

XS Fan Module

Supply & Extract Unit, 50/60Hz

Installation and Maintenance Manual



The EMC Directive
2014/30/EU
The Low Voltage
Directive
2014/35/EU



1.0 IMPORTANT SAFETY INFORMATION

- Installation or replacement of units or spare parts must be carried out by a qualified or Nuaire approved service engineer/ electrician and in accordance with IEE or local national 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.
- 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.
- Maximum ambient temperature should not exceed 25°C for continuous operation or 35°C occasionally.

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 Nuaira 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.

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

1.4 INTRODUCTION

The Nuaira XS Fan Module is available in 6, 9 and 12 inch impeller sizes suitable for supply or extract.

An internal grille assembly is included for use if required. Ensure adequate air replacement for the fan and any fuel burning appliance in the room.

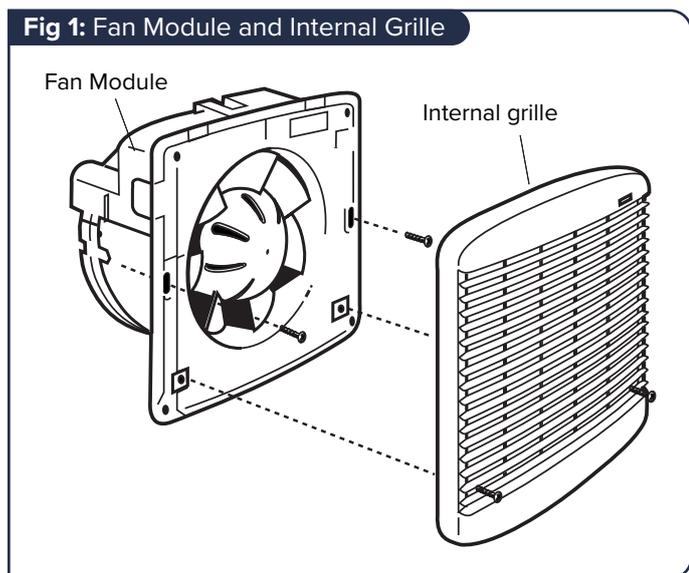


Fig 1: Fan Module and Internal Grille

1.5 SWITCHING

Operated via a separately wired 3 amp fused spur (by others) or operated via the optional XS-MFC remote controller allowing supply or extract, variable speed and automatic or manual switching of several fans if desired.

1.6 SENSORS

Sensors are available as remote units or integral 'plug in' units. They are able to control multiple fans, depending on sensor and fan types. Integral sensors are quick and easy to install and are aesthetically pleasing, whilst remote sensors give the benefit of location close to the pollutant source. Remote sensors can be fitted with an optional security strap to prevent unwanted tampering.

1.7 GENERAL

The removable interior grille provides easy access while the external rotor motor makes for simple removal of the push-on impeller for cleaning. Upward angled interior grille vanes shield workings from view and downward sloping external vanes throw off rain. The fan is IP24 splash proof approved with the motor rated at IP44. All external components are made in soft grey colours from ultra violet stable ABS material so they will blend with most decors and will not fade in sunlight.

1.8 FAN MODULE UNIT CODES

Code		Description
50Hz	60Hz	
XS6	XS6H	6" Fan Module
XS9	XS9H	9" Fan Module
XS12	XS12H	12" Fan Module
XS6RE	XS6REH	6" Refurb Kit
XS9RE	XS9REH	9" Refurb Kit
XS12RE	XS12REH	12" Refurb Kit

H indicates 220V 60Hz 1ph

1.9 GENERAL APPLICATIONS

The Nuaira XS Fan Module can be used as a direct replacement spare for any of the XS Fan Installation Kits available from Nuaira. Remember to specify fan size 6, 9 or 12inch.

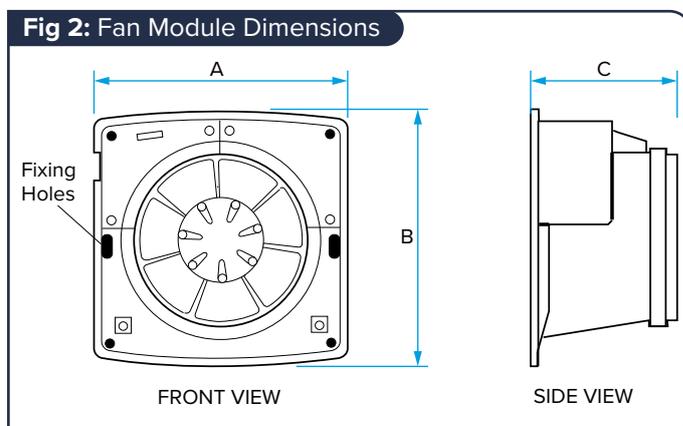
The XS Fan Installation Kits available are as follows:

- XS Window Kit I&M No: 671050
- XS Wall Fan Kit I&M No: 671051
- XS Ceiling Fan Kit I&M No: 671052
- XS Roof Fan Kit I&M No: 671053

1.10 OTHER APPLICATIONS

- **In Line Installation:** Using Duct Kit from Nuaira Code: XS-IDK (see page 7).
- **Plate Installation:** For fixing the Fan Module face direct to a wall.
- **Retro Fit:** For fitting in an existing wall aperture/outlet louvre (see page 5).

