

# Automation upgrade

## Pingvin ECC -> eWind

### NOTE!

**F7 filters after heat recovery in the supply air chamber can't be used anymore after upgrade.**

## 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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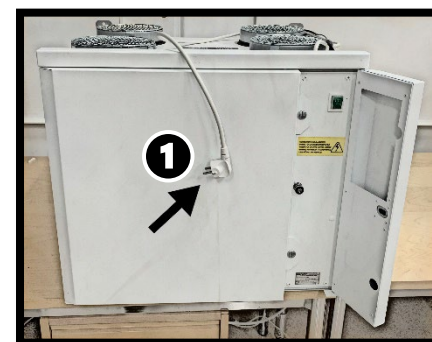
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Open **the small door (1)** by pressing on it.



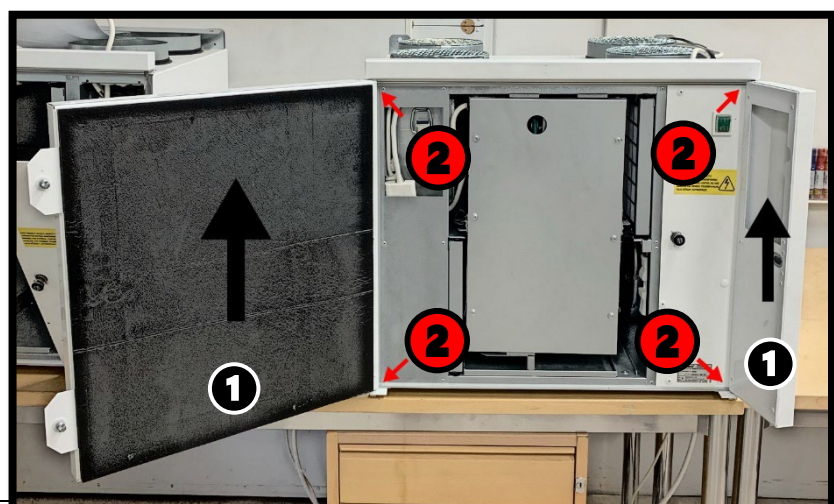
Disconnect **the power cord (1)** (and other power supplies if available).



Open the service door by turning **the two locks (1)** counterclockwise. If there is a remote panel installed in the small door, cut the cord and remove the remote panel or leave it in place. Either way, the panel can't be used anymore.



Remove **the doors (1)** by lifting and pulling. The doors will detach from **the pins (2)**.



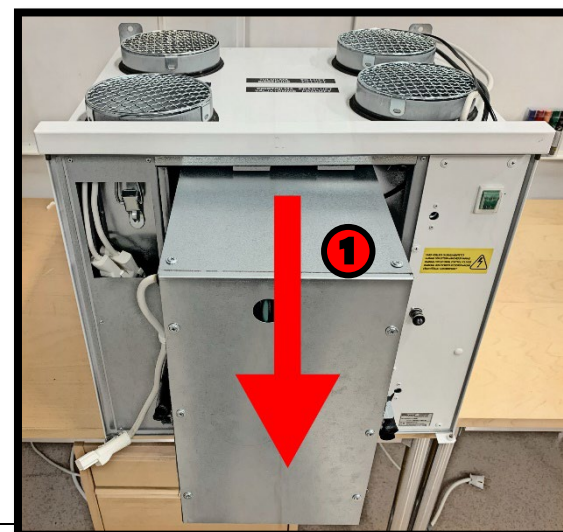
Remove **the filters (1)** by pulling.



Disconnect **the power cord (1)** from the heat exchanger.

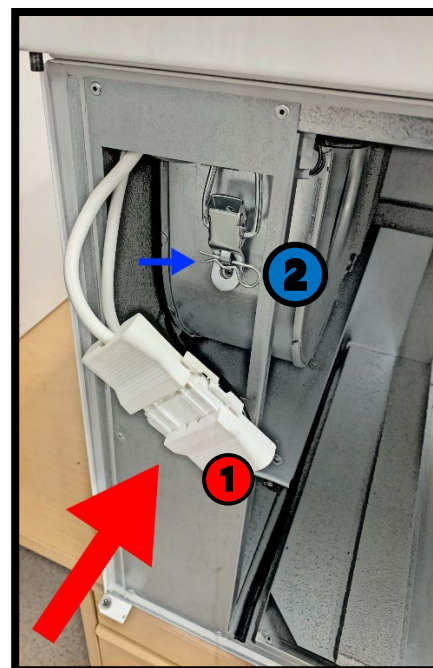


Remove **the heat exchanger (1)** by pulling.

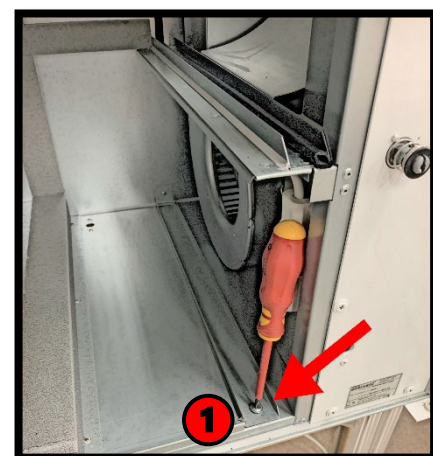




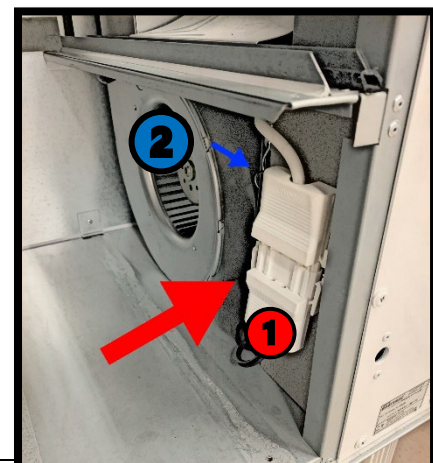
Disconnect **the power cord (1)**, release **the pin (2)** and remove the extract air fan.



Remove **the screw (1)** from the filter rail.



Disconnect **the power cord (1)**, release **the pin (2)** and remove the supply air fan.

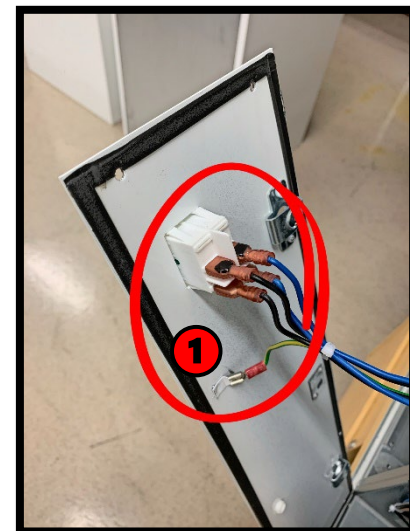


Open the electrical box by removing **the screws (1)**.

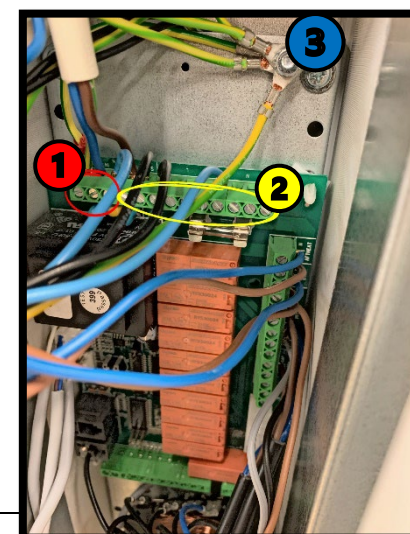


**NOTE!** Ensure that no voltage is occurring in the electrical box before proceeding!

Disconnect **all wires from the main switch and the ground wire (1)** from the cover.

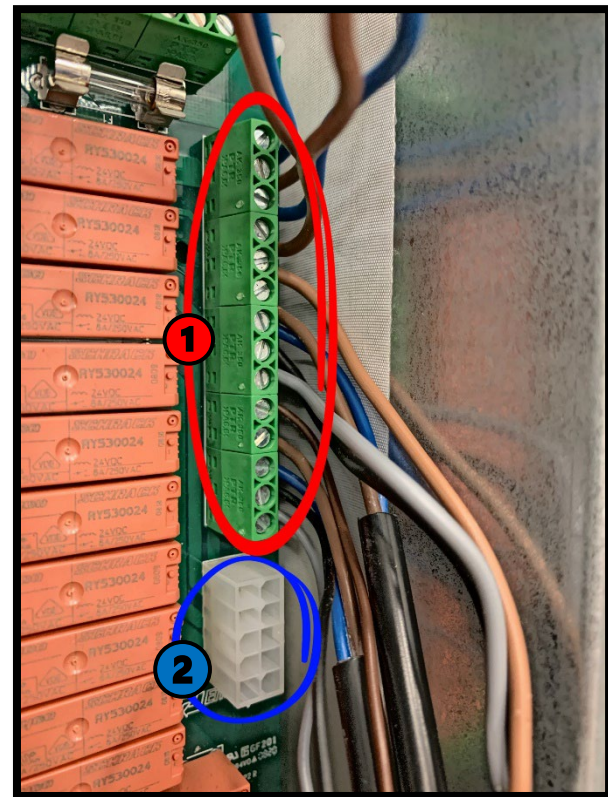


Disconnect **the power wires (1)**.  
Disconnect and remove **the main switch wires (2)**.  
Disconnect **all ground wires (3)** from the automation base ground point.



Disconnect **the wires (1)**.

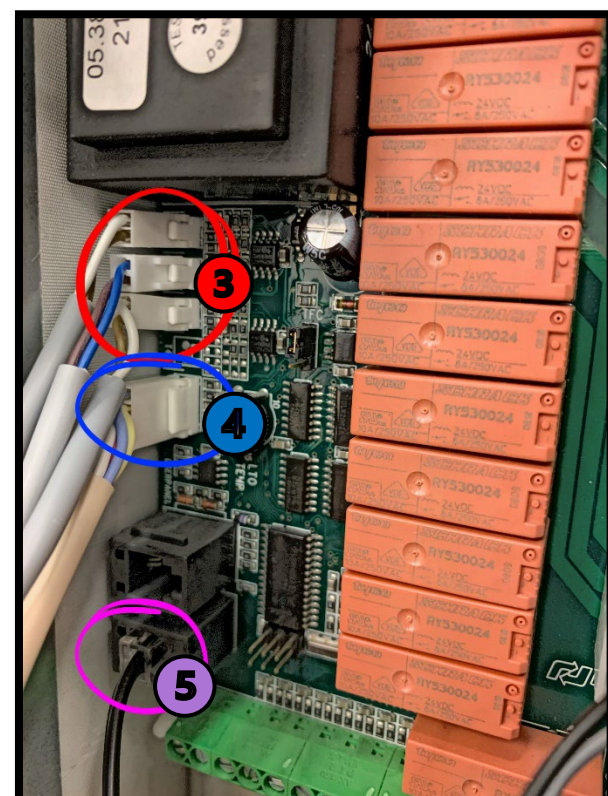
Disconnect **the connector (2)**.



Disconnect **the sensors (3)**.

Disconnect **the connector (4)**.

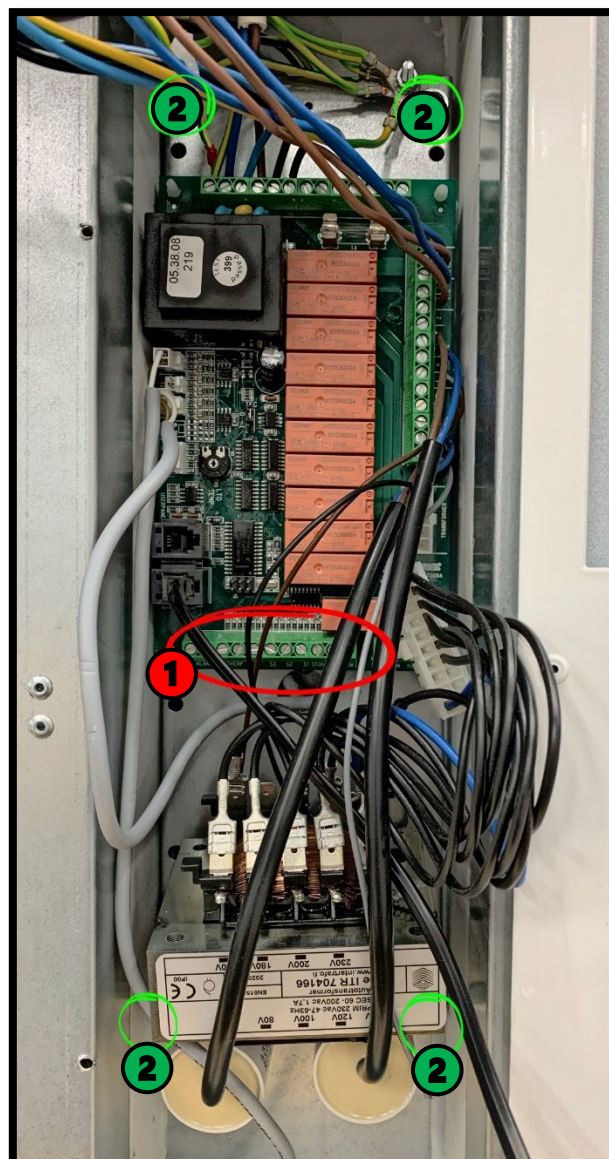
Disconnect **the display cable (5)**.





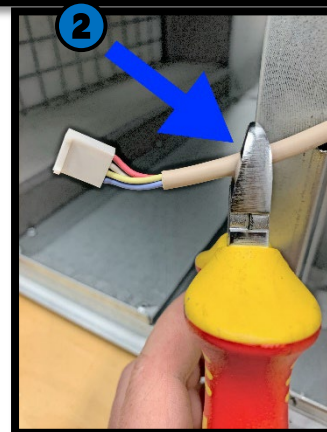
If there are wires connected **here (1)**, mark them according to the reading on the mainboard and disconnect.

