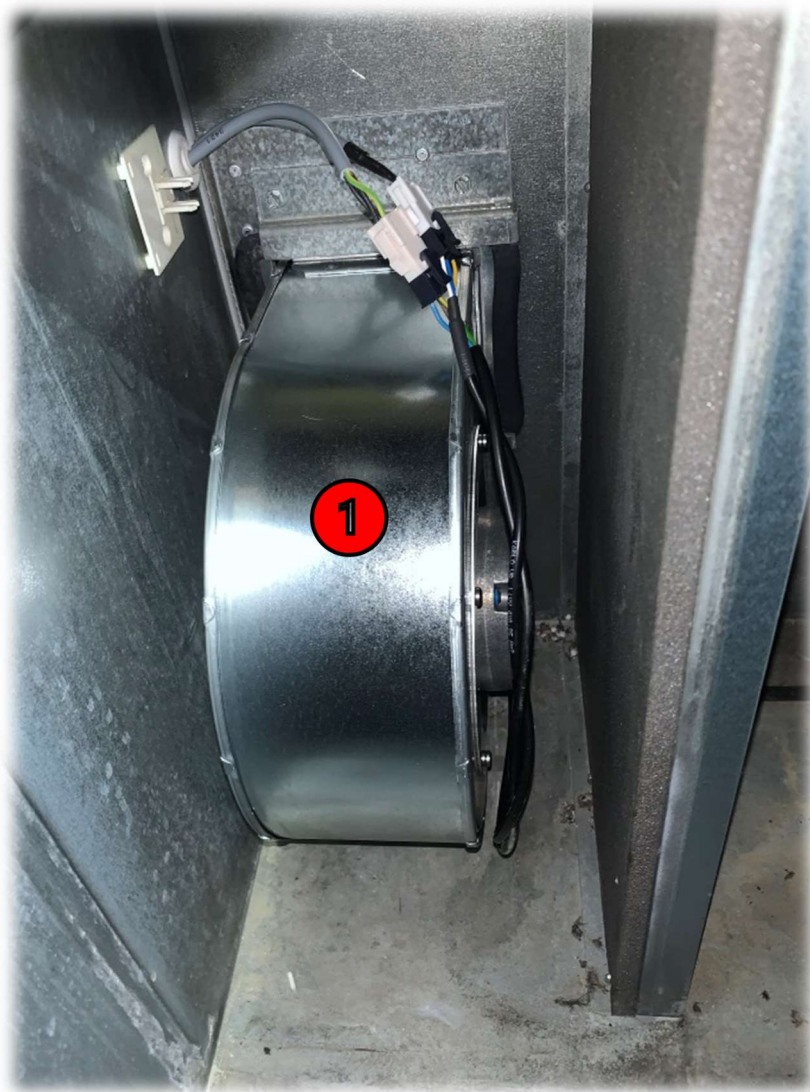
N: Blue (3)

1: Black (4)

2: Blue (4)



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

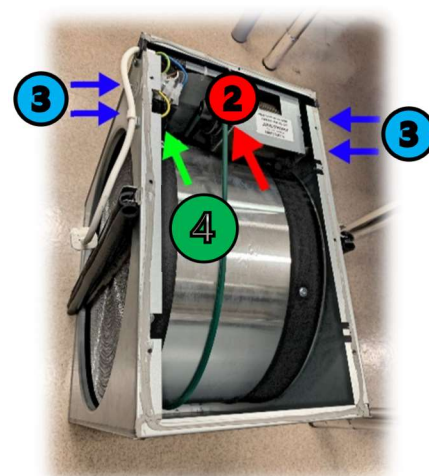


Install and connect **the new fans (1)** (10023157).

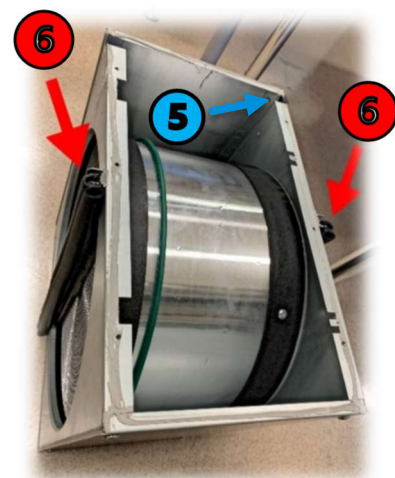
Remove **the screws (1)** from the HRW cover.



Remove **the belt (2)** from the wheel.
Remove **the screws (3)** from the motor package.
Remove **the ground wire (4)**.

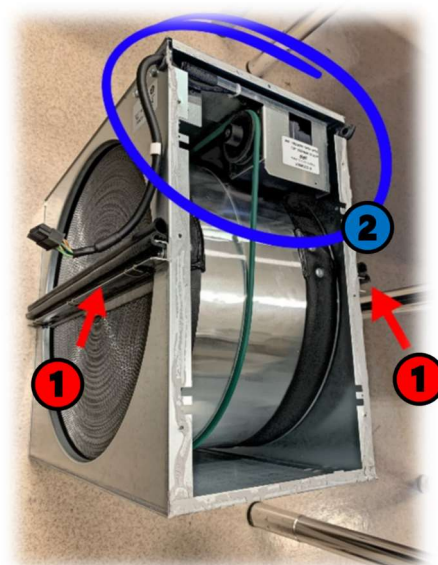


Remove **the motor package**.
Cut **a gap for the new motor cable (5)**.
Check that **the brush clips (6)** are in place.

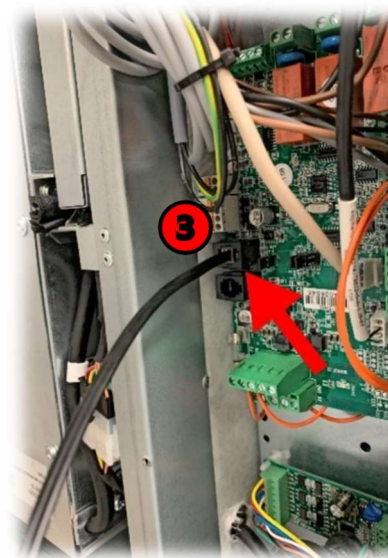


Install **the new motor package (2)** (40028737).
Check that **the brush clips (1)** are in place.

Install the HRW cover.



Connect **the new display cable (3)** to the main board.
The old display cable may also be used, but the joints needs to be done carefully and in a proper way.
Close the cover to the electrical box.



Install **the new display (4)** (40031114) in a desired place.



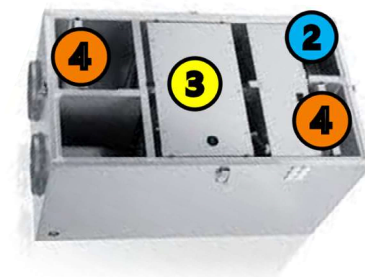
Install **the WiFi module (1)** (40034288).



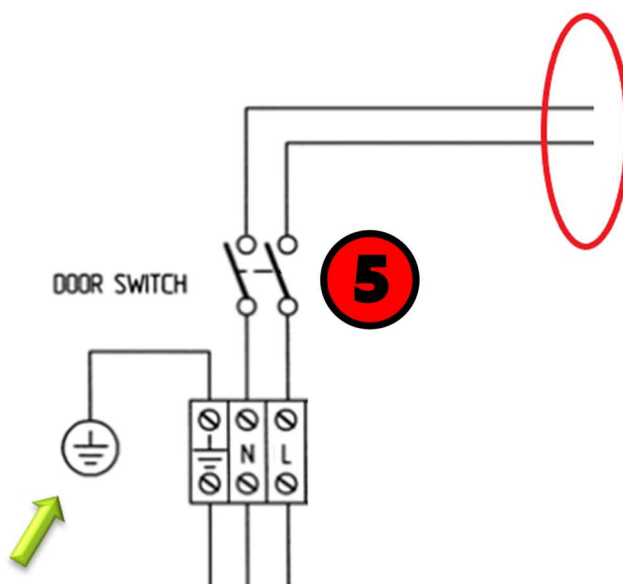
Install **the new type plate sticker (2)**.

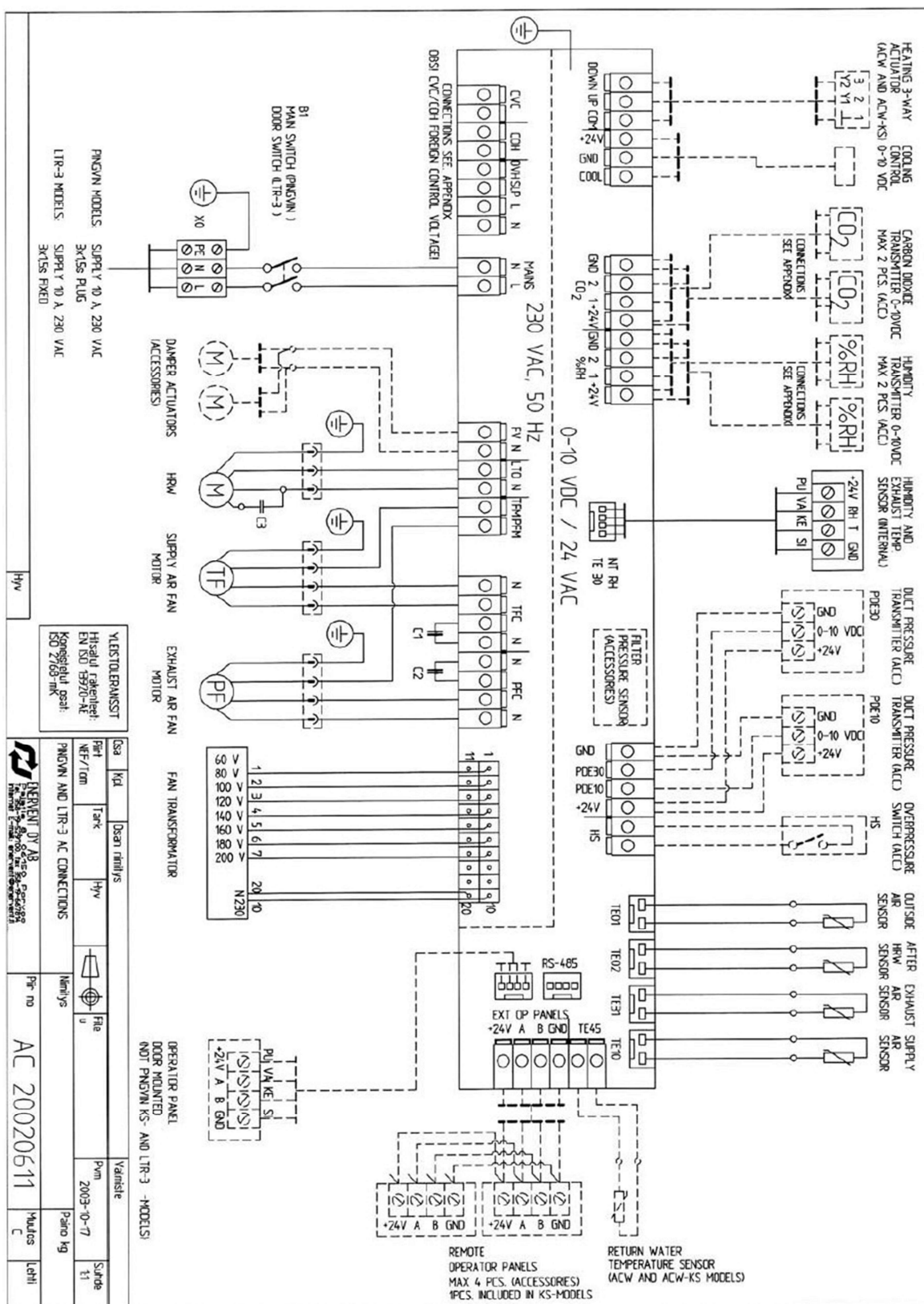
Install and connect **the HRW (3)**.

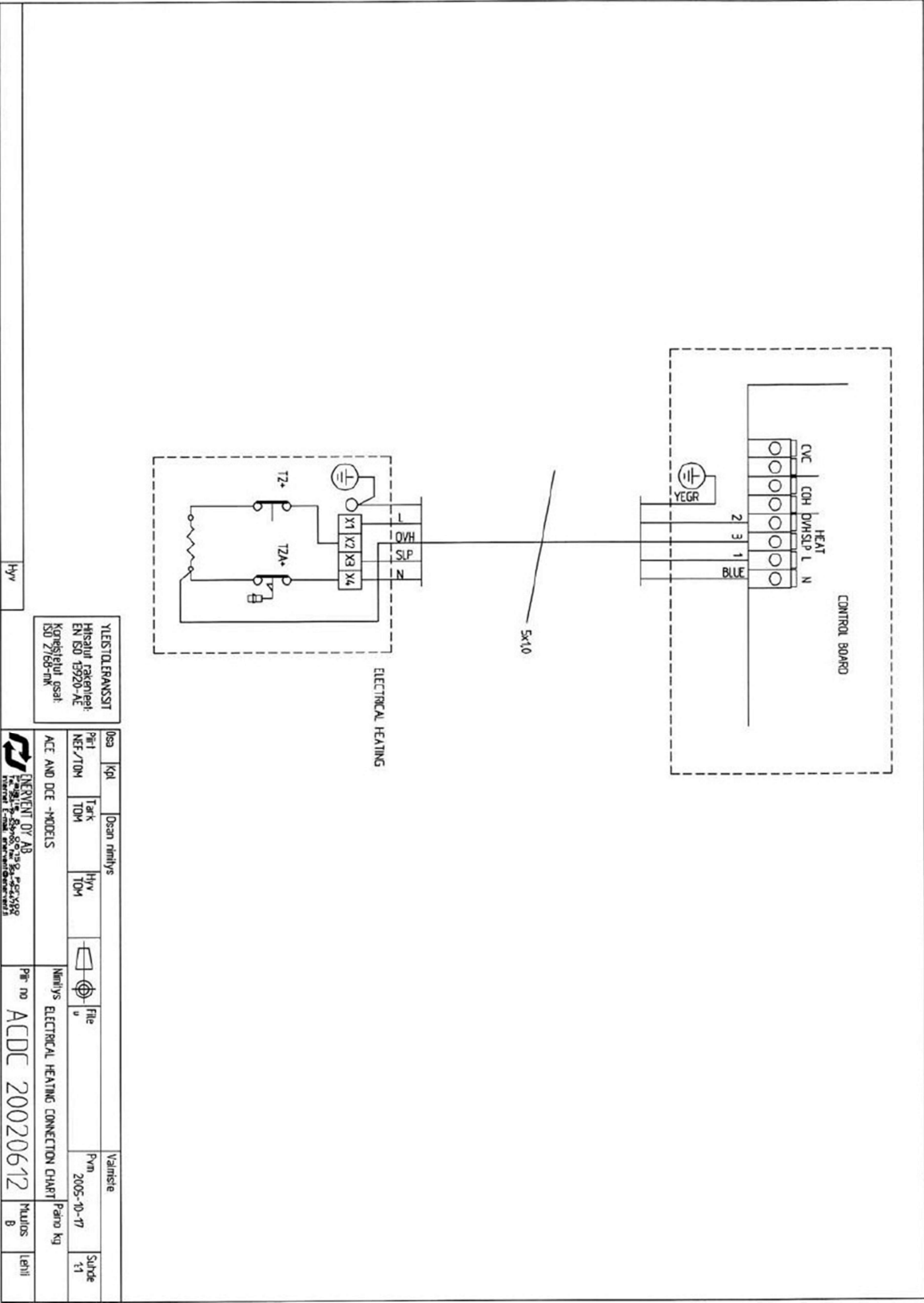
Install **the filters (4)**.

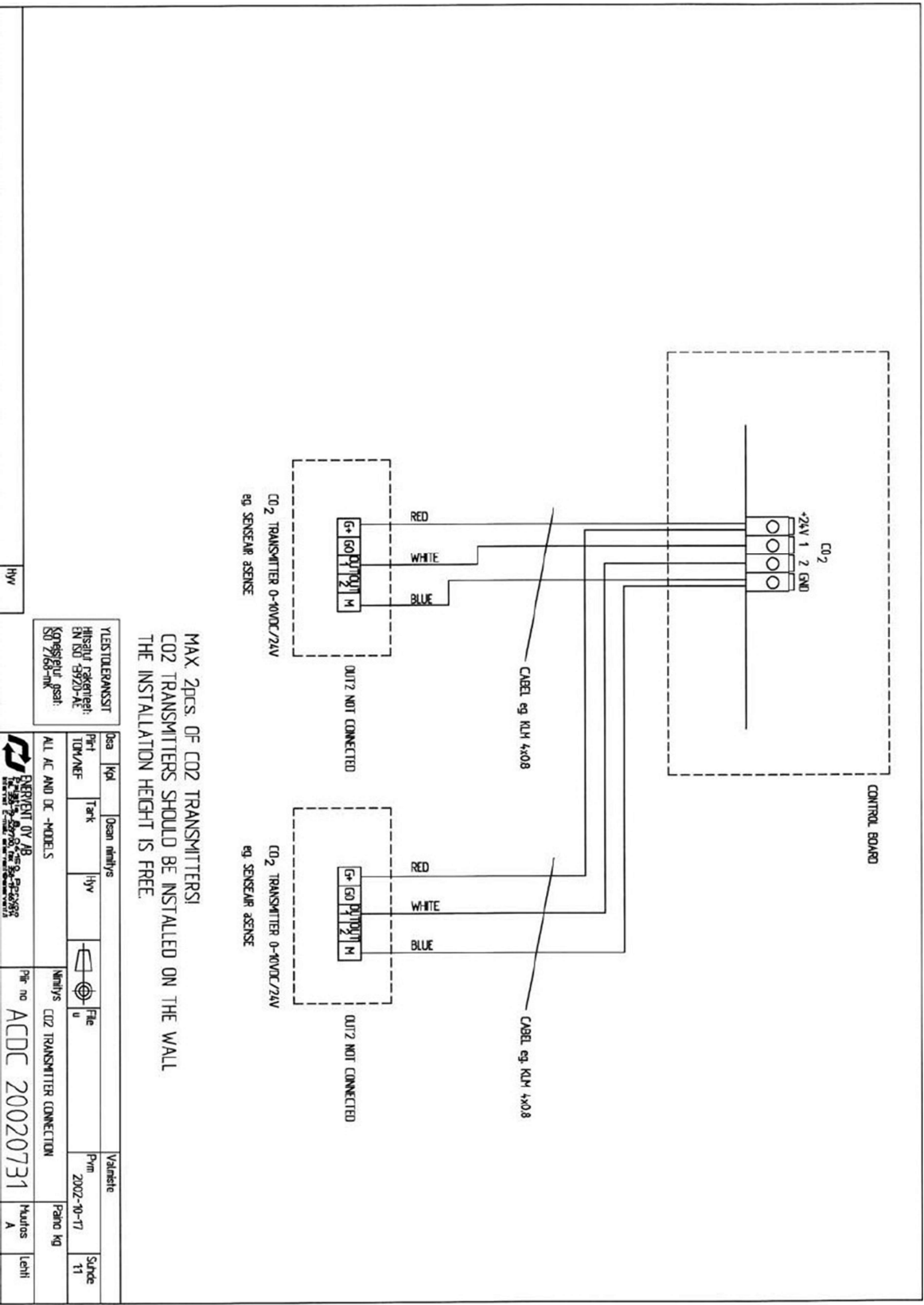


Press down **the main switch (5)** and perform insulation and ground continuity test according to regulations.



