

# Automation upgrade

## LTR-3 eco EDA -> eWind

### NOTE!

Fan rotation guards must be disabled in the new eWind 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](http://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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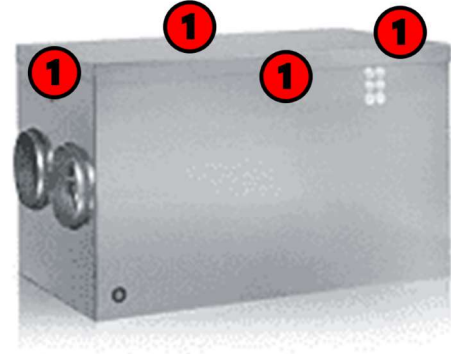
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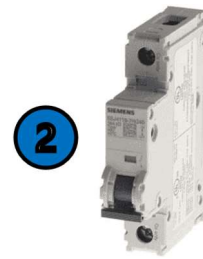
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Remove **the service door (1)** by releasing the locks.



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

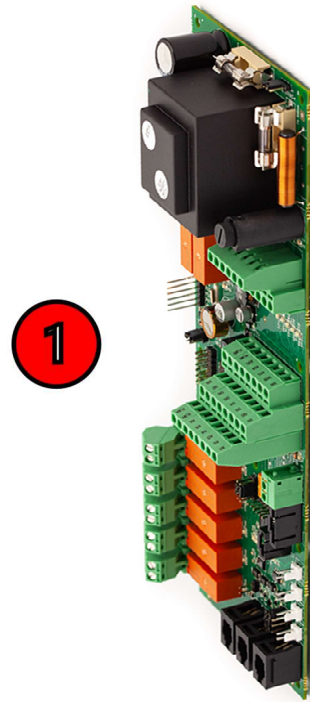


Remove **the cover to the electrical box (3)**.

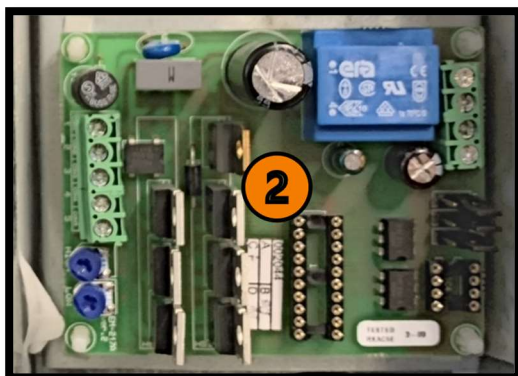
**NOTE! Ensure that no voltage is occurring in the electrical box before proceeding!**



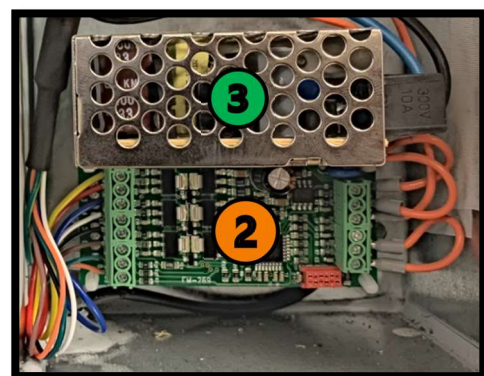
Mark all wires/sensors according to the marking on the main board and disconnect them from the **EDA main board (1)**.



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

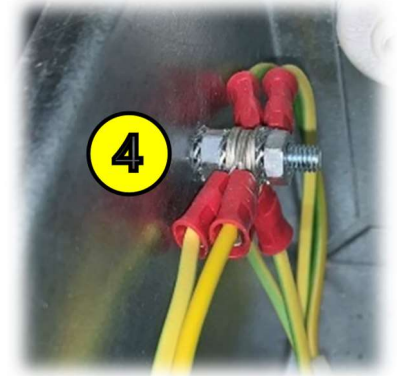


*AC HRW circuit board.*



*DC HRW circuit board.*

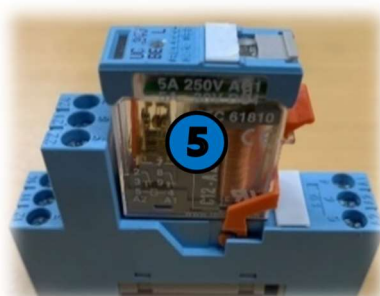
Disconnect **all ground wires (4)** from the ground point.



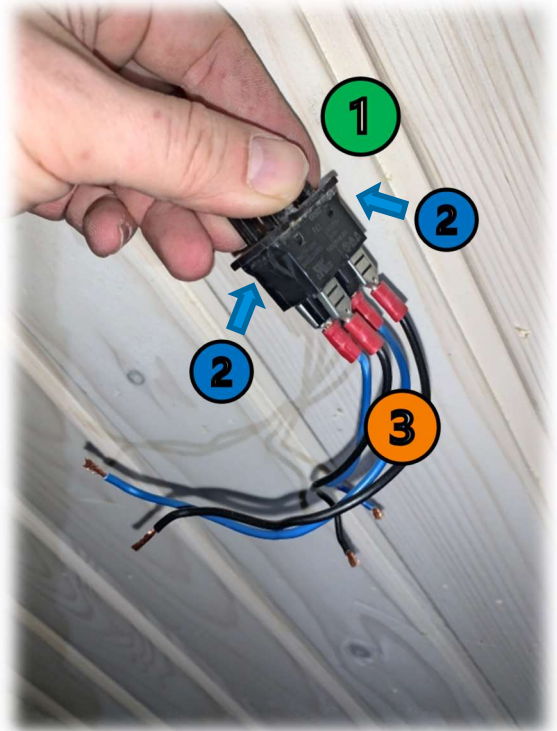
Disconnect the main power wires from **the terminals (1)**.

Remove **the screws (3)** and remove the automation base incl. **terminals (1)** and **EDA main board (2)**.

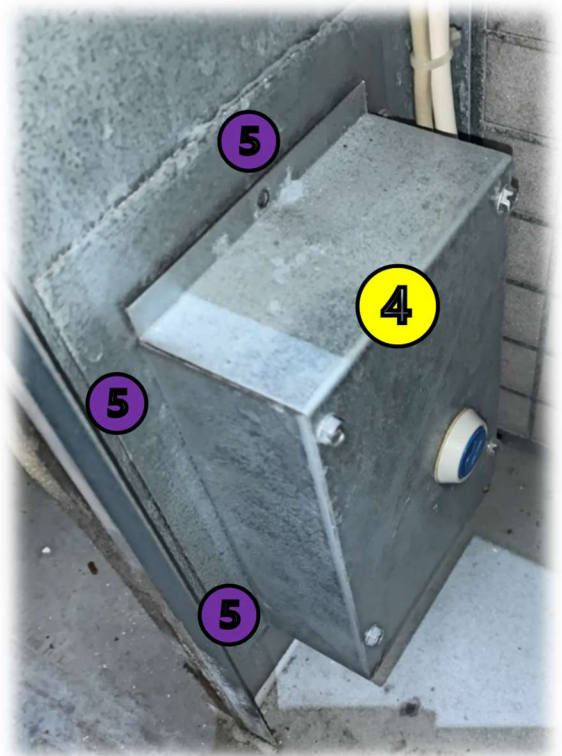
If there is a **blue relay (5)** installed, remove the relay along with the wires and replace the electrical after heater with the new delivered one.



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



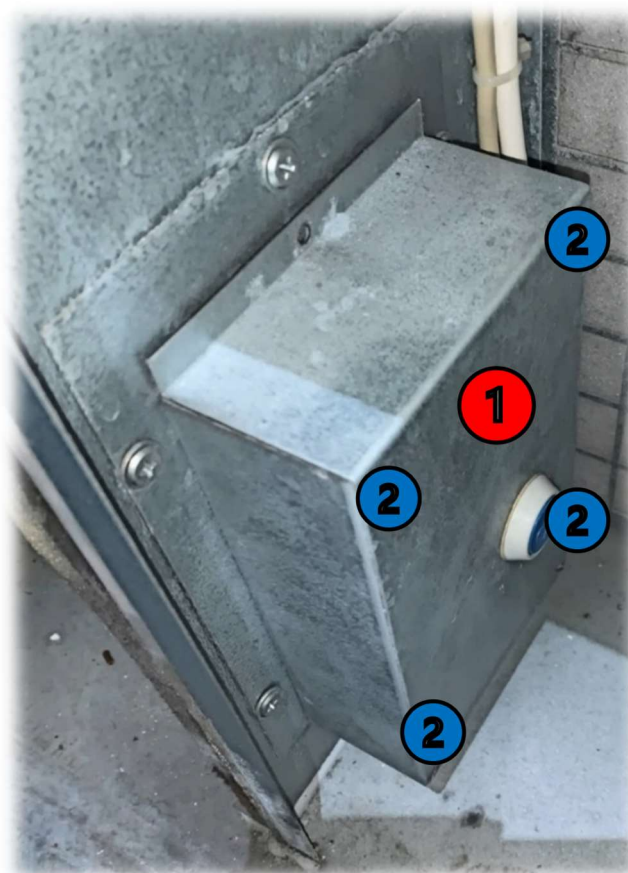
Release **the after heater (4)**  
by releasing **the five screws (5)**.  
*Ignore if the unit has a water coil after heater installed.*



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

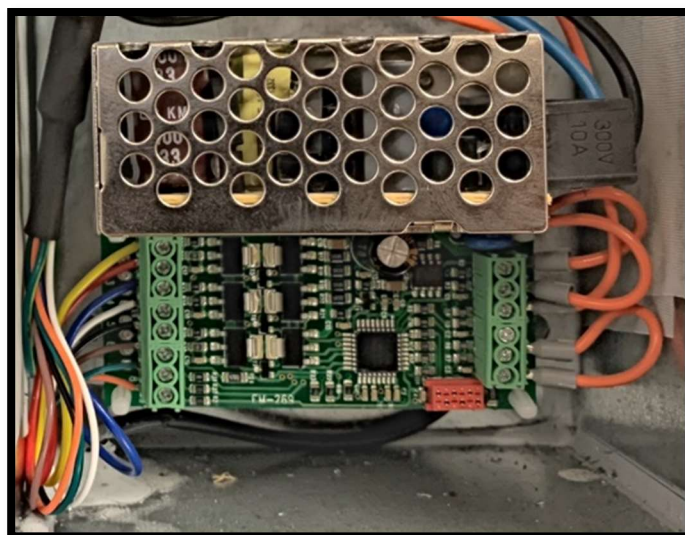
Remove **the old extract air sensor (4)**  
and the cable (two screws).