2.0 DIMENSIONS



Code	A	B	C
XS6 Fan Module	269	272	140
XS9 Fan Module	342	342	150
XS12 Fan Module	420	420	170

3.0 ELECTRICAL INSTALLATION

Electrical work should be undertaken by a qualified electrician in accordance with the wiring regulations.

ISOLATION

Before commencing work, make sure that the unit is electrically isolated from the mains supply.

Fig 3: Release the electrical panel from the fan plate

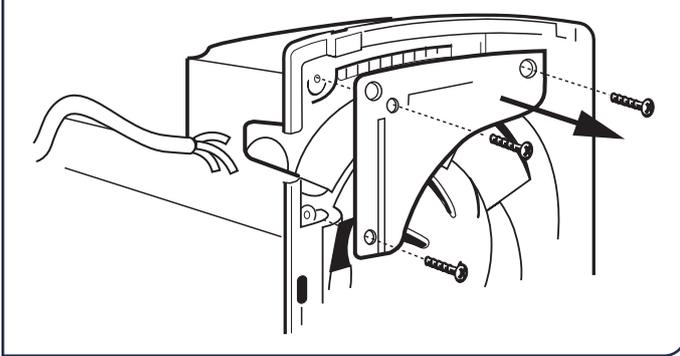


Fig 4: Remove the terminal cover

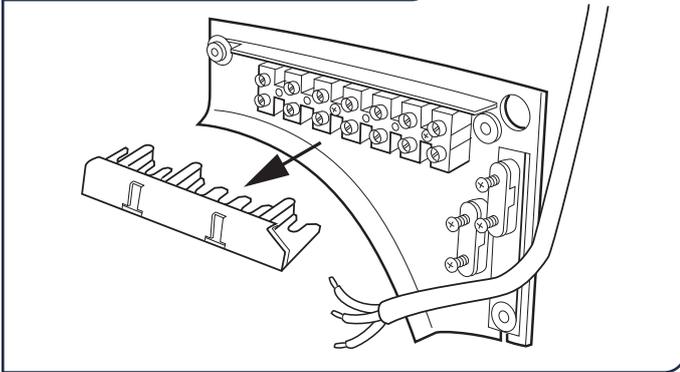


Fig 5: Clamp the cable and complete the connections

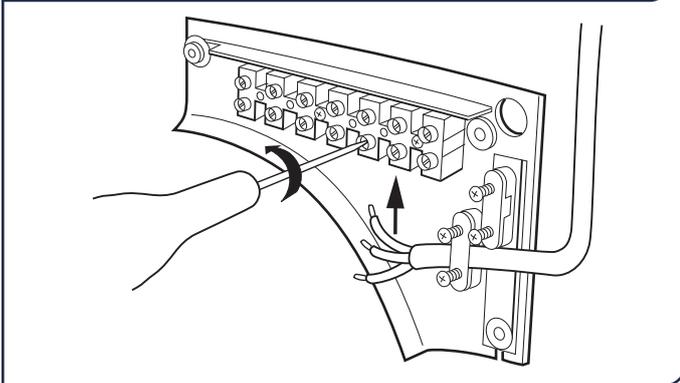
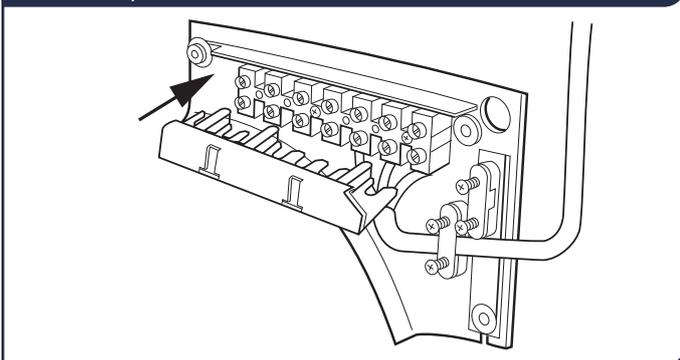


Fig 6: Refit the terminal cover before replacing the electrical panel



3.1 ELECTRICAL CONSUMPTION & WEIGHTS

Code	Input Power* (W)		Weight (kg)
	Max	Economy	
XS6	38	20	4.7
XS9	50	37	6.5
XS12	100	70	9.4

Note: Figures are for extract only at 50Hz

3.2 ELECTRICAL SPECIFICATION

230V ~ 50Hz / 220V ~ 60Hz Class I. Motor thermally protected by overload device. Cable: 1mm² min/max. Fuse: 2A, BS1362 required for each single fan if used without XS-MFC control. 3A, BS1362 fuse for multiple fans via XS-MFC speed control. Use of an RCD is recommended.

Note: If 2 x 12 inch fans or 3 x 6 or 9 inch fans are used in the same operating mode in the same room they should all be controlled from the same MFC speed control. This avoids the possibility of one fan (if speed controlled at a lower flow rate) being stalled by the other fan(s).

Adequate make-up air provision sufficient to provide ventilation in accordance with building regulations is required in all rooms. This should be checked during commissioning with all fans in the same room running together in all possible configurations.

The automatic shutters, motor bearings should be frequently inspected and maintained to ensure they open fully/operate satisfactorily.

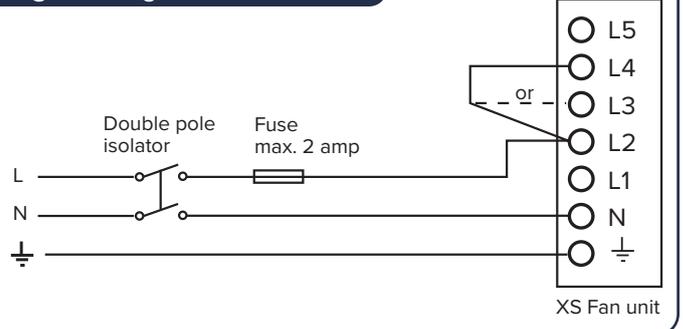
Always confirm airflow direction before commissioning.

IMPORTANT

During shutter operation of XS fans there will be a short delay on start-up and shut down of approximately 40 seconds, this is normal.

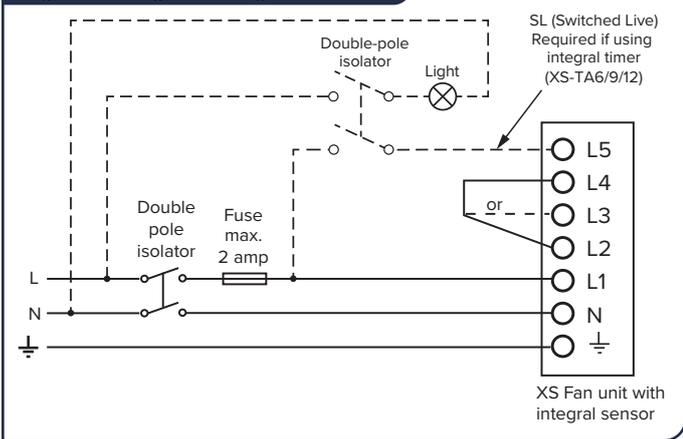
3.3 WIRING DIAGRAMS

Fig 7: Wiring an On/Off Switch



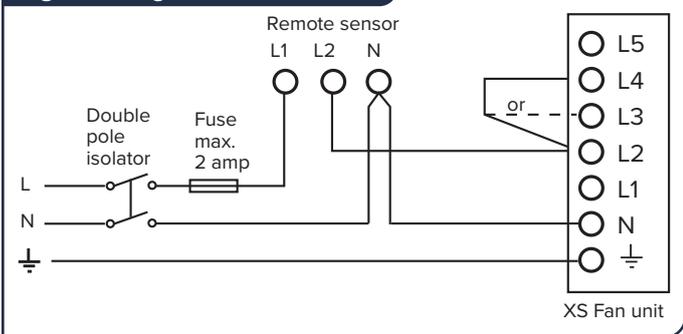
Connect link wire between L2 & L4 for extract or Connect link wire between L2 & L3 for supply.

Fig 8: Wiring an Integral Sensor



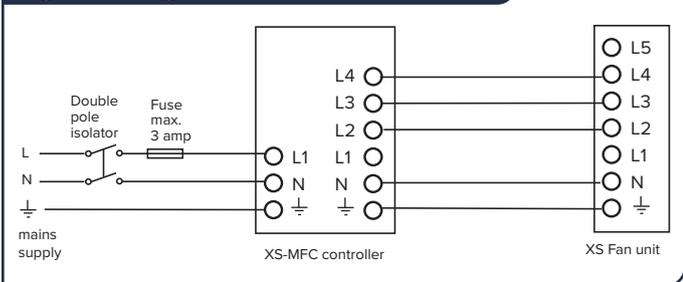
Connect link wire between L2 & L4 for extract or
 Connect link wire between L2 & L3 for Supply.
 Connect switched live signal to L5 for integral sensor.

Fig 9: Wiring a Remote Sensor



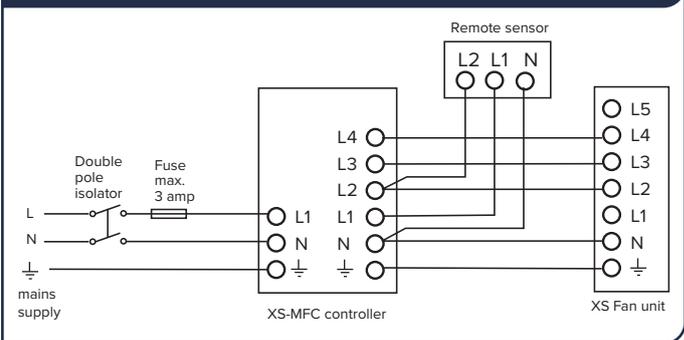
Connect link wire between L2 & L4 for extract or
 Connect link wire between L2 & L3 for supply.

Fig 10: Wiring a Remote XS-MFC Control



Remote switch may be set: On/Off, Forward/Reverse, Economy/
 Std. (variable speed), Auto/manual.

Fig 11: Wiring a Remote XS-MFC Control with a Remote Sensor

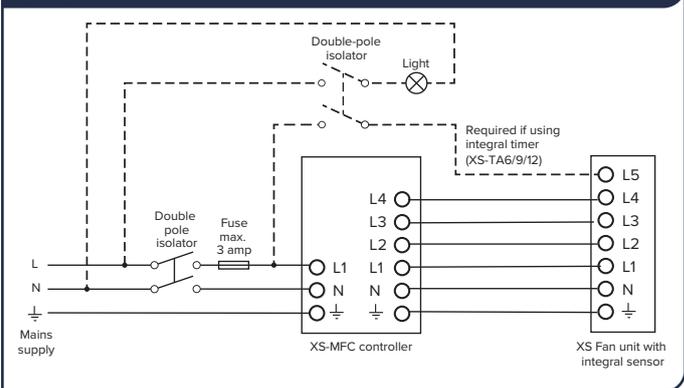


Remote switch may be set: On/Off, Forward/Reverse, Economy/
 Std. (variable speed), Auto/manual.

One or more remote sensors may be wired in parallel to one XS-MFC Control.

- Humidity Sensor: XS-HR
- Air Quality Sensor: XS-AQR
- Passive Infra-Red Sensor: XS-PIRR

Fig 12: Wiring a Remote XS-MFC Control with a integral Sensor



Remote switch may be set: On/Off, Forward/Reverse, Economy/
 Std. (variable speed), Auto/manual.

Maximum one integral sensor per fan 6/9/12 denotes unit size.

- Humidity Sensor: XS-H6/9/12
- Air Quality Sensor: XS-AQ6/9/12
- Passive Infra-red Sensor: XS-PIR6/9/12
- Temperature Sensor: XS-TH6/9/12
- Run-on Timer: XS-TA6/9/12

A single sensor will switch all fans if more than one fan is being operated by a single XS-MFC Control.

Note: Multi-Fan Options:

Up to 5 fans (size 6 or 9) can be controlled by one XS-MFC.
 Up to 2 fans (size 12) can be controlled by one XS-MFC.

Do not mix different fan sizes on the same XS-MFC control.

3.4 FITTING INTEGRAL SENSORS (OPTIONAL)

Before following the pictorial sequence shown, first remove the fans front cover grille (2 screws). Release the four main corner screws and lift out the motor/fan plate assembly. Remove the electrical cover plate opposite the sensor plate. Follow the pictorial sequence on this page.

Fig 13: Unscrew the module plate from the motor plate assembly

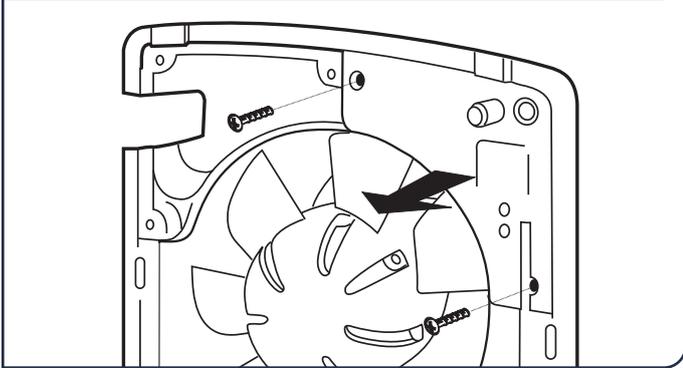


Fig 14: Remove the module plate

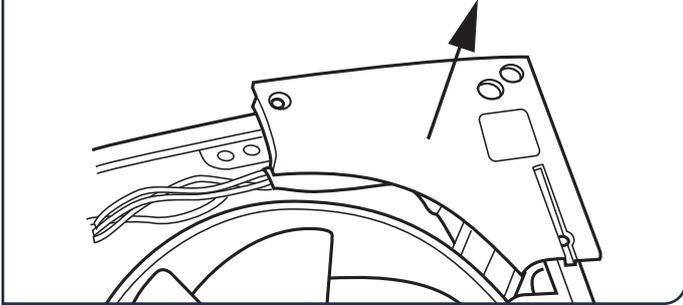


Fig 15: Lift out the sensor module wiring connector

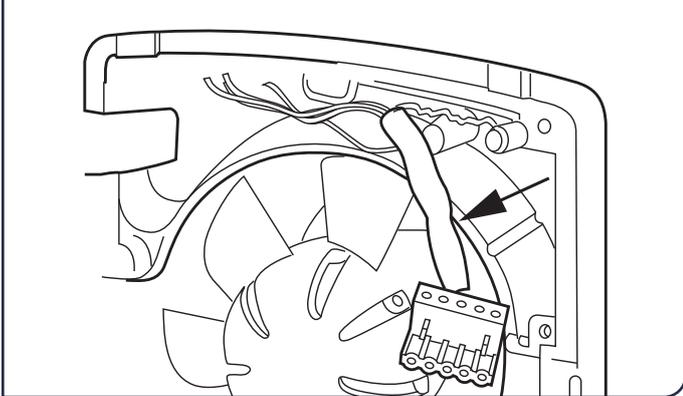


Fig 16: Plug the connector into the required sensor module

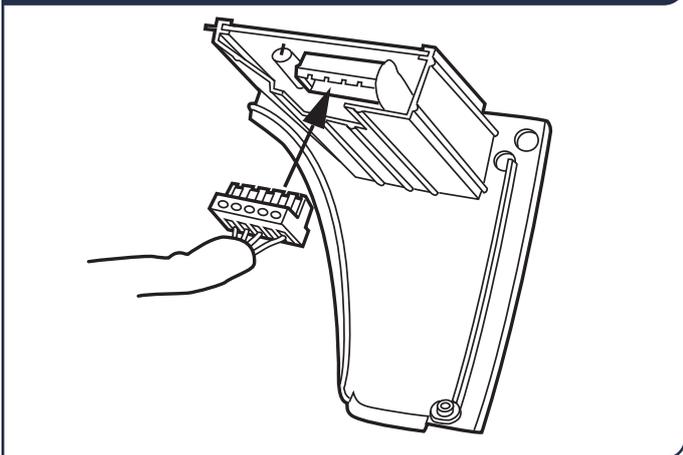


Fig 17: Screw the sensor module into position

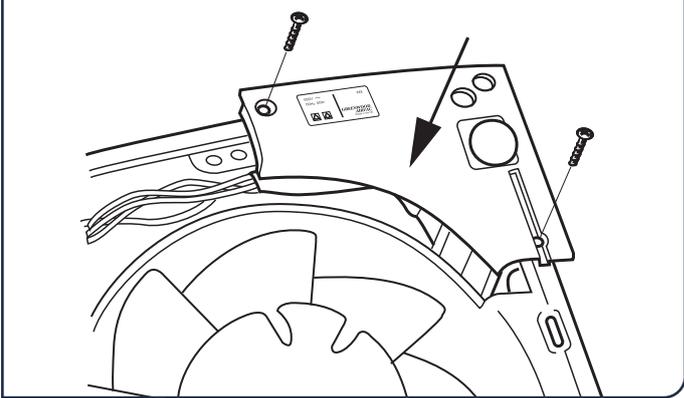


Fig 18: Push out the sensor area cover from the grille

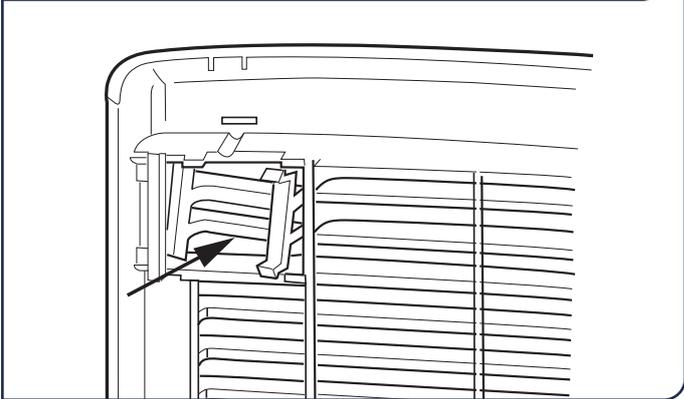
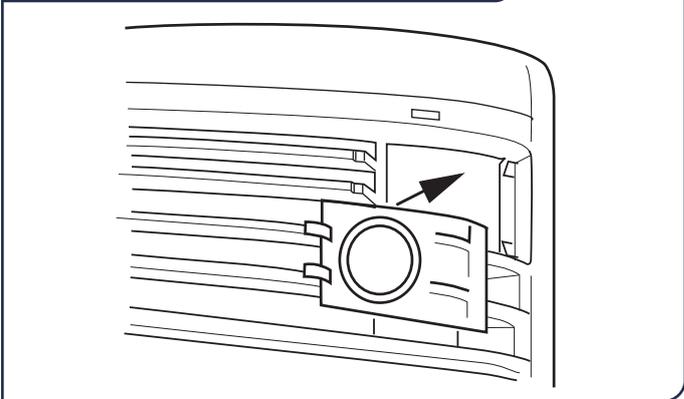


Fig 19: Fit the replacement sensor cover



3.5 FITTING XS-MFC CONTROLLER OR REMOTE SENSORS (OPTIONAL)

The XS-MFC Multi Fan Control provides supply or extract, variable speed and automatic or manual switching of several fans if desired, (see note below). The control is best mounted approx 1.5m above the floor. Remote Sensors are available for Humidity, Air Quality and Passive Infra Red control. Remote Sensors should be positioned at least 1.5m above the floor and away from direct heat sources e.g. radiators.

Note: Multi-Fan Options:

Up to 5 fans (size 6 or 9) can be controlled by one XS-MFC.
Up to 2 fans (size 12) can be controlled by one XS-MFC.

Do not mix different fan sizes on the same XS-MFC control.

Fig 20: Lift up the panel and remove two screws to dismantle the unit

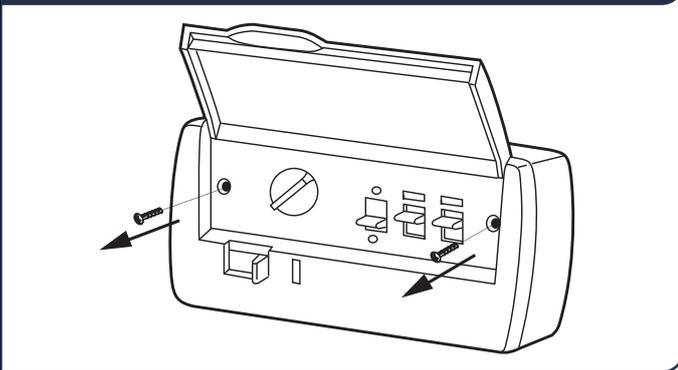


Fig 21: Push out the backplate box cable entry using a screwdriver

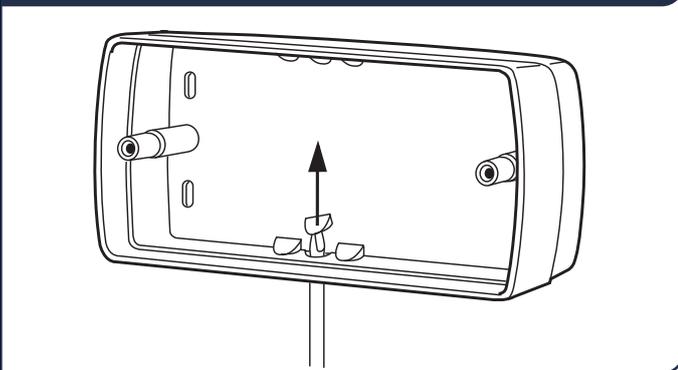


Fig 22: Spot through the backplate and drill and plug the wall

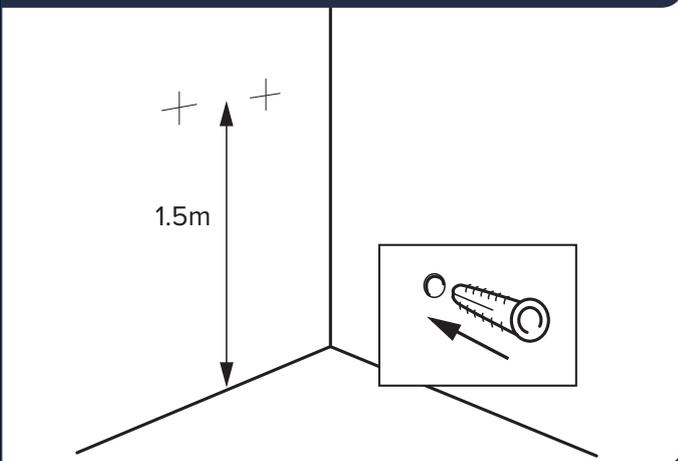


Fig 23: Fix backplate box to the prepared wall

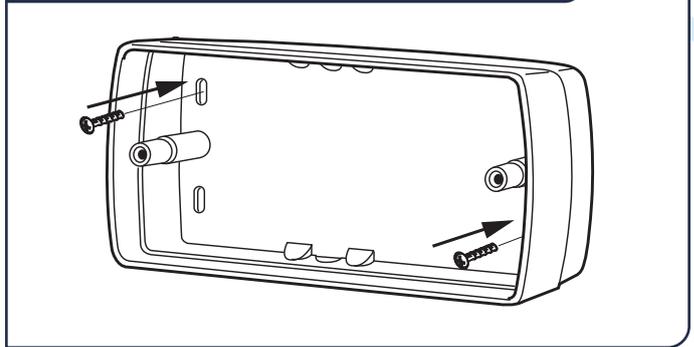


Fig 24: Feed approx. 200mm of supply cable into the box

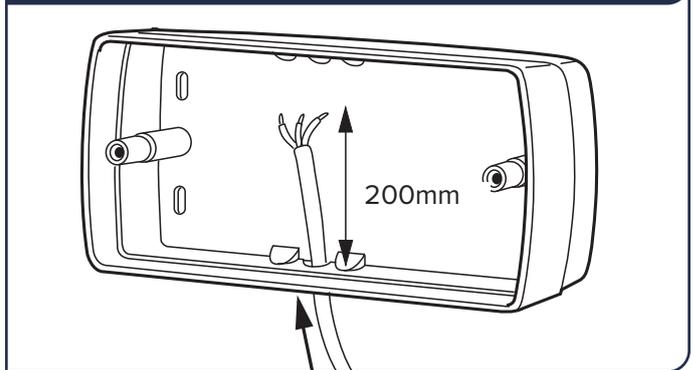


Fig 25: Connect the end of the cable into the control block

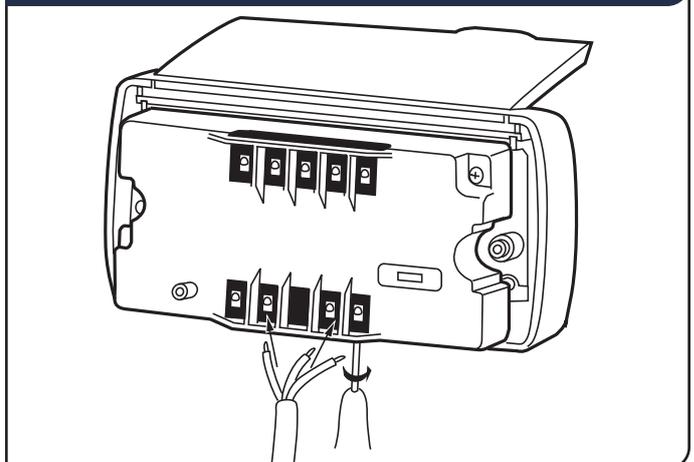
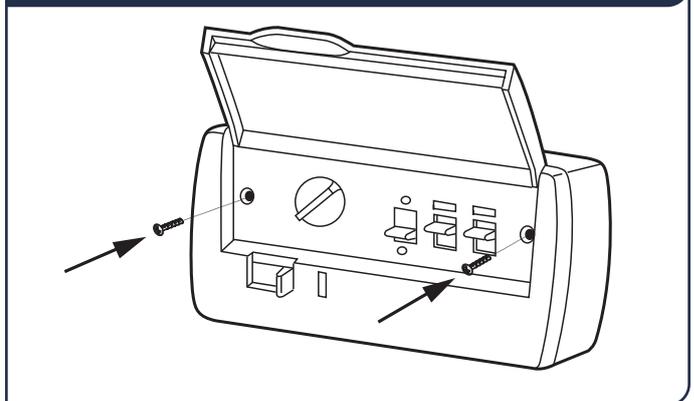


Fig 26: Fit the control into the backplate box and secure. Test the installation.



4.0 TYPICAL INSTALLATION

The below shows an XS Fan Module being retrofitted into an existing wall aperture. The two internal wall battens are used to support the fan and should be arranged to match the fan fixing centres as listed in the table.

Code	A	B
XS6	237	8
XS9	310	8
XS12	390	8

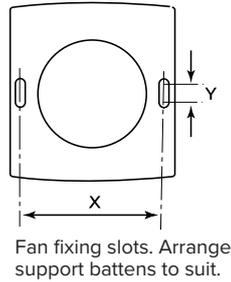
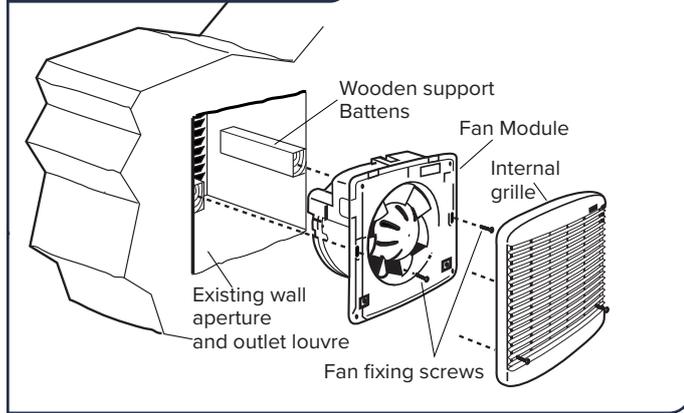


Fig 27: Typical Installation



5.0 REFURBISHMENT INSTALLATION

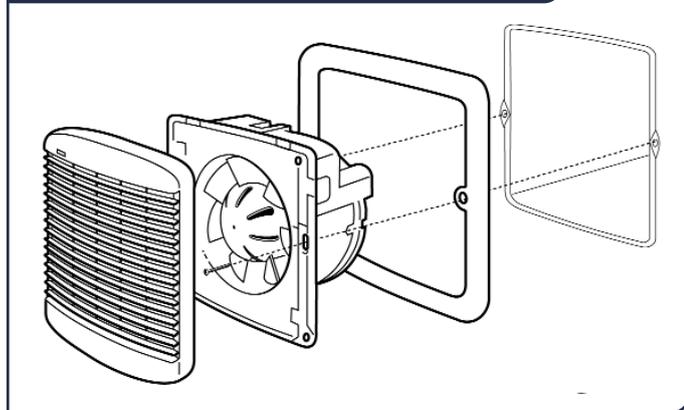
Refurb kits available:

- XS6RE
- XS9RE
- XS12re

5.1 REPLACING EXISTING NUAIRE XS FANS

The fan is fixed as the previous fan into the existing channels on the wall liner. The picture frame can be used if desired, however the metal brackets are not required.

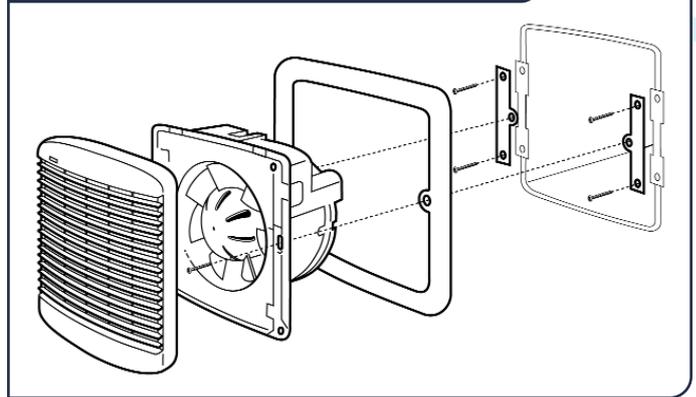
Fig 28: Replacing an Existing Nuaire XS Fan



5.2 REPLACING EXISTING T-SERIES FANS

The brackets supplied with the kit can be aligned with the screw fixing holes of the previous fan. This then positions the receiving nut on the bracket in the correct location to allow fixing of the Nuaire refurbishment fan.

Fig 29: Replacing an Existing T-Series Fan



5.3 WIRING DETAILS T-SERIES FANS

A Nuaire XS fan can be used to replace a Vent Axia 'T' Series fan, retaining the original controller, providing the controller is of the 'Ecotronic 130', 'Rangemaster' or 'T' Series Controller type.

5.3.1 EXISTING T-SERIES FAN WITH ECOTRONIC OR RANGEMASTER CONTROLLER

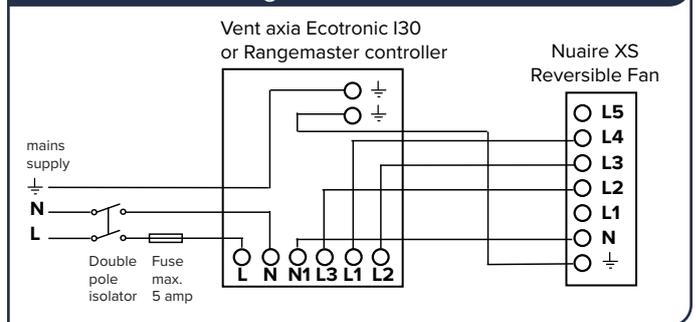
This arrangement will give the following operating features:

- Adjustable speed
- Adjustable minimum speed
- Extract / intake
- Fan off – shutter open
- Fan off – shutter closed

Limitations are:

- Control of single fan only
- Integral sensors not possible
- Automatic ECO setting not available

Fig 30: Wiring Diagram for XS Fan with a Vent-Axia Ecotronic 130 or Rangemaster Controller



5.3.2 EXISTING T-SERIES FAN WITH T-SERIES CONTROLLER

This arrangement will give the following operating features:

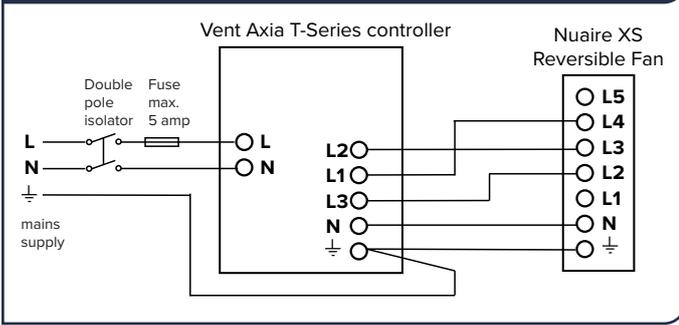
- Single speed
- Extract / intake
- On / Off
- Fan off – shutter closed

Limitations are:

- Control of single fan only
- Integral sensors not possible
- Automatic ECO setting not available

Fans should be installed in line with the IEE wiring regulations.

Fig 31: Wiring Diagram for XS Fan with a Vent-Axia T-Series Controller



8.0 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 Nuair International Sales office for further details.

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

9.0 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 Support for further information on items not listed above.

IMPORTANT

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.

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@nuair.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.

6.0 ANCILLARIES

6.1 IN-DUCT KIT

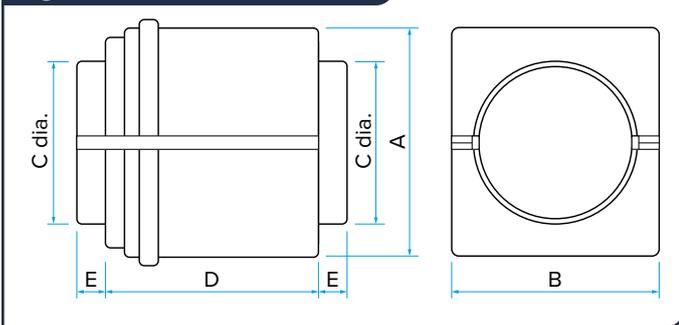
Used in in-duct applications in conjunction with flexible ducting systems and comprises of one In-Duct Kit.

The Fan is mounted within the two halves of the housing and the ducting is connected both sides.

Manufactured from HIPS material.

- XS-IDK6:** For use with 6 inch fan modules.
- XS-IDK9:** For use with 9 inch fan modules.
- XS-IDK12:** For use with 12 inch fan modules.

Fig 32: In-Duct Kit Dimensions



Dimension	XS-IDK6	XS-IDK9	XS-IDK12
A	268	348	420
B	268	348	420
C	197	247	347
D	240	250	268
E	25	25	25

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 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.