

Installation Guide

smart squurbo

SSE Extract Unit

NUAIRE

NuAire Limited,
Western Industrial Estate,
Caerphilly, Mid Glamorgan,
CF83 1XH, United Kingdom.
Tel: 029 2088 5911 Fax: 029 2088 7033
Email: info@nuaire.co.uk
www.nuaire.co.uk

Leaflet 670778

NOVEMBER 2000

NOTE: THIS IS A DIAGRAMMATIC DRAWING
INDICATING TYPICAL LAYOUT ONLY

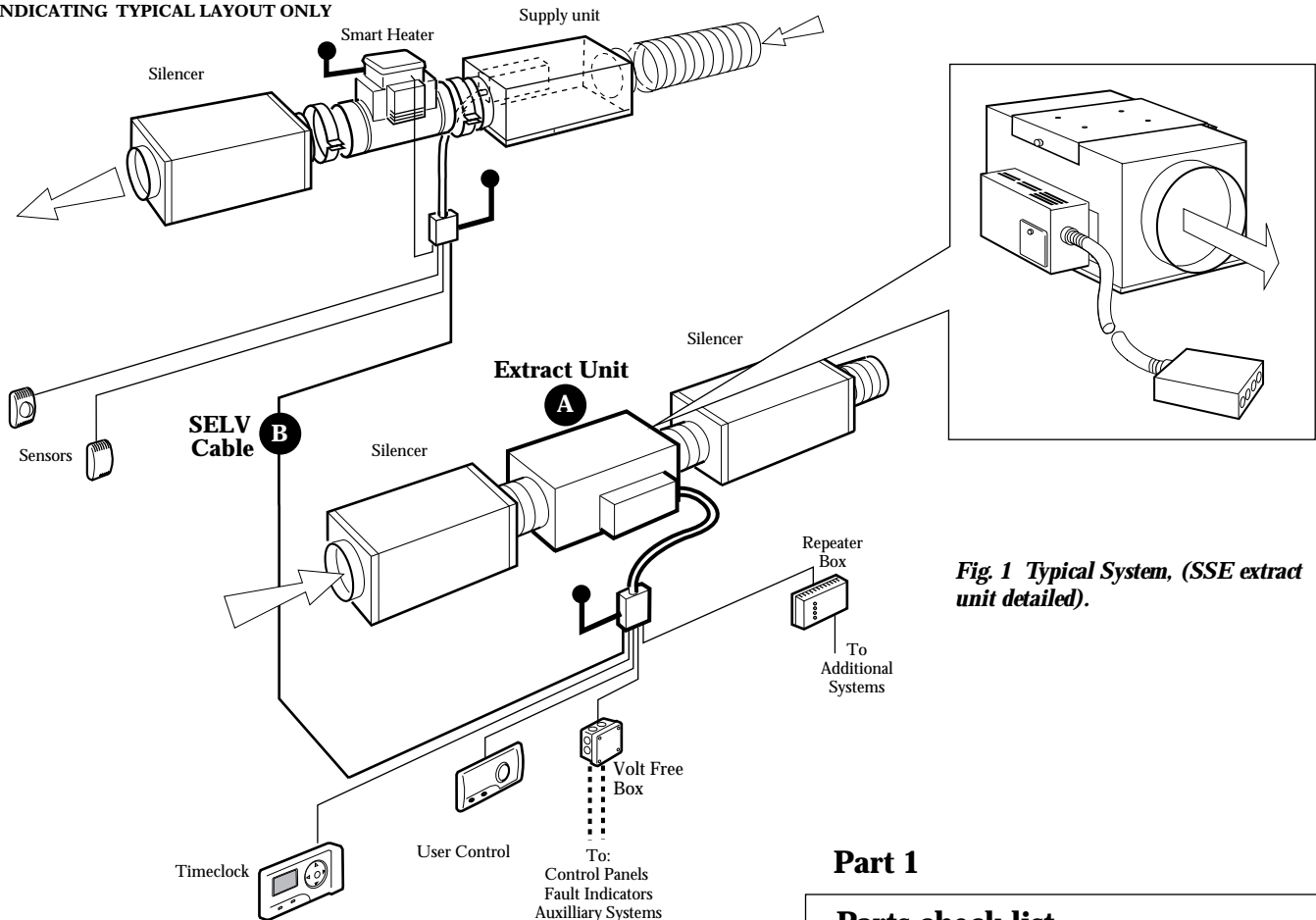


Fig 1 Typical System, (SSE extract unit detailed).