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

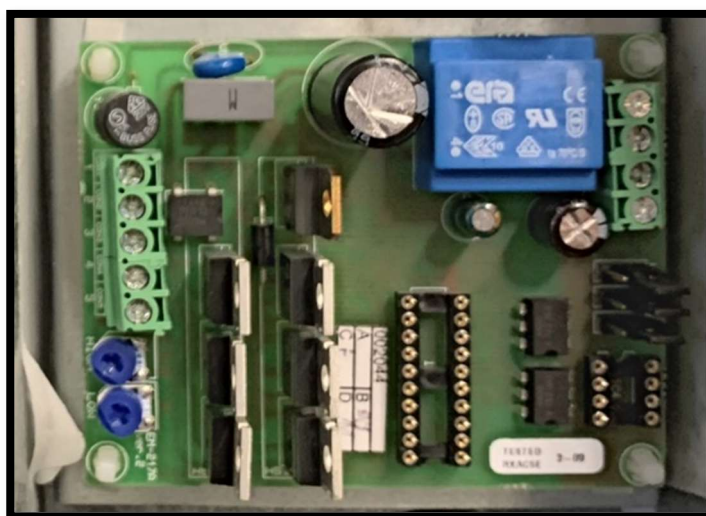


**If the unit has a DC HRW installed, jump to page 12.**



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

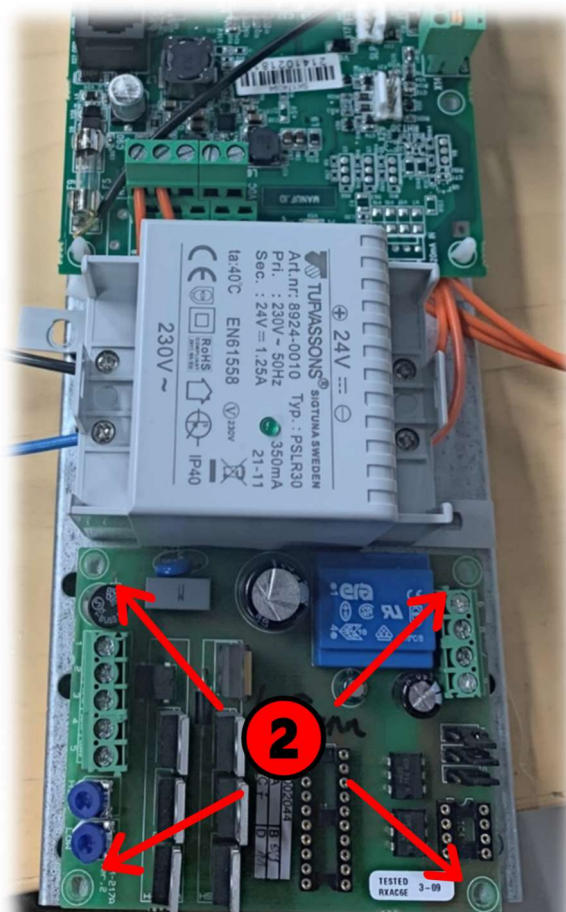
**If the AC HRW control board is installed separately in the electrical box, there is no need to move it physically (if the new automation base fits). Just connect it like advised (page 10, 11, 19).**



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

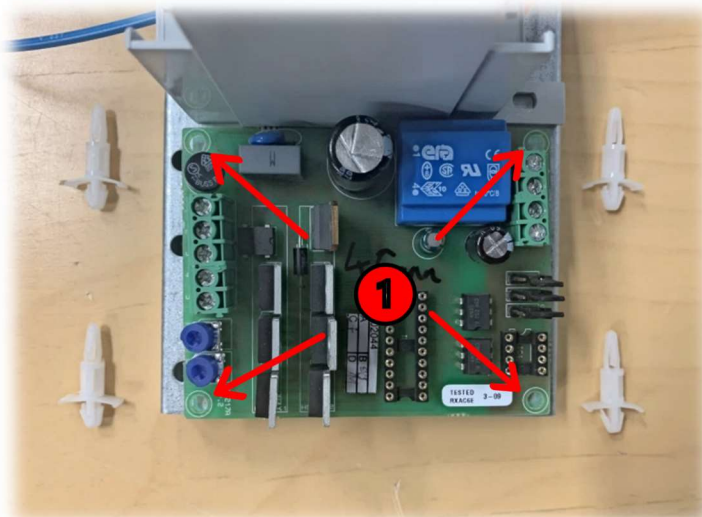


Mark *the holes (2)* to the automation base and drill 4 pcs. 4,5mm holes according to the markings.

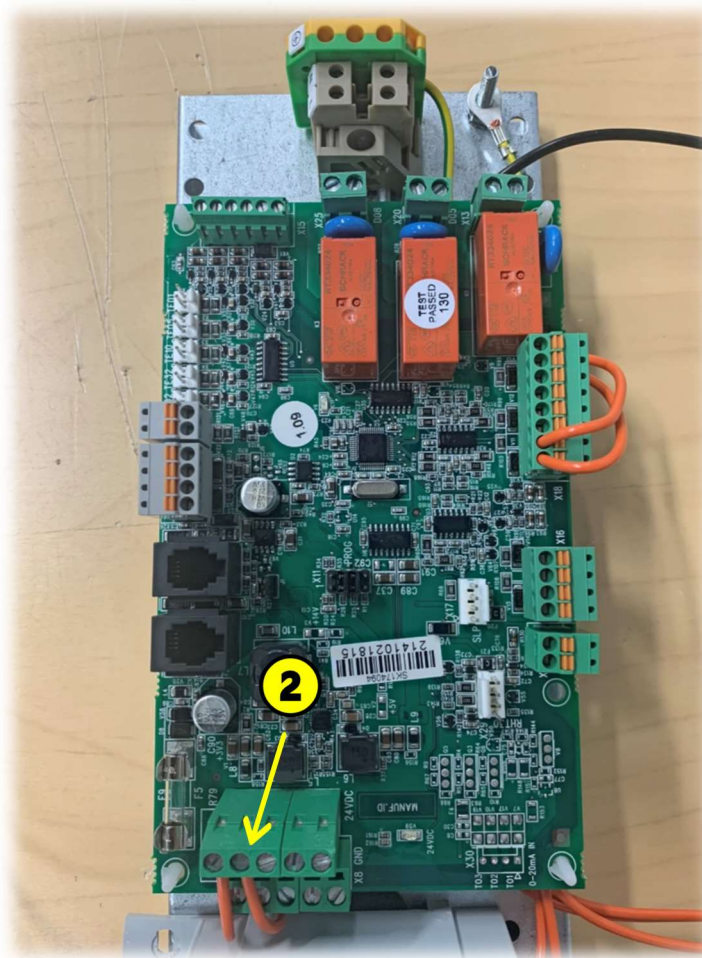


**Install the PCB supports  
into the drilled holes (1).**

**Attach the AC HRW circuit board  
to the PCB supports.**



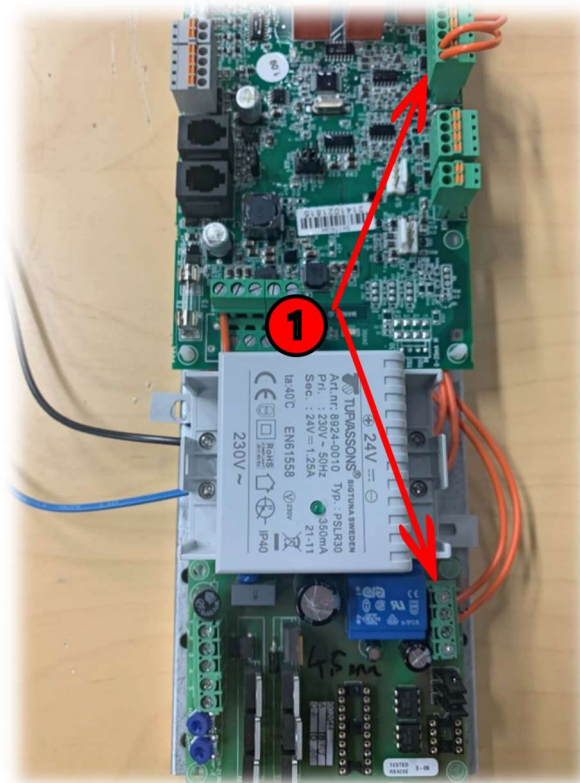
**Disconnect and remove  
the possible extra wire (2).**



Connect **the wire from the main board connector "AO4"** to AC HRW circuit board "8".

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

1

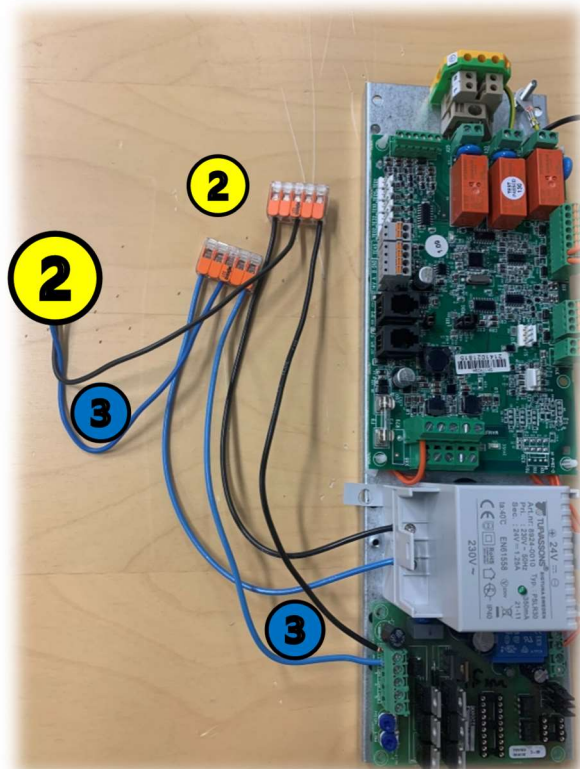


Install **the connection terminals (2)** (40029982) to the wires and the transformer. Two for "L" and two for "N".

Connect **the wires (3)** (40028774 & 40028781) to the connection terminals and to the AC HRW circuit board connectors:

1: Black (L)

2: Blue (N)

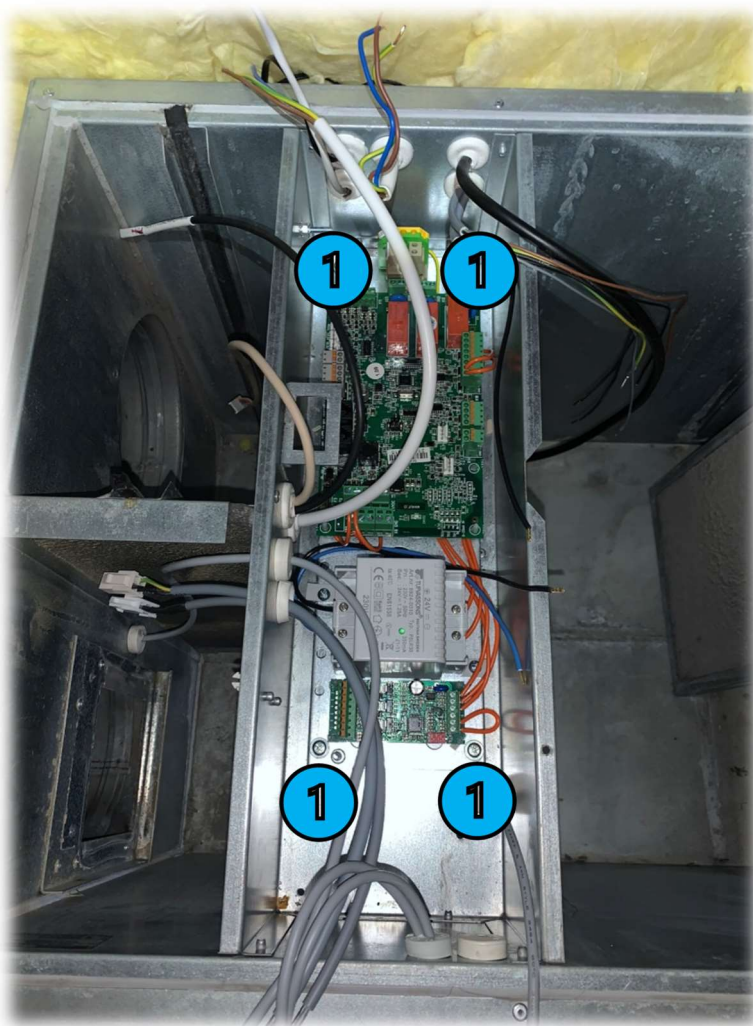


Install **the new automation base** (40029647) in the electrical box.

*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 17).**

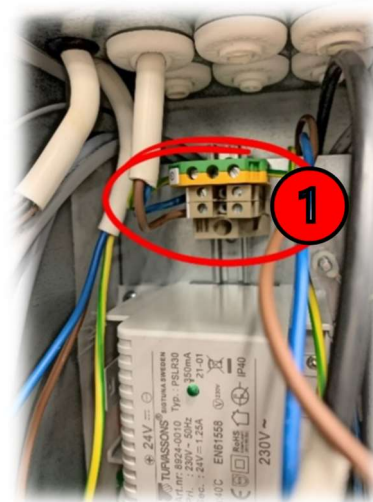


Connect **the main power cable to the terminals (1)**.

L: Brown

PE: Green/yellow

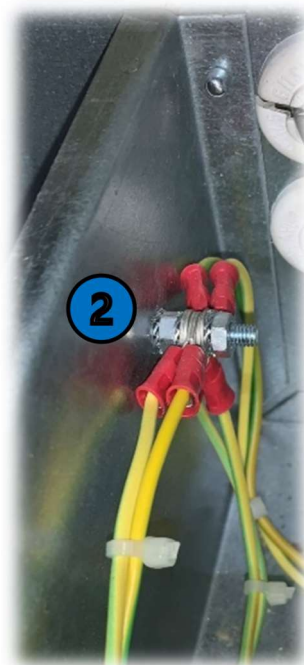
N: Blue



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

**Supply air fan, extract air fan, (after heater), (HRW), ground terminal.**

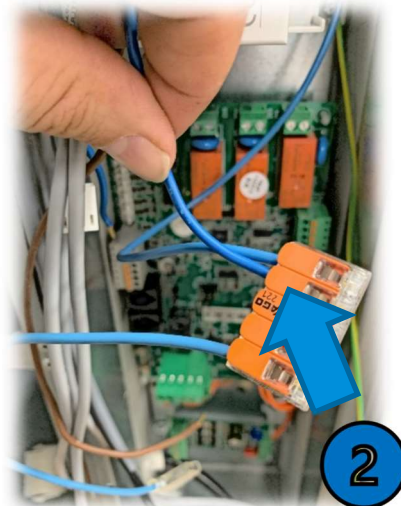
Tighten with **the nut** (40031489).



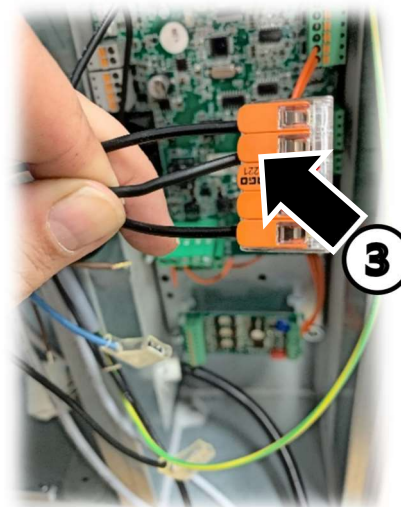
Connect one pair of **the wires with flat connectors** (40028776, 40028777) **to the connection terminals (1)** (40029982).



Connect **the blue wire** from the electrical after heater to **the blue connection terminal (2)** (40029982). *Ignore if no electrical after heater installed.*



Connect **the black wire** (40028774) to **the black connection terminal (3)** (40029982).



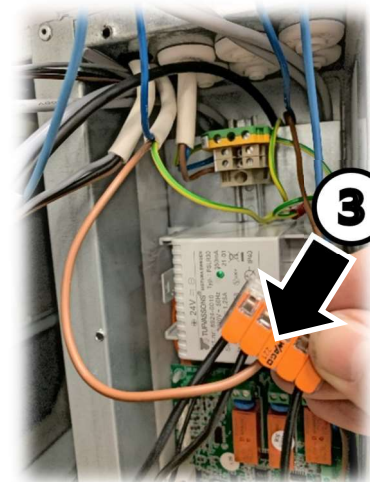
Connect **the black wire** (40028774) to **"DO2" (2)** on the main board.



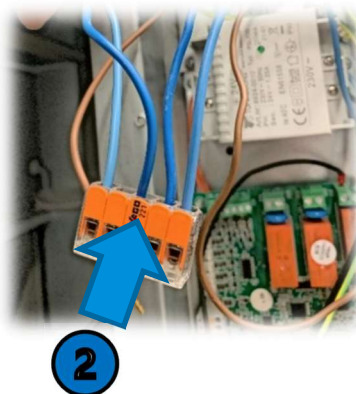
Connect **the brown wire** from the electrical after heater to **"DO2" (2)**.  
*If there is a water coil after heater installed,  
 the circulation pump power wire (L) would be connected here.*



Connect **the brown wires / the wires marked "1"**  
 in the fan power cables to **the black connection terminal (3)** (40029982).



Connect **the blue wires / the wires marked "2"** in the fan power cables to **the blue connection terminal (2)** (40029982).



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



Connect **the sensors (4)** to the main board according to the markings.

