

# S2E

## In-Line Extract Fans For Internal Use Installation Manual



### 1.0 SAFETY INFORMATION

- The provision of the electrical supply and the connection of the unit to the electrical supply must be carried out by a qualified electrician in accordance with latest edition of the wiring regulations.
- Isolate from power supply before removing any covers. During installation / maintenance ensure all covers are fitted before switching on the mains supply.
- All-pole disconnection from the mains as shown in the wiring diagram must be incorporated within the fixed wiring and shall have a minimum contact separation of 3mm in accordance with latest edition of the wiring regulations.
- This unit must be earthed.
- Ducting must be securely fixed with screws to the spigot to prevent access to live parts. Duct runs terminating close to the fan must be adequately protected by suitable guards.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. The replacement cord must be of the same technical specification as the original cord or greater.
- This appliance should not be used by children or persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning the safe use of the appliance by a person responsible for their safety. Children shall not play with the appliance. Cleaning and user maintenance shall not be carried out by children.

#### 1.1 Symbols



#### **GENERAL WARNING**

Signifies a general warning regarding hazard specified by supplementary information.



#### **ELECTRIC SHOCK**

This unit must be completely electrically isolated before any panels are removed. Check mains supply and control connections.



#### **ROTATING PARTS**

This unit contains fast moving rotational parts which may start automatically. It is the sole responsibility of the installer to adequately guard these components.



#### **REFER TO INSTRUCTION MANUAL**

Read and understand the installation and maintenance manual before installing, operating or maintaining this product.

### 1.2 Important Information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

While the product has been manufactured according to the accepted rules of current technology, there is still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**

### 1.3 Personal Protective Equipment

The following minimum Personal Protective Equipment (PPE) is recommended when interacting with Nuaire product:

- **Protective Steel Toed Shoes** - when handling heavy objects.
- **Full Finger Gloves (Marigold PU800 or equivalent)** - when handling sheet metal components.
- **Semi Fingerless Gloves (Marigold PU3000 3DO or equivalent)** - when conducting light work on the unit requiring tactile dexterity.
- **Safety Glasses** - when conducting any cleaning/cutting operation or exchanging filters.
- **Reusable Half Mask Respirators** - when replacing filters which have been in contact with normal room or environmental air.
- **VDE Compliant Screwdriver** - when adjusting speed control

Nuaire would always recommend a site specific risk assessment by a competent person to determine if any additional PPE is required.

## 2.0 INTRODUCTION

The S2E range of in-line backward curved extraction fans consists of 4 units. All units are manufactured from galvanised steel.

The units have been designed for the extraction of polluted indoor air. Units feature three variable speeds and an inbuilt run on timer. The speeds and run-on timer are commissioned using adjustment dials located at outlet end of the unit. An optional wall mounted variable speed control is available (S2E-SPCON2).

### 2.1 Code Description:

1	-	2
S2E	-	150

1. Range: **S2E = In-line Extract Fans**
2. Spigot Size:
  - 125 = 125 mm Ø**
  - 150 = 150 mm Ø**
  - 200 = 200 mm Ø**
  - 250 = 250 mm Ø**

## 3.0 MECHANICAL INSTALLATION

Installation must be completed by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, etc.

The unit must be installed indoors and can be installed any orientation. Provided its a suitable surface in a dry environment away from direct sources of frost, heat and water droplets or moisture generation. The fitted mounting brackets provide a method of installation suitable for direct ceiling mounting, suspending using drop rods or floor mounting.

To reduce vibrations the unit must be mounted to a solid structure. Its recommended that anti-vibration mounts (AV's) are used to further reduce any vibrations, these can only be used when the unit is mounted in a horizontal orientation, either suspended or floor mounted (**product code - NAV 1**). If AV mounts are used the installer **MUST** follow their instructions as supplied.

Access to the unit for commissioning and maintenance requires access to the outlet end of the unit (minimum 300mm) and to the underside of the unit to remove the lid. This should be considered before the installation takes place.

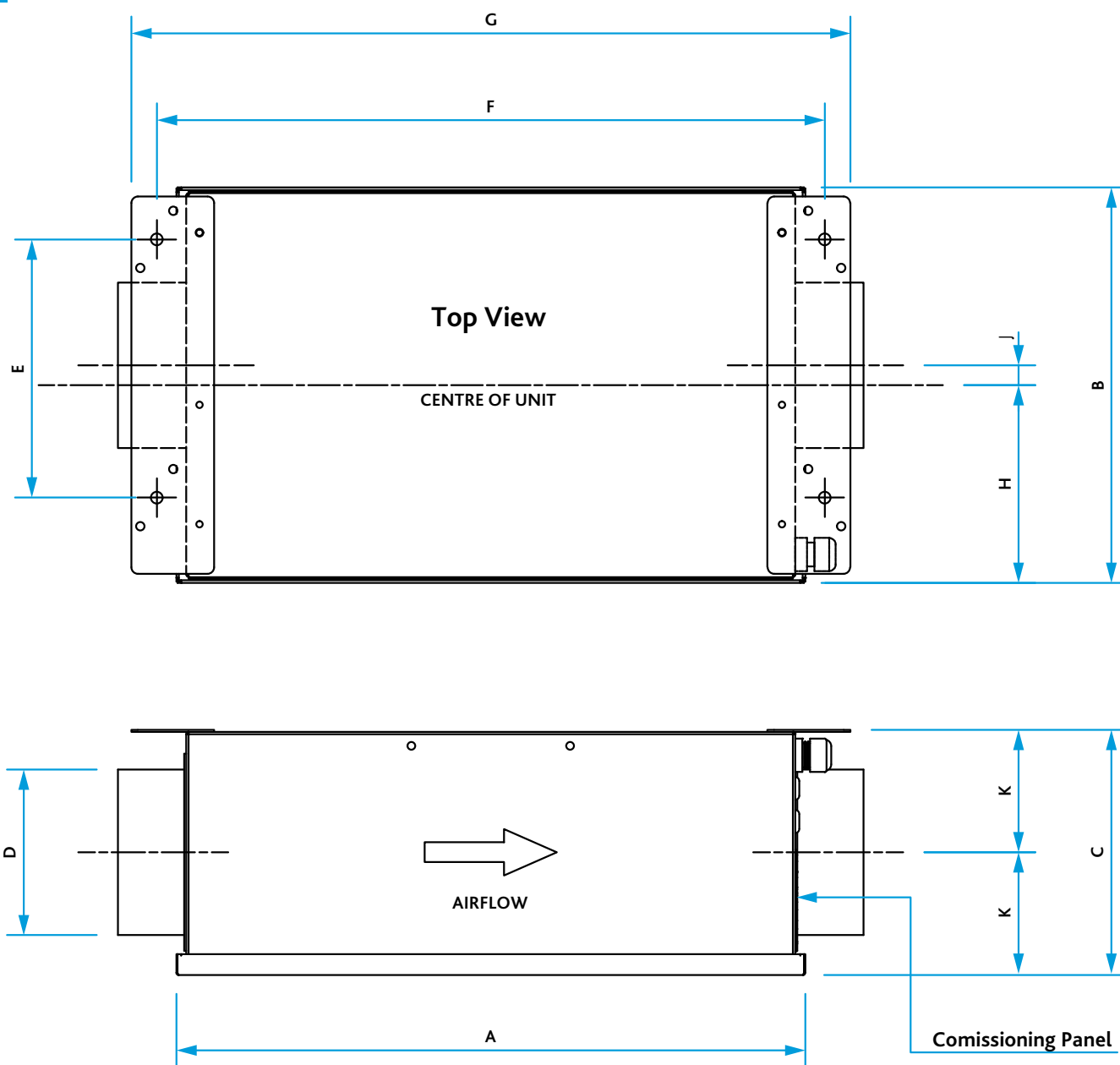
**Service / Maintenance Access – Unit must be installed with access to remove the lid, and a minimum of 300mm off the outlet end to access controls.**

### 3.1 Ducting

Ducting must be securely fixed with screws to the spigot to prevent access to rotating and live parts. Duct runs terminating close to the fan must be adequately protected by suitable guards.

3.2 Unit Dimensions (mm)

1 Unit Dimensions



Unit Code	Unit Dimensions (mm)										Unit Weight (Kg)
	A	B	C	D	E	F	G	H	J	K	
S2E-125	475	299	186	125	195	505	543	149.5	15	93	6.9
S2E-150	475	299	186	150	195	505	543	149.5	15	93	7.4
S2E-200	577	339	233	200	243	608	648	169.5	20	117	9.8
S2E-250	677	409	288	250	310	708	750	204.5	15	144	13.1

## 4.0 ELECTRICAL INSTALLATION

For good EMC engineering practice, any sensor cables or switched live cables should not be placed within 50mm of other cables or on the same metal cable tray as other cables.

**Isolate from power supply before removing any covers. During installation ensure all covers are fitted before switching on the mains supply.**

The electrical connection of the unit must be carried out by a qualified electrician. The unit is supplied with a flexible cord for connection to the electrical supply.

**This unit must be earthed.**

### 4.1 Electrical Information

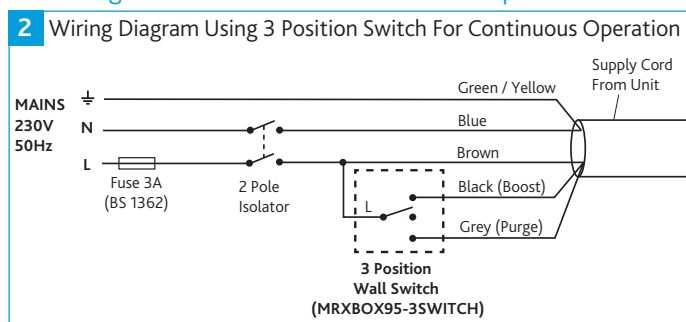
Unit Code	Power Consumption
S2E-125	83 W
S2E-150	115 W
S2E-200	169 W
S2E-250	170 W

The cable from the mains power supply should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

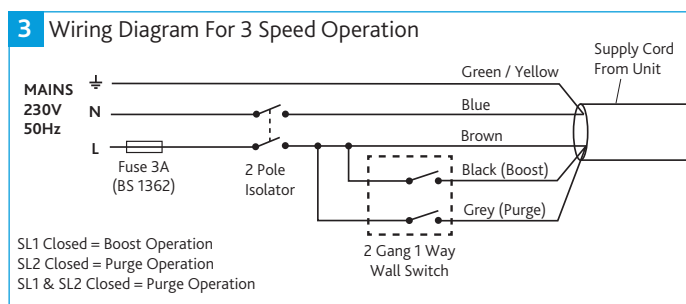
### 4.2 Unit Wiring Diagrams

For remote speed control operation, refer to Section 4.3.4.

#### 4.2.1 Using 3 Position Switch For Continuous Operation



#### 4.2.2 For 3 Speed Operation

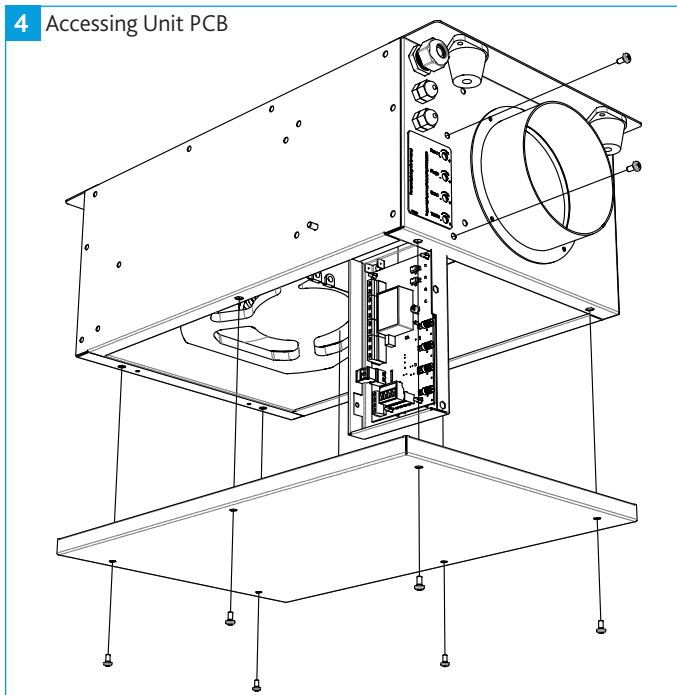


### 4.3 Optional Control Connections

Connection to Fan Fail output and S2E-SPCON2 requires access to the unit PCB (Figure 4).

Remove lid fixings and remove lid. Remove two screws from the control side end panel in line with the spigots to release the PCB. Carefully lower the PCB to gain access to the terminal connections.

#### 4 Accessing Unit PCB



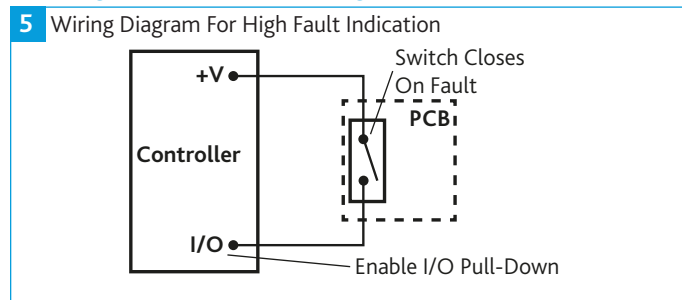
#### 4.3.1 Fan Fail (Volt Free)

With the PCB lowered (Figure 3), feed the cable through the cable gland make the connection to the PCB (Figure 4). Fully tighten the cable gland and reinstall and secure the PCB and lid.

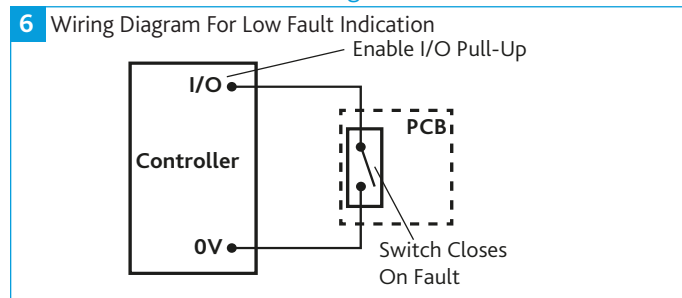
Fan fail is indicated by low impedance between the terminals. (The fault condition: The fault output goes low impedance (fault = <30 ohms whereas no fault, typically 5 Gohms). **Max current: 100mA @ 24V**

**It is the customer's responsibility to configure and connect the controller.**

#### 4.3.2 High Fault Indication Wiring



#### 4.3.3 Low Fault Indication Wiring

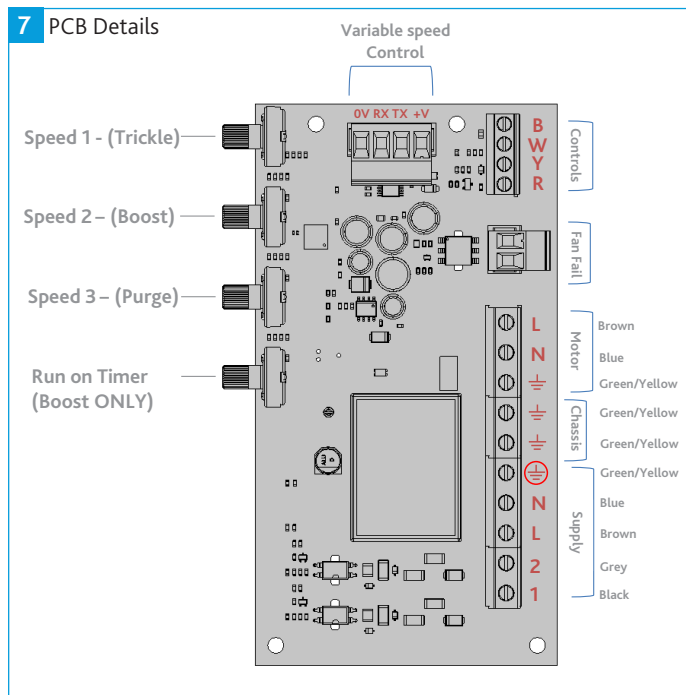


#### 4.3.4 Remote Speed Control (S2E-SPCON2)

The S2E-SPCON2 provides a remote wall mounted variable speed control between trickle and boost speeds.

Access the PCB following Section 4.3.1 and refer to S2E-SPCON2 instructions for connection information.

### 4.4 PCB Details



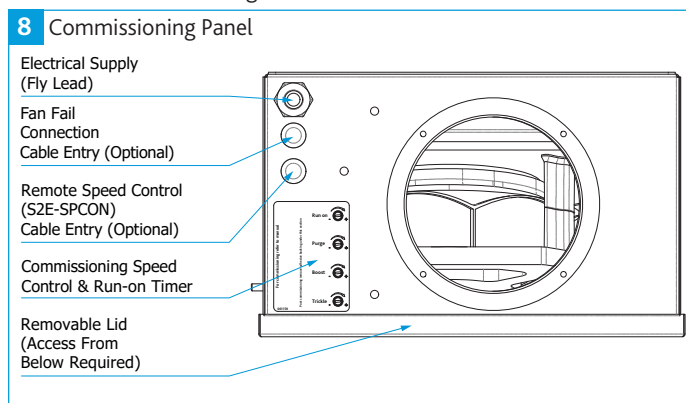
### 5.0 COMMISSIONING

The unit offers up to three independently variable speeds and a run-on timer for the boost function **only**. The run-on can be set between 1 – 60 minutes.

To adjust the speeds / run-on timer. Lift the top transparent layer of the labels and using a small VDE compliant screwdriver rotate the adjustment dials in the desired direction (Figure 8).

Once all desired settings have been achieved. Remove the backing film from the transparent label flap and firmly press down to seal the adjustment dials, this will also provide an indication of tampering.

Speed control settings are dependent on the method of wiring and which ancillaries are being utilised.



#### 5.1 Remote Speed Control Commissioning (S2E-SPCON2)

If the unit has previously been commissioned this step does not need to be undertaken.

- Set remote control potentiometer to minimum then adjust trickle potentiometer.
- Set remote control potentiometer to maximum, activate SL1, then adjust boost potentiometer.

Variable speed control is not available when either; Run-on, SL1 or SL2 is active.

### 6.0 ANNUAL MAINTENANCE

**After maintenance ensure all covers are fitted before switching on the mains supply.**

Even with filtered extract grilles fitted, some dust, fluff etc. will pass through the filter, and if can build up internally on motors and impellers, shortening the life of the unit and in severe cases lead to overheating of the motors.

- Inspect and clean the unit, the motor fan assembly can be cleaned with a dry brush or dry cloth.
- Thoroughly inspect the unit and its components for corrosion, acting immediately to treat/restore any damaged areas.

### 7.0 WARRANTY

The 2 year warranty starts from the day of delivery and includes parts and labour for the first year. The remaining period covers replacement parts only.

This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuair International Sales office for further details.

**Failure to maintain the unit as recommended will invalidate the warranty.**

### 8.0 END-OF-LIFE AND RECYCLING

Where possible Nuair use components which can be largely recycled when the product reaches its end-of-life:

- Fans, motors, controls, actuators, cabling and other electrical components can be segregated into WEEE recycling streams.
- Sheet metal parts, aluminium extrusion, heating/cooling coils and other metallic items can be segregated and fully recycled.
- EPP, plastic ducting, nylon corner pieces, plastic heat exchangers, packaging material and other plastic components can be segregated into mixed plastic and widely recycled.
- Cardboard packaging, wood, used filters and other paper components can be largely recycled or fully processed in energy from waste centres.
- Remaining items can be further segregated and processed in accordance with the zero waste hierarchy. Please call After Sales for further information on items not listed above.

**Ensure that Nuair product is made safe from any electrical / water / refrigerant supplies before dismantling commences. This work should only be undertaken by a qualified person in accordance with local authority regulations and guidelines, taking into account all site based risks.**

## 9.0 AFTER SALES AND REPLACEMENT PARTS

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales department.

If ordering spares please quote the serial number of the unit together with the part number, if the part number is not known please give a full description of the part required. The serial number will be found on the identification plate attached to the unit casing.

**Telephone 02920 858 400**  
**[aftersales@nuaire.co.uk](mailto:aftersales@nuaire.co.uk)**



Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

## DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of The Supply of Machinery (Safety) Regulations 2008. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of The Supply of Machinery (Safety) Regulations 2008 clauses 1.3.7 to 1.3.8.2 relating to guards / moving parts.

The relevant technical documentation has been compiled in accordance with Annex VII (Part 7 of Schedule 2), part B. We undertake, in response to a reasoned request, to supply it in electronic form to the market surveillance authorities within a reasonable period.

Designation of machinery: **In-line Extract Fan**  
 Machinery Types: **S2E-125, S2E-150, S2E-200, S2E-250**  
 Relevant UK Regulations: **2008 No. 1597, The Supply of Machinery (Safety) Regulations 2008**  
 Applied Harmonised Standards: **BS EN 60204-1, BS EN ISO 12100, BS EN ISO 13857**

Signature of manufacture representatives:  
 Name: Position: Date:  
 1) A. Thomas  Engineering Director 11. 11. 20  
 2) C. Sargent  Manufacturing Director 11. 11. 20

Nuaire: A Trading Division of Polypipe,  
 Western Industrial Estate,  
 Caerphilly,  
 CF83 1NA.  
**All standards used were current and valid at the date of signature.**

## INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with UK Regulations: 2008 No. 1597, The Supply of Machinery (Safety) Regulations 2008 and Electromagnetic Compatibility Regulations 2016.  
 To be read in conjunction with the relevant product documentation (see 2.1)

**1.0 GENERAL**

1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuaire to be assembled into a ventilation system which may or may not include additional components. 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 manufacturers recommendations and with due regard to current legislation and codes of practice.

**2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT**

2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.  
 2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuaire.  
 2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

**3.0 TRANSPORTATION, HANDLING AND STORAGE**

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.  
 3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.  
 3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

**4.0 OPERATIONAL LIMITS**

4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.  
 4.2 Where installation accessories are supplied with the specified equipment e.g. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.  
 4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.  
 4.4 **Local Environment - Humidity.** Ambient humidity (the humidity at the unit's installed location) shall be within the range: 10 to 95% (for controls, non-condensing). Air humidity (the humidity of the air passing through the unit) shall be within the range: 10 to 95% (for controls, non-condensing).

**5.0 INSTALLATION REQUIREMENTS**

In addition to the particular requirements given for the individual product, the following general requirements should be noted.  
 5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (e.g. ducting), then guarding to the appropriate standard must be fitted.  
 5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.  
 5.3 For good EMC engineering practice all control and sensor cables should not be placed in the same metal cable tray/conduit or within 50mm of any other 230V cables.  
 5.4 Protection against surges above 0.75kV L/N-E is recommended on the supply using thermally protected MOV unless the fan/control has internal surge protection fitted.  
 5.5 Attachment of ducts or similar fabrications not provided with the unit may be required to act as guards to meet the safety requirements of the Directive.

**6.0 COMMISSIONING REQUIREMENTS**

6.1 General pre-commissioning checks relevant to safe operation consist of the following:  
 Ensure that no foreign bodies are present within the fan or casing.  
 Check electrical safety e.g. Insulation and earthing.  
 Check guarding of system.  
 Check operation of Isolators/Controls.  
 Check fastenings for security.  
 6.2 Other commissioning requirements are given in the relevant product documentation.

**7.0 OPERATIONAL REQUIREMENTS**

7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.  
 7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

**8.0 MAINTENANCE REQUIREMENTS**


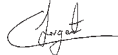
8.1 Specific maintenance requirements are given in the relevant product documentation.  
 8.2 It is important that the correct tools are used for the various tasks required.  
 8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.  
 8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.  
**NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.**  
 8.5 Care should be taken when removing and storing access panels in windy conditions.

## DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive 1.3.7 to 1.3.8.2 relating to guards / moving parts.

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