Contents

Part 1. Check delivery against parts checklist

(If your delivery is incomplete, please telephone NuAire on 01222 885911), Note: Please have your delivery note and order number ready to speed your enquiry

Part 2. Installing the Extract Fan

(The control module can be located on the opposite side of the case if necessary. The procedure is simply explained in NuAire leaflet number 670819. Available on request.)

Part 3. Connecting the electrical supply

(Also making the low voltage customer connections for various sensors and auxilliary functions).

Part 4. Setting and operating the unit

(Detailing the adjustments available to customise performance).

Part 5. Troubleshooting

(A quick reference for easy set up).

Certification

Part 6. Maintenance

Part 1

Parts check list

- A** SSE Smart Squurbo Extract Fan Unit
- B** 1 off 10 metre length of plugged SELV cable

NOTE: FAN WILL NOT OPERATE UNLESS IT IS CONNECTED TO A SMART SQRUBO USER CONTROL. (Supplied separately, See below).

Extract Unit (code SSE1 to SSE6)

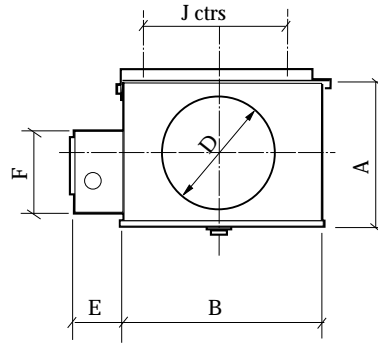
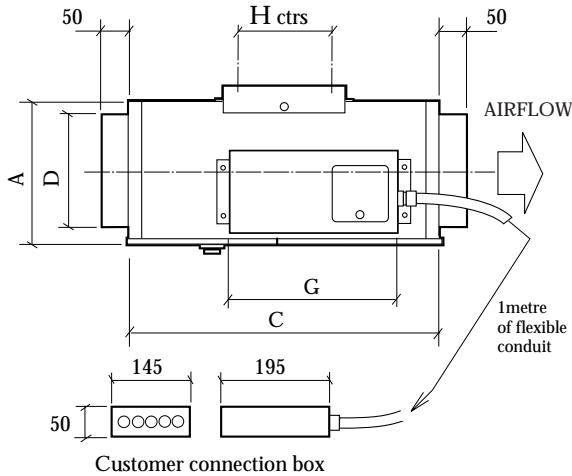
This fan unit can be used alone or as part of a supply / extract system. Operation of the fan(s) is achieved via a Smart Squurbo user Control (supplied separately).

Extract Unit with integral CO₂ Sensor (code SSE1-CO₂ to SSE6-CO₂)

This unit comprises a fan and a protective filter (type EU3) for the CO₂ sensor. When operated with an appropriate user control the module will automatically adjust the speed of the fans proportional to the amount of CO₂ measured in the area to be served.

IMPORTANT NOTE:
REMOVAL OF THE FILTER ON THE CO₂

Unit Dimensions



EXTRACT + CO2 Dimensions (mm)

Unit Code	A	B	C	D dia	E	F	G	H fixing ctrs	J fixing ctrs	Weight (kg)
SSE1-CO2	160	230	640	100	97	135	382	140	115	7.8
SSE2-CO2	160	230	640	125	97	135	382	140	115	7.9
SSE3-CO2	185	302	630	150	97	135	382	140	150	8.5
SSE4-CO2	235	350	700	200	97	135	382	140	170	13.4
SSE5-CO2	285	350	672	250	97	135	382	140	170	14.2
SSE6-CO2	350	400	726	315	97	135	382	140	200	15.6

EXTRACT ONLY Dimensions (mm)

Unit Code	A	B	C	D dia	E	F	G	H fixing ctrs	J fixing ctrs	Weight (kg)
SSE1	160	230	392	100	97	135	282	140	115	7.4
SSE2	160	230	392	125	97	135	282	140	115	7.4
SSE3	185	302	392	150	97	135	282	140	150	8.1
SSE4	235	350	392	200	97	135	282	140	170	13.0
SSE5	285	350	392	250	97	135	282	140	170	13.8
SSE6	350	400	392	315	97	135	282	140	200	15.2

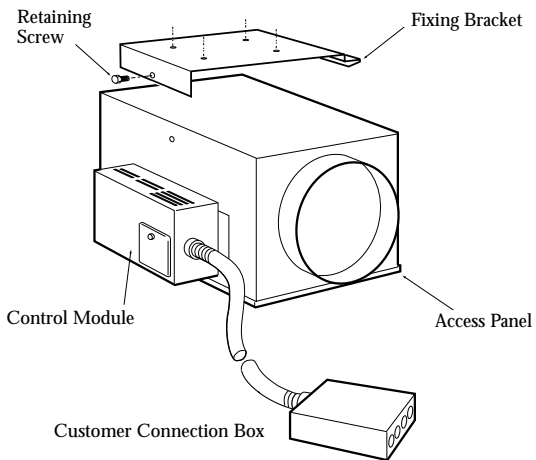


Fig. 2 Smart Scurbo (SSE unit illustrated).

Part 2 Installation

Handling

Always handle the units carefully to avoid damage and distortion. Care must be taken to ensure that any slings used for hoisting do not damage the casing or the control module components.

Ductwork

Make duct connections to units using circlips or jubilee clips.

Mounting the Units (Fig 3 & 4)

NOTE: BEFORE CARRYING OUT ANY INSTALLATION OR ADJUSTMENT, ISOLATE THE POWER SUPPLY.

Control Module position

The control module and customer connection box can be moved to the opposite side of the fan casing if required for details please see NuAire leaflet 670819 which is available on request.

Integral mounting bracket

The bracket is designed to make installation easier, see fig 3. Alternative arrangement shown in fig 4.

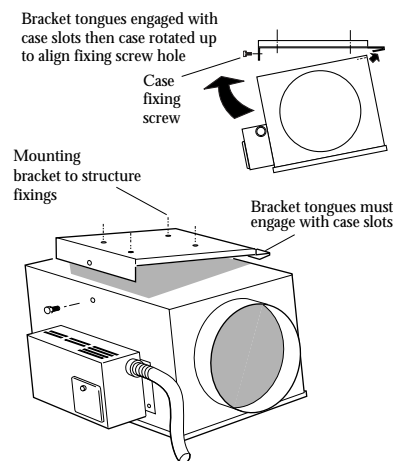
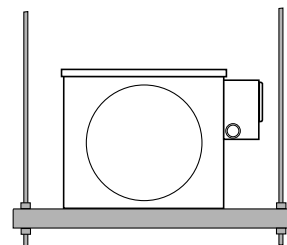


Fig. 3 Installing the unit using the integral mtg bracket



Installation Guide

SSE EXTRACT UNIT

Customer wiring into fan connection box

Power requirements.

Supply: 1 Phase (230V)

Unit Code	sc (amps)	flc (amps)
SSE 1 / SSE 1-CO2	0.47	0.32
SSE 2 / SSE 2-CO2	0.47	0.32
SSE 3 / SSE 3-CO2	0.47	0.34
SSE 4 / SSE 4-CO2	1.49	0.72
SSE 5 / SSE 5-CO2	1.54	0.92
SSE 6 / SSE 6-CO2	1.54	0.90

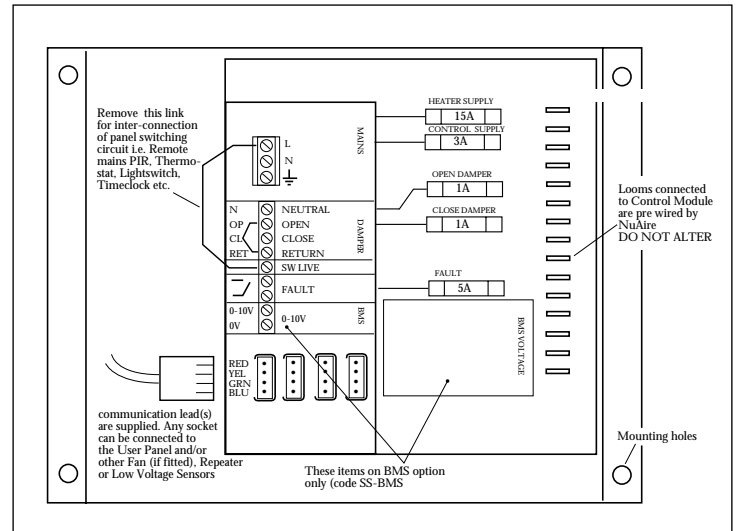
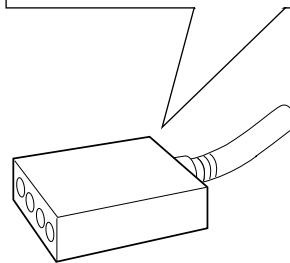


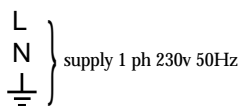
Fig. 5 Customer connection box

ISOLATION
BEFORE COMMENCING WORK MAKE SURE THAT THE UNIT IS ELECTRICALLY ISOLATED FROM THE MAINS SUPPLY.



Part 3 Electrical connections

MAINS

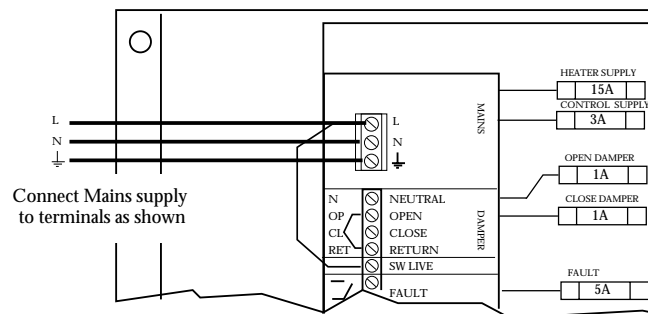


DAMPER

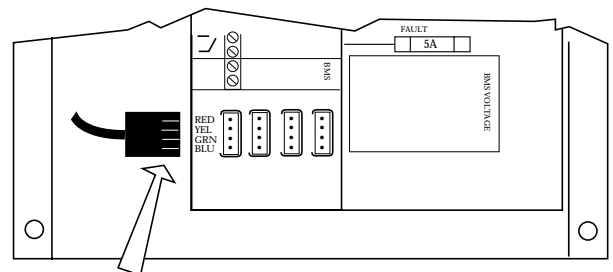
- N NEUTRAL:** Supply for damper
- OP OPEN:** 230v. ac (1 amp rating) powered when an is selected to run.
- CL CLOSE:** 230v. ac (1 amp rating) powered when fan is selected to stop.
- RET RETURN** 230v. ac input signal - This is a feedback switch that can be connected to a limit switch. Allows the damper to be fully opened before the fan begins to run.

SL SW LIVE 230v. ac input signal- The system will only operate when 230v. ac is sensed on this connector. Examples of uses are: Main PIR, Timeclock etc.

FAULT 2 terminals supplied- Fused to 5A These are volt free contacts. Closed when system is operating normally. When a fault occurs the contacts will open and break the circuit.



Normal operation.
No auxilliary devices being employed

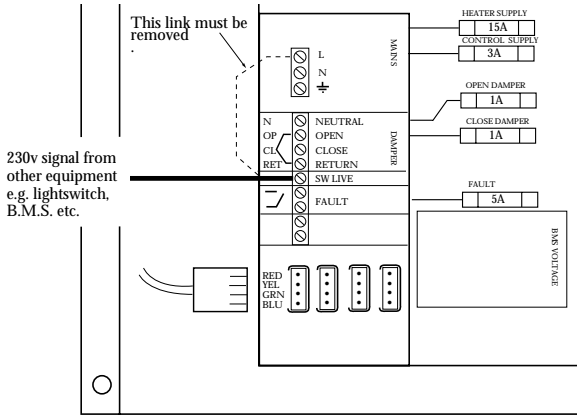


Connecting the communication cable (supplied).

Any socket may be used

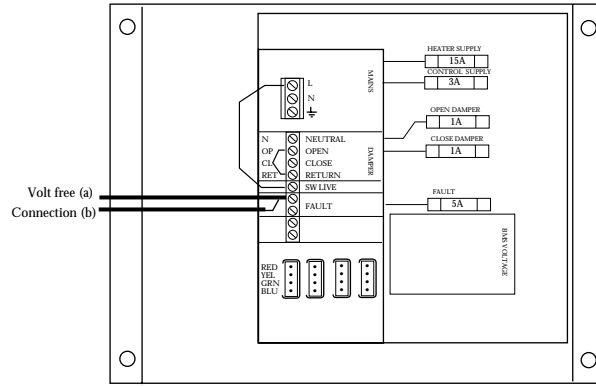
Extract only: Connect the other end of the cable to the user control (control supplied separately)

Supply / Extract: As above. Also a second cable is used to connect the two fans together



Switched Live connection

When 230v ac is applied to the switch live connection, the fan will run.
When the 230v ac is removed from the switch live connection the fan will stop.

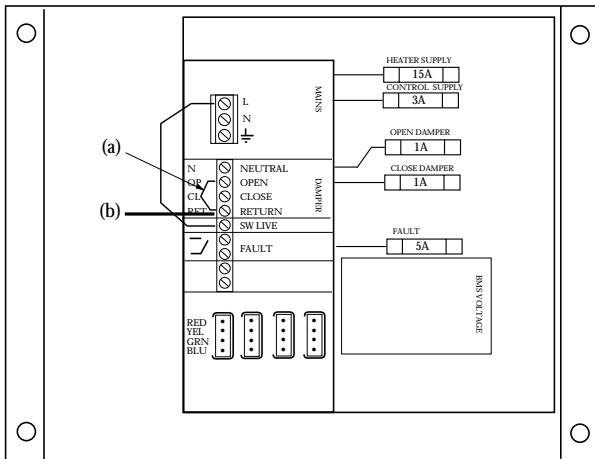


Fan Fail signal connection

This connection is a volt free switch. It can handle power up to 5A (230v) and has been fused at 5A for protection.

No Fault: The volt free switch is closed i.e. (a) & (b) are connected.

Fan Fault: The volt free switch is opened i.e. (a) & (b) are disconnected.



Damper connection

Powered open: Power 230v ac (1 amp) is provided on OP / OPEN connection to power open a damper. This can also be used to switch auxiliary equipment.

Powered close: Power 230v ac (1 amp) is provided on the CL / CLOSE connection to power closed a damper.

If a limit switch is used when opening a damper:-

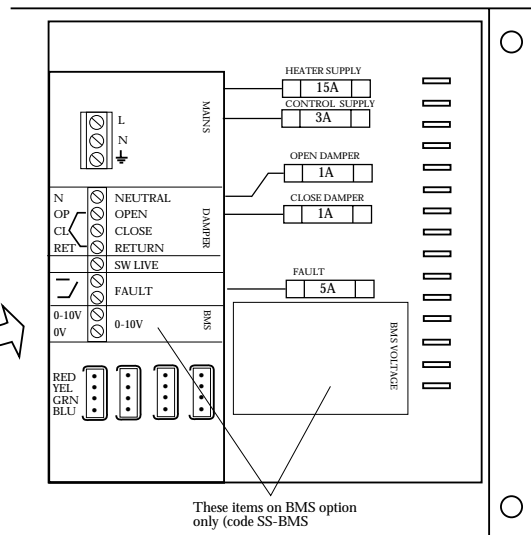
1. Remove link (a)
2. Connect 230v ac supply to common connection of limit switch
3. Connect N/O connection of limit switch to RET / RETURN connection.

Note: an extra neutral connection is provided for convenience when using a damper.

Speed Control via 0 - 10v dc signal BEMS

BMS Control Voltages

SUMMER MODE		WINTER MODE	
Volts*	Function	Volts*	Function
0	Local Control	0	Local Control
0.25	Local Panel disabled / Off	0.25	Local Panel disabled / Off
0.5	Speed 1	1	Speed 1
1.5	Speed 2	2	Speed 2
2.5	Speed 3	3	Speed 3
3.5	Speed 4	4	Speed 4
4.5	Speed 5	5	Speed 5
5.5	Speed 6	6	Speed 6
6.5	Speed 7	7	Speed 7
7.5	Speed 8	8	Speed 8
8.5	Speed 9	9	Speed 9
9.5	Speed 10	10	Speed 10
Heater 'ON'			



These items on BMS option only (code SS-BMS)

Part 4 Setting and operating the unit

Adjustments

The installer can adjust the following features and customise the Smart Sqrbo system to meet his particular requirements:

Min. / Max. setting on Fans

The speed of the fan can be adjusted. The maximum speed is reduced by rotating the relevant screw anti-clockwise. Using this feature, the min/max extract rate can be fine tuned to suit individual requirements.

NOTE: Fully clockwise will set the speed to 100%, see fig 6.

Offset adjustment

Both the supply and extract units have this feature inside the control module. This adjustment alters the total span of speed adjustment i.e. it reduces the current speed by a % value. See fig. 6. If the potentiometer is turned fully clockwise, the span of adjustment is minimum % setting - maximum% . Although not graduated or calibrated, reductions in span can be achieved by turning the potentiometer anticlockwise. This adjustment is particularly useful when creating a slightly positive or negative pressure within the occupied space, or if a unit has been oversized.

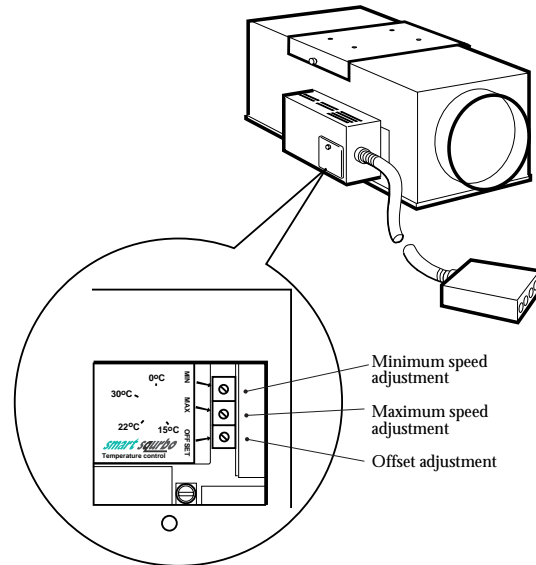


Fig 6 Customer adjustments on Control Module

Part 5. Troubleshooting for Smart Sqrbo Systems

Problem

System power is on, power and status light on user control is green, fan lights are off and switch has been moved to summer / winter mode but fan is not running.

Cause/Solution

The SW Live connector may not have 230v AC connected to it (Timeclock or PIR etc not active) or when a limit switch is used with a damper 'DAMPER RETURN' does not have 230v AC connected to it

Problem

System power is on but no lights showing on the user control.

Cause/Solution

Check SMARTCABLE-10/Net connections or check the 3 amp fuse labelled 'Control Supply' in the customer connection box.

Problem

System power is on but user control displays a red light next to 'Supply / Extract Fan'

Cause/Solution

Fan has failed-contact a service engineer.

Problem

The user control has been switched to the OFF position but the green light stays on indicating that the fan /s are still running.

Cause/Solution

This is a normal condition. notice that the heater light is amber. This indicates that the system has been switched from winter mode to summer \ OFF. The fan has a built in run on timer which runs for 10 minutes. This is necessary to disperse any residual heat.

Problem

The Supply unit does not heat the air

Cause/solution

Check the temperature control (0-30 deg C dial on the side of the fan. Check 15 amp fuse (SS1-SS5). On SS6 unit check that the separate 25 amp supply is switched on.

Problem

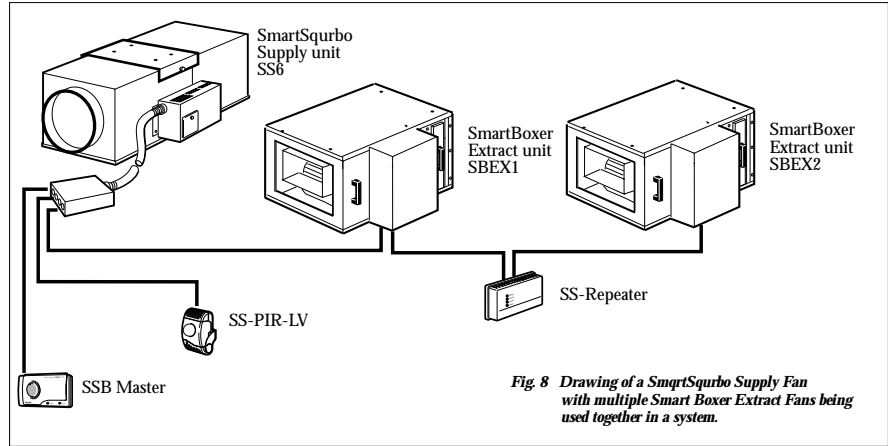
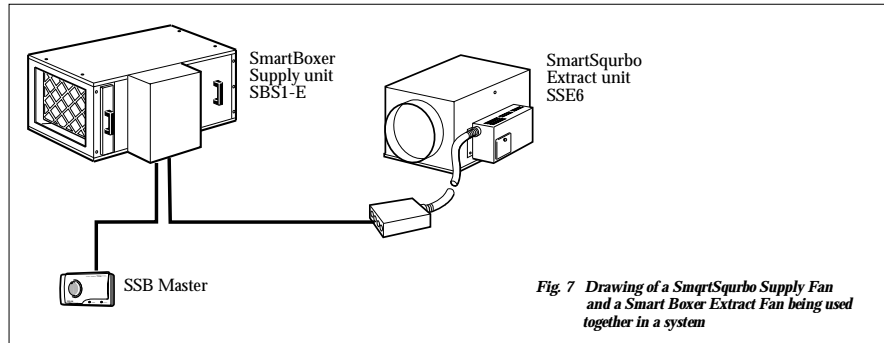
The user control displays an amber light next to a fan

Cause/Solution

Check the SMARTCABLE - Net connections. Check power / fuses to the customer connection box.

Using Smart Sqrbo and Smart Boxer systems together

SmartSqrbo and SmartBoxer systems may be used together Smart Controls including User controls, Sensors and other auxilliary devices are fully compatible with both SmartSqrbo and Smart Boxer systems (See opposite).



NUAIRE



DECLARATION OF CONFORMITY

NuAire Limited,
Western Industrial Estate,
Caerphilly, Mid Glamorgan,
CF83 1XH. United Kingdom.
Telephone: 029 20 88 5911
Fax: 029 2088 7033
Email: info @ nuair.e. co. uk

NOVEMBER 1998

*We declare that the machine named below
conforms to the requirements of EC Council Directives
relating to Electromagnetic Compatibility and
Safety of Electrical Equipment.*

Designation of machinery :- SMART SQRBO SYSTEM

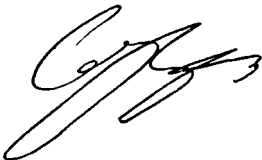

Machinery Types :- SSE

Relevant EC Council Directives :- 89/336/EEC, 92/31/EEC (EMC)
73/23/EEC, 93/68/EEC (Low Voltage Directive)

Applied Harmonised Standards :- EN50081-1, EN50082-1, EN60204-1
EN60335-2-80

Basis of Self Attestation :- Quality Assurance to BS EN ISO 9001
BSI Registered Firm Certificate No. FM 149

Signature of manufacture representatives :-

	Name:	Position:	Date:
1)	 C. Biggs	Technical Director	2. 11. 99
2)	 W. Glover	Manufacturing Director	2. 11. 99

DECLARATION OF INCORPORATION & INFORMATION FOR SAFE INSTALLATION, OPERATION & MAINTENANCE

NOVEMBER 1998

*We declare that the machinery named below is intended
to be assembled with other components to constitute a system of machinery.*

*The machinery shall not be put into service until the system has
been declared to be in conformity with the provisions of the
EC Council Machinery Directive.*

Designation of machinery :- SMART SQRBO SYSTEM

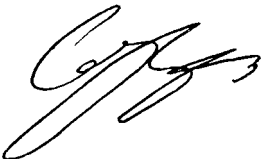

Machinery Types :- SSE

Relevant EC Council Directives :- 98/37/EC (Machinery Directive)

Applied Harmonised Standards :- EN292-1, EN292-2, EN294, EN29001

Applied National Standards :- BS848 Parts One, Two and Five

Signature of manufacture representatives :-

	Name:	Position:	Date:
1)	 C. Biggs	Technical Director	3.11.99
2)	 W. Glover	Manufacturing Director	3.11.99

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

To comply with EC Council Directives 98/37/EC Machinery Directive

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, please 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 in particular 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 eg. 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 ductwork systems. They must not be used to support the ductwork.

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 (eg 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.

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.*

Part 6. Maintenance

ISOLATION

BEFORE COMMENCING WORK MAKE SURE THAT THE UNIT IS ELECTRICALLY ISOLATED FROM THE MAINS SUPPLY.

Maintenance Intervals

The first maintenance should be carried out three months after commissioning and thereafter at twelve monthly intervals. These intervals may need to be shortened if the unit is operating in adverse environmental conditions, or in heavily polluted air. Do not run the fan system in dust laden conditions prior to hand over as cement or plaster dust will cause premature clogging of the filters.

General Cleaning and Inspection

Access to the motor / impeller assembly can be gained by removing the main case cover
Inspect fan and motor assembly as follows; taking care not to damage, distort or disturb the balance of the impeller.

- a) Lightly brush away dirt and dust, paying particular attention to any build up at the motor ventilating slots. If necessary, carefully remove with a blade or scraper.
- b) Stubborn dirt at the impeller may be carefully removed with a stiff nylon brush.
- c) Check all parts for security and general condition.
Check that the impeller rotates freely.

Refit the assembly to the unit.

Lubrication

Motors are fitted with sealed for life bearings and therefore require no further lubrication

Filter care / replacement

The filter inside the Smart Scurbo unit will require cleaning on a regular basis. The frequency of filter cleaning operations will depend on the site conditions.

Note: It is important to allow sufficient time for the heater battery to cool down before beginning work.

Remove the access panel and withdraw the filter. The filter may then be vacuumed.

Service

As a manufacturer NuAire can provide you with factory trained Service Engineers.

Our Engineers are supported by a comprehensive range of spare parts 'off the shelf'.

If you are an industrial or commercial user, you may be interested in details of NuAire's regular maintenance Service Contracts. This is a worthwhile service that helps you get the most from our products.

Our Service Department will be happy to give you more information.

Please telephone: 029 2085 8585

Controls Application Service (CAS)

A team of Engineers and technicians is available to provide pre and post order support.

We are on hand to provide help and advice from the most basic use of any NuAire equipment to the more complex applications, maximising on the versatility of our SMART and NetLink control products.

Telephone: 029 2085 8585

Facsimile: 029 2085 8586

3 YEAR WARRANTY

The three year warranty starts from the date of delivery and includes parts and labour for the first year.

The labour element is subject to full, free and safe access to the equipment as recommended by the CDM regulations.

The remaining two years covers replacement parts only.

NOTE:

Installation & Maintenance of the equipment must be as directed in the instructions provided with the unit.

NUAIRE

**Western Industrial Estate,
Caerphilly, Mid Glam CF83 1XH
United Kingdom.**

Telephone: 029 2088 5911

Facsimile: 029 2088 7033,

Email: info@nuaire.co.uk

www.nuaire.co.uk

Leaflet No. 670778

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.