

# Installation manual ECO-C

## 1. Components of the ECO-C air heater

1. Body, duct connection, heating element, electronics section, and connections for supply voltage (230 V) and controller cabling.
2. Grille
3. Bottom fastening screw (3 pcs for the ceiling)

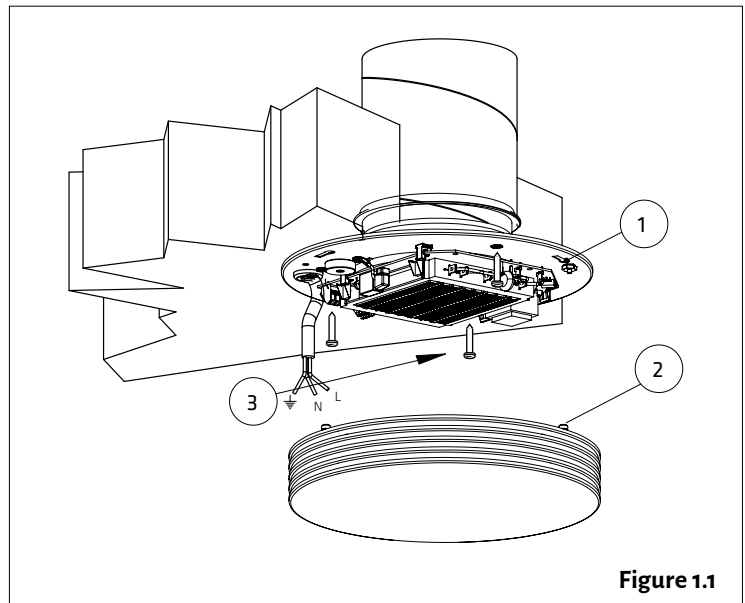


Figure 1.1

## 2. Installation of the ECO-C air heater

1. Drill the necessary holes in the ceiling for cables and fastening screws by using the template provided with the unit (see Appendix 1. Installation frame).
2. The minimum distance of the terminal device from the wall is 0.5 m (see Figure 2.1). The terminal device must be installed at a minimum height of 1.8 m. Ensure that children cannot access the device.
3. Detach the grille (2) from the body. Remove the three fastening screws (3) and pull the grille off the body (1).
4. Push the bottom section's duct connector into the inlet air duct and attach the body to the ceiling with screws (4 pcs, max Ø 5 mm).
5. Connect the supply cable (MMJ) through a double-pole switch and the control unit's data cable to the connectors in the electronics section of the terminal device, as shown in Figure 2.2.
6. Ensure that the connections are correct. Place the grille back onto the body and ensure that it is properly attached with the fastening screws.
7. Mark the power switch clearly.

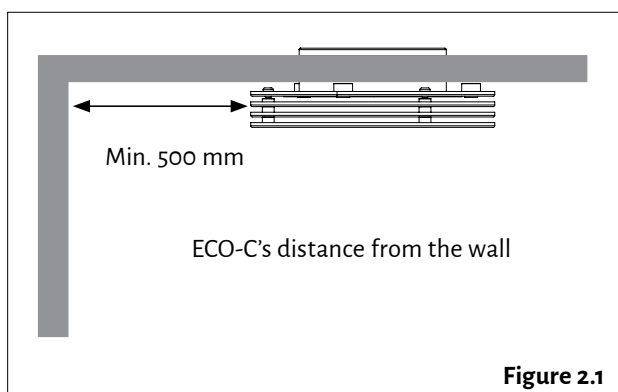


Figure 2.1

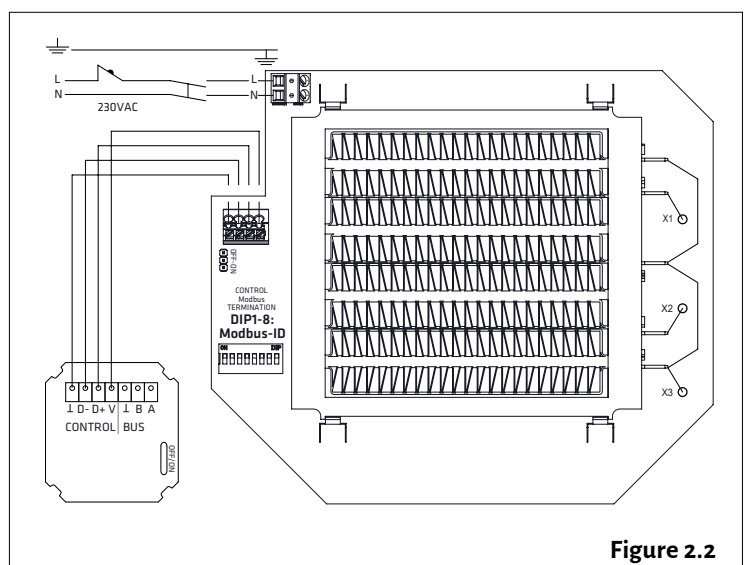


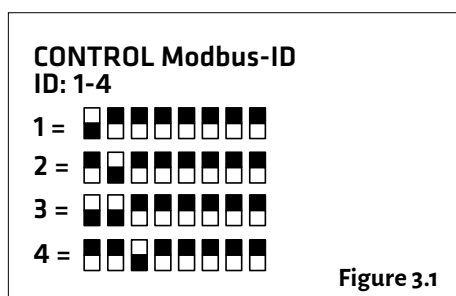
Figure 2.2

# Installation manual ECO-C



## 3. Connection

1. NOTE! Run the 230 V supply voltage to the device through a double-pole switch. Connect the supply voltage to connectors N and L in the electronics section of the terminal device, as shown in Figures 3.2 and 3.3.
2. Connect the ground to the terminal device's separate ground connector, as shown in Figures 3.2 and 3.3.
3. Connect the ECO series terminal device to the controller with the data cable, as shown in Figures 3.2 and 3.3.
4. Activate the terminator by moving the termination jumper to the ON position in the first and last device of the bus, as shown in Figure 3.3.
5. DIP switch operation:
  - One thermostat controls one terminal device. Position the DIP switches as shown in the figure.
  - One thermostat controls 2–4 terminal devices: Position the DIP switches as shown in the figure.



- The air heater is controlled with a 230 V supply voltage without the ECO-T controller, as shown in Figure 3.4: move the DIP switch No 8 to the ON position.

**NOTE! Electrical connections may only be made by a professional electrician.**

**WARNING! The supply air device carries a voltage of 230 V.**

**U = 230 V   In = 1.7 A**

**The connect signal D-/D+ is RTU.**

**For the BMS connection settings, see Appendix 1. ECO ModBus map.**

**The recommended data cable between the controller and the air heater is e.g., NOMAK 2x2x0.5+0.5**

# Installation manual ECO-C



The basic ECO connection, in which one ECO air heater is controlled with a single ECO-T room control unit.

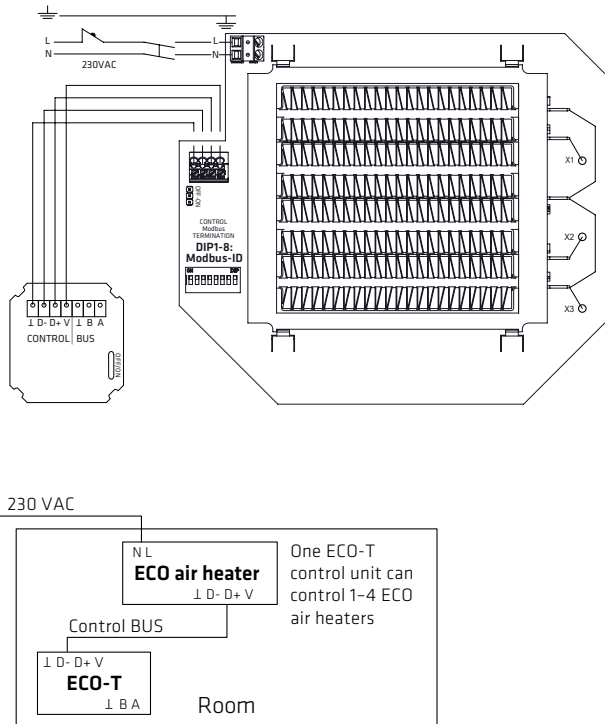
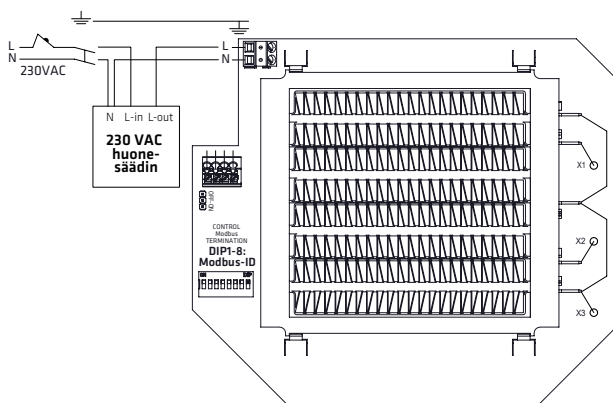


Figure 3.2

Vent control with a 230 V supply voltage without a separate ECO-T control unit.



Move the DIP switch No 8 to the ON position.

The heating resistor's maximum surface temperature has been limited to +80 °C.

Figure 3.4

The basic ECO connection, in which 2–4 ECO air heaters are controlled with a single ECO-T room control unit.

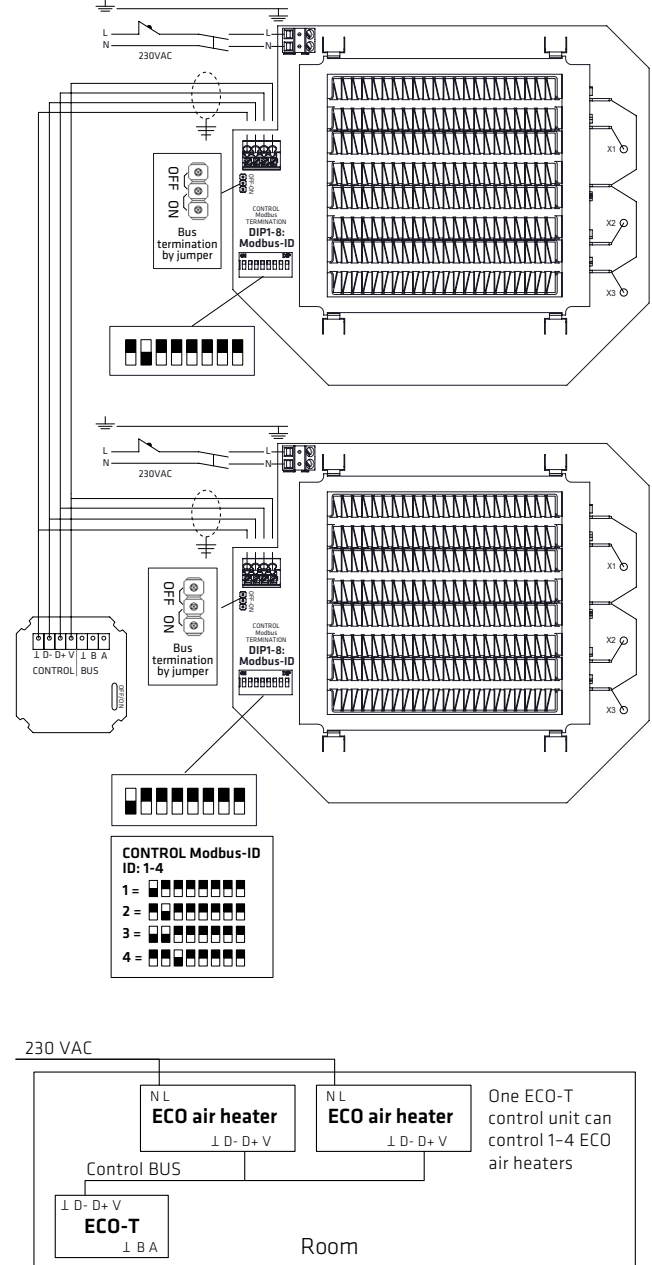


Figure 3.3

# Installation manual ECO-C



## 4. Connecting the heating of several rooms to the bus

1. Connect the bus cables as shown in the figure.

The ECO connection in which the heating of several rooms has been linked through the bus.

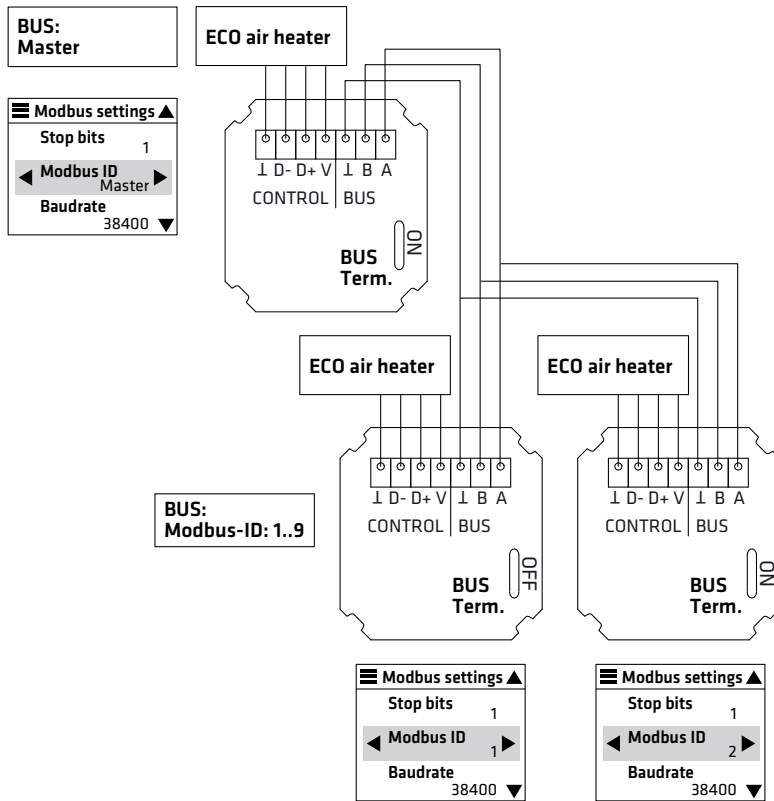


Figure 4.1

The ECO connection in which the heating of several rooms has been linked through the bus. In the example, Room No 1 has two heaters and Room No 2 has one heater.

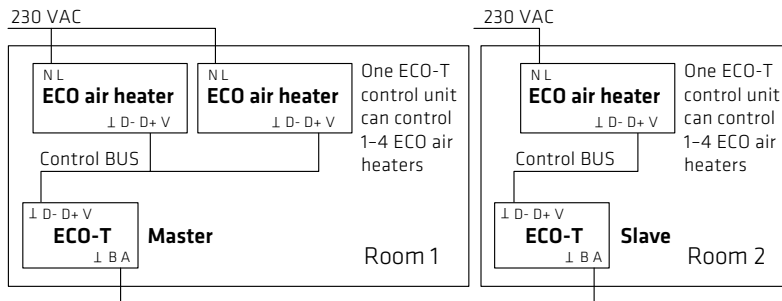


Figure 4.2

**NOTE!** Electrical connections may only be made by a professional electrician.

**WARNING!** The supply air device carries a voltage of 230 V.

$U = 230\text{ V}$   $I_n = 1.7\text{ A}$

The connect signal D-/D+ is RTU.

For the BMS connection settings, see Appendix 1. ECO ModBus map.

The recommended data cable between the controller and the air heater is e.g., NOMAK 2x2x0.5+0.5

The ECO connection in which the heating of several rooms has been linked through the bus and the data transfer between the rooms is done via a BMS (Building Management System) device.

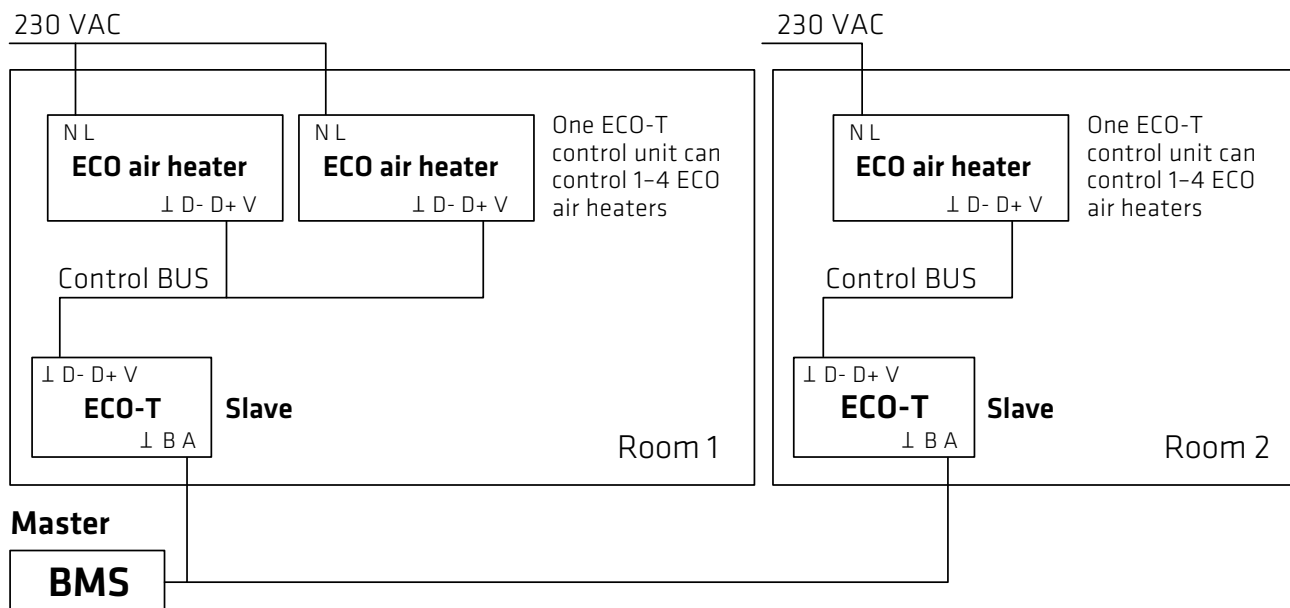


Figure 4.3

# Installation manual ECO-T, controller




## 1. Components of the ECO-T controller

1. Bottom
2. Cover plate
3. Locking piece
4. Touch screen

## 2. Controller installation:

1. Run the ECO-T controller unit's data cable from the ECO air heater to the junction box, as shown in Figure 2.1.
2. Detach the touch screen (4) from the locking piece (3).
3. Detach the locking piece from the bottom (1), for example with a small screwdriver.
4. Fasten the bottom (1) to the junction box.
5. Install the cover plate (2).
6. Install the locking piece (3).
7. Connect the wires to the touch screen connectors, as shown in Figure 2.1.
8. Push the touch screen (4) into the locking piece (3) until you hear a click.

## 3. Start-up guide

1. Connect the supply voltage to the system, which will activate the touch screen's main view (Figure 3.1).
2. Enter the main menu by pressing  in the top left corner of the screen.
3. Set the language, date and time.
4. You can change the language by navigating to the Language section in the Display settings menu. Return to the previous view by pressing .
5. The date and time can be set in the Date & Time section.
6. To return to the main view, press again the  icon in the top left corner.
7. The temperature can be adjusted in the main view with the plus and minus symbols.
8. More detailed instructions on the system functions are provided in a separate manual.



More comprehensive instructions for adjusting and scheduling room temperature can be found via the QR code or at [climecon.fi/eco](http://climecon.fi/eco)

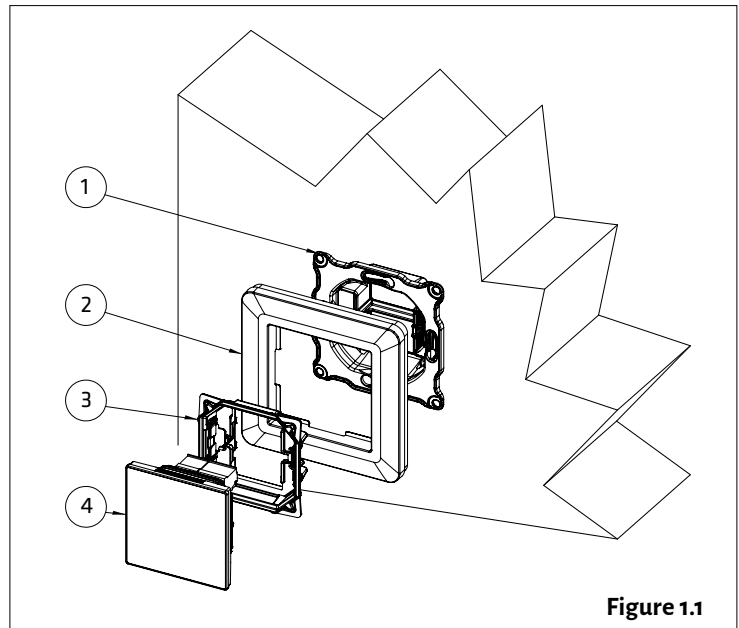


Figure 1.1

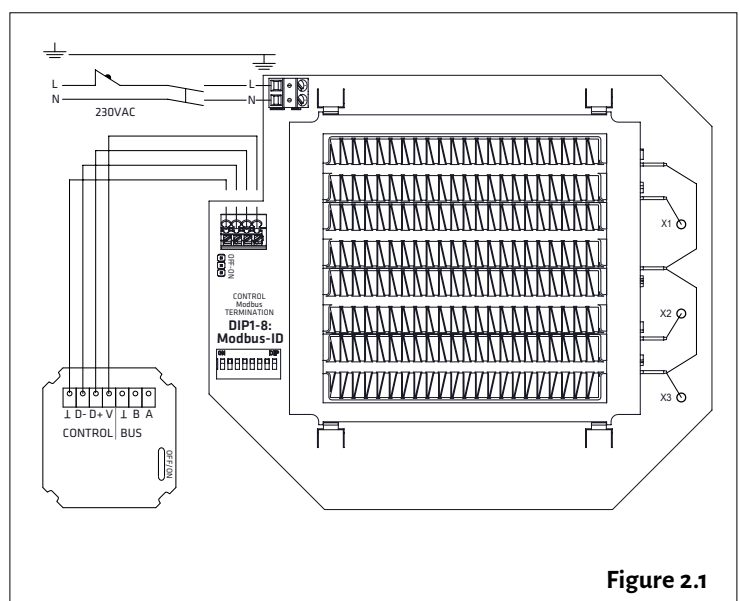


Figure 2.1

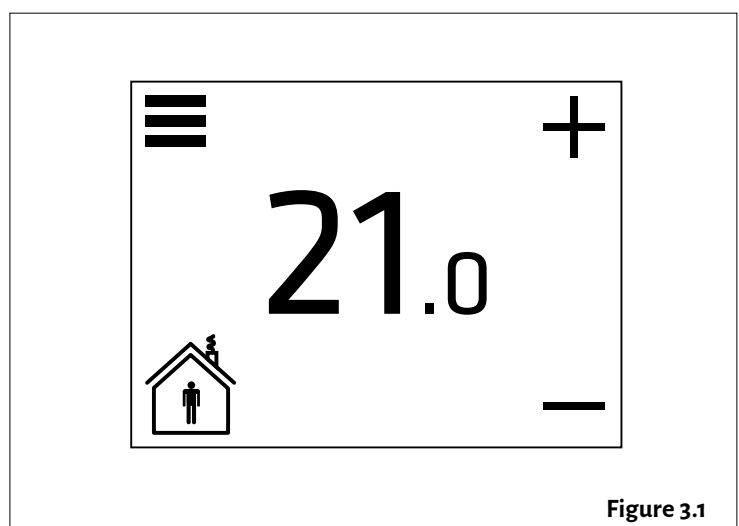
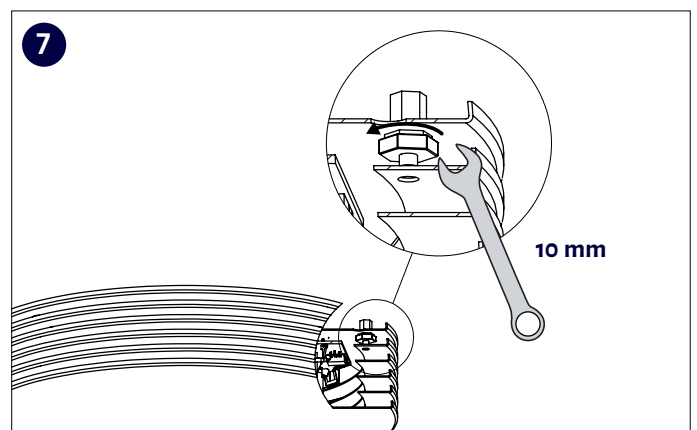
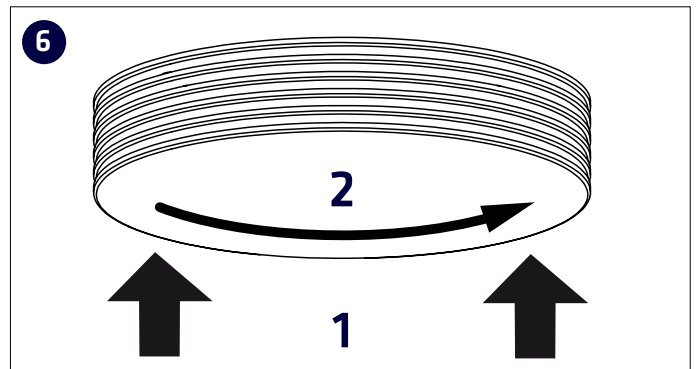
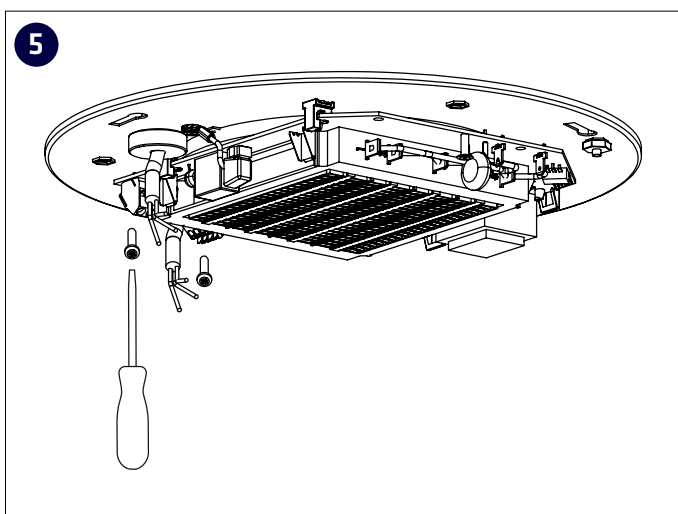
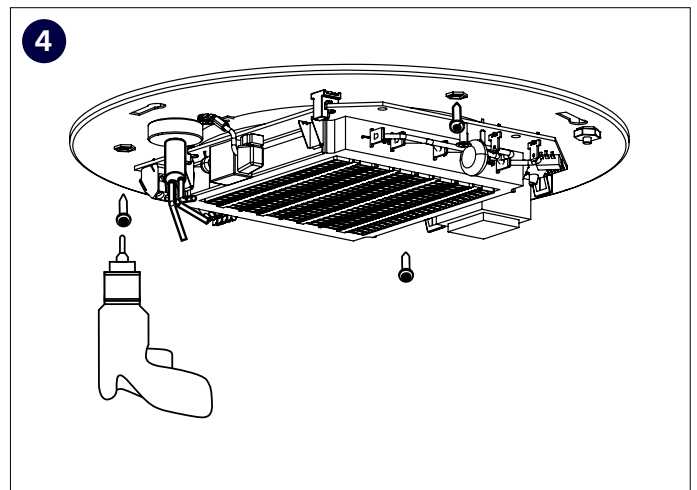
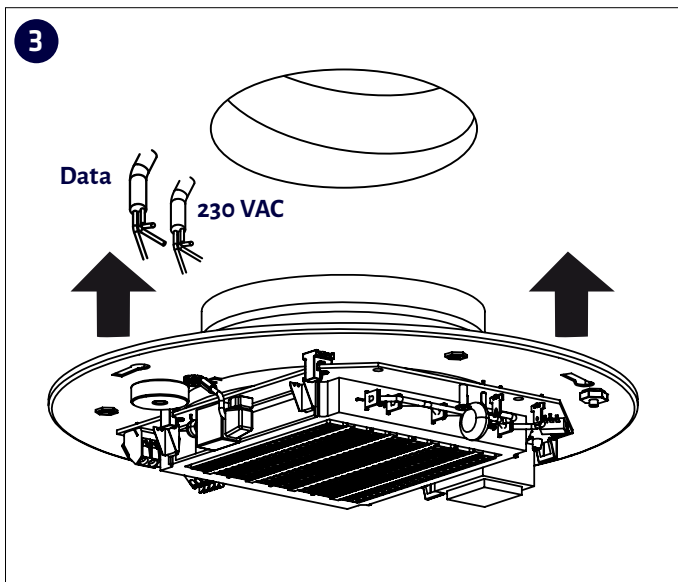
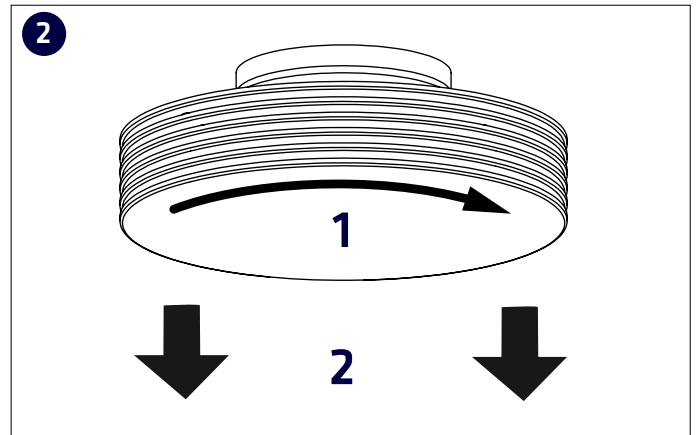
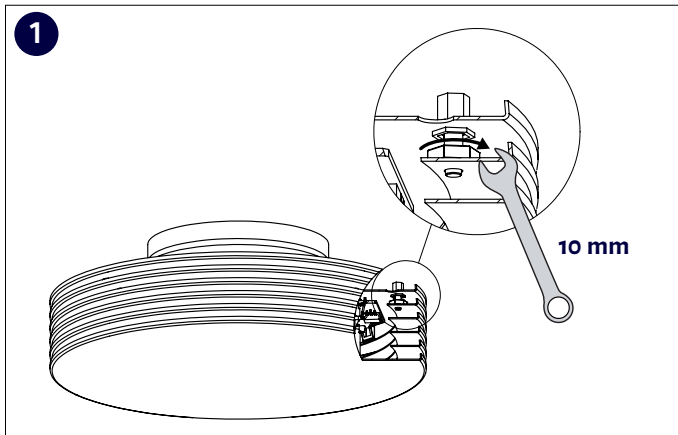


Figure 3.1

## Installation manual ECO-C

NOTE! Electrical connections may only be made by a professional electrician.  
Always disconnect the device from the supply voltage before maintenance!

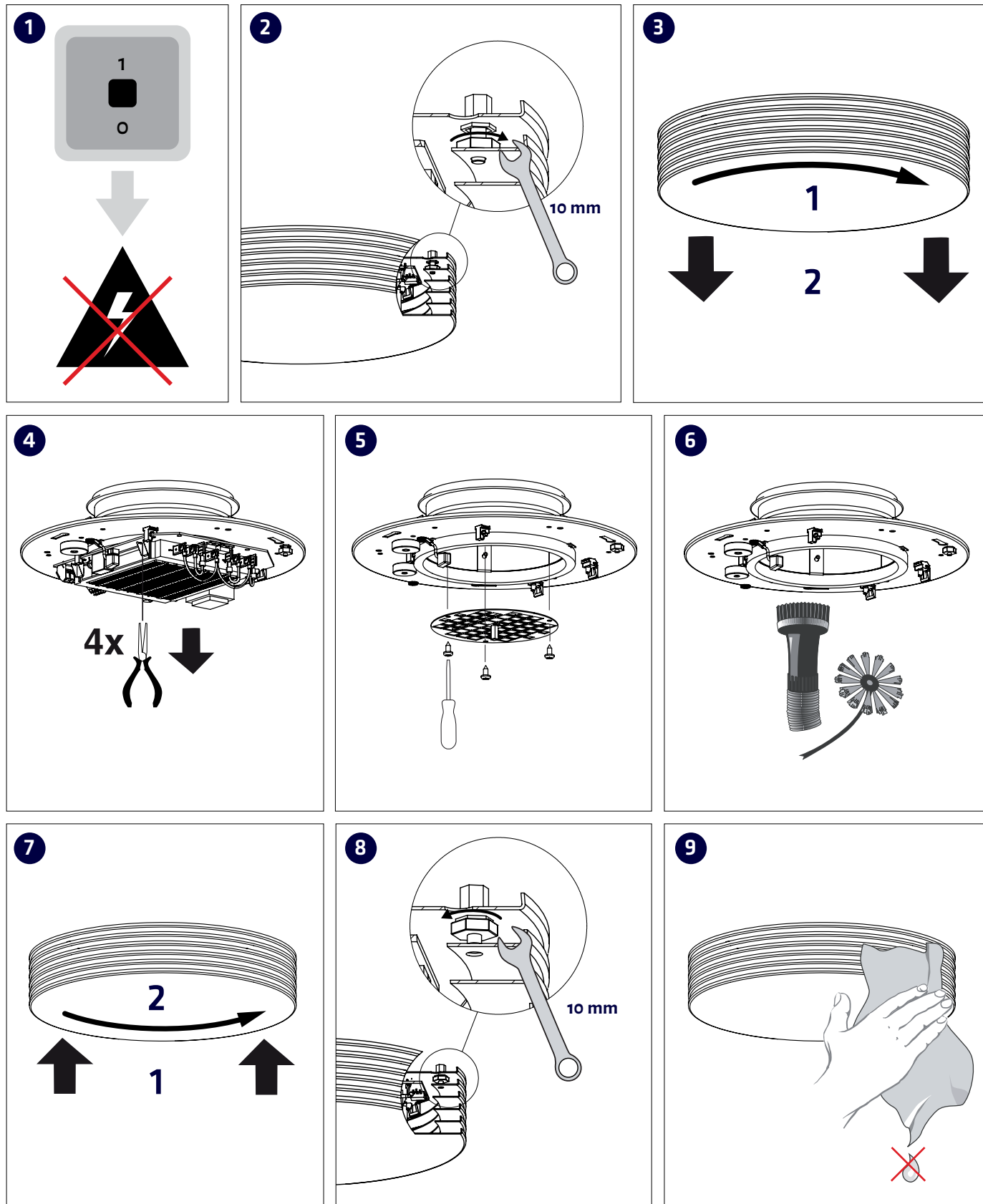


## Maintenance manual ECO-C

NOTE! Maintenance may only be performed by a professional ventilation installer.

Warning! The device carries a voltage of 230 V!

Disconnect from the supply voltage before maintenance.





# 1.ECO ModBus map ; Appendix 1. ECO ModBus map

Holding registers (4x)		Unit/Value	Description
1	Status		
2	Application state		0=normal (home), 1=away
3	<b>Not used</b>		
4	Temperature setpoint	0,1 °C	E.g. 200 = 20,0°C
211	Date.year		<b>Not able to set via modbus</b>
212	Date.month		<b>Not able to set via modbus</b>
213	Date.day		<b>Not able to set via modbus</b>
214	Clock.hours		<b>Not able to set via modbus</b>
215	Clock.minutes		<b>Not able to set via modbus</b>
216	Clock.seconds		<b>Not able to set via modbus</b>
2000	Week timer master off/on	0 = Off, 1 = On	
2001	Week program1 off/on + days enabled	0 = Off, 1 = On	bit 0 = Monday off/on, bit 1=Tuesday off/on, bit 2=Wednesday off/on, bit 3=Thursday off/on, bit 4=Friday off/on , bit 5=Saturday off/on, bit 6=Sunday off/on, bit 7=program1 off/on
2002	<b>Not used</b>		<b>Must be 1</b>
2003	Week program 1 - Comfort start time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2004	Week program 1 - Comfort end time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2005	Week program 1 - Comfort temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2006	Week program 1 - Economy temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2007	Week program2 off/on		bit 0 = Monday off/on, bit 1=Tuesday off/on, bit 2=Wednesday off/on, bit 3=Thursday off/on, bit 4=Friday off/on , bit 5=Saturday off/on, bit 6=Sunday off/on, bit 7=program1 off/on
2008	<b>Not used</b>		<b>Must be 1</b>
2009	Week program 2 - Comfort start time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2010	Week program 2 - Comfort end time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2011	Week program 2 - Comfort temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2012	Week program 2 - Economy temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2013	Week program3 off/on		bit 0 = Monday off/on, bit 1=Tuesday off/on, bit 2=Wednesday off/on, bit 3=Thursday off/on, bit 4=Friday off/on, bit 5=Saturday off/on, bit 6=Sunday off/on, bit 7=program1 off/on

## ECO series ModBus register map

Holding registers (4x)		Unit/Value	Description
2014	<b>Not used</b>		<b>Must be 1</b>
2015	Week program 3 - Comfort start time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2016	Week program 3 - Comfort end time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2017	Week program 3 - Comfort temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2018	Week program 3 - Economy temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2019	Week program 4 off/on		bit 0 = Monday off/on, bit 1=Tuesday off/on, bit 2=Wednesday off/ on, bit 3=Thursday off/on, bit 4=Friday off/on , bit 5=Saturday off/on, bit 6=Sunday off/on, bit 7=program1 off/on
2020	<b>Not used</b>		<b>Must be 1</b>
2021	Week program 4 - Comfort start time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2022	Week program 4 - Comfort end time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2023	Week program 4 - Comfort temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2024	Week program 4 - Economy temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2025	Week program5 off/on		bit 0 = Monday off/on, bit 1=Tuesday off/on, bit 2=Wednesday off/ on, bit 3=Thursday off/on, bit 4=Friday off/on , bit 5=Saturday off/on, bit 6=Sunday off/on, bit 7=program1 off/on
2026	<b>Not used</b>		<b>Must be 1</b>
2027	Week program 5 - Comfort start time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2028	Week program 5 - Comfort end time		Minutes after midnight. 0 = 0:00, <b>NOTE ! Must be dividable by 15</b>
2029	Week program 5 - Comfort temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
2030	Week program 5 - Economy temperature	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
35001	Parameter system version		Read only
35002	Not used (NULL)		Read only
35003	Not used (NULL)		Read only
35004	Parameter file revision		Read only
35005	Parameter request revision		Read only

## ECO series ModBus register map

Parameter file settings (4x)		Unit/Value	Description
35201	Temperature setpoint min limit	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
35202	Temperature setpoint max limit	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
35203	Temperature setpoint normal	0,1 °C	<b>NOTE! Use 4x4 instead</b>
35204	Temperature setpoint away	0,1 °C	E.g. 200 = 20,0°C. <b>NOTE ! Must be dividable by 5 (0,5°C)</b>
35205	<b>Not used</b>		
35206	Week timer master off/on	0 = Off, 1 = On	This is same as 4x2000. Does not matter which one you use
35225	Thermostat adaptivity	1 = Off, 1 = On	
35226	Temp calibration	0,1 °C	E.g. 10 = +1,0°C
59001	Active week program setpoint	0,1 °C	Read only

Input registers (3x)		Unit/Value	Description
5	HW revision		
6	SW version major		
7	SW version minor		
8	Room temperature	0,1 °C	
9	<b>Not used</b>		
10	<b>Not used</b>		
11	Application state		
12	Application status		
13	<b>Not used</b>		
14	Temperature setpoint	0,1 °C	
15	Last user activity (Touch display)	sec	
16	<b>Not used</b>		
17	Start unit		
18	Heating load	%	

## ECO series ModBus register map

Input registers (3x)		Unit/Value	Description
101	Number of triac devices		
102	alive count		
103	alive count		
104	alive count		
105	alive count		
106	alive count		
107	alive count		
108	alive count		
109	alive count		
110	alive count		
111	Number of UI slave devices		
112	alive count		
113	alive count		
114	alive count		
115	alive count		
116	alive count		
117	alive count		
118	alive count		
119	alive count		
120	alive count		
50020	UI serial number low byte		
50021	UI serial number high byte		