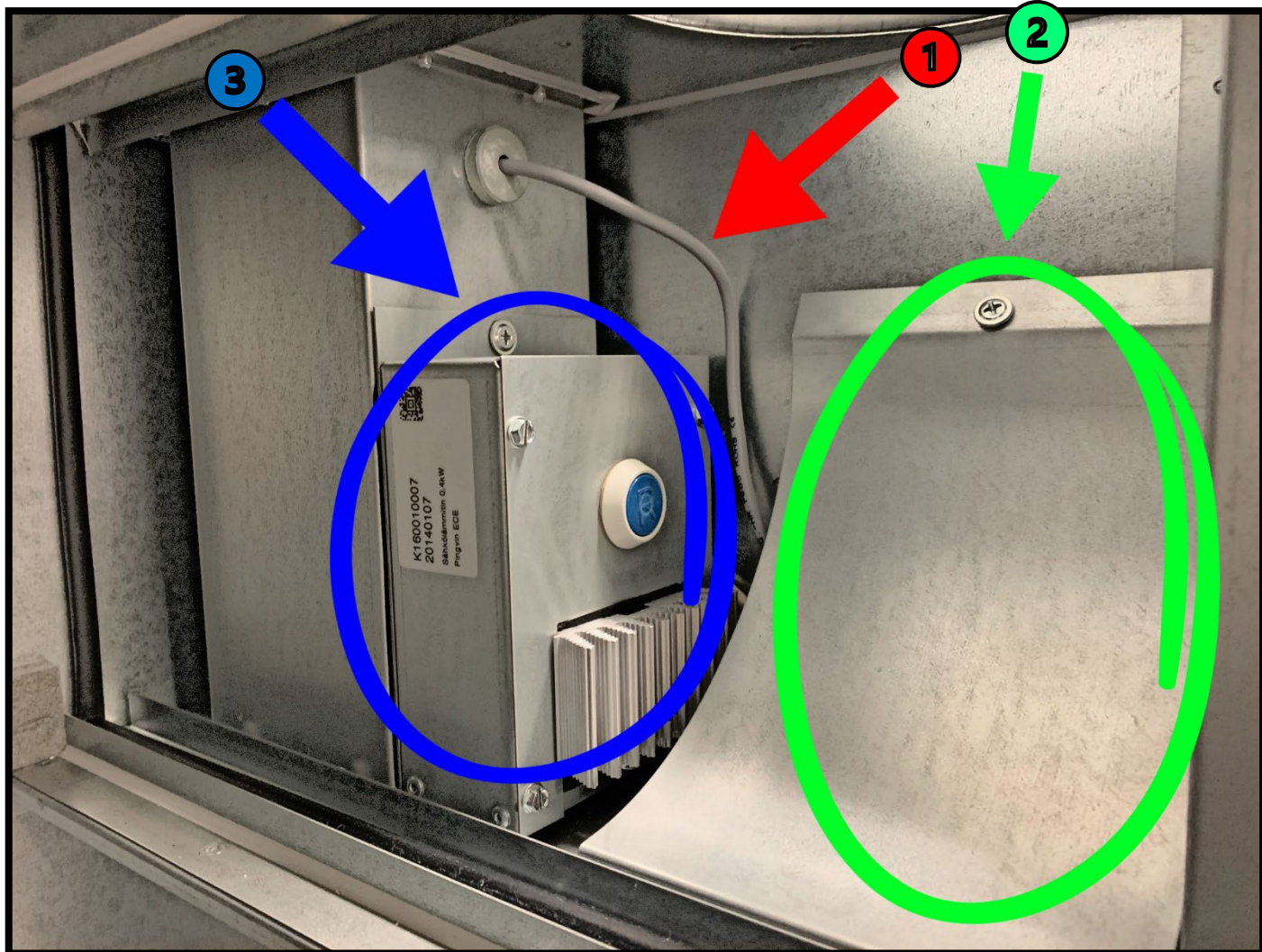
Remove **the screws (2)** and remove the automation base incl. main board, capacitors, and transformer.



Cut and remove **the sensors completely (1)** (3 pcs.).

Cut and remove **the after heater cable (2)**.





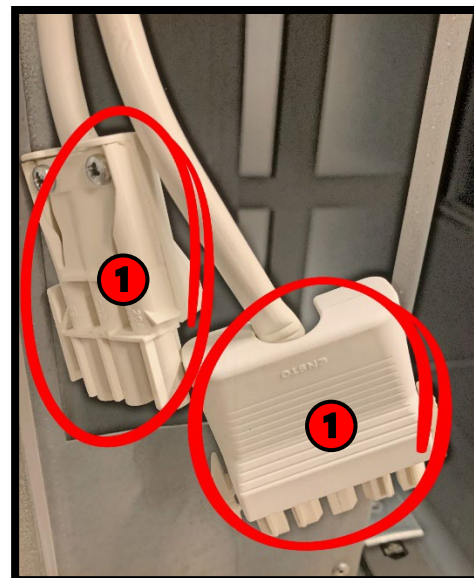
Remove **the sensor (1)**. *Ignore if the unit doesn't have an after heater installed.*

Remove **the flow helper (2)** (one screw). Reattach the screw.

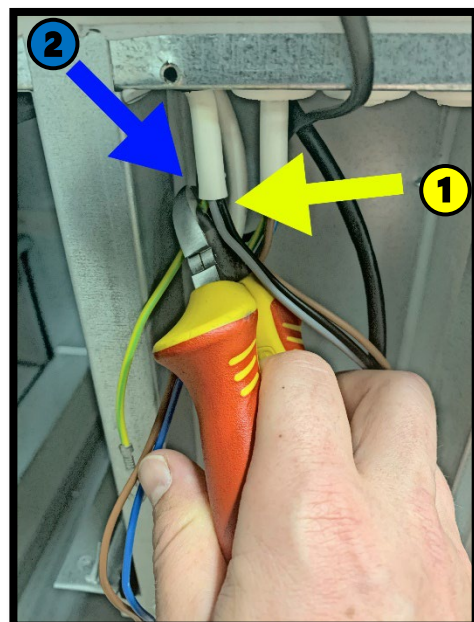
Remove **the after heater (3)** (one screw). *Ignore if the unit doesn't have an after heater installed.*



Disconnect and remove **the connectors (1)** from the cables.

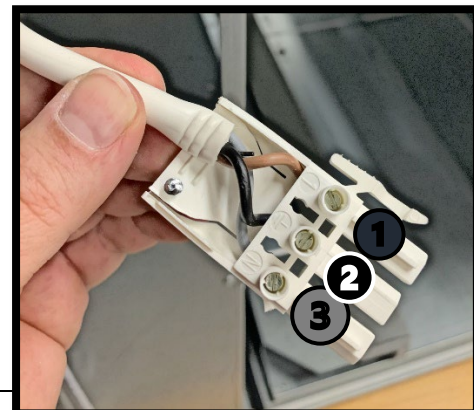


Cut and remove **the ground wire (green/yellow) (1)** from the cable with **FOUR WIRES (2)**.  
Cut and remove in the other end also (in the electrical box).



Connect **the removed 3-pin connector to the cable.**

1: Brown (1)  
GND: Black (2)  
N: Gray (3)



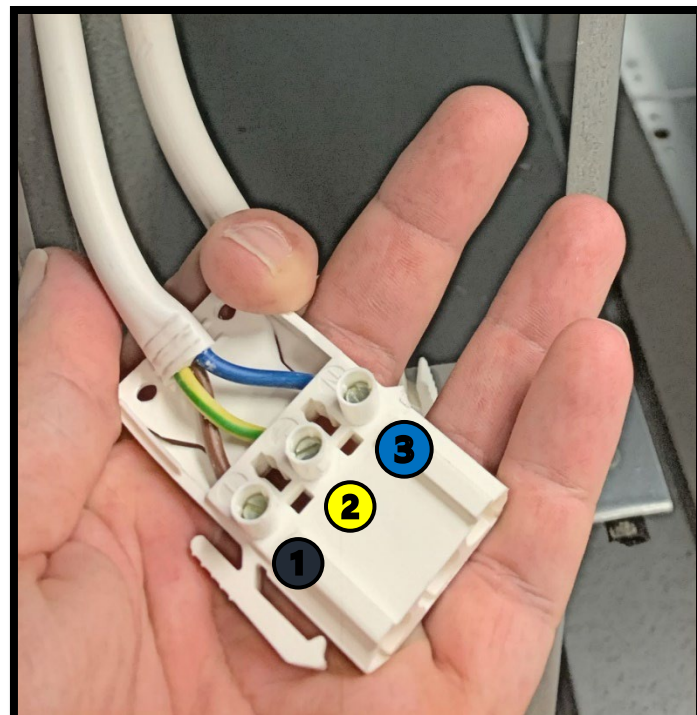


Connect **the delivered 3-pin connector (40029346)** to the other cable.

1: Brown (1)

**GND:** Green/yellow (2)

**N:** Blue (3)

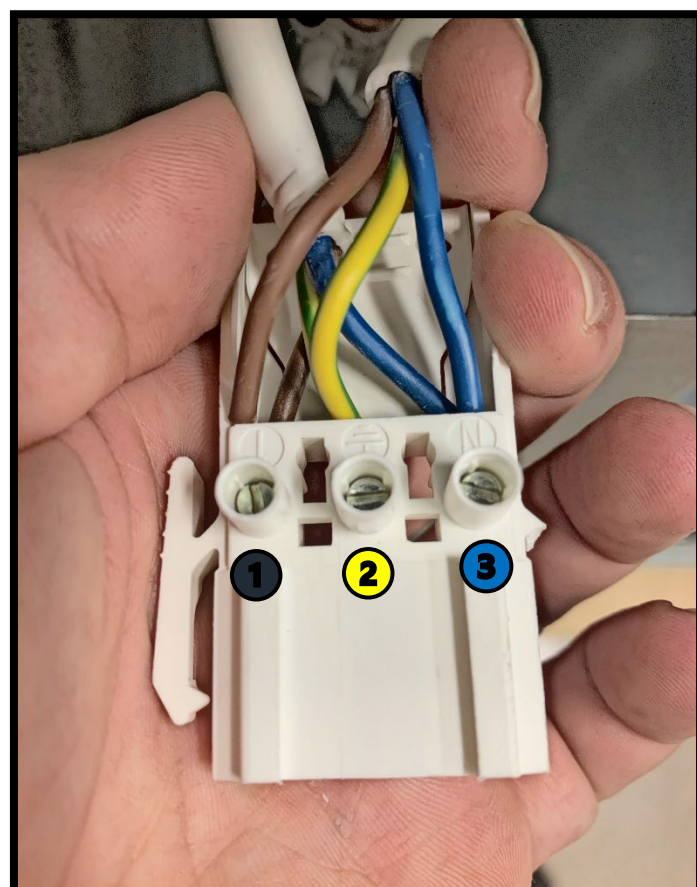


**If there is a pre-heater installed inside the unit, connect it to this connector also.**

1: Brown (1)

**GND:** Green/yellow (2)

**N:** Blue (3)

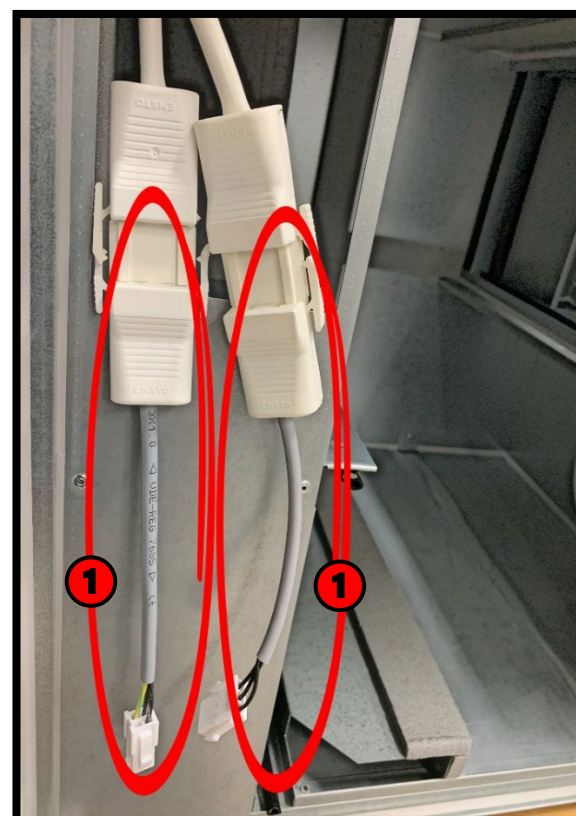


Close **the connectors** with their caps (two screws).

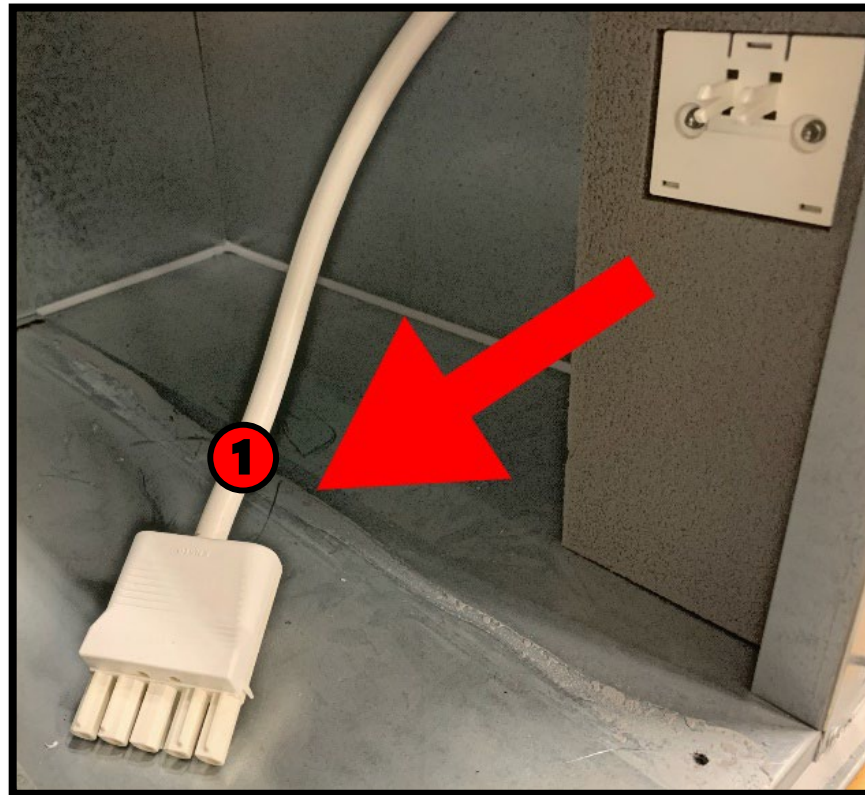


Attach **the adapters (1)** (40028768) (40029530).

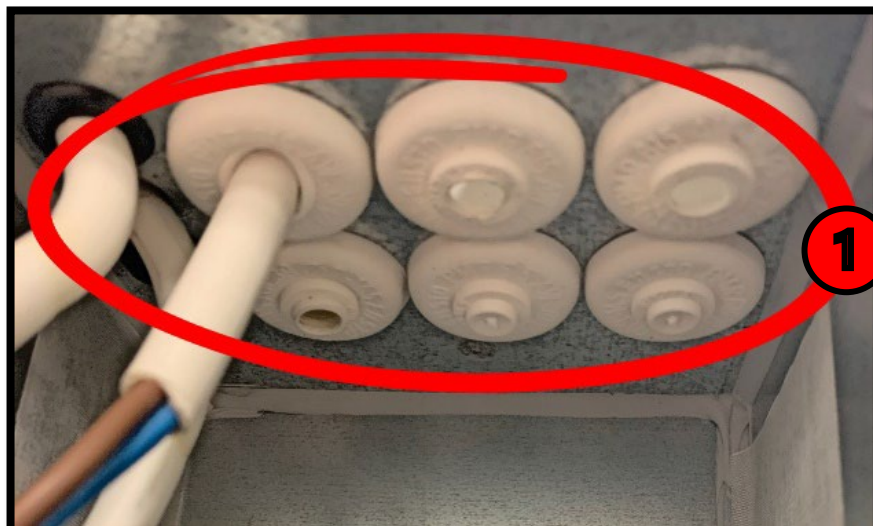
- Make sure that the supply power cable (brown, green/yellow, blue) (230VAC) is connected to the adapter with the 4-pin Molex connector!
- Make sure that the signal cable (gray, black, brown) (0-10VDC) is connected to the adapter with the 3-pin Molex connector!



Remove **the supply air fan cable (1)**.

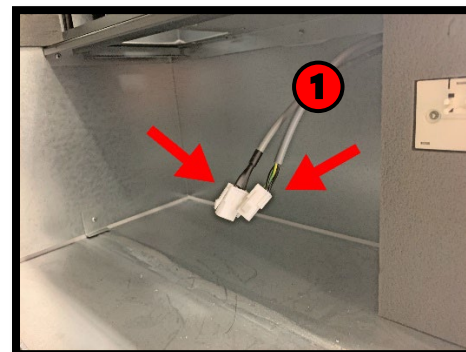


Replace **the used cable sealings (1)** with new ones (40030101).

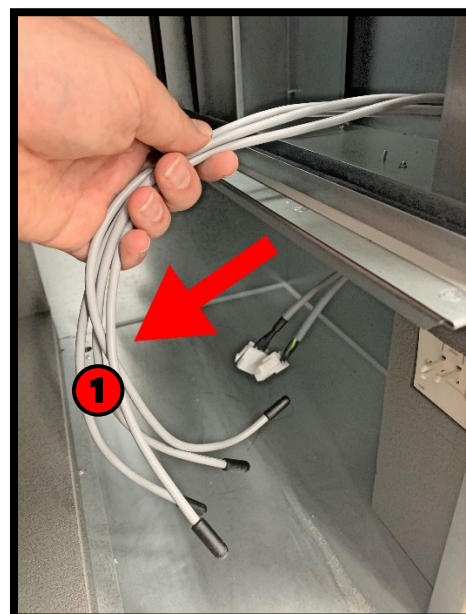




Install **the new supply air fan cables (1)**  
(40028783) (40028785)  
(through a cable sealing in the electrical box).



Install **the new sensors (1)**  
(40029165) (40029166) (40029167)  
(through a cable sealing in the electrical box).



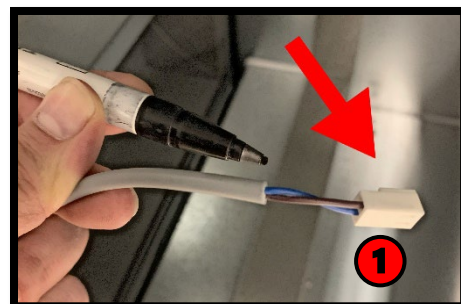
*New cables installed in the electrical box.*



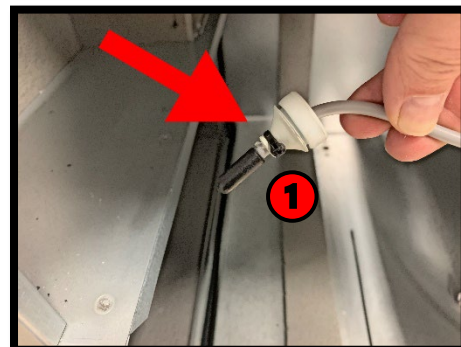
Install **the HRW supply air sensor (850mm) (1)** (40029165).



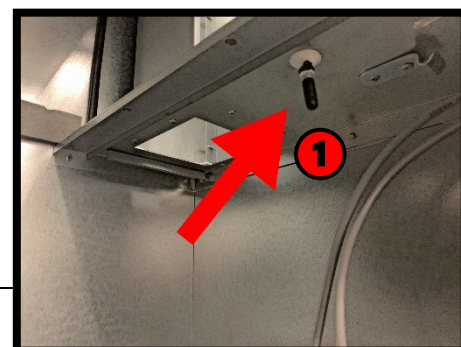
Mark it **"TE05"** on **the connector (1)** in the other end.



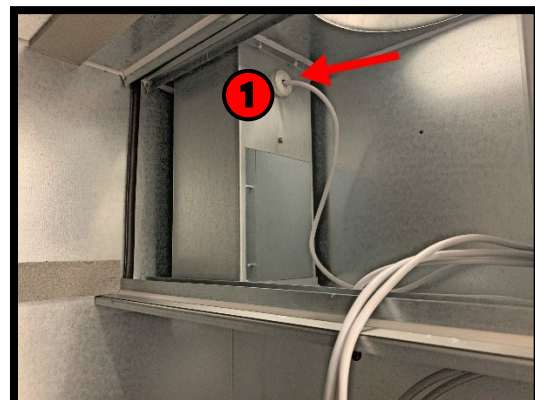
Attach the sensor(s) to the cable sealing with **a cable tie (1)**.



**HRW supply air sensor installed (1).**



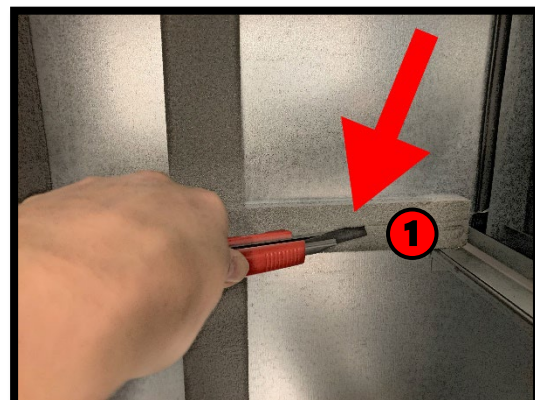
Install **the supply air sensor (1100mm) (1)** (40029166) and mark it **"TE10"** on the connector in the other end.



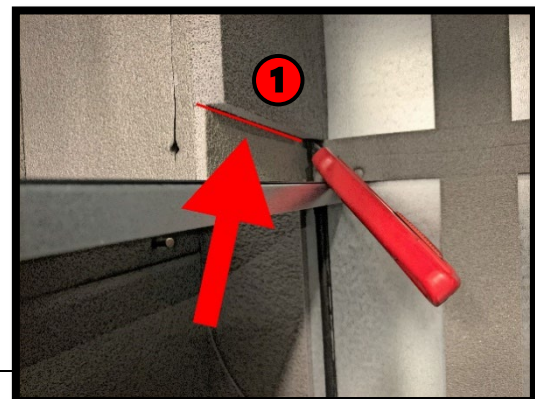
Cut a 10mm gap in **the black rubber sealing (1)**.



Cut a small gap, all the way, in **the gray rubber sealing (1)**, from right to left.



Cut a small gap in **the gray rubber sealing (1)**, as marked in the picture.

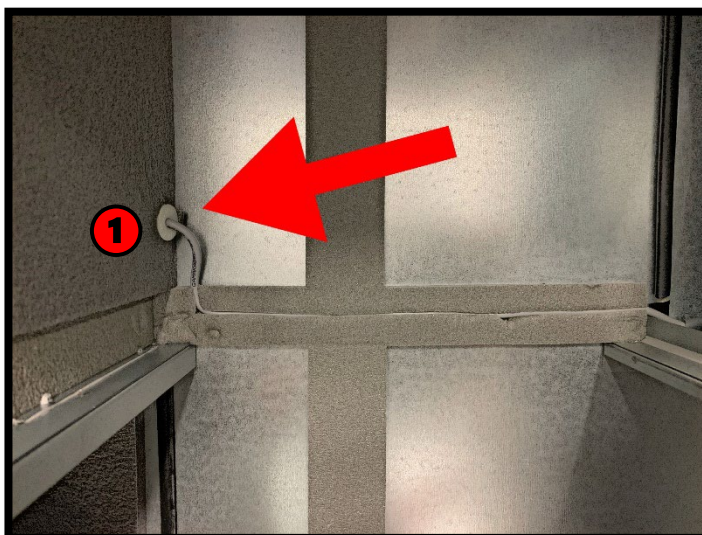




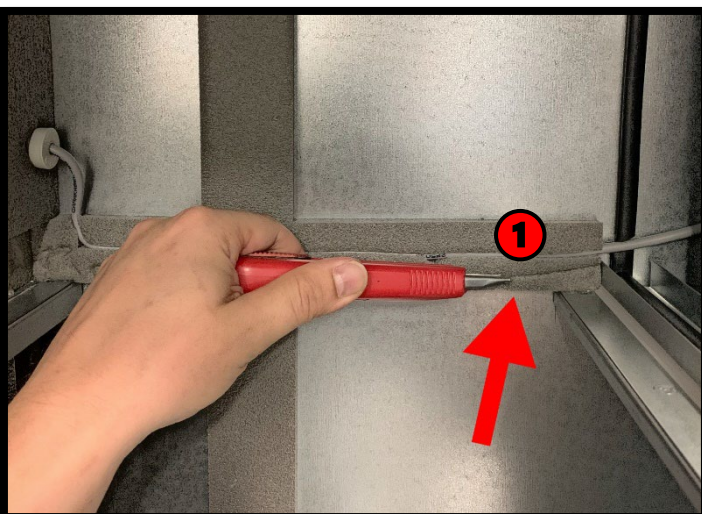
Drill **a 16mm hole (1)** as marked in the picture.



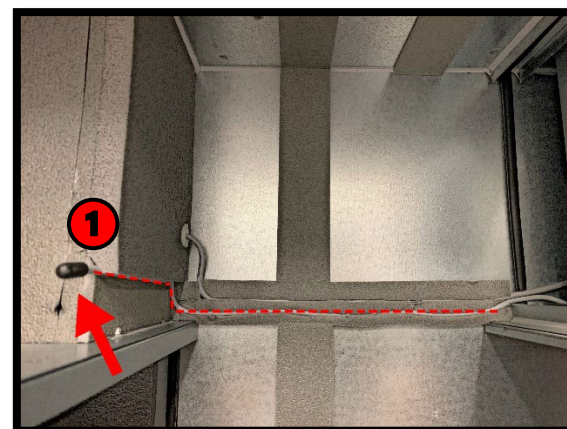
Install **the outside air sensor (1700mm)** (40029167) in the gaps of the rubber sealings and in its **final place (1)**. Mark it **"TE01"** on the connector in the other end.



Cut another small gap, all the way, in **the gray rubber sealing (1)**, from right to left.



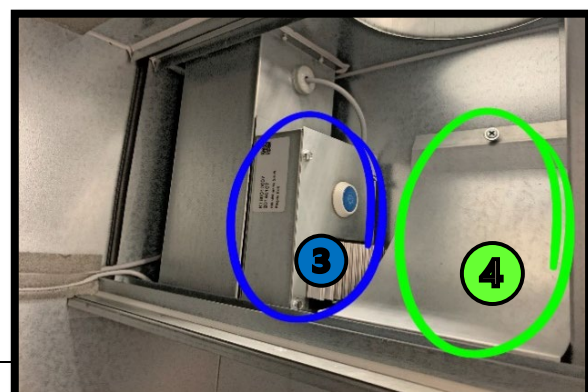
Install **the waste air sensor (1700mm)** (40029167) in the gaps of the rubber sealings and in its **final place (1)**. Mark it **"TE32"** on the connector in the other end.



Put **sealant (1)** in the gap.  
ex. *Würth silicone sealant*.

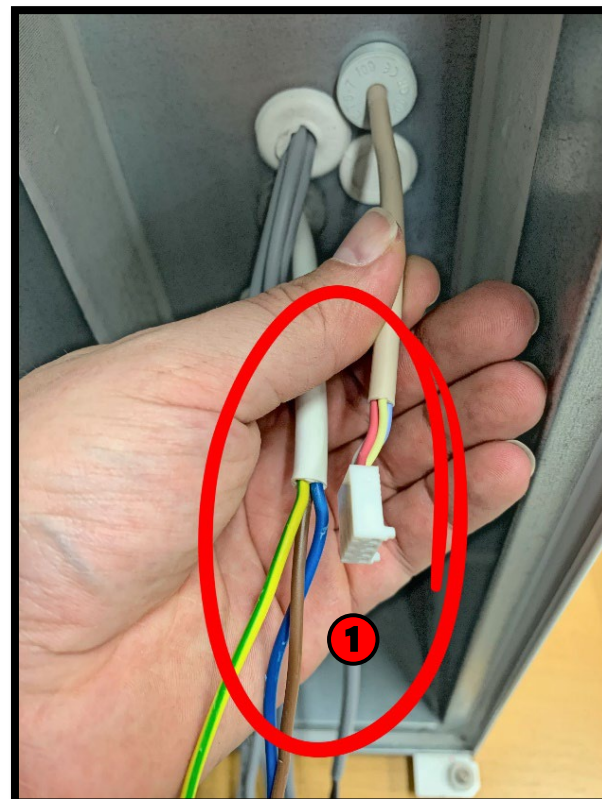


Install **the new after heater (3)** (10023244).  
Leave **the flow helper (4)** uninstalled and attach the cables together with cable ties.

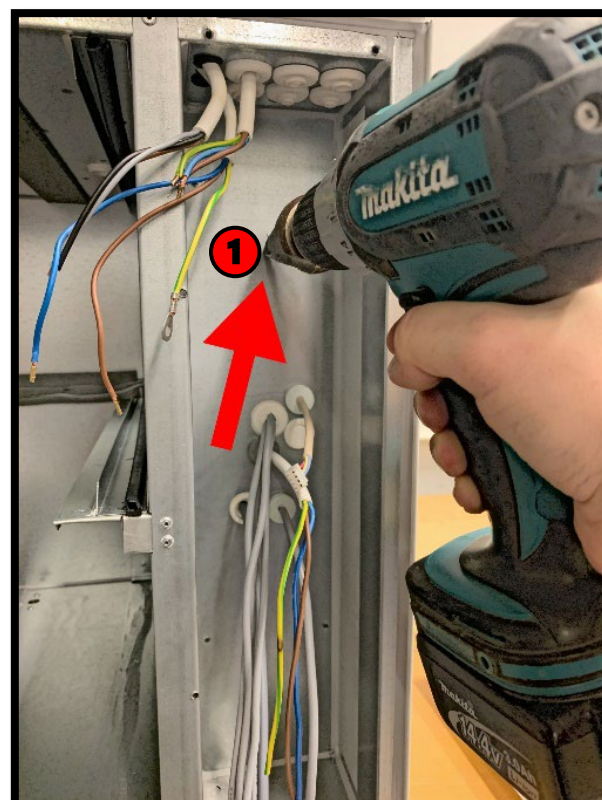




Install **the after heater cables (1)**  
(through a cable sealing in the electrical box).



Drill **a 18mm hole (1)** as marked in the picture.

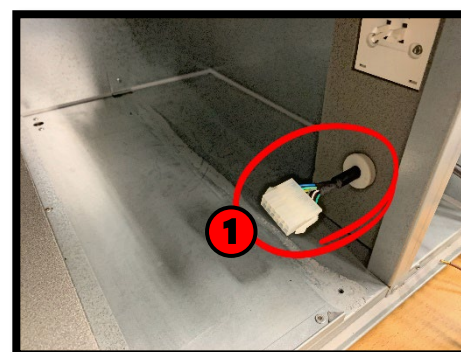




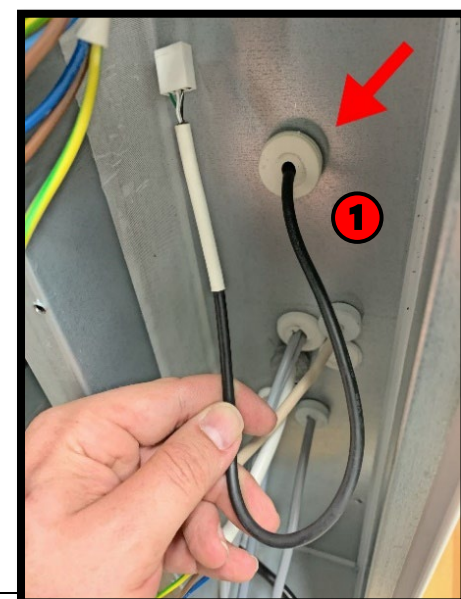
Drill **a 18mm hole (1)** as marked in the picture.



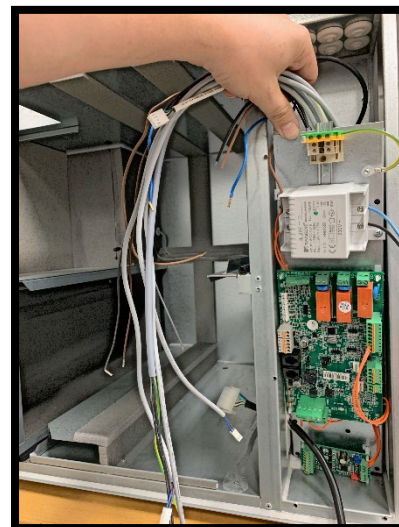
Install **the HRW cable (1)** (40033952)  
(through a cable sealing in the electrical box).



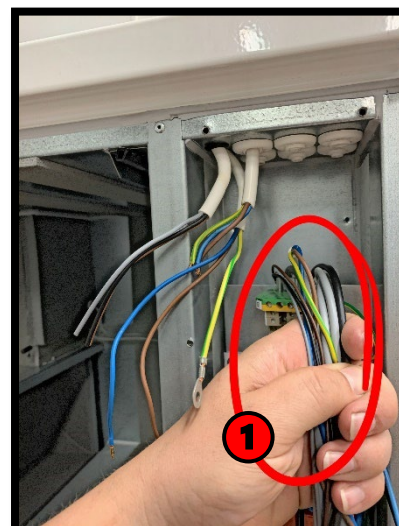
Install **the extract air sensor with a cable sealing (1)** (40029224),  
through the drilled hole in the electrical box.



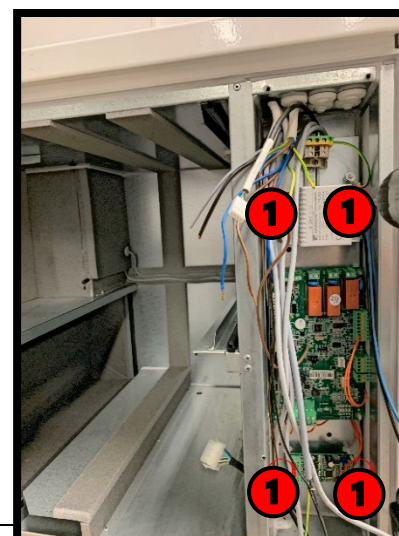
Install **the new automation** in the electrical box.



Make sure no installed  **cable / sensor (1)** get stuck behind the automation base and that they are available in front of the main board.



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

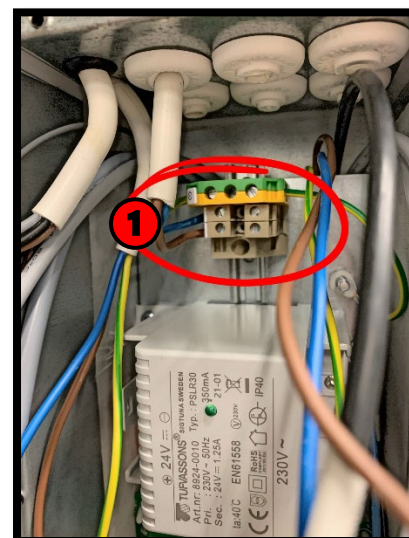


Connect **the power cord to the terminals (1)**.

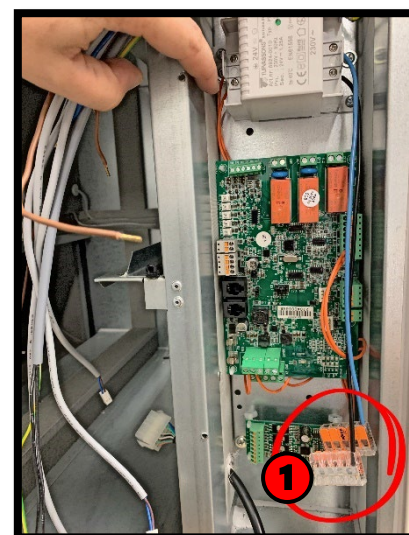
L: Brown

**GND**: Green/yellow

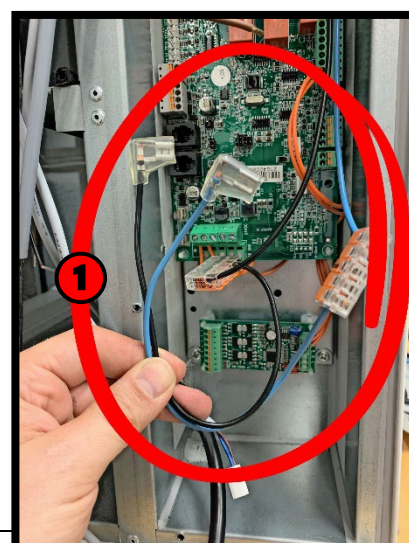
N: Blue



Install **the connection terminals (1)** (40029982).  
One for "L" and one for "N".

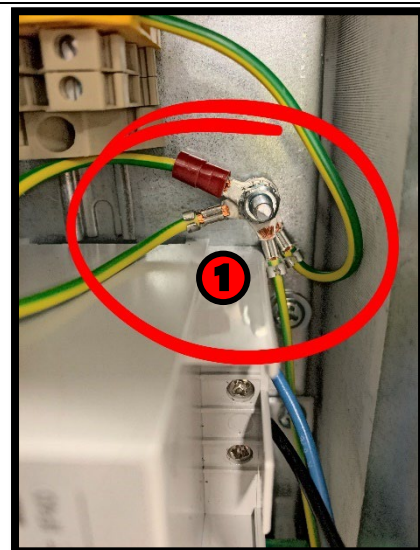


Connect one pair of **the wires with flat connectors** (40028776, 40028777) **to the connection terminals (1)** (40029982).

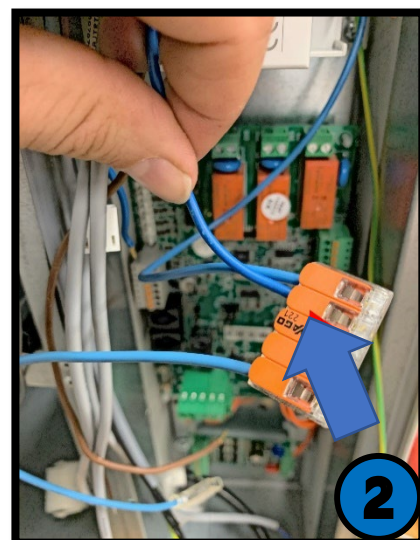




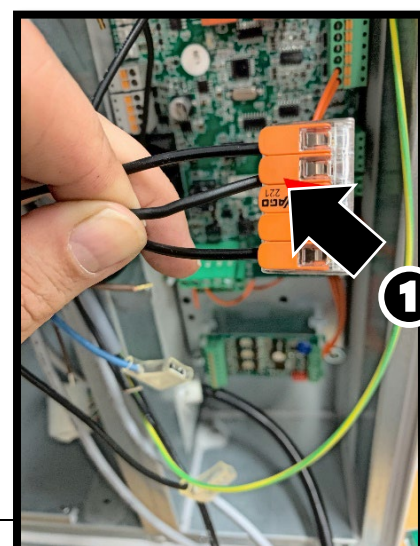
Connect **all ground wires** to **the automation base ground point (1)**.  
 Ground terminal, supply air fan, extract air fan, after heater.  
 Totally four wires. **Three wires if no electrical after heater installed.**  
 Connect the cover ground wire to the ground terminal (PE).  
 Tighten with **the nut (40031489)**.



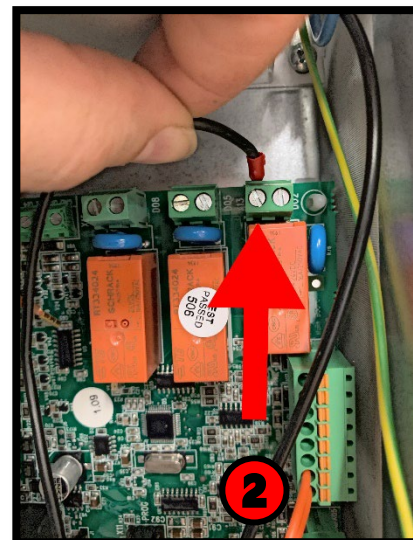
Connect **the blue wire** from the electrical after heater to **the blue connection terminal (2)**.  
*Ignore if no electrical after heater installed.*



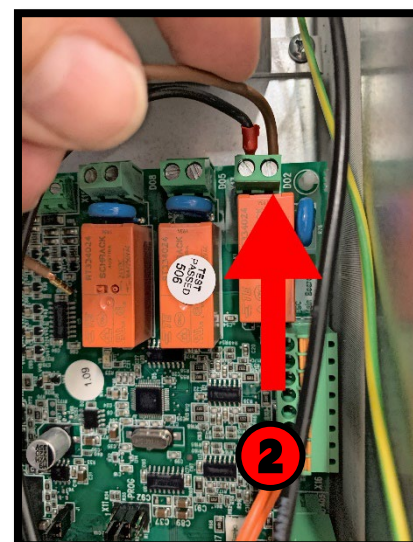
Connect **the black wire (40028774)** to **the black connection terminal (1)**.



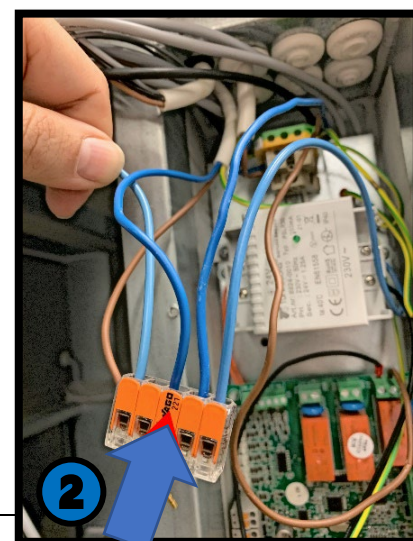
Connect **the black wire** (40028774) to **"DO2" (2)** on the main board.



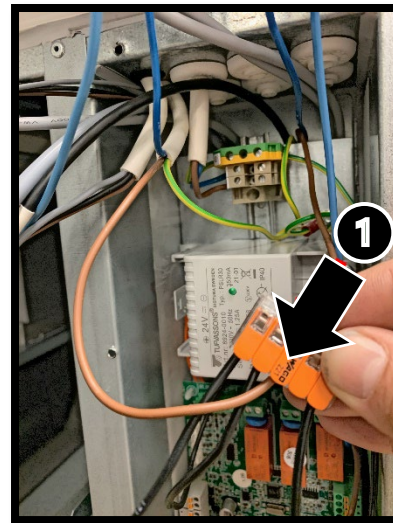
Connect **the brown wire** from the electrical after heater to **"DO2" (2)**.  
*If there is a water coil after heater installed,  
the circulation pump power wire (L) would be connected here.*



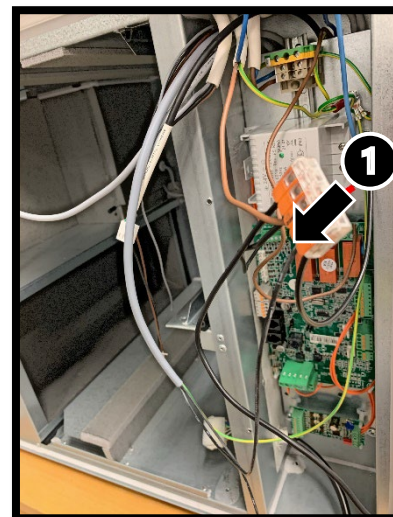
Connect **the blue wire** from the extract air fan power cable to the **blue connection terminal (2)**.



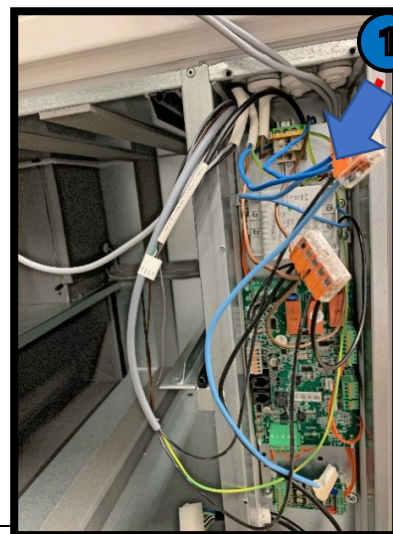
Connect *the brown wire* from the extract air fan power cable to the *black connection terminal (1)*.



Connect *the wire marked "1"* in the supply air fan power cable to the *black connection terminal (1)*.

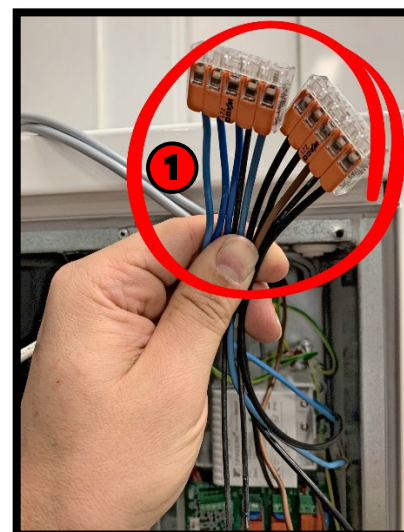


Connect *the wire marked "2"* from the supply air fan power cable to the *blue connection terminal (1)*.

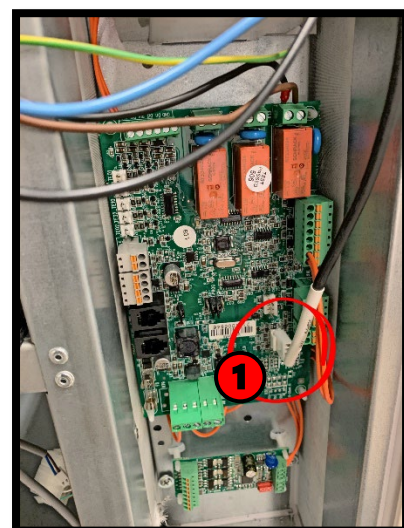




**Power wires connected (1).**



Connect **the extract air sensor (1)** (40029224) to the main board (X29).



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

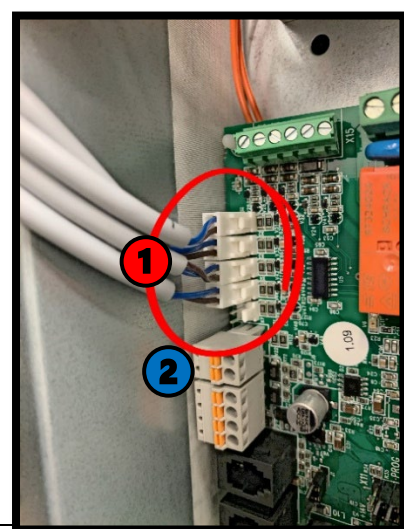
TE01: Outside air

TE05: HRW supply air

TE10: Supply air

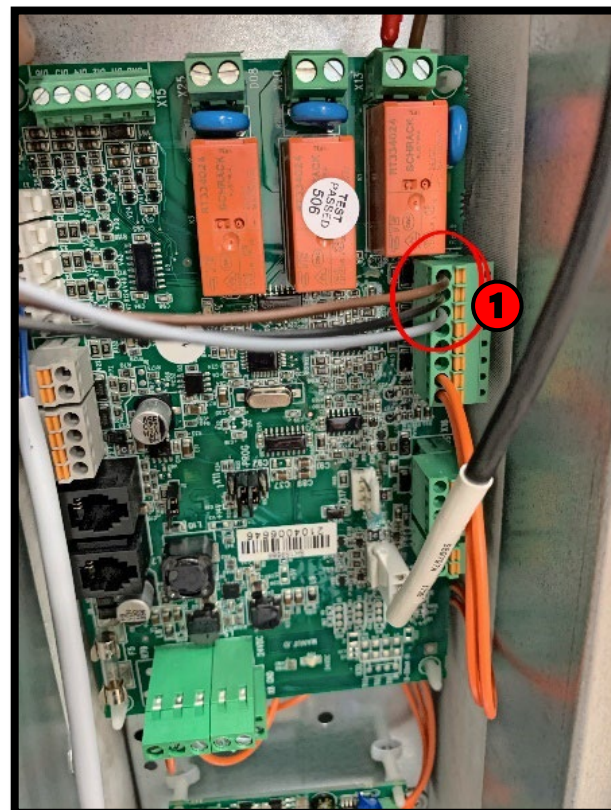
TE32: Waste air

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



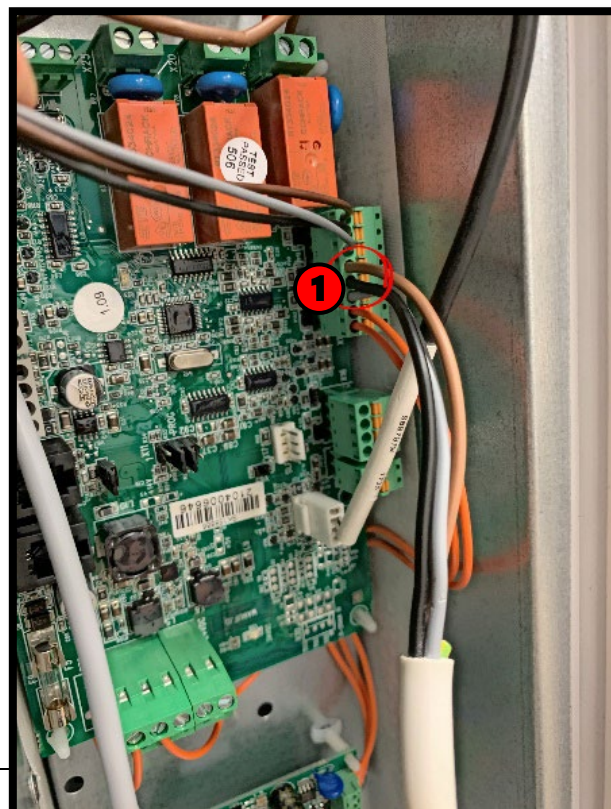
Connect **the wires from the supply air fan control cable (1)** (40028785) to the main board.

AO1: Brown  
GND: Black  
DI11: Gray



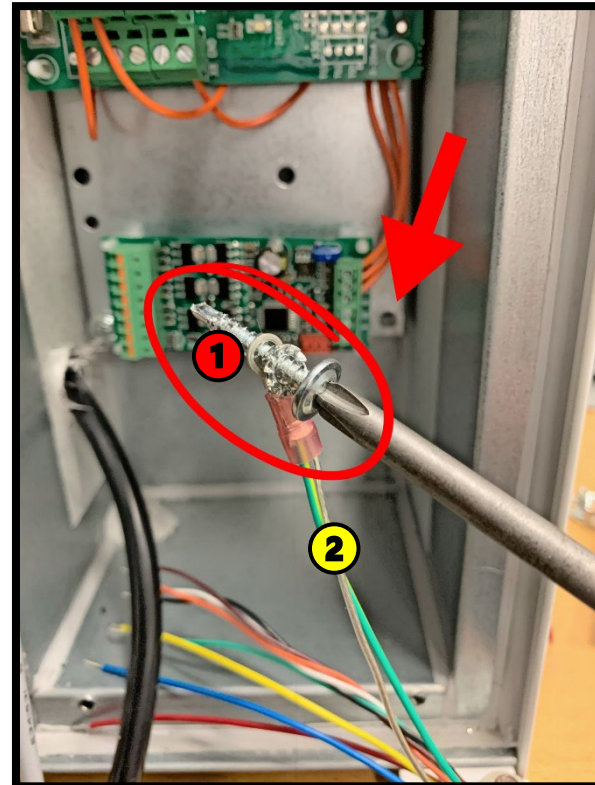
Connect **the wires from the extract air fan control cable (1)** to the main board.

AO2: Brown  
GND: Black  
DI12: Gray

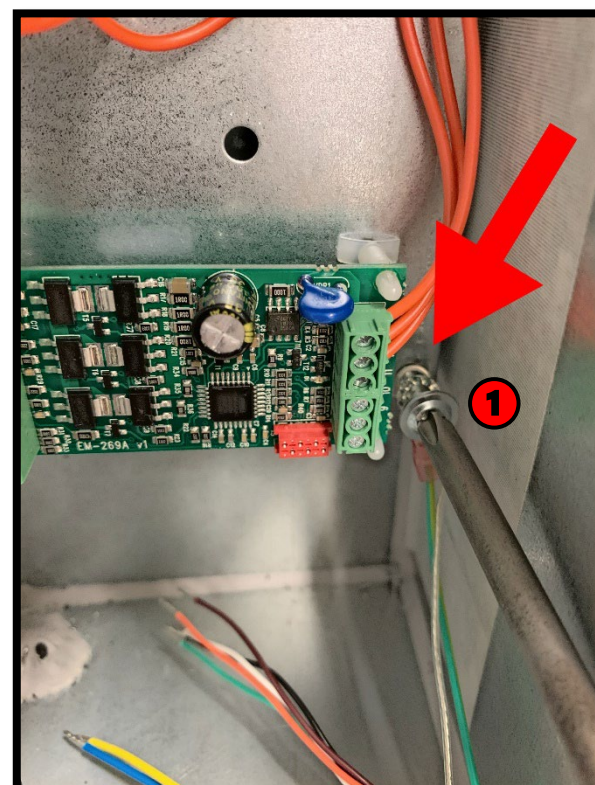




Release **the screw (1)** and attach **the ground wire (2)** from the HRW cable to the screw, along with **a washer (40031537)**.



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





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

**1: Yellow**

**2: Red**

**3: Blue**

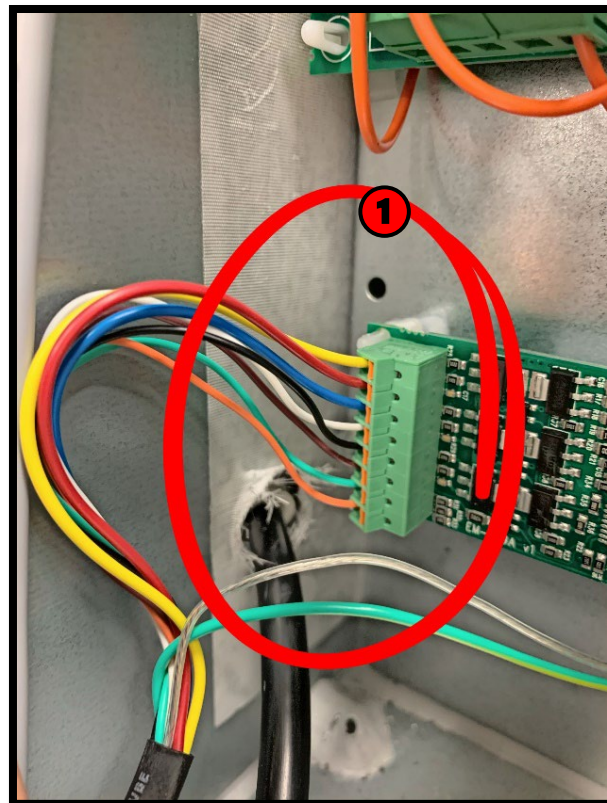
**4: White**

**5: Black**

**6: Brown**

**7: Green**

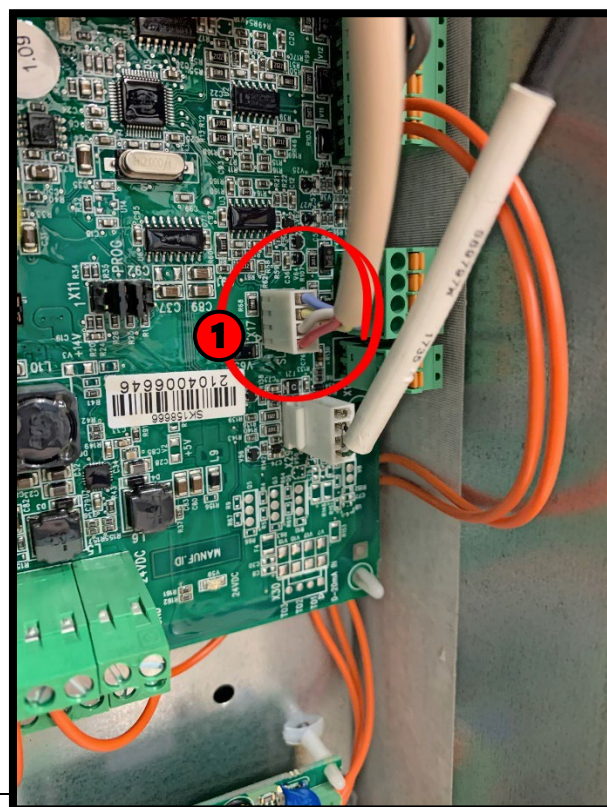
**8: Orange**



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

*Ignore if no electrical after heater installed.*

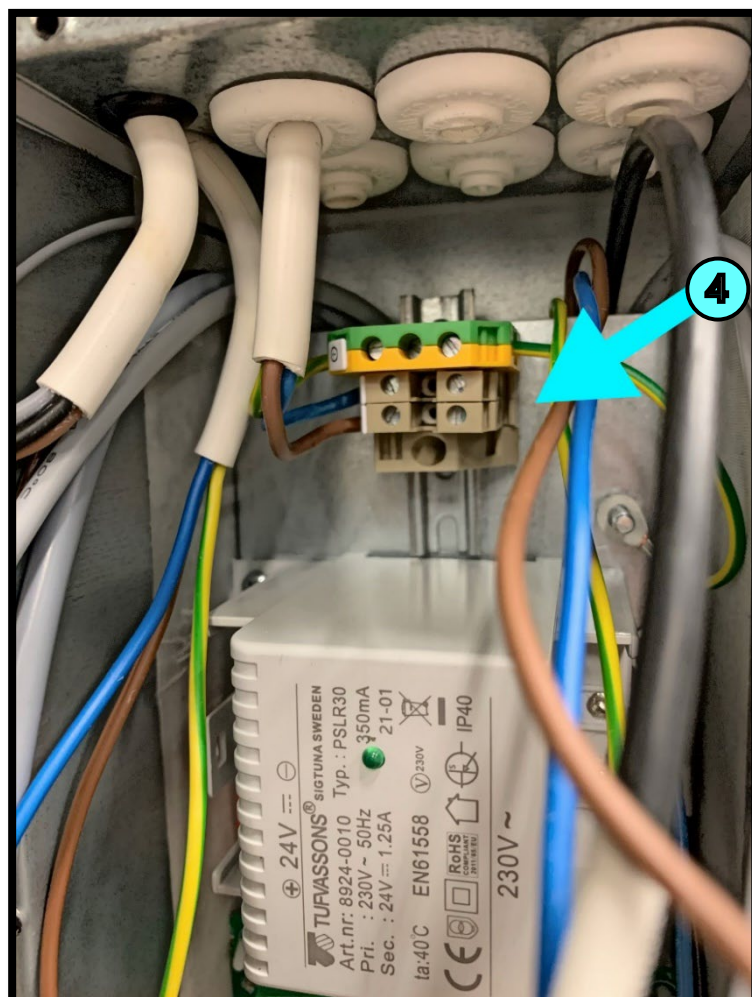
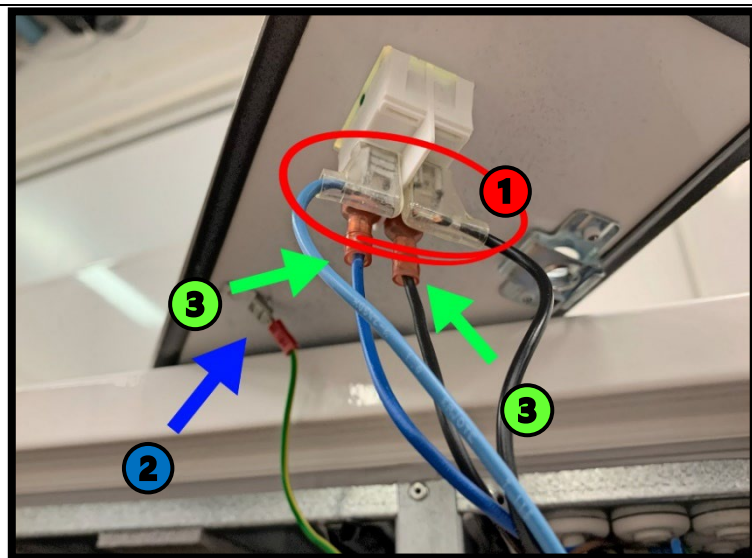
**Connect other components (for example return water sensor or actuator for water coil or cooling coil) according to the electrical diagrams (pages 38-41).**



Connect **the pair of wires with flat connectors (1)** (40028776, 40028777) to the main switch and **the ground wire (2)** to the cover.

Connect **the other pair of wires with flat connectors (3)** (40028776, 40028777) to the main switch, and to **the terminals (4)**.

L: Black  
N: Blue





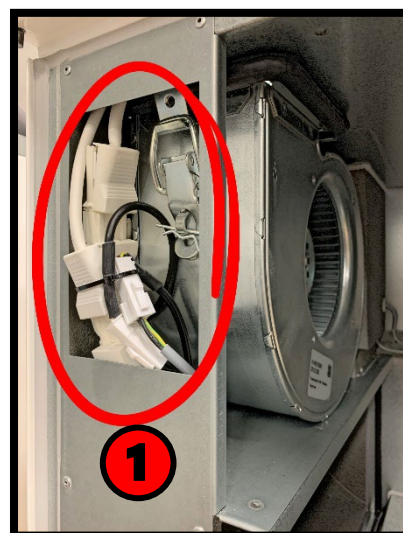
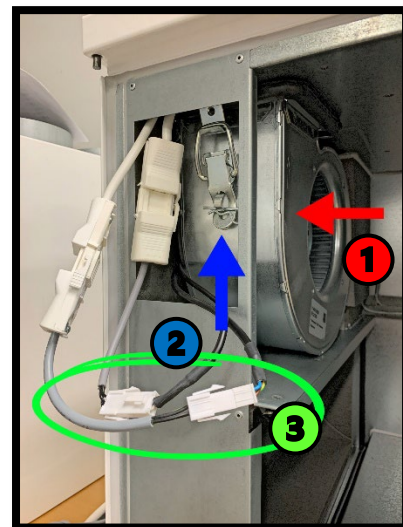
Install **the new extract air fan (1)** (10023126).

Attach **the pin (2)**.

**Connect the cables to the adapters (3).**

- Make sure that the supply power cable (brown, green/yellow, blue) (230VAC) is connected to the adapter with the 4-pin Molex connector!  
**DO1 / N at the main board!**
- Make sure that the signal cable (white, blue, yellow) (0-10VDC) is connected to the adapter with the 3-pin Molex connector!  
**AO2 / GND / DI12 at the main board!**

**Attach the cables together with a cable tie (1).**

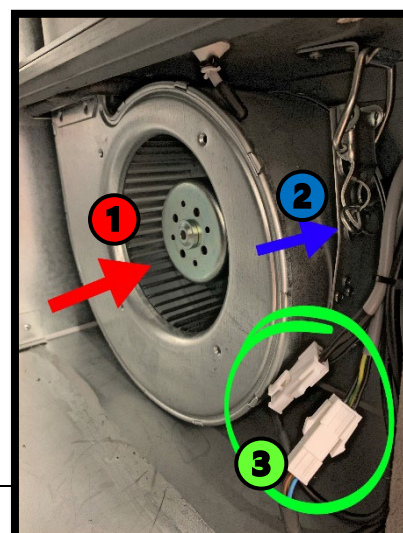


Install **the new supply air fan (1)** (10023125).

Attach **the pin (2)**.

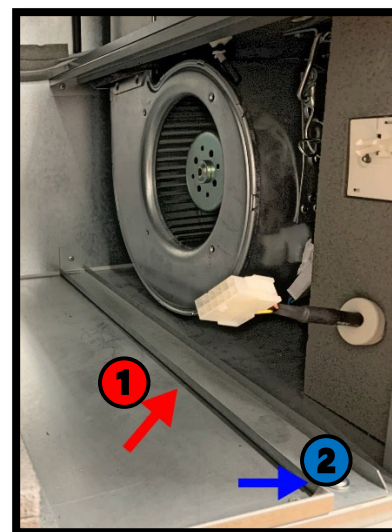
**Connect the cables to the connectors (3).**

Attach the cables together with a cable tie.

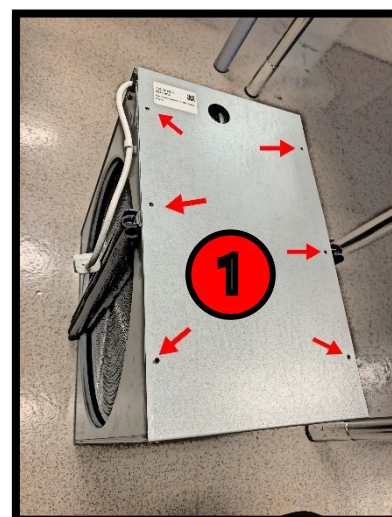




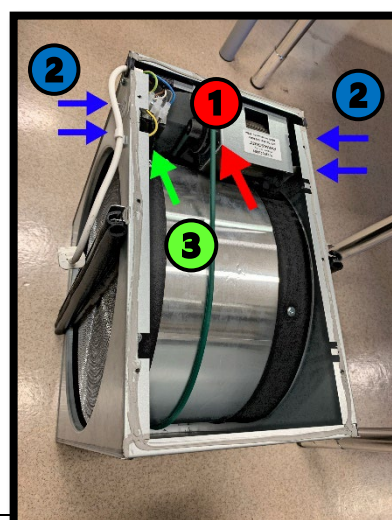
Install **the filter rail (1)** and attach **the screw (2)**.  
A filter can't be used here anymore because of the HRW cable.



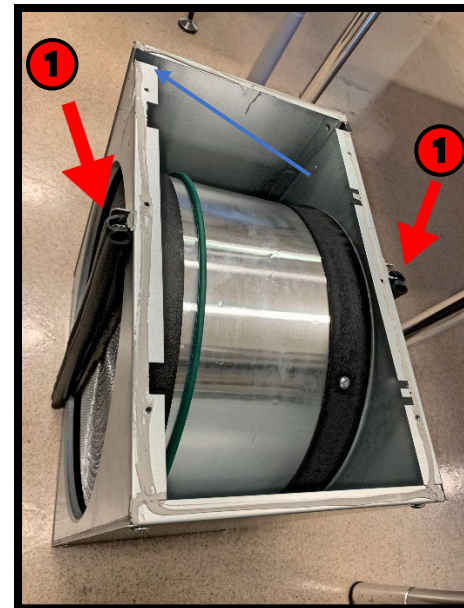
Remove **the screws (1)** from the HRW cover.



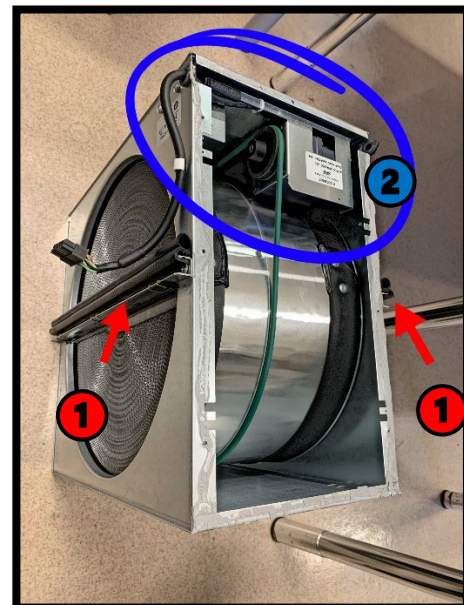
Remove **the belt (1)** from the wheel.  
Remove **the screws (2)** from the motor package.  
Remove **the ground wire (3)**.



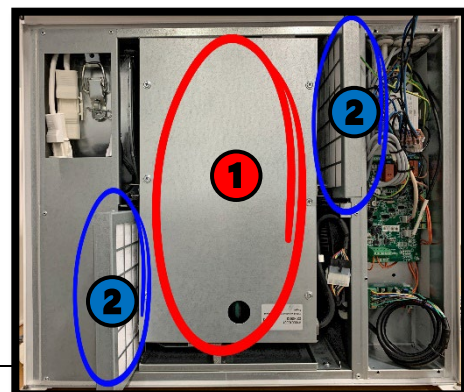
Remove **the motor package**.  
**Cut a gap for the new motor cable.**  
 Remove **the rubber sealings (1)**,  
 carefully so the brush clips underneath won't come off.



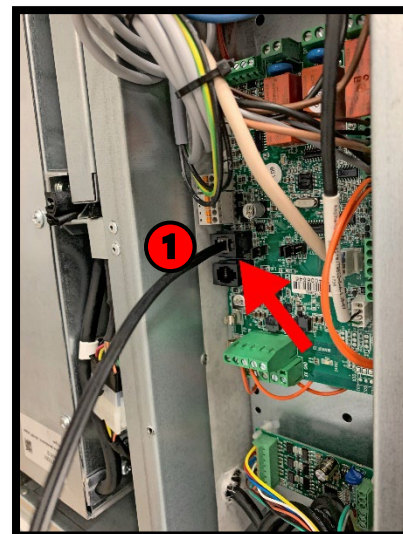
Install **the new motor package (2)** (40028737).  
 Install **the rubber sealings (1)** on the opposite side of the brush rail.  
 Attach the cover with the screws.



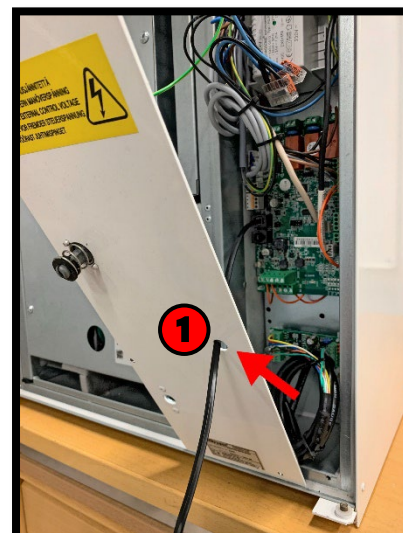
Install **the HRW (1)** and **the filters (2)**.



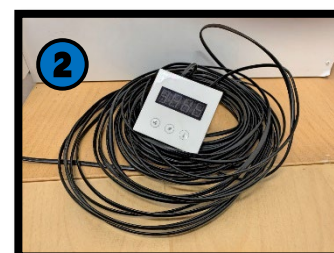
Connect **the display cable (1)** to the main board.



The display cable can be installed either through the cable sealings in the electrical box, or through **the hole in the cover (1)**. The old display cable may also be used, but the joints has to be done carefully and in a proper way. Close the cover of the electrical box.



Install **the new display (2)** (40031115) in a desired place.

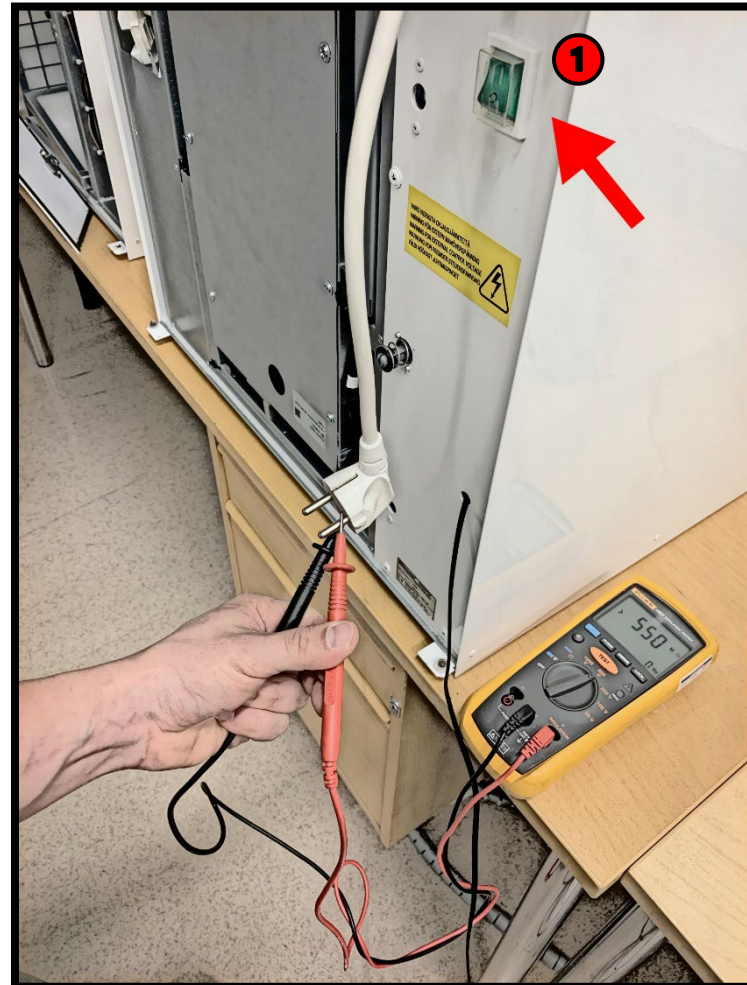


Install **the WiFi module (3)** (40034288).





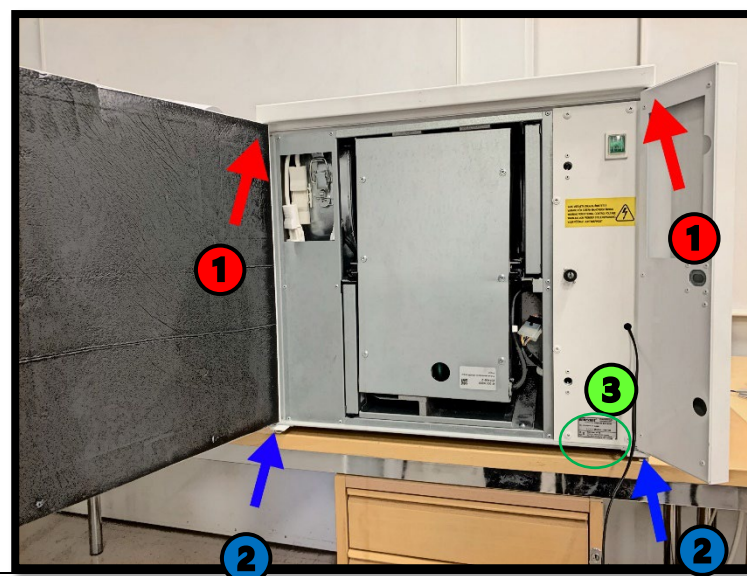
Turn on **the main switch (1)** and perform insulation and ground continuity test according to regulations.



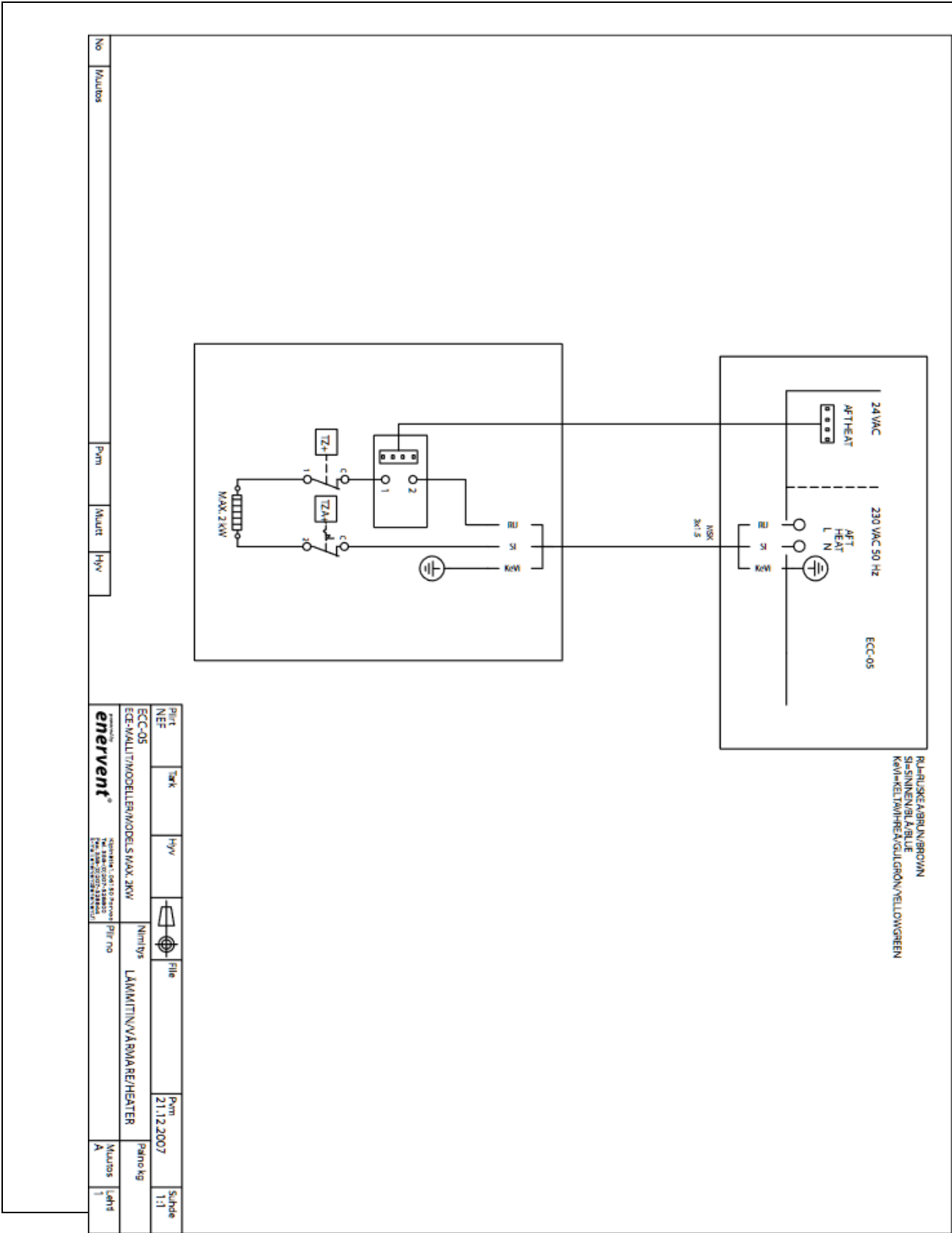
Install the doors by lifting **(upper part first) (1)** so that the lower edge rises above **the pins (2)** and gets into place.

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

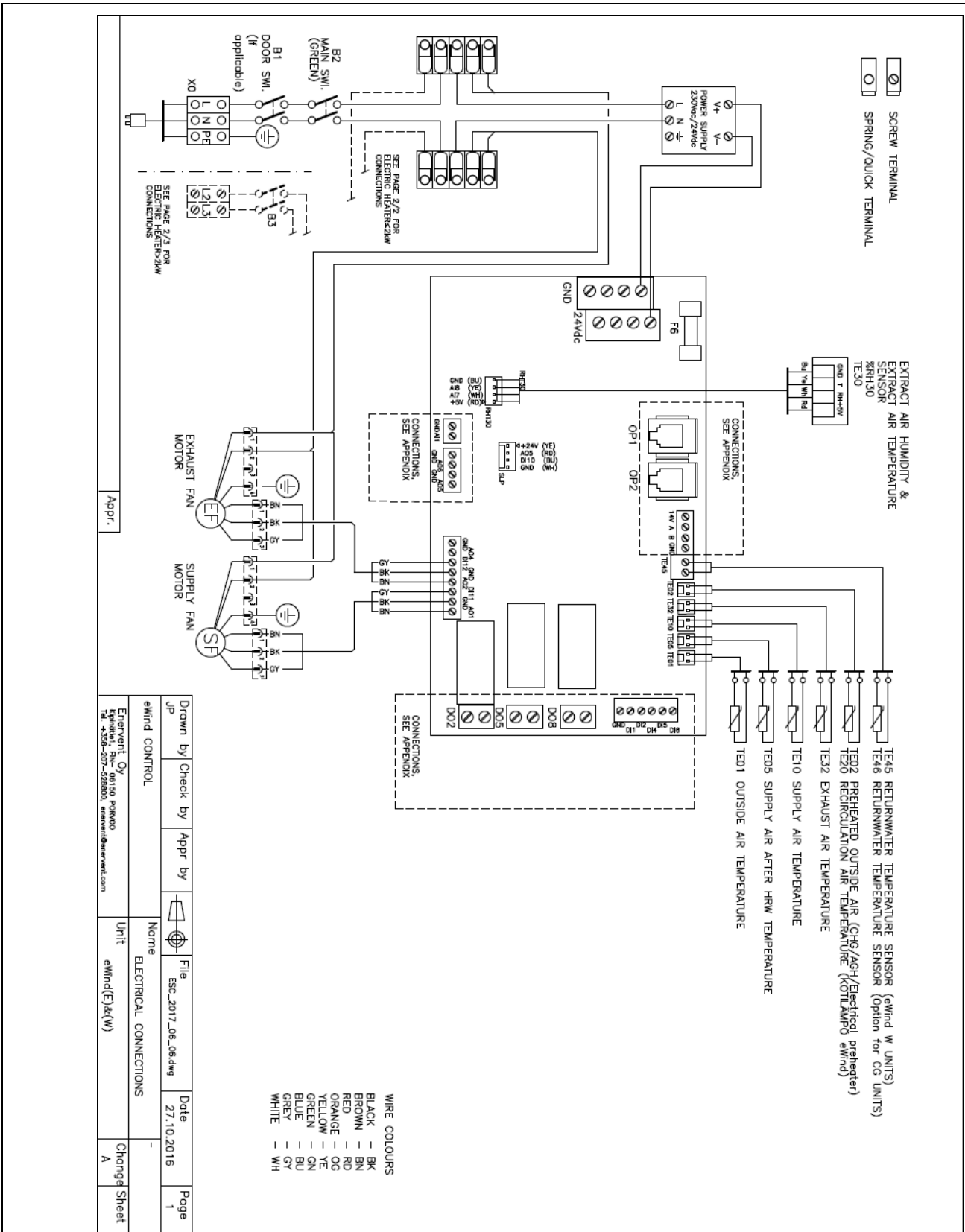
Close the doors.

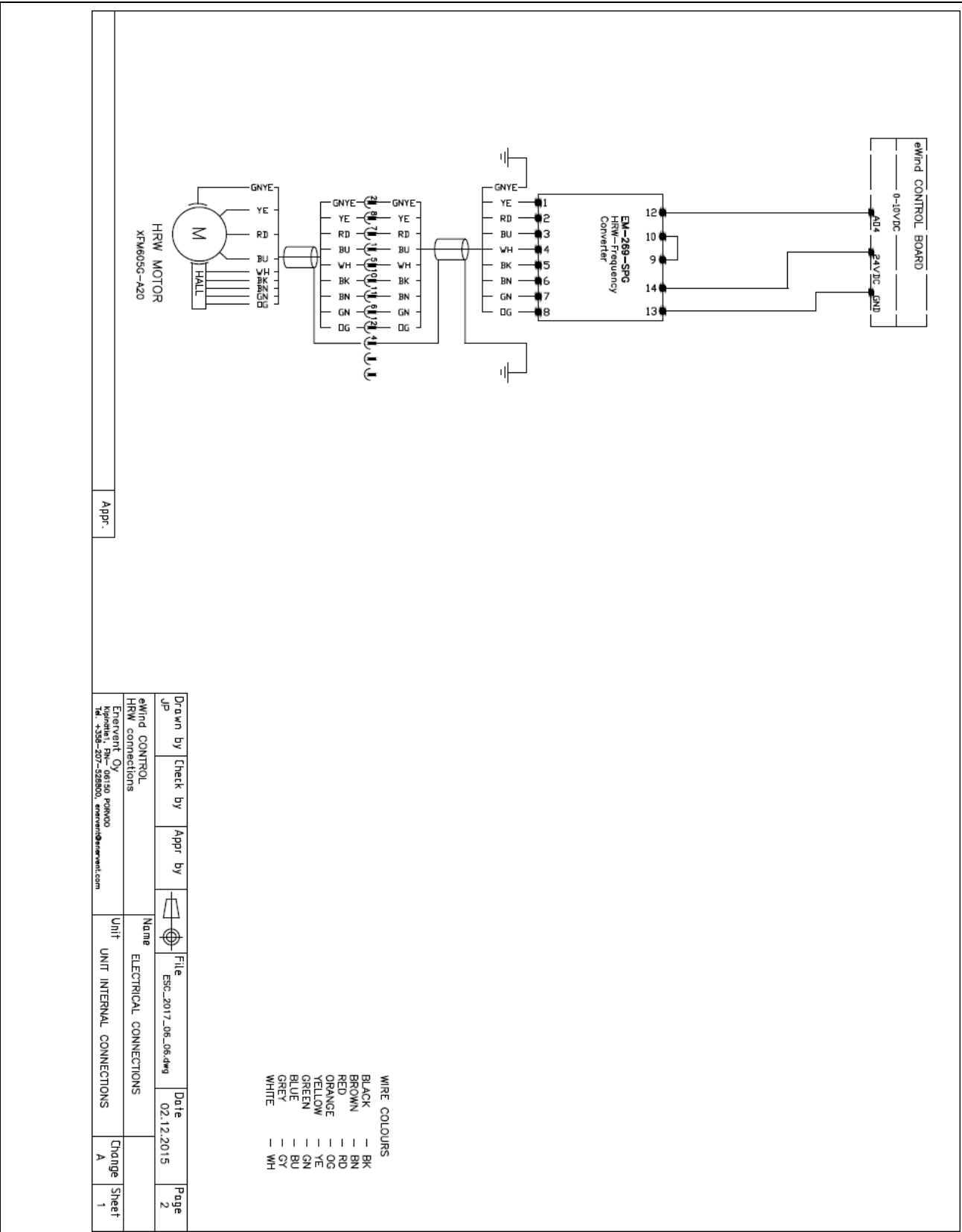


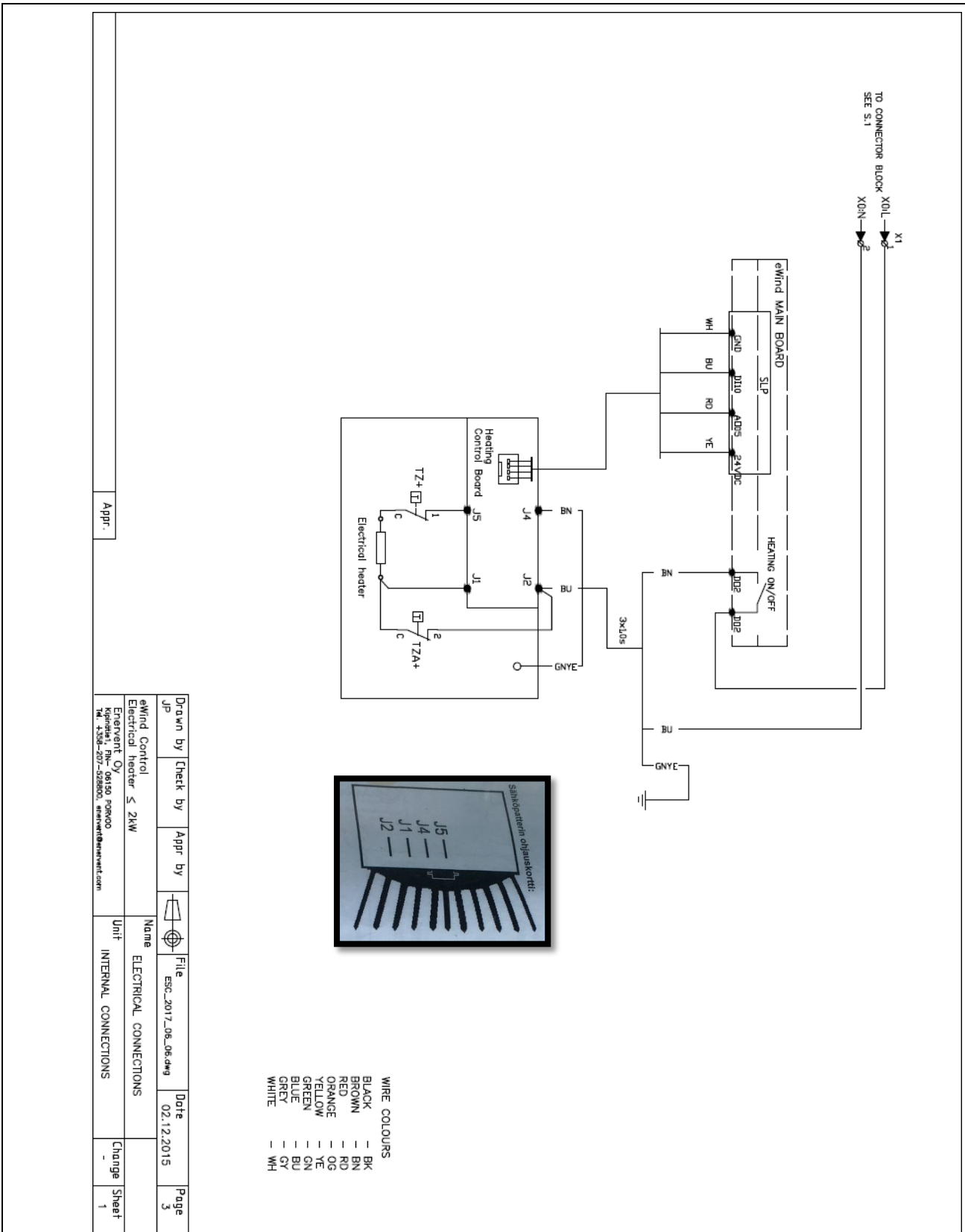




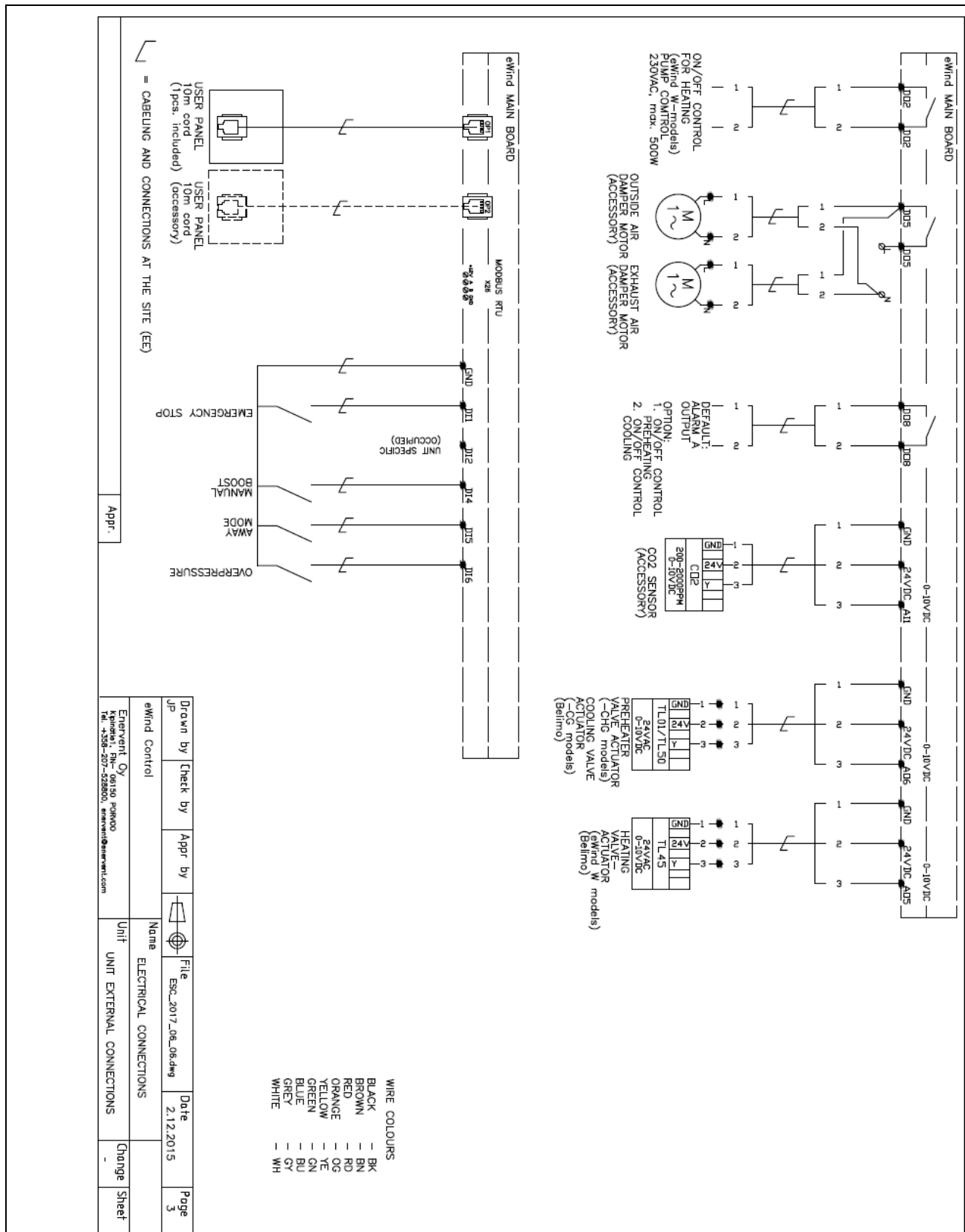




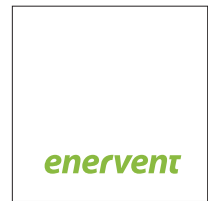








| <u>MANDATORY PARTS</u> |                                             |             |
|------------------------|---------------------------------------------|-------------|
| 10023861               | CONTROL UPDATE KIT PING E/ACE/ECE → EWIND E | 1           |
| 10023125               | FAN PACKAGE 118W PINGVIN SUPPLY AIR RIGHT   | 1           |
| 10023126               | FAN PACKAGE 118W PINGVIN EXTRACT AIR RIGHT  | 1           |
|                        | or                                          |             |
| 10023171               | FAN PACKAGE 118W PINGVIN SUPPLY AIR LEFT    | 1           |
| 10023170               | FAN PACKAGE 118W PINGVIN EXTRACT AIR LEFT   | 1           |
| 10023244               | ELECTRICAL HEATER 0,4kW RIGHT               | 1           |
|                        | or                                          |             |
| 10023243               | ELECTRICAL HEATER 0,4kW LEFT                | 1           |
| <u>Code</u>            | <u>Description</u>                          | <u>Pcs.</u> |
| 10023861               | CONTROL UPDATE KIT PING E/ACE/ECE → EWIND E |             |
|                        | <b>Automation</b>                           |             |
| 40029189               | Control board EM-240-M                      | 1           |
| 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           |
| 40028772               | Wire 65mm orange 0,75mm <sup>2</sup>        | 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>                           |             |
| 40029346               | Connector NAC 31S.W                         | 1           |
| 40028768               | Adapter                                     | 1           |
| 40029530               | Adapter                                     | 1           |
| 40030100               | Cable sealing VET 5-7                       | 5           |
| 40030101               | Cable sealing VET 7-10                      | 7           |
| 40028783               | Fan power cable                             | 1           |
| 40028785               | Fan signal cable                            | 1           |
| 40029167               | EDA temperature sensor 1700mm               | 2           |
| 40029166               | EDA temperature sensor 1100mm               | 1           |
| 40029165               | EDA temperature sensor 850mm                | 1           |
| 40029224               | Humidity/temperature sensor Amphenol 600mm  | 1           |
| 40029982               | WaGo 221-415                                | 2           |
| 40031530               | Screw ZN 4,2x25                             | 5           |
| 40028776               | Wire 250mm black (main switch)              | 2           |
| 40028777               | Wire 250mm blue (main switch)               | 2           |
| 40028774               | Wire 255mm 1mm <sup>2</sup> black           | 1           |
| 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           |
| 40028725               | Rotor cable DC 60cm                         | 1           |
| 40031115               | eWind panel package                         | 1           |
| 40034288               | WiFi module package                         | 1           |
|                        | eWind installation manual                   | 1           |
|                        | eWind user manual                           | 1           |
|                        | Electrical diagrams                         | 1           |



Notes: