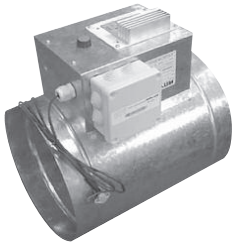


ESH / XB-FC

Ecosmart Heater 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.
- 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.
- 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.

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.

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 Ecosmart Heater should only be used as a supplementary heater in conjunction with a Ecosmart supply fan with integral electric heater. It must not be used with any other fans.

The heater is a 3kW single phase unit that requires an independent 230V mains supply to the top mounted terminal box and is supplied with a pre-plugged 10m length of communications cable.

This heater will provide additional heat where the desired temperature cannot be achieved by the supply fan's integral heater alone.

Ideal minimum air velocity through the heater section =2.0m/s.

3.0 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.

3.1 Installing the Heater

The heater can be installed into an ISO standard spiral duct run, with either horizontal or vertical flow.
With vertical ducts consideration must be given to items in the run above the heater which could be affected by heat rising when the fan is switched off. All heaters should be kept away from plastic conduits or materials easily damaged by heat (allow for casing temperature of 100°C).

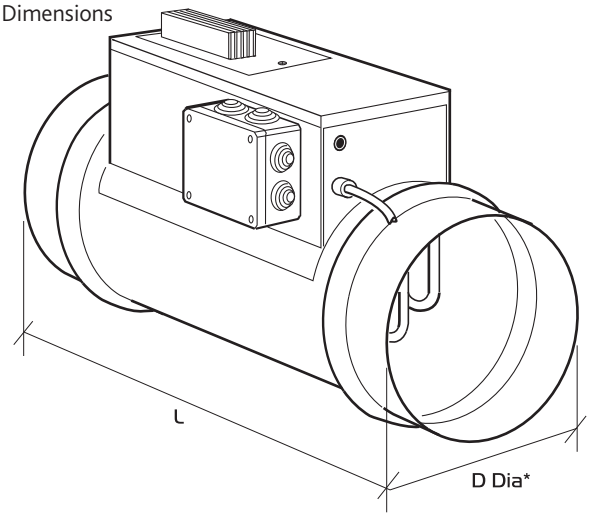
The heater must be fitted indoors, away from any water spray or source of steam. The heater is installed into the ductwork using the fast clamps (do not use flexible connectors) at the downstream side of the supply fan. Larger, heavier units should be adequately supported.

3.2 Installing the Duct Sensor

A combined temperature and airflow sensor is attached to a coiled fly lead. This should be mounted in the duct 1.5-2m downstream from the heater, where the sensor cannot be damaged by heat. A 20mm hole saw and 2 fixing screws will be required.

The sensor has and airflow direction arrow and will only operate if installed with the arrow pointing in the direction of airflow.

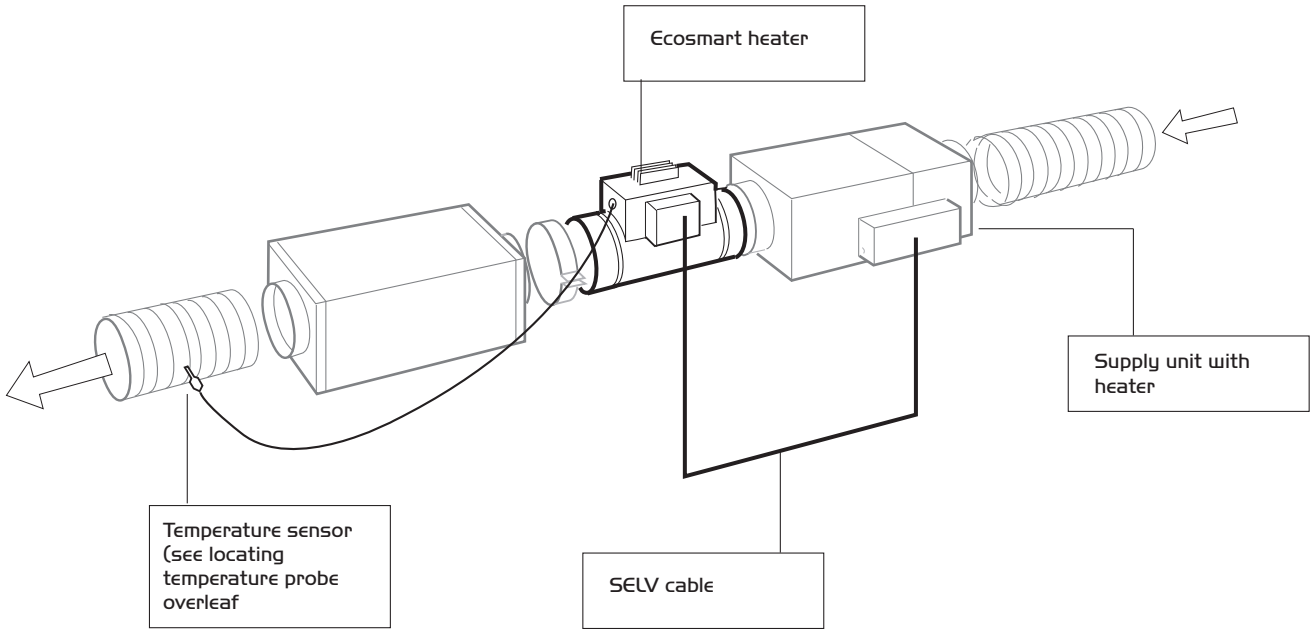
2 Dimensions



Heater Unit	Matched Unit	D Spigot dia.	L Length
ESH2	ESS2-E	150	400
ESH3	ESS3-E	200	400
ESH4	ESS4-E	250	400
ESH5 / XB-FC	ESS5-E	315	400

*Diameter D suits matched Ecosmart unit. All dimensions in mm.

1 Example Installation (Main Heater)



4.0 ELECTRICAL INSTALLATION

Isolation - Before commencing work, make sure that the unit, switched live and Nuaire controls are electrically isolated from the mains supply.

The electrical wiring must be carried out by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, COHSE etc.

The heater requires two connections; the SELV communications cable link up and the 230V mains Live, Neutral & Earth connection to power the heater element.

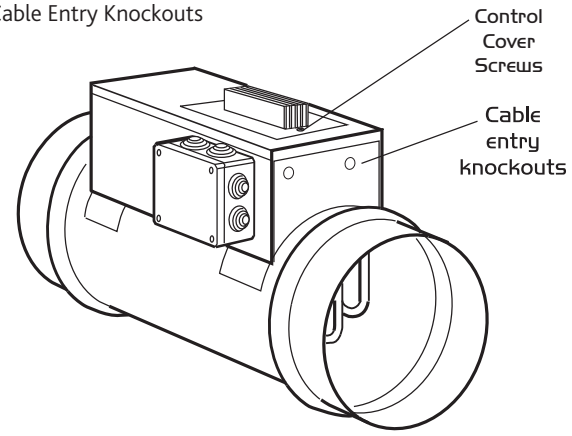
4.1 Heater Wiring

These heaters are internally pre-wired are require a suitable supply feed connection to operate (see rating label). See the wiring diagram for connection details.

To connect the mains supply to the unit it is necessary to remove the control cover from the heater body.

- Remove the two fixing screws and lift off the cover to reveal the PCB (Figure 3).
- Knock-outs are provided in the casing panel for cable entry.
- Connect the mains supply Live and Neutral wiring to terminals via the crimp connectors provided (3kW 230V A.C. 1 phase).
- Connect the mains supply Earth wiring to the earth bolt via a ring tongue crimp connector (not provided).

3 Cable Entry Knockouts



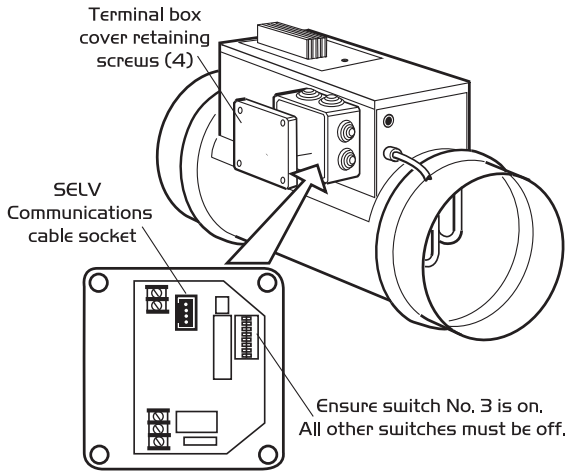
4.2 Data Cable Wiring

A 4-core SELV data cable is used to connect devices. Do not run data cable in the same conduit as the mains cables and ensure there is a 50mm separation between the data cable and other cables. The maximum cable run between any two devices is 300m when it is installed in accordance with the instructions.

Total data cable length used in any system must be less than 1000m. Keep the number of cable joints to a minimum to ensure the best data transmission efficiency between devices.

- Remove the top cover from the terminal box by rotating the four fixing screws half a turn.
- The communications cable (supplied) can now be plugged into the socket marked Ecosmart NET inside the box (Figure 4).
- The other end of the SELV cable should be plugged into the connection box of the associated supply fan in the system.

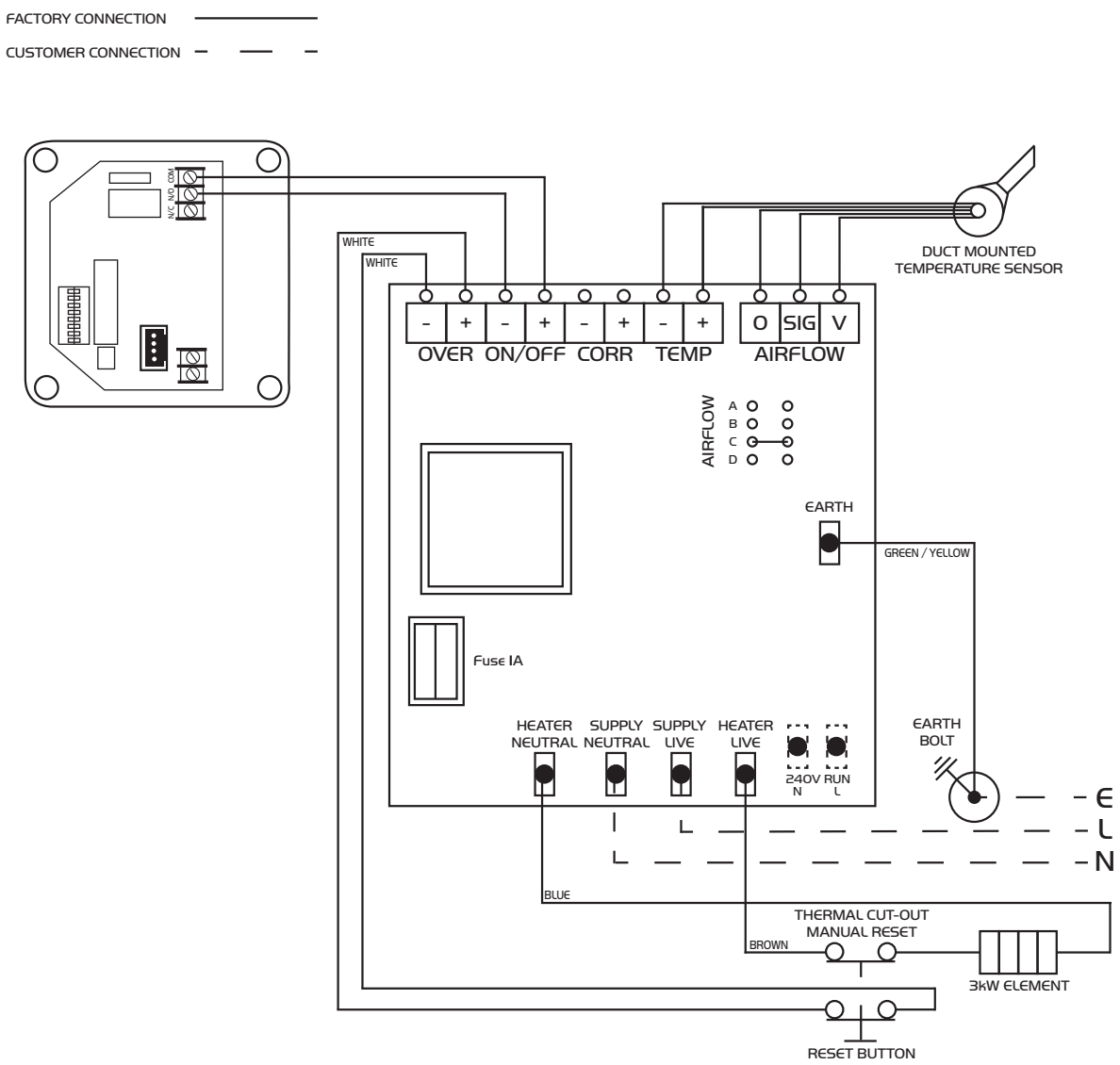
4 Cable Connection



4.3 Wiring Diagrams

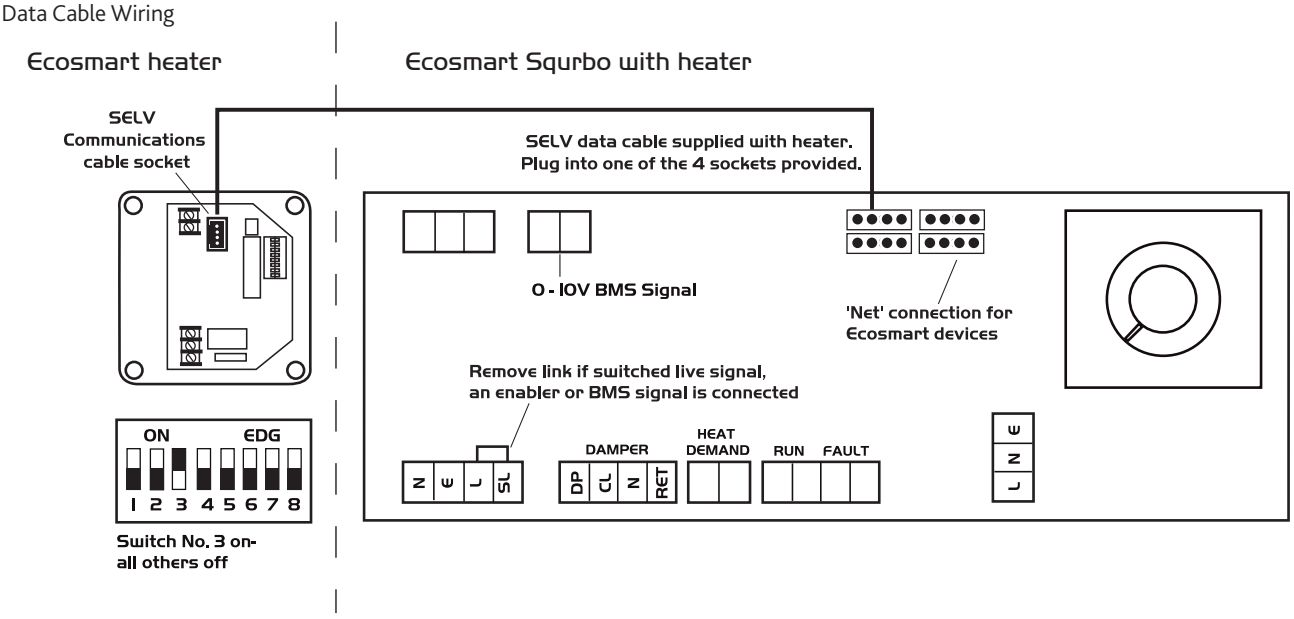
4.3.1 Unit Wiring

5 Unit WIring



4.3.2 Data Cable Wiring

6 Data Cable Wiring

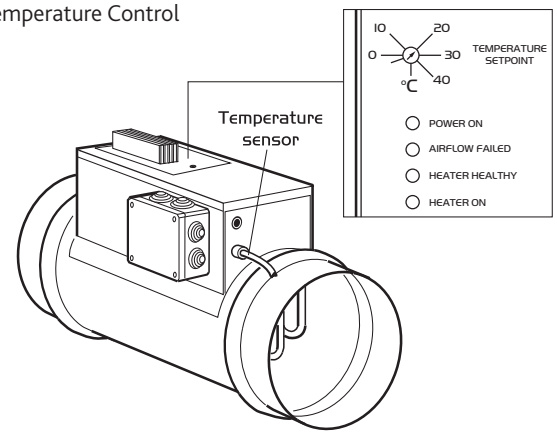


5.0 CONTROLS

5.1 Setting the 'Air-Off' Temperature

A variable 'air off' temperature adjustment is provided on the top of the heater module (Figure 7). The setting is adjustable from 0 – 40°C and is achieved by inserting a small screwdriver into the adjuster aperture and rotating the spindle clockwise or anti-clockwise as required.

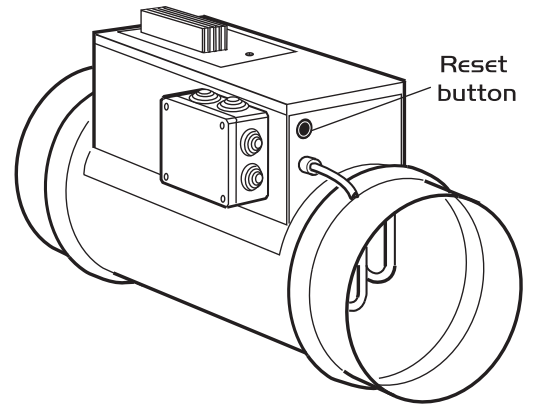
7 Temperature Control



5.2 Manual Reset Button

The heater will normally operate automatically. To ensure safe operation it has a thermal cut-out with a manual reset button, located on the end of the casing (Figure 8). This may be used to reactivate the heater in the event of a shut down due to overheating.

8 Manual Reset Button



5.3 Indicator Lights

Power - YELLOW
Airflow Failed - RED
Heater Healthy - GREEN
Heater On - RED

With the heater powered but not yet enabled, the YELLOW power and the GREEN Heater Healthy lights will be lit. If the green heater healthy light is not lit than then the thermal cut-out has tripped and requires manual resetting. The RED airflow failed light will also be lit if the supply fan is not running.

Under normal working conditions, the heater will display both green and yellow lights with the red heater on light either steady or pulsing according to the heat demand.

If the red airflow failed light is lit, there is either insufficient airflow or the duct sensor has not been fixed to the ductwork correctly.

6.0 MAINTENANCE

The only maintenance required is to check all electrical connections, including field and factory made connections for tightness at least once each year or operating season. In addition, any filters in the air stream must be kept clean so that adequate airflow is maintained.

7.0 WARRANTY

The 3 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 Nuaire International Sales office for further details.

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

8.0 END-OF-LIFE AND RECYCLING

Ensure that Nuaire 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.

Where possible Nuaire 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 Support for further information on items not listed above.

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

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.

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