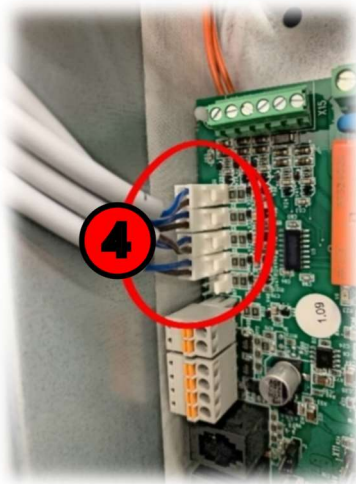
TE01: Outside air

TE05: HRW supply air

TE10: Supply air

TE32: Waste air

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



Connect **the wires from the supply air fan control cable (1)** to the main board.

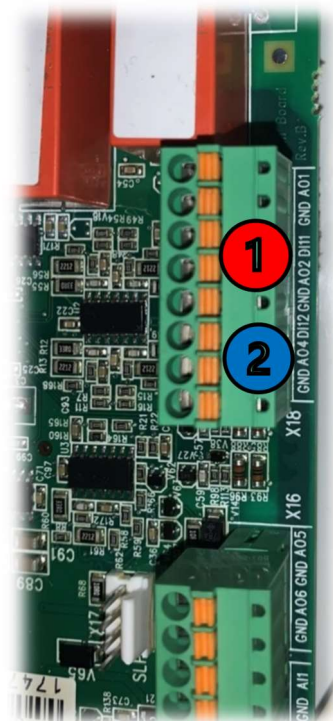
AO1: 1 (brown)

GND: 2 (black)

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

AO2: 1 (brown)

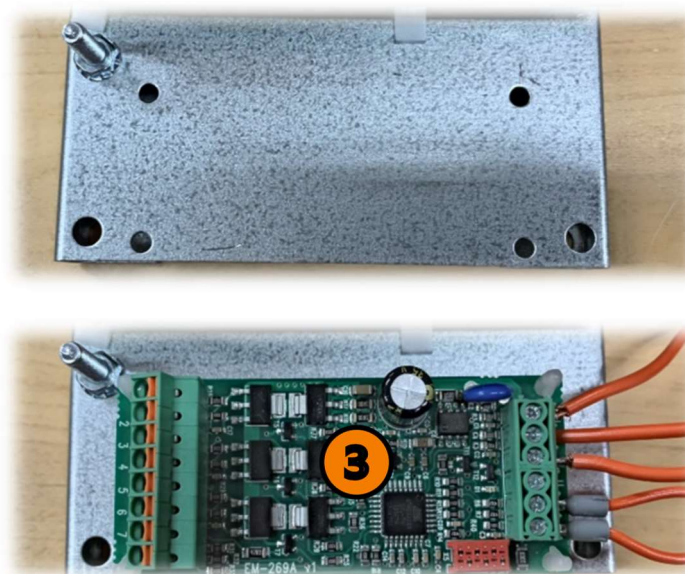
GND: 2 (black)



## If DC HRW:

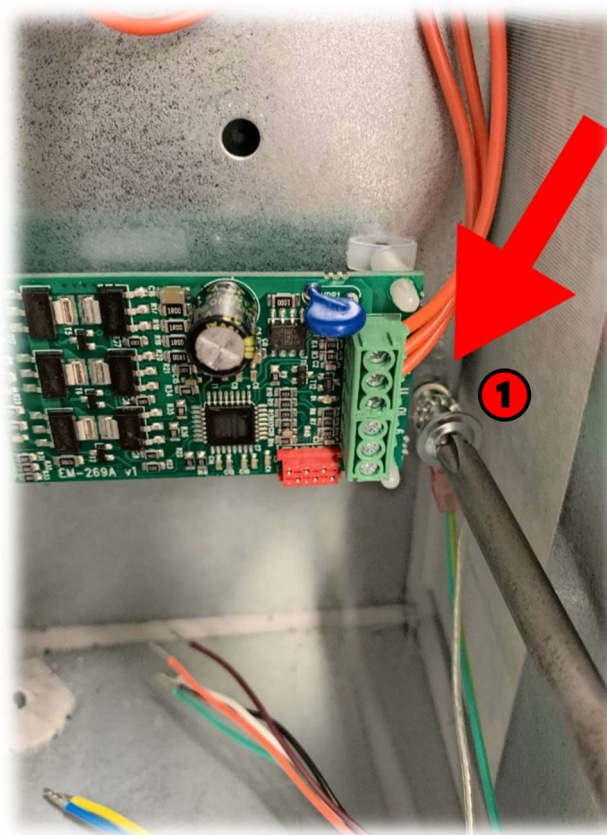
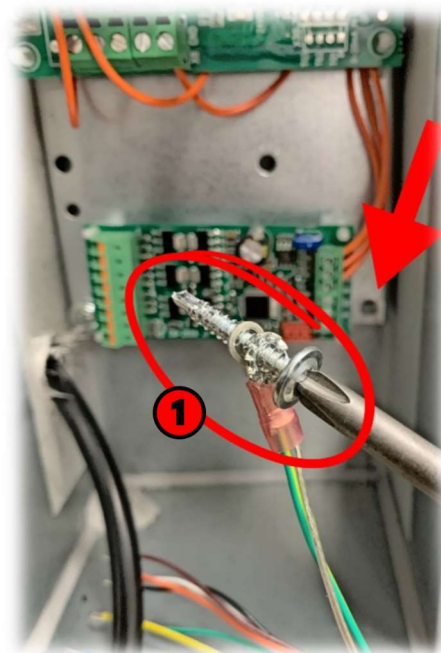
Install **the old DC HRW circuit board (3)** to the new automation base / or leave it in place if installed separately in the electrical box, and connect it to the main board according to the electrical diagram (**page 29**).

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

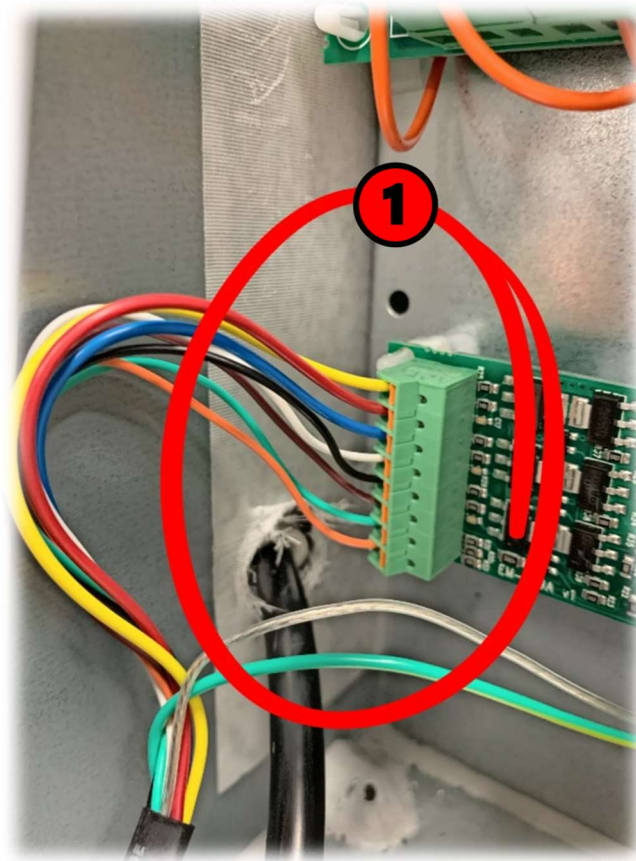
4: White

5: Black

6: Brown

7: Green

8: Orange



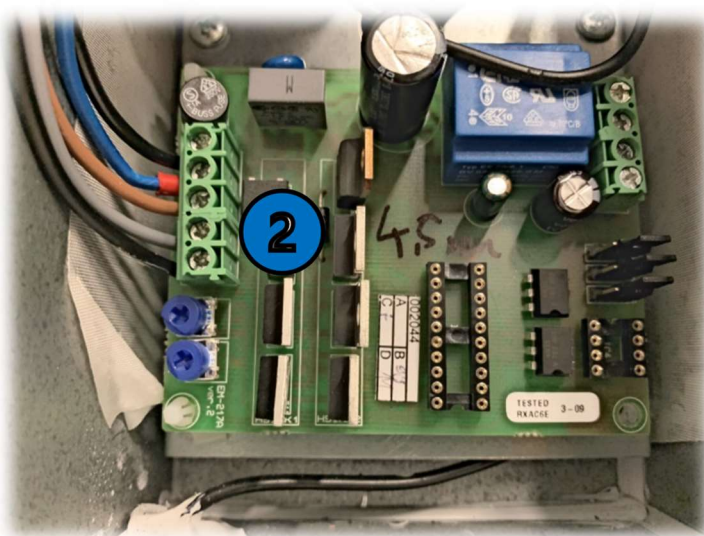
## If AC HRW:

