

DucoBox Energy Comfort

ENGLISH **en**

Installation guide



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Translation of the original instructions

See www.duco.eu for information regarding warranty, maintenance, technical data, etc.

Installation, connection, maintenance and repairs are to be carried out by an accredited installer. The electronic components of this product may be live. Avoid contact with water.



Vero Duco - Handelsstraat 19 - 8630 Veurne - Belgium
tel +32 58 33 00 33 - fax +32 58 33 00 44 - info@duco.eu - www.duco.eu

DUCO
Ventilation & Sun Control

01 Introduction

The DucoBox Energy Comfort is a mechanical ventilation unit with heat recovery. It supplies fresh air mechanically to and extracts contaminated air mechanically from the house by means of built in fans. During this process, the heat is recovered from the extracted air and transferred to the air supplied.

The DucoBox Energy Comfort is a functional product and requires to be fitted by a professional installer.

A mechanical ventilation unit with heat recovery consists of:

- The unit
- Ducting systems to draw in outdoor air
- Ducting systems to exhaust stale air outdoors
- Ducting systems to supply fresh preheated air indoors
- Ducting systems to extract stale indoor air to the unit
- Supply vents/grilles to supply the preheated air into dry rooms¹.
- Exhaust vents/grilles to extract the stale air from wet rooms².

1. Dry rooms: living rooms, bedrooms, etc.
2. Wet rooms: kitchen, bathroom, toilet, etc.

Scope of supply

Before starting to install the heat recovery unit, check to ensure it is complete and undamaged.

The scope of supply of the DucoBox Energy Comfort type heat recovery unit comprises the following components:

- DucoBox Energy Comfort
- Fixing bracket
- Installation guide
- User manual
- 2 x DucoBox Energy Comfort Filter ISO 16890 Coarse 65 % (≈ G4)

01.A Versions

Unit

Product	Item number
DucoBox Energy Comfort 325	0000-4485

Optional accessories

Product	Item number
Siphon flat (Energy & Eco)	0000-4376
Communication Print	0000-4251
Humidity Box Sensor (Energy Comfort)	0000-4545
Mounting chair upright (Energy Comfort)	0000-4546
Filterset 2 x Coarse 65 % (Energy Comfort)	0000-4547

01.B Operation

Bypass

The bypass ensures, should it be necessary, that there is no heat transfer between air extracted and supplied. This means that the house cools down in a controlled and gradual manner. This function is active mainly in the summer. The bypass opens if the indoor temperature rises above the set comfort temperature (**set to 22 °C as standard**) and the outdoor temperature **is above 10 °C**.

The unit contains two (2) bypasses. Either the right-hand bypass or the left-hand bypass will function as the bypass, depending on the selection of L or R in the initial installation screen. The software will always close the non-selected bypass.

Frost protection

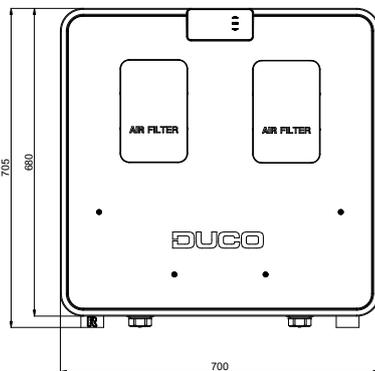
The unit features frost protection as standard in order to protect it at very low outdoor temperatures and enable it to operate correctly. The supply flow rate is slowed down gradually such that more warm air passes across the heat exchanger. This prevents the heat exchanger from freezing up. If the imbalance is insufficient to prevent it from freezing up, then the unit will be temporarily switched off.

Constant Flow

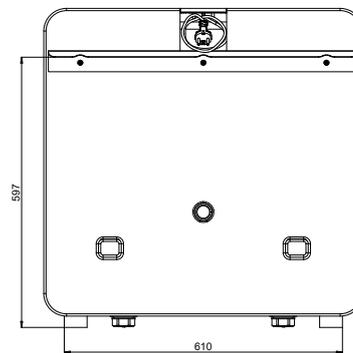
The unit features constant-flow control. This ensures that the air flow rate remains constant between the supply and extract side should the filters become blocked.

01.C Dimensions

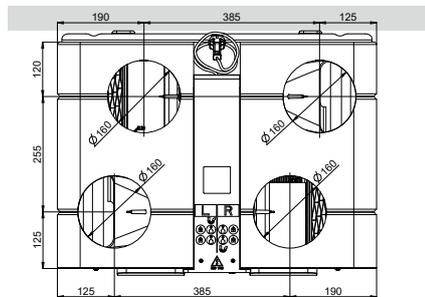
Front view



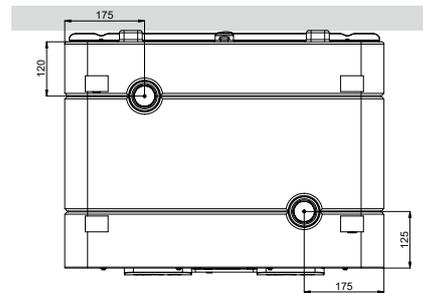
Rear view



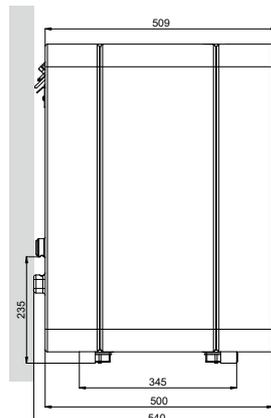
Top view



Bottom view



Side view



02 Product sheet

PRODUCT FICHE - Ref Delegated regulation (EU) n° 1253/2014

(English)

DucoBox Energy Comfort



Trade mark	Duco
Model reference	DucoBox Energy Comfort 0000-4485

		Manual control (no DCV)	Clock control (no DCV)	Central demand control (+ 1 sensor)	Local demand control (+ min 2 sensors)
Specific energy consumption (SEC) in (kWh/(m ² .an))	cold	-77,8	-78,8	-80,5	-83,6
	average	-39,1	-39,9	-41,4	-43,9
	warm	-14,3	-15,0	-16,3	-18,5
SEC class	cold	A+	A+	A+	A+
	average	A	A	A	A+
	warm	E	E	E	E
Typology	Bidirectional	Bidirectional	Bidirectional	Bidirectional	
Type of motor	Variable speed	Variable speed	Variable speed	Variable speed	
Type of heat recovery	Recuperative	Recuperative	Recuperative	Recuperative	
Thermal efficiency of heat recovery in (%)	91,0%	91,0%	91,0%	91,0%	
Maximum flow rate in (m ³ /h)	325	325	325	325	
Electric fanpower input at maximum flow rate in (W)	111,5	111,5	111,5	111,5	
Sound power level Lwa at reference flow rate in dB(A)	55	55	55	55	
Reference flow rate in (m ³ /s)	0,06	0,06	0,06	0,06	
Reference pressure difference in (Pa)	50	50	50	50	
SPI en (W/m ³ /h)	0,21	0,21	0,21	0,21	
Control factor and control typology	1 Manual control	0,95 Clock control	0,85 Central demand control	0,65 Local demand control	
Declared maximum internal leakage rates in (%)	0,90%	0,90%	0,90%	0,90%	
Declared maximum external leakage rates in (%)	0,70%	0,70%	0,70%	0,70%	
Mixing rate in (%)	Not applicable	Not applicable	Not applicable	Not applicable	
Position and description of visual filter warning	Display	Display	Display	Display	
Instructions to install regulated supply/exhaust grilles	Not applicable				
Pre-/dis-assembly instructions	www.duco.eu				
Airflow sensitivity to pressure variations at + 20 Pa / -20Pa	Not applicable	Not applicable	Not applicable	Not applicable	
Indoor/outdoor air tightness in (m ³ /h)	Not applicable	Not applicable	Not applicable	Not applicable	
Annual electricity consumption (AEC) in (kWh electricity/a)	269,6	243,9	196,4	117,3	
Annual heating saved (AHS) in (kWh primary energy/a)	cold	9026	9054	9110	9222
	average	4614	4628	4657	4714
	warm	2086	2093	2106	2132

03 Regulations and safety instructions

a) The installer is responsible for installing and commissioning the unit.

a) Do not install this product in areas where the following are present or could occur:

- Excessively fatty atmosphere.
- Corrosive or flammable gases, liquids or fumes.
- Room air temperature above 40 °C or below -5 °C.
- Relative humidity higher than 90% or outdoors.
- Obstacles that prevent access to or the removal of the fan unit.
- Bends in the ducts immediately upstream of the fan unit.
- The DucoBox Energy Comfort must not be connected to a (motorless) extractor hood/fan or tumble dryer.

b) General and specific safety instructions

Take care to ensure that the electrical supply is a 230 V, single-phase earthed, 50/60 Hz, AC system. The device must be connected to an earthed and fused wall socket.

Secure the unit, preferably in an enclosed space, using the correct screws and mounting bracket, to a wall or using a mounting plinth on a floor with adequate load-bearing capacity.

The fan unit can only be used with the appropriate Duco accessories and user control(s).

The installer must ensure that the fan unit is positioned at least 3 m away from a flue pipe.

The unit must not be used in locations where it could be subjected to direct water spraying.

Certain situations may require the use of acoustic insulation materials.

Check that the unit is complete and undamaged when you take it out of the packaging. If you have any doubt about this, please contact Duco / your Duco sales outlet.

Electrical equipment should be handled with care

- Never touch the unit with wet hands.
- Never touch the device when barefoot.

Do not use the unit in the presence of flammable or volatile substances such as alcohol, insecticides, petrol etc.

Make sure that the electrical system to which the unit is connected complies with the stipulated conditions.

Do not expose the unit to the elements.

Do not place any objects on the unit.

Do not use the unit as an extractor for water heaters, heating systems, etc.

Ensure that the unit discharges into a single exhaust duct that is suitable and installed for the purpose and exhausts outdoors.

Ensure that the electrical circuit is not damaged.

Replace both filters in the unit every 6 months at most, this ensures that the unit is always protected against contamination and that the air being drawn in is healthy in all cases.

Always adhere to the safety instructions in the manual when installing the device. Failure to adhere to these safety instructions, warnings, notes and instructions could result in damage to the DucoBox Energy Comfort or in personal injury for which Duco NV cannot be held liable.

The DucoBox Energy Comfort requires to be installed

in accordance with the general and locally applicable construction, safety and installation regulations of the local authority and other agencies.

Only an accredited installer is permitted to install, connect and commission the DucoBox Energy Comfort, as set out in this manual.

Keep the manual close to your unit.

Maintenance instructions must be followed closely in order to avoid damage and/or wear.

It is recommended that a maintenance contract be taken out to ensure the unit is regularly inspected and cleaned. The device must be fitted in a touch-safe manner. This means, among other things, that under normal operating conditions no-one can reach moving or electrically live parts of the fan without intending to do so for operations such as:

- Taking off the cover.
- Taking the motor module out of the fan after removing the cover.
- Disconnecting a duct or control valve from the connection opening during normal operation.

It must not be possible to touch the fan by hand.

Ducting must therefore always be connected to the DucoBox Energy Comfort before it is put into operation. At least 900 mm of ducting must therefore be connected to the unit.

The DucoBox Energy Comfort satisfies the legal requirements imposed on electrical equipment.

Always ensure that before work begins, the device is isolated from the power supply by removing the power cord from the wall socket or by switching off the fuse. (Use a measuring instrument to check that this is actually the case!)

Use suitable / appropriate tools to work on the unit.

Use the unit only for applications for which it has been designed as stated in this manual.

The ventilation unit is required to operate continuously, i.e. the DucoBox Energy Comfort must never be switched off. (legal requirement under NBN D50-001) Electronic components in the ventilation unit may be live. In the event of a fault, contact a professional installer and only have repairs carried out by expert personnel.

This unit is not intended for use by people (including children) with reduced physical, sensory or mental capabilities, or who lack experience or know-how, unless they are supervised or have been given instructions on the use of the unit by a person who is responsible for their safety. Children must be supervised to ensure that they do not play with the unit. If the power cord is damaged, it must be replaced by the manufacturer, after-sales support or individuals with comparable qualifications in order to prevent any hazard.

The user is responsible for safely removing the ventilation unit at the end of its useful life, in accordance with locally applicable laws or regulations. You can also take the unit to a collection point for used electrical equipment.

The unit is only suitable for housing construction and not for industrial use, such as swimming pools and saunas.

When handling electronics, always take measures to inhibit ESD, such as wearing an earthed wristband. Modifications to the unit or to specifications stated in this document are not permitted.

Do not pull on the cord to remove the plug from the socket.

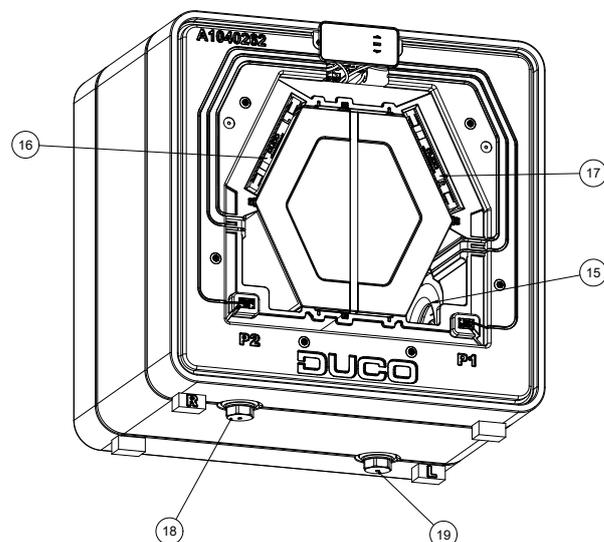
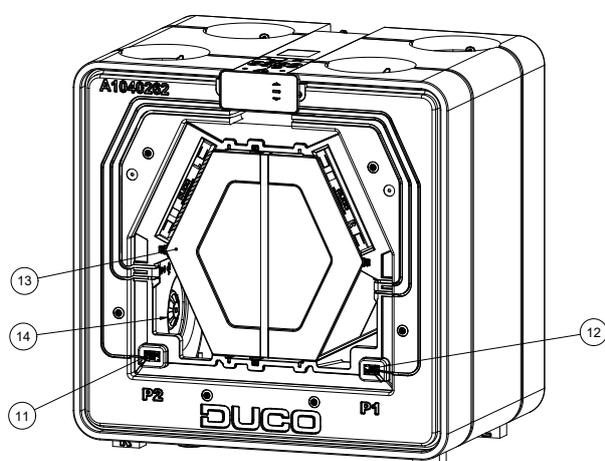
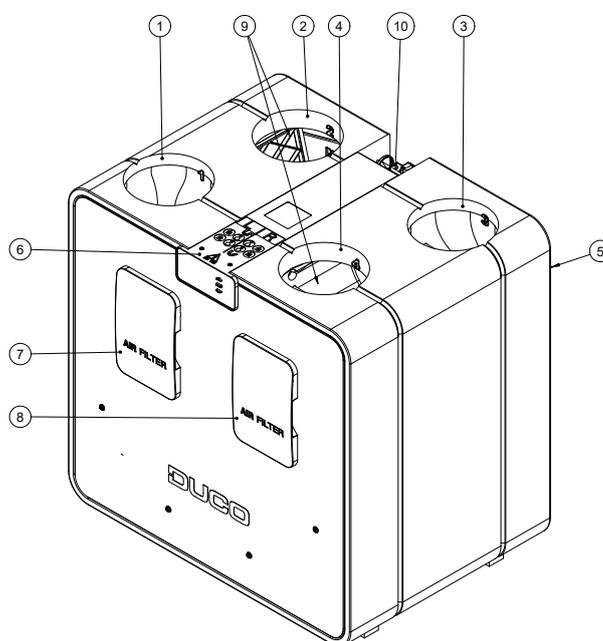
Always refer to the installer of your combustion appliance to establish whether there is a risk of flue gas ingress into the dwelling.

Check that the voltage shown on the nameplates matches the local mains voltage before connecting the device. You will find the nameplate on top of the

04 Components and connections

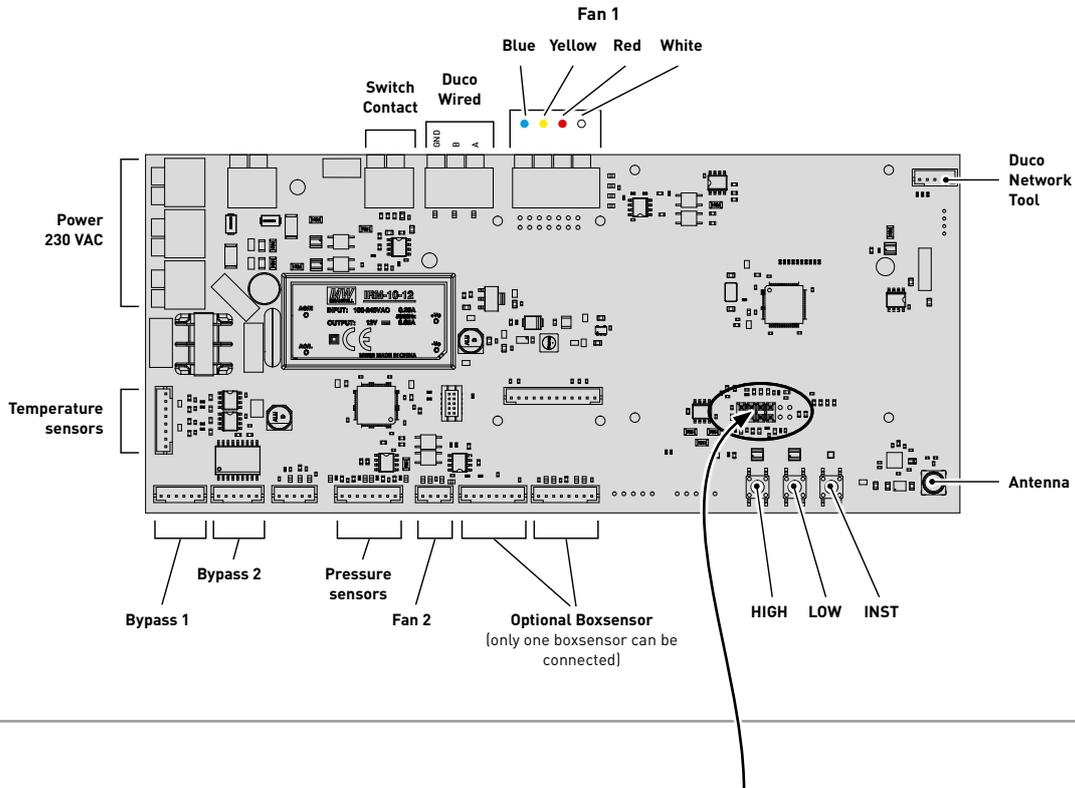
04.A Parts

- | | | |
|--|-------------------------|--------------------------------|
| ① Air duct connections | ⑧ Cap of the air filter | ⑬ Air filter Coarse 65% (≈ G4) |
| ② Air duct connections | ⑨ Bypass (valve) | ⑭ Air filter Coarse 65% (≈ G4) |
| ③ Air duct connections | ⑩ Power cable 230 VAC | ⑮ Condensate drain connection |
| ④ Air duct connections | ⑪ Pressure sensor | ⑯ Condensate drain connection |
| ⑤ Wall mounting hanger bracket | ⑫ Pressure sensor | |
| ⑥ Control unit with integrated user controls | ⑬ Heat exchanger | |
| ⑦ Cap of the air filter | ⑭ Fan | |
| | ⑮ Fan | |



04.B Connectors

DucoBox Energy Comfort printed circuit board (PCB)



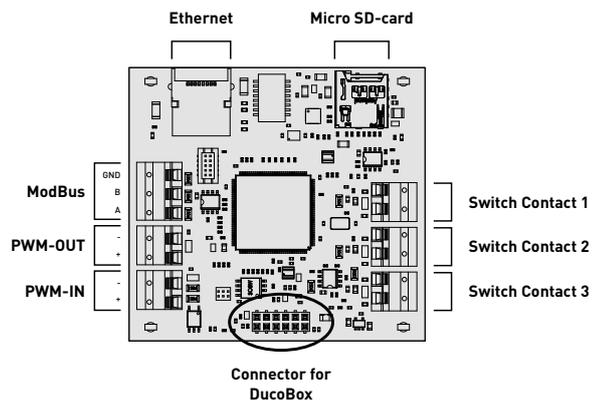
Communication Print

Communication Print

With the **optional** Communication Print you have the option of allowing the Duco ventilation systems to communicate via ModBus and/or ethernet. ModBus integration enables them to be linked to a building management system.

Linking the Duco Ventilation App

A Wi-Fi router can be connected to the ethernet port on the Communication Print in order to link the Duco Ventilation App to the DucoBox Energy Comfort. The app can then be paired with the Wi-Fi network.

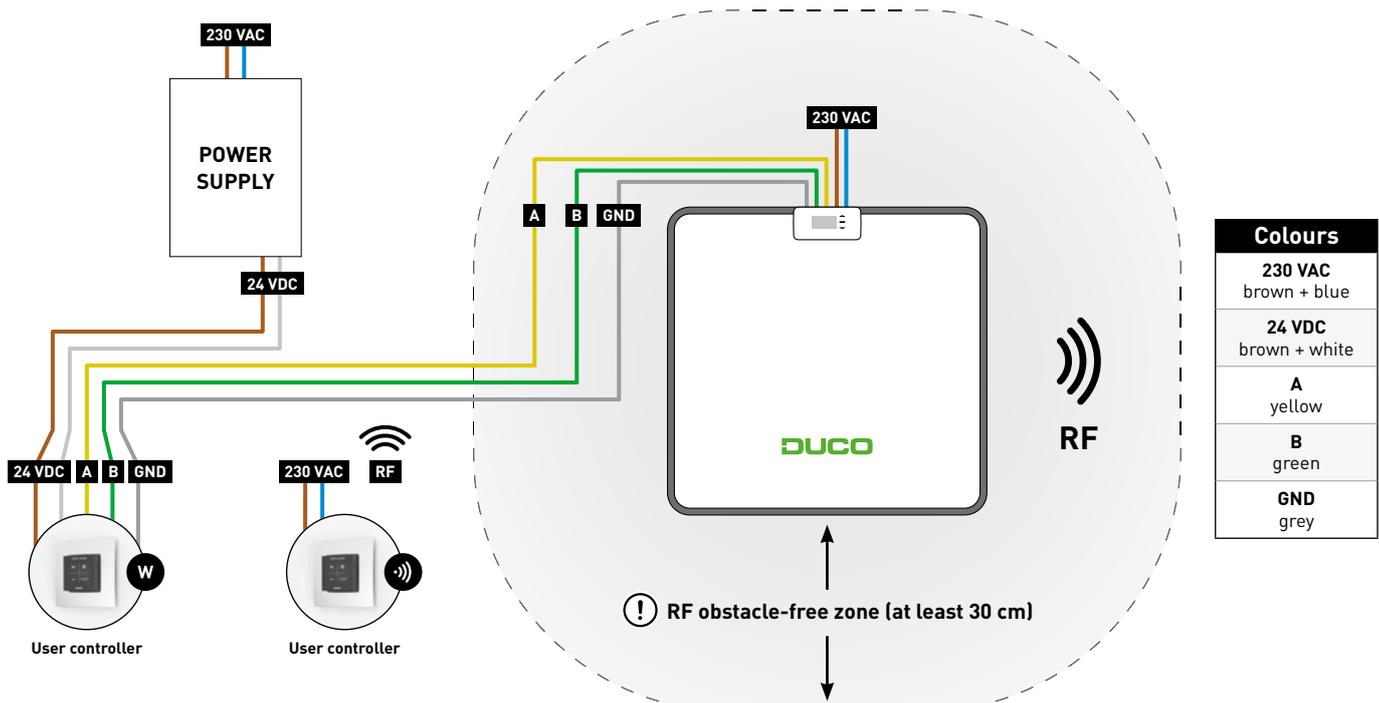


05 Wiring

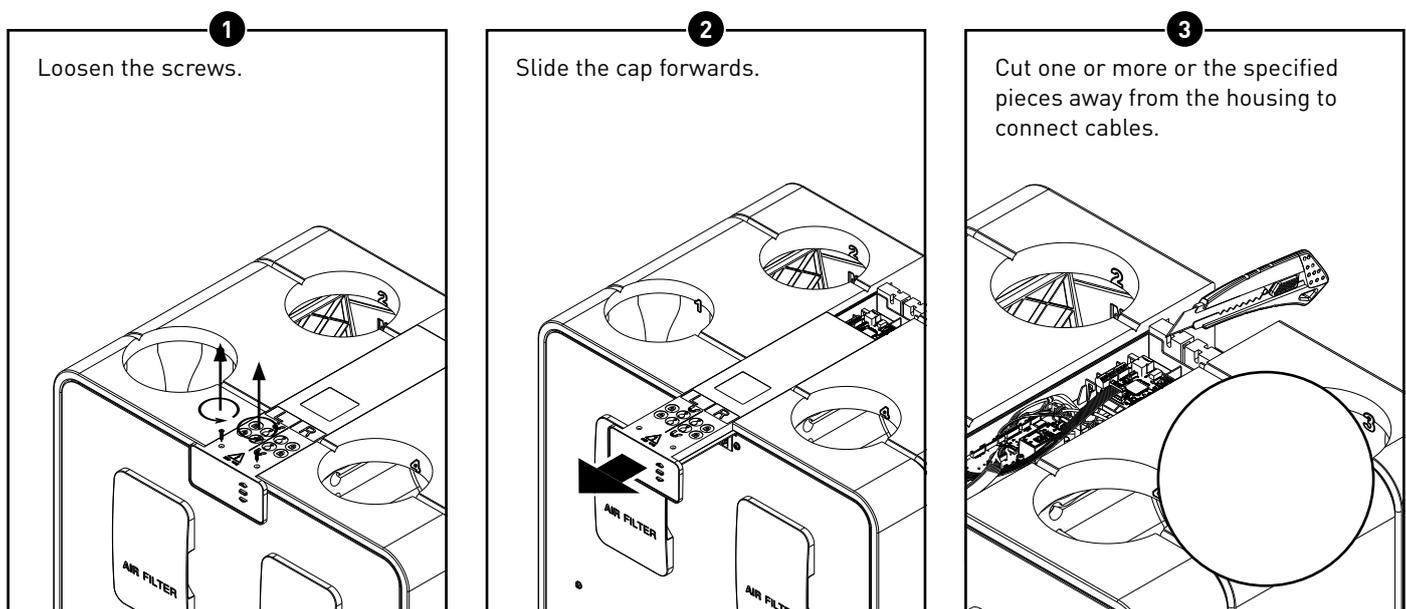
The DucoBox Energy Comfort is able to communicate with slave components via a wireless (RF) or wired link. Both types of communication can be combined in one system.

Communication with non-Duco components is possible via the Switch Sensor or one of the connections on the optional Communication Print (see page 8).

05.A Cabling diagram



05.B Connecting cables to the PCB



05.C RF (wireless communication)

RF components have a maximum free-field range of 350 metres. This distance will be much less in a building because of obstacles. Therefore you will need to allow for features such as walls, concrete and metal. All slave components (except those which are battery powered) also act as repeaters. Signals from components that are unable to make a (strong) connection with the master component are forwarded automatically via no more than one other non-battery-powered component (= hop point). Please refer to information sheet [RF communication \(L8000018\)](#) at www.duco.eu for further information.

Duco RF	
Power supply	230 VAC
Wiring	1.5 mm ²
Frequency	868.3 MHz
Maximum distance	350 m, free field (less through obstacles)
Maximum number of components	Up to 25 wireless components in a single system

05.D Wired (cabled communication)

Wired components can be daisy-chained (= recommended). This means that a separate cable will not be required for each component. A single central power supply can be used.

The cable required is a 0.75 mm² data cable. We strongly advise using a shielded cable. This is to prevent any interference that may affect the data communication.

Duco Wired	
Power supply	24 VDC
Wiring	5 x 0.75 mm ² (5 x 0.25 mm ² from Tronic grilles)
Maximum distance	up to 300 m
Maximum number of components	Up to 50 wired components in a single system

05.E ModBus

Communication with building management systems is available, for reading out information as well as controlling the ventilation system. This requires the DucoBox Energy Comfort to be equipped with an optional Communication Print. Please refer to information sheet [\(L8000003\) ModBus](#) at www.duco.eu for more information.

05.F Perilex

The DucoBox Energy Comfort 325 PERILEX can be controlled via a wired controller with Perilex connection. Please consult the manual 'Quick-Start Perilex plug' via the Duco website.

06 Fitting

06.A General guidelines

The smooth running of your Duco ventilation system is totally dependent on the choice and the quality of implementation of the duct system! Accordingly, take account of the following guidelines when choosing the installation location.

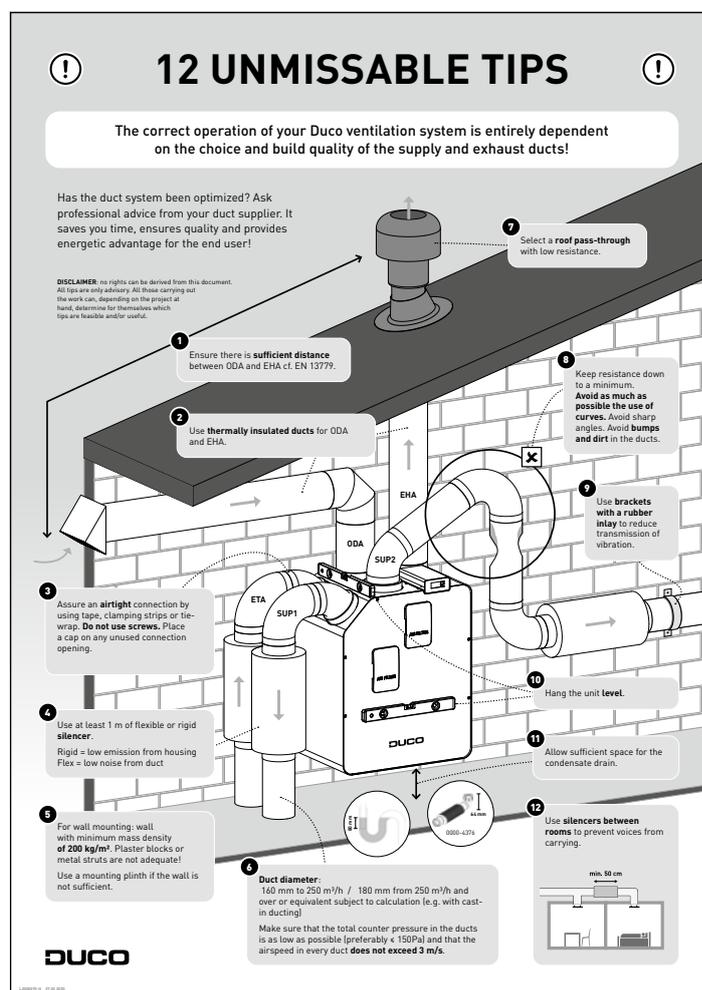


The unit must be connected to a ducting network before it is put into operation.

This is to prevent you from being able to touch the fan.

- Always use high-grade materials and seals in order to achieve the best airtightness. The entire system is based on proper airtight connections and duct routing.
- The ductwork is to be installed with the smallest possible number of bends and hence the least resistance. The system is based on a maximum resistance of 150 Pa.
- Take care to ensure that the ducts are free from dents, long screws and extra obstructions on the inside. This is detrimental to proper maintenance and sustainable operation.
- The supply duct (fresh outdoor air) must be far enough away from a polluted source, this could be the exhaust duct, as well as a flue gas outlet duct. If in doubt, use the dilution factor calculator (EN13779:2007 table A.2 or STS-P73-1 section 4.16.3).
- Although the DucoBox Energy Comfort is a very quiet system, it is advisable to fit a rigid silencer on ducts going into the house in order to obtain maximum acoustic comfort. A silencer may also be needed in order to prevent voices from carrying from one room to another.
- Ducts connected with the outdoor air must be adequately insulated in order to prevent condensation from forming. Any ducting in uninsulated unheated spaces also needs to be insulated.
- Install the exhaust duct on the house side (ETA) draining towards the unit in all cases in order to avoid any build-up of condensation in the duct. A great deal of moisture-laden air can be extracted during showering or cooking.
- You are better choosing a northerly aspect for the supply of outdoor air in order not to draw in warm air during the summer months.
- Take care to ensure that the air inlet is accessible for any cleaning that may be required. A smaller cross-sectional area bore can actually have a major detrimental impact on system performance.
- Duco advises you to fit a minimum of 40 cm length of straight ducting before diverting the air flow on the intake side of the supply.

Also consult our "12 UNMISSABLE TIPS" for an overview with the most important points of interest.



06.B Fastening the DucoBox Energy Comfort



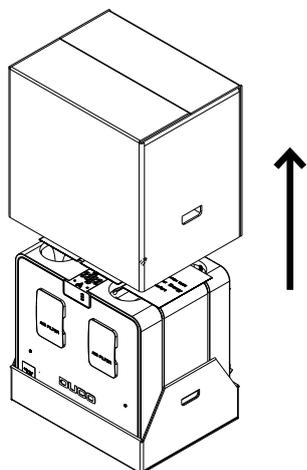
Maintain at least **60 to 100 cm** clear at the front of the DucoBox Energy Comfort to enable maintenance to be carried out on the unit.

Wall mounting

The DucoBox Energy Comfort can be fastened to a wall or if there is no wall available that will do, the DucoBox Energy Comfort can be installed on an optional mounting plinth.

1

Slide the cardboard packaging off the unit. If the unit is wall mounted, the cardboard can be removed from under the unit once it has been hung.



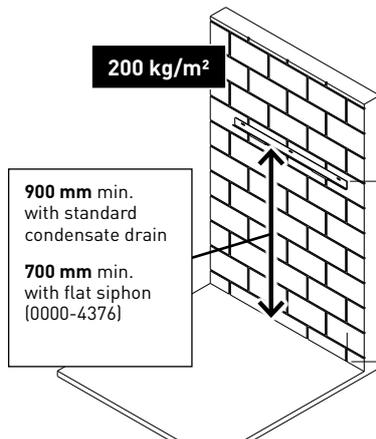
2

The unit must be mounted vertically against a solid wall with a minimum mass of **200 kg/m²** for a vibration-free mounting. Plaster blocks or metal struts are not adequate! The type of condensate drainage and air ducting chosen will determine the exact height.

200 kg/m²

900 mm min.
with standard
condensate drain

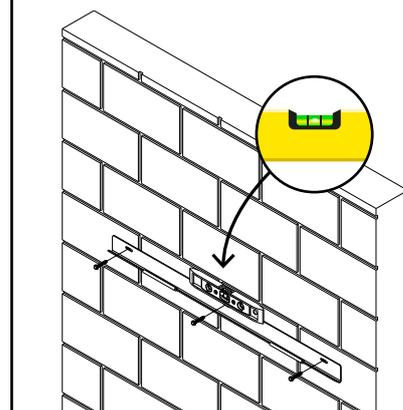
700 mm min.
with flat siphon
(0000-4376)



3

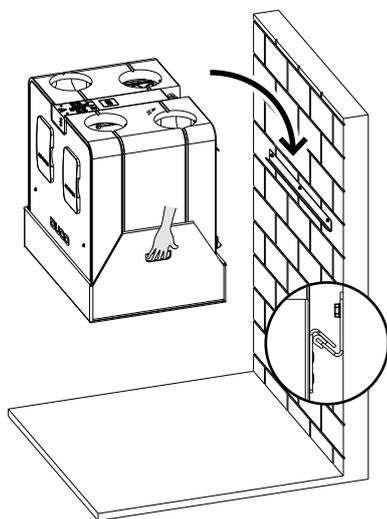
Fasten the hanger bracket horizontally to the wall, ensure it is hanging **level** when doing so. Ensure at the same time that the screws* and plugs* are suitable for the substrate and the weight of the unit (21 kg).

* screws and plugs not included in the supply



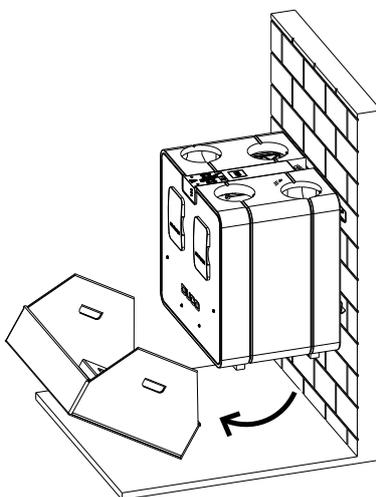
4

Hook the unit onto the drop hanger. Use the garb handles in the cardboard at the bottom of the unit.



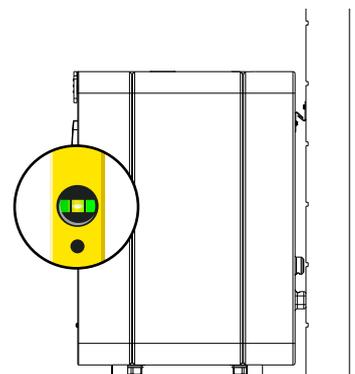
5

Remove the cardboard from the bottom of the unit.

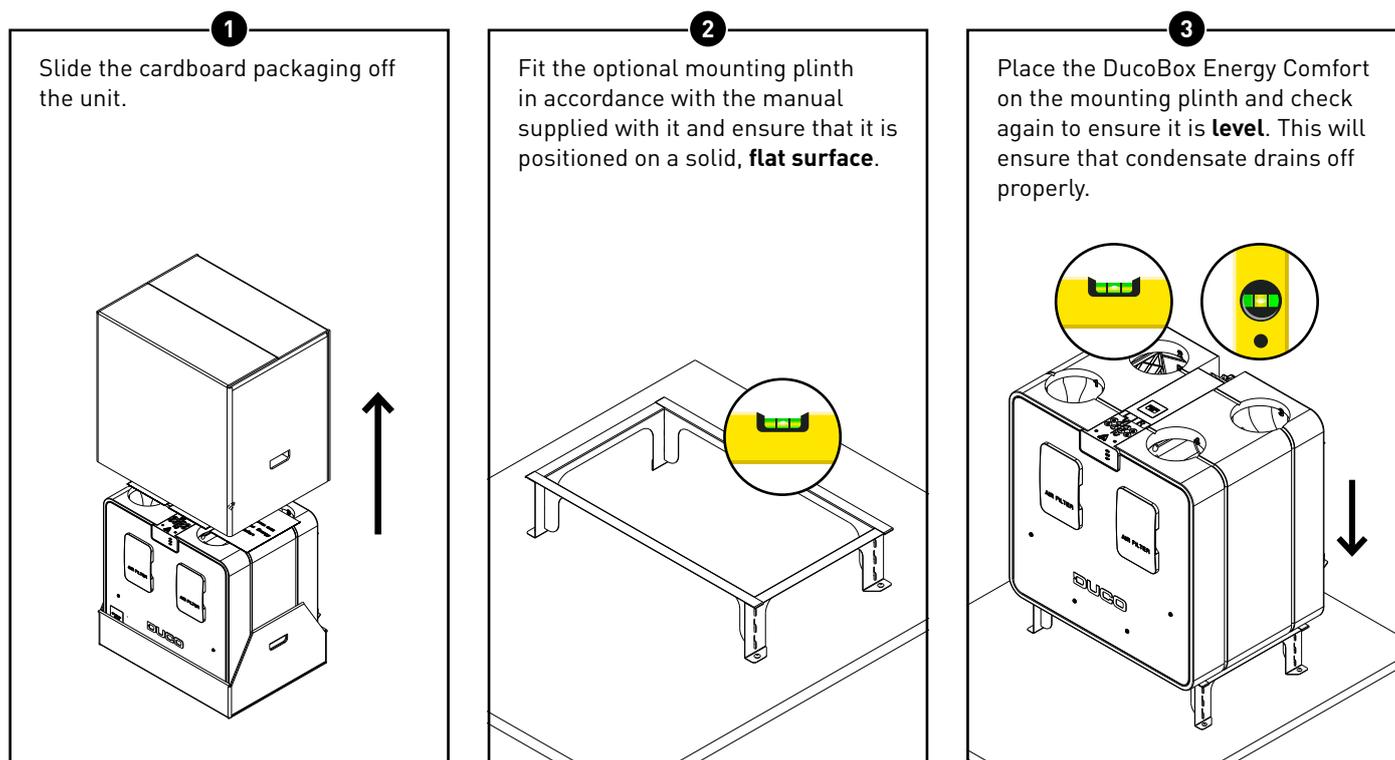


6

Check whether the unit is **spirit-level** against the wall. This will ensure that condensate drains off properly.

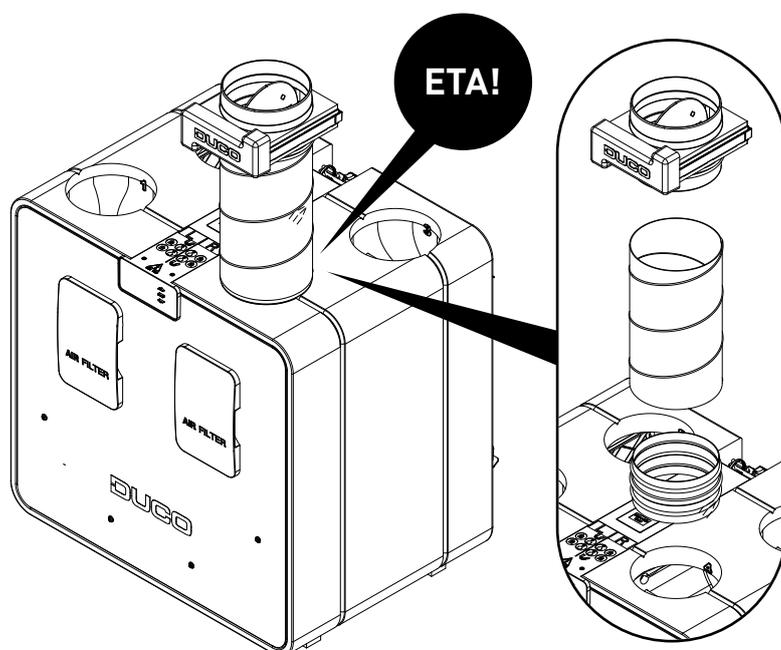


Floor mounting



06.C Placing the Humidity Box Sensor (optional)

The optional, separately available Humidity Box Sensor (0000-4545) is placed in the discharge duct of the DucoBox Energy Comfort and centrally measures the humidity of the air discharged from the house. A DucoBox Energy Comfort contains a maximum of one box sensor.



Connecting the Humidity Box Sensor to the DucoBox Energy Comfort

- 1** Make sure the DucoBox Energy Comfort is not under current.
Push the Humidity Box Sensor onto the **ETA** duct of the DucoBox Energy. Place an air duct between the DucoBox Energy Comfort and the Humidity Box Sensor.
- 2** **Attention: the position of the ETA duct depends on the chosen settings for starting the apparatus (see page 15).**
- 3** Connect the cable of the Humidity Box Sensor to the printed circuit board (see 'Connections' on page 8). The DucoBox Energy Comfort will automatically recognise the Humidity Box Sensor when the device starts.

06.D Connecting air ducts

Choosing air ducts

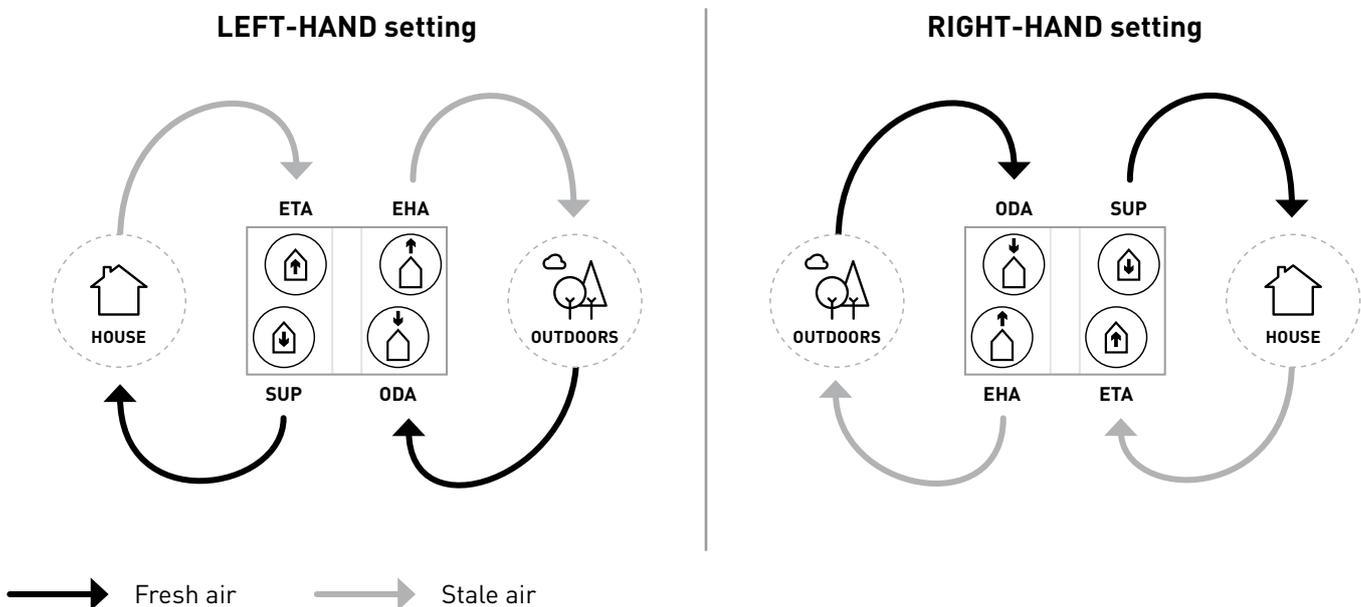
Flow rate and maximum air velocity are defining factors in choosing the right ducting in order to avoid generating any extra obtrusive noise and pressure drop (see table).

Make sure that the total counter pressure in the ducts is as low as possible (preferably ≤ 150 Pa) and that the airspeed in every duct **does not exceed 3 m/s**.

Desired flow rate (m ³ /h)	Minimum recommended duct diameter (mm)
0-30	Ø 100
30-150	Ø 125
150-250	Ø 150
250-340	Ø 180

Connecting air ducts

When connecting the channels, you can select either the LEFT-HAND configuration or the RIGHT-HAND configuration. This selection must be confirmed when you first boot the unit (see page 15). Air duct connections are also indicated on the DucoBox Energy Comfort by means of stickers.



Air ducts to HOUSE			Air ducts to OUTDOORS		
	SUP Supply	Supply air from unit to house		ODA Outdoor Air	Supply air from outdoors to the unit
	ETA Extract Air	Supply air from the house to the unit		EHA Exhaust Air	Exhaust air from the unit to outdoors

06.E Vents

You should preferably use Duco vents, DucoVent Basic or DucoVent Design. See the technical data sheet or fitting instructions for the DucoVent Basic or Design for details. It is best to bear a few rules in mind when fitting vents:

- Take care to ensure that the **supply and exhaust vents are a minimum of 1.5 m van apart** so they cannot come into contact.
- It is preferable not to fit a vent right next to a wall in order to prevent soiling.
- In order to cut down resistance, we recommend using 125 mm dia. vents only.
- Maximum exhaust flow rate per vent: 75 m³/h.
- Maximum supply flow rate per vent: 50 m³/h.

07 Commissioning

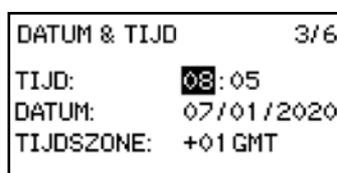
07.A DucoBox Energy Comfort start-up



The unit must not be powered up until everything has been connected correctly. This includes the air ducting systems as well as all electrical components. Failure to connect correctly can result in the permanent destruction of the DucoBox Energy Comfort or to serious physical injury!

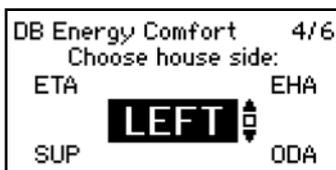
Switch on the power to the DucoBox Energy Comfort (plug into power socket). When the DucoBox Energy Comfort starts up for the first time, you will be asked to enter a few basic settings. Navigate using the arrow keys (▲ and ▼) and confirm using **enter** (■).

General settings



LEFT-HAND / RIGHT-HAND setting

The LEFT-HAND / RIGHT-HAND setting determines the function of the channel connections. Make sure that the selected setting matches the connections as described in page 14.



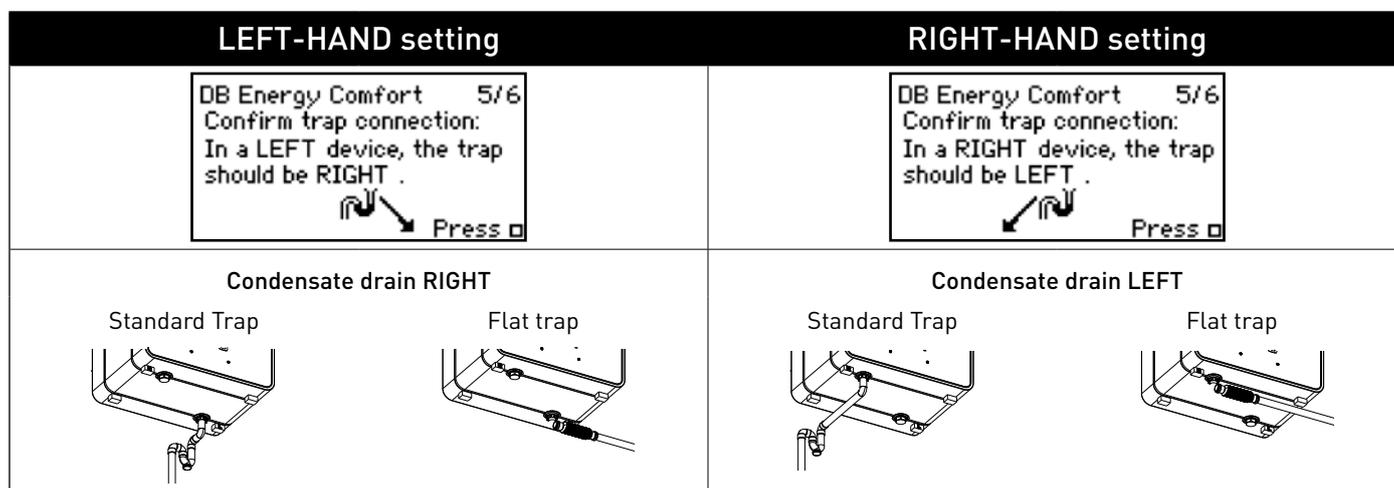
OR



Fitting condensate drain

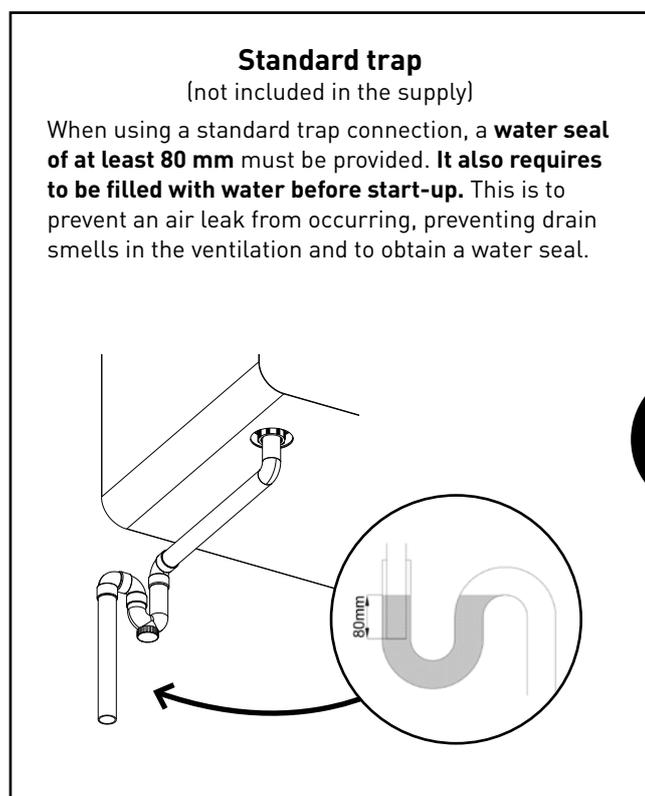
Position

The DucoBox Energy Comfort must always be fitted with a condensate drain at the bottom. Placing the condensate drain depends on the selected LEFT-HAND / RIGHT-HAND setting. The display shows the correct position in relation to the selected setting.

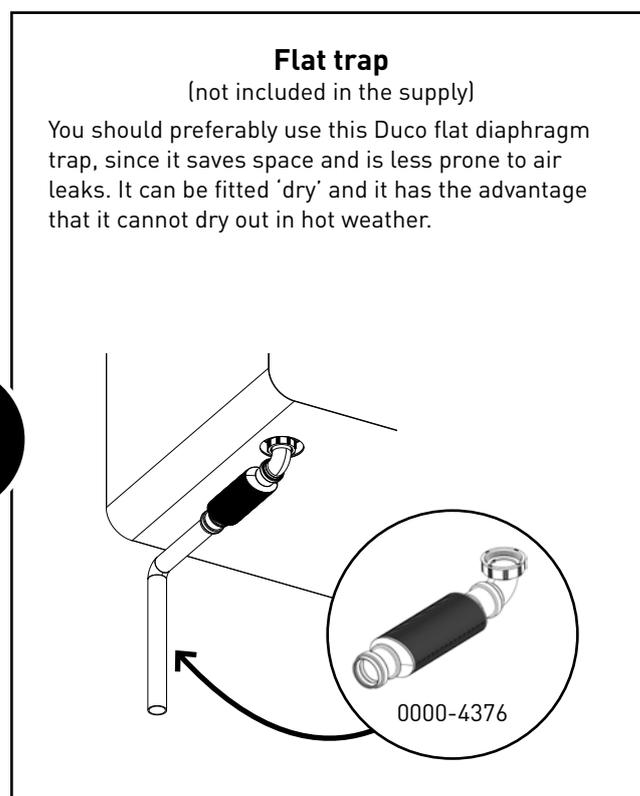


Connecting the condensate drain

The unit is supplied with a standard 32 mm drain with a threaded end. There is an extra 32 mm diameter by 20 cm connecting pipe in the packaging. Condensate must be drained **frost-free and with a slight fall**. The condensate hose must not have any sharp bends.



OR



Next steps

After these steps, you can proceed with the following steps in order to complete the installation:

- Pairing control components with the DucoBox Energy Comfort (Electrical system, see page 17).
- DucoBox Energy Comfort air-side calibration (see page 19).
- **A timer program will need to be set** if there are no CO₂ and/or humidity sensors fitted in the system (see page <?>).
- **Optional:** changing settings. The factory settings will suffice in most cases. However, it is possible to configure settings such as the Bypass and comfort temperature to suit the occupants' wishes (see page 24).

The DucoBox Energy Comfort will be ready for use after that.

In order to avoid contamination in ductwork it is advisable not to put the unit into operation until the house is occupied. This is to prevent dust from the building phase getting into the ductwork and the unit.

What happens in a power cut?

If the power supply to the DucoBox Energy Comfort fails, it will retain all its settings. Once power has been restored, the DucoBox Energy Comfort will start up again and run. The correct time will need to be set again if the DucoBox Energy Comfort is without power for more than (around) 8 hours.

08 Electrical system

08.A Pairing components

Pairing control components with the DucoBox Energy Comfort

- 1** Activate advanced mode:
- Scroll down to **ADVANCED** and press **enter**.
 - Enter the installer's code **9876** and press **enter**.

```
GEAVANCEERD
Code ingeven:
9876
```

- 2** Go to the **INSTALLATION** menu.

```
MENU
INSTELLINGEN
FILTER
INSTALLATIE
INREGELING
```

- 3** Start the **WIZARD**.

```
INSTALLATIE
WIZARD
RESET NETWORK
FACTORY RESET
BACK
```

- 4** Pair the desired control components with the system. **Short-tap** on a random key on all components to be paired*. The LED on the component will start flashing green once it has been paired correctly. The number of paired components will be shown on the display menu. Confirm by pressing **enter** (■) once all the desired components have been paired.

```
WIZARD
Number of components
linked to DUCOBOX : 5
Components can be added.
Press □ to continue.
```

* Please refer to the control component manual for comprehensive instructions.

All components have now been paired. This wizard can be run again if additional control components need to be paired at a later stage. All previously paired components will be retained in the network.

LED indications

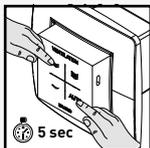
Colour	Blinking (= installation mode)		On continuously	Off
	Blinking slowly	Blinking rapidly		
 Red	DucoBox (master): Network just erased. (This LED indication is temporary; subsequently, the DucoBox restarts) Components (slave): Not in network	Components (slave): Logging in		In case of normal operation, the DucoBox LED will turn off after some time in order to save energy.
 Green	In network	In network, waiting to associate other components with this component.		
 Yellow	Transitional phase (please wait)		Initialising (system configuration in progress)	
 White			Normal operation The brightness of the LED on the DucoBox and some control components indicate the current ventilation percentage (bright = 100% ventilation).	
 Blue	Component is displayed (e.g. if changes are implemented via the master).			
 Magenta	DucoBox (master): Update of the software via Communication Print / SD card		DucoBox (master): Update completed	

08.B Removing / replacing components

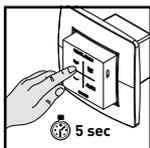
Removing paired components from the network or replacing is **only possible within 30 minutes after the component is paired in or is restarted**. Restarting can be done by disconnecting the power for a moment. After a time-span of 30 minutes, remove and replace operations are ignored. This is valid for **all components from date of manufacture 170323**.

Removing a component

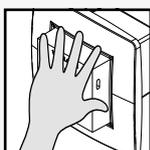
- 1 Activate 'Installer mode' by **long-pressing 2 diagonal buttons on a paired control**. The LED will flash green rapidly.



- 2 Press **once and hold** a button on the component to be removed in order to remove it from the network.

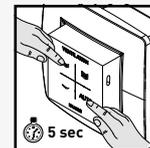


- 3 Deactivate 'Installer mode' by pressing the 4 buttons on a **paired control** simultaneously (or using the palm of your hand on a control featuring touch buttons). The LED will turn white.

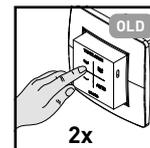


Replacing a component

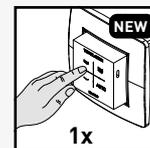
- 1 Activate 'Installer mode' by **long-pressing 2 diagonal buttons on a paired control**. The LED will flash green rapidly.



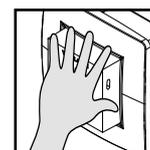
- 2 Press **briefly twice** on the button of the component to be replaced.



- 3 **Tap once** on the button for the new component. The latter will take on all settings / connections in the network.



- 3 Deactivate 'Installer mode' by pressing the 4 buttons on a **paired control** simultaneously (or using the palm of your hand on a control featuring touch buttons). The LED will turn white.



08.C Tips

The network can be wiped or a full reset of the DucoBox Energy Comfort can be carried out in the event of any problems. To do this, refer to the following functions under the **INSTALLATION** menu (visible only after activating advanced mode, see page 25).

- **RESET NETWORK**: this removes all paired control components from the network.
- **FACTORY RESET**: this resets the entire system (= DucoBox Energy Comfort + paired components) to factory settings. The calibration will be lost.

Use the **Duco Network Tool** or the **Duco Ventilation App** to read out information from components.

Never pair more than one system with RF components at the same time. This could result in components on the wrong system being paired or in components failing to respond.

09 Air-side calibration

Calibrating the DucoBox Energy Comfort can be split into various steps:

1. Pre-setting supply and exhaust vents
2. Calibrating flow rates



The system needs to be configured for it to work correctly. This will ensure its operation is as quiet as possible and energy-efficient.

09.A Pre-setting vents

The exhaust and supply vents are installed in a moisture-laden/stale air extraction or fresh air supply duct. In order to calibrate the air supply and exhaust correctly, these vents must be set **depending on the situation** in accordance with the table below.



A maximum of 50 m³/h is recommended for **supply** vents in order to prevent excessive noise from being generated. For this reason it is recommended that the flow be split between different vents for higher flow rates.

<p>SITUATION 1: One vent per zone</p>	<p>SITUATION 2: Multiple vents per zone with equal flow rates</p>	<p>SITUATION 3: Multiple vents per zone with different flow rates</p>																																
<p>Set all vents to the fully open position, regardless of the desired flow rate.</p> <p>EXAMPLE:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Zone 1</td> <td style="text-align: center;">Zone 2</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">25 m³/h</td> <td style="text-align: center;">50 m³/h</td> </tr> </table>	Zone 1	Zone 2					25 m ³ /h	50 m ³ /h	<p>Set all vents to the fully open position, regardless of the desired flow rate. With DucoVent Design vents, turn the cone on the trim plate to the fully open position.</p> <p>EXAMPLE:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2" style="text-align: center;">Zone 1</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">50 m³/h</td> <td style="text-align: center;">50 m³/h</td> </tr> </table>	Zone 1						50 m ³ /h	50 m ³ /h	<p>Set the vents so they match the desired flow rate in accordance with the table.</p> <p>EXAMPLE:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2" style="text-align: center;">Zone 1</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">25 m³/h</td> <td style="text-align: center;">+ 75 m³/h</td> </tr> </table> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="background-color: black; color: white;">DUCOVENT DESIGN</th> <th style="background-color: black; color: white;">DUCOVENT BASIC AND OTHER VENTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">100% open</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">50% open</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">25% open</td> </tr> </tbody> </table>	Zone 1						25 m ³ /h	+ 75 m ³ /h	DUCOVENT DESIGN	DUCOVENT BASIC AND OTHER VENTS		100% open		50% open		25% open
Zone 1	Zone 2																																	
																																		
																																		
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25 m ³ /h	+ 75 m ³ /h																																	
DUCOVENT DESIGN	DUCOVENT BASIC AND OTHER VENTS																																	
	100% open																																	
	50% open																																	
	25% open																																	



When using DucoVent Design exhaust vents, always leave at least the outer ring in place for acoustic effect.



09.B Calibrating flow rates

The DucoBox Energy Comfort calibration mode can be activated using the display menu.



IMPORTANT, BEFORE CALIBRATING

Close all windows and doors. Ensure that all duct openings in the DucoBox Energy Comfort are fully closed and that the DucoBox Energy Comfort cover is closed! Avoid air leaks in the ventilation ducts. Open all interior doors between the various zones.

Calibrating the DucoBox Energy Comfort

1

Activate advanced mode:

- Scroll down to **ADVANCED** and press **enter**.
- Enter the installer's code **9876** and press **enter**.

```
GEAVANCEERD
Code ingeven:
9876
```

2

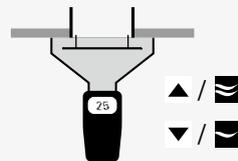
Scroll down to **CALIBRATION** → **WIZARD** and press enter. The DucoBox Energy Comfort calibration mode starts up. Do not start manual calibration until you see the message on the display and follow the instructions on screen. Enter the flow rates for each zone if asked to do so.

```
INREGELING
WIZARD
BACK
```

3

In the **'Adjust the supply vents'** step, select the duct with the highest flow rate and resistance and, using a pressure-compensated air flow meter, measure the flow rate at this vent. If the flow rate is too high or too low, you can adjust it using the arrow keys on the DucoBox Energy Comfort. Depending on the user controller version, this can also be done by pressing the  (lower) and  (higher) buttons on a paired user controller. Adjust the flow rate so as to obtain the desired flow rate at this vent. The flow rate can be fine-adjusted at the vent.

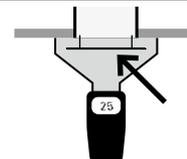
```
WIZARD 2/3
Adjust all supply valves.
Press ▲ or ▼ to change the
pressure: 95Pa ( 57%)
Wait until stable...
```



NOTE: The system needs around ten seconds to run stably when adjusting the flow rate using the buttons on the DucoBox Energy Comfort, User controller or making large changes at the vent. The system will indicate when the calibration is stable. The flow rate cannot be measured correctly until after this time has elapsed.

4

Proceed now with the remaining supply vents. **The flow rate from these other vents must only be adjusted at the vents themselves.** Adjusting vents will not alter the flow from previously calibrated vents.



5

You will need to press the **enter button** (■) on the DucoBox Energy Comfort once all supply vents have been calibrated. Otherwise you can confirm by long-pressing the **AUTO button** on the User controller.



Calibrating exhaust vents

6

Repeat steps 3 to 5 inclusive for all **exhaust** vents.

```
WIZARD 3/3
Adjust all extract valves.
Press ▲ or ▼ to change the
pressure: 77Pa ( 52%)
Wait until stable...
```

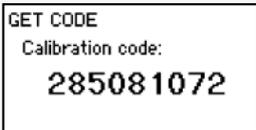
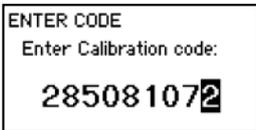
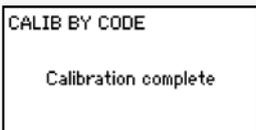
09.C Verification

The calibrated flow rates can be checked at the various vents once adjustment and calibration have been completed. Do this by going into **advanced mode** (see page 25) and select **"CALIBRATION → VERIFY HIGH LEVEL"**. The DucoBox Energy Comfort ventilate for 30 min at its calibrated ventilation setting.

09.D Copy calibration data in case of serial construction

The DucoBox Energy Comfort contains the '**Calib by Code**' function in order to copy the calibration data to another unit. This is useful in projects with **identical residential units and installations**. In this case, only a single unit needs to run through the calibration procedure. The other unit will take over the calibration settings of the first unit by copying the calibration code.

Copying the calibration data to another unit

<p>1 Make sure that all valves are adjusted identically (presetting + fine-tuning) for each installation.</p>	
<p>2 Activate advanced mode:</p> <ul style="list-style-type: none"> • Scroll down to ADVANCED and press enter. • Enter the installer's code 9876 and press enter. 	
<p>3 On the calibrated unit, navigate to CALIBRATION → CALIB BY CODE → GET CODE and write down this code.</p>	
<p>4 On the units to be calibrated, navigate to CALIBRATION → CALIB BY CODE → ENTER CODE and enter the code.</p>	
<p>5 The unit will indicate when the calibration is completed. This can take a few minutes. If the unit does not succeed in completing the calibration (e.g., due to a wrong code or differences in the installation), the user can cancel the calibration by simultaneously pressing two arrow keys.</p>	

Duco recommends to check the calibrated flow rates after the calibration (see page 20).

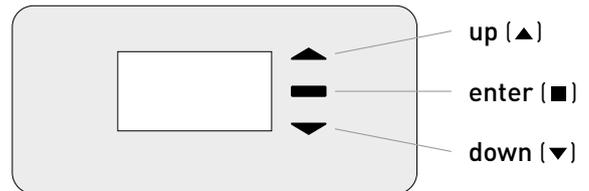
10 Display menu

The DucoBox Energy Comfort features a graphic display which enables all the necessary parameters of the unit to be easily adjusted. Settings and calibration can also be carried out using the free-of-charge **Duco Ventilation App** provided a Communication Print is in place.

10.A Display overview and operation

Operation

The display on the DucoBox Energy Comfort is equipped with three (3) buttons: **up** (▲), **down** (▼) and **enter** (■). The arrow keys can be used to scroll through the menu. If the display has not been used in the normal operating mode, it will be deactivated after **1** minute. Press any button at random on the display in order to reactivate it. Press **enter** (■) to retrieve the menu.



Main screen

The display will light up continuously when the DucoBox Energy Comfort starts up until calibration has been completed. The following main screen will be visible after that:

	Frost protection is active. (see page 25)
	Timer program is active. (see page 24)
	Menu is in advanced mode. (see page 25)
	There is a fault. The system might not be working properly.

Filter status
 → **100%** = new filter
 → **0%** = replace filter

Ventilation position
 The pictogram indicates the active position of the system (only if 'UNIT CONTROL' is active). See page 23 for more information.

10.B Change ventilation position

The ventilation position can be changed via the display menu or via one or more external controls (optional). The display menu and any external controls will always show the same position.

Ventilation positions

AUTO	Automatic setting (= recommended) The system ventilates on a low number of revolutions and will only accelerate if needed. This guarantees an operation that is as energy-economical as possible. Accelerating occurs based on CO ₂ and/or humidity measuring (if sensors are installed) or based on a pre-set time programme (see page 24).
	Low The system exhausts at 10% of maximum capacity.
	Medium The system exhausts at 50% of maximum capacity.
	High The system exhausts at 100% of maximum capacity.

Changing the ventilation position via the unit

The DucoBox Energy Comfort has the option to view and change the ventilation position via the display menu. For this purpose, the following settings must be activated: **SETTINGS** → **UNIT CONTROL** (standard = **ON**). If this option is active, the main screen will show the ventilation position (see page 22) and using the arrow keys (▲ / ▼) will enable changing the ventilation position. Open the menu via **enter** (■).

The selected ventilation position on the unit is permanent (indicated in purple in 'Controls') until the user activates another position. Control is needed if you want to set temporary manual positions. Duco recommends the **AUTO** position for an optimal and energy-economic operation.

10.C Settings for the occupant

The following settings can be adjusted by the occupant:

Date & time

The date & time will be set correctly during the initial installation which will have been carried out by the installer. Every DucoBox Energy Comfort will remember the date and time for a number of hours after a power cut. If the date and time have nevertheless been set incorrectly, they can be corrected manually via the menu.

The date and time will synchronise automatically if the DucoBox Energy Comfort is equipped with a Communication Print and the DucoBox Energy Comfort is connected to a computer network with internet access. If this is not the case, the date and time can be set by the following method.

Setting date & time

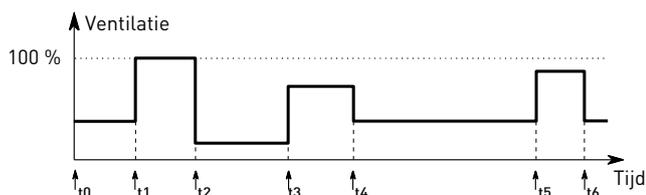
- 1 Go to **SETTINGS** → **DATE & TIME**.
- 2 Change the hours by pressing the ▲ or ▼ button and press **enter** (■) to confirm.
- 3 Change the minutes by pressing the ▲ or ▼ button and press **enter** (■) to confirm.
- 4 Change the day, month, year and time zone in the same way. Date and time are now set correctly.

Time programming

A set timetable can be programmed into the ventilation unit. This is desirable when there are no CO₂ and/or humidity sensors present in the ventilation system. With the timer program, the DucoBox Energy Comfort will increase or decrease the ventilation in the house. The timer program can be adjusted by the user using the following method in the DucoBox.

The timer program is deactivated as standard.

The timer program can also be adjusted using the Duco Ventilation App.



Bypass

The system is able to partially or completely to deactivate heat recovery if the temperature in the house rises too high, e.g. due to solar heat gain in hot summer weather. In this case, the bypass will direct the air extracted from the house either partially across the heat exchanger or not at all. Fresh outdoor air will therefore not be heated up by warm stale indoor air. This relatively cooler outdoor air entering the house will be used to reduce the temperature in the house as far as possible down to the desired temperature.

The standard setting for automatic bypass operation is activated, but it can also be set manually.

Automatic operation (= recommended)

The bypass will gradually open if the temperature in the house rises too high and the outdoor temperature is lower than the indoor temperature. The temperature of the fresh air supplied will be colder than the indoor temperature by up to a maximum of **1 °C**, this will gradually cool the house down without an uncomfortable feeling of cold air.

Setting the bypass manually

If so desired, the user can deactivate automatic bypass operation by opening or shutting it manually.

Adjusting the timer program

- 1 Go to **SETTINGS** → **PROGRAM**.
- 2 Select the **(Mon-Fri + Sat-Sun or Mon-Sun)** mode, **Mon-Fri + Sat-Sun** is standard.
- 3 Select the desired period in the week.
- 4 Select **ADD** to insert a new time point (up to 8) into the program.
- 5 Set the desired time and ventilation level using the **▲** and **▼** arrow keys. Confirm using **enter** (**■**).
- 6 Add more time points.
- 7 Select **BACK** to go back out of the menu in order to select another period or zone.
- 8 You can exit the menu completely by pressing **▲** and **▼** simultaneously.

Bypass settings

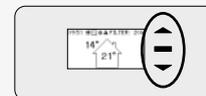
SETTINGS
BYPASS
STATUS (for information) Current bypass status. 0%: bypass shut (= heat exchange active) 100%: bypass open (= no heat exchange)
MODE AUTO (= standard): automatic operation based on measured temperature and comfort temperature setting OPEN: heat exchange at no time SHUT: heat exchange all the time
ADAPTIVE If MODE = AUTO and ADAPTIVE = ON , the system will automatically seek the most pleasant-feeling temperature thanks to a smart comfort temperature control. The system will adjust the desired indoor temperature based on the outdoor temperature and the season of the year.
COMFORT TEMPERATURE In AUTO mode the system will aim to shift the temperature to this comfort temperature. Standard: 21 °C

10.D Advanced settings

Gaining access to menus intended for installers only requires **advanced mode** to be activated. When advanced mode is active, additional items will appear on the menu, which enable the unit to be put into operation.

Activate advanced mode

- 1 Press **any button at random** on the DucoBox Energy Comfort display.



- 2 Scroll down to **ADVANCED**. The padlock next to the menu indicates that advanced mode is locked. Press **enter**.



- 3 Enter the installer's code **9876** and press **enter**, additional components will now be available on the menu. The padlock (🔒) on the display menu indicates that advanced mode is active. The menu will exit advanced mode after 30 minutes of inactivity or after restarting the DucoBox Energy Comfort. Advanced mode can also be closed down manually using the **CLOSE ADVANCED** menu command.



Frost protection

There is a possibility at low outdoor temperatures that the moisture in the exhaust air will condense in the heat exchanger. The DucoBox Energy Comfort is equipped with a mechanism to prevent freezing of this condensate. The unit will adjust air flow rates in such a way that freezing will be prevented (= temporary **imbalance method**).

The frost symbol (❄️) will be shown on the display whenever frost protection is in operation.

The frost protection cannot be switched off.

Frost protection settings

SETTINGS	
FROST PROTECTION	
STATUS	(for information)
NORMAL: frost protection on standby ACTIVE: frost protection in operation	

10.E Menu structure

The chart below contains all the menus in the DucoBox Energy Comfort. Menus with a padlock (🔒) are only visible to the installer after entering the installer's code **9876**.

The chart below may differ depending on the DucoBox Energy Comfort software version.

INFO
<p>TEMPERATURE SENSORS (for information)</p> <p>The DucoBox Energy Comfort features 4 temperature sensors which measure the temperature at each duct connection. The values of these temperature sensors are by way of an indication.</p>
<p>PRESSURE SENSORS 🔒 (for information)</p> <p>The pressure measured in the unit relative to the atmosphere. These values give an indication about the performance of the system calibration.</p>
<p>BOX SENSORS 🔒 (for information)</p> <p>Measured values for Humidity Boxsensor.</p>
<p>SOFTWARE VERSION (for information)</p> <p>In any communication with Duco, you may be asked to state the software version of your DucoBox Energy Comfort. Please keep this number to hand for any communication.</p>
<p>SERVICE CODE</p> <p>This code will enable the Duco service team to read out the composition of your ventilation system and its paired components.</p>

SETTINGS
<p>COMFORT TEMPERATURE</p> <p>The DucoBox Energy Comfort will seek to maintain the temperature in the house at the set value. The DucoBox Energy Comfort also features a smart algorithm which will automatically adjust the comfort temperature depending on the outdoor temperature. This will maintain the temperature in the house at the most comfortable level possible for the occupants.</p>
<p>UNIT CONTROL</p> <p>Option to change the ventilation position via the display menu</p>
<p>PROGRAM</p> <p>A set timetable can be programmed into the ventilation unit. You can use this to increase or decrease the ventilation in the house.</p>
<p>BYPASS</p> <p>The DucoBox Energy Comfort features a fully automatic bypass. This enables the house to cool down to the desired comfort temperature during summer nights. It is also possible to deactivate the bypass temporarily or completely to increase user comfort.</p>
<p>DATE & TIME</p> <p>The DucoBox Energy Comfort has an inbuilt clock which is required for the time-dependent controls.</p>
<p>LANGUAGE</p> <p>The menu language can be changed to match the user's language. The following languages are available: Dutch, English (standard), French and German.</p>
<p>COUNTRY</p> <p>Unit location.</p>
<p>LAN SETTINGS</p> <p>The DucoBox Energy Comfort can be connected to the computer network, this enables your unit to be controlled using the Duco Ventilation App.</p>
<p>FROST PROTECTION 🔒</p> <p>Frost protection status and settings. See page 25.</p>
<p>CONFIG 🔒</p> <p>Other settings.</p>

FILTER
<p>FILTER STATUS</p> <p>Remaining filter service life.</p>
<p>REPLACE FILTERS</p> <p>Step-by-step instructions for replacing filters.</p>

INSTALLATION 🔒
<p>WIZARD 🔒</p> <p>Run this wizard to pair components with the system.</p>
<p>RESET NETWORK 🔒</p> <p>This removes all paired control components from the network.</p>
<p>FACTORY RESET 🔒</p> <p>resets the entire system (= DucoBox Energy Comfort + paired components) to factory settings. The calibration will be lost.</p>

CALIBRATION 🔒
<p>WIZARD 🔒</p> <p>Run this wizard to calibrate air flow rates correctly.</p>
<p>VERIFY HIGH LEVEL 🔒</p> <p>Sets the system temporarily to high level to enable calibrated air flow rates to be verified.</p>

ADVANCED / CLOSE ADVANCED 🔒
<p>Activate / deactivate advanced mode to show / hide functions with a padlock (🔒).</p>

11 Maintenance & service

Please refer to the maintenance instructions at www.duco.eu and view the videos on duco.tv for more information.

For service problems as a user:

Please contact your installer. Keep the serial number of your product to hand.

For service problems as an installer:

Please contact your Duco products seller. Keep the serial number of your product to hand.

The serial number is on the sticker at the top of the DucoBox Energy Comfort.

12 Warranty

All warranty conditions concerning the DucoBox and Duco's ventilation systems can be found on the Duco website.

All complaints are to be reported to Duco by the Duco distributor with a clear description and the order/invoice number under which the products were delivered. In order to register the complaint, please use the complaint registration form found on the Duco website and the product's serial number in your message to service@duco.eu.

Installed by:

DUCO
Ventilation & Sun Control