ComfoAir Compact 155 WM

Mechanical Ventilation with Heat Recovery

Installation Instructions



CA155WM-EU

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1.0 General Description / Physical Specification

1.1 Overview

1.1.1 The ComfoAir Compact 155 WM is a ventilation system designed to provide improved indoor air quality in dwellings. As a whole house system, the unit continuously extracts air from the non-habitable rooms and supplies fresh, filtered air to habitable rooms. Heat that is recovered from the air drawn from the bathrooms and kitchen is passed through a heat exchanger and the heat that is recovered is transferred, to temper the supply air in habitable rooms to provide a comfortable indoor environment.

1.1.2 A boost speed facility is provided to increase the ventilation rate, e.g. when cooking or showering, providing a comfortable indoor environment. A two speed operation can be done via the Switch-Live (SL), a ZGS2 SL boost switch or a ZGRC1 boost and alert controller can be used to provide this operation. A three speed operation can be done via the ZGS1, the SA 1-3V or combining the Switch-Live with a ZGS2 SL switch for the AUX speed. *(See Section 2.8.5 Electrical).*

1.1.3 **Ancillary Items Required**

ComfoAir 155 WM

- 125mm Ducting (rectangular ducting can be used, where appropriate)
- ZGS2 Hardwired switch providing switching between low and high (option)
- ZGRC1 Hardwired boost and system status controller, switching between low and high (option)
- ZGS1 Hardwired switch providing switching between low, AUX and high (option)
- SA 1-3V Hardwired switch providing switching between speeds: low, high and AUX (away mode)

1.1.4 **Packaging includes:-**

1 x Heat Recovery Unit
1 x Wall Fixing Bracket (ComfoAir 155 WM)
1 x Installation Instructions
1 x User/Homeowner Guide

1.1.5 The ComfoAir Compact has been designed and manufactured for use in "Balanced Ventilation Systems" with Zehnder heat recovery. Any other use is considered "improper use" and may cause damage to the ComfoAir Compact or bodily injury for which the manufacturer cannot be held responsible.

The manufacturer is not responsible for damage caused by:

- Failure to comply with the safety, operating and maintenance instructions contained in this manual;
- The installation of parts not supplied or not prescribed by the manufacturer. The installer is fully responsible for the use of such parts;
- Normal wear.

1.1.6 'If the supply cord is damaged, it must be replaced by a special cord / assembly available from the manufacturer or its service agent. The replacement must be carried out by a qualified electrician in accordance with IEEE or local regulations'.

1.1.7 To disassemble the unit, disconnect from mains supply and use a screwdriver to segregate the electronic components and motors from the plastic housing. Dispose items in accordance with WEEE.

1.1.8 **WEEE Statement**

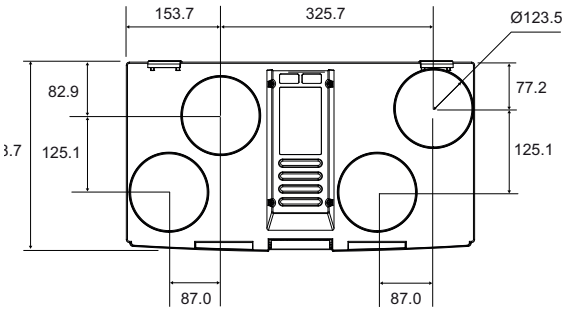


This product may not be treated as household waste. Instead it should be handed to an appropriate collection point for the recycling of electrical and electronic equipment.

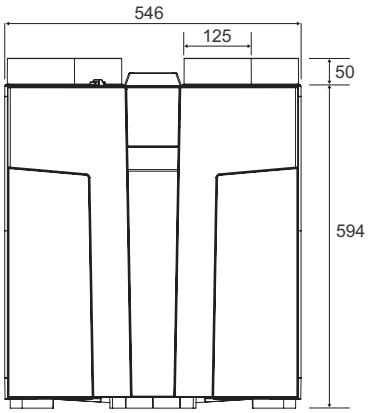
For more detailed information about the recycling of this product, please contact your local council office or your household waste disposal service.

1.2 Physical Specifications

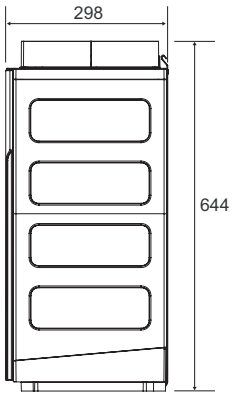
ComfoAir 155 WM



Top View



Front View



Side View

2.0 Installation Instructions

2.1 General Preparation

2.1.1 The ComfoAir 155 WM unit is supplied with 4 x 125mm Ø spigots.

- 125mm ducting with connectors can be used (see Ancillary Section page 3) to provide performance levels required for compliance with local Building Regulations.

2.1.2 Installation of the unit should be in accordance with the current editions of local Building Regulations and IEE or local Wiring Regulations

2.1.3 The design, material specification and installation must only be carried out by "competent persons". Electrical installation must be carried out by a qualified Electrician.

2.1.4 **IMPORTANT NOTE: Gases from fuel-burning equipment must not be drawn into any living areas. If any room, where air is extracted, contains a fuel-burning appliance such as a central heating boiler, then either of the following should be undertaken:**

- The flue must be of the room sealed or balanced flue type or;
- Allowance must be made for an adequate supply of air into the room.

2.2 Positioning

2.2.1 The ComfoAir 155 WM unit must be installed vertically and can be either wall or floor mounted to enable effective condensate drainage in either a kitchen/service cupboard or secured to a vertical structure in the loft space. If located within a cold space, it is recommended that the bottom of the unit is insulated to prevent freezing around the condensate connection. Duct spigots must be upright at top of unit.

2.2.2 It is not advisable to install the unit directly above a bedroom or living room ceiling, or in an area that is part of a living area or bedroom.

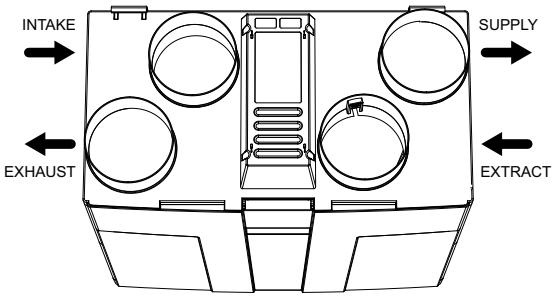
2.2.3 Consideration must be given to allow for adequate access for servicing, maintenance and any fault diagnostics *(See Section 2.5 Access for Maintenance).*

2.2.4 The unit can be configured for right and left hand installation at a touch of a button by following the steps within the Commissioning Wizard *(See Section 3.1.4 Commissioning Wizard)* and does not require any internal changes. *(See Figures overleaf for ducting configuration).*

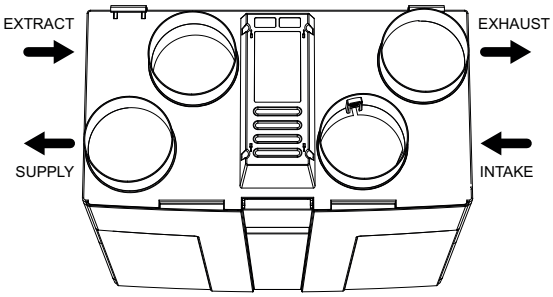
2.3 Configuration

Note: To change the handing of the unit, follow the simple steps within the Commissioning Wizard *(See Section 3.0).* Automatically done for you via software.

ComfoAir 155 WM



Right Hand (factory setting)



Left Hand

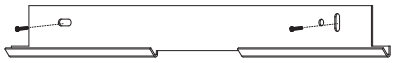
2.4 Mounting

2.4.1 The ComfoAir 155 WM unit is supplied with one wall fixing bracket. The bracket is a long strip and has two adjustable fixing points located at the end of the bracket. Screws and fixings not supplied.

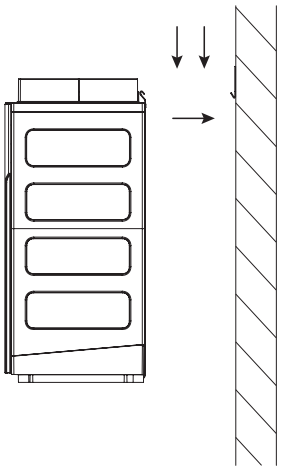
2.4.2 Proceed to align the wall bracket taking into account the available wall space to mount the unit, ensuring that the wall can support 20kg.

2.4.3 Use a spirit level to assist mounting and levelling the bracket. Securely fix bracket to wall using suitable fixings.

2.4.4 The unit fixes to the wall bracket by slotting the bracket attached to the back of the unit and hooking into place.



Fixing Bracket

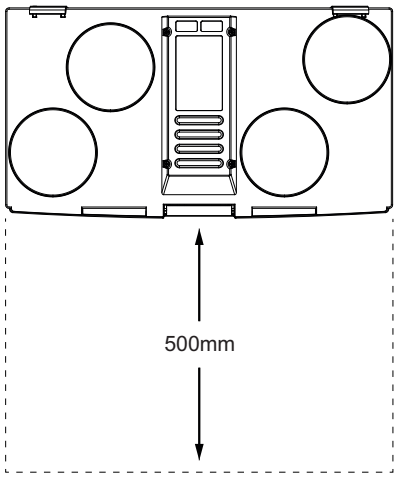


Note:

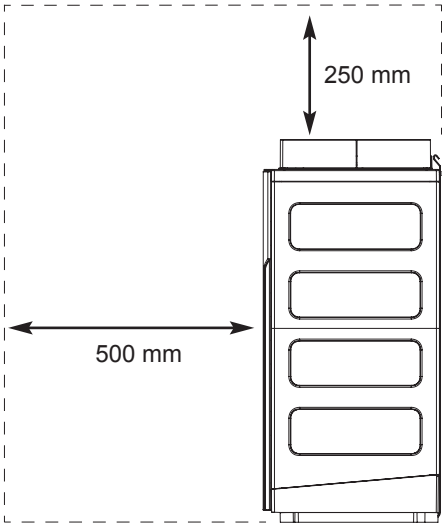
- **Fixing Bracket height will be critical in kitchen cupboard.**
- **There should be no movement once correctly located and the filters should be accessible by easily removing the panels on the front of the unit.** *(See Section 4.1.8 within the User / Homeowner Guide).*

2.5 Access for Maintenance

Footprint of ComfoAir 155 WM



TopView



Side View

2.6 Condensate Drain

2.6.1 It is important that any condensate MUST be drained away.

- The ComfoAir 155 WM unit is provided with a condensate drain located at the base of the unit underneath *(See Figures 1-3).*

The drain plug allows a condensate drain hose (21.5mm diameter) to be push connected and solvent welded/sealed. Please ensure a water tight seal is achieved.

2.6.2 The drain must have a 5º fall and can either be chased into the wall or run downwards from the unit into the nearest waste water network. Ensure that steps are taken to minimise the risk of mechanical damage to the drainage pipe work.

IMPORTANT NOTE: The condensate drain must incorporate a U bend to create an air block and avoid leakage of smells back into the unit. If the unit is installed within a loft space, please ensure that the condensate drain is insulated to prevent against freezing.

2.6.3 In some instances, a condensate connecting point will already be provided as part of the building design. The position of this point, relative to where the unit is to be installed should be checked for any connection misalignment and any necessary adjustment made before proceeding any further.

ComfoAir 155 WM

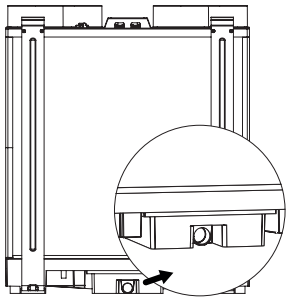


Figure 1 - Close up view of condensate

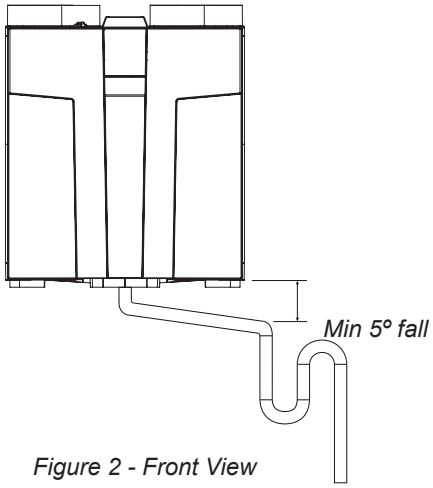


Figure 2 - Front View

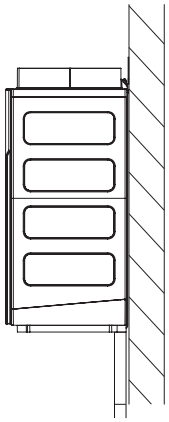


Figure 3 - Side View

2.7 Ducting Guidelines

2.7.1 Please refer to design drawings for proposed ducting layout.

2.7.2 Four spigots are provided for connection of the ducting;

- ComfoAir 155 WM - 125mm nominal diameter

Ductwork should be securely connected to spigots. Failure to do this will cause unnecessary air leakage and impair performance. Ducting must be connected to all four spigots according to right or left hand configuration *(See Section 2.3 for Configuration).* It is recommended that a minimum distance of 200mm is maintained between the ComfoAir 155 WM and any ducting bends.

2.7.3 To prevent condensation, ensure that the intake and exhaust ductwork from the unit is insulated.

2.7.4 Where ducts are exposed in unheated areas, such as roof spaces, they must be insulated with at least 25mm of insulation.

2.7.5 If applicable, Fire Dampers **MUST BE FITTED** in accordance with Part B of the Building Regulations.

2.7.6 **Rigid Ducting**

- Install using the fewest number of fittings to minimise resistance to air flow.
- Where possible, final connection to grilles and unit should be made with a flexible connection.
- Mechanically fix ducts using metal jubilee clips and appropriate non-hardening sealant for air tightness.

WARNING: Do not use screws for connection and ensure jubilee clips are not over tightened.

2.7.7 **Flexible Ducting**

- Ensure ducting lengths are kept to a minimum and ducting is pulled taut so that it is smooth and straight. A maximum of 300mm should be used on each spigot.
- Mechanically fix ducts using metal jubilee clips and tape seal for air tightness.

WARNING: Should be in accordance with local Building Regulations.

2.7.8 The intake fresh air should be directly from the outside.

- If drawn through a wall, an external grille should be fitted.
- If drawn through a roof, a recognised roof terminal should be fitted.
- Ensure that the free area opening of the grille/terminal is a minimum of 90% of the free area of the ducting being used.

2.7.9 The exhaust air must exit to the outside through a wall or roof and must be protected by a wall grille or recognised roof terminal.

- Roof terminal to have a minimum equivalent free area of 10,000mm^2.

2.7.10 Intake and exhaust pipes should be installed at least 1m apart to avoid the cross contamination of airflows.

2.8 Electrical

2.8.1 WARNING: The appliance MUST be earthed.
All wiring must conform to IEE or local Wiring Regulations (minimum allowance on switch-live is 12V).

2.8.2 The installation must be carried out by a qualified Electrician.

2.8.3 All units are suitable for a 230V ~ 50Hz single phase supply fused at 3A.

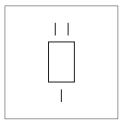
2.8.4 A triple-pole switch having a minimum contact separation of 3.0mm must be used to provide isolation for the unit.

2.8.5 The recommended switches for use with this product are the Zehnder;

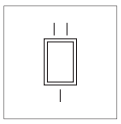
ZGS2 - Optional 2-position hardwired switch
ZGRC1 - Optional boost + system status hardwired remote switch
ZGS1 - Optional 3-position hardwired switch
SA 1-3V - Optional 3-position hardwired switch

(See Section 2.9 for wiring diagrams)

Controller	Switch Type	Speeds
ZGS2	2 - position rocker	Low (I) High (II)
ZGRC1	Single push button	Low (I) High (II)
ZGS1	3 - position rocker	Low (centre), AUX (I), High (II)
SA 1-3V	3 - position rotation	Low (1), High (2), AUX (3)


ZGS2


ZGRC1


ZGS1


SA 1-3V

Note: The unit may also be wired to a Building Management System (BMS)
(See Section 2.9.6 for wiring details).

2.8.6 The controllers must not be mounted in a bathroom or above/closer than 1 metre to a cooker where it could be affected by excessive heat or moisture.

2.8.7 The ComfoAir Compact unit is supplied with a pre-wired mains flexible cord - PVC sheathed, 5-core green/yellow, grey, brown, black & blue. Size 0.75mm.

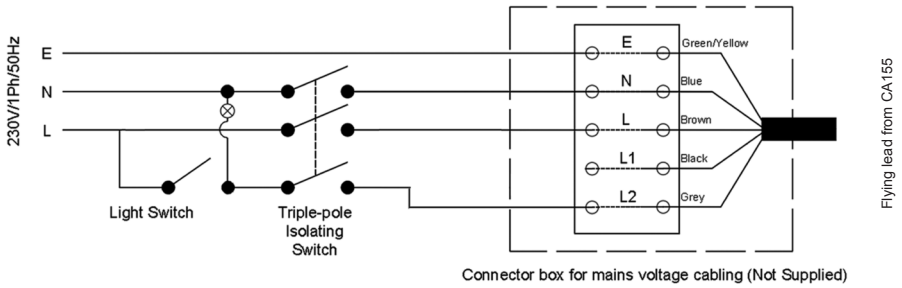
2.8.8 **'If the supply cord is damaged, it must be replaced by a special cord/assembly available from the manufacturer or its service agent. The replacement must be carried out by a qualified Electrician in accordance with IEE or local regulations'.**

2.9 Wiring Diagrams

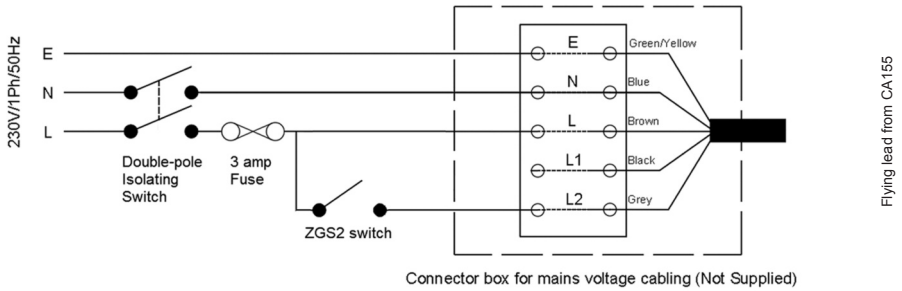
Key:

Earth	=	Green / Yellow
Neutral	=	Blue
Brown	=	Permanent Live
Black	=	AUX speed
Grey	=	High speed

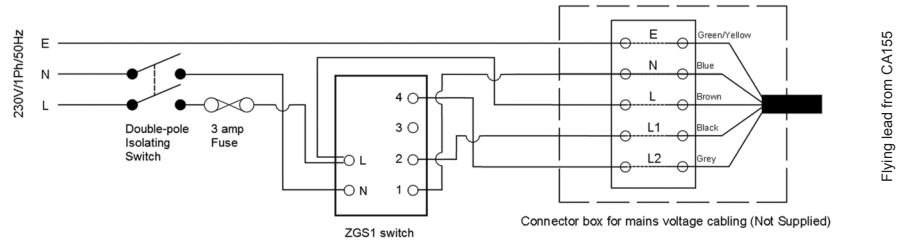
2.9.1 Two speed control via a light switch



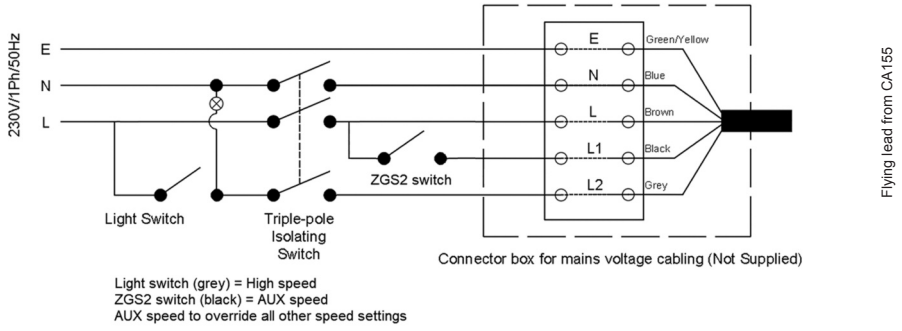
2.9.2 Two speed control via ZGS2 switch



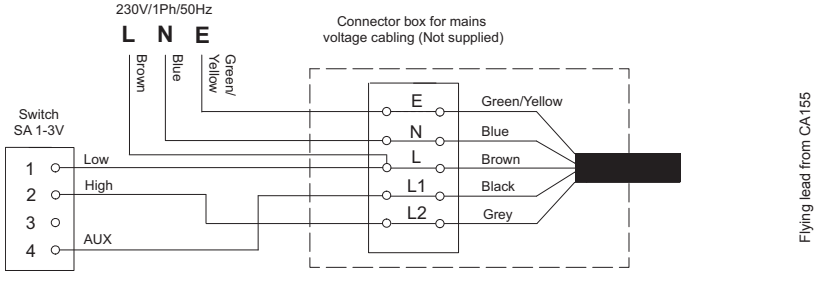
2.9.3 Three speed control via ZGS1 switch



2.9.4 Three speed control via a light switch for trickle & boost speeds and an AUX speed activation via a ZGS2 switch



2.9.5 Three speed control via SA 1-3V switch



- When the SA 1-3V switch is in position 1 the unit will operate on Low Speed
- Switching to position 2 will activate the High Speed
- Switching to position 3 will activate the AUX Speed … an additional 'away' speed

2.9.6 Wiring Enhanced Control Options via the Building Management System (BMS)

2.9.7 To wire into to the BMS connector within the ComfoAir 155 WM, first remove the electrical wiring cover as per Fig. 4 below then locate the BMS connector on the PCB (maintain a minimum separation distance of 35mm between the mains power and controller cables).

ComfoAir 155 WM

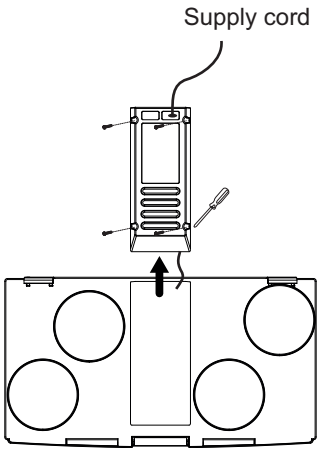
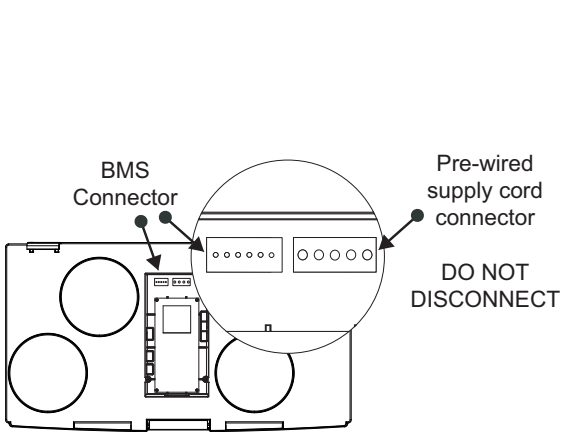
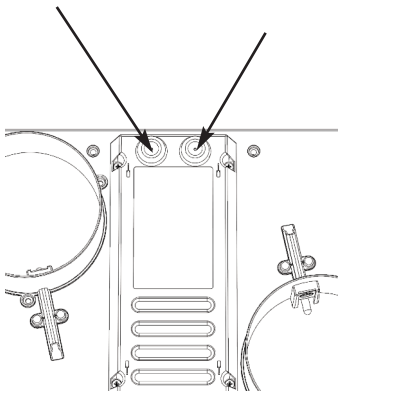


Figure 4 - Top View



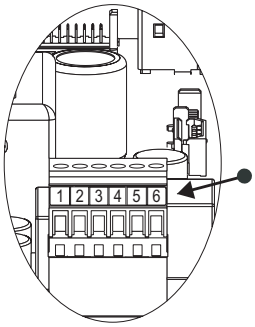


Warning: Ensure that you use the cable grommet provided when connecting to the BMS to protect against potential water ingress. Take care that the gasket seal underneath the PCB cover is not disturbed.

2.9.8 Using suitably sized cabling, the BMS terminal block can be removed for easier wiring.

- Pins 1 - 2 allows a remote switch to be used for a boost switch (Note: NOT FOR MAINS WIRING).
- Pins 2 - 3 to be used exclusively with a ZGRC1 controller.
- Pins 4, 5 & 6 allows for remote fault indication. Relay will be energised upon detection of a fault.

Upon completion of wiring, carefully push fit BMS terminal block back onto PCB.



Pin	Function	Connection to External Circuit
1	Boost	For additional sensors to High
2	Ground	0V
3	Remote	Connecting to a ZGRC1 controller (option)
4	N/C	Volt - Free normally closed contact
5	N/O	Volt - Free normally open contact
6	Common	Relay common

Figure 5 - Close-up of PCB with BMS connection points

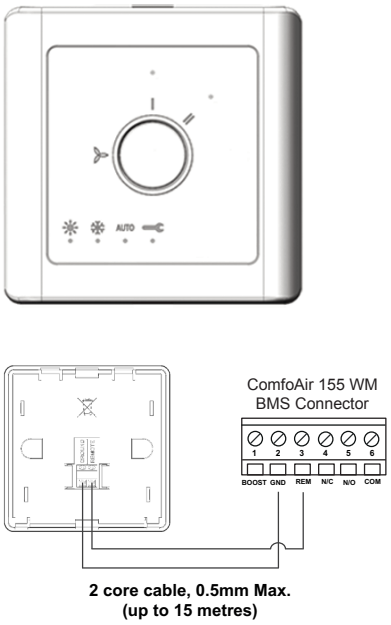


Figure 6 - ZGRC1 Controller

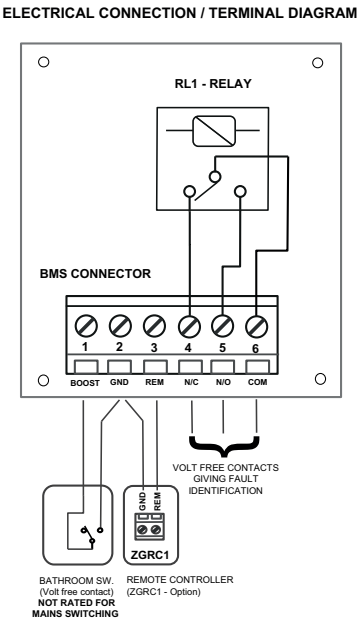


Figure 7 - BMS Wiring Diagram

Note: Only one ZGRC1 boost and status controller can be installed with the ComfoAir 155 WM. Additional boost actuation should be via either 'switch-live' or standard hardwired 2-position switches. A separate AUX switch cannot be installed when using a ZGRC1 boost and status controller.

2.9.9 When wiring has been completed apply cable clamp and retain the cable sheath securely in place by tightening the cable clamp down with screw fixings.

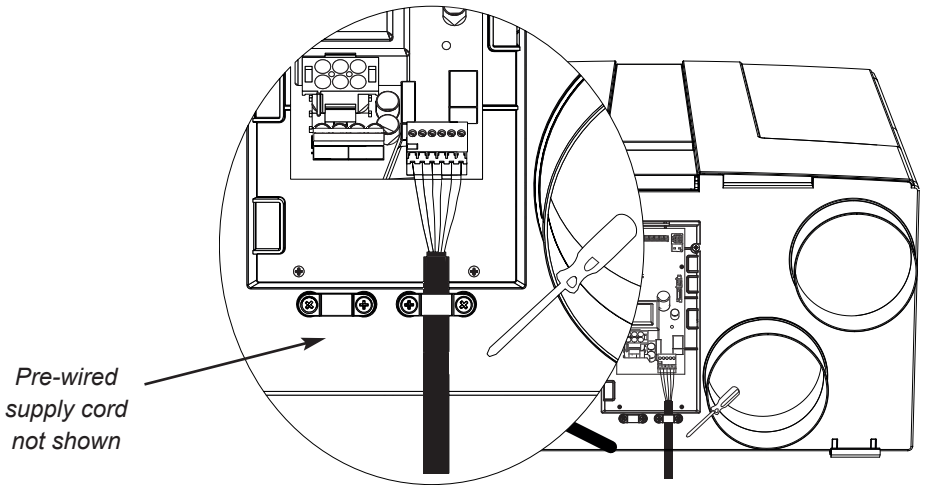


Figure 8 - Securing BMS Wiring (Cable not supplied)

2.9.10 Refit electrical cover, taking care gasket seal underneath is seated correctly and cable is not trapped.

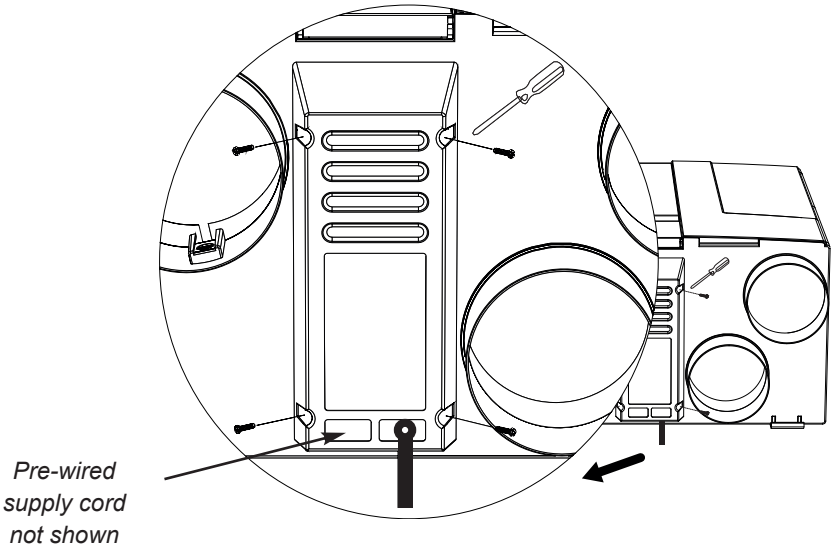


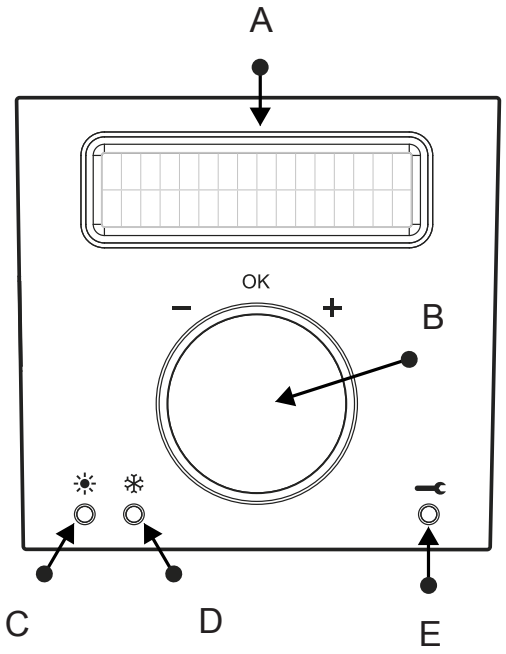
Figure 9 - Electrical Cover Attached (Cable not supplied)

3.0 On-Site Commissioning

3.1.1 This section covers set-up, configuration of the unit for installation and altering pre-set factory settings. For instructions on how to operate the LCD display user menu, maintenance options and indicator warning information, please refer to the User / Homeowner Guide.

3.1.2 Once the wiring connections have been checked, switch the mains supply on and check that the system is operating correctly. Lift cover of commissioning wizard located at the top of the unit. Upon connection of electrical supply, the commissioning wizard will automatically turn on *(See Section 3.1.4)*.

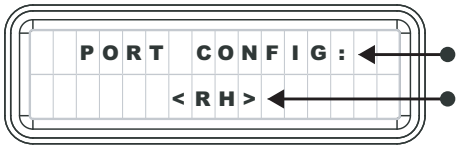
3.1.3 **Overview of Integral LCD Display**



#	Meaning
A	Control Information Panel
B	Control Button
C	Summer ByPass LED
D	Frost Protection LED
E	Service/Fault LED

Below are examples/explanations of what you would see through the Commissioning Wizard.

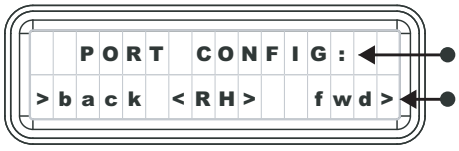
Example 1: Function selection screen



Top line - function / statement.

Bottom line - flashing cursor indicating next action to be reviewed/changed.

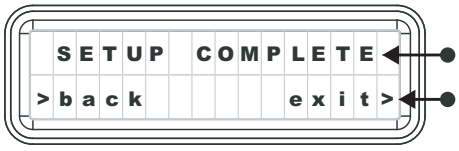
Example 2: Re-confirmation screen



Top line - function / statement.

Bottom line - three selectable functions always come into screen with fwd flashing. Option to move forward towards completion or back to re-set function.

Example 3: No editable variable in middle only ever seen as last step in the wizard



Top line - function / statement.

Bottom line - two selectable functions only found at the end of the wizard. Selection of exit will confirm all wizard configuration settings.

3.1.4 Commissioning Wizard

To progress through the commissioning wizard, rotate the controls central button to required configuration and press the button to select (at each section the text will flash until it has been selected, whereby it will then go solid). You can move backwards and forwards throughout the process until all settings are correct.

How to navigate through the Commissioning Wizard

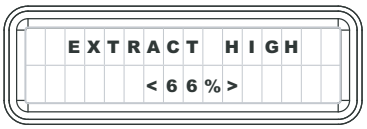
1. Lift cover on the front of the unit.
2. When first turning the power onto the unit, the 'Setup Wizard' prompt will be shown.
3. Press the 'Control Button' to start the commissioning wizard.
4. Refer to design drawings for setting up the required configuration.
5. Go through the steps shown below.
6. Identify the desired setting for each point and press the button to select.
7. Rotate button to choose FWD to move to next section or BACK to return to previous set-up.
8. Press button to select FWD / BACK.
9. Complete commissioning at the last step by selecting EXIT.

After each section rotate button and choose FWD to move to next section or BACK to return to set-up. Press button to select choice.

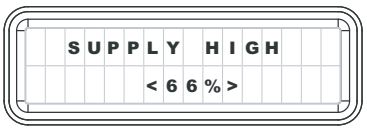
The steps of the wizard are as follows:



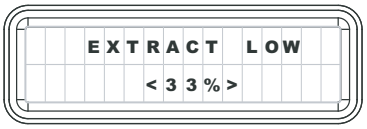
Step 1 **Port Configuration Set-up**
Rotate button to choose either RH (Right Hand Configuration) or LH (Left Hand Configuration)



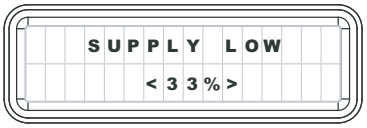
Step 2 **High Set-up**
Factory airflow set at 66%, rotate button to required airflow %



Step 3 **Supply High Set-up**
Factory airflow set at 66%, rotate button to required airflow %



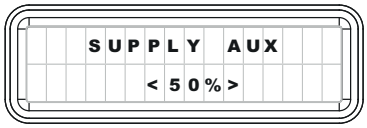
Step 4 **Low Set-up**
Factory airflow set at 33%, rotate button to required airflow %



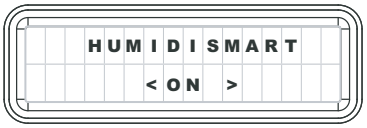
Step 5 **Supply Low Set-up**
Factory airflow set at 33%, rotate button to required airflow %



Step 6 **AUX Extract Speed Set-up**
Factory airflow set at 50%, variable between 15%-100%, rotate button to required airflow %. *For 'away mode', rotate button to less than low speed setup (i.e. between 15%-33%)*



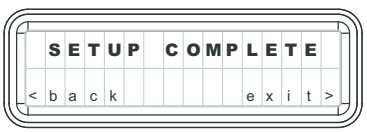
Step 7 **AUX Supply Speed Set-up**
Factory airflow set at 50%, variable between 15%-100%, rotate button to required airflow %. *For 'away mode', rotate button to less than low speed setup (i.e. between 15%-33%)*



Step 8 **Humidity Set-up**
Rotate button to choose either ON or OFF
(Default setting: ON)

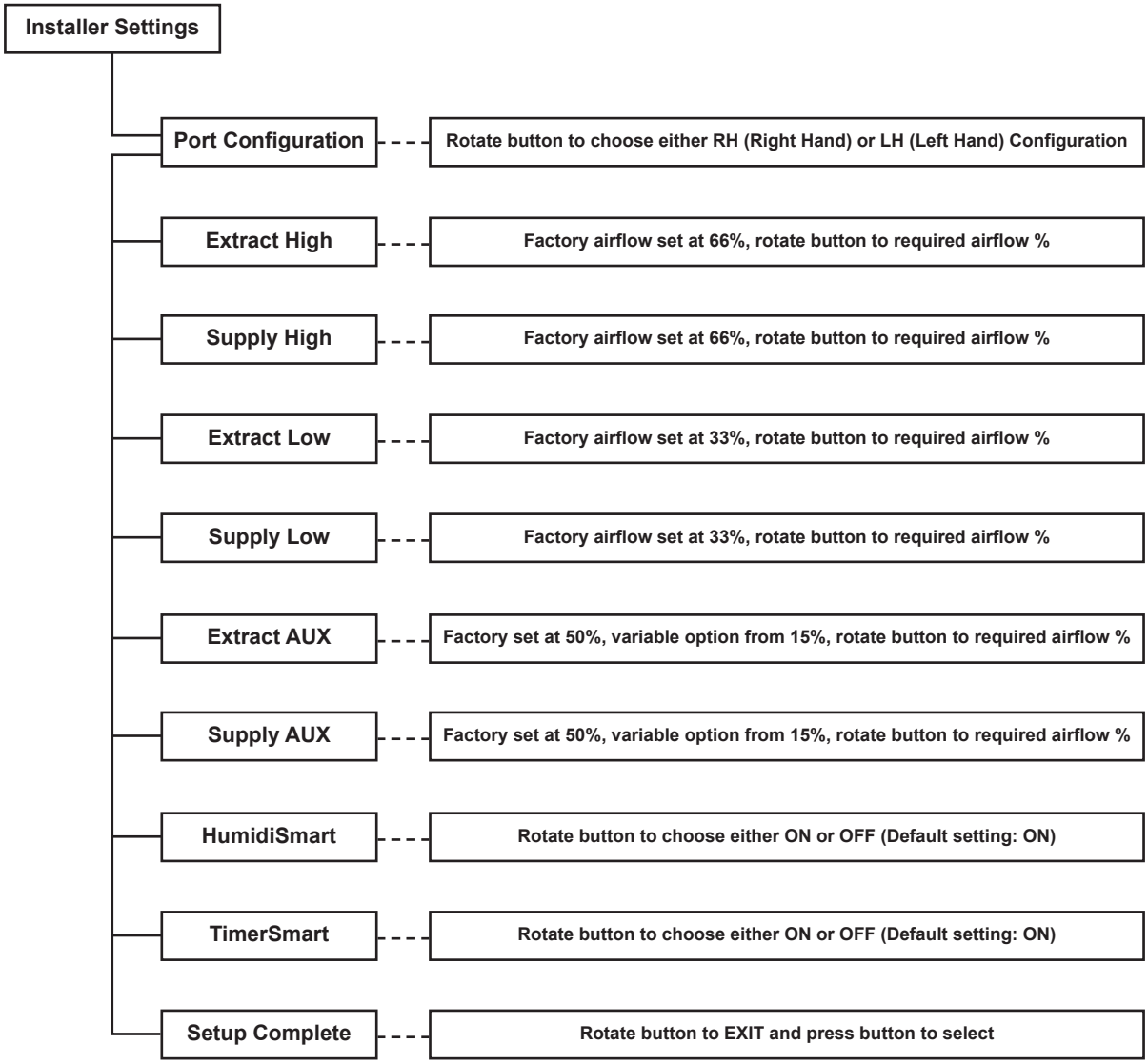


Step 9 **Timer Set-up**
Rotate button to choose either ON or OFF
(Default setting: ON)



Step 10 **Commissioning Set-up Wizard Completion**
Rotate button to choose either EXIT to complete commissioning or BACK to return to set-up

3.1.5 Wizard Menu Structure



3.1.6 Valve Set-up

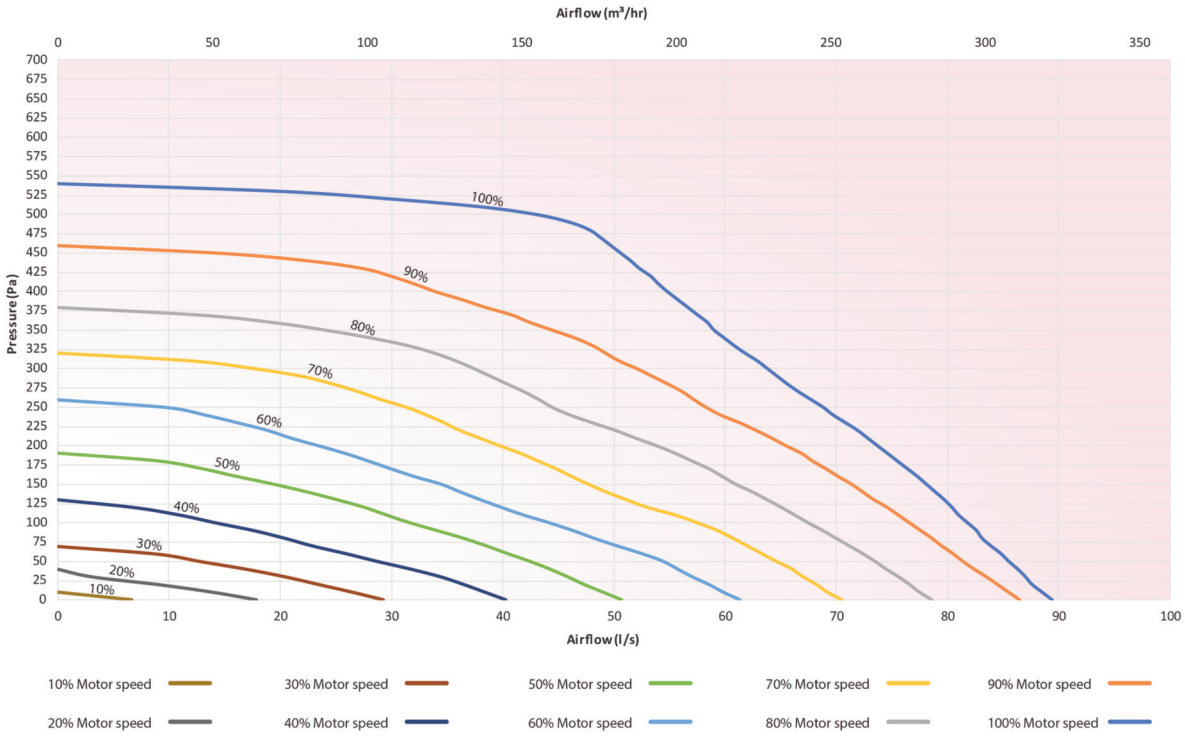
- Set the fan speed approximately to achieve the desired extract high flow rate.
- Close all windows and doors, including the rooms in which measurements are being carried out.
- The index terminal (the one furthest away) should be set to fully open.
- All other terminals are adjusted to achieve the required flow rate.
- If the index terminal has to be closed to achieve the correct flow rates, then reduce the fan speed and balance the terminals.
- Switch the unit to low speed to achieve the desired extract low flow rate.
  It should not be necessary to adjust the extract valves further.
- Repeat tests for supply air valves.

3.1.7 Once the unit is commissioned check that the system is operating correctly by turning the hardwired switch to the differing settings, i.e. the ZGS2 switch or ZGRC1 Controller will activate the unit between low and high speed settings, the ZGS1 will activate the unit between low, AUX and high speed settings, alternatively, the SA 1-3W switch will activate the unit between low, high and AUX (away mode) settings.

- Performance levels can be verified at both extract and supply air valves using an appropriate method such as a rotating vane anemometer and air cone kit.
- Refer to performance graph for ComfoAir 155 WM airflow characteristics *(See Section 3.1.8).*

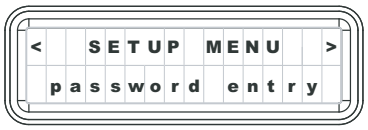
Note: All settings are stored within the ComfoAir 155 WM unit's memory and should NOT be lost in the event of a power failure. When power is restored, the unit should revert to normal running with all settings unchanged. Likewise, reminder indicators are NOT reset.

3.1.8 **Performance Graph** - Airflow Characteristics



3.1.9 **To Re-activate Commissioning Set-up Wizard**

In the event that the unit needs to be adjusted once the commissioning wizard has been completed;

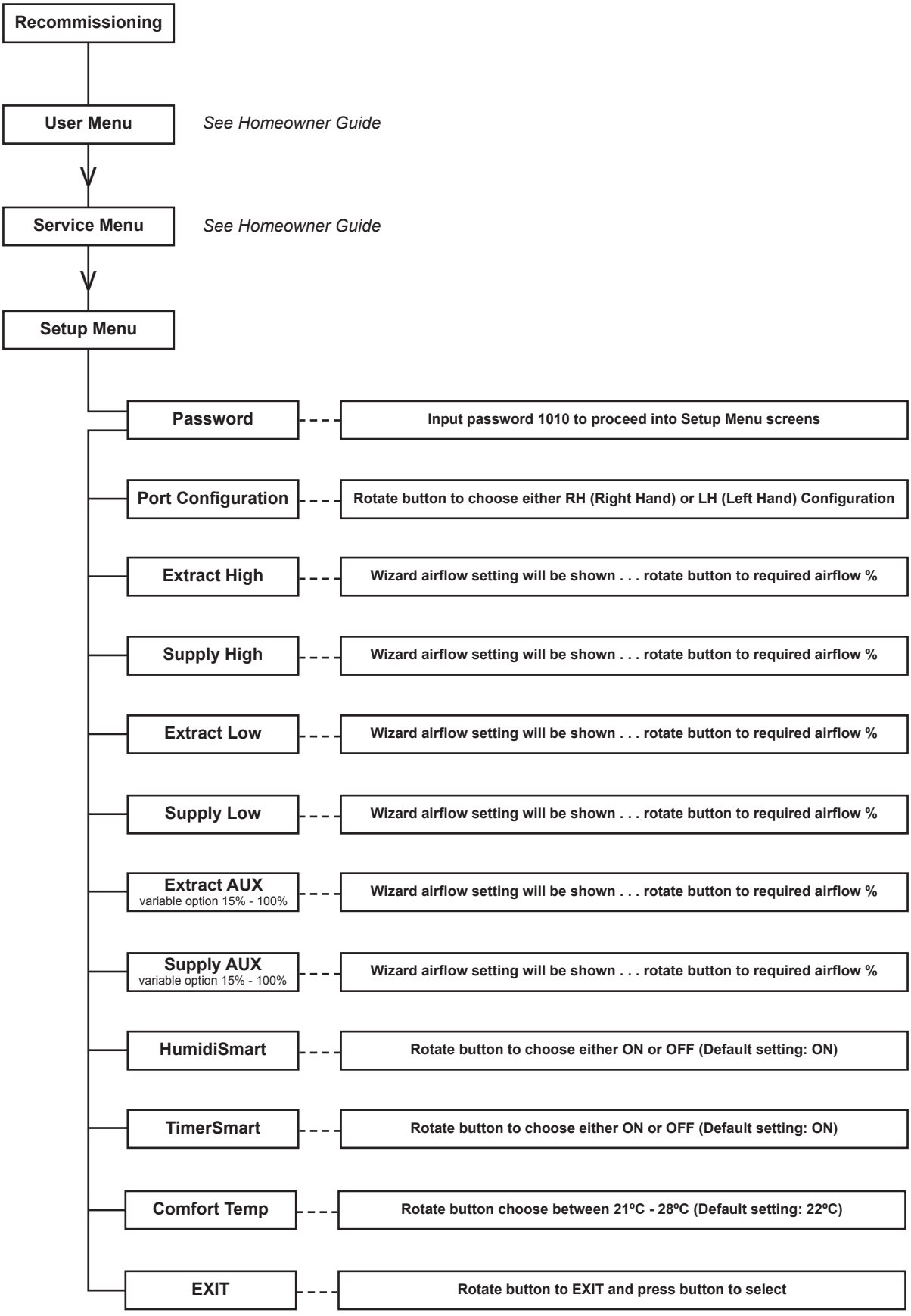


- Press the control button to activate the unit.
- Rotate button until the screen displays "Setup Menu".
- Press button to select.



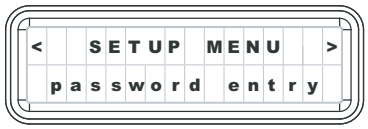
- Enter Password "1010" by rotating the button to the respective number and press to select (this has to be completed for each number prior to continuing).
- Once commissioning setup has been re-activated, rotate button to desired setup change and follow *(see Recommissioning Menu Structure 3.1.10),* press the button to select.
- Current set-up will be shown, change to new requirement & press button to confirm.
- Rotate button 'right' to move to next section or 'left' to return to previous set-up.
- Complete all sections requiring changes.
- Upon completion, to save and exit, rotate button to "Exit", press button to confirm.

3.1.10 Recommissioning Menu Structure



3.1.11 To Modify Summer ByPass Activation Temperature

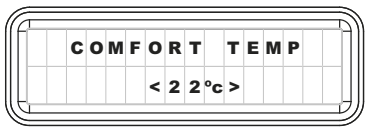
When the internal and external temperature conditions are met the unit will try to maintain an indoor comfort temperature by operating the summer bypass valve. This can be adjusted as follows:



- Press the control button to activate the unit.
- Rotate button until the screen displays "Setup Menu".
- Press button to select.



- Enter Password "1010" by rotating the button to the respective number and press to select (this has to be completed for each number prior to continuing).



- Rotate button to “Comfort Temp” option and press to select - the current setting status will flash.
- Rotate to desired outcome (between 21°C - 28°C), press button to select. (Default setting: 22ºC)

- Upon completion, to save and exit, rotate to “Exit”, press button to confirm.

4.0 The Guarantee Period

4.1 This Zehnder ComfoAir Compact 155 WM has a 2 Year Guarantee.

4.1.1 This does not affect your statutory rights.

4.1.2 Full details available on request.

All information is believed correct at time of going to press. E&OE.

All goods are sold according to Zehnder's Standard Conditions of Sale which are available on request.
All dimensions referred to are in millimetres unless otherwise stated.

Zehnder Group International Sales reserves the right to change specifications and prices without prior notice.

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