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

3: Brown

4: Gray

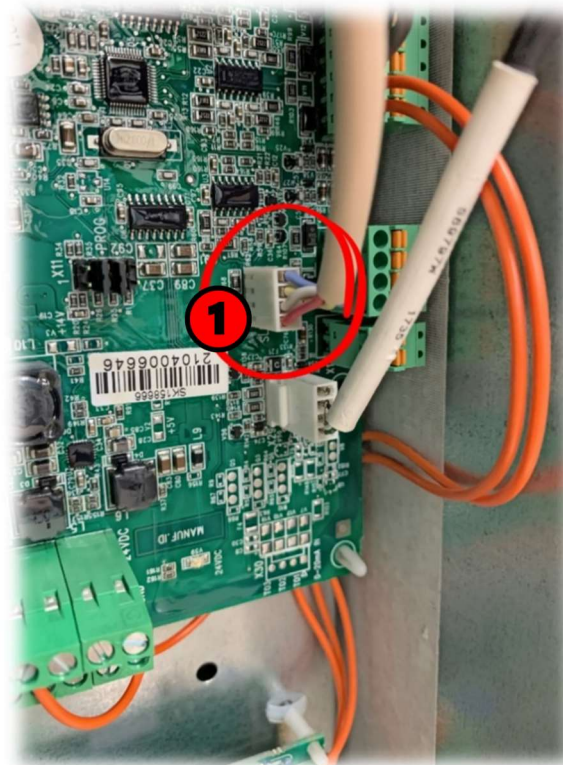
5: Black



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

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

**Connect other components (for example actuator for cooling coil or water coil after heater) according to the electrical diagrams (pages 28-31).**



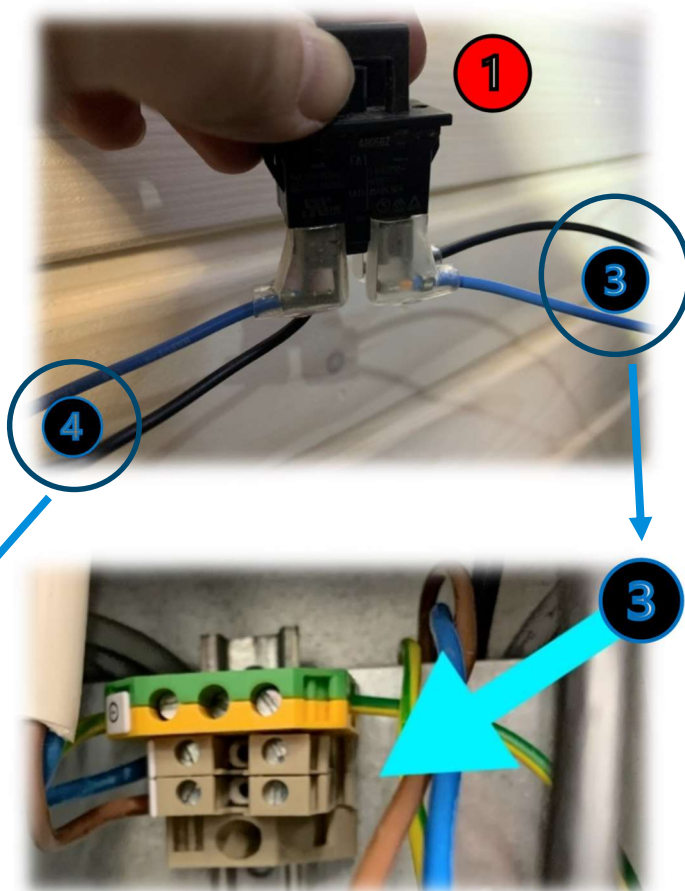
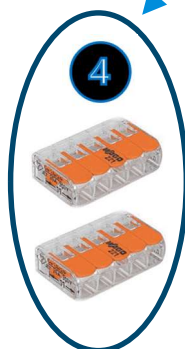
Connect the pairs of wires with flat connectors, (40028776, 40028777) to the **main switch (1)**, **install the main switch (5)** and connect **the wires (3 & 4)** to **the connection terminals (3 & 4)**.

**L: Black (3)**

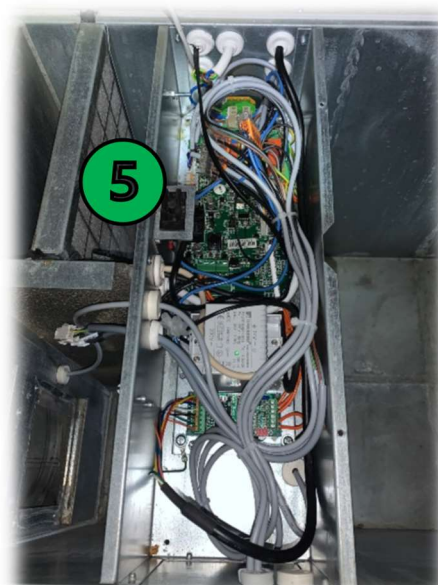
**N: Blue (3)**

**Black connection terminal: Black (4)**

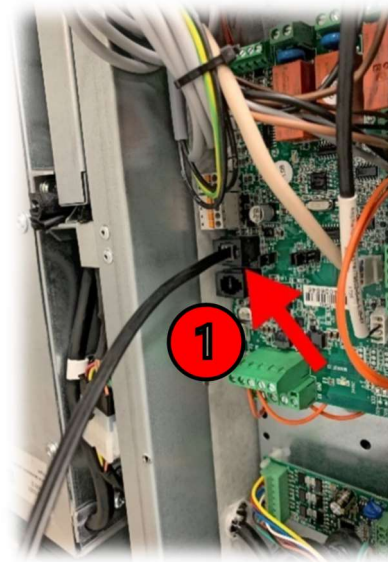
**Blue connection terminal: Blue (4)**



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



Connect **the display cable (1)** to the main board.  
Close the cover to the electrical box.



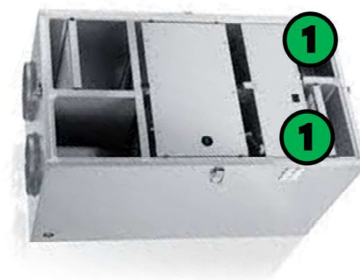
Replace the old display with **the new display (2)** (40031115).



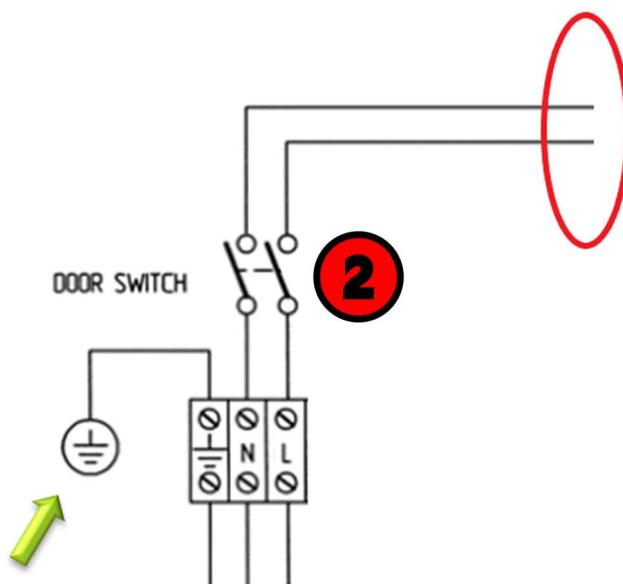
Install **the WiFi module (3)** (40034288).

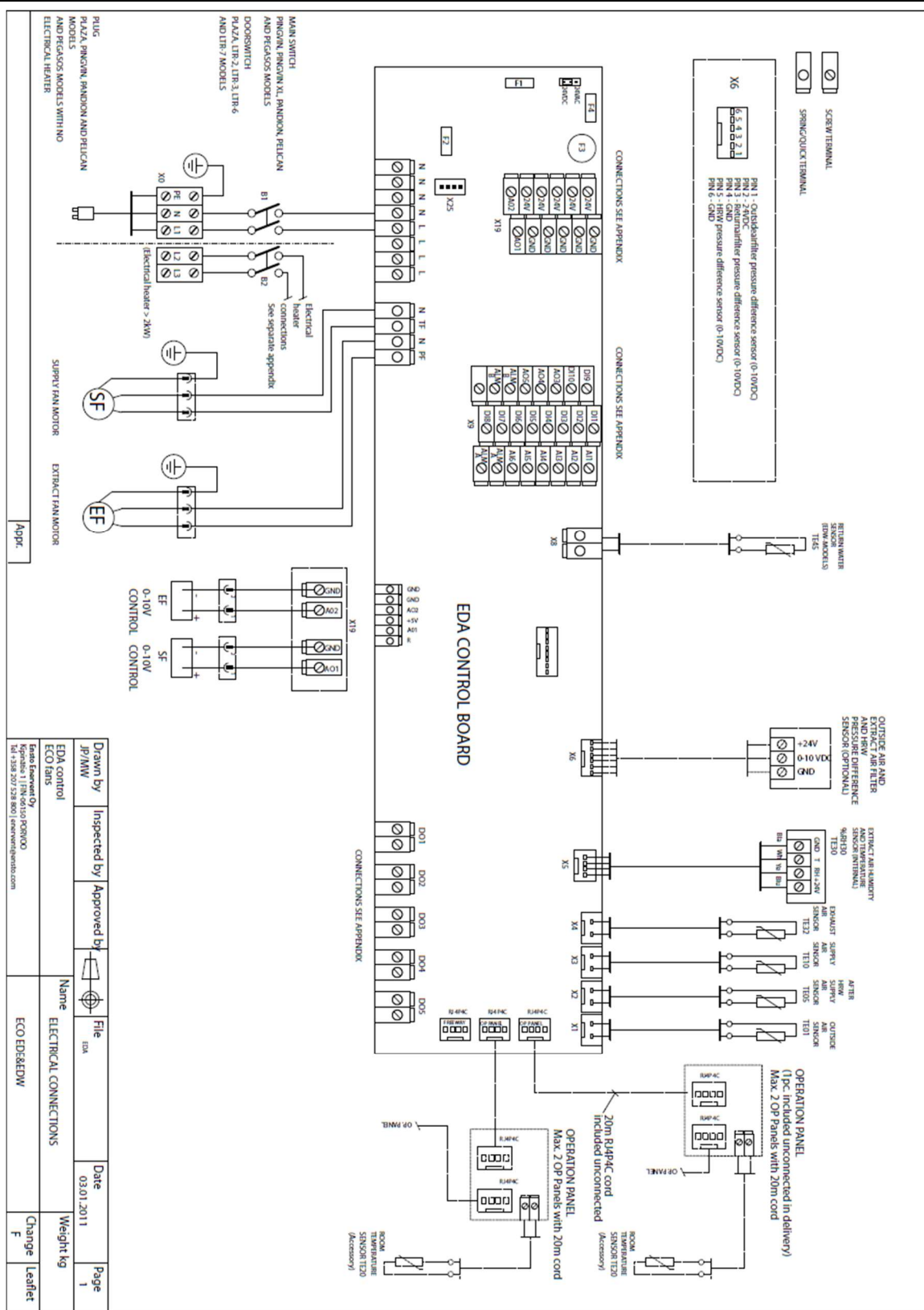


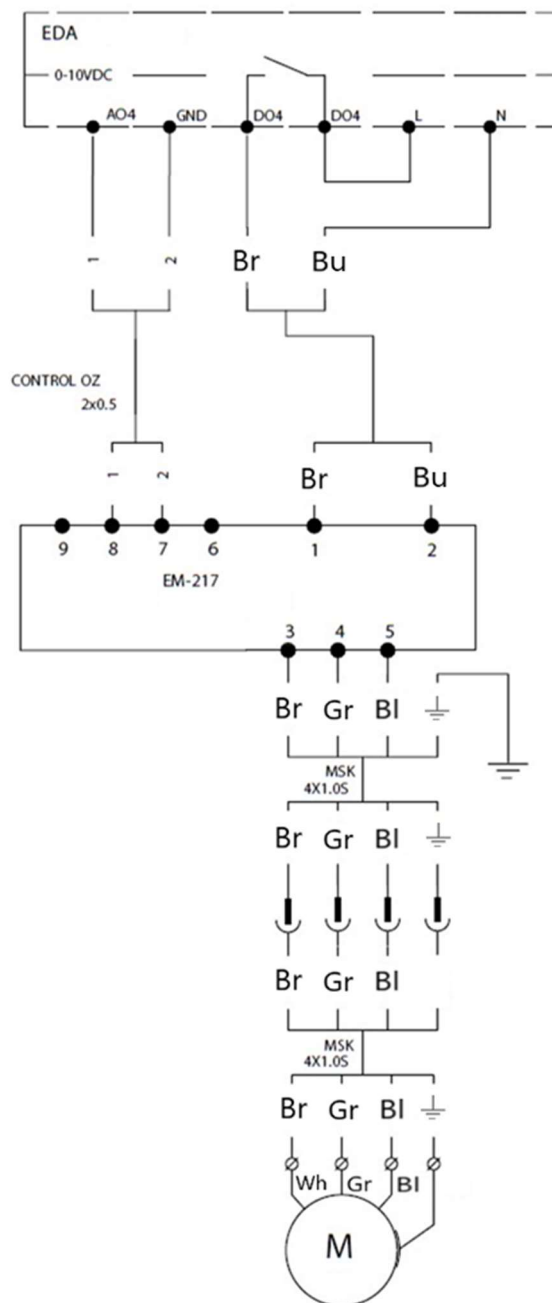
Install **the new type plate sticker (1)**.



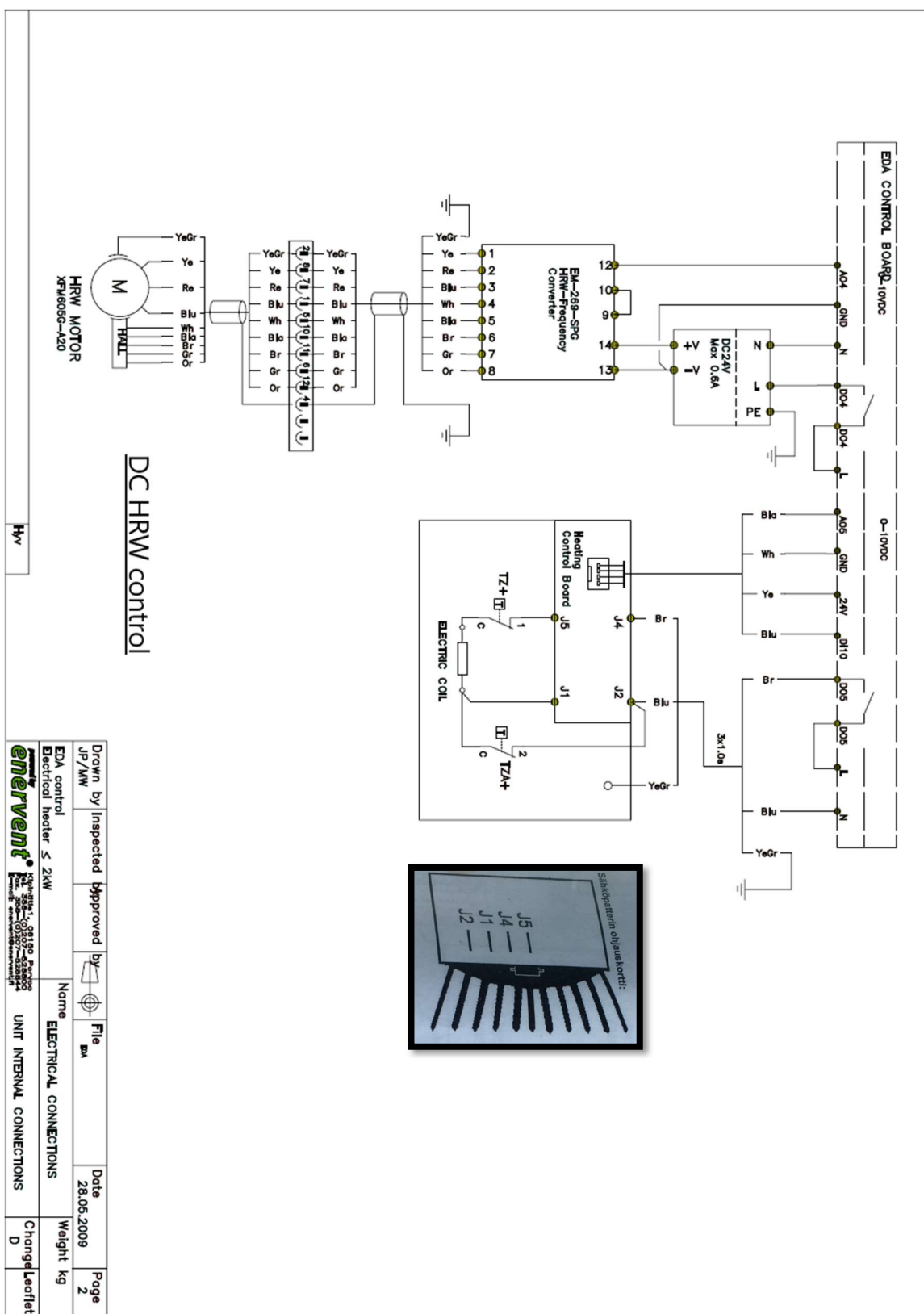
Press down **the main switch (2)** and perform insulation and ground continuity test according to regulations.

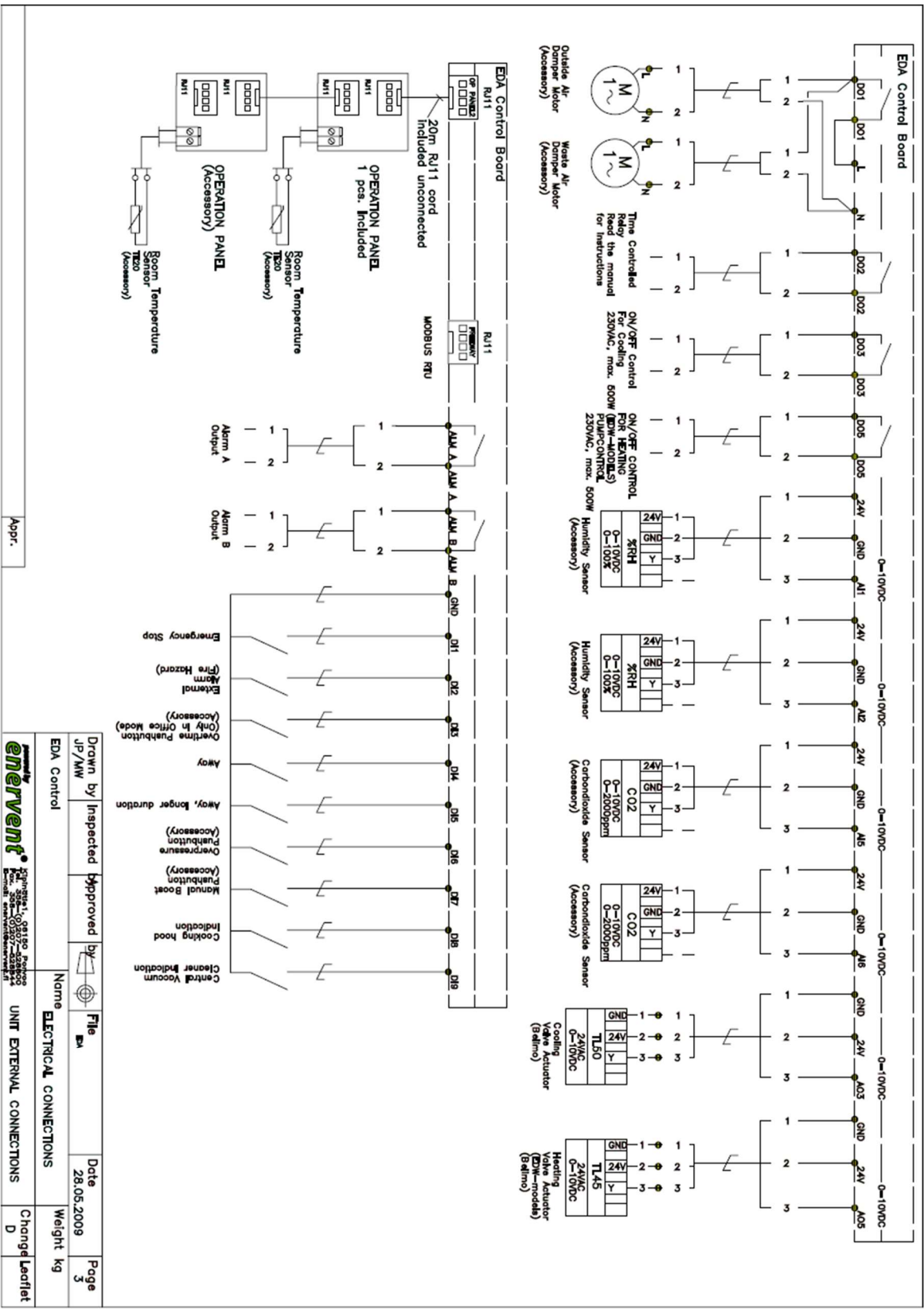




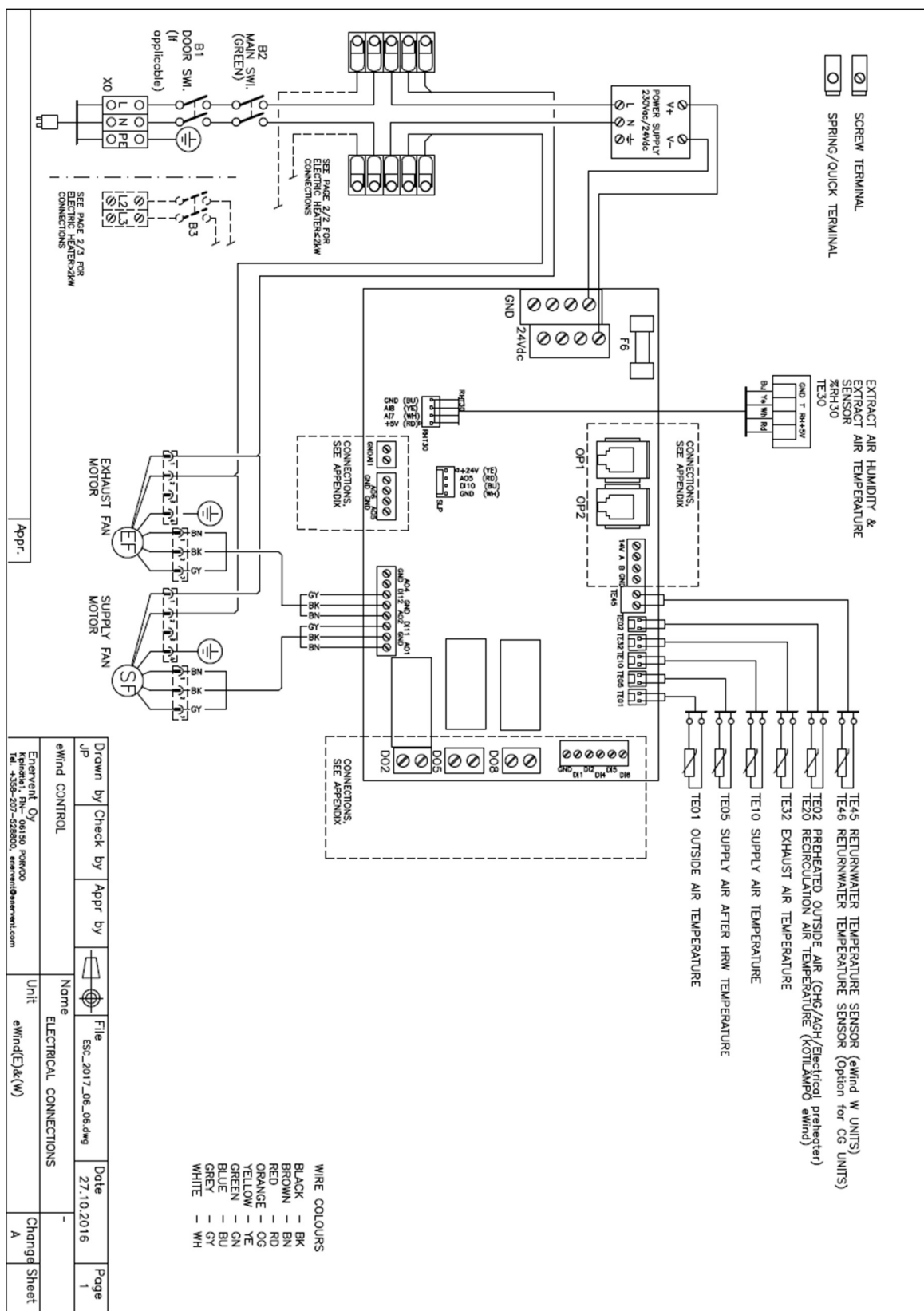


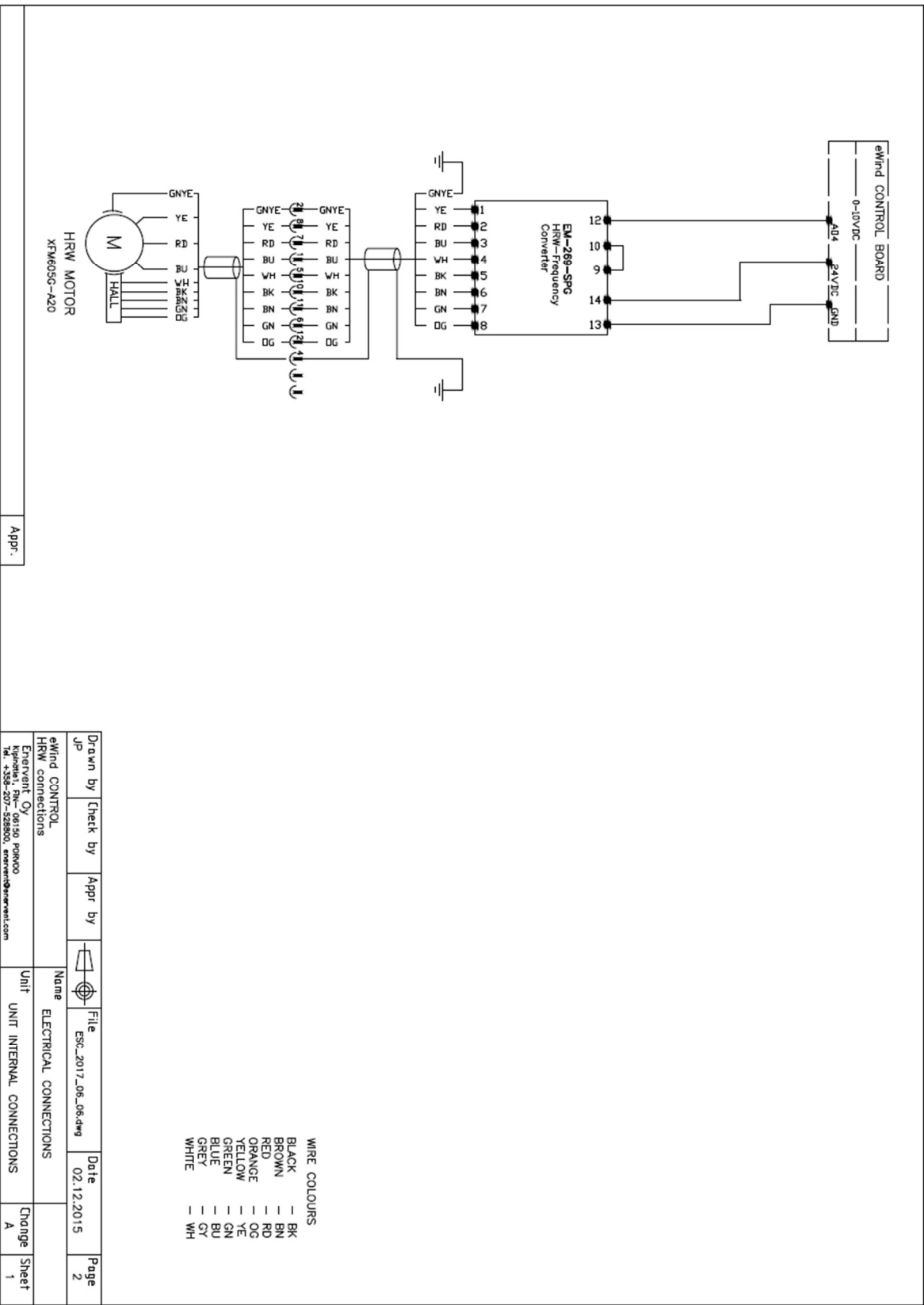
HRW MOTOR

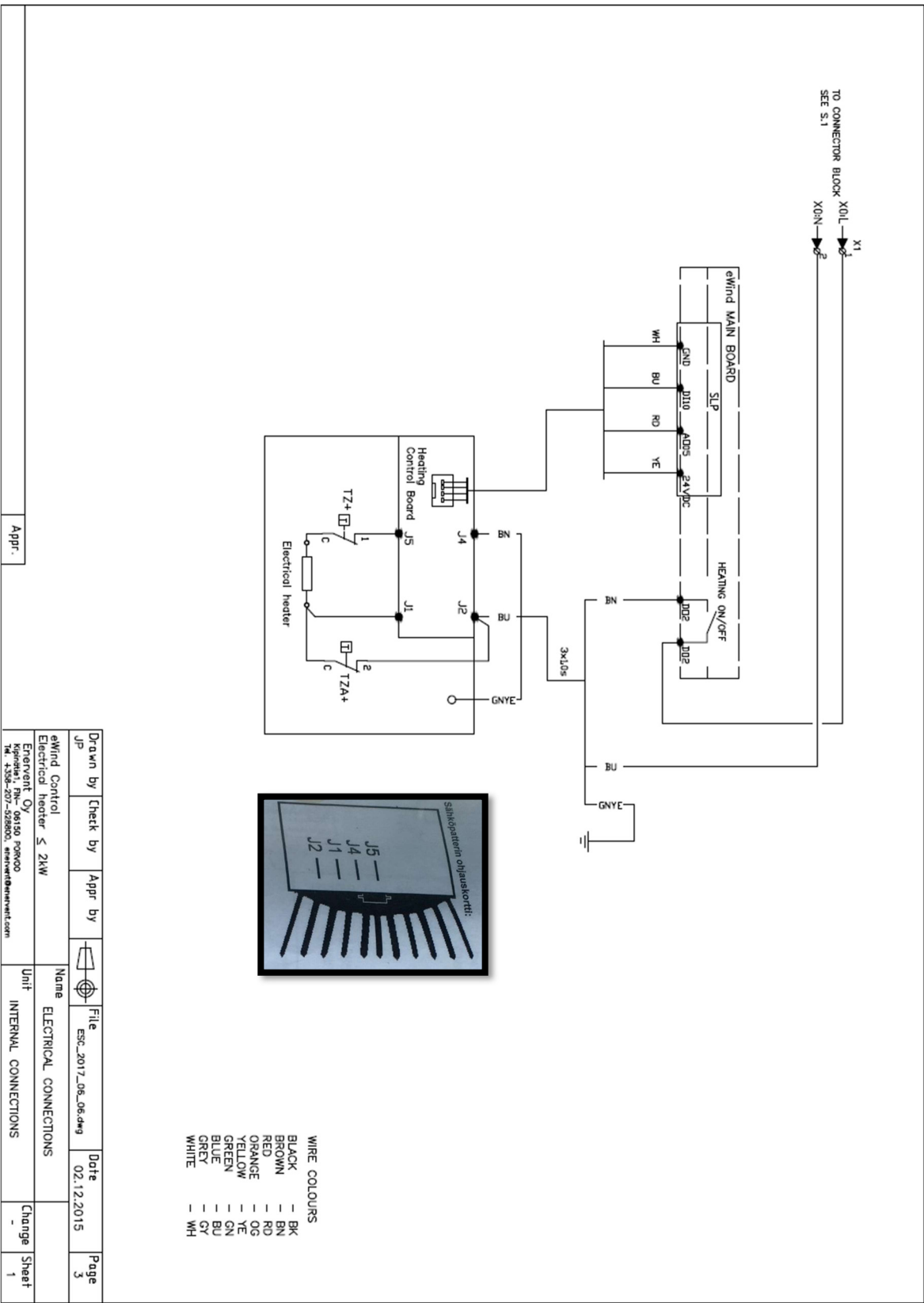




|                           |           |          |    |                        |            |      |
|---------------------------|-----------|----------|----|------------------------|------------|------|
| Drawn by                  | Inspected | Approved | by | File                   | Date       | Page |
| JP/MW                     |           |          |    | EDA Control            | 28.05.2009 | 3    |
| Name                      |           |          |    | ELECTRICAL CONNECTIONS |            |      |
| UNIT EXTERNAL CONNECTIONS |           |          |    | Change Leaflet         |            |      |
| D                         |           |          |    | D                      |            |      |









## MANDATORY PARTS

|          |                                          |   |
|----------|------------------------------------------|---|
| 10024023 | CONTROL UPDATE KIT LTR-3 eco EDA → EWIND | 1 |
|----------|------------------------------------------|---|

## OPTIONAL PARTS

|          |                         |   |
|----------|-------------------------|---|
| 10023290 | ELECTRICAL HEATER 0,5kW | 1 |
|----------|-------------------------|---|

| <u>Code</u>                            | <u>Description</u>                         | <u>Pcs.</u> |
|----------------------------------------|--------------------------------------------|-------------|
| 10024023                               | CONTROL UPDATE KIT LTR-3 eco EDA → EWIND   |             |
| <b>Automation</b>                      |                                            |             |
| 40030936                               | PCB support KGLS-6S                        | 4           |
| 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 <sup>2</sup>      | 5           |
| 40028774                               | Wire 255mm 1mm <sup>2</sup> black          | 1           |
| 40028779                               | Wire 255mm 1mm <sup>2</sup> blue           | 1           |
| 40031094                               | eWind main board                           | 1           |
| 40029195                               | Power supply Tufvassons PSLR24             | 1           |
| 40028788                               | Ground wire 100mm                          | 1           |
| 40029341                               | Terminal SL 4/15                           | 1           |
| 40029343                               | Terminal ES 15 PA                          | 1           |
| 40029340                               | Terminal SRK 2,5/15 PA                     | 2           |
| 40029330                               | PMC SB 5/50 So ERDE                        | 1           |
| 40029329                               | PMC SB 5/50 So L                           | 1           |
| 40029327                               | PMC SB 5/50 FW N                           | 1           |
| 40029647                               | Automation base                            | 1           |
| <b>Components</b>                      |                                            |             |
| 40029223                               | Humidity/temperature sensor Amphenol 350mm | 1           |
| 40029982                               | WaGo 221-415                               | 4           |
| 40031530                               | Screw ZN 4,2x25                            | 4           |
| 40028776                               | Wire 250mm black                           | 2           |
| 40028777                               | Wire 250mm blue                            | 2           |
| 40028774                               | Wire 255mm 1mm <sup>2</sup> black          | 3           |
| 40028781                               | Wire 600mm 1mm <sup>2</sup> blue           | 2           |
| 40031537                               | Washer 6798-A ZN M4x8                      | 1           |
| 40031489                               | Nut DIN 934/8 ZN M4                        | 1           |
| 40030997                               | Cable tie 2,5x200mm                        | 10          |
| 40031115                               | eWind panel package                        | 1           |
| 40030313                               | Triac cable 1000mm 4-pole                  | 1           |
| 40034288                               | WiFi module package                        | 1           |
| <b>Manuals etc. (depends on model)</b> |                                            |             |
|                                        | eWind installation manual                  | 1           |
|                                        | eWind user manual                          | 1           |
|                                        | eWind electrical diagrams                  | 1           |

## MANDATORY PARTS

10024023 CONTROL UPDATE KIT LTR-3 eco EDA → EWIND 1

Code Description Pcs.

10024023 CONTROL UPDATE KIT LTR-3 eco EDA → EWIND

### Automation

|          |                                       |   |
|----------|---------------------------------------|---|
| 40030936 | PCB support KGLS-6S                   | 4 |
| 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 <sup>2</sup> | 5 |
| 40028774 | Wire 255mm 1mm <sup>2</sup> black     | 1 |
| 40028779 | Wire 255mm 1mm <sup>2</sup> blue      | 1 |
| 40031094 | eWind main board                      | 1 |
| 40029195 | Power supply Tufvassons PSLR24        | 1 |
| 40028788 | Ground wire 100mm                     | 1 |
| 40029341 | Terminal SL 4/15                      | 1 |
| 40029343 | Terminal ES 15 PA                     | 1 |
| 40029340 | Terminal SRK 2,5/15 PA                | 2 |
| 40029330 | PMC SB 5/50 So ERDE                   | 1 |
| 40029329 | PMC SB 5/50 So L                      | 1 |
| 40029327 | PMC SB 5/50 FW N                      | 1 |
| 40029647 | Automation base                       | 1 |

### Components

|          |                                            |    |
|----------|--------------------------------------------|----|
| 40029223 | Humidity/temperature sensor Amphenol 350mm | 1  |
| 40029982 | WaGo 221-415                               | 4  |
| 40031530 | Screw ZN 4,2x25                            | 4  |
| 40028776 | Wire 250mm black                           | 2  |
| 40028777 | Wire 250mm blue                            | 2  |
| 40028774 | Wire 255mm 1mm <sup>2</sup> black          | 3  |
| 40028779 | Wire 255mm 1mm <sup>2</sup> blue           | 2  |
| 40031537 | Washer 6798-A ZN M4x8                      | 1  |
| 40031489 | Nut DIN 934/8 ZN M4                        | 1  |
| 40030997 | Cable tie 2,5x200mm                        | 10 |
| 40031115 | eWind panel package                        | 1  |
| 40030313 | Triac cable 1000mm 4-pole                  | 1  |
| 40034288 | WiFi module package                        | 1  |

### Manuals etc. (depends on model)

|                           |   |
|---------------------------|---|
| eWind installation manual | 1 |
| eWind user manual         | 1 |
| eWind electrical diagrams | 1 |

Notes: