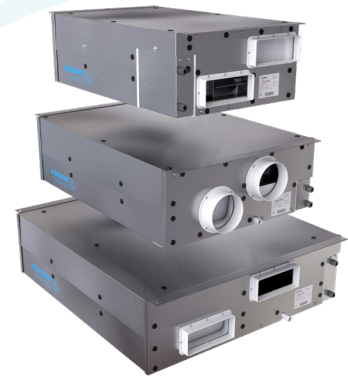




1.0 IMPORTANT SAFETY INFORMATION

- 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 or maintenance ensure all covers are fitted before switching on the mains supply.
- In the event of a fire, industry best practice is to cut the power to the unit.
- 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.
- Precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances.
- 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 HAZARD 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 Nuair 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.

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

2.0 INTRODUCTION

The Xboxer Universal EcoSmart Classic (ES-UNI-X) ceiling void unit range is designed to provide mechanical supply and extract ventilation with heat recovery and integrated EcoSmart Classic controls. The units incorporate an automatic heat exchanger bypass feature and are compatible with the EcoSmart Classic range of sensors and user controls.

The units are fitted with two high efficiency EC centrifugal fans controlled by the EcoSmart Classic platform, providing adjustable ventilation rates to suit the application requirements. A counterflow plate heat exchanger is also used to recover up to 85% of the extracted air heat, whilst G3 Filters provide protection to the unit and ensure filtered air is supplied, guaranteeing the unit is ErP 2018 compliant.

The HX bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

General information regarding performance and specifications for the equipment may be obtained from our Technical Literature, and/or project specific documentation.

2.1 CODE DESCRIPTION:

1	-	2	-	3	4	5
ES	-	UNI	-	X	220	-C

- 1. Controls: **ES** = Ecosmart Classic
- 2. Range: **UNI** = Student accommodation
- 3. HX Type: **X** = Plate Heat Exchanger
- 4. Unit Size: **220, 360 or 580**
- 5. Spigot Type: [none] = Rectangular
-C = Ø150mm Circular

3.0 MECHANICAL INSTALLATION

The Xboxer Universal EcoSmart Classic ceiling void unit range is designed to provide mechanical supply and extract ventilation with heat recovery and integrated EcoSmart Classic controls. The units incorporate an automatic heat exchanger bypass feature together with networkable EcoSmart sensors, user controls and BMS connectivity.

The units are fitted with two high efficiency EC centrifugal fans controlled by the EcoSmart Classic platform, providing adjustable ventilation rates to suit the application requirements. A counterflow plate heat exchanger is also used to recover up to 85% of the extracted air heat, whilst G3 Filters provide protection to the unit and ensure filtered air is supplied, guaranteeing the unit is ErP 2018 compliant.

The HX bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

General information regarding performance and specifications for the equipment may be obtained from our Technical Literature, and/or project specific documentation.

3.1 DELIVERY OF EQUIPMENT

3.1.1 RECEIPT OF EQUIPMENT

All equipment is inspected prior to despatch and leaves the factory in good condition. Upon receipt of the equipment an inspection

should be made and any damage indicated on the delivery note.

Particulars of damage and/or incomplete delivery should be endorsed by the driver delivering the goods before offloading by the purchaser. No responsibility will be accepted for damage sustained during the offloading from the vehicle or on the site thereafter. All claims for damage and/or incomplete delivery must be reported to Nuair within two days of receipt of the equipment following guidance in our terms & conditions of sale.

3.1.2 OFFLOADING AND HANDLING

The weight of the unit modules and palletised items is displayed on the unit rating plate or on the packaging. Some of the modules have an uneven weight distribution, and this will be indicated by labelling where appropriate. Ensure that lifting and handling equipment is adequately rated. Offloading and positioning of the equipment is the responsibility of the purchaser.

Spreaders should be used when lifting with slings to avoid damage to the casings. Care must be taken to ensure that slings are correctly positioned to avoid crushing and twisting of the unit castings.

Where channels and/or support frames are bolted to the underside of the unit casing, slings or fork-lift arms should be positioned to locate in the apertures in the channels. If lifting eyes have been supplied / fitted it is recommended that they are used.

Xboxer Universal units will be delivered to site in one section and will be labelled with the direction of air flow. The direction convention must be observed during assembly.

3.1.3 STORAGE

The equipment must be stored in a dry, internal location. Ductwork connection apertures shall be sealed against the ingress of dust, water and vermin. Do not stack units, modules or components.

Where fans are to be stored or bonded for extensive periods follow the Warranty Guidance Notes found in our conditions of sale.

3.2 UNIT INSTALLATION

Installation of the Xboxer Universal units, including all external services and controls should be installed in accordance with the appropriate site procedures, and MUST conform to all governing regulations e.g. CDM, CIBSE, IEE, and in strict accordance with the applicable Building Regulations.

To aid in installation, dimensional templates including hole centres for mounting points are provided with the units.

The unit must be installed indoors, in a suitable ceiling void away from direct sources of frost, heat and water spray or moisture generation. For a vibration-free result the unit must be mounted to a solid surface in the void.

The unit is designed for ceiling mounting on a horizontal surface and incorporates steel mounting points (fixings are not supplied) in the casing design as well as bottom access for filter replacement.

The unit may only be operated in its intended horizontal installation plane and must be fully levelled during installation (this is essential to ensure that condensate drains correctly).

Offset spigots have been included in the unit for greater flexibility in the layout of the ductwork.

The correct installation position for the units shall be decided with due regard to access and maintenance requirements, and the objective of minimising the system ductwork resistance.

The recommended installation method is to use standard Unistrut channel secured to the slab or steelwork above the unit. Six suitable drop rods or bolts should be secured to the Unistrut channel and extended to be fixed to the unit's two mounting

brackets (one on each side of the unit, each with 3 fixing points).

In the unlikely event of motor failure, the unit must be lowered from its installation position in order to facilitate a motor replacement. An access hatch of sufficient size for the unit to pass through is required. You must ensure that all associated electrical, condensate and ductwork connections can be disconnected.

The unit must be installed with a minimum of 300mm clearance around the control box to allow for maintenance. **An access hatch of sufficient size for the unit to pass through is required.**

The ES-UNI-X is supplied with a remote mounted EcoSmart Classic control module connected to the unit by a factory fitted 1m umbilical cable.

The control module shall be mounted in an accessible position to allow commissioning, inspection and maintenance activities to be carried out safely & umbilical cable is not under tension and is protected from sharp edges, crushing or mechanical strain.

The control module must not be mounted where it may be exposed to water ingress, excessive heat or mechanical damage.

3.3 CONDENSATE DRAIN

Units come complete with external drain pipe (21.5mm waste pipe) at the front of the unit. Use conventional plumbing connections to link up with U-trap or alternative drain method (Solvent cement connections or compression fit connections are recommended). The condensate must be discharged under a water level in a U-trap drainpipe or an alternative drain method which acts as an airlock. If using a U-trap, ensure the U-trap has been filled to a suitable level of water to provide an adequate airlock.

This condensate discharge connection is suitable for 21.5mm diameter overflow pipe. Solvent cement should be used to make the joint. If the condensation pipe is fitted in an unheated space the pipe should be insulated to prevent freezing. Ensure that the condensate drain pipe has a minimum 5° fall running to SVP.

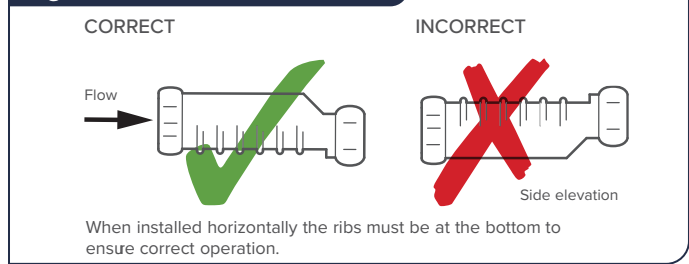
Nuaire recommend MVHR-DRAIN be used as the primary condensate take-off (Fig 1).

MVHR-DRAIN INSTALLATION

Offer up the MVHR-DRAIN inlet to the threaded tail of the appliance waste outlet or MVHR-DRAIN knuckle or running adaptor, and tighten the threaded cap sufficiently hand-tight to provide a water-tight seal (check that the cap screws on square and does not 'cross-thread'). When the screwed cap is tight, the MVHR-DRAIN body is secure.

1. Cut the pipe to length, allowing for the full compression socket depth (using an appropriate pipe cutter, such as a Hepworth ratchet pipe cutter).
2. Remove any 'swarf' from the end of the plastic pipe. Ream the copper pipe end to remove any 'burr', and file if necessary to remove any external sharp edges. Mark the socket depth on the pipe, and check that the pipe section to be jointed is free of any surface damage which may affect the joint seal.
3. Unscrew the cap from the MVHR-DRAIN outlet, and slide the cap and rubber seal onto the pipe.
4. Insert the pipe end fully into the socket.
5. Slide the rubber seal and screwed cap up against the face of the socket, and tighten the cap sufficiently hand-tight (check that the cap is square to the body and does not 'cross thread'). Hand tight should be adequate to form a proper seal.

Fig 1: MVHR-DRAIN Installation



3.4 EXTRACT / SUPPLY AREAS

The unit is intended for commercial and residential ventilation applications requiring balanced mechanical supply and extract ventilation with heat recovery.

The final arrangement of supply and extract air terminals shall be determined by the system designer in accordance with the project ventilation strategy and relevant standards.

3.5 DUCTING

It is recommended that rigid ducting should be used at all times. Flexible ducting has a very high resistance and it is impossible to calculate how much resistance will be on a system if used. If used the flexible ducting must be kept to a minimum and should always be pulled taut. A maximum of 300mm should be used on each leg.

To prevent condensation on the outside of the outside air inlet duct and the air outlet duct from the Xboxer Universal, these ducts should be insulated.

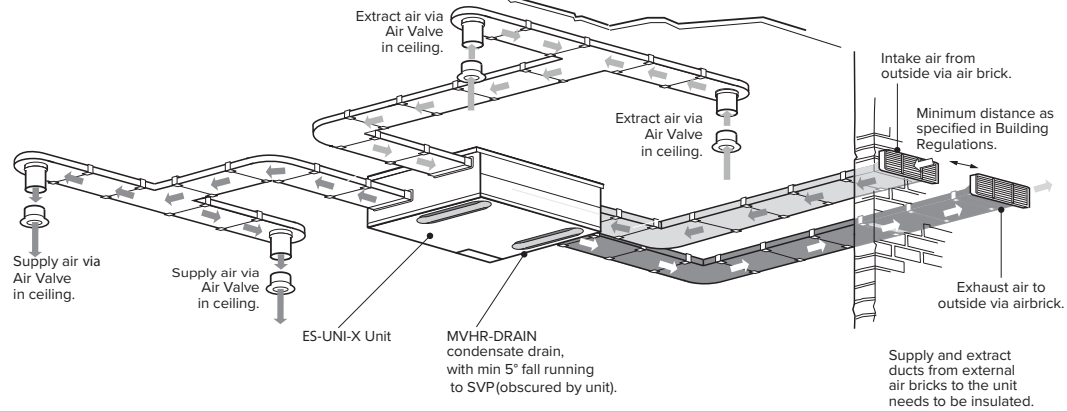
Ducting must be installed in such a way that resistance to airflow is minimised. Bends should be kept to a minimum. A minimum distance of 300mm between the appliance and any bends in ductwork is recommended. 220 x 90mm rectangular ducting should be used (Fig 2). Ducting joints must be sealed with non-hardening silicone type sealant and needs to be taped with metallised tape. Ducting shall be adequately and reliably fixed to the appliance.

3.6 DUCTING CONNECTIONS

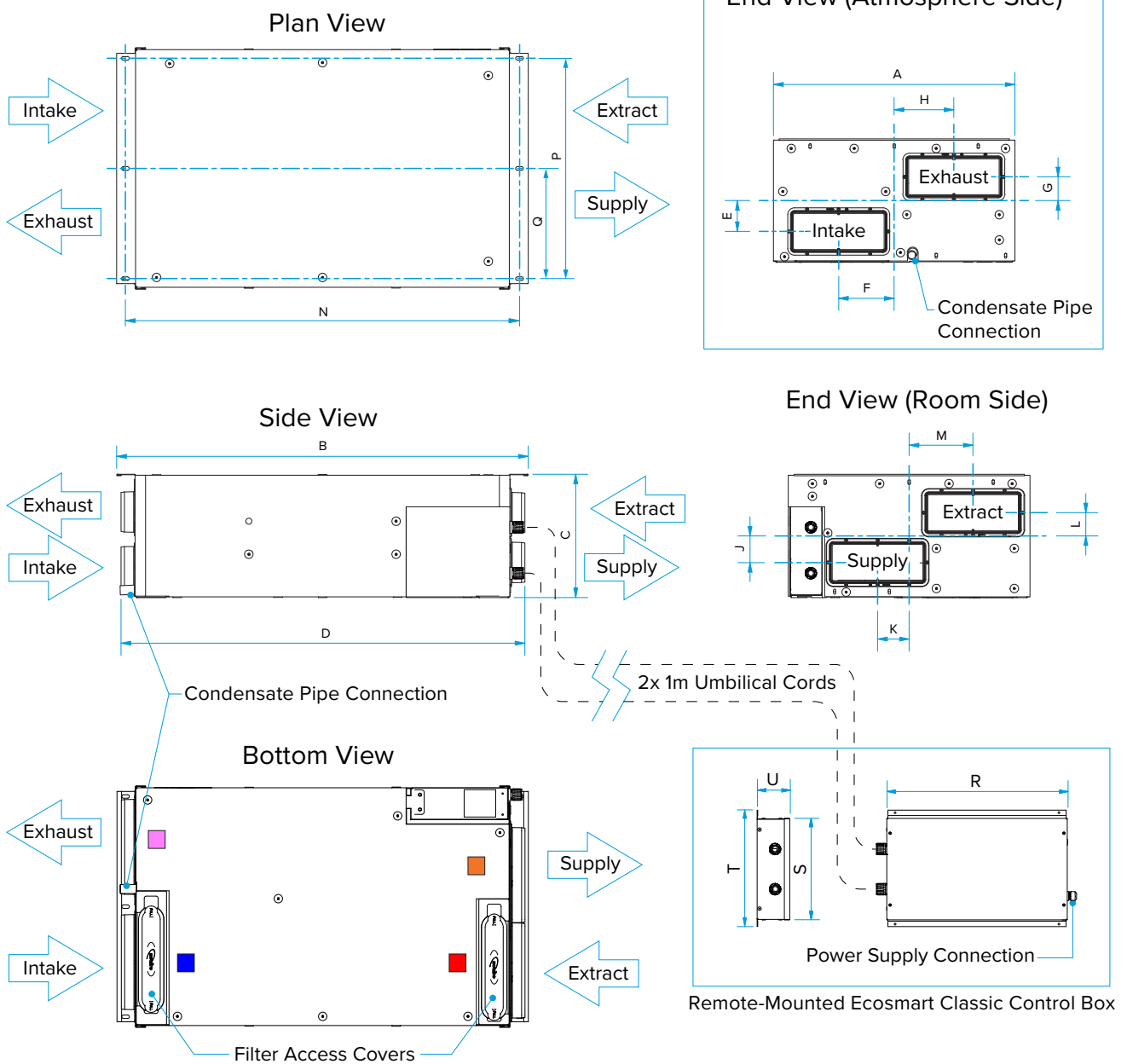
It is recommended that rigid ducting should be used at all times. Flexible ducting has a very high resistance and it is impossible to calculate how much resistance will be on a system if used. If used the flexible ducting must be kept to a minimum and should always be pulled taut. A maximum of 300mm should be used on each leg.

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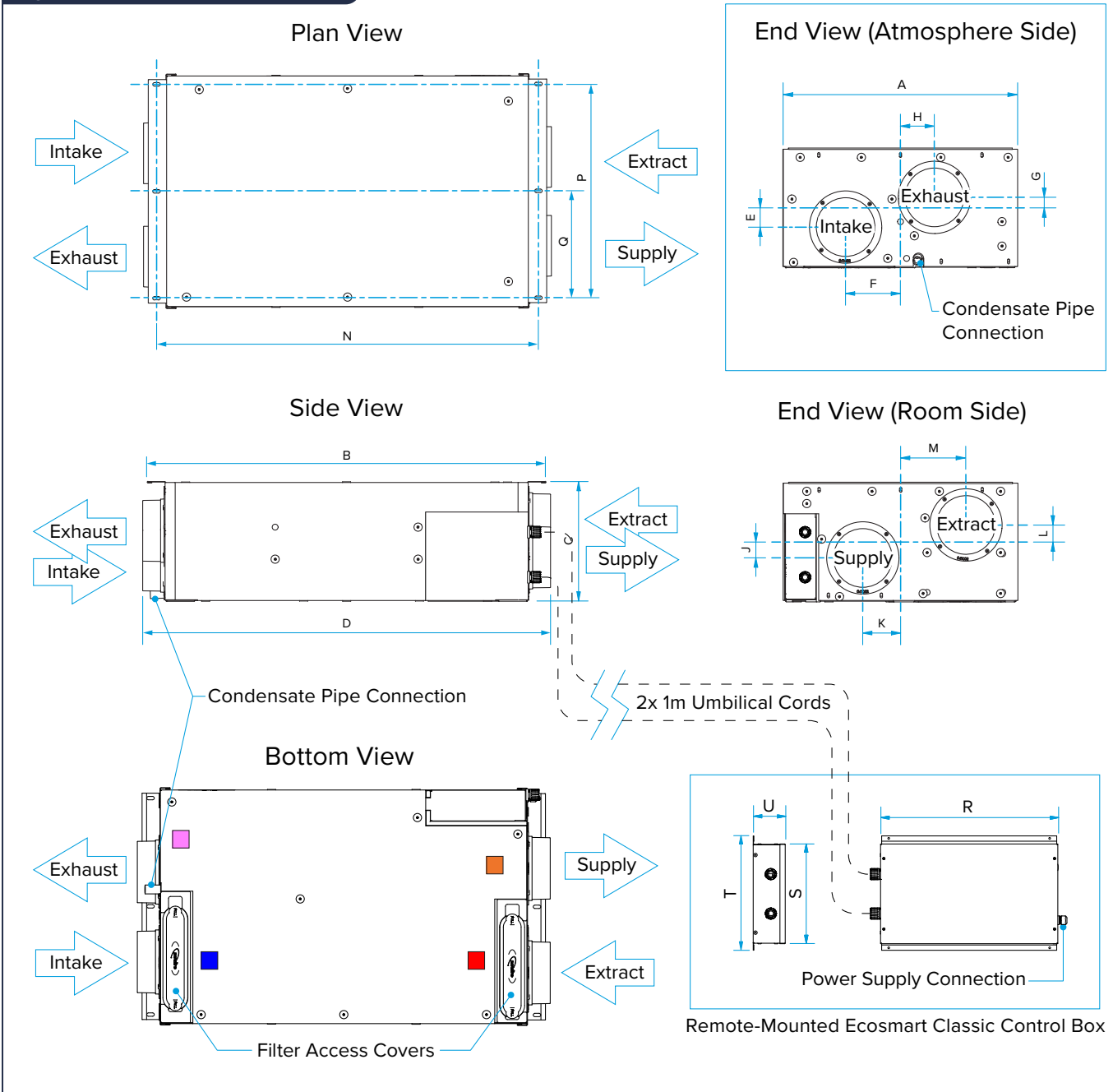
Ducting must be installed in such a way that resistance to airflow is minimised. Bends should be kept to a minimum. A minimum distance of 300mm between the appliance and any bends in ductwork is recommended. 220 x 90mm rectangular ducting should be used (Fig 2). Ducting joints must be sealed with non-hardening silicone type sealant and needs to be taped with metallised tape. Ducting shall be adequately and reliably fixed to the appliance.

Fig 2: Typical Ducting Arrangement (Illustrative only)


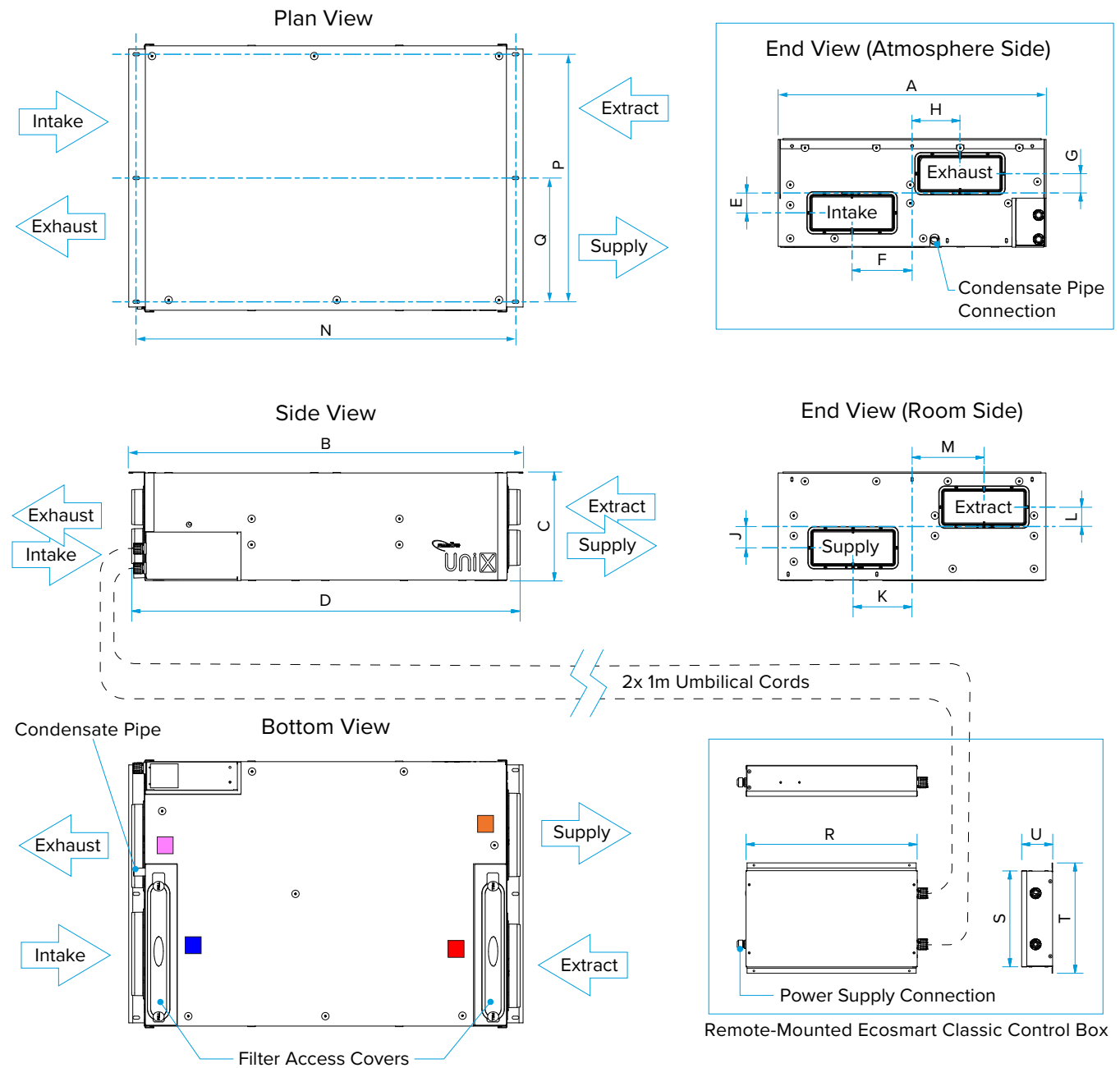
4.0 DIMENSIONS (mm) & WEIGHTS (kg)

Fig 3: ES-UNI-X220 Dimensions

ES-UNI-X220 Dimensions and Weight

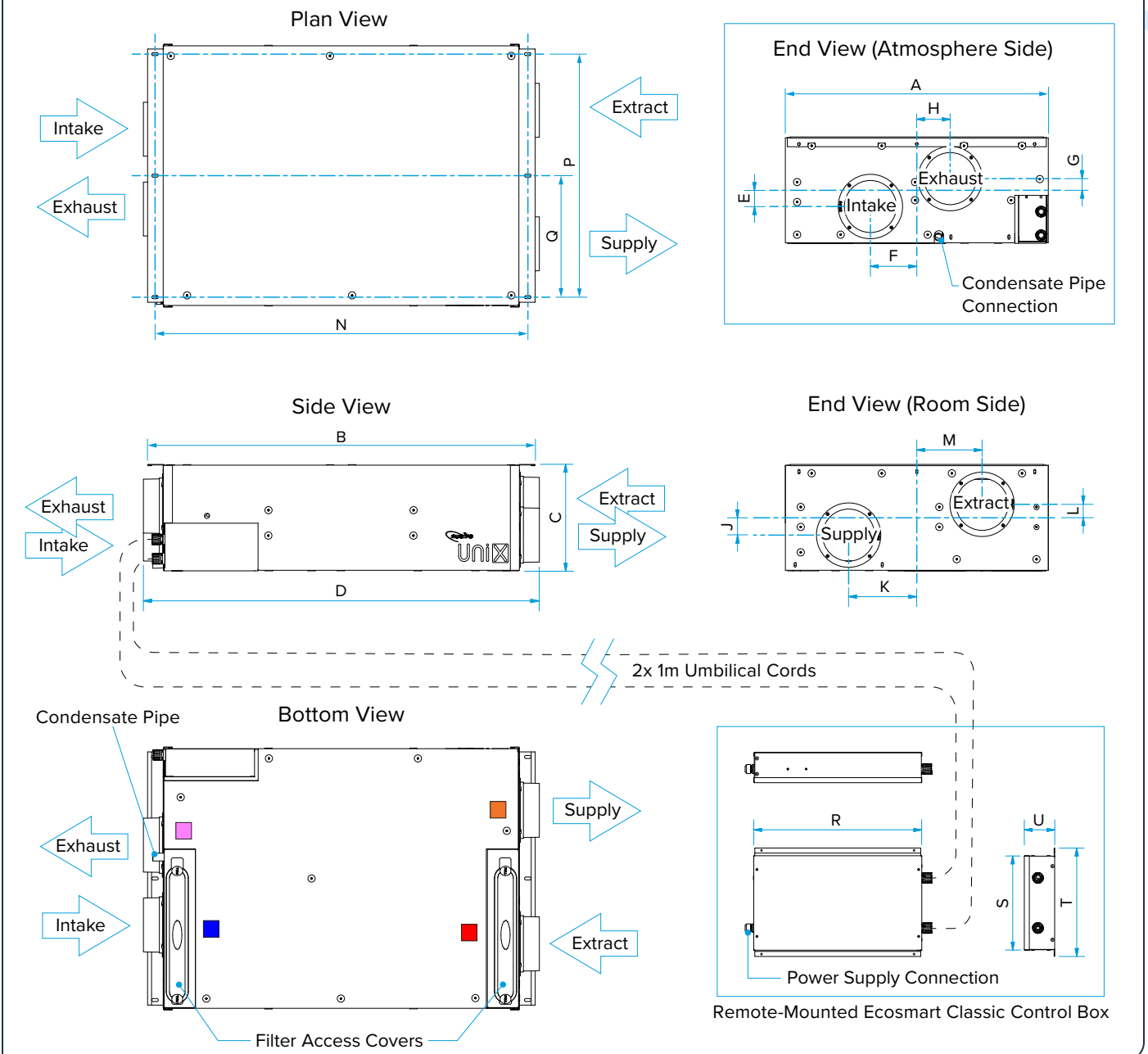
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	Weight
570	980	300	982	71	132	57	142	64	75	57	152	934	524	262	503	283	324	91	40

Fig 4: ES-UNI-X220-C Dimensions

ES-UNI-X220-C Dimensions and Weight

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	Weight
570	980	300	982	71	132	57	142	64	75	57	152	934	524	262	503	283	324	91	40

Fig 5: ES-UNI-X360 & ES-UNI-X580 Dimensions

ES-UNI-X360 & ES-UNI-X580 Dimensions and Weights

Code	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	Weight
ES-UNI-X360	720	1072	300	1100	53	163	53	130	57	160	53	194	1031	670	335	503	283	324	91	55
ES-UNI-X580	985	1136	300	1216	60	233	52	103	60	243	52	268	1091	938	469	503	283	324	91	65

Fig 6: ES-UNI-X360-C & ES-UNI-X580-C Dimensions

ES-UNI-X360-C & ES-UNI-X580-C Dimensions and Weights

Code	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	Weight
ES-UNI-X360	720	1072	300	1100	53	163	53	130	57	160	53	194	1031	670	335	503	283	324	91	55
ES-UNI-X580	985	1136	300	1216	60	233	52	103	60	243	52	268	1091	938	469	503	283	324	91	65

5.0 ELECTRICAL INSTALLATION

Electrical wiring shall be carried out by competent persons in accordance with good industry practice and all relevant statutory requirements.

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.

Unit details including Full Load Current, Voltage, fan speed etc. can be found on the unit label.

The Xboxer Universal range of units MUST be earthed.

The ES-UNI-X is supplied with a remote-mounted Ecosmart Classic control module connected to the unit by a factory-fitted 1m umbilical cable.

The control module shall be mounted in an accessible position to allow safe commissioning, inspection and maintenance.

The control module shall be positioned so that the umbilical cable is not under tension and is protected from sharp edges, crushing and mechanical strain.

The control module must not be mounted where it may be exposed to water ingress, excessive heat or mechanical damage.

In the event of an ESD while operating the optional touch switch, the fan control may reset itself causing the fans to switch off temporarily. Functions will resume as normal after the control resets.

If additional EcoSmart Classic sensors or controls are required, an EcoSmart Junction Box (ES-JB) should be used.

5.1 ELECTRICAL INFORMATION

Disconnection from the supply mains must be incorporated within the fixed wiring in accordance with the wiring regulations and shall have a minimum contact separation of 3mm.

Electrical details:- Voltage: 240V 1ph 50Hz

Code	Power Consumption	Full Load Current
ES-UNI-X220(-C)	168W	1.5A
ES-UNI-X360(-C)	168W	1.5A
ES-UNI-X580(-C)	340W	2.8A

5.2 WIRING DIAGRAMS

All inter-connections between circuit boards, blowers and sensors are made at the factory. These diagrams only show the essential field wiring points for clarity.

Fig 7: ES-UNI-X Wiring

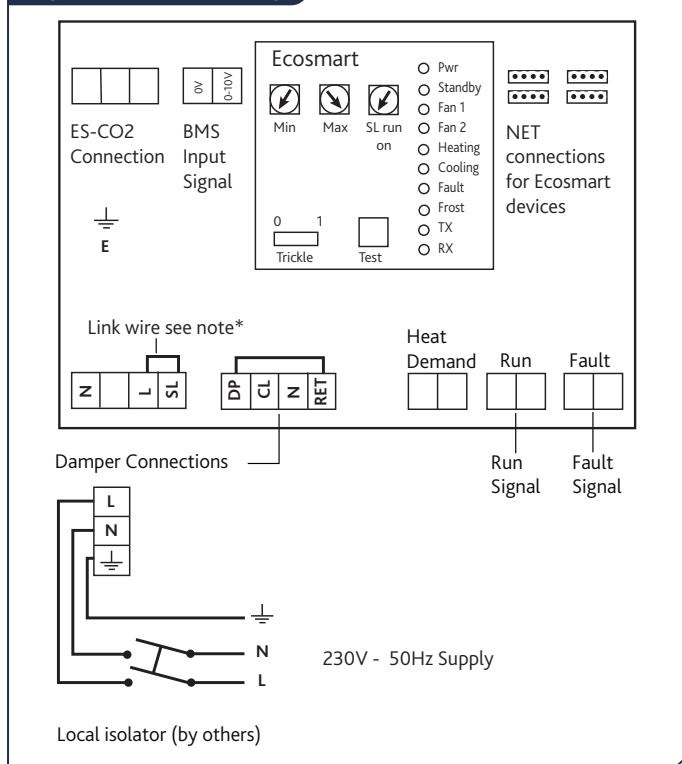


Fig 8: ES-UNI-X220 Wiring

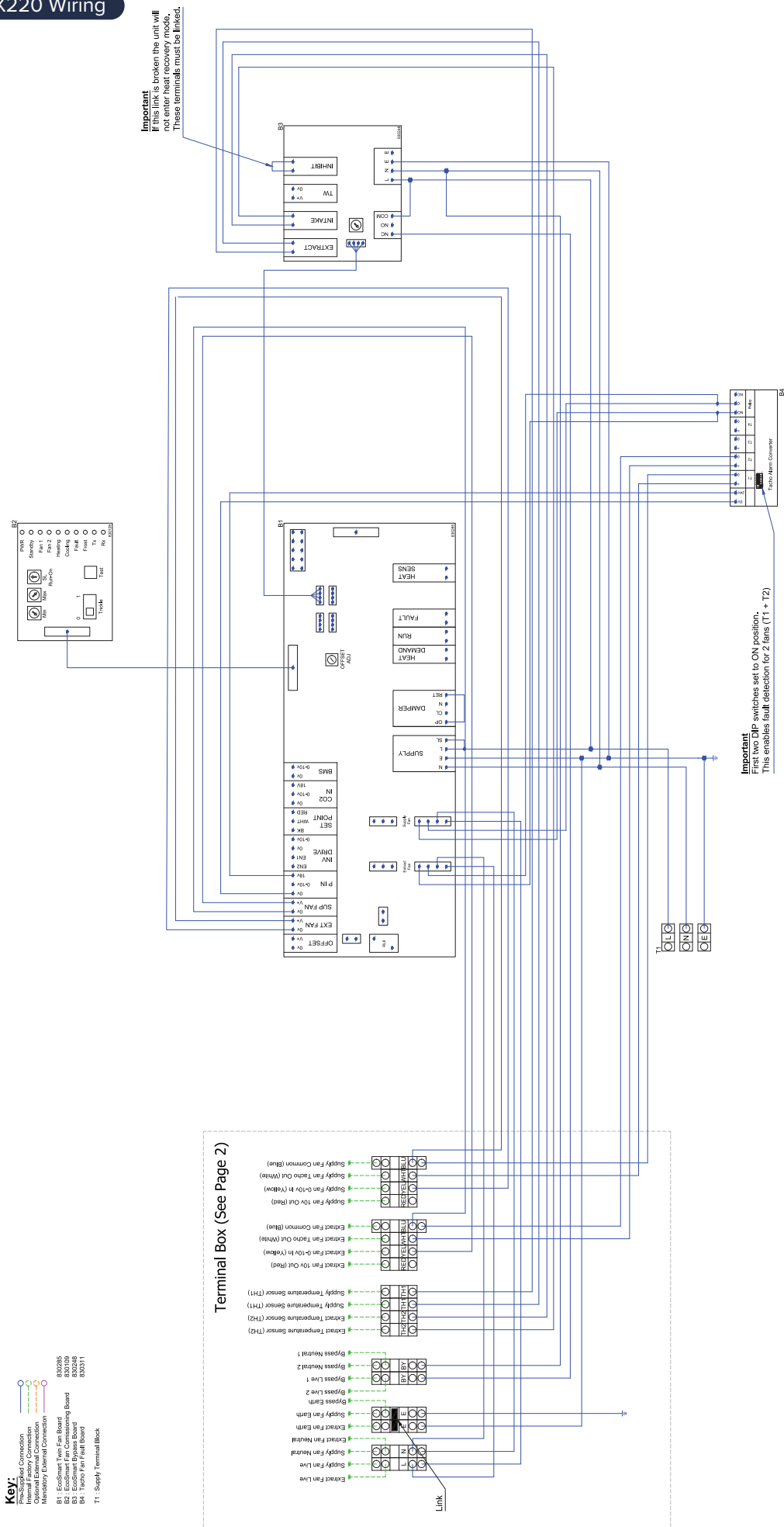
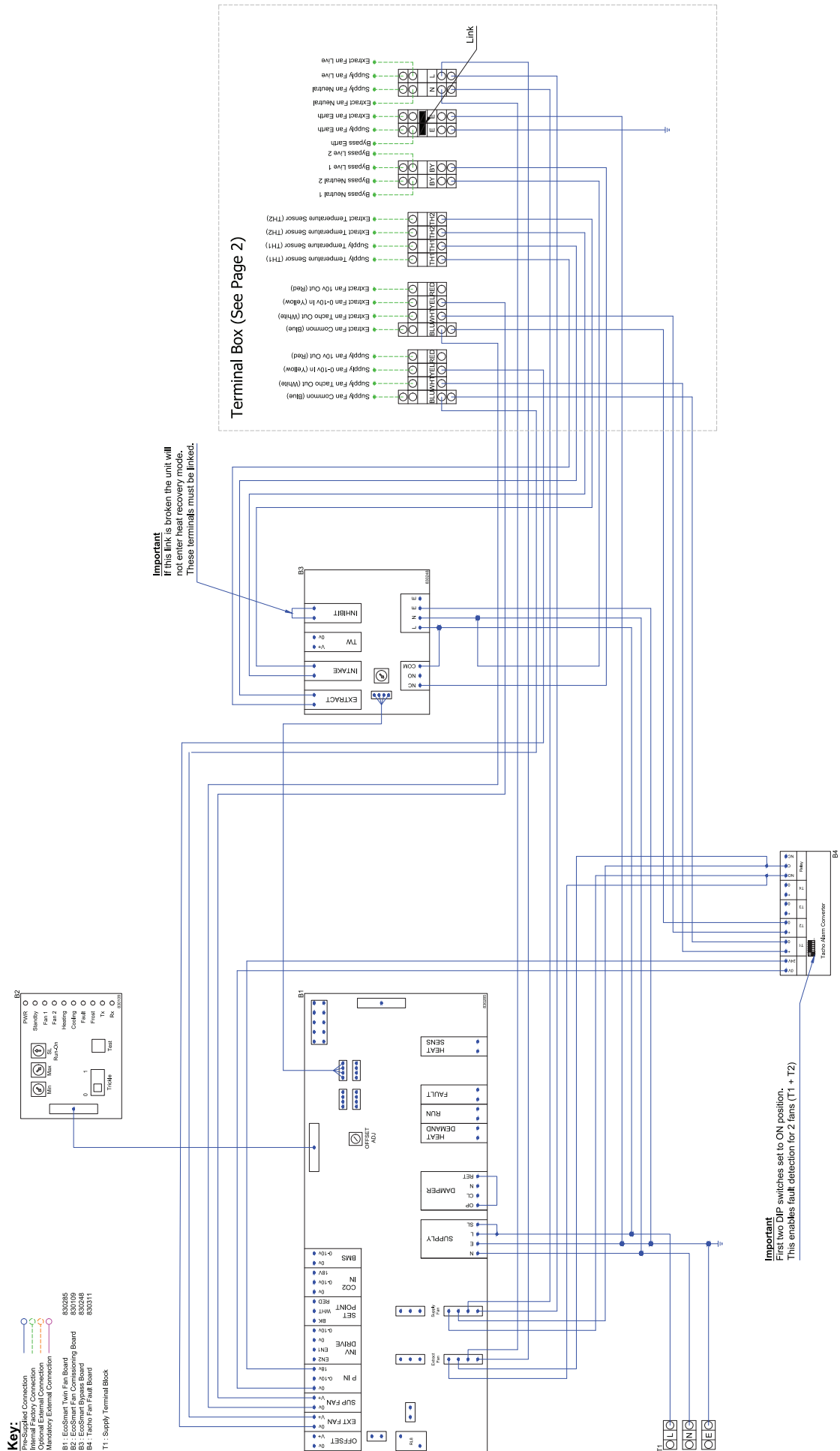


Fig 9: ES-UNI-X360 & ES-UNI-X580 Wiring



5.3 CONTROL BOX DETAIL

Fig 10: ES-UNI-X220 Control Boxes

Control Covers Removed for Clarity

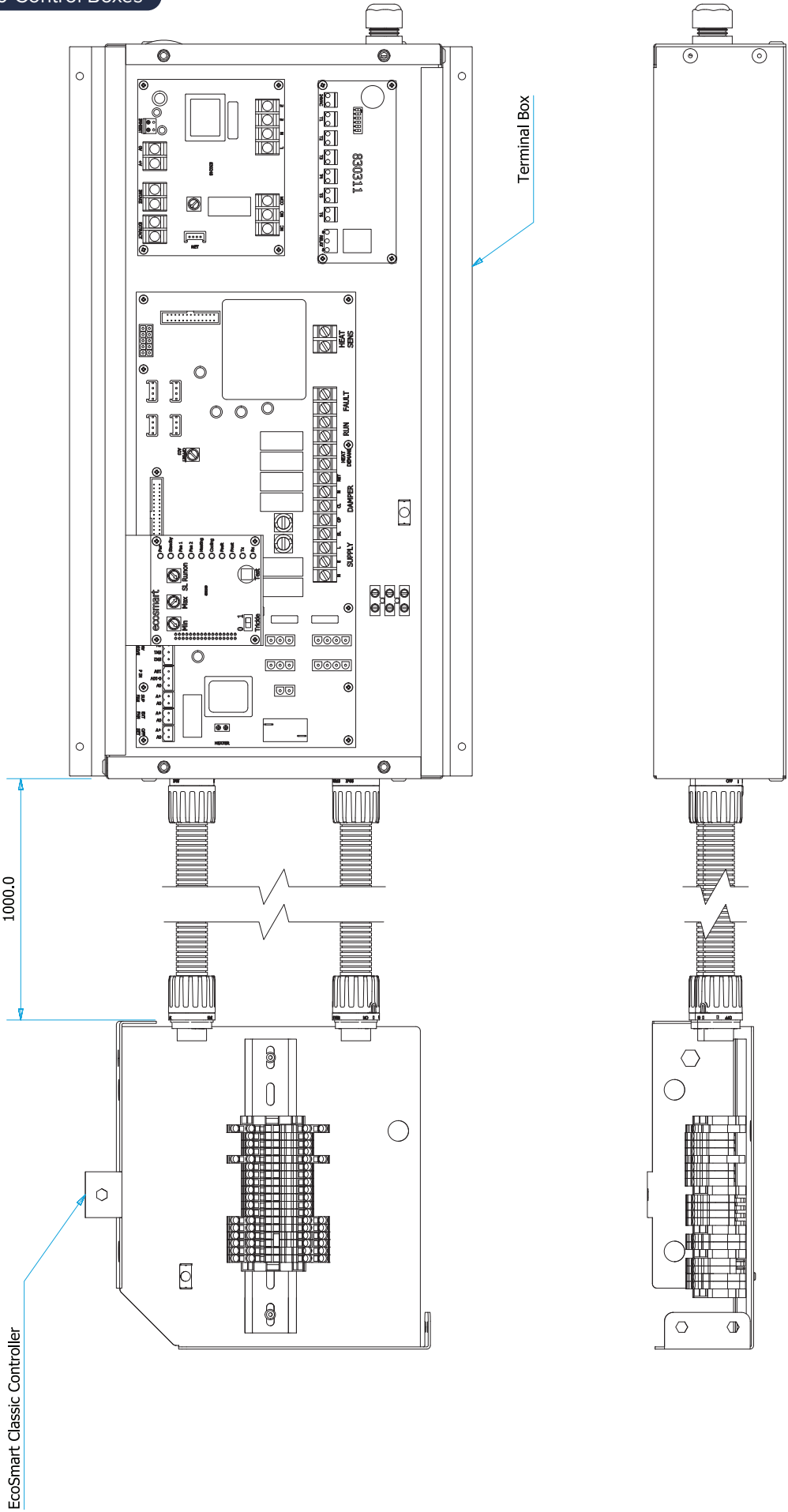


Fig 11: ES-UNI-X360 Control Boxes

Control Covers Removed
for Clarity

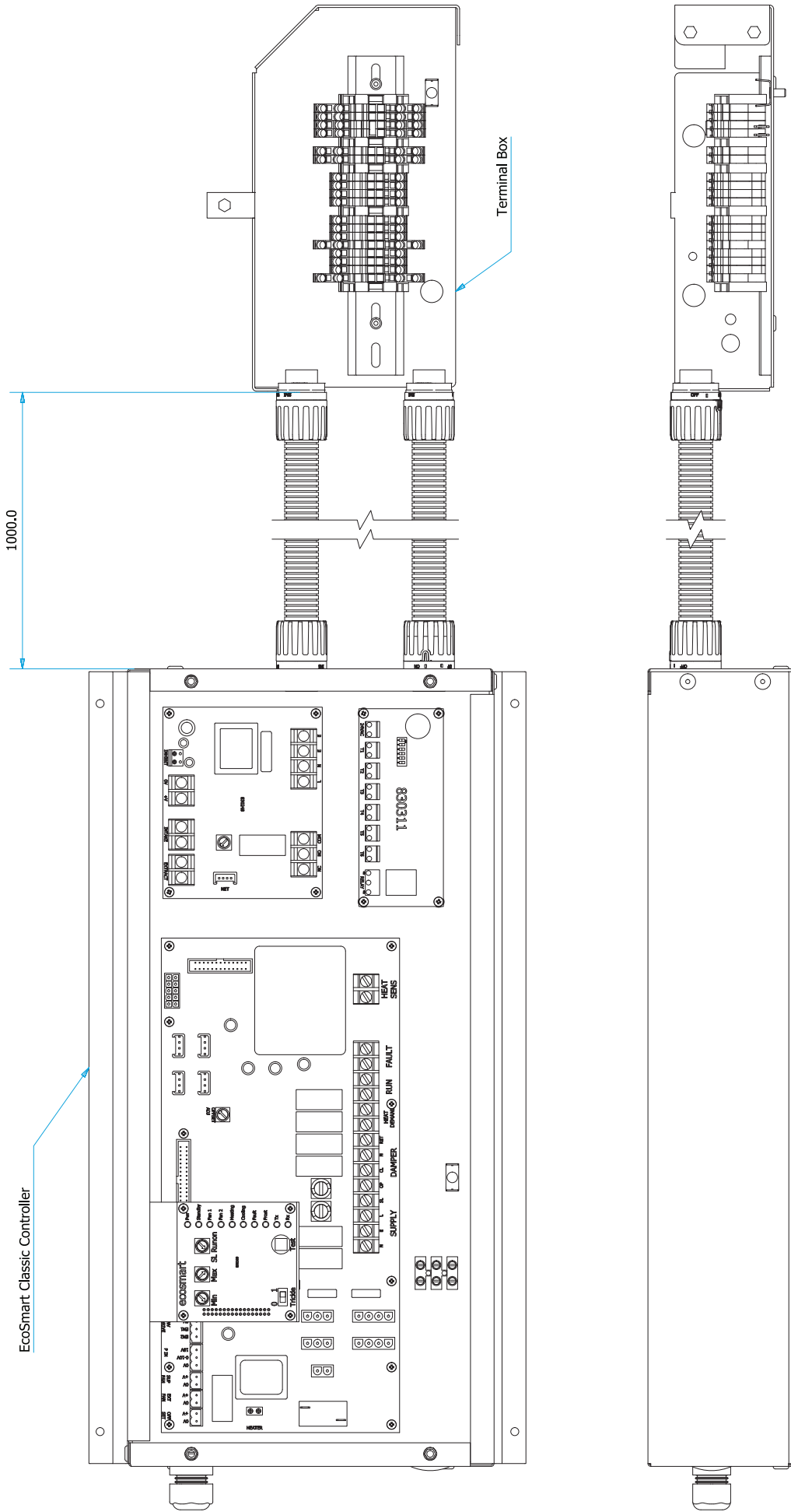


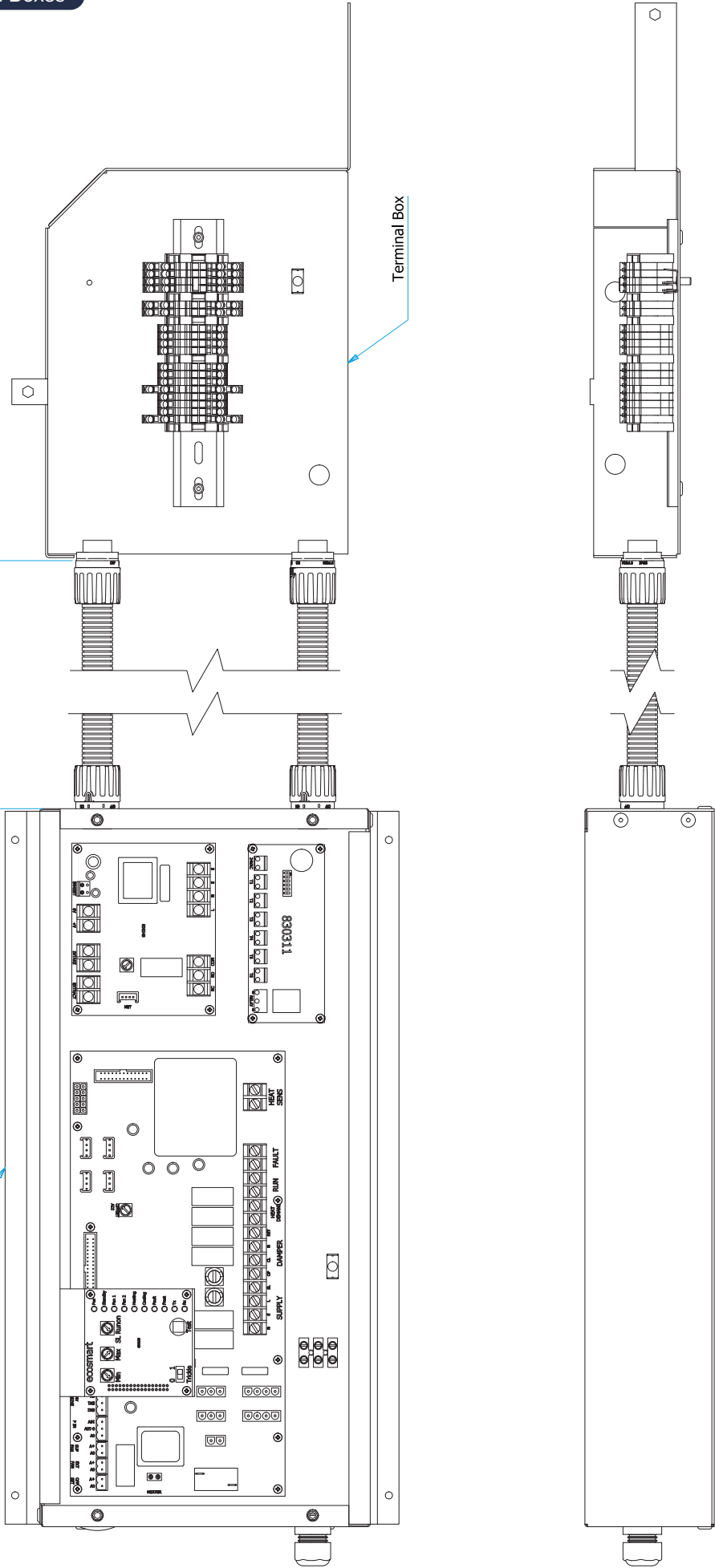
Fig 12: ES-UNI-X580 Control Boxes

Control Covers Removed for Clarity

EcoSmart Classic Controller

Terminal Box

1000.0



5.4 ECOSMART CLASSIC NETWORK

The EcoSmart Classic controller is compatible with a range of sensors, user controls and monitoring devices connected via the EcoSmart network.

Where additional network connections are required, an EcoSmart Junction Box may be used.

For good EMC practice, low voltage network cables shall not be routed within 50mm of mains cables or installed on the same cable tray.

5.5 POST INSTALLATION TESTING

- Ensure that the fan unit and any specified controls are fitted securely according to the instructions.
- Switch on the mains supply.
- Push the test button to run the unit fan and check it runs satisfactorily.
- If a switched live signal is used, activate this signal and check that the fan runs. De-activate the switched live signal and check the run-on time; adjust if necessary.
- Adjust the set point of any sensors and PIR; check they function correctly.
- Adjust the maximum and minimum airflow (if required) by following the commissioning procedures.

5.6 ELECTRICAL CONNECTIONS

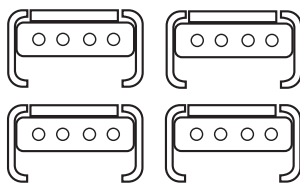
5.6.1 MAINS CONNECTIONS

Mains cables should be suitably sized and terminated at terminals shown on the appropriate diagram.

5.6.2 CONTROL CONNECTIONS

NET - 4 IDC plug-in connectors are provided for the connection of compatible sensors, manual controls and for linking the fans together under a common control. If more than 4 connections are required, the junction box (product code ES-JB) should be used (see data cable installation).

Fig 13: Control Connections

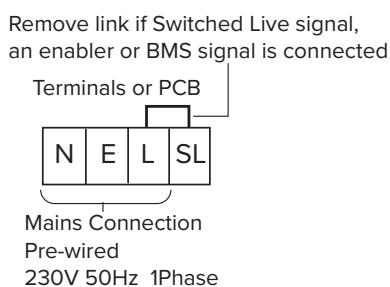


5.6.3 SWITCHED LIVE (SL) TERMINAL

A signal of 100-230Vac will activate the fan from either its off state or trickle state (see setting to work-trickle switch). When the SL is disconnected the fan will over-run (see setting to work-timer adjustment).

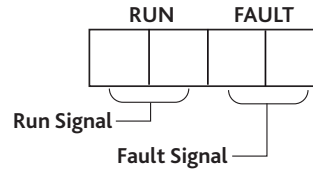
Do not take this signal from an isolating transformer.

Fig 14: Switched Live Terminal



5.6.4 VOLT FREE RELAY CONTACTS

Fig 15: Volt Free Relay Contacts



5.6.5 DATA CABLE INSTALLATION

A 4-core SELV data cable is used to connect devices such as sensors to the fan and for interconnecting multiple fan units.

For good EMC engineering practice, any sensor or low voltage data cables should not be placed within 50mm of mains cables or placed on the same cable tray or conduit as mains cables.

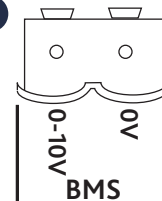
The maximum cable run between any two devices is 300m when it is installed in accordance with the instructions. The total data cable length used in any system must be less than 1000m. Keep the number of cable joints to a minimum to ensure the best data transmission efficiency between devices + 50m or less for ESLCD.

5.6.6 MAXIMUM NUMBER OF DEVICES

The maximum number of devices (including fans) that can be connected via the data cable is 32, irrespective of their functions.

5.7 BMS INPUT SIGNALS

Fig 16: BMS Connector



BMS Input Signals and other low voltage cables should Follow the basic principles set out in (Section 5.6.5).

The BMS connection is made with a plug-in connector via the socket (Fig 16). To ensure the connection is made only by suitably qualified and authorised personnel, the plug is not supplied. It is available from RS Components, **Part No. 176-7772**. Reversal of the BMS connection will damage the control.

The system's response to a 0-10V dc BMS signal is given in the table below. The voltage tolerance is $\pm 125\text{mV}$ and is measured at the fan's terminal. The BMS signal will override any sensors and user control connected in the system.

	Ventilation Mode	Cooling Mode*	Heating Mode*
Local Control	0.00	-	-
OFF/ Trickle	0.25	-	-
Speed 1	0.50	0.75	1.00
Speed 2	1.50	1.75	2.00
Speed 3	2.50	2.75	3.00
Speed 4	3.50	3.75	4.00
Speed 5	4.50	4.75	5.00
Speed 6	5.50	5.75	6.00
Speed 7	6.50	6.75	7.00
Speed 8	7.50	7.75	8.00
Speed 9	8.50	8.75	9.00
Speed 10	9.50	9.75	10.00

* Only available on relevant unit.

6.0 CONTROLS

6.1 COMMISSIONING

The unit is supplied with EcoSmart Classic commissioning controls which permit adjustment of the minimum and maximum airflow rates (see Fig 18).

Commissioning shall be carried out by a competent person using calibrated airflow measurement equipment and in accordance with the project specification and applicable ventilation standards. Airflow measurements shall be taken using calibrated instruments suitable for the type of terminal device being commissioned.

Upon completion of commissioning and system balancing, all balancing dampers, grilles, and adjustment valves shall be secured in their final set positions to prevent unauthorised adjustment.

Once commissioned, airflow settings shall not be altered unless the system design and ventilation requirements have been reviewed. Where adjustments are required, the affected system shall be rebalanced and recommissioned as necessary to ensure continued compliance with the design requirements.

Fig 17: Commissioning Controls

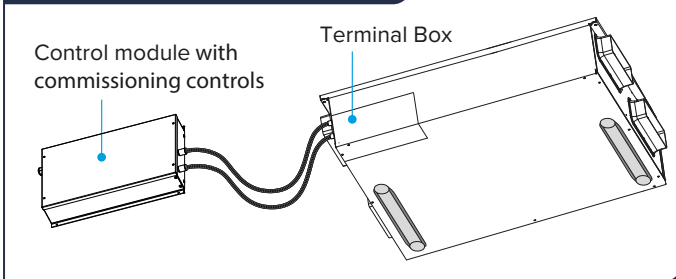
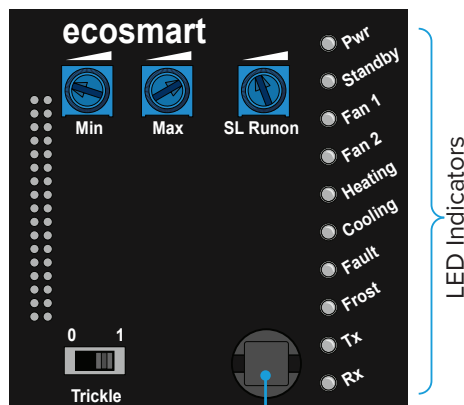


Fig 18: Commissioning Panel Details



Min = Minimum speed adjustment

Max = Maximum speed adjustment

SL Runon = Switched-live run-on timer adjustment

Trickle = Activates trickle speed:

0 = Trickle speed off

1 = Trickle speed active

6.2 LED INDICATION

PWR GREEN: Power on & OK. RED: Too much power is taken by peripherals or there is a short circuit in the net cable. Check the cable and use a junction box (ES-JB) to connect some of the peripherals.

Standby LED on when fan is not running.

Fan 1 GREEN: Fan 1 is running, RED: Fan 1 faulty.

Fan 2 GREEN: Fan 2 is running, RED: Fan 2 faulty.

Heating* Not applicable. See note.

Cooling* Not applicable. See note.

Fault LED on when a fault is present on unit.

Frost* Not applicable. See note.

TX LED on when the controller is transmitting data.

RX LED on when the controller is receiving data.

*** The control panel is common to all the Ecosmart products and will have indicators for functions that are not available in this fan. However, these indicators will not be illuminated.**

A Commissioning Procedure document (Document No. 671153) is available on request from Nuaire.

6.3 USING TEST BUTTON

The test button allows the individual blowers within the unit to be checked for its operation. If the fan is running already, press the button once to stop the fan, press again to switch on the standby fan, press again to stop and so on.

The fan will return to normal operation after 30 seconds.

6.4 SETTING UNIT AIRFLOW

6.4.1 MAXIMUM AIRFLOW

Ensure the power supply is switched off and that a link wire is connected from the supply L to the SL terminal. Unplug all items connected to the "Net" connectors.

Switch on the power supply. **Ensure unit cover is securely attached.**

Wait for the fan to complete its self-test operation.

Remove the cover of the units external commissioning box. Measure the airflow using standard commissioning instruments at a suitable point in the ductwork. If adjustment is required, rotate the pot marked 'MAX' to obtain the desired airflow.

6.4.2 MINIMUM TRICKLE AIRFLOW (NOMINALLY 40%)

Repeat the same procedure as for maximum airflow above but without the link wire between supply L and SL terminal. Ensure the trickle switch is in the 'ON' position. The adjustment must be made on the pot marked 'Min'.

The minimum setting (nominally 40%) must be below the maximum setting, otherwise minimum setting will be automatically set to be the same as the maximum.

After setting the airflows, re-connect all the items disconnected previously. Ensure that the cover over the mains terminals is replaced and that the cover of the control enclosure is securely fastened.

6.4.3 SETTING THE OPERATING PRESSURE

Select a suitable location on the inlet side of the fan to read the static pressure of the system. This should be a straight section of ductwork, away from any obstructions or bends. Read the static pressure at this point using suitable instruments. If the control pressure tapping has been moved because of ancillaries fitted to the fan inlet, measure the static pressure at the new location.

Adjust the pressure setting using the potentiometer labelled for this purpose in the commissioning box until the pressure of the system reaches the desired level. The adjustment should be made slowly and allow the system to settle (approx. 30 seconds) before reading the pressure.

6.5 OPTIONAL CONTROL ANCILLARIES

The ES-UNI-X EcoSmart Classic controller is compatible with a range of sensors and user interfaces to provide occupancy, humidity, temperature and CO₂ based demand control ventilation strategies.

Code	Description
ES-JB	Ecosmart Junction Box
ES-HUMIDSTAT2	Ecosmart Surface Mounted Humidistat
ES-THERMOSTAT2	Ecosmart Surface Mounted Thermostat
ES-PIR2	Ecosmart Surface Mounted Passive Infrared Sensor
ES-AVI2	Ecosmart Surface Mounted Audio Visual Indicator
ES-VF	Ecosmart Surface Mounted Vault Free Relay Box
230-PIR	230V Passive Infrared Sensor
779891	Normal or Boost Speed Switch
ES-CO2RM	Ecosmart Surface Mounted CO ₂ Sensor (SELV by others)
ES-CO2RMPP	Ecosmart Surface Mounted CO ₂ Sensor (3 pin plug must be removed)

6.6 HEAT EXCHANGER BYPASS

The HX bypass damper shall open automatically under certain scenarios allowing the supply air to bypass the heat exchanger. These scenarios are described below.

1. Outdoor temperature >10°C
AND
Indoor extract temperature > Outdoor temperature
AND
Indoor extract temperature >25°C
2. Outdoor temperature >10°C
AND
Outdoor temperature > Indoor extract temperature
AND
Outdoor temperature <25°C

An amount of hysteresis is included in the strategy such that the “current” condition is maintained until 1°C past the control point.

7.0 MAINTENANCE

It is important that maintenance checks are recorded and that the schedule is always adhered to, in all cases, the previous report should be referred to.

7.1 MAINTENANCE SCHEDULE

7.1.1 ROUTINE MAINTENANCE

- Clean all areas of unit and treat any areas of corrosion.
- Check all access doors for leakage and if necessary locks should be adjusted and any replacement gasket materials should be replaced as required.
- Any drain trays should be cleaned and repaired if necessary.

7.1.2 EVERY 3 MONTHS

- Check filters and change/clean if required, failure to do so may impair the performance and energy efficiency of this unit.

7.1.3 ANNUALLY

- Thoroughly inspect the unit and its components for corrosion, acting immediately to treat/restore any damaged areas.
- All electrical terminals within the unit should be tightened.
- Check all earth connections.
- Check the remote-mounted control module is securely fixed and that the umbilical cables are undamaged, correctly routed and free from strain.

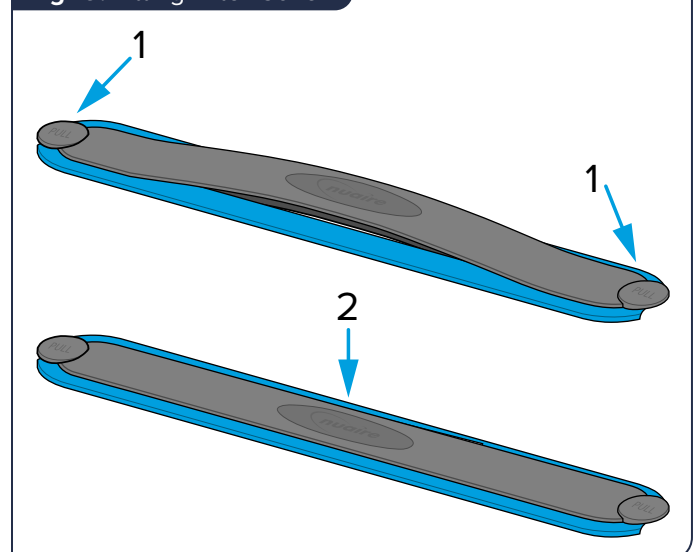
7.2 FILTER REPLACEMENT

Filters can be accessed within the unit by removing the two filter covers on the bottom panel of the unit. Take hold of the two circular tabs either end of the filter covers and pull to remove (Fig 19).

The filter can now be extracted by pulling the removal loop on the edge of the filter. Once the filters have been inspected, clean or replace them as necessary and refit the filter cover.

To fit the filter cover, insert both ends of the cover into the filter slot and press down on the centre (Fig 19). Ensure that a full seal is made between the unit and the cover. Any incorrectly fitted covers will cause a performance drop of the unit.

Fig 19: Fitting Filter Cover



UK DECLARATION OF INCORPORATION

All parts except for moving parts requiring the correct installation of safety guards or incorporation into ducts or building fabrications acting as guards comply with the essential requirements of the Machinery (Safety) Regulations. 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 Regulations 2008 clauses 1.3.7 to 1.3.8.2 relating to guards/moving parts.

Product: Xboxer Universal with Ecosmart Classic Control
Type: ES-UNI-X + any number/suffix
I&M Serial Number: 672173
Relevant EC Council Directives: 2006/42/EC (Machinery Directive)
Applied Harmonised Standards: BS EN ISO 12100
BS EN ISO 13857
EN60204-1
BS EN ISO 9001
Applied National Standards: BS848 Parts 1, 2.2 and 5.

Signature of manufacture representatives:

Engineering Director



A. Thomas
16-07-2026

Manufacturing Director



C. Sargent
16-07-2026

Basis of Self Attestation: BS EN ISO 9001
BSI Cert No. FM 665203

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: The Supply of Machinery (Safety) Regulations 2008 No. 1597; Electromagnetic Compatibility Regulations 2016 No. 1091. Directives: 2014/30/ EU (EMC), 2006/42/EC (Machinery). 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 ductwork 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 within 50mm of 230V cables.
- 5.4 Protection against surges L/N-E is recommended on the supply.
- 5.5 Fans specified to industrial EMC standards should be connected to an Industrial not Public Low Voltage supply. If fitted with large electric heaters flicker may occur on PLVs.

6.0 COMMISSIONING REQUIREMENTS

- 6.1 General pre-commissioning checks relevant to safe operation consist of the following:
 - 6.1.1 Ensure that no foreign bodies are present within the fan or casing.
 - 6.1.2 Check electrical safety e.g. Insulation and earthing.
 - 6.1.3 Check guarding of system.
 - 6.1.4 Check operation of Isolators/Controls.
 - 6.1.5 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.