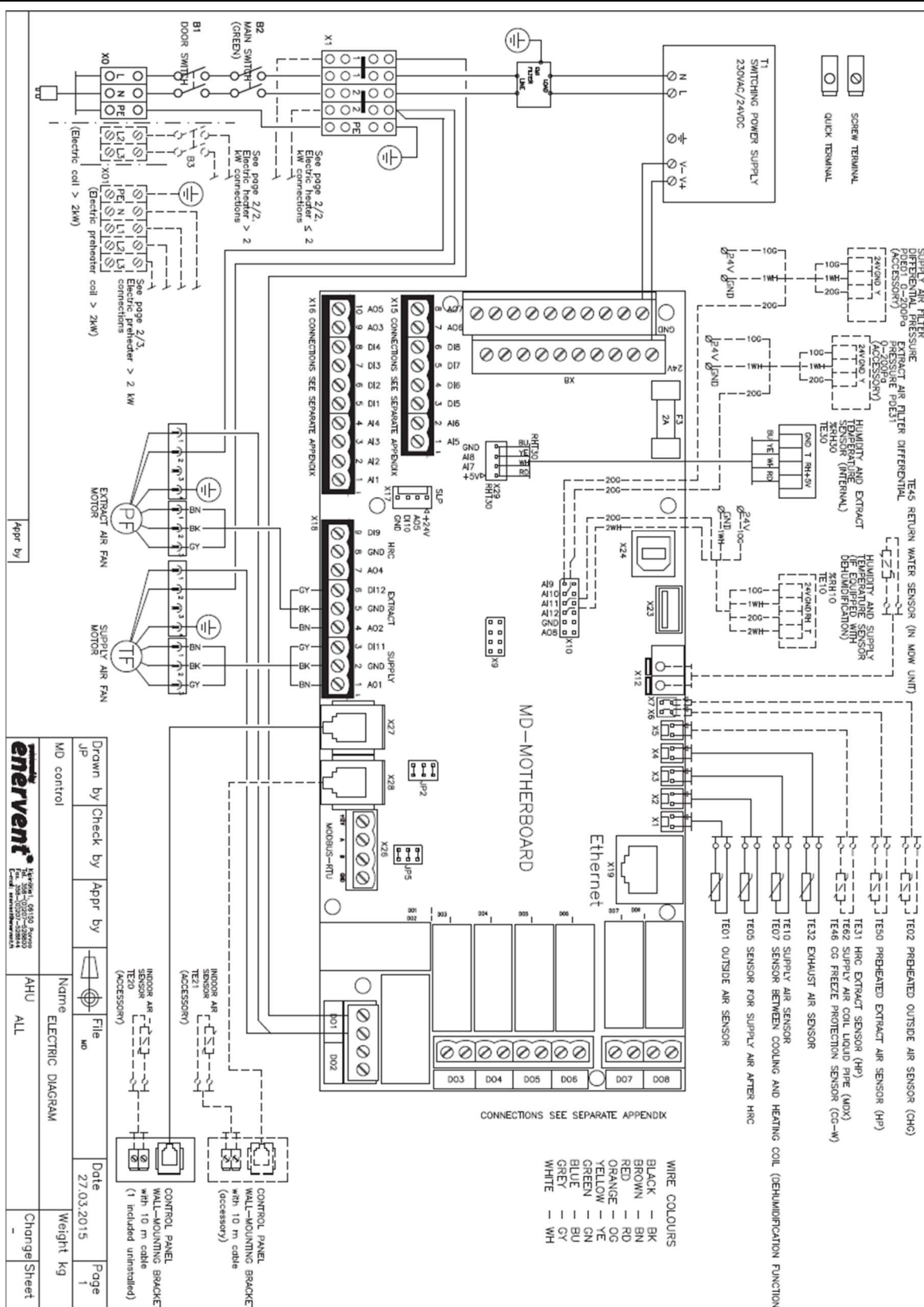


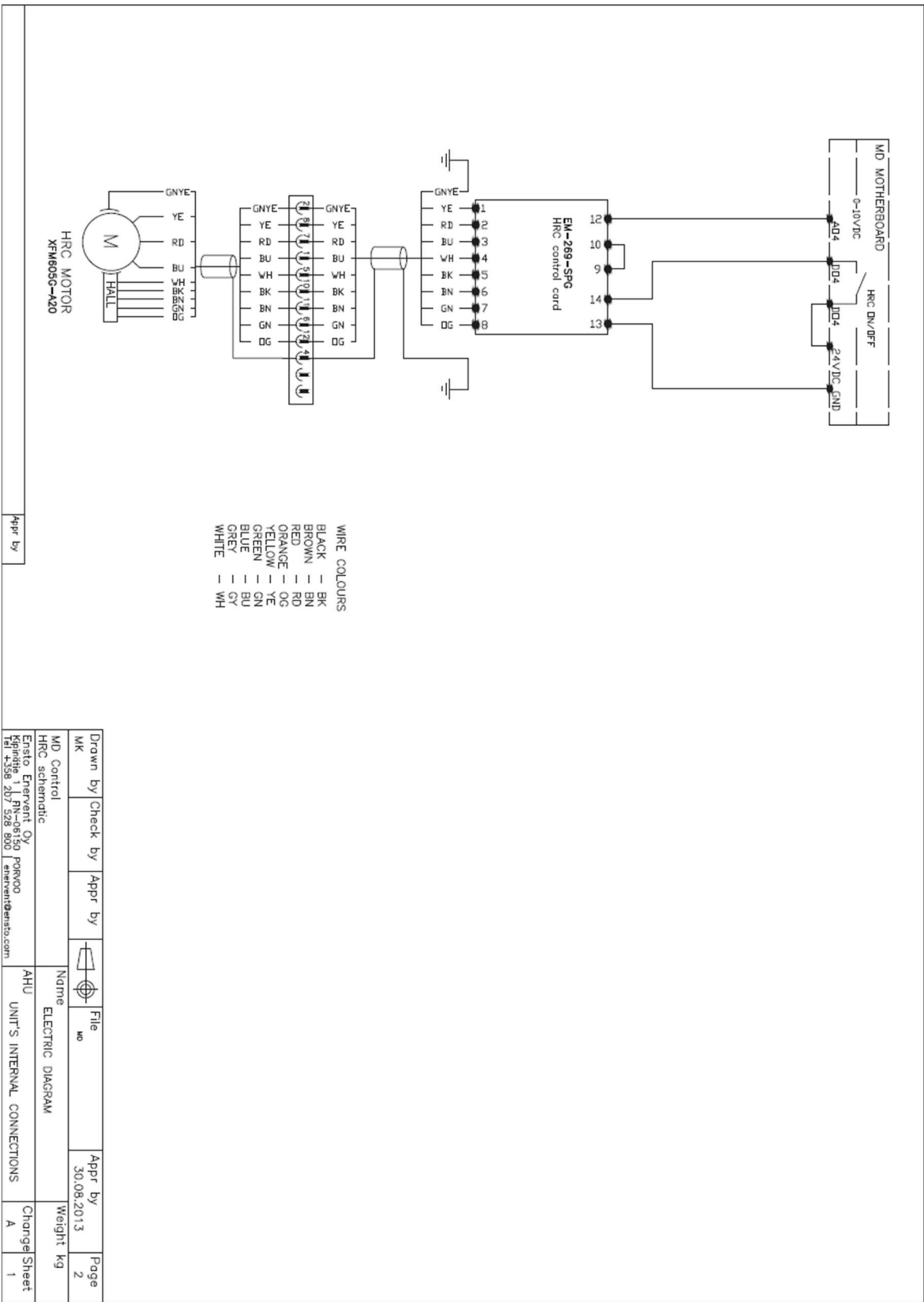


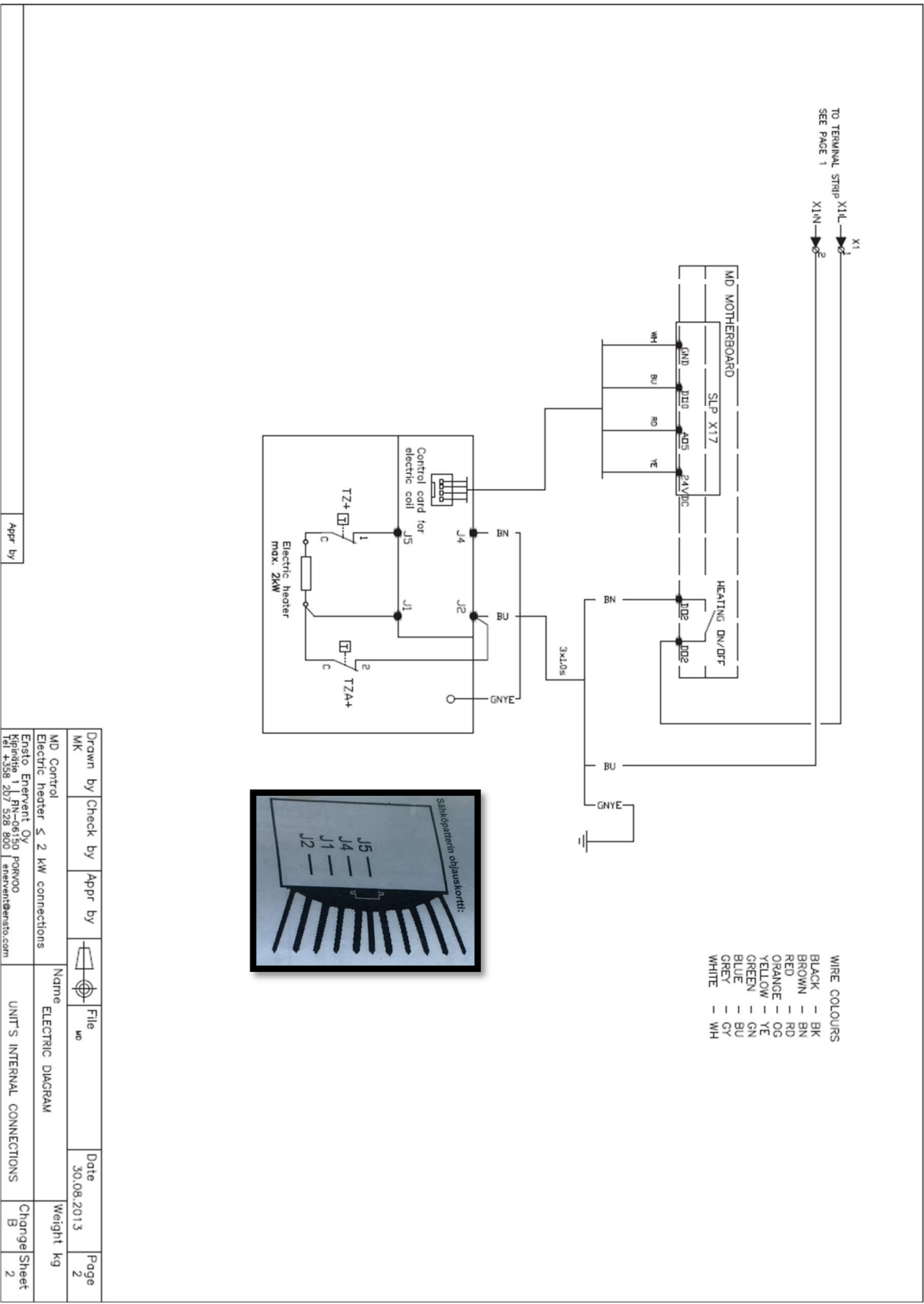


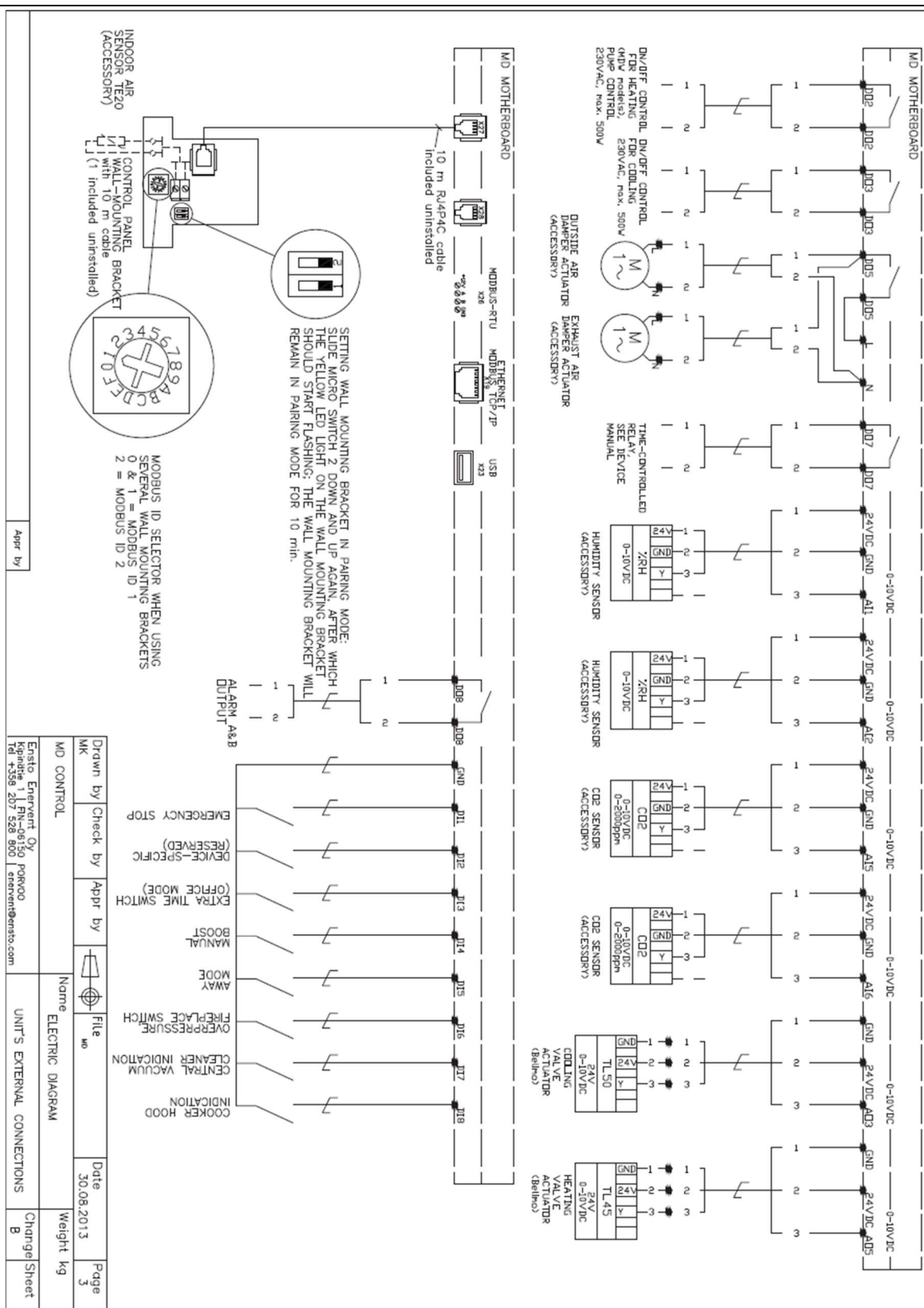


ENTERVENVIL UT AB
Palatka 8, 06150 Porvoo
Tel. 350-77-27100, Fax 350-77-60161
Internet: E-mail: enterenvil@enterenvil.fi









MANDATORY PARTS

10023852	CONTROL UPDATE KIT LTR3 ACE/ECE → EAIR E	1
10023157	FAN PACKAGE ECO 118W	2
10023290	ELECTRICAL HEATER 0,5kW	1

Code	Description	Pcs.
10023852	CONTROL UPDATE KIT LTR3 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 934/8ZN 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
40029647	Automation base	1
40029344	Terminal package	1

Components

40030100	Cable sealing VET 5-7	10
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
40029167	EDA temperature sensor 1700mm	2
40029165	EDA temperature sensor 850mm	2
40029223	Humidity/temperature sensor Amphenol 350mm	1
40031530	Screw ZN 4,2x25	4
40028776	Wire 250mm black (wire with flat connector)	2
40028777	Wire 250mm blue (wire with flat connector)	2
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8ZN M4	1
40030997	Cable tie 2,5x200mm	10
40028737	HRW motor package stepless DC	1
40033952	Rotor cable DC 105cm	1
40031114	eAir panel package	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

10024027	CONTROL UPDATE KIT LTR-3 ACW → EAIR W	1
10023157	FAN PACKAGE ECO 118W	2

<u>Code</u>	<u>Description</u>	<u>Pcs.</u>
10024027	CONTROL UPDATE KIT LTR-3 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
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
40029168	EDA temperature sensor 3000mm	1
40029167	EDA temperature sensor 1700mm	2
40029165	EDA temperature sensor 850mm	1
40029228	Return water sensor, surface	1
40029223	Humidity/temperature sensor Amphenol 350mm	1
40031530	Screw ZN 4,2x25	4
40028776	Wire 250mm black (wire with flat connector)	2
40028777	Wire 250mm blue (wire with flat connector)	2
40031537	Washer 6798-A ZN M4x8	1
40031489	Nut DIN 934/8 ZN M4	1
40030997	Cable tie 2,5x200mm	10
40028737	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: