

AirDoorTM

Active Comfort Solutions

Operation & Maintenance Manual

in partnership with



wirthresearch



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Original Instructions


Conventions

Important  This manual **must be read in full** before Installation, Operation and Maintenance of the units supplied


Please ensure that this document is passed to the end user. This manual forms an integral part of the product and should be kept for the working life of the product. Additional copies of this and supporting documents are available by contacting VES or by visiting www.ves.co.uk and following the 'Download O & M's' link.

The following symbols used within this document refer to potential dangers, advice for safe operation or important points of reference


- Warning**



Indicates hazards associated with electric current and high voltages
- Caution**



Indicates hazards that require safety advice for personnel or potential unit/property damage
- Important**



Indicates important information

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Introduction **1** The **AirDoor™** is a product designed to use an active, targeted airflow to improve interior comfort while also improving the building's energy efficiency. Situated directly inside the entrance of retail spaces, it generates a plume of air to reduce weather-related infiltration, such as wind (temperature and humidity disruption) and wind-driven rain (slippery floors).

The **AirDoor™** is suitable for internal use only.

As standard, each unit will have been supplied pre-wired to a control panel, as specified at the time of ordering. The standard operating temperature of these units is -5 to +35 °C.

For further technical details regarding dimensions and weights, contact VES on **(+44) 2380 461150**, quoting the sales order (SO) number and the unit type as found on the unit nameplate, or alternatively visit www.ves.co.uk.



Nomenclature 2

Part Number Coding	Point Description	Point Variants	Details (as appropriate)
1	Product	AIR	AirDoor™ products
2	Width	/0000 - 3000	Width in mm
3	Height	/0000 - 3000	Height in mm
4	Fan Size	/190	Impeller diameter in mm
5	Control type	/SIE /TRE	Controller type
6	Network Connection	/Null /GSM /ETH	No Network connection Mobile Network (4G etc.) Wired network connection
7	Colour	/R7016	Powdercoated finish, RAL Colour Code
8	Finish	M SG FG LT	Matt Semi Gloss Full Gloss Leatherette


Typical Example AIR/1600/2100/190/SIE/R7016M

AIR	/1600/	2100	/190	/SIE		/R7016	M
①	②	③	④	⑤	⑥	⑦	⑧

Receipt of Goods & Handling 3

Immediately upon receipt of goods, check for possible damage in transit, paying particular attention to fan impellers and unit casing. Prior to installation check to ensure alignment and smooth running of the impellers after transit. Also check to ensure that any ancillary items are included. These will normally be supplied fitted or, in the case of small items, taped to the unit. In the event of damage having occurred or if any item is found to be missing, it is essential to inform VES Andover Ltd within 7 days of delivery quoting the sales order number and unit referencetype, as found on the unit identification label. After this period, VES would be unable to accept any claims for damage or missing goods.


Installation 4


Important  Do NOT attempt to install the unit before fully reading the installation guide.


The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturer's recommendations, with due regard to the current HEALTH AND SAFETY AT WORK ACT and conforms to all relevant statutory regulations.

Where a unit is installed so that a failure of components could result in injury to personnel, precautions should be taken to prevent such an injury. If the unit is installed where there is a reasonable possibility of persons or objects coming into contact with the impeller whilst operational, a guard must be fitted or steps taken to prevent this occurrence. It is the installers responsibility to ensure that access panels are not obstructed in any way and safe working access for maintenance must be provided in accordance with Health and Safety and Building Regulations. For confirmation of required access please see the appropriate unit outline drawing. Consideration must also be given by the installer for adequate illumination of the unit's location in order for safe maintenance. Further consideration should be given to the unit's position and secured into place in an appropriate and safe way.

Caution  Handle with care. Failure to fully support the unit during lifting may result in damage to the unit.

Caution  On some heavy units two people lifting might be necessary.

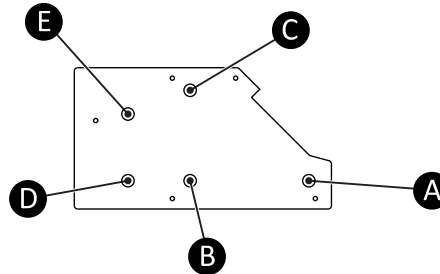
Important  Auto Doors, Pocket Screen and Door Sensors work may require review by a specialist to ensure legal compliance.

Caution  Full consideration must be given to the acoustics of the unit and the surrounding environment. For unit details, refer to page 8. Seek expert consultation for site-specific requirements.

Installation 4 Continued

The AirDoor™ is designed to be fixed onto 3 x M16 studs fixed securely into the floor **on each side**, 6 total. It is supplied as free standing, with suitable structural floor mounting to be supplied by installer. The base plates have 5 holes for different mounting options. If possible fit all 5 as illustrated below.

Base Plate
Showing fixing holes
Fig. 1

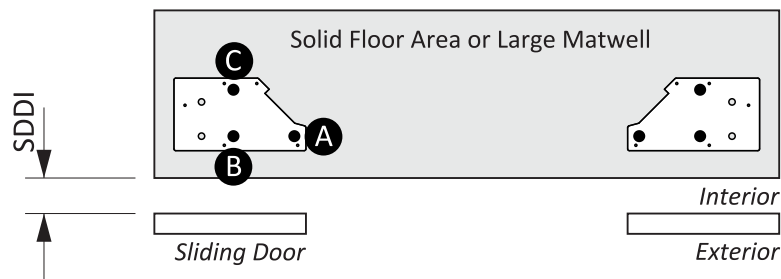


Detail can be found below on the options possible to install the AirDoor™ clamped directly to the floor, or for uneven floors where the AirDoor™ is suspended onto the installed studs. Any structural assessment and/or suitability assessment required should be completed prior to installation.

We would recommend that when using a mounting configuration that does not use point **A** the leg is through-bolted to the baseplate using the pre-installed M8 fixings in the base provided. The **SDDI** dimension should be between 200 and 400mm (as shown in figure 2).

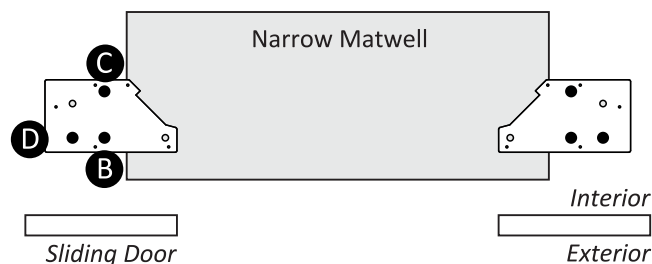
1. **A B C** – Standard and preferred option for use on solid floor or when neither of options

Base Plate Fixing
Solid Floor Area or
Large Matwell
Fig. 2



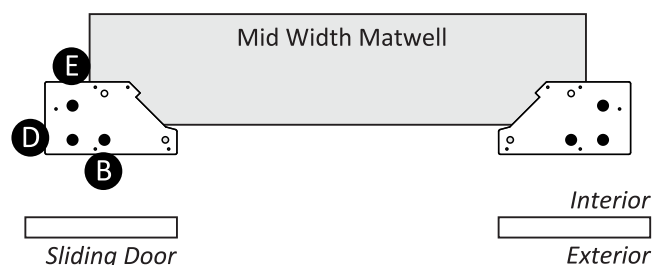
2. **B C D** – Option to be used on a narrow matwell

Base Plate Fixing
Narrow Matwell
Fig. 3



3. **B D E** – Option to be used on a mid width matwell

Base Plate Fixing
Mid Width Matwell
Fig. 4



Installation

Uneven Floor
Fixing Details

4 Continued

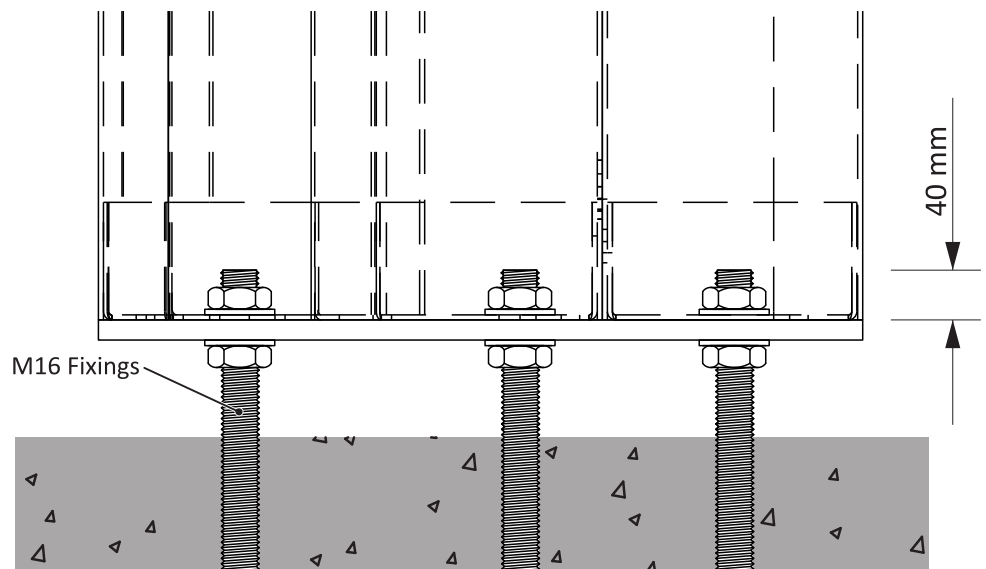
Please see below the way the **AirDoor™** should be fixed down on to an uneven floor, if this installation is used the **AirDoor™** must be sized to account for the floor offset:

M16 nuts and washers should be installed between the floor and base plate in order to level the base plates as shown in the diagram.

Please note the studs should be 40mm above the top of the base plate to ensure that the base plate can be fixed down but not contact the lowest fan in the leg.

Base Plate Fixing

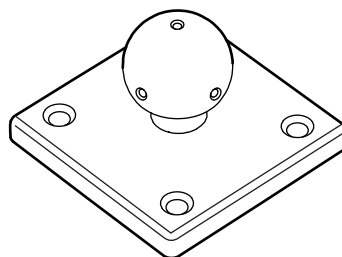
Uneven Floor
Fixing Details

Fig. 5

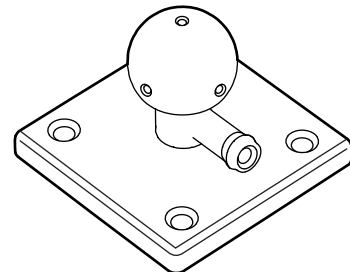
Differential Pressure
Sensor Installations

The **AirDoor™** requires four small pressure sensors to determine the relative pressure inside and outside of the building. The two variants of sensor available are shown below.

Pressure Sensor Detail
Sensor Ball

Fig. 6

Back Entry Option



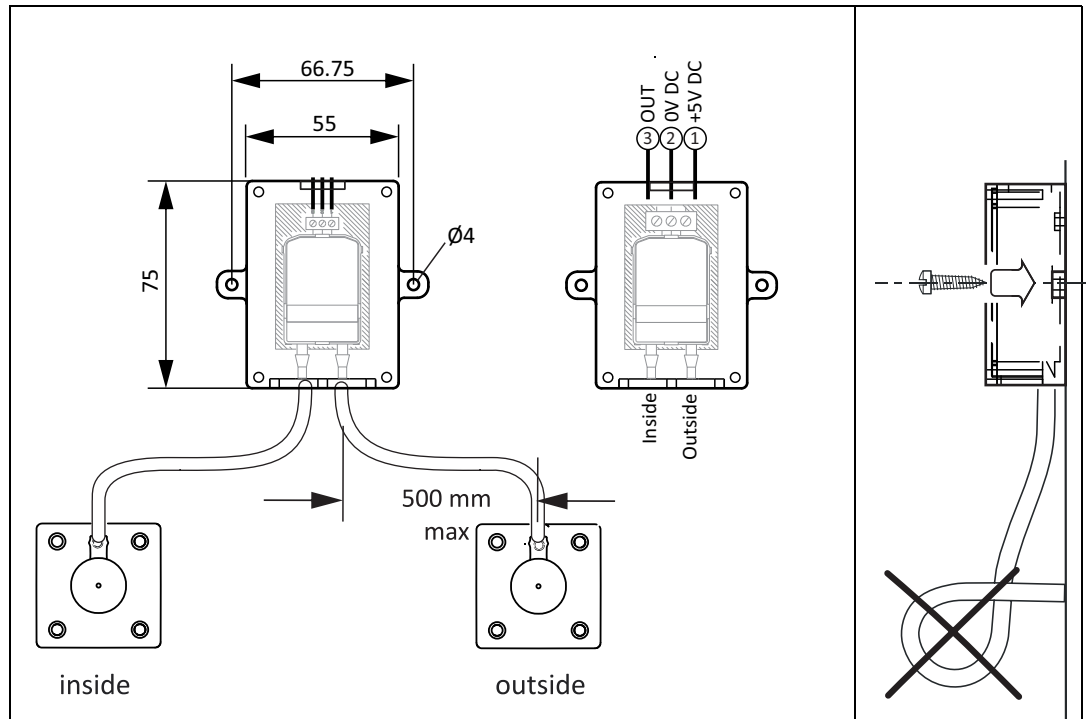
Side Entry Option

Installation 4 Continued

Differential Pressure Sensor Installations

One pair of sensors should be connected to a differential pressure sensor and fitted on each side of the doorway in the configuration below

Pressure Sensor Detail
Differential Pressure Sensor setup
Fig. 7

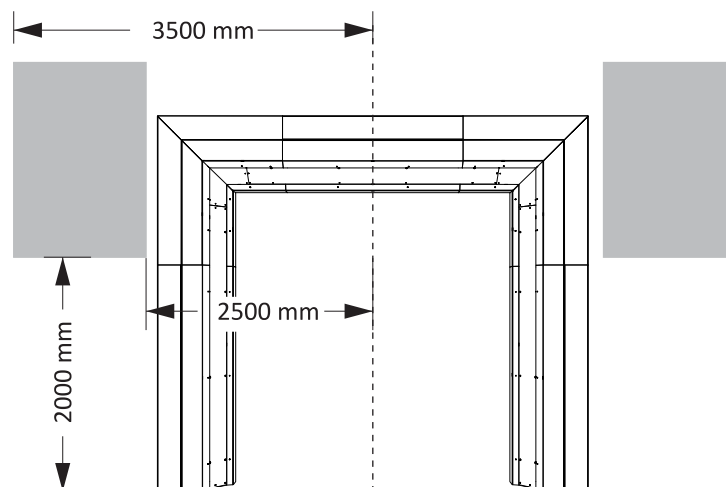


Important



Maximum 500 mm of tubing between pressure sensor and pressure sensor box.
Tubing must not be compressed or taken around tight corners.
External pressure sensor should **not** be directly shielded from wind.
Internal sensors should not be influenced by other equipment such as overhead heaters, etc.
All sensors should be outside of reach of customers.
One pressure sensor to be affixed to the interior and one sensor to be affixed to the exterior building surfaces, both to be connected to a differential pressure sensor.
Pressure Sensor locations to be between 2500 and 3500 mm from the door centre line and minimum of 2000 mm above ground level (illustrated below).

Pressure Sensor Detail
Ideal Pressure Sensor Location Zones
Fig. 8



Standard Wiring & Fan Installation 5

Warning



The electrical supply **MUST BE FULLY ISOLATED** before attempting to affect any work on this unit. All electrical connections to any unit must be carried out in accordance with the current edition of the I.E. T. Regulations, only competent Electricians should be allowed to affect any electrical work to our units.

Important



It is recommended that the cable entry point should be at the side of the unit as shown below in figure 10. It is the responsibility of the installer to ensure that a suitable cable gland (giving adequate protection and strain relief) is fitted, and in doing so also ensure that no internal components are damaged during this installation.

Make certain any swarf produced is removed before use.

It is the customers responsibility to supply earth protection through the building installation device and a dedicated, isolated power supply with overload protection, to account for unit full load current.

Warning



Do not connect any unit to an electrical supply voltage outside of the specification.

Caution



AirDoor™ Units are designed to run with a maximum fan input voltage of 6.5 Volts. Running fan arrays at higher speeds may generate unwanted noise. Please contact VES for guidance should this be required.

Typical unit acoustics

Fig. 9

Fan Input Voltage	Sound power level, dB re 1 pW, @ octave band centre frequency (Hz)								Overall sound power level L_{WA}	Overall sound pressure level	
	63	125	250	500	1k	2k	4k	8k		L_{pA} @1m	L_{pA} @3m
65%	75	78	85	86	81	82	77	69	88	71	65
60%	76	76	86	84	79	80	75	66	86	69	63
55%	69	73	86	78	76	77	72	63	83	66	60
50%	66	71	84	75	74	75	69	60	81	64	58
45%	63	69	79	72	71	72	65	56	78	61	55
40%	60	67	74	69	68	69	61	51	74	57	51
35%	57	65	70	67	65	64	56	46	70	53	47
30%	53	64	67	62	61	59	50	39	66	49	43

Units are independently tested at ISVR in accordance with BS EN ISO 3744:2010

Data will vary depending on unit size and location. Data representative for (2x5)x6 fan array unit.

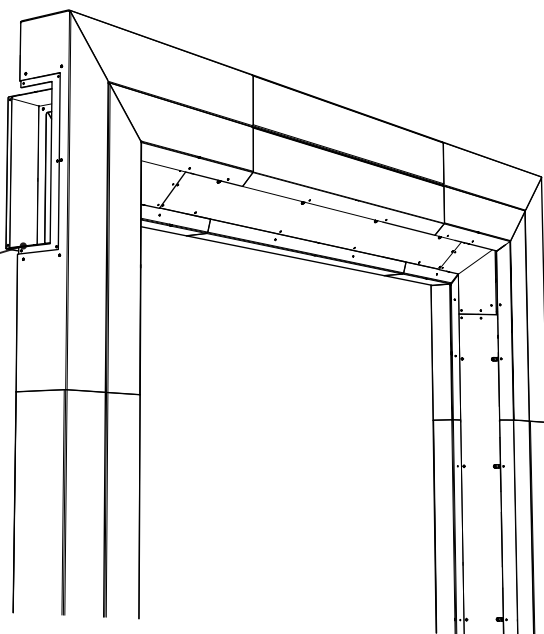
Standard Wiring & Fan Installation

5 Continued

Recommended Cable Entry Points

Fig. 10

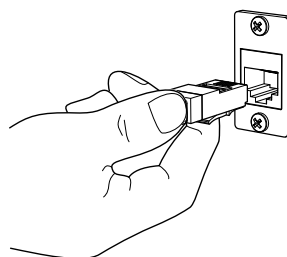
Recommended cable entry point (including HMI)



AirDoor™ come fitted with controls as standard. They are supplied as a plate-mounted panel located within the unit. All units feature an RJ45 socket at the cable entry point to enable connection of the control interface (HMI). This allows setup and commissioning of the unit to be carried out via a handheld HMI, which can be left connected or removed as required.

RJ45 Socket/HMI connection point

Fig. 11



Important



For all units with fitted controls, please see the accompanying wiring diagram for full details or contact VES Customer Services Department on **(+44) 2380 461150**, quoting the sales order (SO) number and unit type as found on the unit name plate.

Caution



The following set up should only be undertaken by a competent commissioning engineer. Incorrect adjustment will adversely affect the accuracy and performance of the system

Controls Interface

AirDoor™ can be connected to an online systems complete with a virtual HMI. These follow the same steps as below, however, they require an internet connection to access and do not have the physical HMI's unless specified so at the time of order.

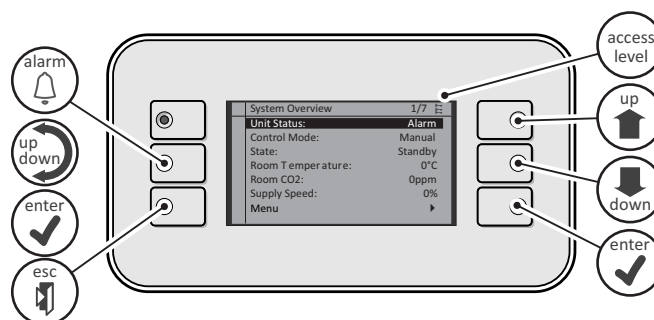
There are two versions of HMI available, a roller button version and a six-button version. The button operation is described below but the menu operation is the same for both.

There are two modes of operations available. Read only mode, whereby several parameters may be viewed for a quick visual inspection of the systems current state and Commissioning mode, which allows the user to view and edit all parameters. This includes functions such as adjusting fan speeds, setting a store open/close switch etc.. Commissioning mode is typically indicated by the presence of **3 keys** in the top right-hand corner, in read only mode this will be blank.

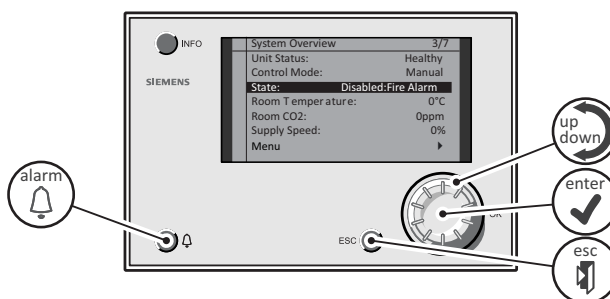
Controls Setup 6

HMI Variants
Fig 12

PSEL900461
(Six buton HMI)

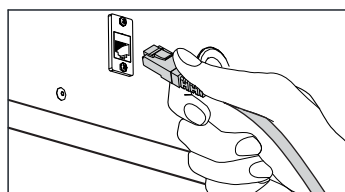


PSEL900463
(Roller buton HMI)

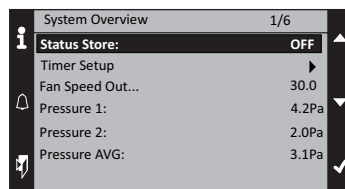


Status Check

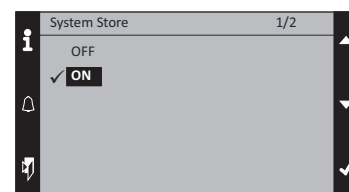
1 Plug the HMI into the RJ45 Socket on to unit as shown. Note: when the HMI is first plugged in, it may take up to 45 seconds before the HMI is ready



2 Using the **up** and **down** buttons on the HMI, move to the **System Store** field and press **enter**.



3 Using the **up** and **down** buttons on the HMI, move to the **ON** field and press **enter**.



4 The unit should now run as expected.

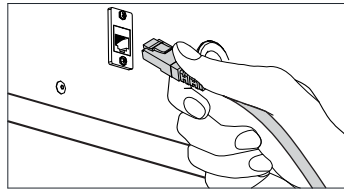
**Important**

Note that the Pressure 1 and Pressure 2 Fields should be in the range on -25Pa / 25Pa. If this is showing a large number ($\pm 133.8\text{Pa}$ or similar) there might be an issue with one of the pressure sensors. In this case consult the troubleshooting section or contact VES Andover Ltd. on **(+44) 2380 461150**

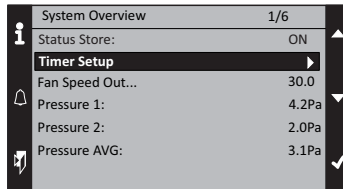
Controls Setup 6 Continued

Setting Timers

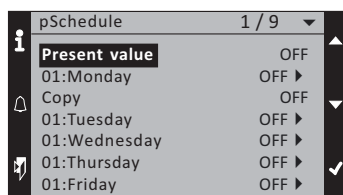
1 Plug the HMI into the RJ45 Socket on to unit as shown.



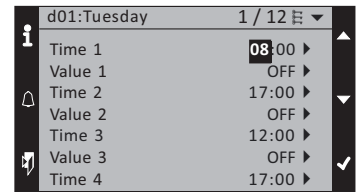
2 Using the **up** and **down** buttons on the HMI, move to the **Timer Setup** field and press **enter**.



3 Using the **up** and **down** buttons on the HMI, move to the appropriate **day** and press **enter**.



4 Select the **on-time** by scrolling to **Time 1** and press **enter**. The format is in HH:MM. Set **Value 1** to **ON**



5 Select the **off-time** by scrolling to **Time 2** and press **enter**. The format is in HH:MM. Set **Value 2** to **OFF**

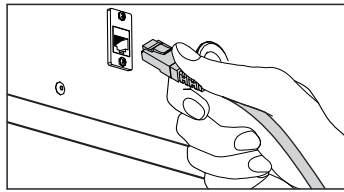


6 All days can be selected in the same way. If there is a day the system is not required then leave all timers off on that day.

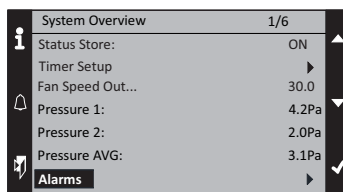
Controls Setup 6 Continued

Troubleshooting

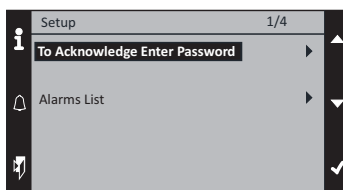
1 Plug the HMI into the RJ45 Socket on to unit as shown. If the alarm button is illuminated and/or flashing, this indicates a fault within the system. Press **alarm** button to view the details of the fault and act accordingly.



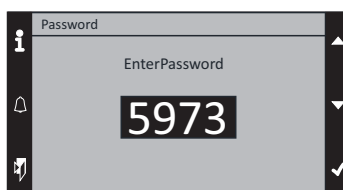
2 To acknowledge the alarm, using the **up** and **down** buttons on the HMI, move to the **Alarms** field and press the **enter** button.



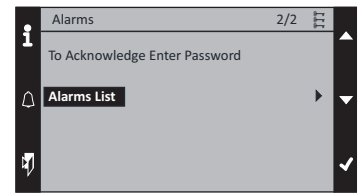
3 Move to **To Acknowledge Enter Password** and press **enter**.



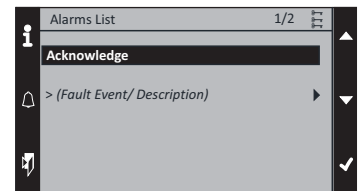
4 Enter password **5973**. This will now return you to the system overview screen.



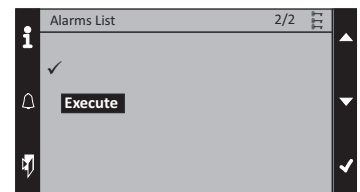
5 Using the **up** and **down** buttons on the HMI, move to the **Alarms List** field and press the **enter** button.



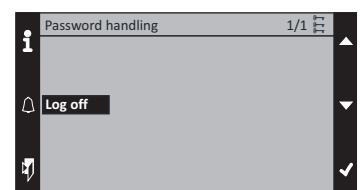
6 Using the **up** and **down** buttons on the HMI, move to the **Acknowledge** field and press **enter**.



7 Using the **up** and **down** buttons on the HMI, move to the **Execute** field and press **enter**.



8 Once complete, long press the **enter** button and press **enter** to **log off**.



Maintenance 7

Important

Before attempting to carry out any work on our units, all accompanying documentation including warning labels on the unit must be referenced.

Should it be necessary to remove any component ensure that these are secured into position once reinstalled. It is critical that after any maintenance work has been conducted that all components removed/replaced be refitted correctly by a competent engineer.

Warning

Before attempting to carry out any maintenance work, investigative or repair work on our units, the unit **MUST BE COMPLETELY ISOLATED** from its electrical supply. Ensure a minimum of two minutes after electrical disconnection before removing access panels. This will allow any moving parts to come to a rest.

Care should also be taken when accessing external units as the wind and elements may cause moving parts to 'windmill'.

In general, this series of units require little maintenance. In the unlikely event of component failure, spares are available from stock at VES Andover Ltd.

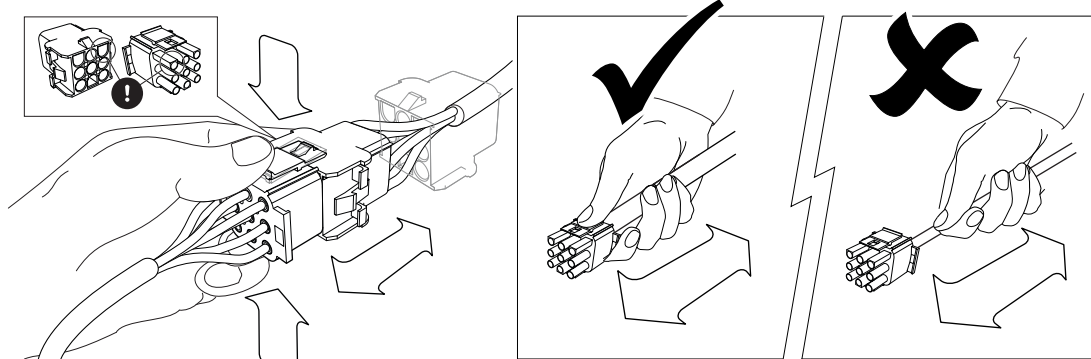
Caution

When accessing the unit ensure the access panels are handled in a controlled manner so as to avoid damage to the unit, surrounding area or personnel. Take all necessary precaution when working at height.

Remove the required components with care and ensure that all components are replaced correctly.

AirDoor™ units feature plug & socket connections to allow easy removal/replacement of key components. Separate the plug connection by hand by pressing the top/bottom clasp mechanism to open - tool are not required.

Plug & socket operation
Fig. 13



On reconnection, the assembly features a locating lug to ensure correct orientation. Once rejoined, lock the connection together again using the system as shown.

Note the plugs are handed and forcing an incorrect connection may result in damage to the plug.

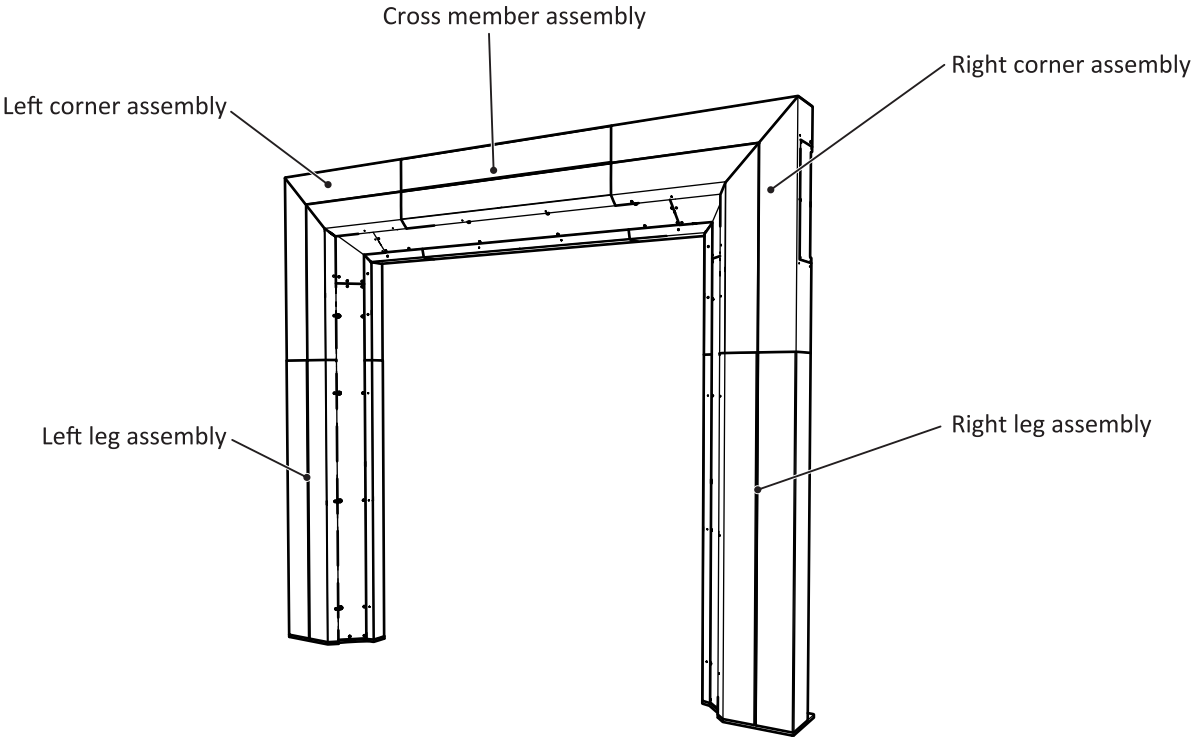
Caution

Gently pull apart the plugs to separate, DO NOT pull the cable to separate the assembly

Maintainance 7 Continued

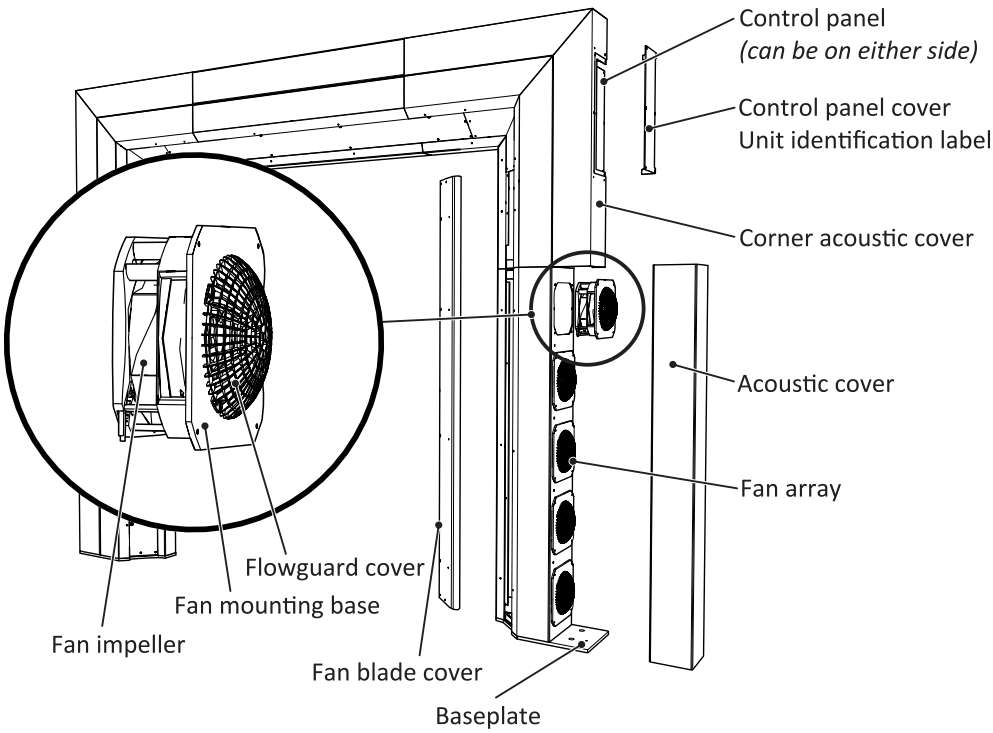
Key Components

Fig. 14



Key Components
(exploded)

Fig. 15



Maintenance 7 Continued

Component Access

Warning



Prior to starting work on assembly turn off supply to the AirDoor from main isolator and padlock in the off position to ensure that the electrical supply remains isolated.

Caution



Working at height should be in strict accordance with the Work at Height Regulations.

Component Access

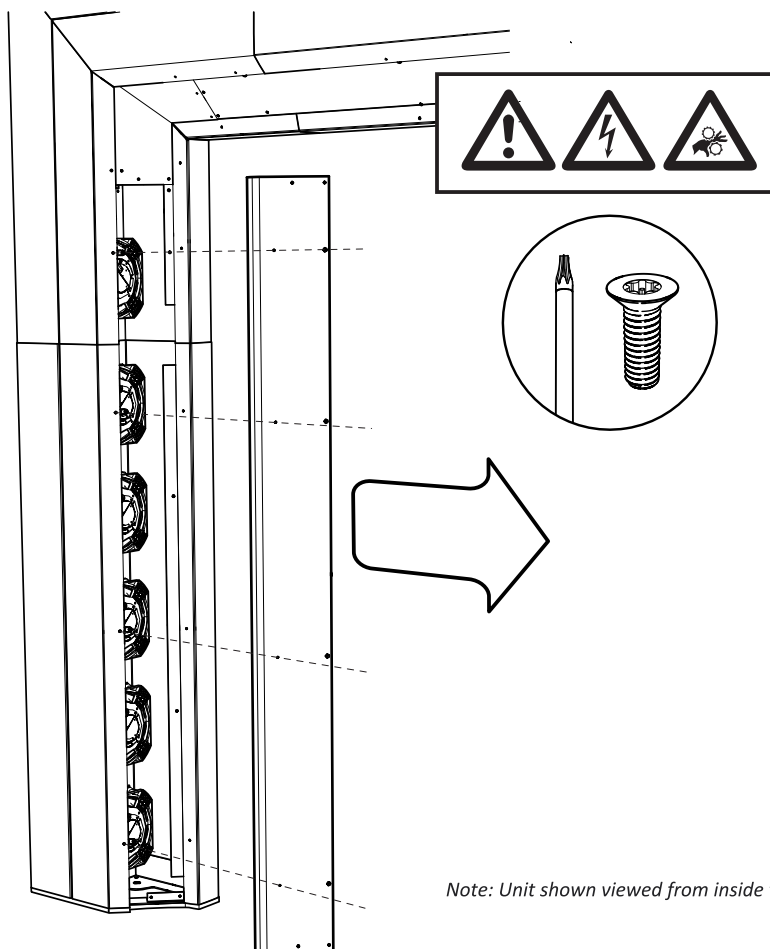
Access to key components (fans, controls etc.) is made available via removable service panels. Security fasteners (T20 Security Torx) are used on these service panels and appropriate bits will be needed to service the unit. Fasteners will be need to be replaced should they show signs of wear.

To inspect the fans or internal wiring looms or to gain access to the acoustic cover fixings, remove the Fan blade cover.

Each door has three covers, left right and top, an example is shown below. Retain **ALL** fixings and correctly reinstate during reassembly.

Fan blade cover removal

Fig. 16



Note: Unit shown viewed from inside the building

Maintenance

Fan Replacement

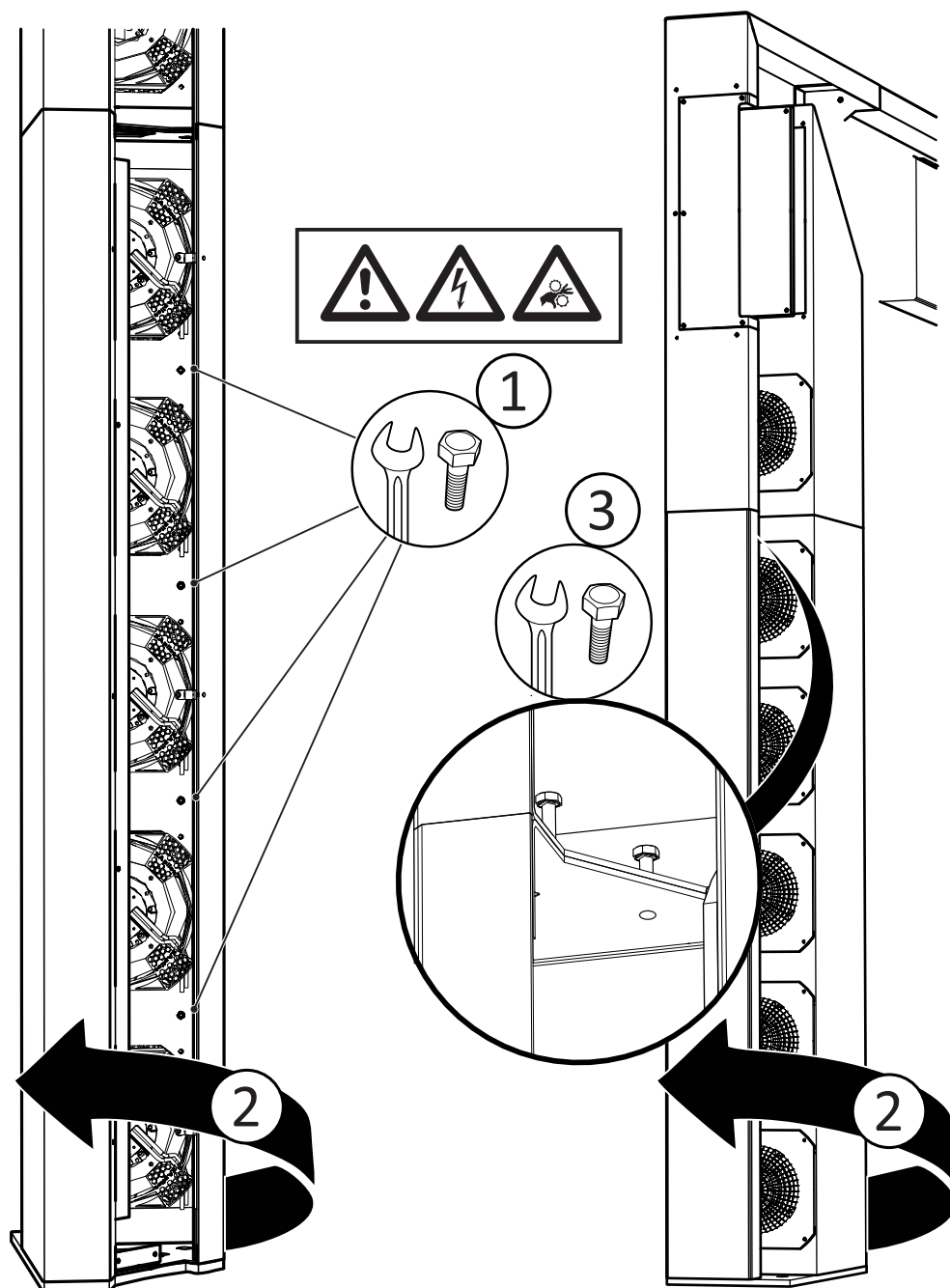
7 Continued

Should fan replacement be required, the fan must be pre-fitted with flowguard and power connector prior to installation.

Please contact VES Andover Ltd for a fan assembly appropriate to the AirDoor™ assembly.

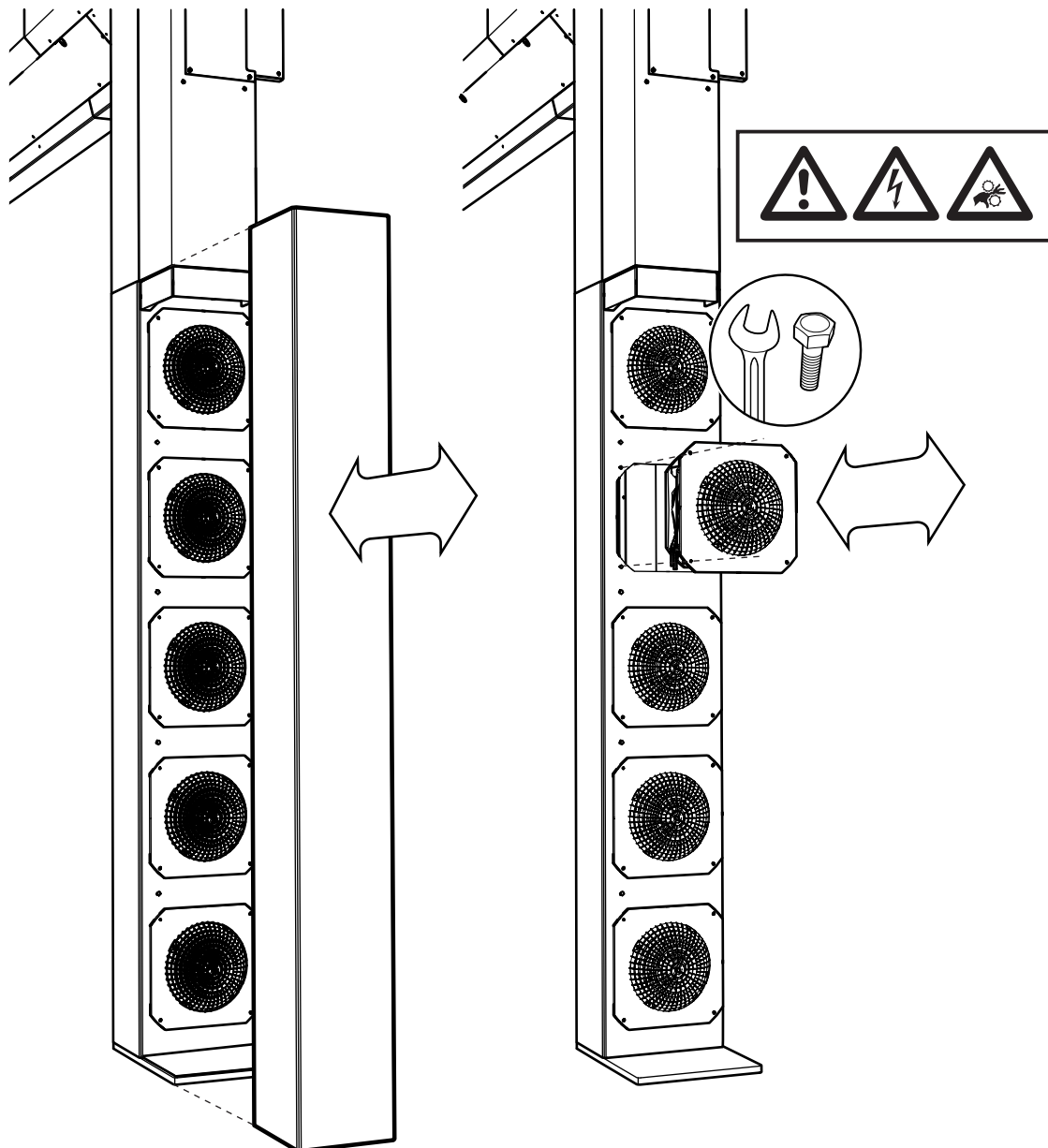
- For fan removal, carefully remove the Fan Blade Service Cover as show in figure 16 .
- **Ensuring the unit is fully isolated**, carefully unplug the appropriate power connector to the fan using the methods illustrated in figure 13 on page 12.
- Remove the Acoustic Cover by removing the **ALL** the M6 fixings as shown in figure 17 below and the two concealed M12 Hex set screws inside the cover.
Keep all fixings for reassembly later.

Acoustic cover removal
fixings out
Fig. 17



Maintenance 7 Continued**Fan Access**

- Carefully back-off the acoustic cover.
- Remove the four M4 Hex fixings from the fan base within the acoustic section as shown in figure 18 below and carefully withdraw the appropriate fan back and out, taking special care with the wiring loom.
- Replace in reverse, again taking care with wiring looms and ensure the plug connection is fully made and plug clips are correctly engaged. Ensure the wiring loom is safely stowed away from all moving parts by zip-tying to the z-brackets as provided.



Acoustic cover removal
Fan out
Fig. 18

Caution

Ensure all plugs are fully connected and matched to the appropriate fan.
Ensure all wiring looms are secured and stowed away from any moving parts.
Ensure all fixings and components are correctly and safely reinstalled, and all covers are in place before reinstating mains power to the unit.

Maintenance**7****Continued****Optimised Predictive Maintenance**

The frequency of checks will be dependent on a number of factors, including proximity of road traffic, foot traffic, air quality, season etc.

It is recommended that after the first three monthly check the frequency of checks be adjusted to suit an optimised periodicity in relation to predictive maintenance; as an example, if the fan guards are heavily soiled the period between checks may need to be shortened. Alternatively, if the fan guards are relatively clean the period of checks may be lengthened, monitored and adjusted to suit.

Recommended Checks

In order to keep the **AirDoor™** in good order the following maintenance routine is recommended:

Three Monthly Checks

Check that all fan wiring within the unit is secure and undamaged with no deterioration or debris build up. All cables should be secured within the structure, replace any elements securing cables which are not securely fastened, and ensure that cables are safely stowed well away from any moving parts.

Inspect fan fixings for signs of corrosion, deterioration or movement.

Cleaning

Inspect and clean air exits, fan intake covers and main surfaces. Use appropriate cleaning equipment to remove dust and grease from surfaces. Check all fan inlet guards for signs of debris build-up. Remove stubborn detritus with a dry stiff brush as required.

Caution

A failure to keep the air path clean and free from any obstructions will likely lead to a fall in performance, generate noise or lead to fan failure.

Pressure sensor node check

Check condition and operation of pressure sensors.

Pressure sensor nodes should be clean, securely fixed and free from damage. If visible check the tube is securely connected to the pressure node and sensor box. Sensors should react quickly to a pressure applied at the nodes. A positive pressure correlates to a higher pressure outside the building. Pressure can be monitored from HMI, Cloud interface or if the **AirDoor™** is on, an increased pressure will normally increase fan speeds.

Twelve Monthly Checks

AirDoor™ units are supplied with a powdercoat paint finish as standard.

Check all painted items to ensure that they have not deteriorated, particularly where adverse environmental conditions prevail. Re-paint as necessary. Matching paint can be supplied upon request.

Spares & Repairs

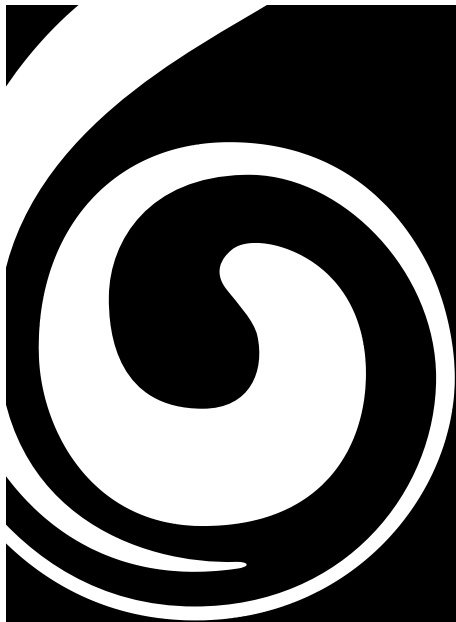
When enquiring after or ordering spares contact VES Spares Department, quoting the sales order (SO) number and the unit type as found on the unit nameplate

Tel: (+44) 2380 461150

WEEE Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with normal household waste. Do not burn.

PLEASE ENSURE THAT THIS DOCUMENT IS PASSED ON TO THE END USER



AirDoorTM

Active Comfort Solutions

Operation & Maintenance Manual

in partnership with



wirthresearch

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