MultiPlexBox

Part No: 90001255/90001256/90001257/90001258

General Manual on the correct usage, maintenance, and installation of the MultiPlexBox Unit

0. Contents

Contents

1.0 General Information

To ensure complete and effective operation of the unit and for you and your own safety, all the following instructions should be read carefully and observed. The relevant national standards, safety regulations and instructions as well as the technical connection conditions of the energy supply company must be observed and applied. Please ensure you have a document with the correct ventilation system calculations before attempting the final install of the unit. Please keep the installation and operating instructions for reference. The document must be issued to the operator (tenant/owner) after the final assembly.

> **WARNING:** Notes in a red box indicate warning and safety instructions. The red border is a safety-relevant warning symbol. All safety regulations and/or symbols must be absolutely adhered to, so that any dangerous situation is avoided.

1.1 Important technical information

The unit may only be operated in a technically perfect condition, with the installer involved acting in a safe and responsible manner, according to the intended use of the product. Issues arising from the unauthorised tampering of the unit is not the responsibility of Airflow Developments.

1.2 Warranty and liability claims

To safeguard warranty and liability claims, the following information must be observed:

– Correct implementation according to the installation and operating instructions of the product.
– The use of accessories, or any other tools, implements or any other additions to the installation which are not approved, recommended, or offered by Airflow Developments, is not permissible. Any damages are excluded from the warranty. If these instructions are not observed, all warranty claims are excluded. This also applies to any liability claims extended to the manufacturer.

1.3 Regulations – Guidelines

If the product is installed correctly and used to its intended purpose, it conforms to all applicable regulations and guidelines at its date of manufacture.

1.4 Intended use

The unit is intended for the supply and extract ventilation of living spaces and buildings in combination with a central ventilation system. The unit is not a ready-to-use product and it can only be operated once it has been properly installed and connected to the ventilation system. The unit may only be installed in frost-free rooms above +5 °C as standard. In case of operation under more difficult conditions, such as high humidity, heavy contamination, excessive strain due to climatic, technical, and electronic influences consultation and approval are required because the standard version is not suitable for this.

Any use other than the intended use is prohibited! The conveying of solid matter or solid matter content > 10 μm in air and liquid is not permitted. Transport media, which affect the fan materials, and abrasive media are not permitted.

1.5 Scope of delivery

The delivery consists of one box containing the MultiPlexBox unit and the installation and operating instructions.

1.6 Shipping

The unit is packed ex works in such a way that it is protected against normal transport strain. Carry out the shipping carefully. It is recommended to leave the unit in the original packaging until installation to prevent any possible damage and contamination.

1.7 Receipt

The shipment must be checked for damage and consistency immediately upon delivery. If there is any damage, promptly report the damage with the assistance of the transport company. If complaints are not made within the agreed period, any claims could be lost.

1.8 Storage / Warehousing

Please keep the unit dry and dust-free in protected spaces.

When storing for a prolonged time the following steps should be taken to avoid damaging influences: Protection by dry, air-dustproof packing (plastic bags with drying agent and moisture indicators). The storage place must be waterproof, vibration-free, and free of excessive temperature variations. Damages due to improper transportation, storage or commissioning must be verified and are not liable for warranty.

1.9 Functional description

The MultiPlexBox is used for the individual ventilation control of connected zones for example: (apartment, office, commercial unit) in combination with a central ventilation system. The unit consists of a supply air chamber and an extract air chamber (see figure 1). The chambers are equipped with a measuring orifice and a volume flow control damper. The volume flow control dampers can be controlled separately. Large sound insulation elements ensure quiet operation. The MultiPlexBox can be controlled via the ECO element controller (Ref no. 90001253) or the Touch Element controller (Ref no. 90001254) A sensor for Humidity (Ref no. 90001248) and a sensor for Humidity and VOCs (Ref no. 90001249) are available for demand-controlled, automatic operation.
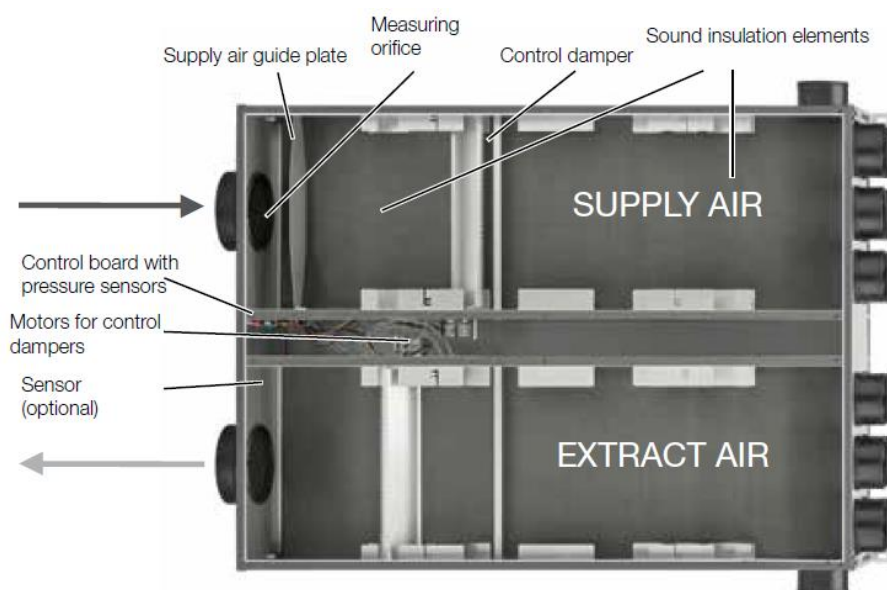

Figure 1: Functional Diagram

1.10 Fireplaces

The relevant applicable rules for the joint operation of fireplaces, ventilation, extraction hoods and other devices must be observed, as well as general building law and regulation requirements. Airflow Developments cannot be held responsible for negligent installation which is done without following proper guidelines.

Supply and extract ventilation systems may only be operated with room air-dependent fireplaces if the flue gas evacuation is monitored by special safety devices (on site) and it is ensured that the supply and extract air flow is interrupted in the event of tripping. It is recommended to speak with the responsible chimney sweep to take into consideration any requests before procuring an under-pressure monitoring system for fireplaces. Please see the below warning before installation and operation of the unit:

> **WARNING: Danger to life due to electric shock. An electric shock can result in death or severe injuries. Before working on the unit, disconnect the unit from the mains power supply! The use of an external contact as a shutdown method for under pressure monitoring is not permissible!**

Danger to life due to electric shock.

An electric shock can result in death or severe injuries.

□ Before work on the unit, disconnect the unit from the mains power supply!

□ The use of an external contact as a shutdown method for under pressure monitoring is not permissible!

Monitoring systems are always integrated in the unit supply line (see wiring diagram).

1.11 Technical data

Please refer to the tables below for detailed technical information on the MultiPlexBox units:

125mm X 75mm MultiPlexBox Left and Right-handed. – 90001255, 90001256
Installation room requirements: 5-55°C <95 %
Range of application: 40-220 m³/h (precision +-10 m3/h)
Measurement accuracy: ± 10 m³/h
Pressure loss w/ open control damper: 6-79 Pa
Voltage/Frequency: 1~ 230 V~/50 Hz
Power consumption: max. 6 W
Protection category: IP40
Mains connection: 3 x 1.5 mm²
Connection control element: J-Y(St)Y 2 x 2 x 0.6 (max. 100 m)
Wiring diagram: Wiring Diagram 10
Dimensions: 1001 x 722 x 250 mm
Weight: 25 kg

125mm X 75mm MultiPlexBox Straight – 90001257
Installation room requirements: 5-55°C <95 %
Range of application: 40-220 m³/h (precision +-10 m3/h)
Measurement accuracy: ± 10 m³/h
Pressure loss w/ open control damper: 6-79 Pa
Voltage/Frequency: 1~ 230 V~/50 Hz
Power consumption: max. 6 W
Protection category: IP40
Mains connection: 3 x 1.5 mm²
Connection control element: J-Y(St)Y 2 x 2 x 0.6 (max. 100 m)
Wiring diagram: Wiring Diagram 10
Dimensions: 1040 x 722 x 200 mm
Weight: 25 kg

125mm X 125mm MultiPlexBox Straight – 90001258
Installation room requirements: 5-55°C <95 %
Range of application: 40-220 m³/h (precision +-10 m3/h)
Measurement accuracy: ± 10 m³/h
Pressure loss w/ open control damper: 6-79 Pa
Voltage/Frequency: 1~ 230 V~/50 Hz
Power consumption max: 6 W
Protection category: IP40
Mains connection: 3 x 1.5 mm²
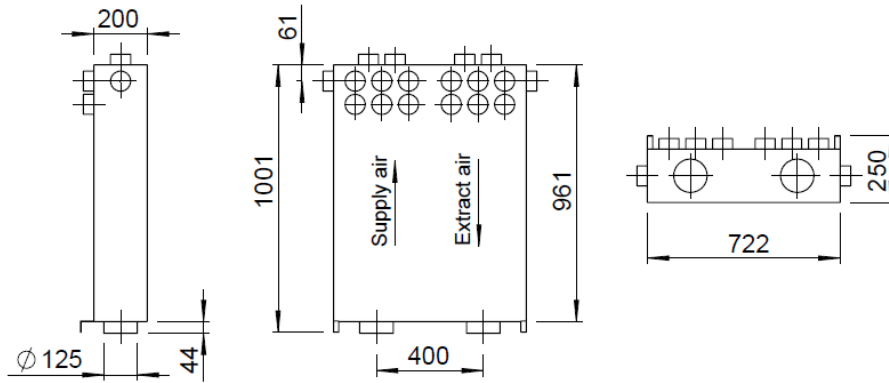**Connection control element**: J-Y(St)Y 2 x 2 x 0.6 (max. 100 m)
Wiring diagram: Wiring Diagram 10
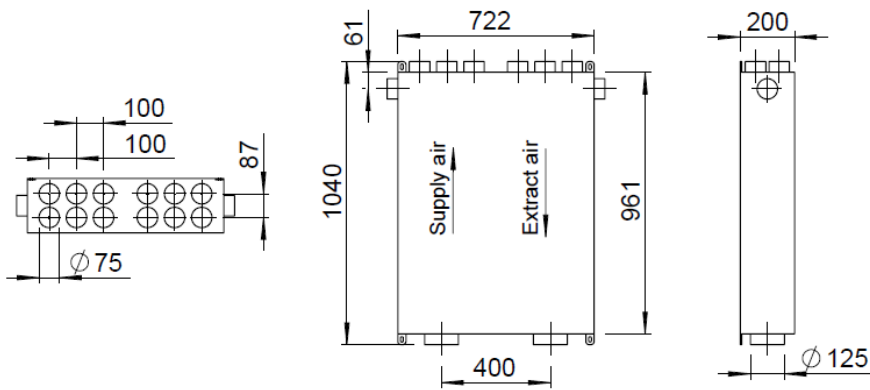**Dimensions:** 1040 x 722 x 200 mm
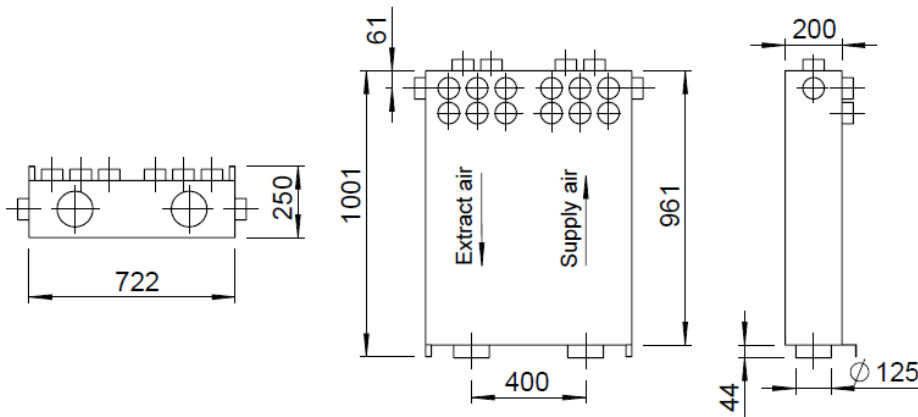**Weight:** 25 kg

Dimensions

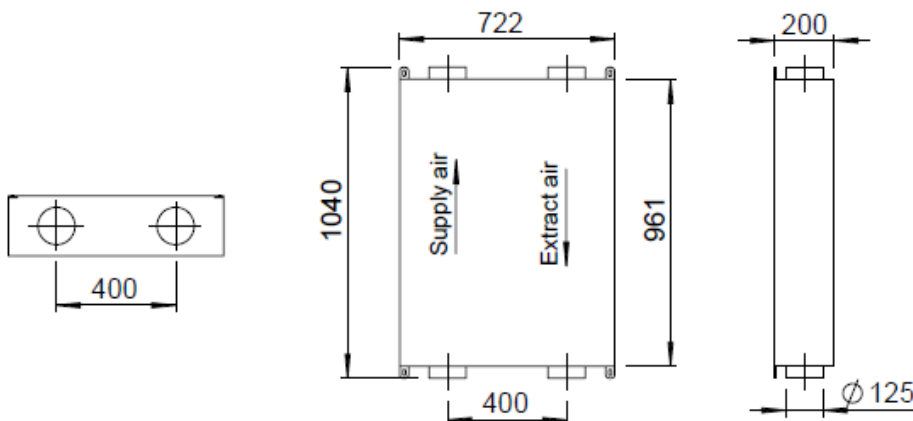MultiPlexBox Right 90° 125 mm x 75 mm – 90001255

MultiPlexBox Left 90° 125 mm x 75 mm – 90001256

MultiPlexBox straight through 75mm - 90001257

MultiPlexBox straight through 125mm – 90001258

1.13 Accessories

Please see below a list of compatible accessories for MultiPlexBox units.

ECO Element Controller - 90001253

Manual 4 level operation or automatic mode.

Touch Element Controller - 90001254

Manual 4 level operation, automatic mode, or weekly programme.

Connection Plate - 90001252

For suspended installation and suitable for concrete.

Connection set - 90001247

For connection of MultiPlexBox to the connection plate. Set consists of 12 individual connectors and mounting brackets.

Humidity + VOC Sensor - 90001249

For measuring the mixed gas concentration (VOC) and relative humidity.

Humidity sensor - 90001248

For measuring the relative humidity.

Duct Support Set 7 (7 pipes) - 90001250

For single-sided or double-sided connection of Airflex Pro.

Duct Support Set 13 (13 pipes) - 90001251

For single-sided or double-sided connection of Airflex Pro.

When using more than 61 l/s (219.6m3/h) of air, increased flow noise may occur. It should be checked whether a corresponding silencer must be provided on site. Existing fire protection regulations must be observed.

2. Installation

2.0 Assembly

The unit is designed for installation in internal rooms, onto walls or ceilings. The room temperature must lie above 5 °C. Narrow duct bends result in increased pressure losses and noise pollution. The ventilation pipes must never be kinked. Ensure the fixed and tight fastening of the connectors. The unit cover must be freely accessible for maintenance and installation work. Please ensure you reference the domestic compliance guide for proper duct installation.

2.1 Ducting installation

When designing the ductwork, use the shortest possible runs. Supply and extract air rooms must be defined in advance. Extractor hoods must not be connected to the system. Sufficient overflow openings (door gap, door grilles) as per building regulations are to be provided to ensure air circulation within the room. Shorten the duct parallel to the rings. To avoid leaks, the pipe must not be cut at an angle. The MultiPlexBox is prepared for the connection of 125 mm pipes on the inlet side. The supply air and extract air ducts in the rooms are designed with 75mm Airflex Pro round pipe. The outlet side connections are also 125mm for the 125/125 Straight through version. The connectors are provided with dust covers. These must be broken out for the connection of air pipes.


2.2 General Installation

> **WARNING: Isolate the unit from the mains power supply before any installation work or opening the terminal compartment! The electrical connection must only be carried out by a qualified electrician in accordance with the relevant wiring diagram. Existing fire protection regulations must be observed!**

> **WARNING: An electric shock can result in death or serious injury.**
> **Isolate the unit from the mains power supply before working on the unit!**
> **Mains connection is provided via a plug connection. Mains connection must be provided with a cable cross section of 3 x 1 mm² or 3 x 1.5 mm² on site.**

2.3 Mounting

The unit can be vertically or horizontally mounted to the wall, a sloping roof, or the ceiling using the drilling attachment points indicated with arrows on figure 6. (see Fig. 6, 7,8, 9). The connection plate – 90001252 Is available for suspended and concrete installation.

Wall installation

Fig.6

Fig.7

Ceiling installation

Fig.8

Fig.9
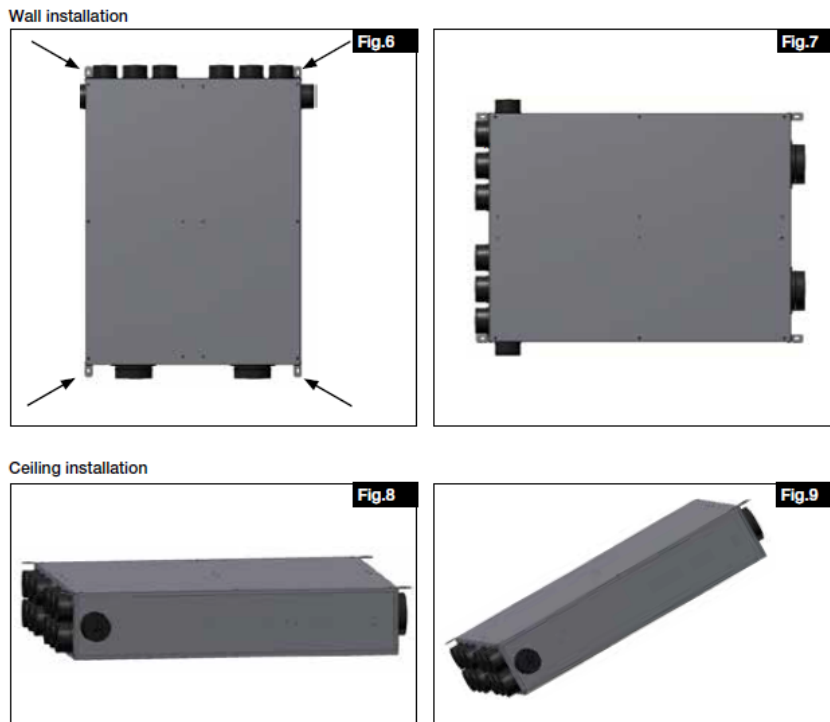
2.4 Installation of Sensors

Please follow this guidance to install the VOC and Humidity sensors.
1. Open the unit cover.
2. Clip the four plastic sleeves into the provided holes on the extract air side, e.g with flat nose pliers.
3. Attach the sensor board.
4. Insert the cable through the corner opening in and connect the sensor to the control board.
5. Close the unit cover again, ensuring all screws are returned and tight.

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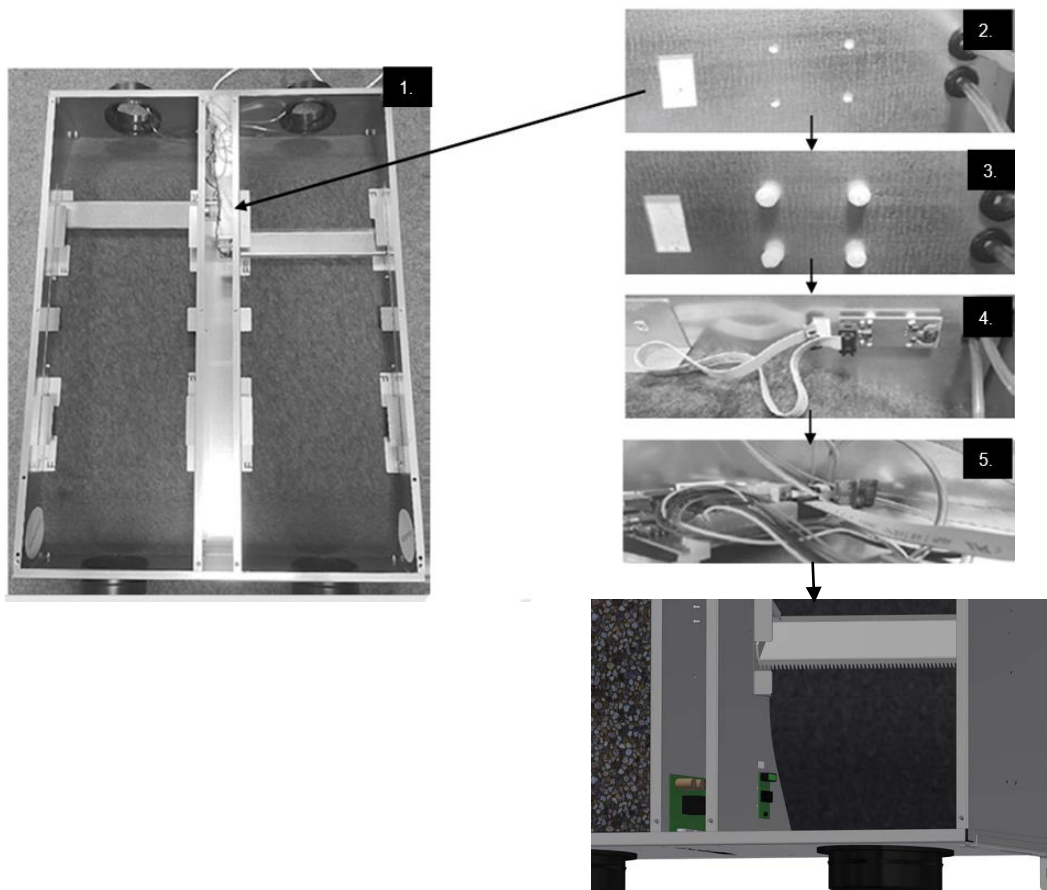
2.5 Installation of ducting

Refer to the step-by-step diagram, always ensure the seal is on the 3rd trough, never insert pipe at an angle. Make sure that pipe when bent is secured according to grooves displayed. Cut pipe at a 90˚ angle. Lubricant may be required.
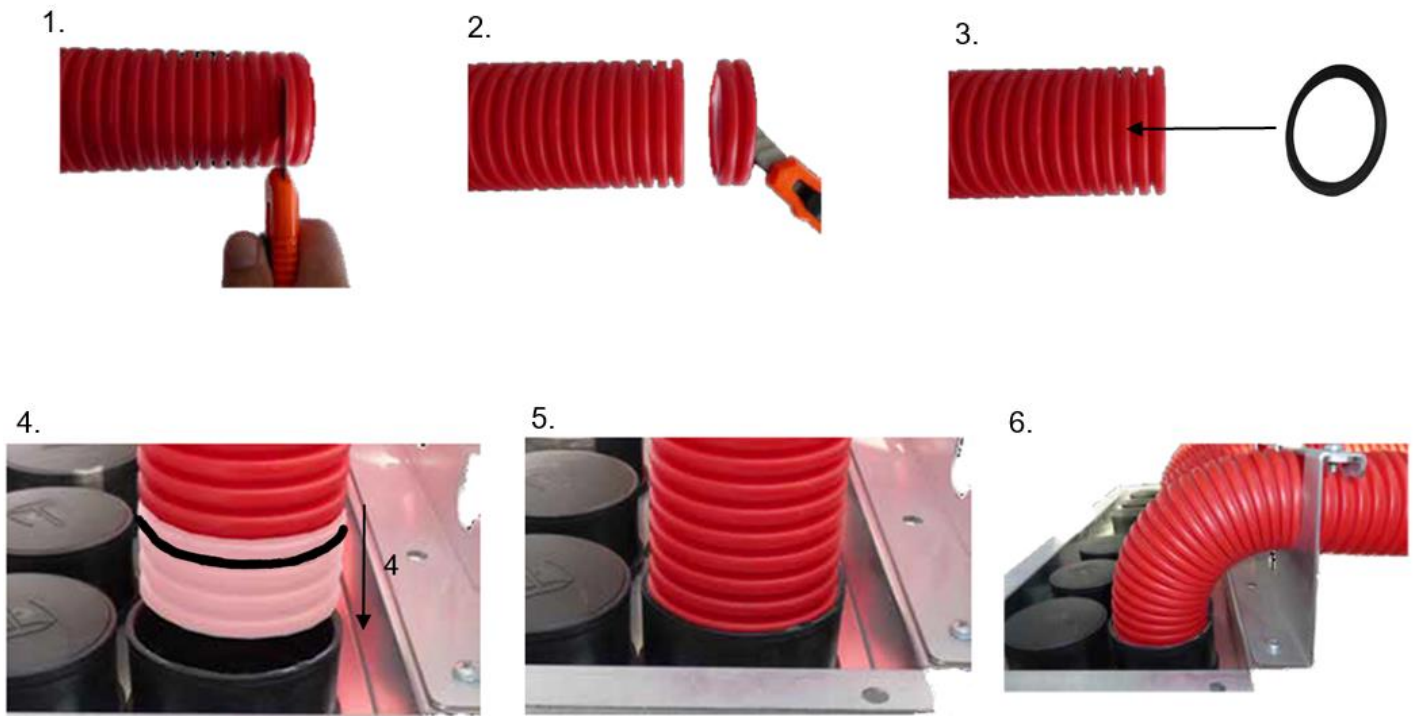
2.5.1 Installation without the connection plate

The unit can be installed with or without a connection plate depending on where it is being installed. (Ref no. 90001252) To install the duct, follow the steps below:

1. Drill the attachment points, insert suitable dowels, and prepare the units 4 fixing screws (suitable mounting brackets are attached to the unit when delivered).

2. Break out the seals from the spigots you require using a hammer, **leave the ones you do not need intact.** Be careful to not allow any plastic or waste to enter the unit as it can cause a malfunction or noise pollution. If this occurs remove the panel and take the debris out.

> **WARNING: Risk of injury due to the unit falling!**
> **The unit may fall and injure people when installed to the ceiling or wall. The unit must be mounted by at least two people and/or one suitable lifting device.**

3. Position the unit where it is required and attach with fixing screws using the 4 connection points on the corners of the unit. The unit can be precisely aligned or readjusted using the mounting brackets.

4. Establish duct connections to the central ventilation unit following the guidance provided on section 2.5 and referring to the diagram. Cut the pipes (Airflex Round) to length, wind up the sealing ring (to the 3rd ring on the ventilation pipe, apply lubricant and insert up to the stop in the connectors. The ventilation pipe and duct connections must be designed in such a way that there is no force effect on the MultiPlexBox connectors.

5. Lead the ducts to the unit spigots for each corresponding room. If necessary, shorten the AirflexPro pipe and insert up to the correct stop in the corresponding spigot. If necessary, use the additional, side spigots for the supply air and extract air for additional connections, if not, leave them intact.

2.5.2 Installation of the connection plate.

The connection plate (90001252) which is available as an accessory, is intended for suspended setting in a concrete ceiling. As well as this, suspended installation in a lightweight wall or ceiling is possible.
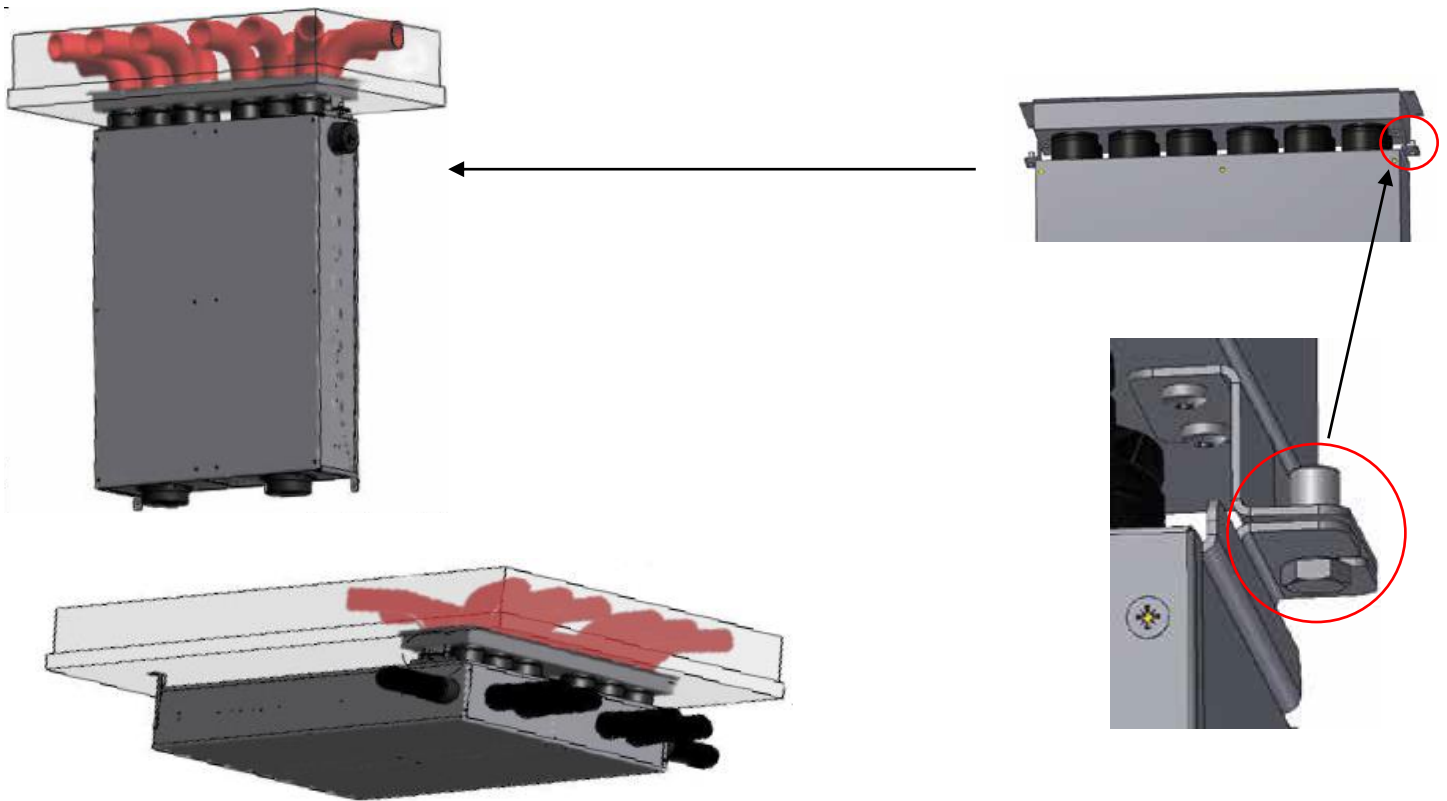
1. Place the adapter plate in the desired position on the formwork with the rubber seal, as specified in the construction plan. (If necessary, attach the duct support 7 or duct support 13 with the screws from the accessories kit). To prevent the construction or pipe from floating during concreting, the adapter plate can be attached to the formwork with nails. If a pre-made ceiling element (filigree ceiling) is used as a substrate, the opening should be made 6cm larger on all sides, so that the gap between the ceiling element and connection plate is optimally filled during concreting.

2. Remove the dust protection caps on the required connectors. Then shorten the Airflex Pro duct parallel to the grooves, insert a seal in the 3rd trough and insert up to the stop in the corresponding connectors.

The connectors only ensure a secure connection if the pipe has been shortened, the seal has been inserted and the pipe is pressed over the groove in the connector.

Installation WITH Duct support unit:

1. Loosen the two screws in the respective securing bracket of the duct support. Duct Support 7 or Duct Support 13 and release the securing bracket.

2. Bend the duct 90° and mount to the required duct outlet in the duct support set. Then fix the ducts with the securing bracket and insert the screws in the securing bracket.

Installation WITHOUT duct support units:

1. Bend the duct 90° and insert into the respective connector (do not forget the seal in the 3rd trough). Fix the ducts to the reinforcement so that it cannot be pulled out (reinforcing wire or similar).

Ensure the correct assignment of supply air and extract air, as this can no longer be changed!

2. Finished and correct concreting of the connection plate including Airflex Pro

2.5.4 Connecting the MultiPlexBox with the connection plate.

A. Plastic blanking caps

B. Mounting bracket with screws

C. Wide mounting bracket with screws

Once the concrete has set, remove the formwork and check that all pipe connections and insert nuts are clean, rework accordingly, if necessary.

> **WARNING:** **Risk of accidents and injuries during installation and servicing!**
> **At least two people and/or one suitable lifting device are required to install the MultiPlexBox.**

The connection set 90001247, which is available as an accessory, is required for the connection of the MultiPlexBox and connection plate 90001252.

Contents of connection set:

12 pcs plastic fitting

B. 2 pcs wide mounting bracket

A. 2 pcs narrow mounting bracket, incl. screws.

Please follow the step-by-step guidance on page 12:

1. Remove the dust protection caps on the required connectors.

Ensure that small parts do not fall into the MultiPlexBox, as this can result in faults or noise generation during operation.


2. Then insert the right number of plastic fittings from the connection set and lock into the connectors.

3. Attach the narrow mounting bracket **A** from the connection set to the connection plate on the left and right. The sealing strip on the edge of the connection plate can be removed.

4. Attach the wide mounting bracket **B** from the connection set to the MultiPlexBox. The casing screws are used for attachment. loosen the four casing screws and reattach with the mounting bracket. The factory-mounted mounting brackets can be removed in advance, if necessary!

5. Screw the connection screw from the connection set into one side of the connection plate and mount the MultiPlexBox here using the slotted hole in the mounting bracket. Then bring the mounting brackets together on the opposite side and attach with the second connection screw.

6. Now attach the MultiPlexBox using the two remaining attachment points (connection side ventilation unit / electrical connection side). Then check the tightness of all attachment points.
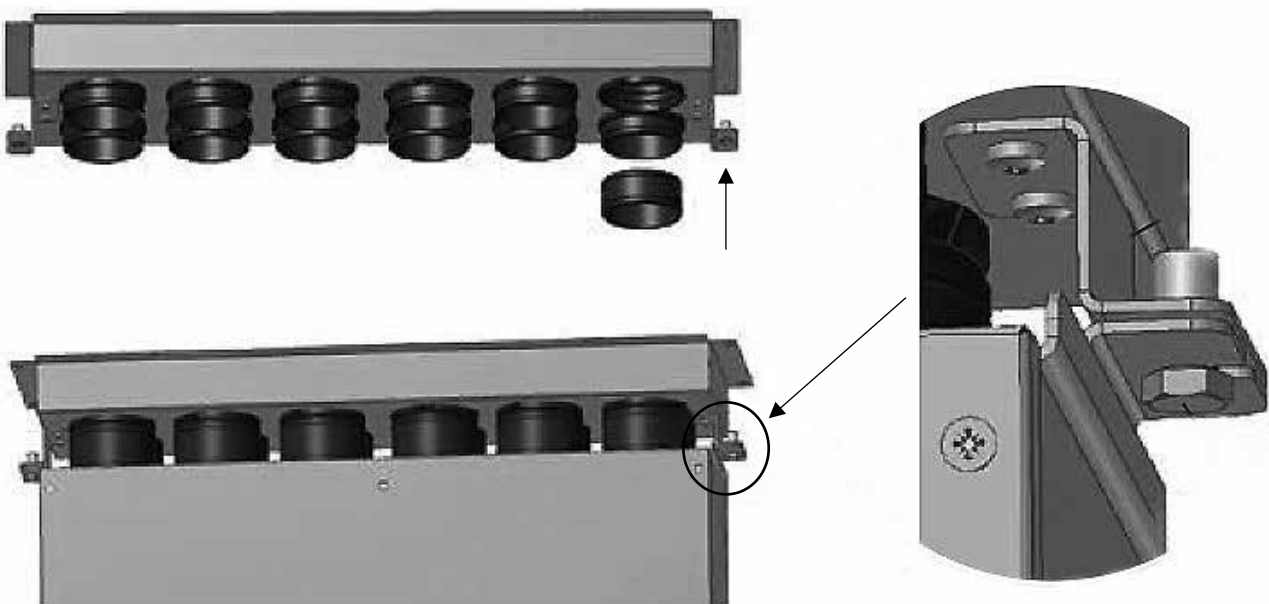
Attention! All accompanying items can be purchased from Airflow Developments. No warranty can be given for the use of third-party products.
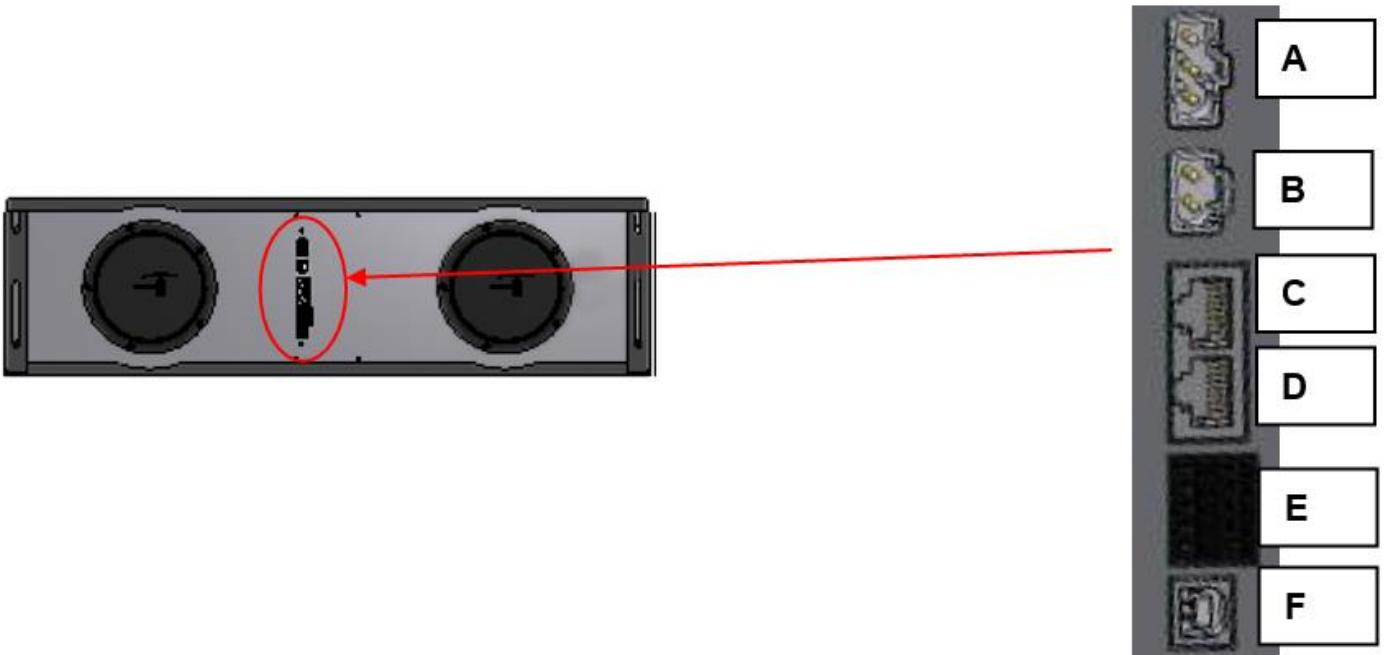
2.5 Electrical Connection

⚠️ **WARNING: DANGER TO LIFE DUE TO ELECTRIC SHOCK! An electric shock can result in death or serious injury! Ensure the unit is disconnected from the power supply, and switched off. This work must only be carried out by a qualified electrician.**

Isolate the unit from the mains power supply before any installation work or opening the terminal compartment! The electrical connection must only be carried out by a qualified electrician in accordance with the wiring diagrams. The relevant national standards, safety regulations and instructions as well as the technical connection conditions of the energy supply company must be

2.5.1 Electrical connection points
Refer to table below for reference to connection points on the MultiPlexBox control panel.

A. Mains Voltage (230 V AC)
B. Switching contact (potential-free max. 5 A)
C. Modbus A
D. Modbus B
E. Control unit
F. USB (PC connection)

Cables
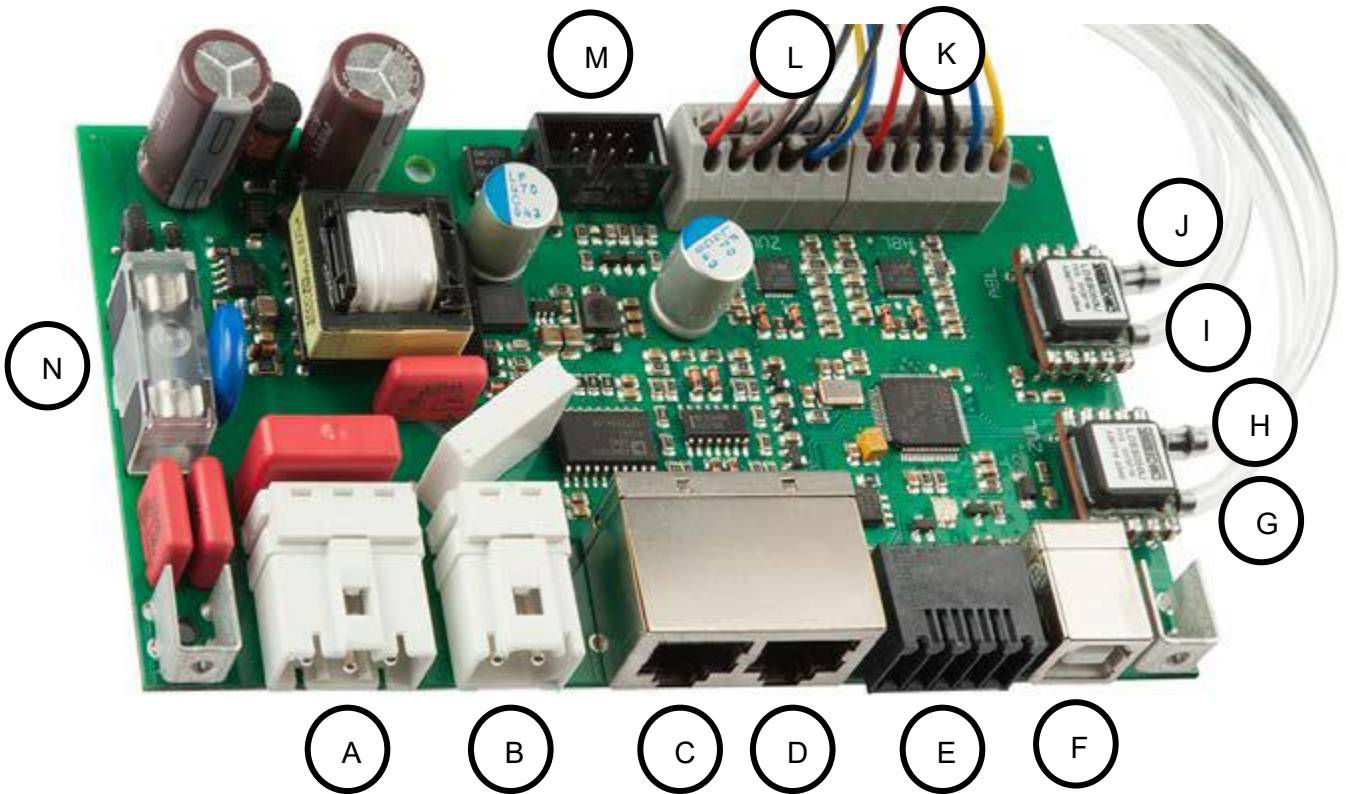The required cables to make the electrical connections.

Mains connection: 3x1.5 mm² or 3x1 mm²
Control Unit: signal cable J-Y (St) Y 2x2x0.6 (length max. 100 m)
Modbus: network cable CAT.5 or CAT.7 (length max. 600 m)
USB Cable

MultiPlexBox connections

G - Pressure Sensor supply air L	**K -** Exhaust air damper motor
H - Pressure Sensor supply air H	**L -** Supply air damper motor
I - Pressure Sensor extract air L	**M -** Sensor
J - Pressure Sensor extract air H	**N -** Fine fuse T 3.15 A

A - F see 2.5.1 Electrical connection points on page 13.

fuse
T3,15A

1: 12V   2: Input 1 Digital/0-10V
3: RS485 A   4: Input 2 Digital/0-10V
5: RS485 B   6: Input 3 Digital/0-10V
7: 12V BDE   8: T sensor PT1000/KTY81-110
9: GND BDE   10: T sensor PT1000/KTY81-110

Pressure sensor L H

Pressure sensor L H

RD BN BK BK BU YE

RD BN BK BK BU YE
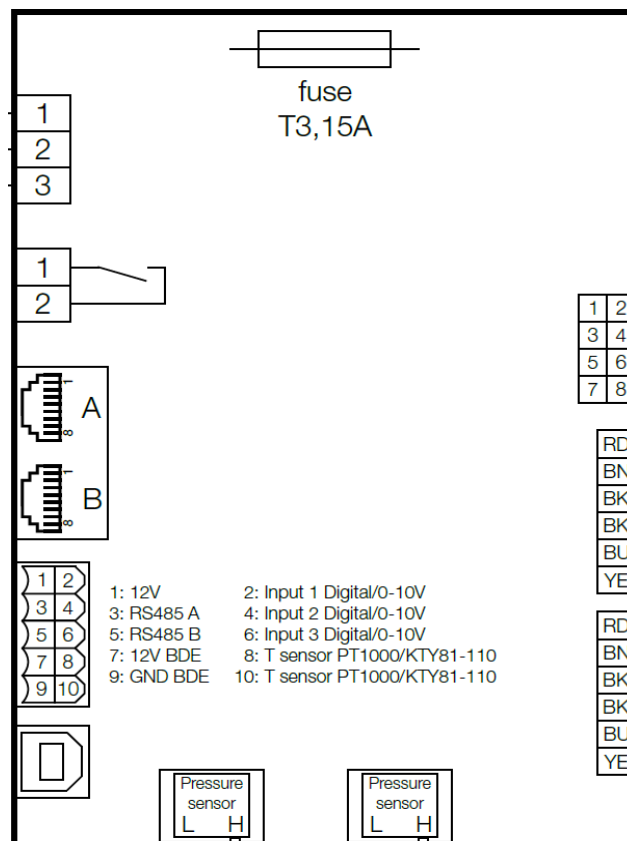
2.6 Controllers connections

When connecting the control units, note the labelling on the terminals. The terminal assignments for the ECO and touchscreen controller are different (see following figure).

ECO Controller connections
Please refer to the wiring diagram 1 for more instructions on wiring the ECO controller to the MultiPlexBox.

Please refer to the wiring diagram 1 for instruction on making the electrical connection.
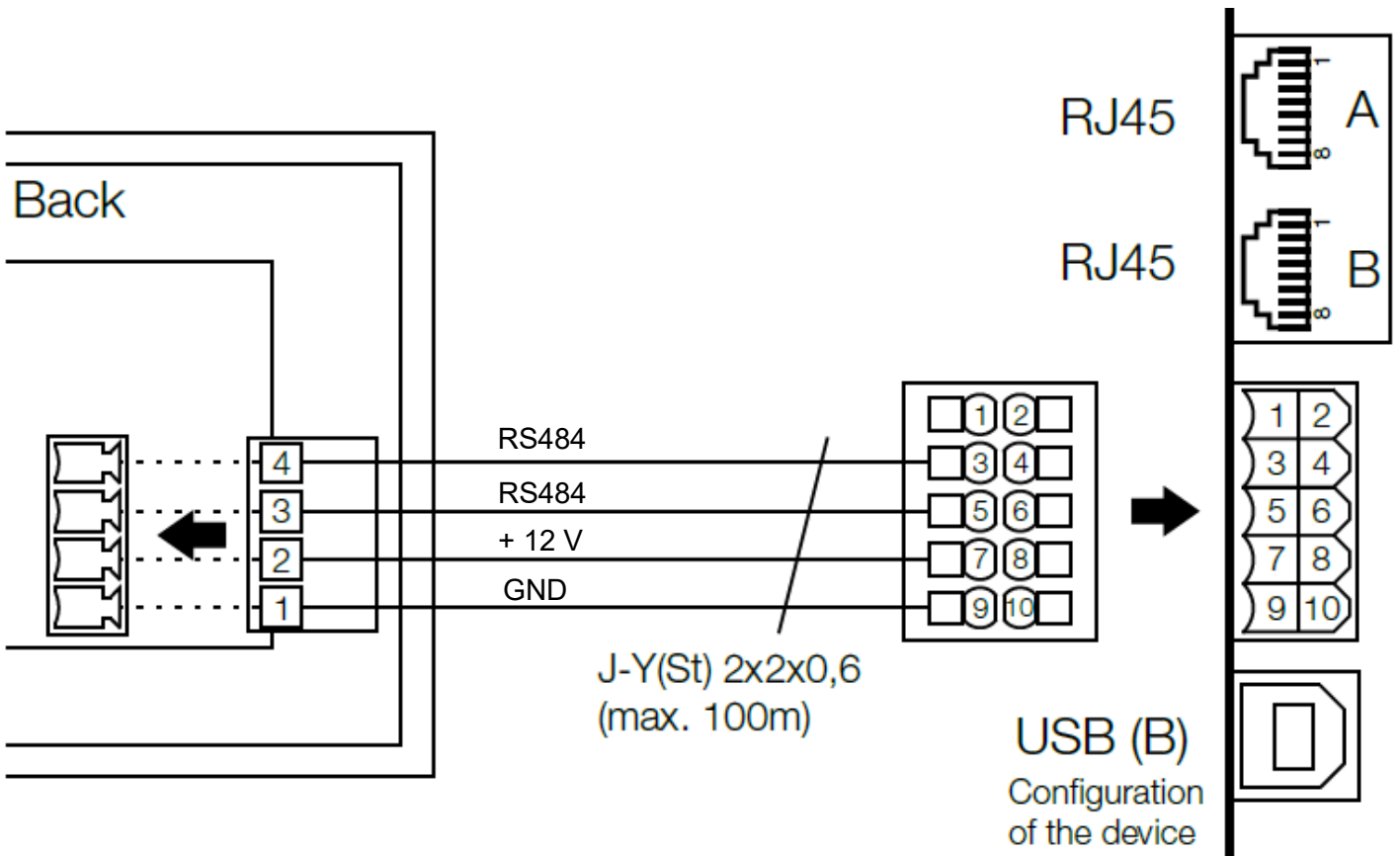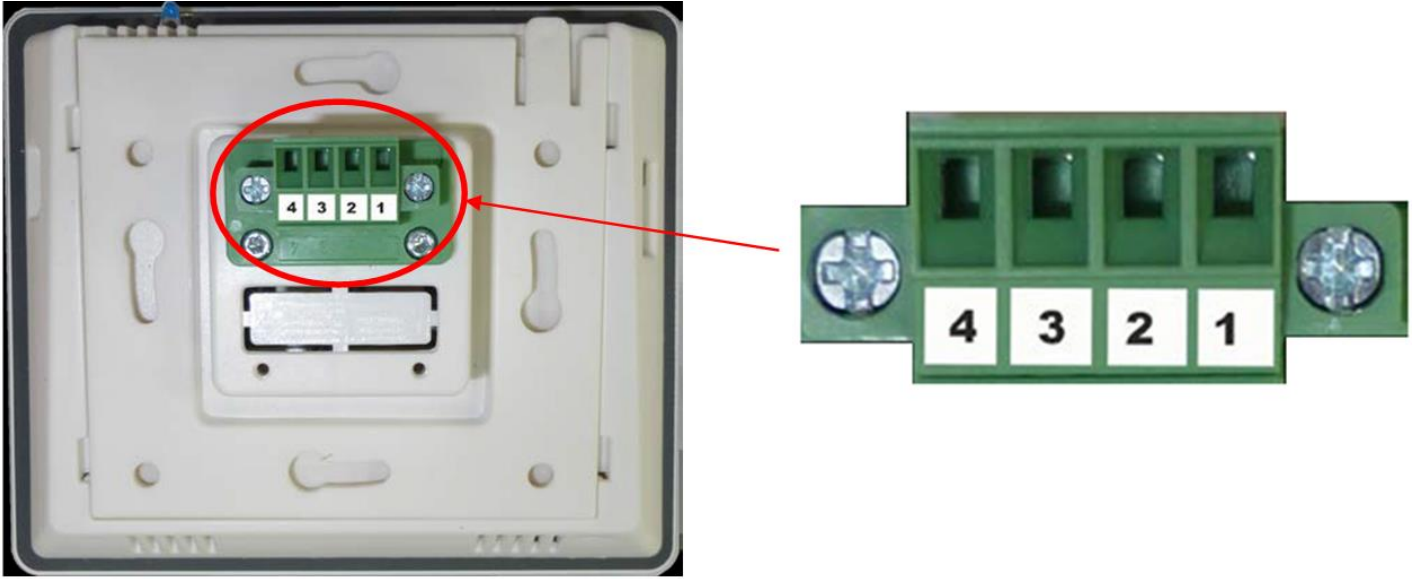

Diagram 1: Eco Controller

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Touchscreen Controller connections
Please refer to the wiring diagram 2 for more instructions on wiring the controller to the MultiPlexBox.

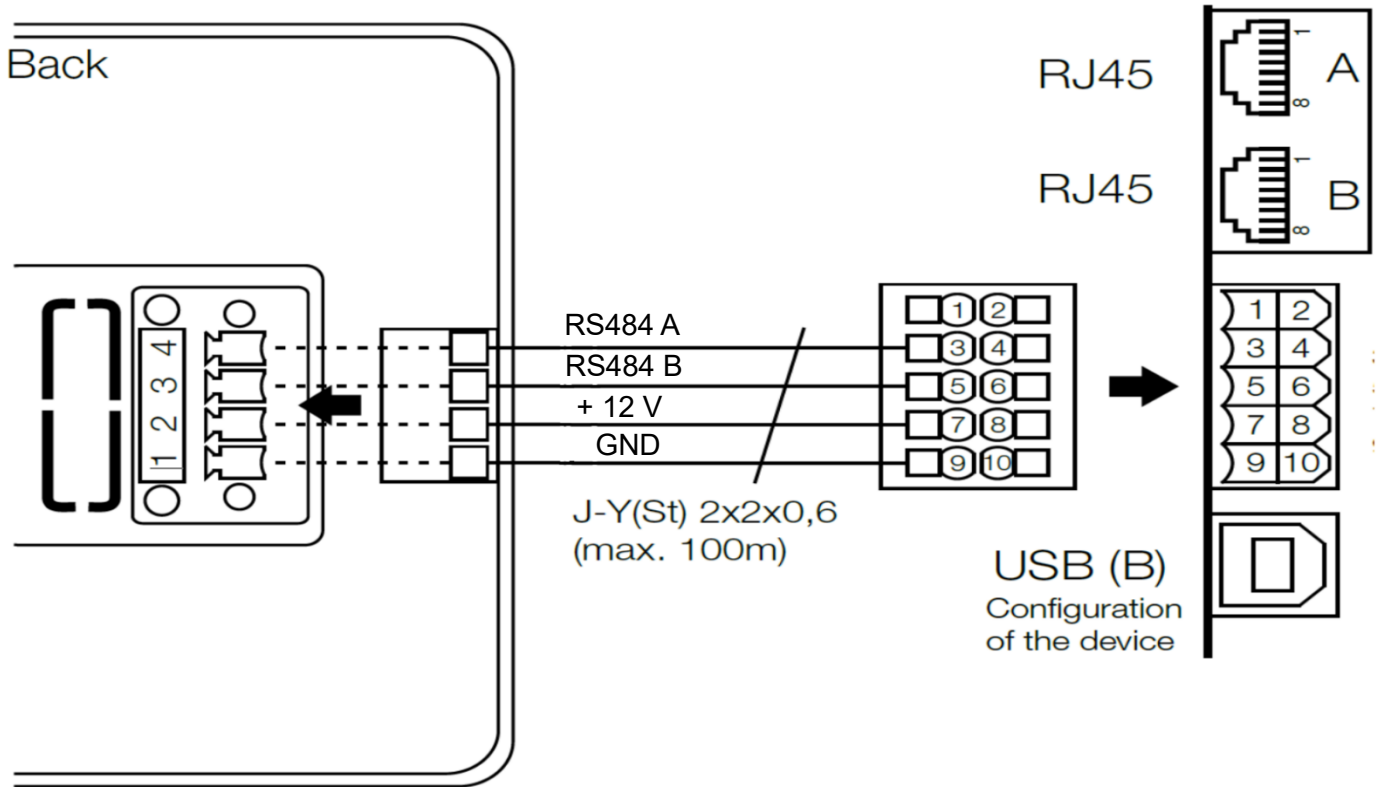Please refer to the wiring diagram 2

RS484 A
RS484 B
+ 12 V
GND

J-Y(St) 2x2x0,6
(max. 100m)

RJ45   A
RJ45   B

USB (B)
Configuration
of the device

Diagram 2: Touchscreen Controller

2.7 Optional Switching Functions

Optionally, project-specific special applications, such as switching/activating ventilation stages, automatic operation, fault, and other alarms and functions can be assigned to switches or buttons installed on the building or room. The MultiPlexBox allows up to three digital inputs with an "external" switch or button. Every digital input can (de)activate another function. These can be defined in the commissioning software. Please refer to the wiring diagram below:
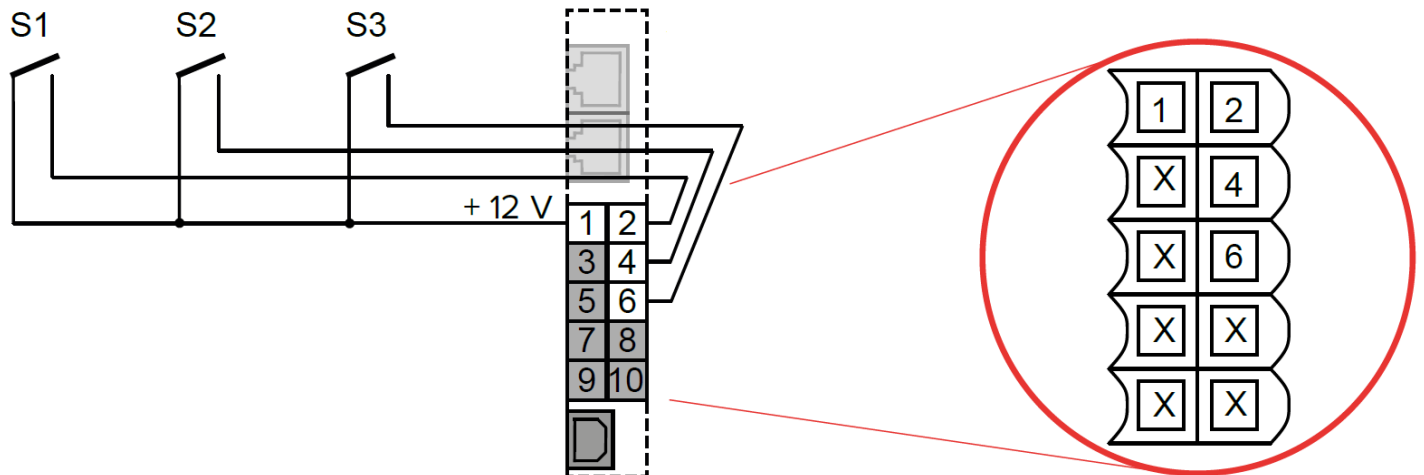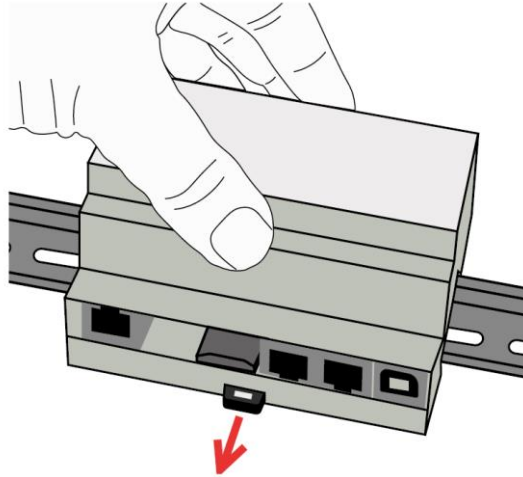

2.8 Assembling the Central Controller

This chapter contains important information for the assembly of the central controller and the establishment of network connections to the MultiPlexBoxes. The assembly may only be carried out by a qualified professional! Refer to the central controller manual for detailed wiring diagrams. Please take into account the below warning.

2.8.1 Fixing

The Central Controller is designed for installation in a housing or Control cabinet with hat rail provided. Mains power lines located near low-voltage lines and network connections may cause disturbances. Make sure that there is sufficient distance and use effective cable management techniques to avoid unintentional issues.

The housing is placed on the hat rail and hooked in. By pulling the locking mechanism (with a screwdriver), the housing can be removed again.

2.8.2 Removing and adding SD cards.

The firmware of the central controller is stored on the SD card. Before commissioning the central controller the SD card must be plugged in, this can be verified by a clicking noise. (see arrow)

Do not forcibly pull out the SD card! The SD card and the SD memory card socket may be damaged as a result.

> ### WARNING:
> **Failure to comply with regulations and warnings may result in serious injury or fatal accidents with which Airflow Developments cannot be held responsible for.**
> - **Assembly and maintenance work may only be carried out by a recognised person.**
> - **Observe the general health and safety and accident prevention regulations for all work as well as regulatory regulations and guidelines.**
> - **Follow all safety regulations, warnings, and instructions from the manufacturer in instructions and those of the utilities.**
> - **Use only tested and suitable working and protective agents.**
> - **Perform only work that is intended for you and perform it only if you can carry the work out safely and professionally.**
>
> *All work on electrical systems is life-threatening due to electric shock!*
> - **Electrical installations may only be installed by an approved electrical specialist, in accordance with the local regulations.**
> - **The device is maintenance-free - the case must not be opened.**
> - **During a thunderstorm, do not install the device or connect the line tucked or loosened.**
> - **Connect cables only to the sockets provided for this purpose and use only approved Accessories.**
> - **Before working on the ventilation system equipment, switch the device off**

2.8.3 Electrical Connection

The central controller is the interface between the modbus functionality of the MultiPlexBoxes, and the PC software installed on the PC connected to the central controller via USB. The electrical connection is covered in the central controller manual.

2.8.4 Required and optional accessories

Power connection: Installation cable 3x1.5 or 3x1
Control panel: Signal cable J-Y(St)Y 2x2x0.6 (length max. 100 m)
Modbus: Standard network accessories CAT.5 or CAT.7 with RJ45 connectors
(cable length max. 600 m, from the first to the last device)
LAN: Standard network accessories CAT.5 or CAT.7 with RJ45 connectors
**USB:** Standard USB cables (max. 3 m)

The electrical connection may only be carried out by an electrician with relevant recognised standards and in accordance with local regulation and guidance.

PLEASE REFER TO YOUR CENTRAL CONTROLLER MANUAL FOR THE ELECTRICAL CONNECTION AND WIRING DIAGRAM.

> **WARNING**: Danger to life due to electric shock! An electric shock can result in death or serious injury! Ensure the unit is disconnected from the power supply and free of voltage. This must only be carried out by a qualified electrician.

Refer to the below diagram for an overview of the connections of the Central Controller.
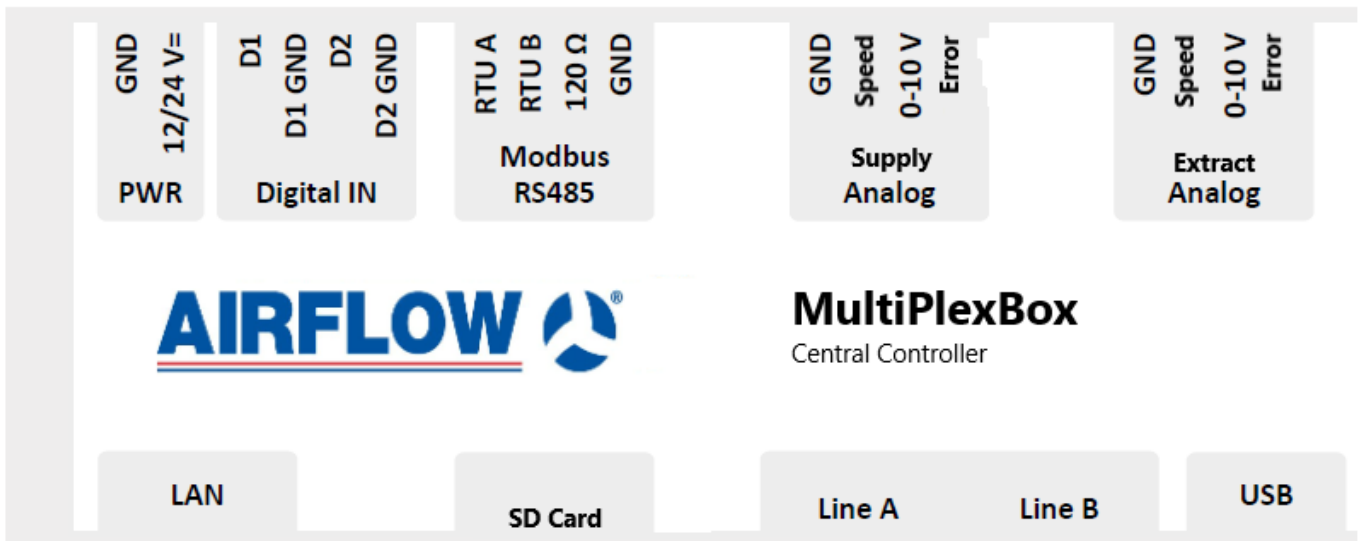
PWR (Power):
The Central controller requires a 12 V - 24 V DC voltage, this can be from the ventilation unit if applicable or a separate power supply.

Digital IN (Digital input):
This is for digital input into the controller.

Modbus
For the connection of the 120 Ω end resistors on the last unit in the network.

Supply and Extract

For connection of the 0-10V fan control function.

LAN

This is for the LAN connection.

SD Card

This is the location of the SD card connection.

Line A

Used to connect the Modbus network.

Line B

Used to connect the Modbus network.

USB

This is for the USB connection to the commissioning PC.

2.8.5 Connecting the Ventilation unit

The extract and the supply fans of the ventilation device can be controlled via the universal control with a 0 - 10V DC voltage. Connections for supply and extract air are facilitated through the respective supply and extract connections.

Attention! A parallel operation of the 0-10V fan control with a constant pressure control method is not possible.

Ensure that the connections are to the correct extract and supply fan in ventilation units with varying extract and supply connections.

2.8.6 Modbus Connection

There are two RJ45 jacks (Line A and Line B) that are used to connect the MultiPlexBoxes. Two 120 Ω end resistors are required, each of which is connected to the two ends of the Modbus (on the last device in the network). Details about network scenarios are provided in the following section.

If only the Line A port is used, the termination resistor must be plugged in. The second terminator is inserted into the last flat box of the Modbus.

If two Modbus lines are established, i.e. the Line A and Line B connections, the two terminator resistors must be placed in the last box of the Modbus line that was last plugged in. See also follow-up pages.

Up to 255 boxes can be networked via the Modbus. Use the CAT.5 or CAT.7 network cables. The maximum length of the Modbus should be 600m, from the first to the last device in the network. Do not exceed this.

MultiPlexBox Address List

In the appendix ("Annex - MultiPlexBox Address List") you will find a table in which you can document the device location and device addresses of the boxes during assembly. You can detach or copy the list or print it from a PDF (download).

Modbus Scenarios

On the next page you will see single and double series MultiPlexBox connections.

Series Connection:

Central Controller (Master)

MultiPlexBox (Slave)

120Ω Resistor

230 V

A
B

230 V

B
A

230 V

A
B

230 V

B
A

230 V

A
B

120 Ω

Modbus

B
A

230 V

24 V DC   2 x 0–10 V

LAN

Modbus

120 Ω

USB

Double series connection:

Central Controller (Master)

MultiPlexBox (Slave)

120Ω Resistor

120 Ω

120 Ω

230 V

230 V

230 V

230 V

230 V

230 V

Modbus

24 V DC

2 x 0–10 V

LAN

Modbus

USB
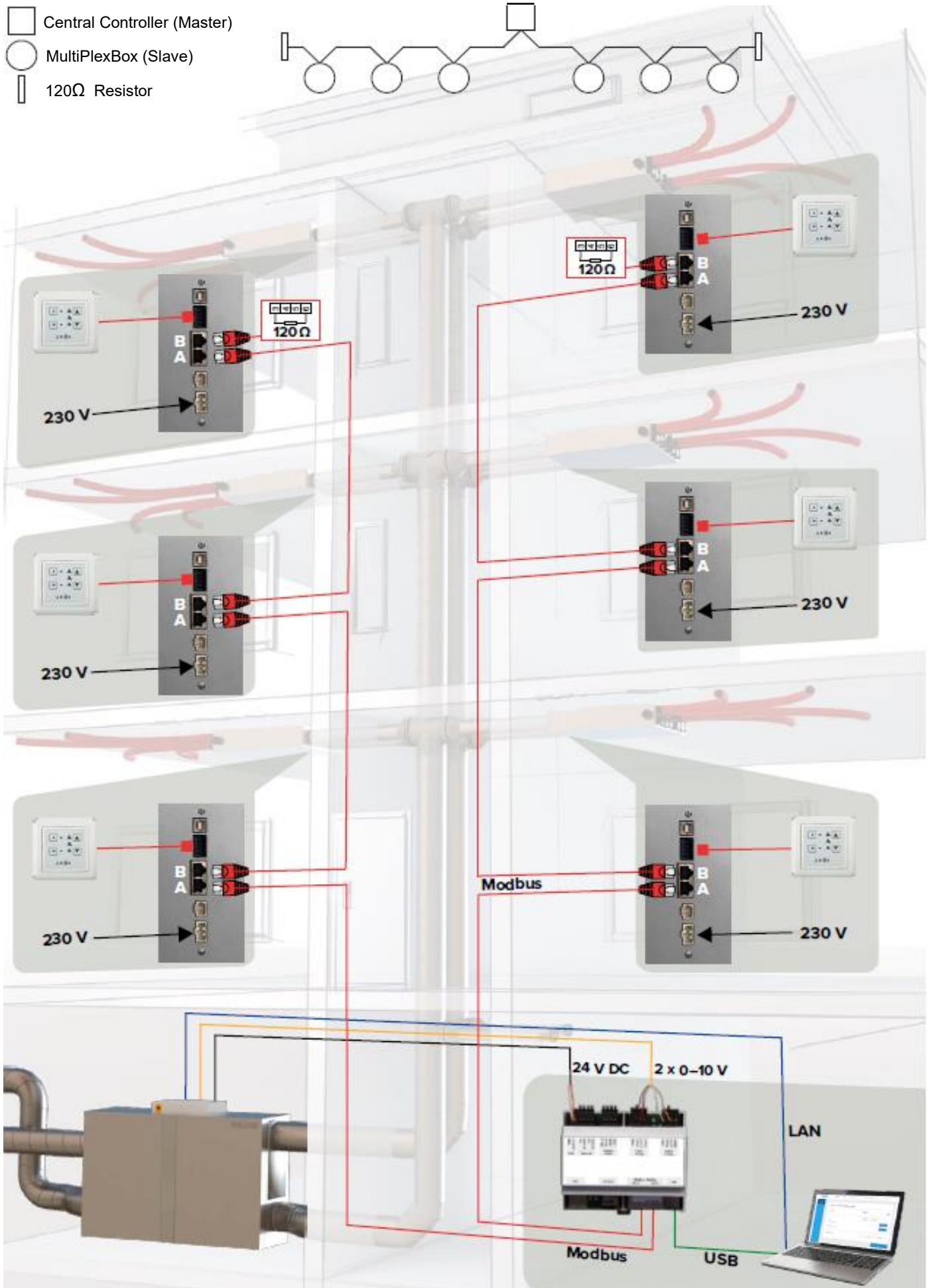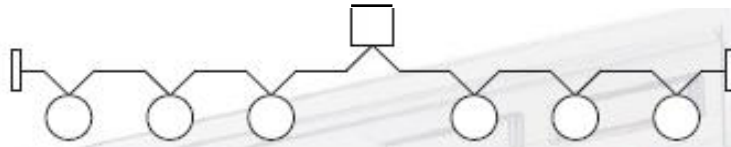
At both ends of the Modbus (on the last device) a bus termination (resistance 120 Ω) must be connected. In the event of problems on the network, primarily check the cabling.
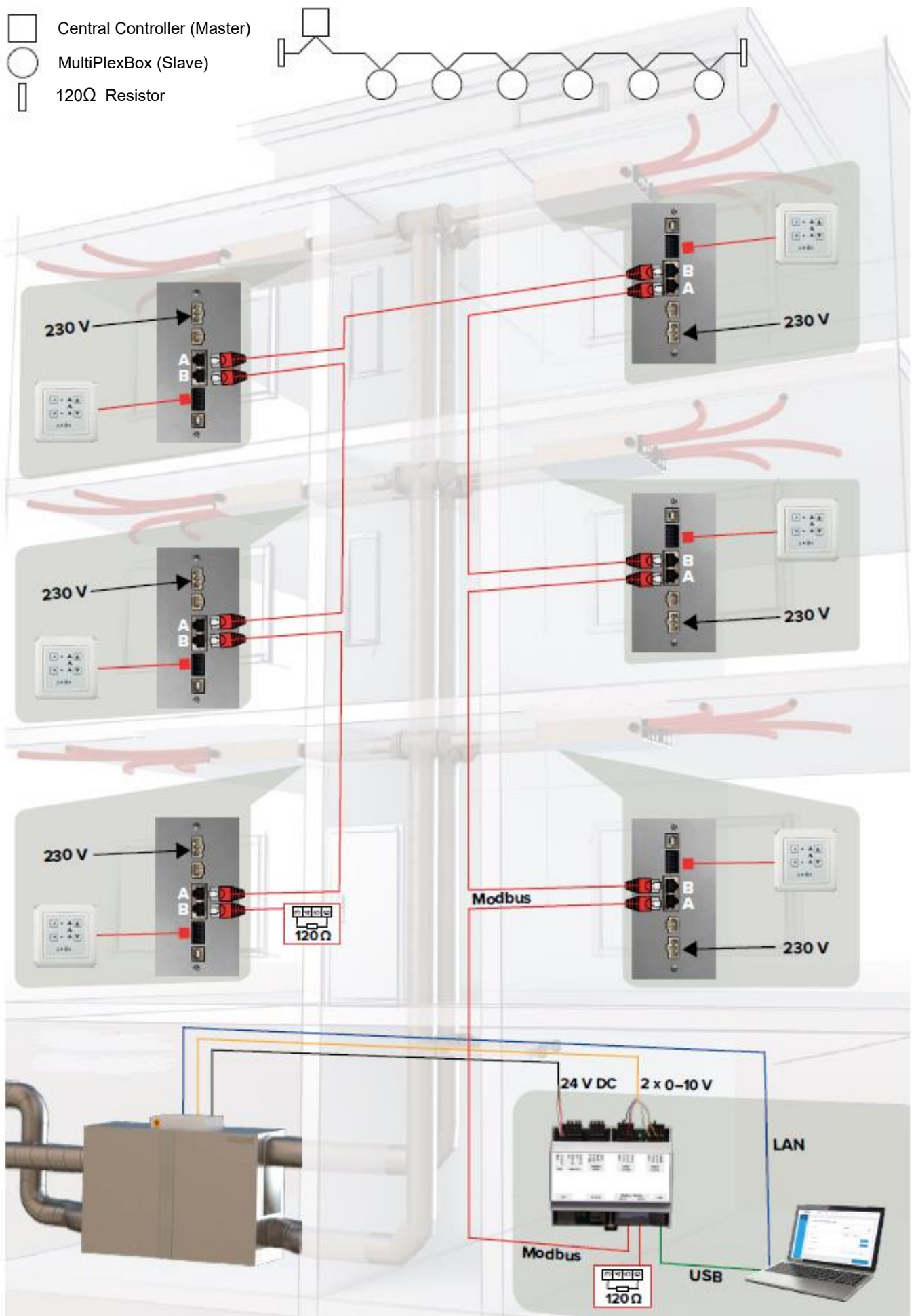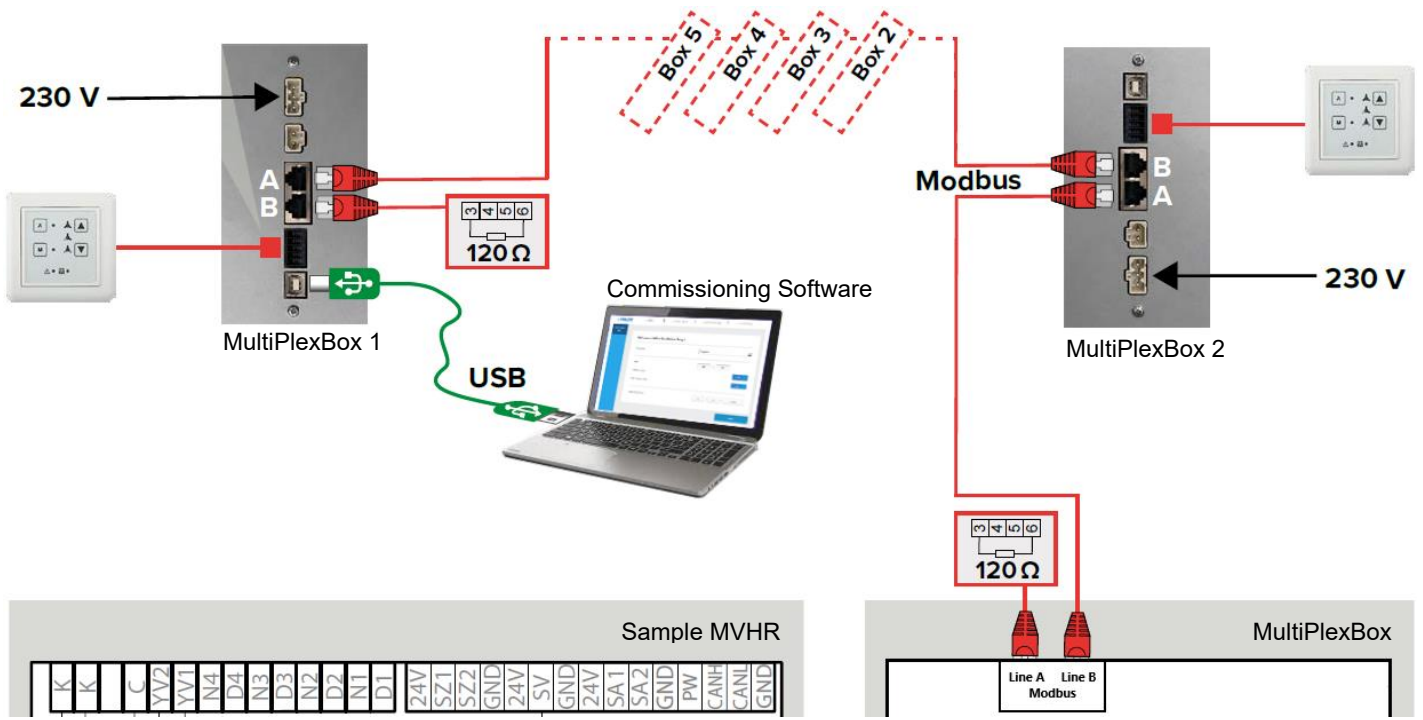

2.9 MultiPlexBox Address List

In the appendix (MultiPlexBox Address list) you will find a table in which you can document the device location and device addresses of the flat boxes during assembly. You can detach or copy the list or print it from a PDF (download).

All MultiPlexBoxes have a device address (Modbus address) between 1 and 255 pre set (see type plate "Address: xxx"). The device address can be changed if necessary; if there are two identical device addresses on the network, one of them must be changed. The device address can only be changed directly at the MultiPlexBox. By using device addresses that are as functional as possible, you can later shorten the search in the configuration software and reduce the time taken.

If you change the device address of a MultiPlexBox, it is important that you change the new device address. next to the type plate on the unit). Do not damage the type plate – this will result in loss of warranty!

Software

Download software at www.airflow.com - If a previous version is installed on the PC, it must be uninstalled before installation to avoid duplicate entries in the database. You must use this software to complete the install.

It is recommended you install the commissioning software on your laptop before the commissioning, this will allow commissioning on site without internet access. **Always update your software.**

3.0 Update MultiPlexBox Commissioning via update software
A component software update is required during the initial installation.

How to update your commissioning software:

1. Connect the Box to your PC using the USB connection.

2. Double click the desktop icon to start the "MultiPlex Update" software.

3. Click on the "*Establish connection"* button*.* Once the box has been found, all system information will be displayed (version, date of last update).

4. Click on the "*Select file*" button. This will open the file explorer and all available firmware will be displayed.

5. Select the MultiPlexBox firmware by clicking on it and confirm by clicking on "*Open*".

6. Start the update process by clicking on the "*Start*" button. The update process may take a few minutes and the status is displayed by green bars. This will be displayed in the software after completing the update.

Now you are finished and can end the "MultiPlex Update" application.

3.1 Commissioning Software Layout

The paths to each menu and its contained submenus are displayed in table 2 Software Overview at the bottom of this chapter. Each "main menu" contains submenus and options. Please see below a summary of the main menus and their function:

3.1.1 Current Values Menu

The current values menu allows you to view the values of the unit you are currently connected to. In this menu you can find the options to adjust the Ventilation rate, check your sensor values, check your firmware version, and check for possible errors.

3.1.2 Configuration Menu

This will allow you to configure the MultiPlexBox. In this menu you will find the options for naming the unit, setting its location, its unit address, what controller it uses and its desired function switching contact.

3.1.3 Saved Settings Menu

This menu allows you to save and load your set values. This way you can configure a MultiPlexBox for one area, and if you have another to configure for an identical area somewhere else, you can quickly load the configuration on your laptop hard drive without having to configure it multiple times.

It is recommended saving via the function "Save to file" before any firmware updates.

3.2 Submenus

This section contains each submenu under each main menu listed in section 3.1.3 and its function.

3.2.1 Current Values Submenus

- *Ventilation*

For viewing the current ventilation level, setpoint and actual values for supply and extract air as well as the respective shutter position here.

- *Sensor*

You can view the current measured sensor (Humidity, VOC) values here.

- *Firmware Version*

View the installed firmware version.

- *Errors*

View the current error status of the box and the error history for the last 5 detected errors.

3.2.2 Configuration Submenus

- *Unit Name*

You can enter a name for the unit eg "Apartment 3" for easy identification

- *Unit Info*

You can enter further information eg "Block 4" or "Building 1" for easy identification

- *Unit Address*

Allows the entering of a number address of the unit between 1 to 225 (this is only required for control via the central controller)

- *Control Element*

Here you can select which control element you have connected (default: "No controls")

- *Function Switch Contact*

This is used for special functions such as the detection of collective alarms.

- *Minimum Ventilation Level*

You can determine whether the box completely closes the air dampner to block air or simply to reduces to run on basic ventilation level

- *Basic Ventilation level*

Set the value for the basic ventilation level volume flow here

- *Ventilation Level 1*

You can enter the calculated reduced ventilation value here.

- *Ventilation Level 2*

You can enter the calculated normal running value here.

- *Ventilation Level 3*

You can enter the calculated boost level here

- *Adjust volume flow for supply and extract air levels 1-3, basic*

This allows you the option to make an air volume flow adjustment within the different ventilation levels. You can input an increase or decrease in airflow from the setpoint airflows to the actual unit airflow from this menu.

- *Duration Ventilation level 3*

Input a time where the set ventilation level 3 is switched back after the time expiry. The max setting Is 240 minutes.

- *Selection*

This is where you can select which sensor you have connected to the unit: Humidity or VOC

- *Sensor Sensitivity*

Sensor Sensitivity for automatic operation, this allows you to change it from low, medium to high.

Sensor Values			
Sensor	Low	Medium	High
Humidity (% RH)	50 60 70	45 55 65	40 50 60
VOC (ppm)	900 1200 1500	600 800 1000	500 700 900

Table 1: Sensor Values

- *Service level*

This is only intended for operation by the Airflow Developments service team.

3.2.3 Saved Settings

- *Load from file*

Allows you to load your saved configuration from your windows file explorer.

- *Save to file*

Allows you to save the settings for your box using the windows file explorer.

The below table (*table 2*) is displaying the layout of the commissioning software from the 3 main menus and their respective submenus as well as the values that can be inputted in each submenu.

1st Menu ➡	Submenu
Ventilation	Ventilation Level
	Set Supply air volume
	Set Extract air volume
	Supply Air Volume
	Extract Air Volume
	Damper Position Supply
	Damper Position Extract
Sensor	Humidity (RH)
	Air Quality (VOC)
Firmware Version	Main Version
	Side Version
Errors	Current Error
	Error History

1st Menu: Configuration ➡	Submenu ➡	Values
Unit	Unit Name	Value
	Unit Info	Value
	Unit Address	Value
	Control Element	No Control
		Basic Controller
		Digital Controller
	Function Switch Contact	Deactivated
		Collective alarm
		External Error
Ventilation	Minimum Ventilation Level	Ventilation level 0
	Basic Ventilation	Basic Ventilation
	Ventilation level 1	Value Input
	Ventilation level 2	Value Input
	Ventilation level 3	Value Input
	Adjust Volume flow supply basic	Value Input
	Adjust Volume flow supply air level 1	Value Input
	Adjust Volume flow supply air level 2	Value Input
	Adjust Volume flow supply air level 3	Value Input
	Adjust volume flow extract air basic	Value Input
	Adjust volume flow extract air level 1	Value Input
	Adjust volume flow extract air level 2	Value Input
	Adjust volume flow extract air level 3	Value Input
	Duration level 3 ventilation	Value Input
Sensor	Selection	No Sensor
		Humidity Sensor
		Air Quality Sensor
	Sensor Sensitivity	Low
		Medium
		High
Service Level		

Main Menu: Saved Settings
Load from file
Save to file

Table 2: Software Overview

1.   Commissioning

This chapter contains instructions on how to commission the MultiPlexBox.

4.1 Conditions for commissioning

Please ensure that the following conditions are met before attempting to commission the unit:

- The ventilation unit is set to constant air volume and calculated total air volume.
  For this purpose, follow the information in the operating instructions provided with your ventilation.
  system. **The ventilation level of the ventilation unit must not be changed during commissioning.**

- Ensure your duct network is ready by:

  Checking the ventilation pipe network in the building is fully installed, all inspection openings are closed and the duct network meets the hygiene and cleanliness requirements as recommended. A contaminated duct network can lead to ventilation component malfunctions!

- The MultiPlexBox is connected to the mains power supply. The MultiPlexBox requires an external power supply.

- All valves are mounted and completely open.

- Ventilation airflow calculations are prepared for the connected unit and building.

- All ventilation components are freely accessible.

- In your possession must be a laptop with a free USB A port and USB cable (A to B) and an installed copy of the MultiPlexBox software package. A laptop/tablet with USB A output or corresponding adapter is required for the commissioning. One USB A to B cable is also required (recommended length min. 2m, depends on installation situation).

4.2 Adjustment and Measurement

1. Check in advance that all the conditions for commissioning are met

2. Set the volume flows in the different ventilation levels (see section 3.2.2)

3. Select the desired ventilation level you would like to adjust to (see section 3.2.2)

4. Wait until the system is stable before beginning measurement of airflows. (At least 15 minutes)

5. Measure and add up the volume flows of all supply and extract air valves in the selected operating level.

6. Calculate the difference from the measured volume flows to the entered setpoints (setpoint-actual = difference).

7. Enter the values (positive or negative) for supply and extract air below the measured level under "Adjust".

8. Wait until the system has stabilised and repeat the measurement. (in case of further deviation, add the deviation value to the set value, allow time to stabilise and repeat the measurement, if necessary).

9. Then set the respective calculated air volumes at the valves.

4.3 Errors

The error status of the box is displayed via the control elements with the error indication on the display of the Touch Element controller or via flash codes LED for the Eco element controller.

The individual error codes can be found in the operating instructions for your control panel.

The error status can also be retrieved using the configuration software under current values. The meaning of the individual error codes can be found in the following table.

Description	Solution
USB Connection not possible	Check that the USB cable is correctly connected. Check that you have Laptop admin authorisation to connect external USB devices on the laptop. Check that the unit is displayed in file explorer. If necessary, restart the MultiPlexBox (disconnect power supply, wait approx. 1 minute, reactivate.)

Table 3: Software Errors

4.4 Practical Tips
Tips for helping with the management of your unit.

- **Apartment types can be created and saved.**

In case of a building with multiple identical residential units, the saved data can be easily loaded and the copy function enables configuration within seconds.

- **Connection to a Central Controller:**

If the Multiplex Boxes are connected to a Central Controller, it is recommended to number the boxes consecutively, starting with Address one. This simplifies the search for individual boxes via the Central Controller and helps to save time.

- **Install the software for later.**

Airflow Developments recommends installing and updating the MultiPlexBox software before arriving on site as you may not have the internet access to do so which will leave you unable to commission the unit.

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