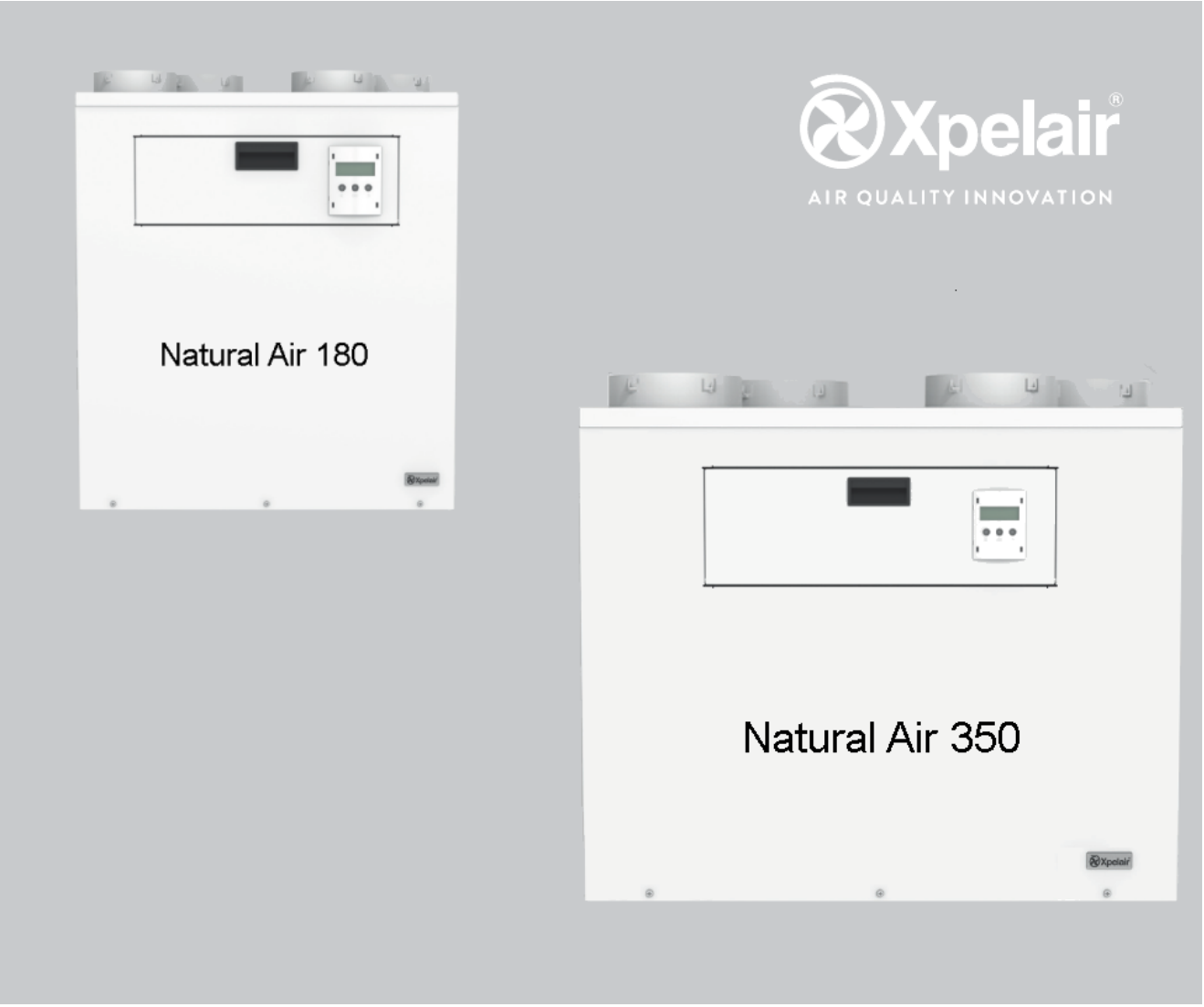


Natural Air
Natural Air PH
Natural Air Plus
180 and 350 Models

Ventilation Unit With Heat Recovery

Installation manual

IMPORTANT:
In this installation manual, especially important notes are marked as WARNING! or NOTE!

Contents

Section 1 – Important notes

In this user manual, especially important notes are marked as WARNING! or NOTE!

WARNING:
Warnings against hazards and errors that can cause severe or fatal injuries or can have serious consequences for the product.

NOTE!
Useful notes and additional information.

This Installation Manual forms part of the ventilation unit and must be kept readily available at all times. For the installer this manual must be used in conjunction with the User Manual. Both must be handed to any technicians carrying out work on the unit and must be handed over to the new tenant when moving home.

1.1 Intended use

This ventilation unit is intended exclusively for the ventilation and exhaust ventilation of rooms within a property. It must be installed in a frost-free interior room only.

Any other use and any use exceeding the design limits is not permitted. Any improper use can damage the unit and can cause severe hazards.

The unit must not be altered or modified. The unit is guaranteed safe to use in accordance with these instructions. The instructions in this Installation manual and in the corresponding User manual must be observed.

1.2 Safety instructions

Failure to observe the safety instructions can cause hazards to the user as well as to the unit and will invalidate the guarantee.

1.2.1 Installation

The ventilation unit must be installed by a qualified technician in accordance with this Installation manual.

The unit must be installed in a frost-free environment with good access and sufficient space for carrying out any necessary maintenance or repair work. Two condensate hoses are required and must be correctly taken to a drain in order to avoid any electrical hazards and any damage to the building. The unit must not be installed where corrosive or inflammable gases can enter the unit, or where harmful pollutants can affect people or put people at risk. All applicable fire regulations must be observed and complied with. Connecting exhaust hoods to the ventilation unit is not permitted.

The unit must be installed by a qualified technician in compliance with all applicable standards and local regulations, as well as in accordance with the Installation manual.

WARNING:
Before starting any work on the unit, the power supply must be isolated in order to prevent any electrical hazard.

Install and secure the mains cable through the cover cable gland. Ensure that the bare cable ends are correctly and tightly secured into the mains supply terminal block.

Any setting up and programming must be carried out by a qualified technician in accordance with the installation instructions.

1.2.2 Open Flue installations

Using the ventilation unit together with fuel burning devices (e.g. fire places, gas stoves) is subject to special requirements.

WARNING:
It must be ensured that the unit is correctly set up so that no open flue gases are drawn back into the room. All applicable national and regional guidelines and regulations must be observed.

1.2.3 Start-up, use, interruption

The completed installation must be tested to ensure the unit works correctly. The user must read the User manual in order to understand the procedures for use and maintenance.

WARNING:
The unit contains rotating fans. Do not put hands or fingers or any other objects into the unit or ducting as this may cause injuries or damage to the unit.

1.2.4 Maintenance, repair, spare parts

In order to ensure continuous safe operation, the ventilation unit must be maintained regularly. Any maintenance and repair work other than cleaning or changing filters must be carried out by a qualified technician. Before opening the unit, turn off all associated circuits and secure against unintentional switching-on. Use only original spare parts from the manufacturer.

1.2.5 Alterations and modifications

Always consult a qualified technician if any alterations or modifications to the unit or system are required. Structural changes to the building can also have an effect on the ventilation system: Always consult a qualified technician.

Section 2 – Description of the Device

2.1 Purpose

The unit is designed for controlled supply and exhaust ventilation of frost-free rooms within a building.

Model 180 Series is used for domestic properties with 1 kitchen and up to 3 additional wet rooms (K + 3).
Model 350 Series is used for domestic properties with 1 kitchen and up to 7 additional wet rooms (K + 7).
("Wet rooms" include bathrooms, toilets, ensuites, etc).

The air flows through air ducts.

Connecting exhaust hoods to the ventilation system is not permitted. The unit is not to be used as a dehumidifier.

2.2 Package contents

The unit is delivered with the following package contents:

- Ventilation unit with integrated control panel
- Condensate connection kit
- Installation manual and User manual

2.3 Operating principle

The unit is fitted with two fans using energy-saving "EC" technology which carries out a controlled air exchange.

Used air is drawn in to the unit as Extracted air from the rooms with the highest air humidity and odour (e.g. bathroom and kitchen) and is transferred to the outside as Exhaust air via a system of air ducts.

At the same time, a second duct system takes in Fresh air from outside the building and transfers it into living rooms and bedrooms as Supply air.

Both air flows are completely separate and are passed through a heat exchanger which recovers the waste heat from the extracted air to warm up the supply air. This ensures that the majority of heat energy is kept in the building.

An internal bypass can be opened so that fresh air is supplied to the intake rooms without being warmed up by the heat exchanger. Heat recovery is disabled in this case.

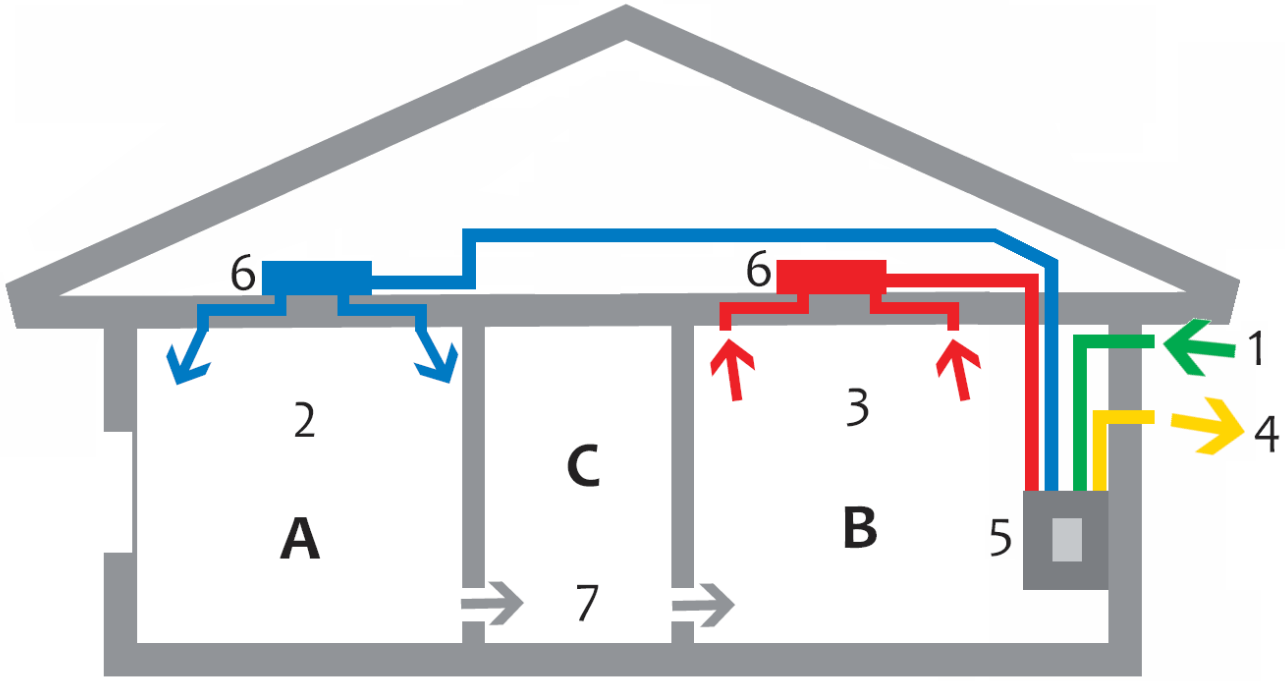


Fig. 2.1 Supply-air/extract-air system with heat recovery

1 Fresh air*	6 Air diffuser
2 Supply air	7 Air transfer opening
3 Extract air	A Supply-air area
4 Exhaust air*	B Extract-air area
5 Ventilation unit	C Air transfer area

NOTE!
* Outside installation points for the Fresh Air intake (1) and the Exhaust Air outlet (4) MUST be sufficiently far enough apart to prevent the exhaust air being drawn into the property through the Fresh air duct. (No “re-circulation”).

Halls and corridors normally act as transfer areas in which the air from the supply areas flows into the extract areas. Undercut doors and air transfer grilles are used so that the air flow between rooms is not restricted.

Where fitted, a radial air-duct system with direct pipe routes between air diffusers and supply air/extract air valves:
• Simplifies the balancing of volume flow rates and pressures
• Prevents sound transmitting from adjacent rooms
• Makes cleaning easier, due to direct pipe routes

2.4 System Design

The ventilation system must be properly designed by a qualified ventilation engineer so that it meets the requirements of the building.

The plan will determine :

- The location of the Supply air inlets (Low pollution: Usually living rooms, bedrooms, recreation rooms, offices, etc)
- The location of the Extract air outlets (Higher pollution: Usually bathrooms, toilets, kitchens, utility rooms, etc)
- The requirement for any undercut doors and air transfer grilles. (Usually Halls and corridors, etc)
- The overall required Supply flow rate
- The overall required Extract flow rate
- Supply and Extract flow rates into individual rooms

(Devices such as grilles or diffuser or dampers can be used to set individual room rates)

NOTE!

See Table 3.1 on Page 7 for Factory set Supply and Extract flow rates.
See Section 6.3 Installer menu – Change the Air flow rates. (As determined by the design).

NOTE!

The following documents are needed for correct designing of the system:

- **Details of the building and the rooms or areas to be ventilated.**
- **Floor plans indicating room use.**
- **Sectional drawing indicating room heights.**

NOTE!

An incorrectly specified system can lead to insufficient ventilation and can cause high noise levels and an excessive energy consumption.
Applicable guidelines and regulations must be observed and complied with. RXG recommend using:
Domestic Ventilation Compliance Guide and
Approved Document, Part F
Both are available from www.planning portal.gov.uk.

WARNING:

Using the ventilation unit together with open flue fuel burning devices (e.g. fireplaces, gas stoves) is subject to further special requirements.
Any applicable national as well as regional guidelines and regulations must be observed.
We strongly recommend you consult a qualified specialist.

WARNING:

Fire regulations must be complied with. E.g. Fire dampers should be fitted, where required.

2.5 Design

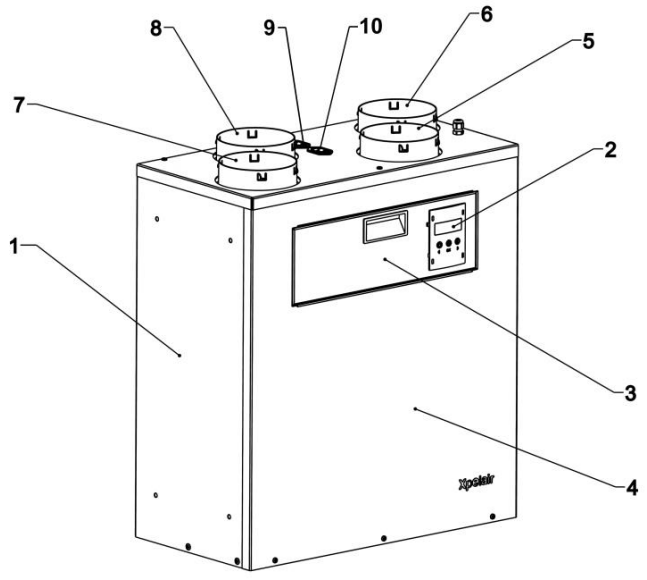


Fig. 2.2a Structure of the Natural Air 180

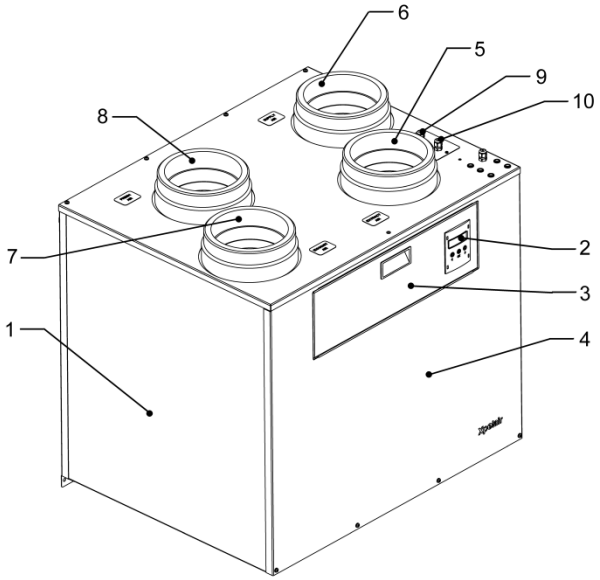
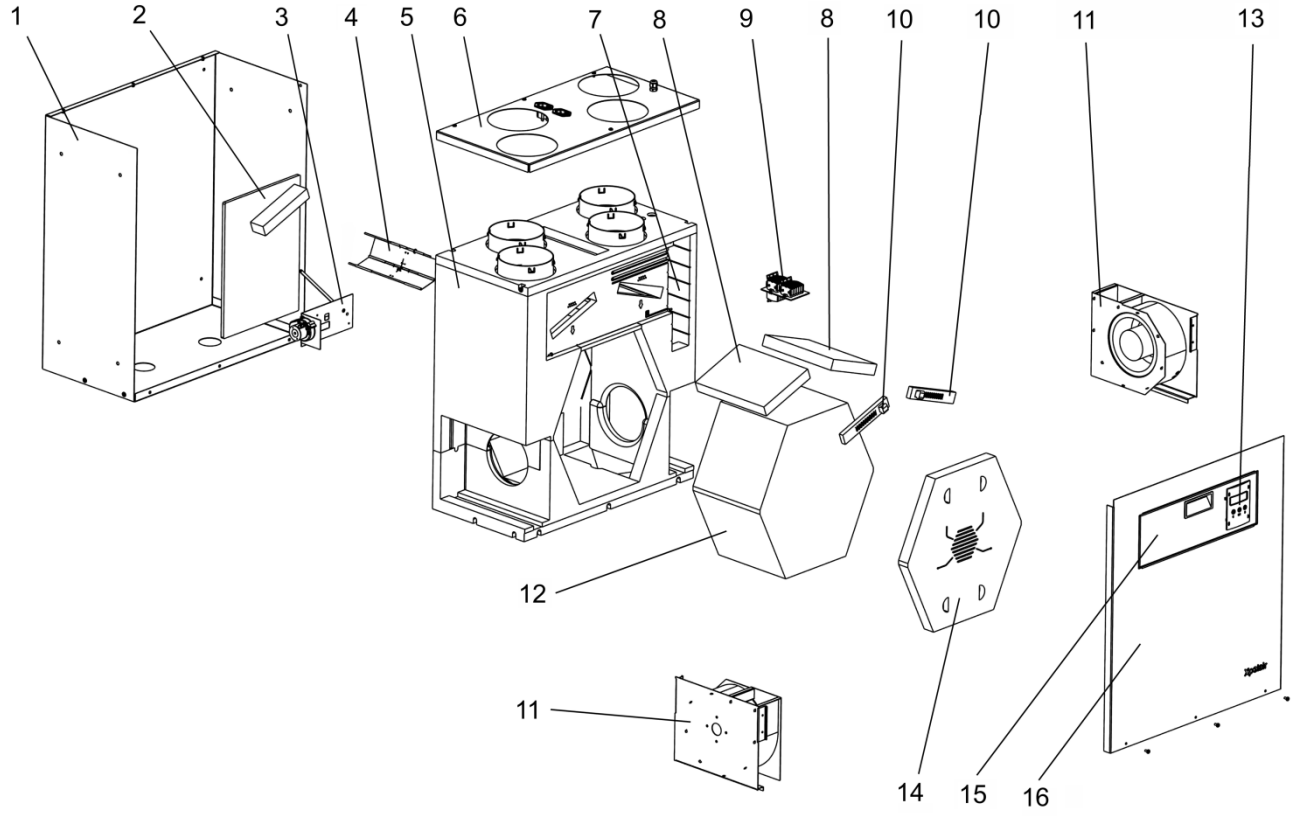


Fig. 2.2b Structure of the Natural Air 350

1 Back plate and sides
2 Control panel and display
3 Inspection door
4 Front cover
5 Connection nozzle, extract air
6 Connection nozzle, supply air
7 Connection nozzle, exhaust air
8 Connection nozzle, fresh air
9 Defrost Heater supply output (PH variants only) *
10 Boost Heater supply output (PH variants only) *

* External Heater boxes (not supplied) are available as an accessory. (See User Manual for details).

Natural Air 180



Natural Air 350

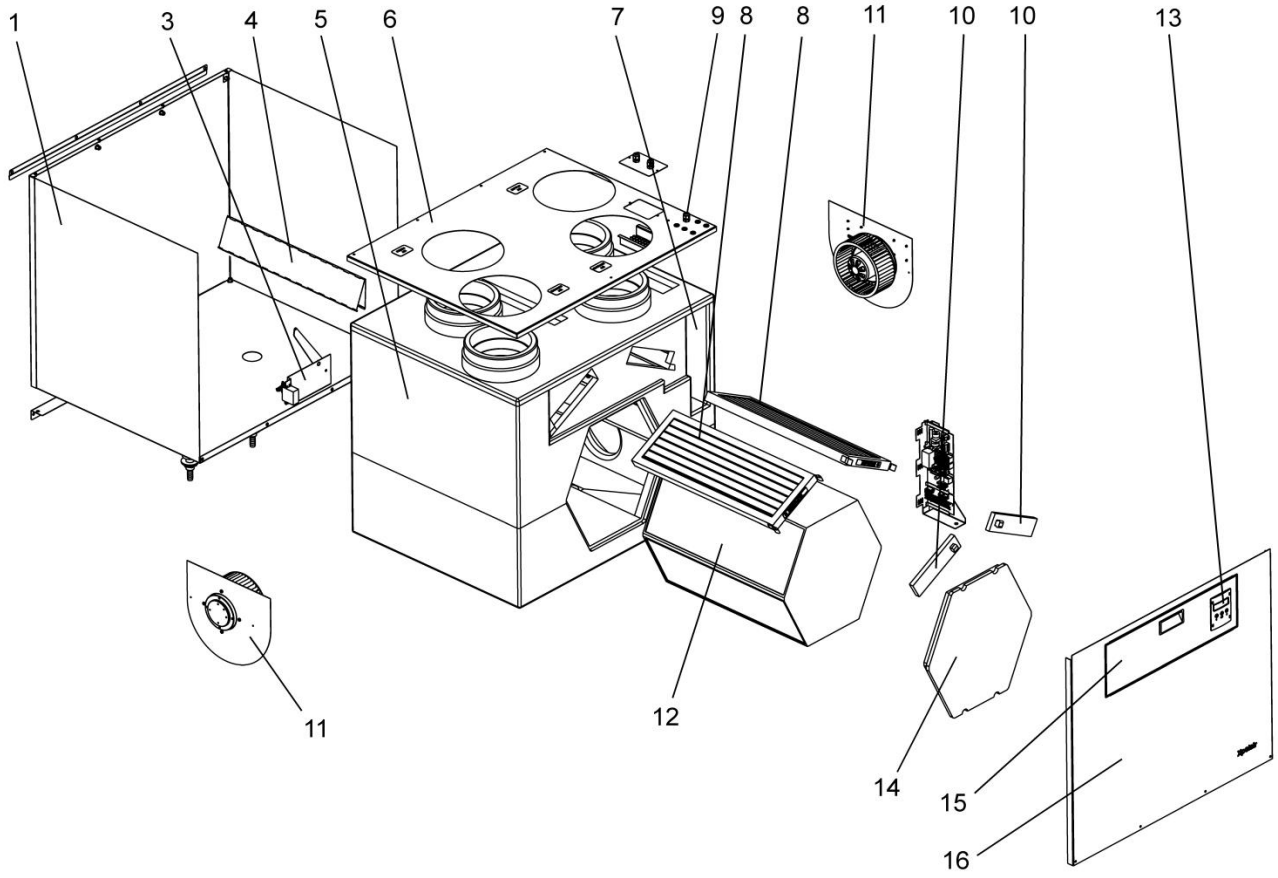


Fig. 2.3 Structure in detail

Fig. 2.3 Key to structure in detail

1 Rear cover
2 Actuator cover
3 Bypass actuator assembly
4 Bypass flap assembly
5 Main EPP body
6 Top cover
7 Control PCBs area
8 Filter
9 Installer connections
10 Filter cover
11 Fan assembly
12 Heat exchanger
13 Control panel and display
14 Heat exchanger cover
15 Filter access door
16 Front cover

Section 3 – Technical data

3.1 Specification

	180 Series	350 Series
Maximum volume flow rate	225 m³/h *(62 l/s)*	360 m³/h *(98 l/s)*
Volume flow rate at speed 1/2/3 (30% / 46% / 58%)	75 / 115 / 144 m³/h *(21 / 32 / 40 l/s)* *	162 / 243 / 307 m³/h *(45 / 67 / 85 l/s)* *
Minimum volume flow rate	40 m³/h *(11 l/s)*	57 m³/h *(16 l/s)*
Power supply (5 A fuse)	1~/N/PE/230V 50 hz 148 W	1~/N/PE/230V 50 hz 170 W
Power supply PH versions : 180 series 13A. 350 series 20A.	1~/N/PE/230V 50 hz 2.2 kW	1~/N/PE/230V 50 hz Up to 4.0 kW **
Power consumption at factory default Speed 1 / 2 / 3 (No System pressure applied)	15 / 33 / 54 W 15 / 33 / 54 W (PH model)	15 / 33 / 54 W 23 / 40 / 58 W (PH model)
Dimensions Width x Height x Depth	550 x 640 x 285 mm	755 x 770 x 615 mm
Weight	19 kg	34 kg
Air duct connector diameter (mm) x 4	125	150 / 160 / 190 / 200
Heat recovery efficiency	up to 89%	up to 89%
Ventilator type	2 x EC-radial, (all constant volume)	2 x EC-radial, (PH is constant volume)
Heat exchanger type	Contraflow heat recovery module	
Filter Grade	G4 Fresh Air / G4 Extract Air	
Bypass (integrated)	Yes	
Function for safe use with open flue fuel burners	Yes	
Inner housing	Material : Plastic EPP (fire class B2)	
Outer casing	Material : White sheet steel (fire class B1)	
Protection rating	IP20	
Condensate hose connectors	Ø15 mm	
Outdoor temperature range for use	-20 to +40°C	

Table 3.1 Specifications

NOTE!

*** 180 or 350 Factory defaults. Values will need to be changed for each site situation.**

**** Natural Air 350 rating depends on the power of the Pre-heater and Boost heater (if fitted).**

For guidance only (180 Series: K + 3 maximum. 350 Series: K + 7 maximum)

	Speed m³/h (l/s)		
Situation	Speed 1	Speed 2	Speed3
K + 1	75 (21)	115 (32)	144 (40)
K + 2	104 (29)	158 (44)	198 (55)
K + 3	133 (37)	198 (55)	225 (62)
K + 4	162 (45)	243 (67)	307 (85)

	Speed m³/h (l/s)		
Situation	Speed 1	Speed 2	Speed 3
K + 5	191 (53)	286 (80)	360 (100)
K + 6	220 (61)	330 (92)	360 (100)
K + 7	248 (69)	360 (100)	360 (100)

Section 3 – Technical data

See limitations of Flow Rate vs. External Pressure Loss in the graph below (Fig. 3.2)

3.2 Characteristic curves

180 and 350 Series

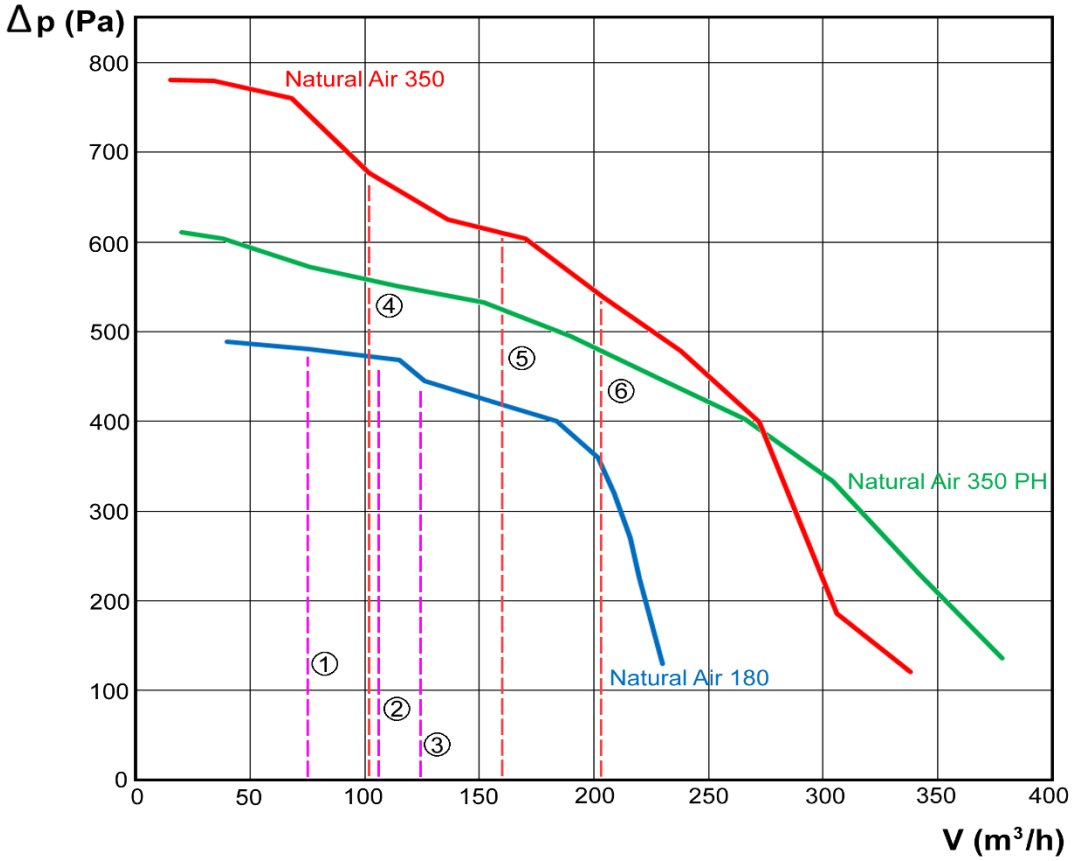


Fig. 3.2 Characteristic curves Natural 180 / 350 ranges *(Dotted lines represent Factory defaults)*

Key to Characteristic curves

①	Speed 1 (180 default)
②	Speed 2 (180 default)
③	Speed 3 (180 default)

④	Speed 1 (350 default)
⑤	Speed 2 (350 default)
⑥	Speed 3 (350 default)

V	Volume flow rate (m^3/h)
Δp	External pressure loss (Pa)

NOTE!
Each Supply & Extract speed can be changed using Installer Menu (see 6.3.1)

3.3 Dimension drawings

Key to drawings:

1 Exhaust air duct connection
2 Fresh air duct connection
3 Defrost heater, power outlet *
4 Boost heater, power outlet *
5 Supply air duct connection
6 Voltage supply feed
7 External sensor connections
8 Extract air duct connection
9 Display and Control panel
10 Filter access door
11 Front cover
12 Condensate connection point A
13 Condensate connection point B
14 Bottom panel
15 Side panel (2 off) c/w 4 side mounting holes
16 Back panel c/w 4 back mounting holes

* Only available on Natural Air PH Models

3.3 Dimension drawings (continued)

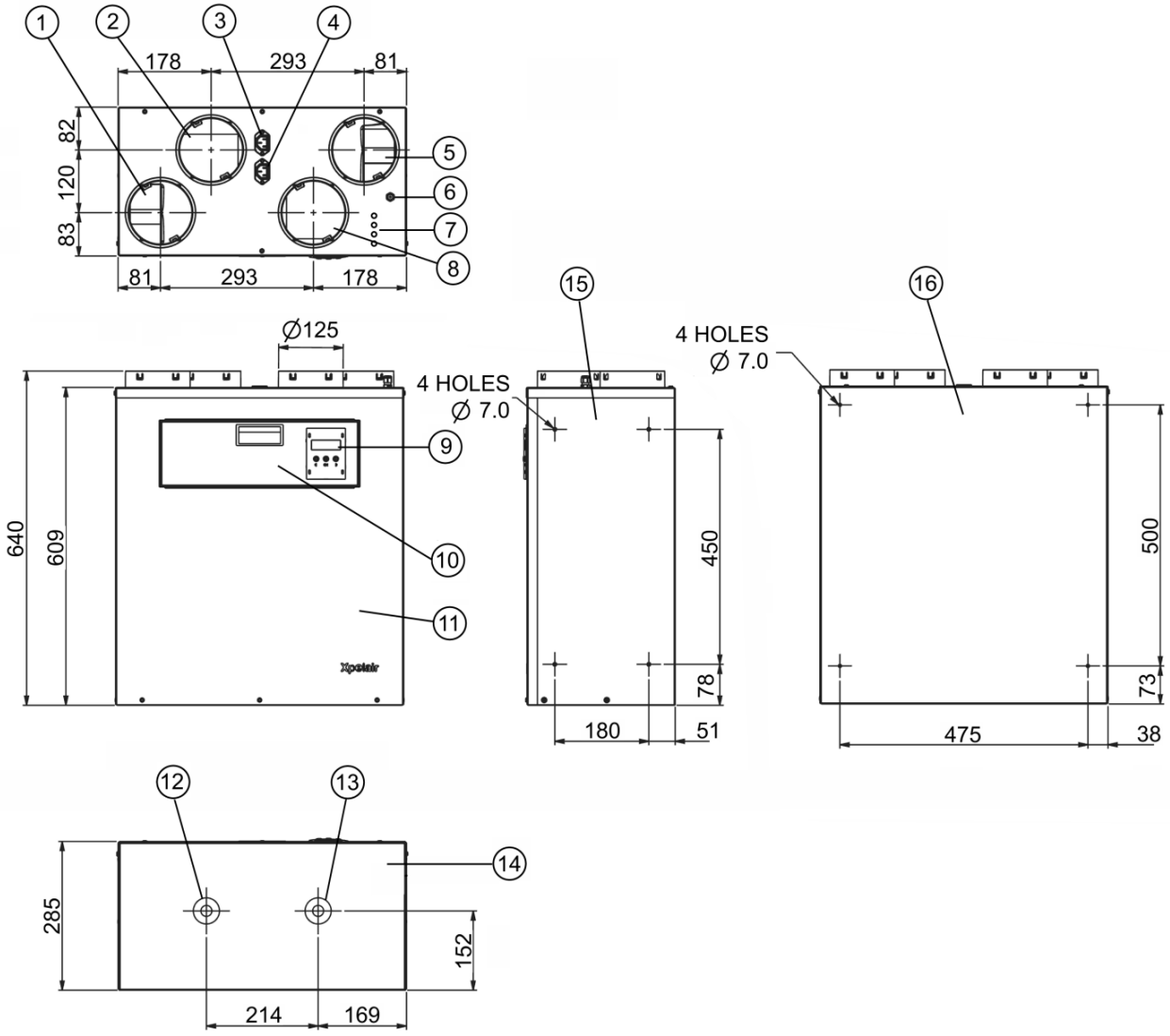


Fig. 3.3a Dimensional drawing, Natural Air 180 ventilation unit

3.3 Dimension drawings (continued)

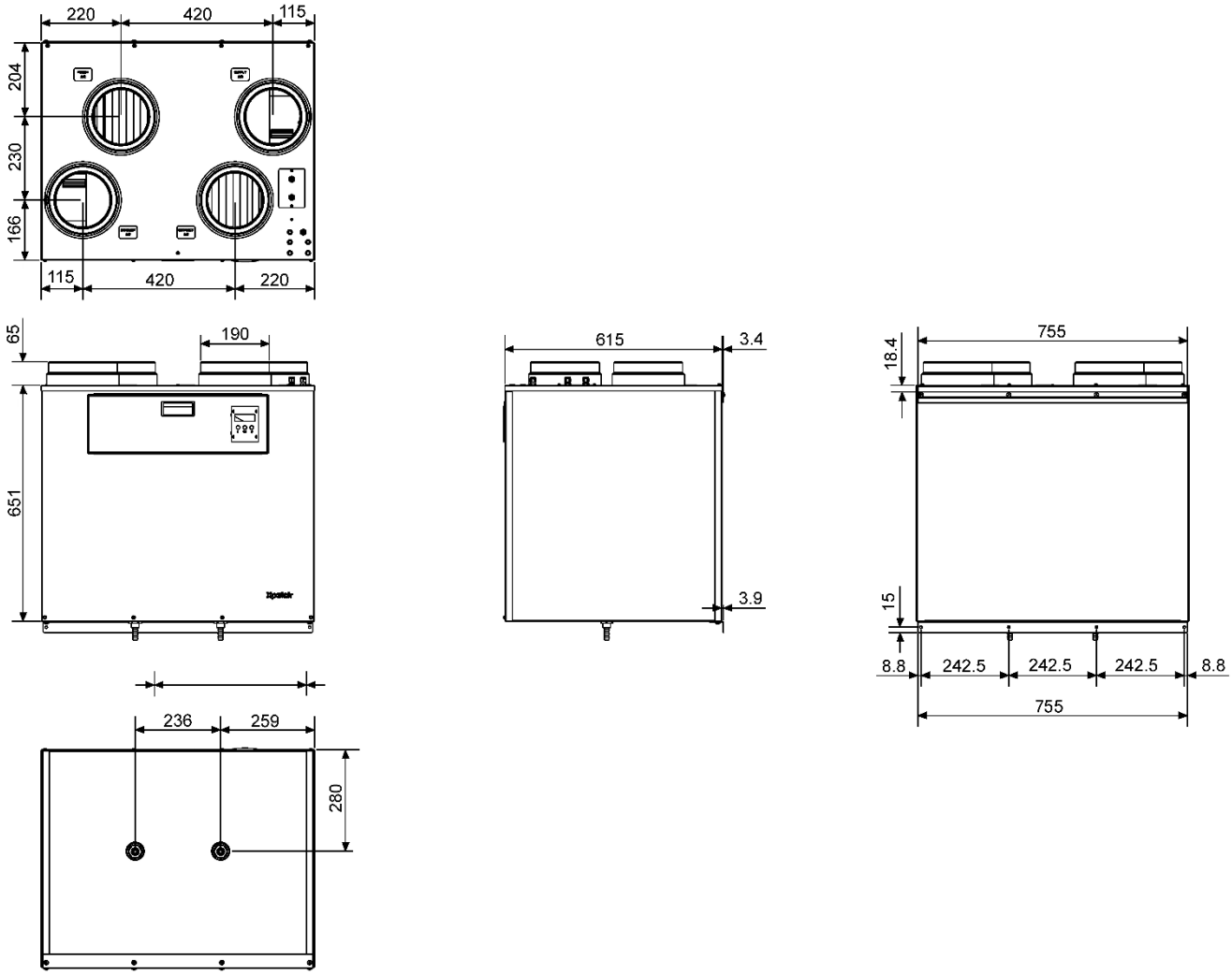


Fig. 3.3b Dimensional drawing, Natural Air 350 ventilation unit

Section 4 – Installation

4.1 Requirements at the installation site

- The location must be frost-free.
- The room temperature should not fall below +5°C.
- The Fresh air intake must be sited in an area free from unwanted odours and far enough away from the Exhaust air outlet to prevent re-circulation.
- The condensate drains must be protected from freezing.
- Ensure there is at least 200mm clearance above the top surface of the unit so that the duct connections are not restricted.
- Make sure there is sufficient space around the unit for maintenance and repair work. (See dimensional drawing).
- We strongly recommend you consult a qualified specialist.

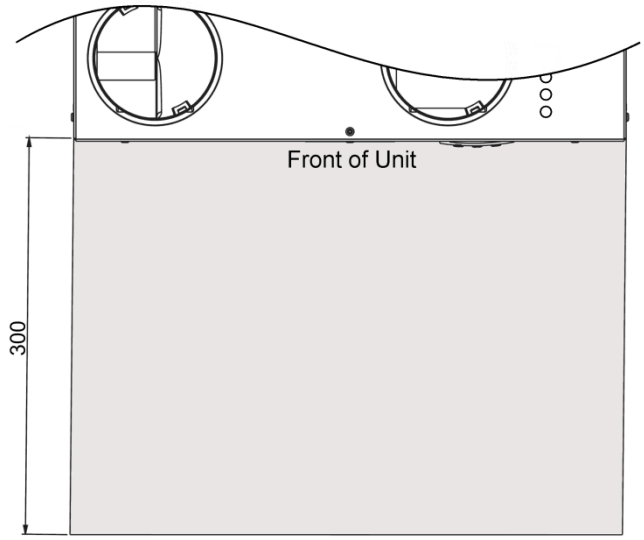


Fig. 4.1a Space needed for maintenance MVHR 180

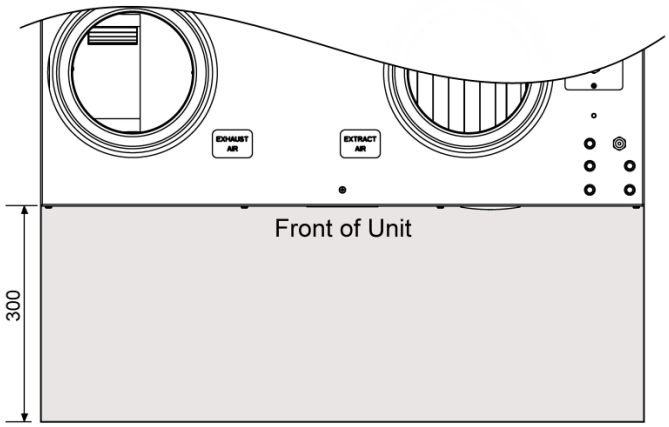


Fig. 4.1b Space needed for maintenance MVHR 350

WARNING:

Free access to the unit and to the switch disconnecting it from the power supply must be ensured at all times.

NOTE!

Air inlet and outlet openings and air transfer openings must not be obstructed, covered or closed so that an unhindered airflow is ensured. Settings made by the qualified technician must not be changed.

WARNING:

Alterations made to the unit or to the installed system as a whole as well as structural alterations can affect safety; consult a qualified technician.

WARNING:

Using the ventilation unit together with fuel burning devices (e.g. fire places, gas stoves) is subject to special requirements. Any applicable national as well as regional guidelines and regulations must be observed.

4.2 Installation of the unit

The ventilation unit cannot be mounted on a floor. Condensation drains must be fitted to the unit. It is designed to be wall mounted. Below is backplate on the wall, ready for remounting the unit:

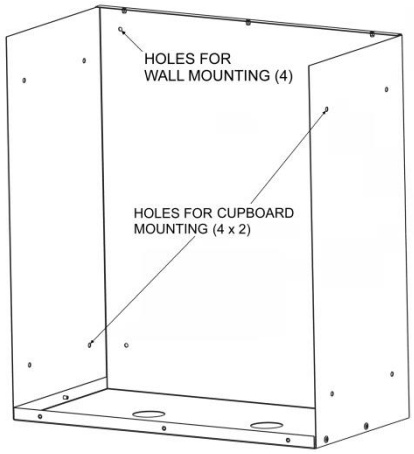


Fig. 4.2a Natural Air 180 backplate on the wall

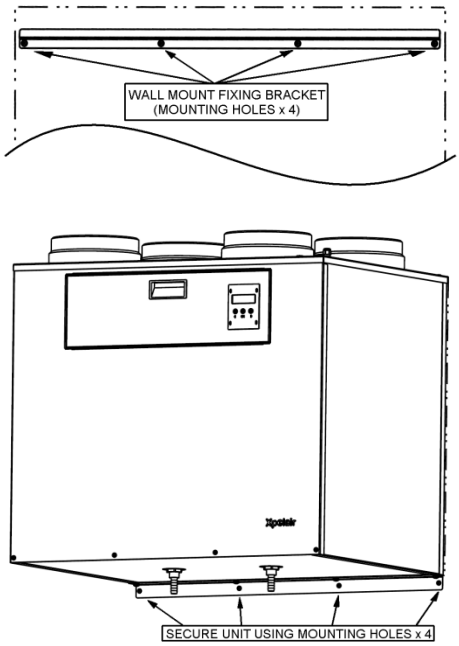


Fig. 4.2b Natural Air 350 backplate on the wall

- Remove the front and top cover and take the EPP unit out of the metal backplate.
- Offer up the backplate to the wall and mark out the mounting points, ensuring the unit is level.
- Secure the backplate to the wall using appropriate fixings.
  If installing on a hollow wall, suitable anti vibration fixings may be required.
- If required, the unit can be fixed using left and right side fixing holes (E.g. If the unit is fixed inside a cupboard).
- Remount the unit into the backplate and secure the top and front cover.

NOTE!
Check that the unit is positioned level in order to ensure proper condensate discharge.

4.3 Condensate discharge lines

There are two condensation collection trays built into the expanded poly propylene housing (EPP) of the unit and two (provided) condensate collection unions must be fitted to the discharge points on the bottom side of the unit.

- Remove the front cover from the installed unit. Take care to remove the umbilical connector from the Display PCB.
- Pull out the EPP cover and remove the heat exchanger using the pull strap.
- Remove the back-nuts from the condensate unions (provided) and then push them through the two EPP drain holes. *Note: Additional leak proofing of the union may be required.*
- Secure the two unions to the backplate using the back nuts.
- Replace the heat exchanger and EPP cover.
- Re-fix the front cover, remembering to reattach the umbilical connector to the Display PCB.
- Connect drain hoses to the two unions and take to a suitable drain trap.

NOTE!
The location of the ventilation unit, as well as the condensate discharge hoses, must be frost-free!

When connecting up to the drainage pipe of the building, the following points must be observed:

4.3.1 Air infiltration and Infiltration of sewer gases

Any air infiltration into the ventilation unit via the condensate hose must be prevented.

Both condensate hoses must be looped and inclined as shown in Fig 4.3 in order to trap a loop of water and prevent air getting back into the unit via the hoses.
(1 metre length of hose is supplied with each unit).

The hoses must go via a funnel or tundish to a suitable water trap as shown below.

The condensate hoses from the ventilation unit must not be connected directly to the drainage pipe.

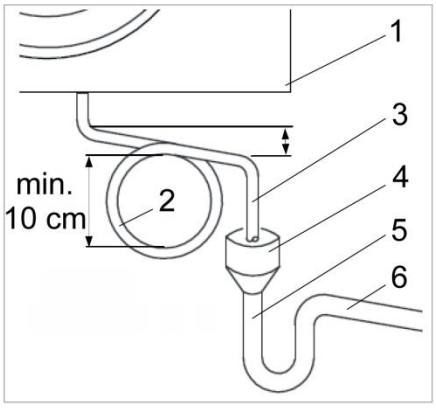


Fig. 4.3 Condensate drain connection (schematic)

NOTE!
Both condensate hoses MUST be made, and separately run to their own drain connection.

DO NOT "common up" the two hoses.

1 Ventilation unit
2 Looped to act as a condensate trap
3 Condensate line with downward gradient
4 Funnel or tundish to provide air gap
5 Water trap to prevent bad odours entering the room
6 Drainage line with min. 2% downward gradient

NOTE!
Pre-fill water traps or installed hose bends after completion.

NOTE!
Ensure that the condensate hoses are sufficiently inclined! Incorrect installation can cause water damage!

NOTE!
The condensate hoses must be checked and cleaned regularly, at least annually!

4.4 Air duct system

The connection nozzles for the air duct system are on the top side of the unit in the vertical direction.

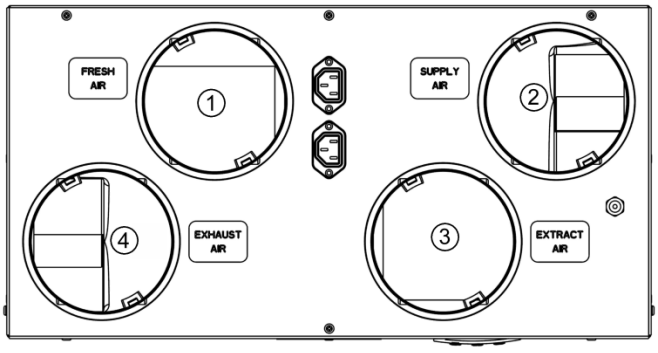


Fig. 4.4a Natural Air 180 Air duct connections

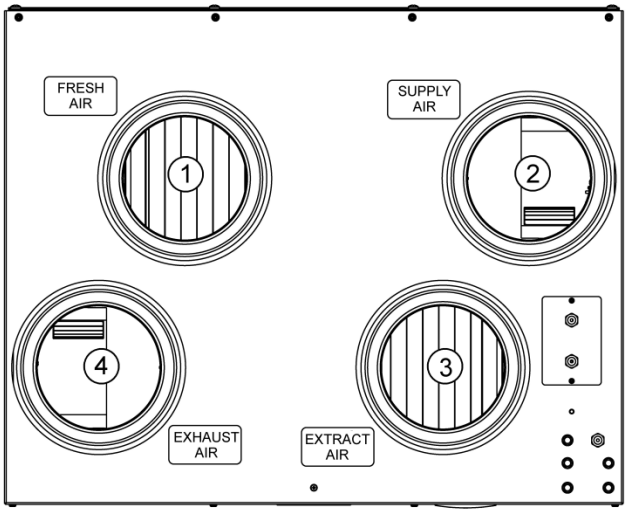


Fig. 4.4b Natural Air 350 Air duct connections

Key to Figure 4.4 (above) :

1 Fresh air (outside air being drawn in)
2 Supply air (air going into the rooms)
3 Extract air (air extracted from the rooms)
4 Exhaust air (air going into outside space)

NOTE!
Connecting exhaust hoods or vented dryers to the ventilation unit is not permitted! We recommend using exhaust hoods with recirculation and condensation dryers.

The Fresh air (1) & Exhaust air (4) ducts connect ventilation unit to the outer wall screens or ceiling hoods.

The Supply air (2) & Extract air (3) ducts connect ventilation unit to required room grilles, diffusers, dampers.

The ducting should be routed from a distributor, without branching, star-like to its required room.

NOTE!
The air-duct system must be dimensioned and designed in accordance with the requirements of the building and the ventilation unit chosen (see Section "2.4 System design"). An incorrectly specified system can lead to insufficient ventilation and can cause high noise levels and an excessive energy consumption. Any applicable guidelines and regulations must be observed and complied with.

4.4.1 Thermal insulation

The ventilation unit must be installed within the warm space of the building.

Ducts installed in cold spaces must be adequately insulated.

WARNING:
- **The unit, air diffuser and air-duct system must be installed inside the building.**
- **Connections at both ends of the fresh-air and exhaust-air ducts must be airtight and covered with thermal insulation over the entire route. (To prevent condensation).**
- **Any ducting that runs through unheated areas must also be fitted with thermal insulation, in order to prevent heat loss.**

4.4.2 Vibration isolation and sound insulation

- The final connection to the unit must use flexible ducting to isolate any vibration noise getting into the system.
- If required, suitable silencers/attenuators should be used at appropriate positions in the duct system. *(This may also include suitable sound absorbing suspensions, clamps, brackets or other duct fittings).*
- Ducting passing through walls or ceilings should be “sealed in” using a suitable material.
- Sound travelling through the ducting from one room to another is reduced when a radial duct system is used.

4.4.3 Air inlets and outlets

Fresh air is drawn in and exhaust air goes out through exterior-wall grilles and/or roof cowls.
- The Fresh air is generally cool, dry and free of odours.
- The Fresh air draw in point should be at least 1.5 m above ground level if possible.
- The Exhaust air point should be positioned far away from the Fresh air inlet. *(So that exhaust air does not accidentally get drawn in to the fresh air intake).*
- Air inlets and outlets should be positioned in each room so that there is a good air flow through the room.
- Position supply grilles so that they avoid direct drafts onto seats, chairs and beds, etc.
- For unhindered air flow, areas such as hallways and corridors may require undercut doors or transfer grilles.

4.5 Electrical installation

Natural Air 180/350 and Natural Air 180/350 Plus :
Connect the ventilation unit to a 230V/50Hz power supply, 5A fuse protection.

Natural Air 180 PH :
Connect the ventilation unit to a 230V/50Hz power supply, 13A fuse protection.

Natural Air 350 PH :
Connect the ventilation unit to a 230V/50Hz power supply, 20A fuse protection.
Note : Natural Air 350 PH rating depends on the power of the Pre-heater and Boost heater (if fitted).

Optional sensors use a low voltage of 24V DC.

All cable inlets are located on the top cover of the ventilation unit.

4.5.1 Installation of the smoke detector bypass Link Wire

If an external smoke detector is NOT used, then a Link Wire MUST be fitted to the Main Connector PCB.
(Alternatively, if the External Sensors PCB is fitted, then the Link Wire can be fitted to the External Sensors PCB instead).

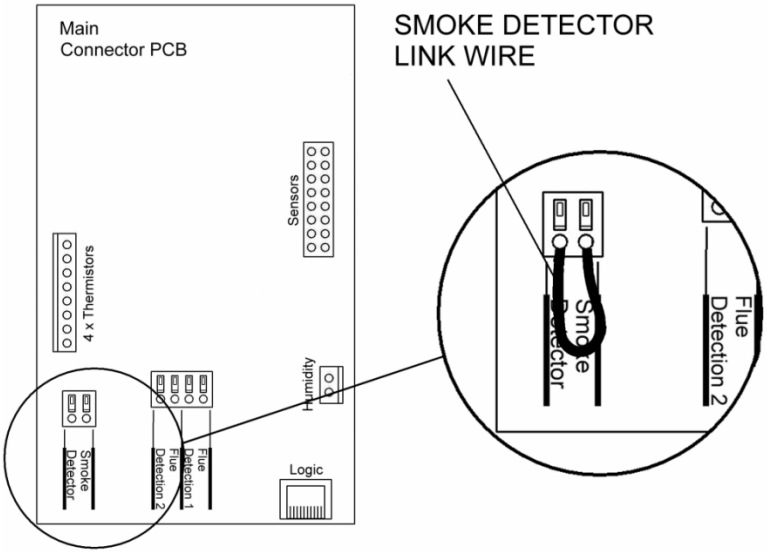


Fig 4.5a Link wire fitted to Main Connector PCB

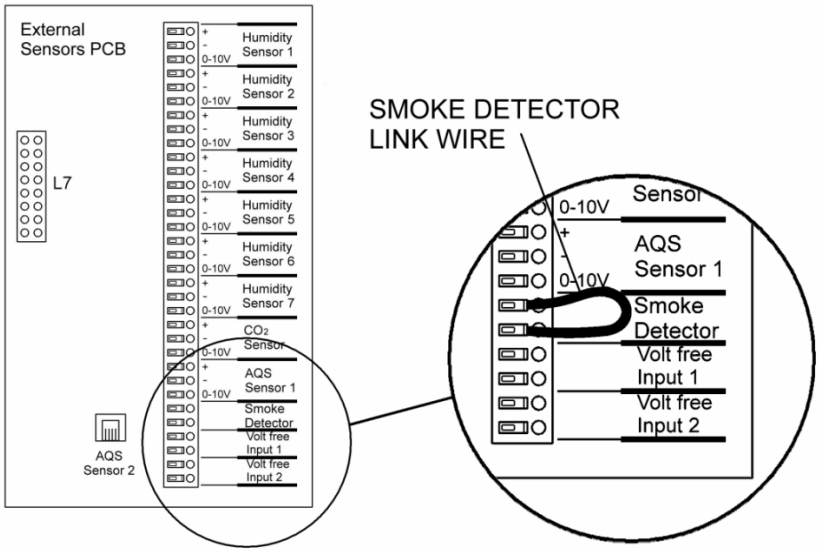


Fig 4.5b Link wire fitted to External Sensors PCB.
(See Section 4.5.8 if an external smoke detector sensor is required).

4.5.2 Connecting the ventilation unit to the power supply, external sensors and heaters

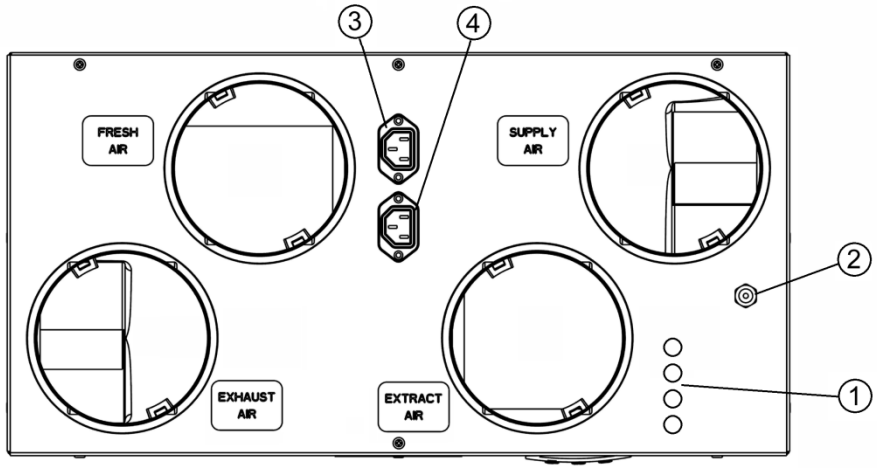


Fig. 4.6a Cable inlets on the Natural Air 180 unit

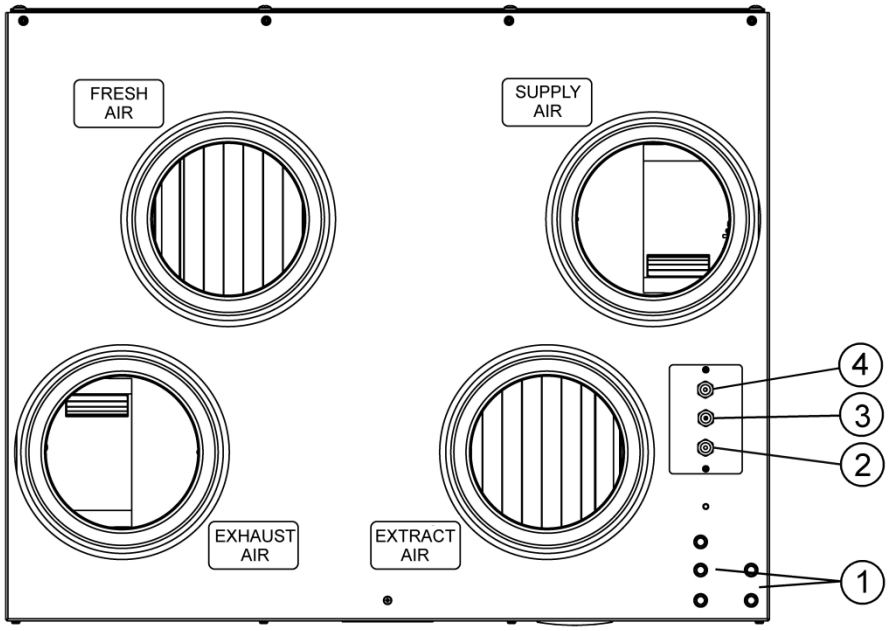


Fig. 4.6b Cable inlets on the Natural Air 350 unit

Key to parts :

1 Cable inlets for sensors
Remove a grommet and make a suitable hole through the exposed EPP insulation to the wiring chamber.
2 Cable inlet for power supply
On all 350 models the mains supply connection is made inside the Power outlet termination box.
3 Pre-heater, Power outlet *
4 Boost-heater, Power out *

* Only available on PH Models

Wiring power supply to Main terminal block:

NOTE!
The installer must fit the power connection with an all-pole mains switch with a contact separation of at least 3 mm.

WARNING:
Install and secure the mains cable through the cover cable gland. Ensure that the bare cable ends are correctly and tightly secured into the mains supply terminal block.

WARNING:
Electrical connections must be installed by a qualified technician in compliance with all safety rules for electrical equipment and with all applicable standards and local regulations as well as in accordance with the installation manual. Before starting any work on the unit, the power supply must be disconnected in order to prevent any electrical hazard.

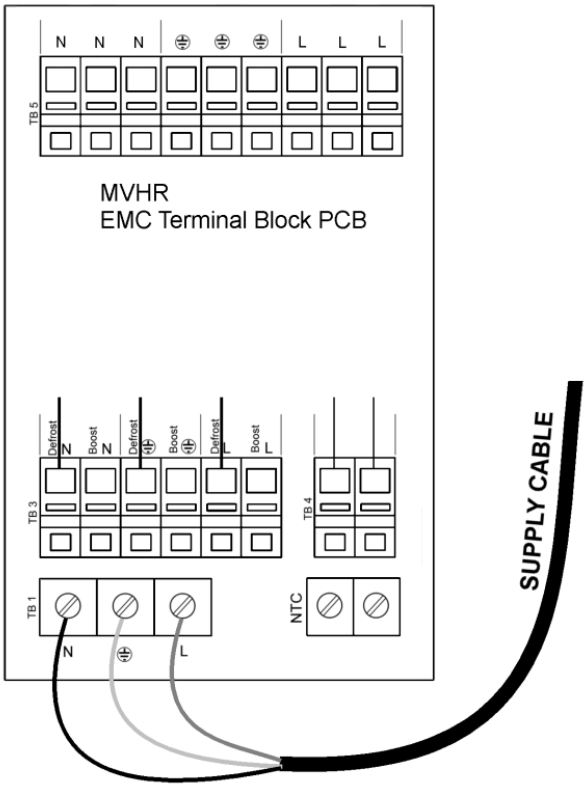


Fig. 4.7a Wiring configuration: PCB Termination for all Natural Air 180 & 350 units.
(except 350 PH – see Fig. 4.7b)

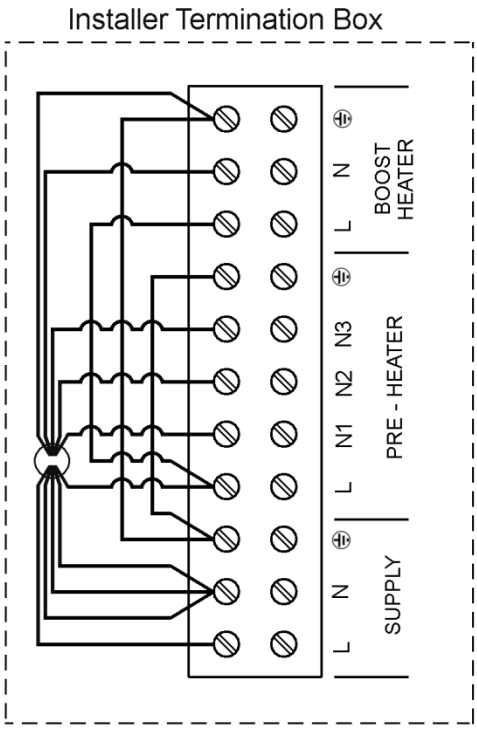


Fig. 4.7b Wiring configuration: Termination for Natural Air 350 PH units only.
(Note : Pre-heater and Boost Heater outputs are only available on the Natural Air PH models)

4.5.3 Electronics boards in the ventilation unit

The ventilation unit is equipped with several boards.
The mains voltage supply is connected to the EMC Terminal Block PCB on the Natural Air 180 units.
The mains voltage supply is connected to the Installer Terminal Box on the top of the Natural Air 350 units.
An external Smoke alarm and Flue detection controls can be connected to the Main Connector PCB.

An optional External Sensors PCB is required on the **Natural Air** models, if external sensors are used.
(Spare part, 42273SK – See User Manual).
*(**Note :** The External Sensor PCB is fitted as standard to the **Natural Air Plus and Natural Air PH** Models)*

To make connection easier, the boards can be removed from the housing.

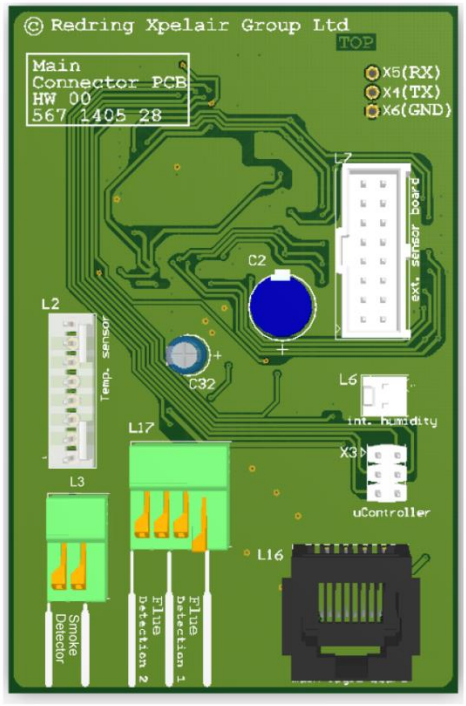
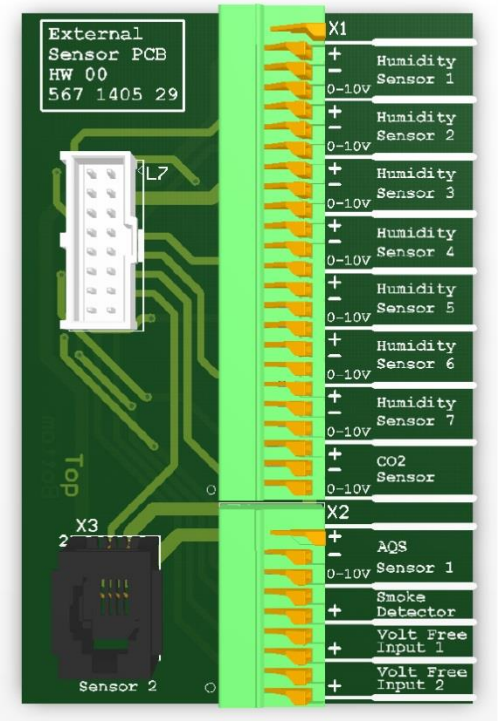


Fig. 4.8 Main Connector PCB



External Sensors PCB

Key to connections :

L2	Connection to 4 internal temperature sensors
L3	External Volt free smoke detector input
L6	Connection point to internal humidity sensor
L7	Connection point to External sensors PCB
L16	Connection point to Main Logic PCB
L17	External Flue Detection 1 : Volt free input
L17	External Flue Detection 2 : Volt free input

X1 block 1 to 7	External 0 – 10V output Humidistat sensors. (Model 180V - Only 1, 2 and 3 available)
X1 block CO2 sensor	External 0 – 10V output CO2 sensor
X2 block AQS 1	External 0 – 10V output AQS 1 sensor
X2 block Smoke	External Volt free smoke detector input *
X2 block Volt free 1	External Volt free configurable input 1
X2 block Volt free 2	External Volt free configurable input 2
X3 block Sensor 2	Internal 0 – 10V output AQS 2 sensor. (When fitted)

* Note : Do not use this input for Smoke Detection if a smoke detector device is already connected to L3 on the Main Connector PCB.

4.5.4 Electrical circuit diagram : Natural Air 180

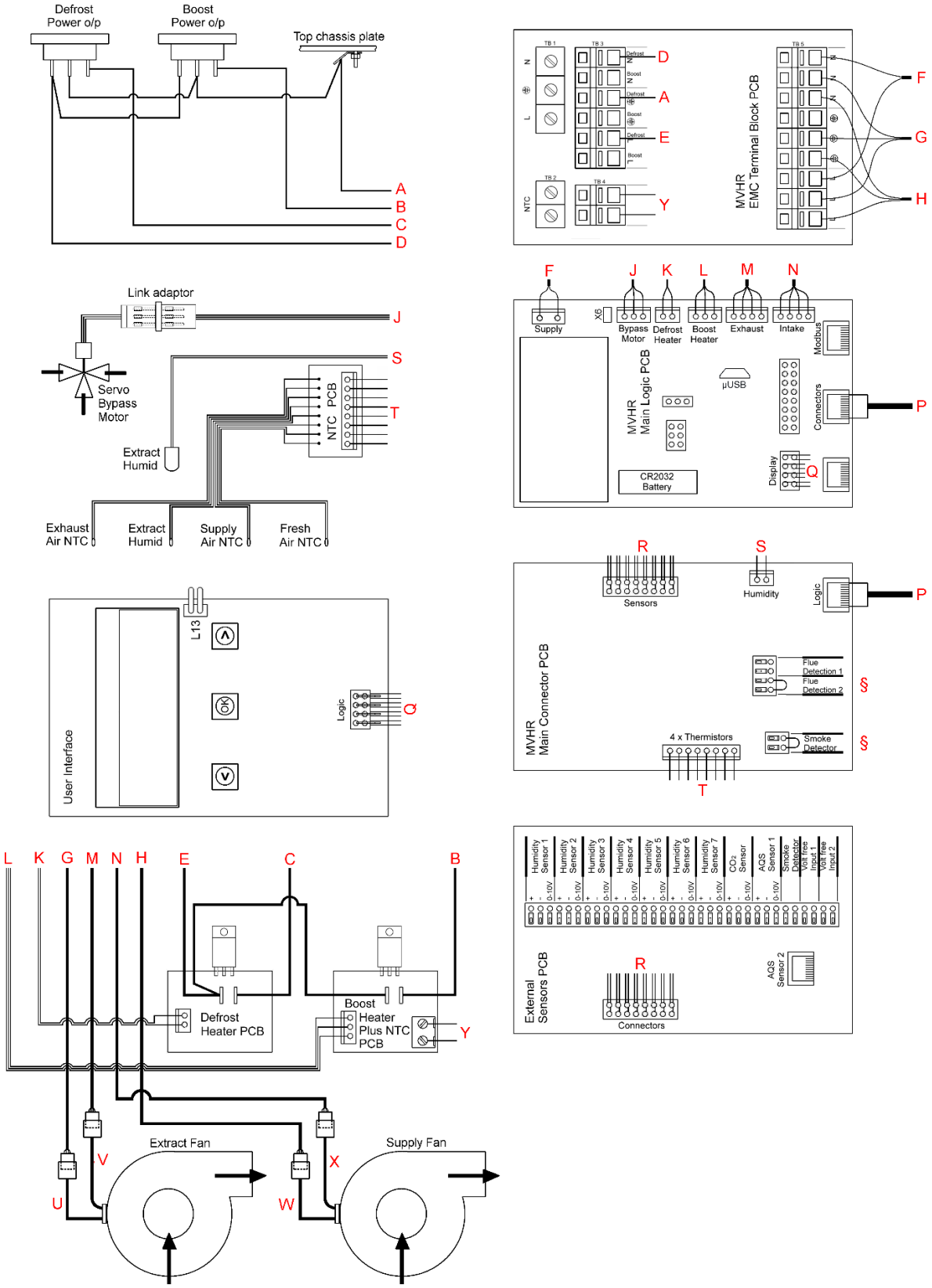


Fig. 4.9a Electrical circuit diagram, internal wiring Natural Air 180

NOTE!

Defrost Power, Boost Power output and external NTC available on Natural Air PH Models only. External Sensors PCB on Natural Air Plus Models only. ***(Other models, available as an accessory).***

4.5.4 Electrical circuit diagram : Natural Air 350

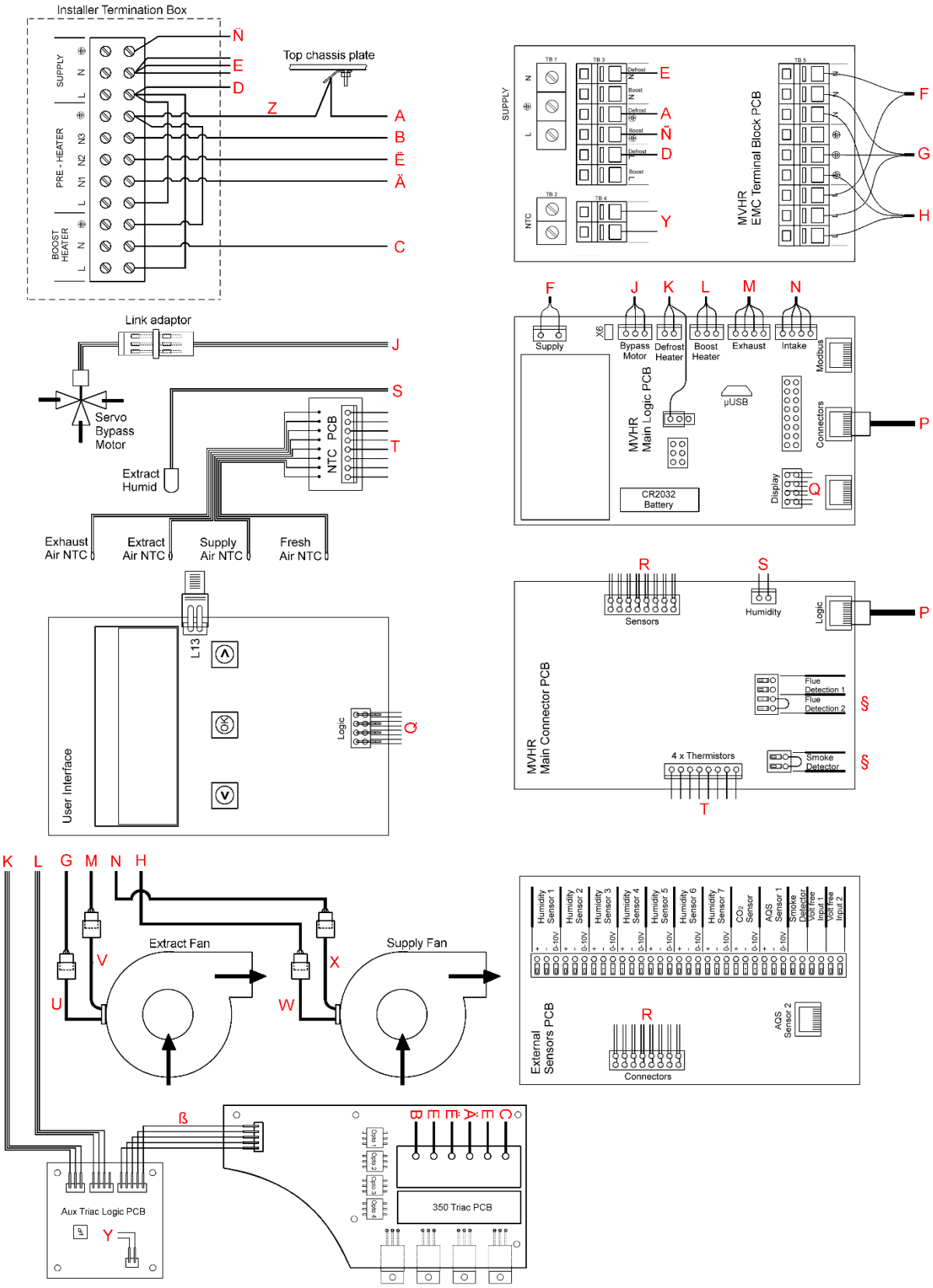


Fig. 4.9b Electrical circuit diagram, internal wiring Natural Air 350

NOTE!

Defrost Power, Boost Power output and external NTC available on Natural Air PH Models only. External Sensors PCB on Natural Air Plus Models only. ***(Other models, available as an accessory).***

4.5.5 Installation of the external humidity (RH) and CO_2 sensors (optional). (Sensors Board Kit required)

An optional internally mounted Sensors Board Kit is required (93324AA) if external sensors are used.
*(**Note :** The External Sensor PCB is fitted as standard to the **Natural Air Plus** units)*

The unit includes an internal humidity sensor which will increase the speed of the fans if the humidity level increases rapidly. (E.g. when steam is produced during a shower session).

- The units internal humidity sensor is factory set, but adjustments can be made using the Installer menu (See Section 6.3.2 – Settings).
- The external humidity sensors and CO_2 sensor will operate automatically with the unit, but adjustments can be made using the Installer menu (See Section 6.3.2 – Settings).

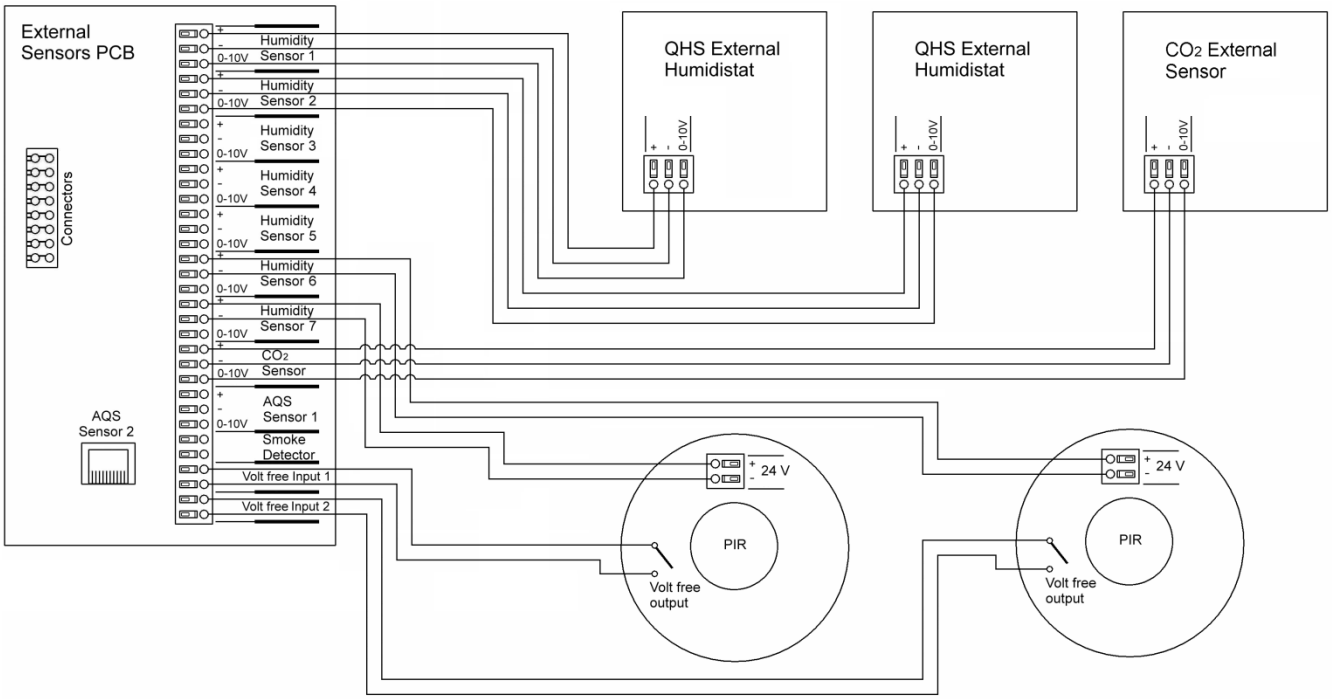


Fig. 4.10 Unit wired with 2 external humidity sensors, 1 external CO_2 sensor and 2 PIR sensors.

In addition to the internal humidity sensor, external humidity sensors can be used to provide further control.

- Up to 3 external humidity sensors can be used with the unit 180 range.
- Up to 7 external humidity sensors can be used with the 350 range.
- The external inputs MUST be used with the Xpelair humidistat QHS (Part number 93320AA).
- For an external CO_2 sensor use Xpelair accessory, part number 93330AA.

4.5.6 Installation of the external PIR sensors (optional). (Optional Sensors Board Kit required)

Up to 2 external PIR sensors can be used with the unit in order to further control the ventilation functions of the unit.

- Use Volt Free Input 1 and 2.
- The PIR used MUST be the Xpelair 24V PIR sensor (Part number 93321AA).
- The 24V power supply for the PIR sensors is taken from the "+" and "-" for Humidity Sensors 6 and 7. (See Fig. 4.10 above).

When the volt free input 1 is closed the unit will be set to Speed 2.
When the volt free input 2 is closed the unit will be set to Speed 1.
(Input 1 takes priority over Input 2)

When the trigger is removed the ventilation speed will return to Automatic mode.
The set speed for Inputs 1 and 2 can be changed using the Installer menu. (See Section 6.3.2 – Settings).

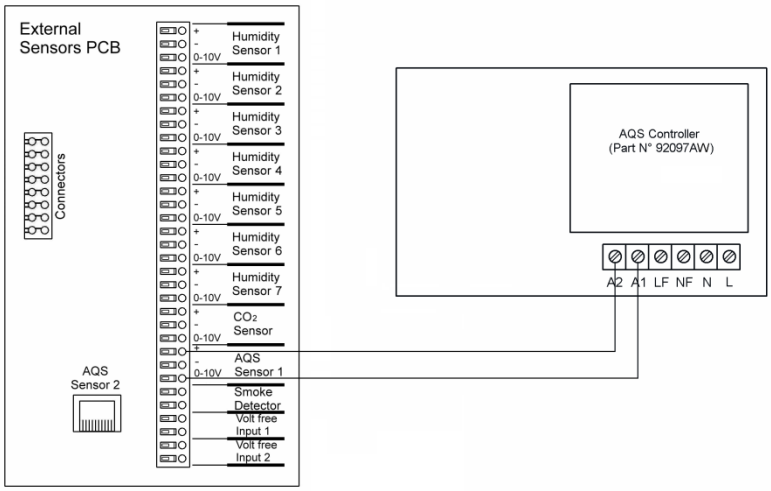
4.5.7 Installation of the air-quality sensor (optional). (Optional Sensors Board Kit required)

An optional air-quality controller (AQS) can be used in order to control the ventilation unit automatically.

- The AQS Controller (RXG Part N° 92097AW) is wall mounted and is supplied with a surface box.

Connect :

- Terminals "**A1**" and "**A2**" in the **AQS controller** to
- "**+**" terminal and "**0-10V**" terminal at AQS Sensor 1 in the **MVHR unit**



WARNING!
The terminals "A1" and "A2" must connect directly to the required AQS Sensor 1 terminals in the Natural Air unit

NOTE!
The AQS Controller is separately wired with its own L / N voltage supply.

Fig. 4.11 Terminal diagram Externally mounted AQS Controller (92097AW)

AQS Controller operational notes :

- The unit will run at a higher ventilation rate when the AQS controller indicator light is Red and Flashing.
- The AQS controller run on timer option does not operate when used with the Natural Air unit.

4.5.8 Installation of the smoke detector (optional)

To enable the safe cut-out of the ventilation system in case of fire, the ventilation unit can be connected to an optional smoke detector with a volt free output.

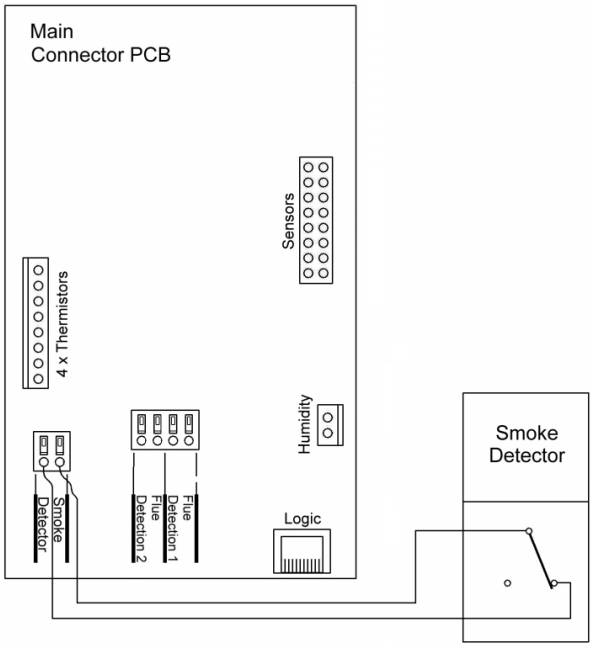


Fig. 4.12A Smoke detector to Main Connector PCB

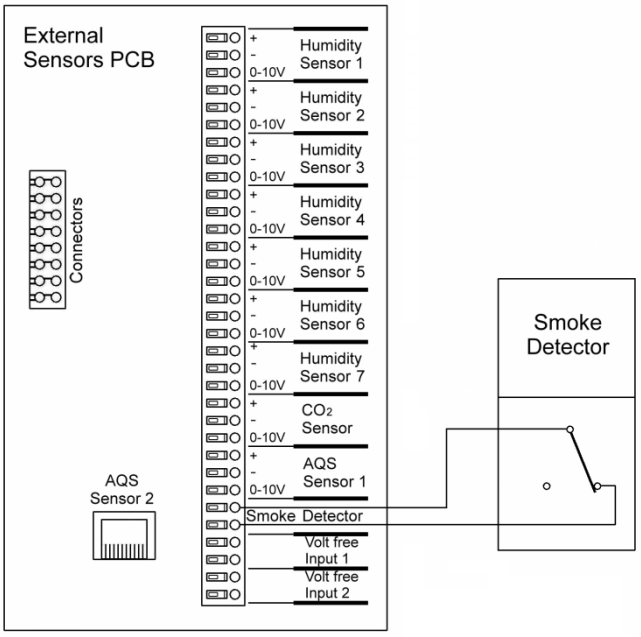


Fig. 4.12B Smoke detector to External Sensors PCB *

*** Important:** Do not use the Smoke Detection input on the External Sensors PCB if a smoke detector device is already connected to the Main Connector PCB.

The smoke detector is installed in the Extract duct. Alternatively, an external fire alarm system can be used.

NOTE!

If an external smoke detector is not used then a link wire must be fitted across the "Smoke Detector" terminals on the Main Connector PCB. (See section 4.5.1 Installation of the smoke detector bypass Link Wire).

4.5.9 Installation of the External duct heaters. (Only applicable to Natural Air 180/350 PH models)

The preheater is for frost control, and the external post heater can be connected to the unit to ensure the supply air temperature is acceptable.

- The preheater is fitted into the Fresh air duct and must be adequately thermally insulated. *
- The post heat (Boost) is fitted into the Supply air duct and includes its own temperature sensor. *
- The airflow direction is indicated by arrows on the duct heater unit.
- Both units are powered directly from the ventilation unit.
- Connect the 230V 50hz supply (from the ventilation unit) to the terminal block inside the heater enclosure.
- A post heat (boost) duct heater also requires a wired connection for the internal thermistor to the NTC terminal on the EMC Terminal Block PCB.

* Only use heater units as listed in the User Handbook Accessories. *(Installation notes supplied with units).*

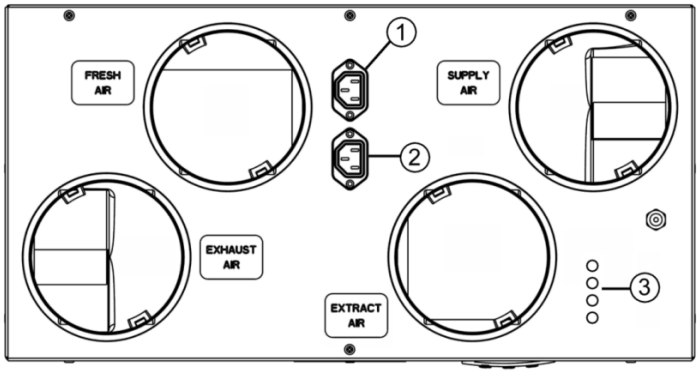


Fig. 4.13a Connecting the duct heaters to the 180 unit

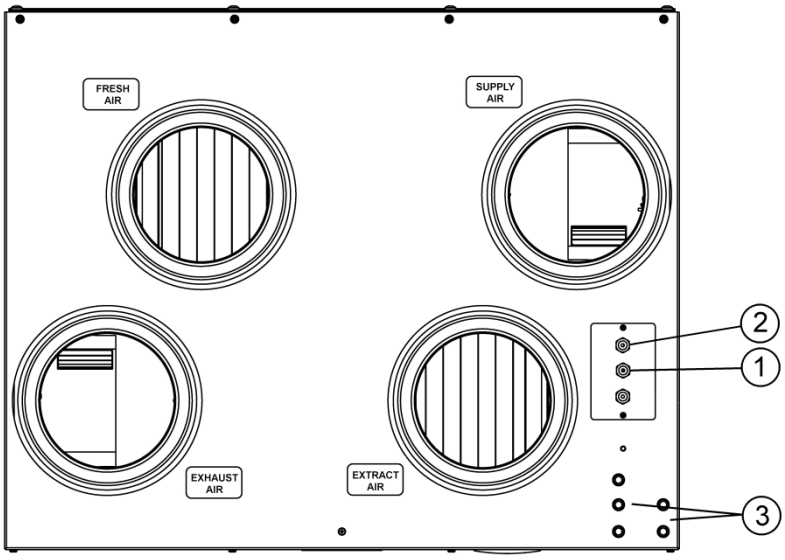


Fig. 4.13b Connecting the duct heaters to the 350 unit

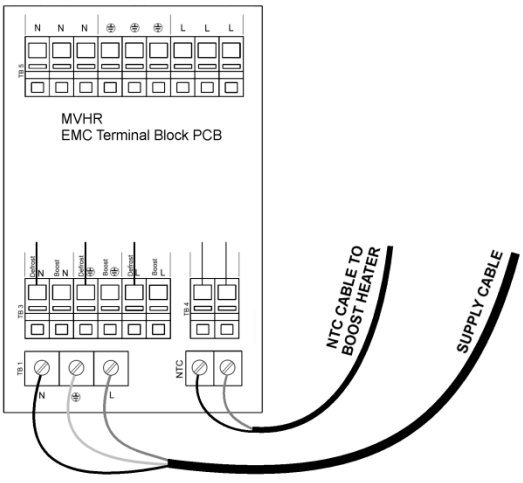


Fig. 4.14 Connection for Boost heater NTC thermistor to TB1 (Terminals 1 and 2).

1 Power supply to External Pre-heater unit.
2 Power supply to External Boost heater unit.
3 Inlet glands for external sensors (and NTC thermistor for Boost heater unit).
(Remove a grommet and make a suitable hole through the exposed EPP insulation into the wiring chamber)

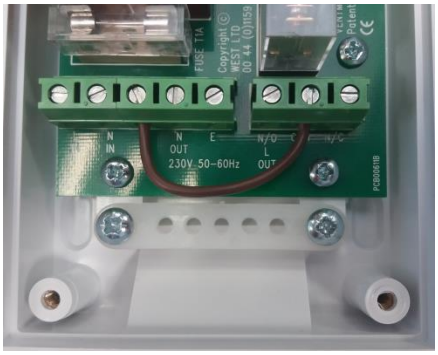
4.5.10 Installation of Ventmiser Automatic Fan Controller

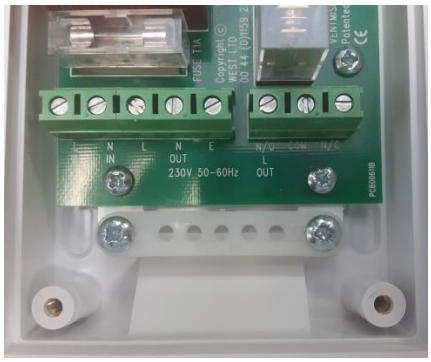
An Xpelair Ventmiser controller (Xpelair Part N° 92630AA) can be used to :
Automatically switch the Natural Air unit from **Automatic mode** to **Speed 2**.

Connect the Ventmiser to the Natural Air unit :

Install the Ventmiser as required, using the Instructions supplied with the Ventmiser controller.
In the Ventmiser : Remove the brown link wire between "L" and "COM"

WARNING: ***Failure to remove the link wire will cause damage to the Natural Air unit and will invalidate the warranty.***

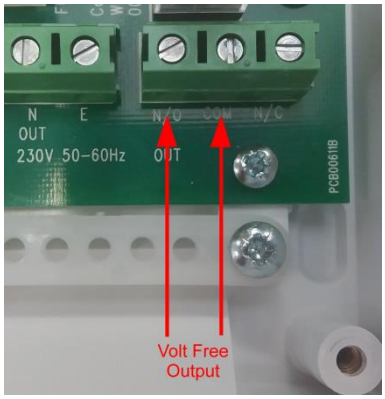




The output switched relay from the Ventmiser is used to switch the Natural Air from Automatic to Speed 2.

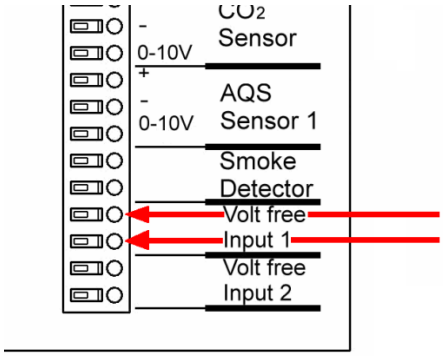
Use a two core wire to connect the two Relay terminals ……. (In the Ventmiser)

N/O
L and **COM**
OUT



……. to the two Volt Free Input 1 terminals (In the Natural Air unit)

Volt Free Input 1



4.5.11 Installation of an External filter box. (Natural Air 180 models only)

Note : The filter already fitted inside the Natural Air 350 range of units can be changed for different types, without the need for an external filter box.

If required on the Natural Air 180 models only, an external filter box can be fitted into the fresh air inlet duct work.
(See Accessories listed in the User handbook for the range of available filter boxes).

- The Filter box is fitted into the Fresh air duct as shown in Fig 4.15a and Fig 4.15b below.
- Note the relative position of the Filter box and the Pre-heater (if fitted).

NOTE!
When an external filter box is fitted to the Fresh air duct work : Remove the left hand Inlet filter inside the Natural Air 180 unit. *(Ensure the cover strip is replaced – See Fig 5.1 in User Manual)*

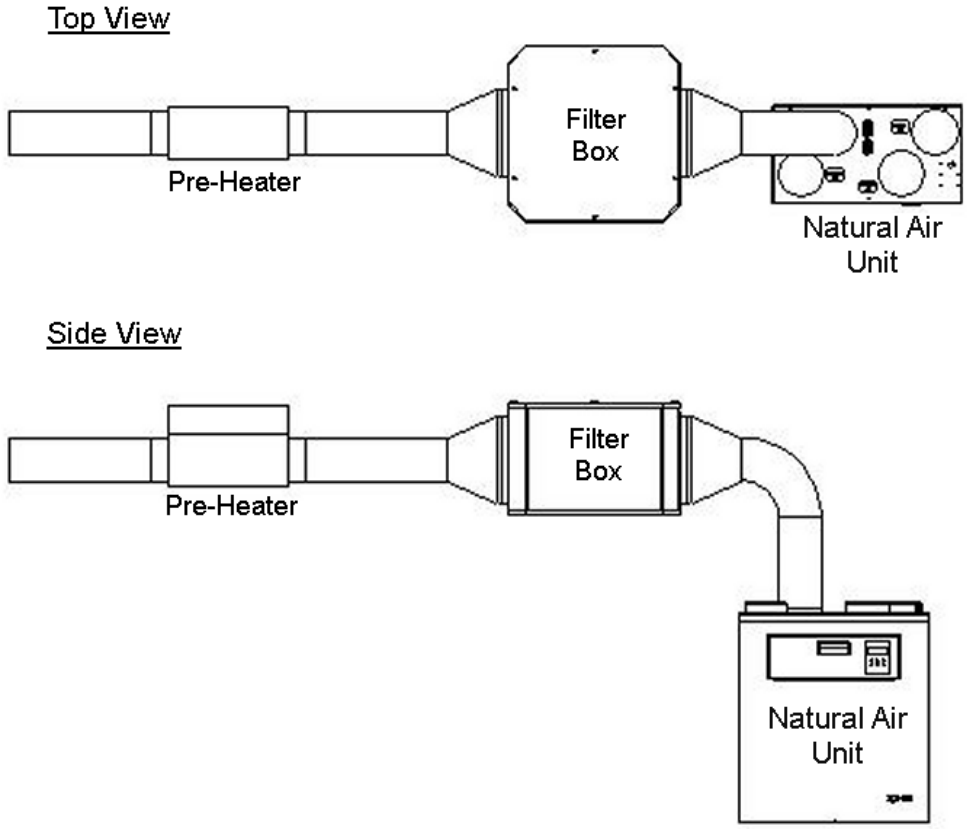


Fig 4.15 Natural Air 180 : Scheme showing positioning of an external filter box and a Pre-heater box.

NOTE!
For Passivhaus* approval:
The 180 PH model requires a 1kW Pre heater and an external F7 filter box. (See Fig 4.15).
The 350 PH model requires a 2.7kW Pre heater and an internal F7 Fresh Air filter.
See User handbook for recommended accessories for use with the PH models.

* *"A Passivhaus is a building, for which thermal comfort can be achieved solely by post-heating or post-cooling of the fresh air mass, which is required to achieve sufficient indoor air quality conditions – without the need for additional recirculation of air."*

5 Set up

After completing the installation, system setup must be carried out by a qualified technician in order to check the correct functionality.

5.1 Requirements for the building

Set up must only be carried out when the building and rooms are ready for occupation.

Ensure that the rooms are free of dust, eg. construction material.

NOTE!
For setting up, the unit and all air inlets and outlets must be freely accessible.

5.2 Requirements for the ventilation system

For set up, the installation of all components of the ventilation system must be completed:

5.3 Requirements for the technician

For setup of the ventilation system, the qualified and trained technician will need the following measuring equipment:

- Multimeter
- Temperature measuring instrument
- Vane anemometer with measuring funnel
- Differential pressure gauge

NOTE!
Setup should be carried out by a qualified technician. Improper setting up of the ventilation system can lead to poor and inefficient ventilation and can cause high noise levels and draughty air conditions!

5.4 Set up procedure

The set up of the ventilation system is carried out on the basis of the following general procedure:

1. Visual inspection of the installed system
   - Ventilation unit, condensate discharge line, filter
   - Controllers, sensors, accessories
   - Air-duct system, thermal insulation
   - Special features (e.g. with open flue fire installation)
2. Start-up
   - Switch on the power supply
   - Functional check of unit and accessories
3. Adjustments.

IMPORTANT :
Follow instructions in 6.3.1 to set Supply and Extract Flow rates.

   - Volume flow rates, adjusting unit and valves
   - Programming the control
4. Instructions
   - Instructing the user / operator on control and maintenance procedures

During initial measuring of the ventilation system, all interior doors and all windows must be kept shut.

All settings required for start-up are made in the Installer menu (see “Control”).

Section 5 – Set up

NOTE!

Changes made using the Installer menu can have a significant effect on the operation of the ventilation system.

- **The setting up procedure should only be made by a qualified technician.**

Incorrect settings can affect the efficiency and noise of the system and can cause system failures.

NOTE!

A log of all the settings can be made using the Settings Log table in Section 10.

WARNING:

After completion, the system must not pose any safety, health or environmental hazards.

The manufacturer cannot be held liable for any systems that are not correctly installed and set.

Section 6 – Control and Service menu

6 Control

The unit is controlled using the buttons and display on the front of the unit.

Additional external sensors (optional) and duct heaters (Natural Air PH models only) can be connected.

WARNING:

Do not use the unit if it is visibly damaged. Disconnect the unit from the power supply and notify your installer.

6.1 Display and control panel on the unit

The unit uses a 3 button control panel with a back lit text display giving menu-driven operations.

Navigate through the menu structure within one level using the ◀ and ▶ buttons. Select the required menu item using the **OK** button. Hold the ◀ button pressed for 1 sec. in order to switch to previous level.

Change the selected settings using the ◀ and ▶ buttons and save the set value using the **OK** button. Hold the ◀ button pressed for 1 sec. in order to exit the menu item without saving changes.

1	LCD display
2	◀ button: back / reduce
	◀ button for 1 sec: Level up
3	**OK** button: select / save / level down
4	▶ button: next / increase

Fig. 6.1 Display and control panel

6.1.1 Standard display

The standard display shows information on the current operating status of the ventilation unit.

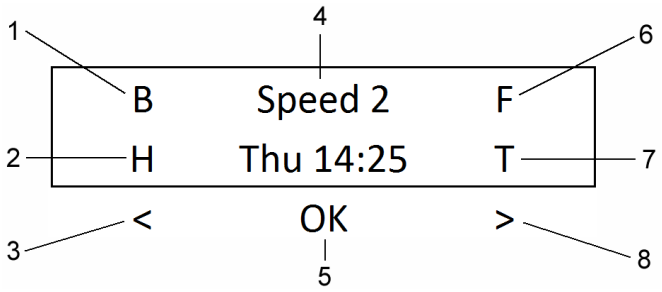


Fig. 6.2 Standard display

Key to Fig. 6.2 :

1 Bypass feature is On
2 Holiday Mode is On
3 Left hand button: Menu Left
4 Operating status and Time
5 Middle button: OK (Enter)
6 Function for safe use with open flue fuel burners
7 Program Timers are On
8 Right hand button: Menu right

6.2 Operating modes

The unit offers 3 different fan speeds. The following operating modes are available:

Operating mode	Application
OFF	The ventilation unit should be in operation continually. (Including when occupants are absent for longer times)
AUTOMATIC	Automatic Speed change by internal humidity sensor and from external sensors (if fitted)
SPEED 1	Normal ventilation runs the system at minimum speed to correctly ventilate the property.
SPEED 2	Boost ventilation runs at a higher rate.
SPEED 3	Boost (Purge) ventilation runs for a user adjustable time interval: for rapid ventilation (e.g. removal of high humidity or stale air etc)

Table 6.3 Operating modes

Access:
Press the OK button

The operating mode is set using the ◄and ►and then **OK** buttons on the display panel.

6.2.1 Automatic operation

The normal power on start-up mode is Automatic.

In Automatic mode:

- The unit will run at Speed 1 all the time unless triggered by the internal humidistat
- The humidistat triggers when there is a rapid increase in humidity
- Humidistat trigger causes the unit to run at Speed 2.
- If fitted, external sensors, when triggered, will also cause the unit to change from Speed 1 to Speed 2.
- The unit returns to Speed 1 when all the sensor triggers have switched off.

6.2.2 Restart after power failure

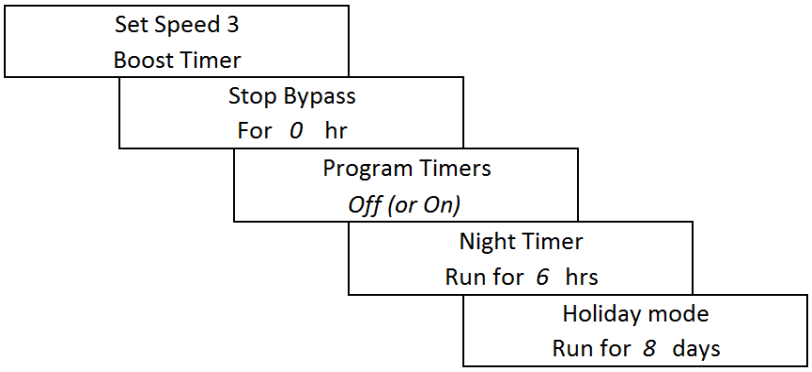
After a power failure, the ventilation unit starts up in the mode it was set to before the power failure (usually Automatic mode)

6.2.3 Favourite User adjustments

The Favourites menu is used to make adjustments to the more commonly used features :
Set Speed 3 (Boost) timer, Timed Stop Bypass, Program timers, Night timer and Holiday mode.

Access: Press the OK button and keep pressed for 5 sec :

Fig 6.4 Favourite User adjustments :



NOTE!
The Night Timer can be adjusted 0 hour to 12 hours. Holiday mode can be adjusted 0 day to 30 days. When set, the unit will run at Speed 1 at all times. ***("H" will show in the Display window)***

NOTE!
Press the ◀ button for 1 second to return the display to normal.
(If no settings are made for 180 seconds, the display returns to the Standard display)

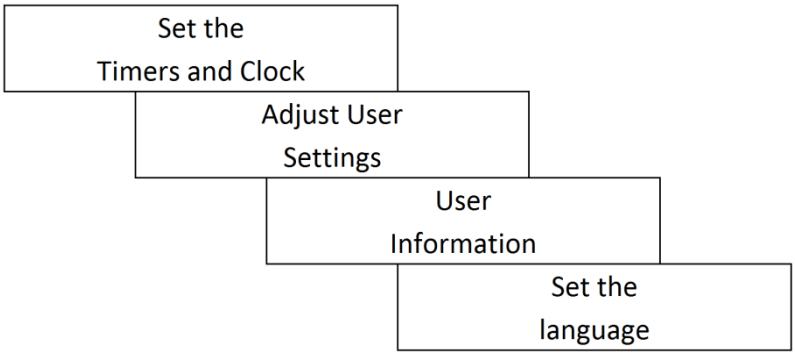
6.2.4 User menu

The user menu is used to program the weekly timer schedule, to set parameters and to view information about the status and operation of the ventilation unit.

Access: Press the ◀ and **OK** buttons simultaneously and keep pressed for 5s

Refer to the User manual for a detailed description of the User menu.

Fig 6.5 User menu :



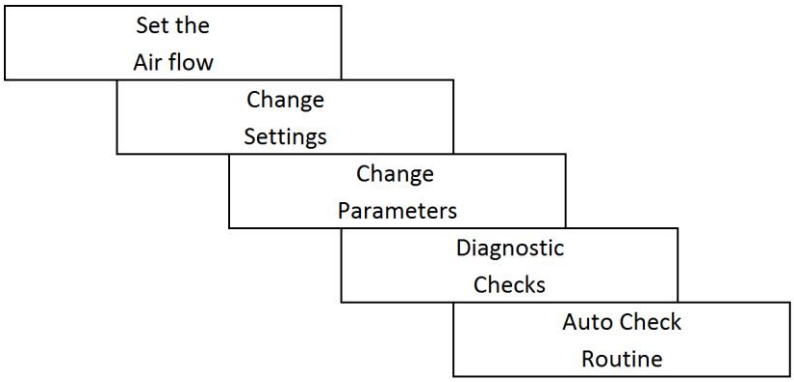
6.3 Installer menu

Access: Press the ▶ and **OK** buttons simultaneously and keep pressed for 5s

The Installer menu is used to make and change the settings for the operation of the ventilation system.

The settings chosen will depend on the individual requirements of each building. (See Table 3.1 for specifications).

Fig 6.6 Installer menu :



6.3.1 Set Supply and Extract flow rates (Speed 1, Speed 2 and Speed 3)

- Ensure the Supply and Extract grills are all open in all rooms.
- **Set the overall (TOTAL) flow rates, at the 3 speeds, using the Installer Menu on the unit.**
- The Supply leg and Extract leg with the highest pressure drop should have their grills fully open.
- Adjust the other grills to proportionally balance the system.
- If required, make small adjustments to the TOTAL air flow rates using the Installer Menu on the unit.

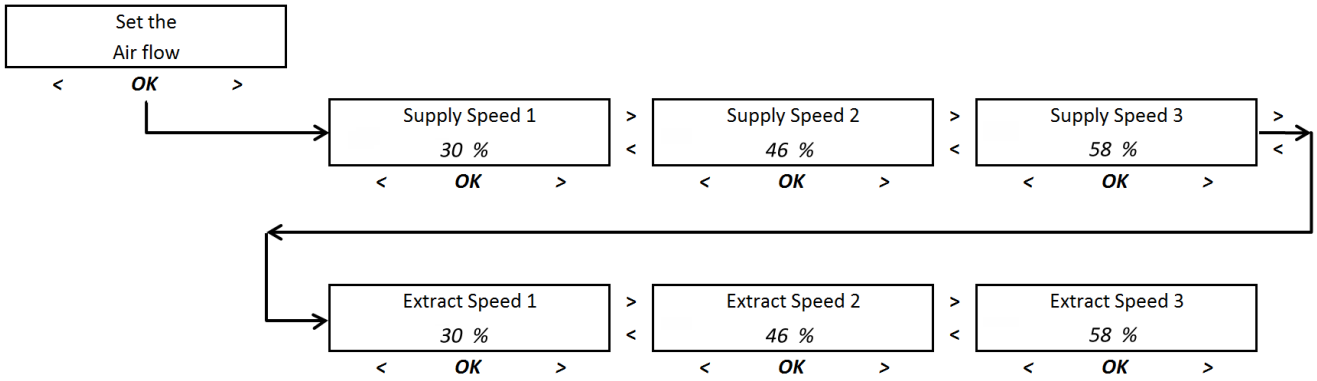


Fig. 6.7 Installer menu: Set the Air flow rates

- Use the “Set the Air flow” menu to change the overall (TOTAL) flow rates at Speed 1 and 2 and 3 for the Supply and the Extract fans.

The settings are all shown as a % of full speed.

Note : MVHR 180 full speed = 225 m³/hr. MVHR 350 full speed = 360 m³/hr. (10 m³/hr = 2.8 l/s).

On all models, except the Natural Air 350 and Natural Air 350 Plus, the fans are constant volume, so the set flow rate values will be maintained for all normal configurations of duct work and grilles.

NOTE!
The TOTAL air volume CANNOT be controlled by closing the individual room grills.

6.3.2 Use the "Change settings" menu to alter various settings :

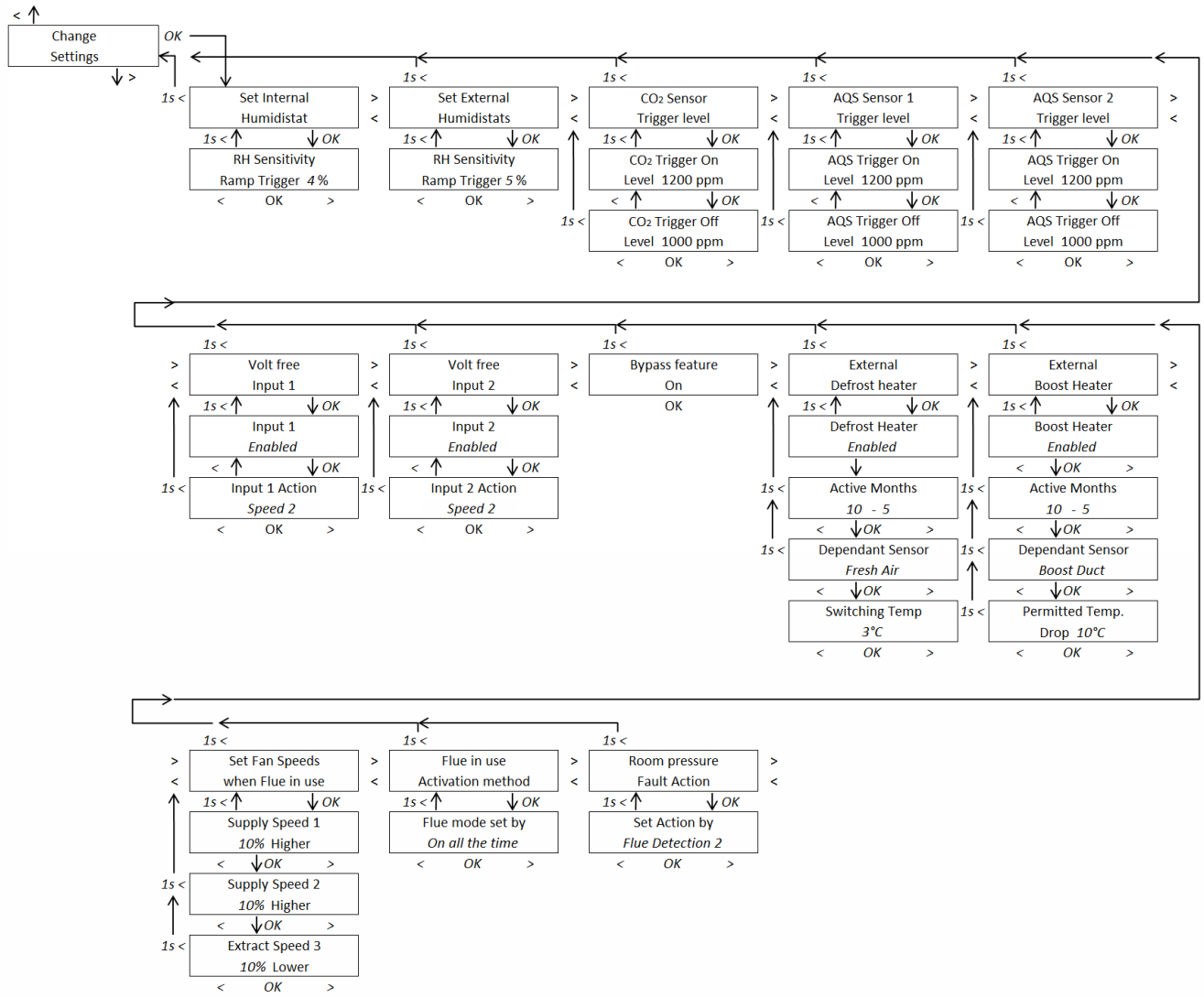


Fig. 6.8 Installer menu: Change settings

Set Internal and External Humidistats:

- The Ramp trigger % sets how rapidly the humidity changes before it triggers the speed from 1 to 2.

E.g. 3% means the humidity must increase by more than 3% in 5 minutes in order to trigger. Therefore, the higher the %, the less sensitive the humidistat.

Set External CO_2 and AQS sensors:

- Adjust the air quality ppm level to set the point when the speed changes from 1 to 2. *The higher the ppm level the poorer the air quality before the speed increases.*

Set Volt free inputs:

There are 2 volt free inputs that can be configured for use with external controls :

- For each input: designate for Enabled or Disabled. (Default is Enabled).

When the input is Enabled it will trigger when the connections are closed by an external volt free relay.

Volt free **input 1** closed sets the unit to **Speed 2**.
Volt free **input 2** closed sets the unit to **Speed 1**. *(Input 1 takes priority over Input 2)*

When both inputs are open the ventilation speed returns to Automatic mode.
The set speed for Inputs 1 and 2 can be changed using the Installer menu. (See Section 6.3.2 – Settings).

Set the Bypass feature:

The summer bypass feature can be switched off if required. (Default is Bypass On)

The operation of the Defrost and Boost heaters (if fitted) can be adjusted :

Defrost heater (PH Models only)

- Set the heater to Enabled or Disabled. (Default is Enabled)
- Set when the heater is allowed to switch on – "Active Months". (Default is October to May : 10 - 05)
- Set the temperature sensor that triggers the heater to come on. (Default is Exhaust Air temperature)
- Set the trigger temperature for the heater. (Default is 3°C)

Note : The Defrost heater only activates when the Fresh air temperature is less than - 3°C.
For Passivhaus approval the factory default settings should be left unaltered.

Boost heater (PH Models only)

- Set the heater to Enabled or Disabled. (Default is Enable)
- Set when the heater is allowed to switch on – "Active Months". (Default is October to May : 10 - 05)
- Set the temperature sensor that triggers the heater to come on. (Default is Boost duct heater temperature)
- Set the permitted maximum temperature drop for the heater. (Default is 10°C)

Temperature drop is the difference between the Extract and Supply air temperatures.

Example :

The permitted temperature drop is set to 7°C.

If the air extracted from the rooms is 22°C and the air being supplied into the rooms is 13°C then the Boost heater will be on. When the supply air temperature rises above 15°C the Boost heater will switch off.

Function for safe use with open flue fuel burning devices.

This function is enabled by removing jumper L13 on the Display PCB.
("**F**" is shown in the normal Display screen):

Set the Fan Speeds when Flue in use

Use the "Set Fan Speeds when Flue in use" menu to

- Increase the % Supply Speed 1 is more than Extract Speed 1. (Default is 10% increase)
- Increase the % Supply Speed 2 is more than Extract Speed 2. (Default is 10% increase)
- Decrease the % Extract Speed 3 is less than Supply Speed 3. (Default is 10% decrease)

Flue in Use Activation

Use the "Flue in Use Activation method" menu to set how the Flue Speeds are activated :

- Set Action by 1) Flue Detection Input or 2) On all the time or 3) No action. (**Default is On all the time**)

When the selected input is :

- **Open :** The fans run at Flue speed.
- **Closed :** The fans run at Normal speed.

NOTE!
L13 is removed : The default "Flue in Use Activation" method is Flue speeds always apply.

Room pressure Fault Action

One of the Flue detection inputs (Default is Flue detection 2) can be used with an external pressure sensing control.

Pressure sensing controls are used in the room containing the open flue fuel burning device.

When there is a pressure fault, the volt free output from the control is open.

Use the "Room pressure Fault Action" menu to setup how the Flue Speeds are implemented in the event of a
room pressure fault :

- Set Action by "Flue Detection Input" or "No action". (**Default is Flue Detection input 2**)

When the selected input is :

- **Open :** The fan speeds gradually increase in order to correct the room pressure.
- **Closed :** The fans run at existing Flue speed

Settings must be made by a qualified technician during setting up and do not normally require any further changes.

NOTE!
If the external pressure sensor continues to detect a fault, and the ventilation unit cannot make any further adjustments, then the ventilation unit will shutdown and display a fault message "Check Fireplace ventilation".

NOTE!
A link wire is preinstalled to Flue Detection input 2. If an external pressure sensing control is used then this link MUST be removed.

WARNING:
In the event of the unit shutting down and displaying "Check Fireplace ventilation" :

- **The cause of the room pressure fault must be investigated and fixed before restarting the unit.**
- **To restart: Press OK for more than 5 seconds.**

NOTE!
Changes made using the Installer menu can have a significant effect on the operation of the ventilation system.

- **The set up procedure should only be made by a qualified technician.**

Incorrect settings can affect the efficiency and noise of the system and can cause system failures.

NOTE!
If no settings are made for 180 seconds, the display returns to the standard display.

6.3.3 Installer menu – Save and Load and Reset Parameters

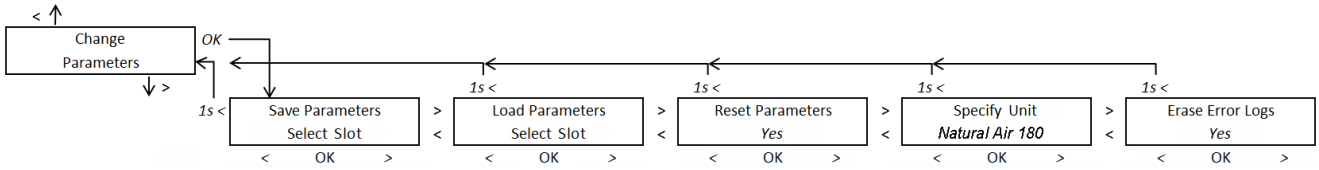


Fig. 6.9 Installer menu: Parameters

Save parameters

Used to save the currently programmed volume flow rates and all settings for inputs and outputs.

Before making any changes it is recommended that the existing parameters are saved using “Save Parameters” menu. (Two memory slots are available).

Load parameters

Use “Load Parameters” menu in order to restore previously saved parameters. (Two memory slots available).

Reset parameters

Used to reset all the parameters for volume flow rates and settings for all inputs and outputs to their default values.

Specify Unit

Used to load the unit configurations for the appropriate model. See unit rating plate for the model description.

NOTE!

The ventilation unit is shipped with factory preset unit configuration.

- **When installing a new main circuit board, use “Specify Unit” menu to set the unit configuration.**

Erase Error logs

Use “Erase Error logs” to clear all stored error messages (Up to 20 of the most recent faults are recorded and can be viewed in the User menu “User Information – Error messages”).

6.3.4 Installer menu - Diagnostic Checks

The Diagnostic Checks menu can be used to check the operation of the individual outputs of the ventilation unit.

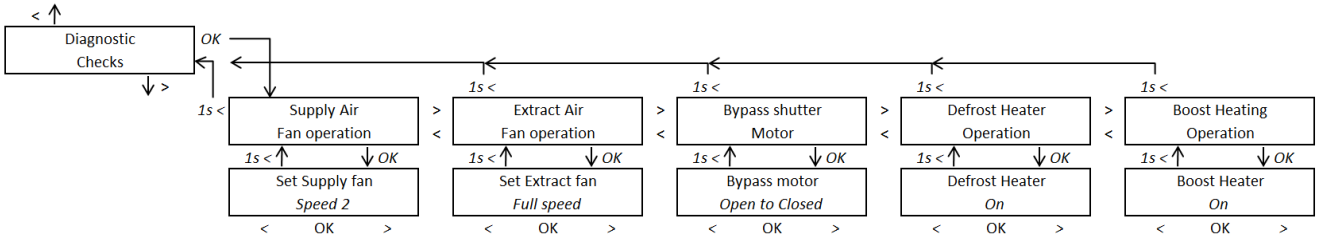


Fig. 6.10 Installer menu: Diagnostic Checks

Supply Air Fan operation

- Set the Supply fan to Off or Speed 1 or 2 or 3 or Full speed.

Extract Air Fan operation

- Set the Extract fan to Off or Speed 1 or 2 or 3 or Full speed.

Bypass shutter Motor

- Set the Bypass shutter to Open or Closed.

Defrost Heater

- When fitted, the external defrost heater output can be switched On or Off.

Note: The heater output will not switch ON if the fans are not running.

Boost Heater

- When fitted, the external boost heater output can be switched On or Off.

Note: The heater output will not switch ON if the fans are not running.

NOTE!
Further status and operation information for the ventilation unit can be found in the User Manual.

6.3.5 Installer menu – Auto Check Routine

The Autocheck menu is used to check, in sequence :

- The Supply and Extract flow rates (% of full speed) at Speed 1 then 2 then 3
- Manually open and close the Bypass shutter
- Display the Fresh air temperature and the position of the Bypass shutter
- Switch the Defrost heater on and off
- Switch the Boost heater on and off

6.4 Operational functions

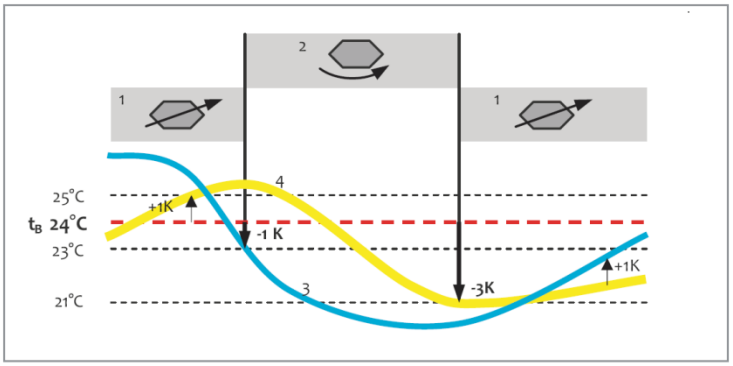
6.4.1 Bypass control

The Bypass is used to allow cool Fresh air to be supplied into the building without being warmed up by the units heat exchanger. (The heat exchanger is “bypassed”).

This function can be used in summer in order bring cool outside air (e.g. at night) into the rooms.

The Bypass operates automatically and is setup using the “Adjust User Settings” in the User menu.

The *switching temperature* can be set within the range -20 to +39°C. The default setting is +21°C.



1 Bypass closed (heat recovery works)
2 Bypass open/enabled (no heat recovery)
3 Fresh-air temperature
4 Extract-air temperature t_B Bypass switching temperature

Fig. 6.11 Bypass control

The Bypass only works during the months set in the User menu. The default setting is May to October.
A “**B**” in the normal display means that the Bypass is active / open. (Heat recovery is disabled).

The bypass is opened (heat recovery is disabled) when all of the following conditions are fulfilled:

- Current date is within the set switching period (User menu /Adjust User Settings / Set up Summer Bypass) and
- Extract-air temperature is at least 1°C above the set switching temperature and
- Fresh-air temperature is at least 1°C below the set switching temperature

The bypass is closed (heat recovery is enabled), when all of the following conditions are fulfilled:

- Extract-air temperature is at least 3°C below the set switching temperature and
- Fresh-air temperature is 1°C above Extract-air temperature

6.4.2 Filter monitoring / filter message

The filter is monitored on the basis of a time interval. At the end of this interval, a message reminds the user of filter maintenance with a text message and flashing display.

The interval is set in the User menu – Adjust User settings, and can be set within a range of 2…12 months. (Default setting is 6 months). The time interval can be changed at any time.

Filter reset:

When the "Replace Filters" message is displayed:

- Press the OK button to show "Filter replaced?" Use the ◄ or ► buttons and **OK** to select "Yes" or "No".

NOTE!
The filter interval is not reset through power failures or when the ventilation unit is switched off.

6.5 Internal safety functions

6.5.1 Function for safe use with open flue fuel burning devices.
(Only to be used if permitted by relevant regulations in your country of use).

(Prevents flue gases being drawn back into the room)

The ventilation unit has an integrated function for safe use with open flue fuel burning devices.

This function is enabled when jumper L13 on the display circuit board is removed.
(Indicated by an "**F**" in the standard display).

When this function is enabled the flow rate of the Supply fan is automatically increased.

NOTE!
The addition of proprietary external controls, suitable for use in rooms containing an open flue burning devices, is strongly recommended.

The unit has two configurable Flue Detection inputs for use with external controls.

(See Section 6.3.2 on how to setup the Flue Detection inputs)

WARNING:
The higher flow rates set when this function is on must be verified as adequate for the application.

If the flow rates need to be changed then use "Installer Menu – Change Settings – Set Fan Speeds when Flue in use".

(See Section 6.3.2 on how to setup the Flue Detection inputs)

WARNING:
IF THE HIGHER FLOW RATES REQUIRED FOR OPEN FLUE ROOMS ARE NOT CORRECTLY SET THERE IS A DANGER THAT FLUE GASES COULD BE DRAWN BACK INTO THE ROOM, WITH THE CONSEQUENTIAL RISK OF SERIOUS INJURY OR DEATH.

WARNING:
Settings must only be changed by a qualified technician. If in doubt, we recommend you consult a qualified specialist.

- Jumper L13 installed : safety function **disabled**

Fig. 6.12A Display circuit board with jumper L13

- Jumper L13 removed : safety function **enabled**

Fig. 6.12B Display circuit board without jumper L13

6.5.2 Frost protection of the heat exchanger

When the outdoor temperatures are very low and the property is left unheated, a frost protection function will operate in order to prevent freezing of the heat exchanger.
Frost protection of the heat exchanger is activated when the temp. inside the property drops below 3°C.

Automatic frost protection method :

- Flue not used (Jumper L13 installed): Supply fan is switched off for between 15 – 30 minutes.
- Flue in use (Jumper L13 removed): Bypass shutter is opened for between 15 – 30 minutes.

Note: The frost protection time of between 15 – 30 minutes depends on the Room temperature.

During Frost protection of the heat exchanger, the display will read Cool Down Protection.

Cool Down Protection
< OK >

NOTE!
In order to enable setting up, this function is not available for 60min after energizing the ventilation unit.

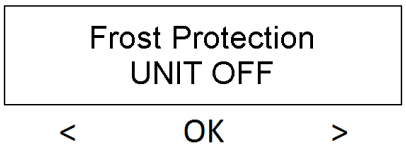
NOTE!
With L13 removed: During defrosting, heat recovery is disabled and cold Fresh air flows directly into the rooms. The installation of a Defrost heater in the Fresh air duct is recommended to prevent ice build-up.

6.5.3 Frost protection of the property

If the Supply air temperature drops below 8°C the whole unit will automatically switch off, in order to protect the property from frost damage. The unit will remain off for 60 mins so that room temperatures can recover.

The unit will automatically switch on again when the Supply air temp. is above 9°C.

During Frost protection of the property, the display will read Frost Protection, UNIT OFF.



NOTE!
In order to enable setting up, this function is not available for 60min after energizing the ventilation unit.

6.5.4 Safety cut-out function (See also Section 4.5.8)

The Smoke Detector terminal on the Main Connector PCB is used to connect to an external smoke detector. Connect the volt free output from the smoke detector control to the “Smoke Detector” terminals.

If an external smoke detector is not fitted then :

- Put a shorting link across the Smoke Detector terminals on the Main Connector PCB. (See Section 4.5.1).

If the Smoke Detector terminals are open, display reads “SMOKE ALARM. UNIT IS OFF” and unit remains OFF.

- When the Smoke Detector contacts are re-closed the display reads “SMOKE ALARM OVER. Press OK”

Unit returns to Normal and is “Off”. Select “Automatic” to start the unit again.
The ventilation unit will switch off immediately when the “Smoke Detector” terminals are opened.

Section 7 – Fault Finding

WARNING:

Repairs must only be carried out by qualified technicians.
Use only original spare parts from the manufacturer.

Filter, status and fault messages are shown on the display and control panel of the ventilation unit.
If there are any active fault messages, the display message will flash the error.

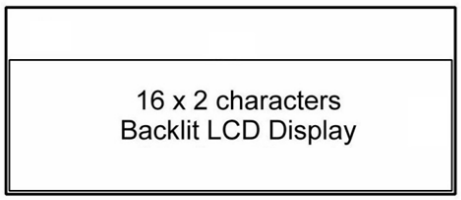
Code	Display	Status	Fault	Cause	Action
-	None (display off)	Off	No display, device not running	No power supply	Check the power supply
-	None (display off)	Running	Faulty display	Defect of the cable to the display circuit board or of the display board itself	Check the cable to the display board PCB2, replace circuit board
-	Replace Filters	Running	Filter clogged	Filter interval expired	Check / change filter, reset filter interval
-	Cool-down protection	Off	Switch-off for frost protection of unheated rooms	Exhaust-air temperature < +3°C, switch-off for frost protection unit	Self induced start-up when room temperature reaches > +9°C
E05	E05 External	Off	Power supply breakdown, 24V DC overload	External controllers and sensors, incorrect wiring, short circuit or max. number exceeded	Check wiring of external controllers and sensors
E11	E11 Supply Start	Off	Supply fan (RHS) does not start	No Supply fan speed for 30 s, cable break, duct blocked or defective	Check / replace connection cable and Supply fan
E12	E12 Extract Start	Off	Extract fan (LHS) does not start	No Extract fan speed for 30 s, cable break, duct blocked or defective	Check / replace connection cable and Extract fan
E21	E21 Fresh Air NTC	Running	Internal Fresh Air sensor	Sensor or cable defective	Check / replace Fresh Air sensor
E22	E22 Supply NTC	Running	Internal Supply sensor	Sensor or cable defective	Check / replace Supply sensor
E23	E23 Extract NTC	Running	Internal Extract sensor	Sensor or cable defective	Check / replace Extract sensor
E24	E24 Exhaust NTC	Running	Internal Exhaust sensor	Sensor or cable defective	Check / replace Exhaust sensor
E25	E25 Humidistat	Running	Internal Humidistat sensor	Sensor or cable defective	Check / replace Humidistat sensor
-	SMOKE ALARM UNIT IS OFF	Off	External smoke detector has activated. Link wire missing.	External smoke detector has activated. Link wire not fitted.	Check and reset or install link wire. See external Smoke detector device
-	Check Fireplace Ventilation	Off	External room pressure sensor continues to detect a pressure fault.	Supply and Extract air flow rates are incorrect.	Check ducting system for blockages and fix if required. Check correct operation of supply fans and fix if required. Reset screen message when fault cleared (Press OK for more than 5 seconds)

Table 7.1 Messages and faults

NOTE!

After elimination of faults, faults must be acknowledged and reset by means of a power reset (switch off the power supply for 5 secs and switch it back on again).

8 Map of the user menu



Key for use with chart below :

B	Bypass feature is On
H	Holiday mode is On
F	Fireplace option is active
T	Program timers are On

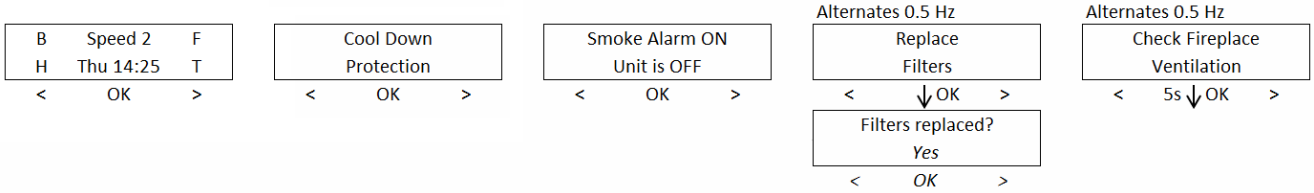
12 x 12 Tact switches (x 3)

1s < ↑ Press the < Key for more than 1 second to move "Up" the menu tree.

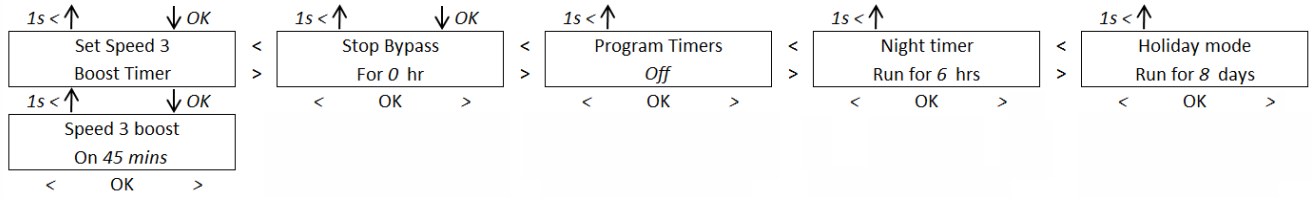
OK ↓ Select the displayed option and move "Down" the menu tree.

Access: Press the ◄and **OK** buttons simultaneously and keep pressed for 5s :

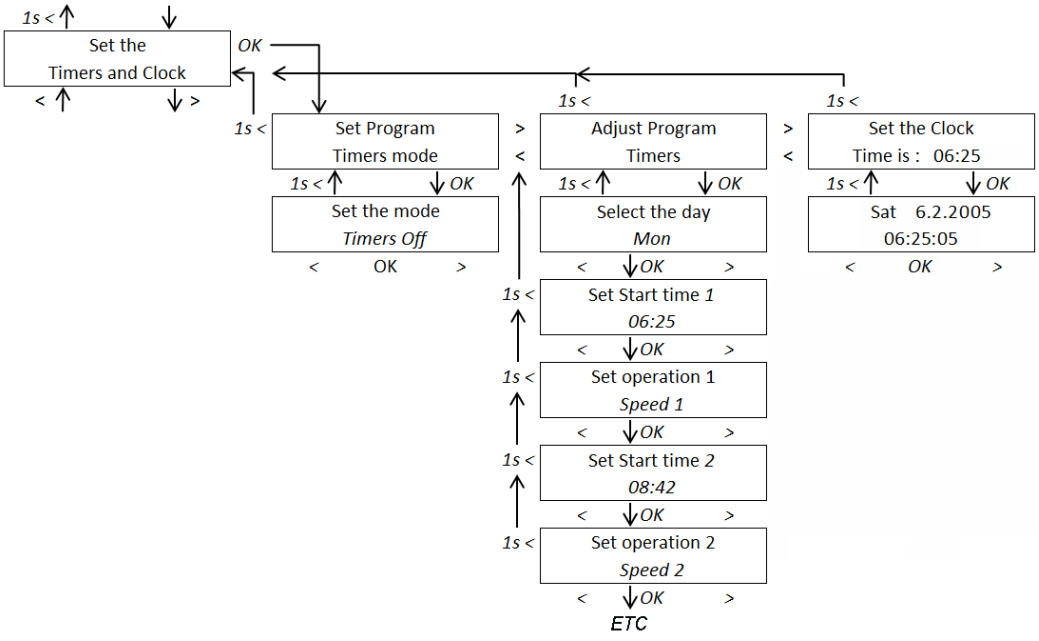
Normal display (with clock) : **Special conditions Displays :**



Common adjustments display : **Press (OK) for 5 secs** **Time out = 180 secs**

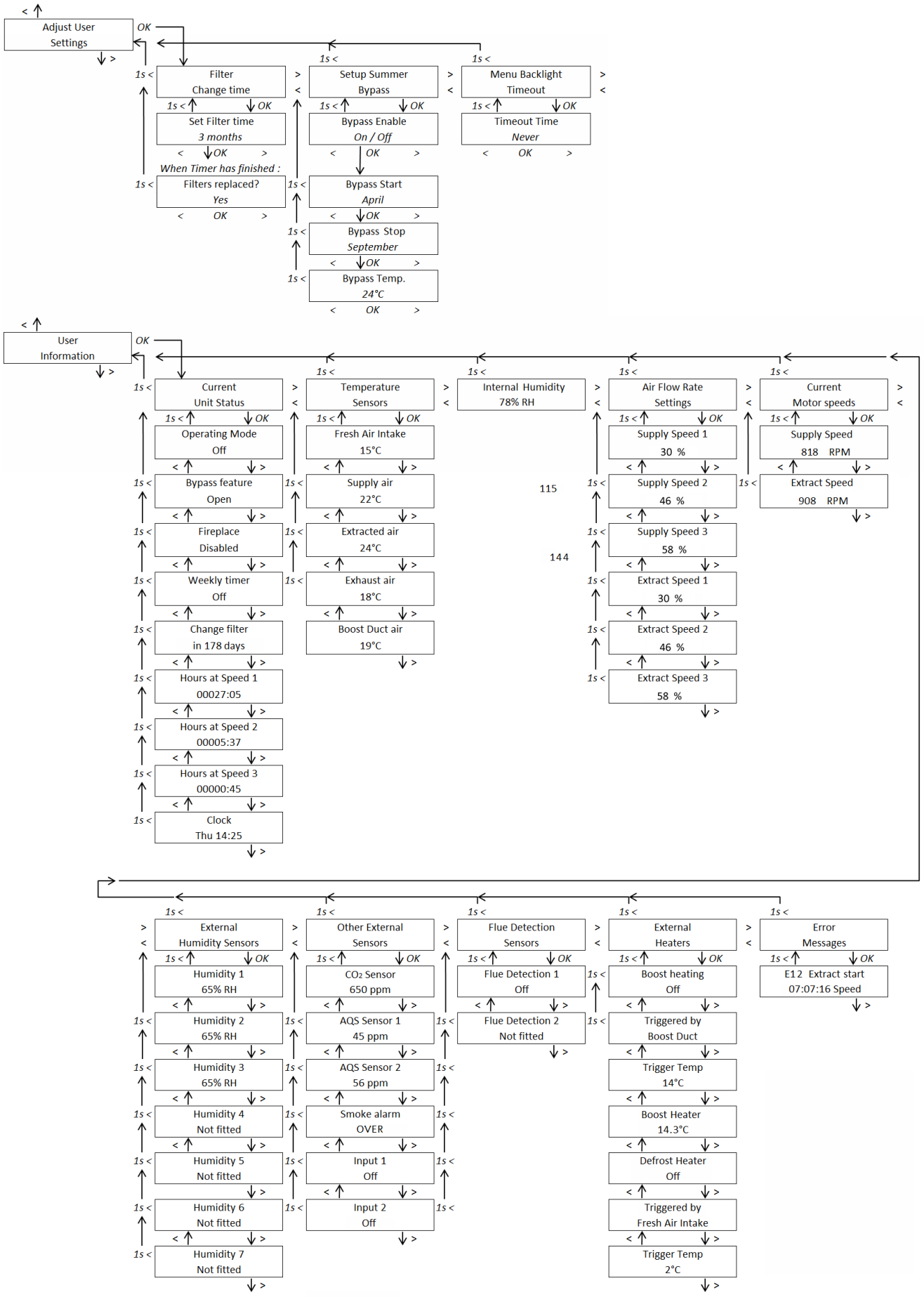


User adjustments display : **Press (<) and (OK) for 5 secs** **Time out = 180 secs**



User menu continued on next page.

Section 8 – User Menu



User menu continued on next page.

Section 8 – User Menu

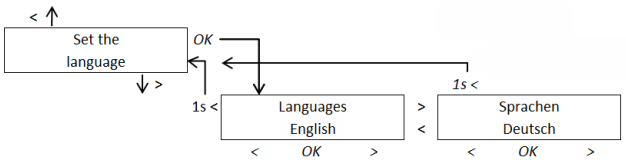
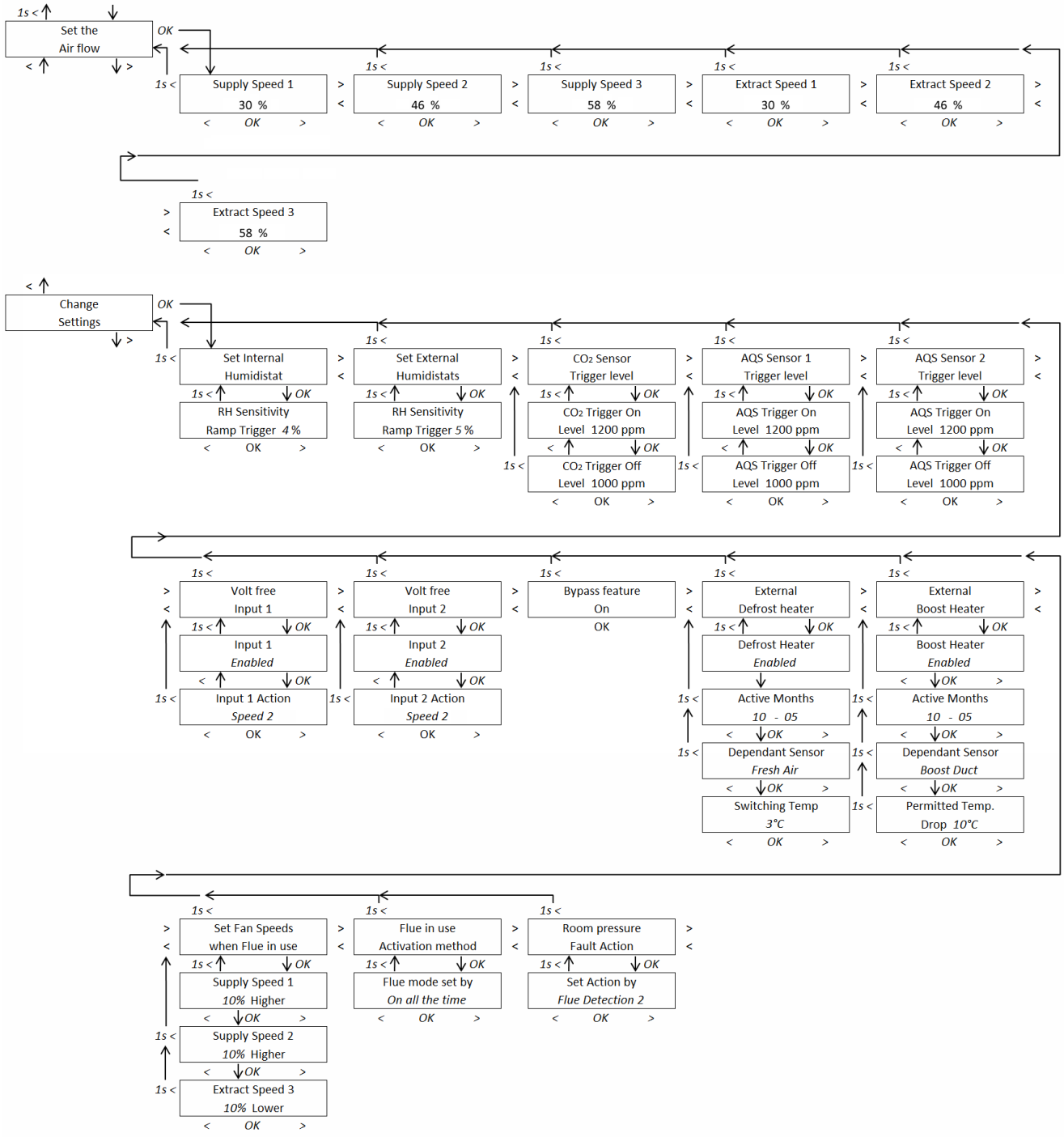


Fig. 8.1 Map of User Menu

Section 9 – Installer Menu

9 Map of the Installer menu

Select Installer menu : **Press (OK) and (>) for 5 secs** **Time out = 180 secs**



Section 9 – Installer Menu

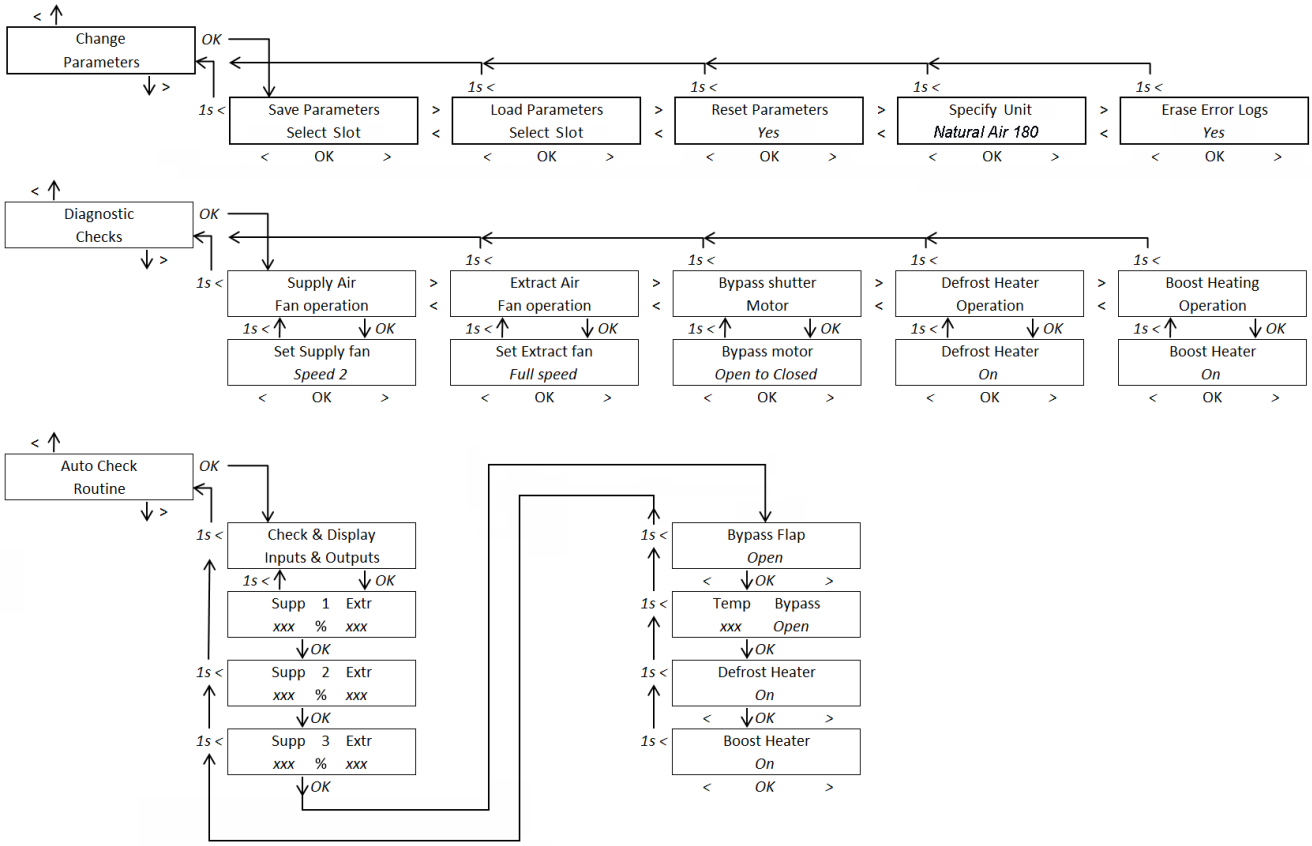


Fig. 9.1 Map of Installer Menu

Section 10 – Settings Log table

Use the table below to record the settings of the installed system.

10.1 User Settings

Menu Title	Setting	
	Factory Default	New Value
Set Speed 3 Boost Timer	30 minutes	
Program Timers	Off	
Filter Change Time	6 months	
Setup Summer Bypass	On	
Bypass Period	April to October	
Bypass Switching Temperature	21°C	

Section 10 – Settings Log table

10.2 Installer Settings

Menu Title	Setting	
	Factory Default	New Value
Supply Speed 1	30 % of full scale speed	
Supply Speed 2	46 % of full scale speed	
Supply Speed 3	58 % of full scale speed	
Extract Speed 1	30 % of full scale speed	
Extract Speed 2	46 % of full scale speed	
Extract Speed 3	58 % of full scale speed	
Internal Humidistat Ramp Trigger Sensitivity	4%	
External Humidistat Ramp Trigger Sensitivity	5%	
CO^2 Sensor Trigger On / Off Levels	1200ppm / 1000ppm	
AQS Sensor 1 Trigger On / Off Levels	1200ppm / 1000ppm	
AQS Sensor 2 Trigger On / Off Levels	1200ppm / 1000ppm	
Volt free Input 1	Enabled	
Volt free Input 1 Action	Set to Speed 2	
Volt free Input 2	Enabled	
Volt free Input 2 Action	Set to Speed 1	
Bypass feature	On	
Defrost heater	Enabled	
Defrost heater Active months	October to May (and only if Fresh air < - 3°C)	
Defrost Dependant Sensor	Exhaust Air	
Defrost Switching Temperature	3°C	
Boost heater	Enabled	
Boost heater Active months	October to May	
Boost Dependant Sensor	Boost Air	
Boost Permitted Temperature Drop	10°C	
Flue in use increase Supply Speed 1	10%	
Flue in use increase Supply Speed 2	10%	
Flue in use decrease Extract Speed 3	10%	
Flue in use mode Activation set by	On all the time	
Room pressure Fault Action by	Flue Detection Input 2	

Section 11 – Customer Service and Warranty

11 Guarantee

UK Only
Xpelair products deliver reliable service for normal, household use in domestic setting. All Xpelair products are individually tested before leaving the factory.

If you are a consumer and you experience a problem with your Xpelair product, which is found to be defective due to faulty materials and workmanship within the warranty period. This Xpelair warranty will cover repair or at the discretion of Xpelair replacement with a functionally equivalent Xpelair product.

The Xpelair warranty period is Two calendar years from the date of purchase of your Xpelair product, or the date of delivery of the product, if later. The Xpelair warranty is conditional upon you providing the original purchase receipt proof of purchase. Please therefore retain your receipt as proof of purchase.

If you do experience a problem with your Xpelair product please call the helpline on +44 344 879 3588 or at the address below. We will need details of your Xpelair product, and a description of the fault which has occurred. Once we receive your information and proof of purchase we will contact you to make the necessary arrangements.

Customers outside UK - See International below.

If your Xpelair product is not covered by this warranty there may be a charge to repair your product. However, we will contact you for an agreement to any charges before any chargeable service is carried out.

What is not covered by an Xpelair warranty?
The Xpelair warranty does not cover any of the following:
Any fault or damage to your Xpelair product due to faulty materials or workmanship occurring outside the Two year warranty period.
Any fault or damage occurring to any pre-owned Xpelair product or any other equipment of property.
Accidental damage to your Xpelair product or damage to your Xpelair product from external sources (for example, transit, weather, electrical outages or power surges).
Fault or damage to your Xpelair product which is:
Not due to faulty materials or workmanship or which is due to circumstances outside Xpelairs control.
Caused by use of your Xpelair product for anything other than normal domestic household purposes in the country where it was purchased.
Caused by any misuse, abuse or neglect use of the Xpelair product, including but not limited to any failure to use it accordance with the Operating instructions supplied with the product.
Caused by any failure to assemble, install, clean and maintain your Xpelair product in accordance with the Operating instructions supplied with the product unless this was carried out by Xpelair or its authorised dealers.
Caused by repairs or alterations to your Xpelair product not carried out by Xpelair service personnel or its authorised dealer(s).
Caused by use of any consumables or spare parts for your Xpelair product which are not Xpelair specified.

Terms and conditions
The Xpelair warranty is valid for Xpelair from the date of purchase of your Xpelair product from a recognised retailer in the country of purchase and use, or the date of delivery of the product if later, always provided the original receipt has been retained and is produced as proof of purchase.
You must provide to Xpelair or its authorised agents on request the original receipt as proof of purchase and - if required by Xpelair - proof of delivery. If you are unable to provide this documentation, you will be required to pay for any repair work required.
Any repair work under the Xpelair warranty will be carried out by Xpelair or its authorised dealer(s) and any parts that are replaced will become the property of Xpelair. Any repairs performed under the Xpelair warranty will not extend the warranty period.

Section 11 – Customer Service and Warranty (Continued)

Any replacement of your Xpelair product by Xpelair during the warranty period will start the Two year warranty period afresh from the date of delivery of the replacement Xpelair product to you.
The Xpelair warranty does not entitle you to recover of any indirect or consequential loss or damage including but not limited to loss or damage to any other property.
The Xpelair warranty is in addition to your statutory rights as a consumer and you statutory rights are not affected by this Xpelair warranty.

Contact Xpelair
If you have any questions about what the Xpelair warranty covers and does not cover or how to claim under Xpelair warranty, please contact us using the information below.

Contact details
Millbrook House, Grange Drive, Hedge End, Southampton SO30 2DF
Telephone: +44 (0) 344 879 3588
Email: customer.services@glendimplex.com
http\\www.xpelair.co.uk

International
Warranty: Contact your local distributor or Xpelair direct for details.
Technical advice and service: Contact your local Xpelair distributor.

Xpelair: A brand of GDC Group Limited, trading as Glen Dimplex Heating & Ventilation

NOTE!
Please be prepared to tell us the exact device type and serial number S/N, for your ventilation unit so that we can process your enquiry, customer service order or complaint correctly. You can find this information on the rating plate located next to the display and control panel on the main cover of the ventilation unit.

Section 12 – Environment and Disposal

Be conscious about the environment and help to protect it.

Disposal of packaging

The ventilation unit has been packaged carefully to protect it from damage during transport. The transport packaging consists of recyclable raw materials.
Please ensure to dispose of it in an environmentally responsible way.

Disposal of the device

For Electrical products sold within the European Community. At the end of the electrical products useful life it should not be disposed of with household waste. Please recycle where facilities exist. Check with Local Authority or retailer for recycling advice in your country. Batteries should be disposed of or recycled in accordance with WEEE Directive 2012/EU, Packaging should be recycled where possible.

Millbrook House, Grange Drive,
Hedge End, Southampton, SO30 2DF
Tel: +44 (0) 344 879 3588
UK Technical Service Tel: +44 (0) 344 879 3588
UK Technical Service Email: customer.services@glendimplex.com