



INSTRUCTION MANUAL

Airone X2 Range of Ducted Fume Cupboards



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CONTENTS

FOREWORD.....	3
PRINCIPLES OF OPERATION.....	4
INSTALLATION AND ASSEMBLY INSTRUCTIONS.....	5
STAND ASSEMBLY	5
SPECIFICATION	7
SPECIFICATION DIAGRAM.....	9
OPERATING INSTRUCTIONS.....	10
WIRING DIAGRAM.....	11
CALIBRATION.....	12
MAINTENANCE AND PERFORMANCE MONITORING:.....	13
PROCEDURE.....	14
CALCULATION.....	14
VARIATION	14
CLEANING.....	16
SPARE-PARTS.....	16
CERTIFICATE OF CONFORMITY	17



FOREWORD

This manual has been prepared to give guidance in the use of the following Airone X2 Ducted Fume Cupboards:

Code:	Description.
1000X2	AIRONE 1000X2 Ducted Fume Cupboard
1200X2	AIRONE 1200X2 Ducted Fume Cupboard
1500X2	AIRONE 1500X2 Ducted Fume Cupboard
1800X2	AIRONE 1800X2 Ducted Fume Cupboard

This manual contains the information required to ensure optimum operation of the AIRONE X2 range of Ducted Fume Cupboards.

It is recommended that service and maintenance operations should only be undertaken by SAFELAB Service Engineers or their authorised agents.

Details of Service Contracts, along with information on these and other products is available on request from:

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NOTE:

This Airone X2 Ducted Fume Cupboard requires annual service and inspection under the requirements of COSHH regulation 9 by a suitably qualified engineer.

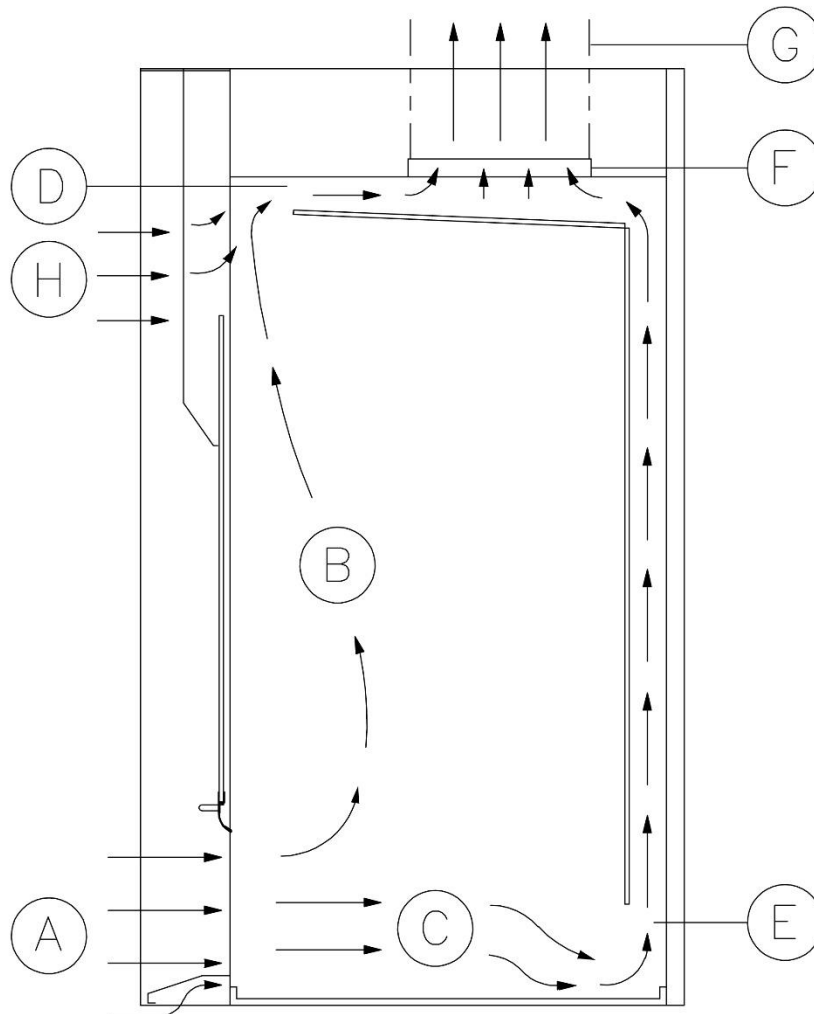


PRINCIPLES OF OPERATION

Air is drawn into the cupboard at the working aperture **A** below the sliding sash and the air bypass grille **H** in the upper fascia panel at a velocity high enough to ensure entrapment of any fumes, odours or contaminants given off by the processes carried out within the cupboard.

The fumes from within the cupboard are drawn either upwards as in the case of lighter-than-air fumes **B** to the extract slot **D**, or drawn across the work surface to the secondary extract slot **E** created by the back baffle, as in the case of heavier-than-air fumes/particulates **C**.

The combination of extract slots **D** and **E** ensure that all fumes/particulates are carried by the moving body of air to the extract slot and duct spigot **F** and on into the extract duct system **G**.





INSTALLATION AND ASSEMBLY INSTRUCTIONS

Contents of Packaging (as standard):

- Operational Manual
- Service and Maintenance Letter
- Warranty Form
- Quality Pass
- Conformity Certificates
- Safety Log Book

Your Airone X2 Fume Cupboard should be assembled and sited by specialists using the correct handling equipment. Please contact Safelab systems for assistance in this matter.

Space for free air circulation must be provided around the Airone X2 Ducted Fume Cupboard (see page 6 for a guide to siting the cupboard).

Connect the cupboard to the extract duct system and where applicable connect the volt free cable from the fan switch, on the low airflow alarm panel, to your extract fan control circuit (only to undertaken by a suitably/competent qualified person).

Services:

Final Connection of services (if fitted) by others

STAND ASSEMBLY (Optional)

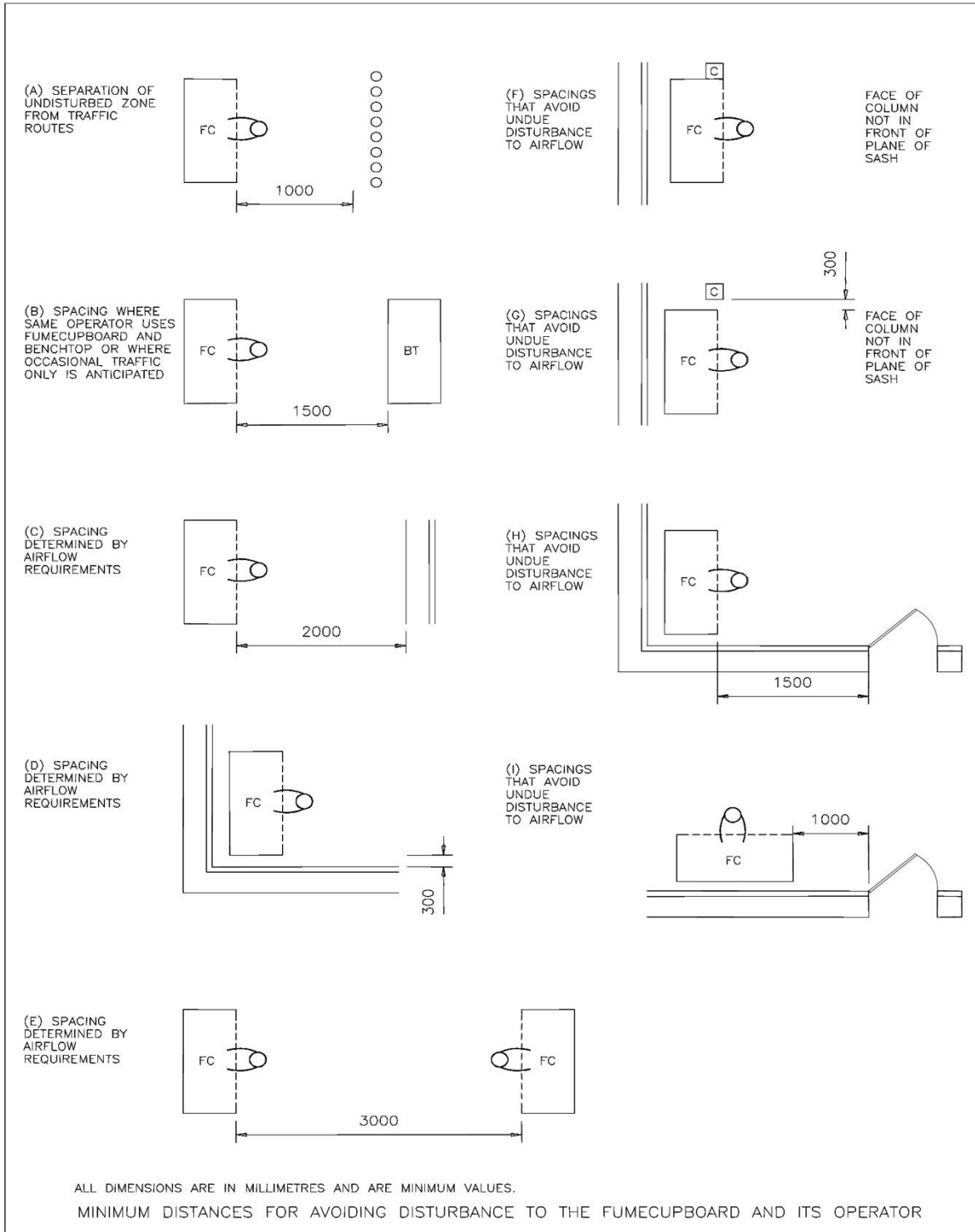
⚠ WARNING Never remove either the lower rear support panel [1] or the rear cross member [2], once the stand is assembled and sited with the unit in place. As both of these items are structural supports.





INSTALLATION AND ASSEMBLY INSTRUCTIONS (CONTINUED)

GUIDE TO POSITIONING LOCATIONS FOR THE AIRONE X FUME CUPBOARD





SPECIFICATION

- Definition:** The **SAFELAB** Airone X2 Ducted Fume Cupboards are designed for the protection of operators from gaseous or particulate contaminants produced within the unit.
- Application:** Whenever the operator needs to be protected from gaseous or particulate contaminants.
- Construction:** Aluminium extrusions and mild steel sheet painted in epoxy powder coat, Light Grey RAL-7035 and White RAL-9016. The sides of the fume enclosure are laminated safety glass.
The suspended/counterweighted front sash is laminated safety glass with an epoxy powder coated extruded aluminium handle.
The work tray is white polypropylene as standard.
- Sash Operation:** The vertical sliding laminated glass sash of the Airone X2 Fume Cupboard is suspended and counterweighted providing an added advantage over fixed-sash or folding-sash fume-hoods. E.g. the sliding laminated glass sash can be lowered and this provides protection to operators.
- Air Bypass:** The perforated area on the upper fascia panel provides bypass air entry, decreasing as the sash is raised. This operates over the full height of the working sash opening providing constant air volume.
- Low Airflow Alarm:** A means of monitoring a safe airflow at the working aperture.
- Light ON/OFF Switch:** Illuminated green, and located on the RH side fume cupboard aerofoil above the low airflow alarm and fan control panel.
- Supply:** The power consumption will be determined by the extract system.
To be advised at point of commissioning. Power supply to the Airone X2 is normally a 230V/50Hz, 13Amp fed from an RCD Type B supply
- Performance:** The average inflow at the working aperture is: 0.45 m/s for schools.
0.5 m/s for commercial use.
The minimum working aperture is 200mm high.
The maximum working aperture is 400mm high.
- Services:** To customer specification.
- Controller:** Low airflow alarm and extract fan switch (Master version) or controller on/off switch (Slave version)



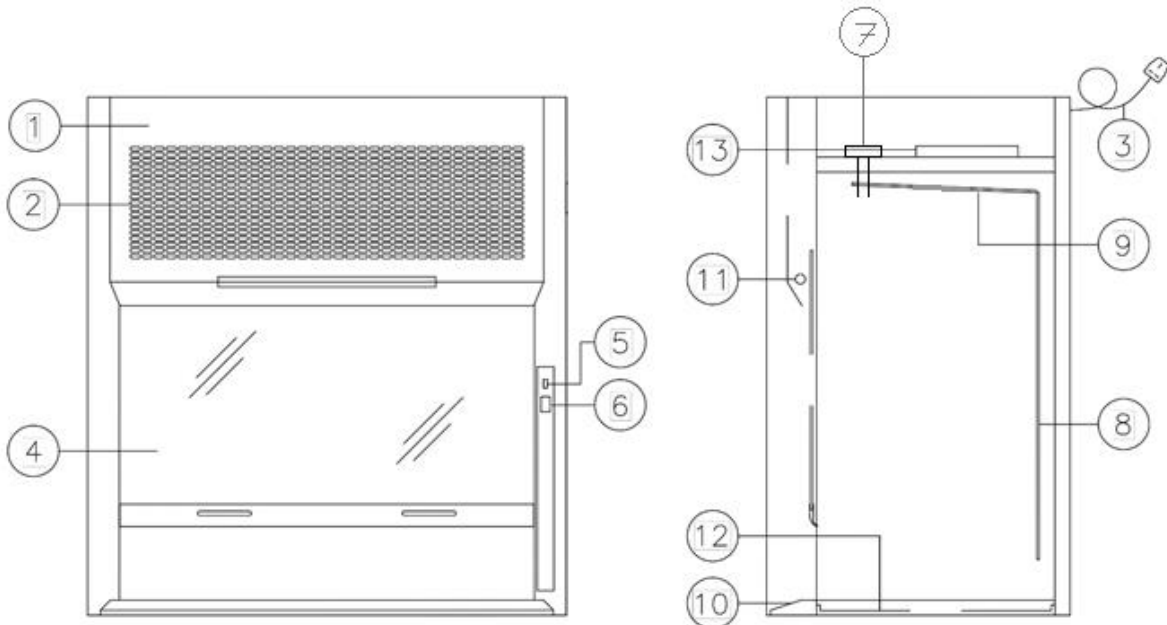
SPECIFICATION (CONTINUED)

Weight:	1000X2	84 Kg
	1200X2	100 Kg
	1500X2	120 Kg
	1800X2	140 Kg

Dimensions (in millimetres): Width x Depth x Height:

1000X2	-	External = 1000 x 760 x 1300 Internal = 950 x 550 x 1050
1200X2	-	External = 1200 x 760 x 1300 Internal = 1150 x 550 x 1050
1500X2	-	External = 1500 x 760 x 1300 Internal = 1450 x 550 x 1050
1800X2	-	External = 1800 x 760 x 1300 Internal = 1750 x 550 x 1050

SPECIFICATION DIAGRAM



- | | |
|--|--------------------------------|
| 1) Fascia panel | 8) Rear baffle |
| 2) Air bypass grille | 9) Upper baffle |
| 3) Mains lead with plug | 10) Stainless steel front sill |
| 4) Vertical laminated glass sliding sash | 11) LED light |
| 5) Green illuminated ON/OFF light switch | 12) Work tray |
| 6) Low airflow alarm and extract fan switch* | 13) Extract duct socket |
| 7) Airflow sensor | |

*or low airflow alarm and controller on/off switch if a Slave set up



OPERATING INSTRUCTIONS

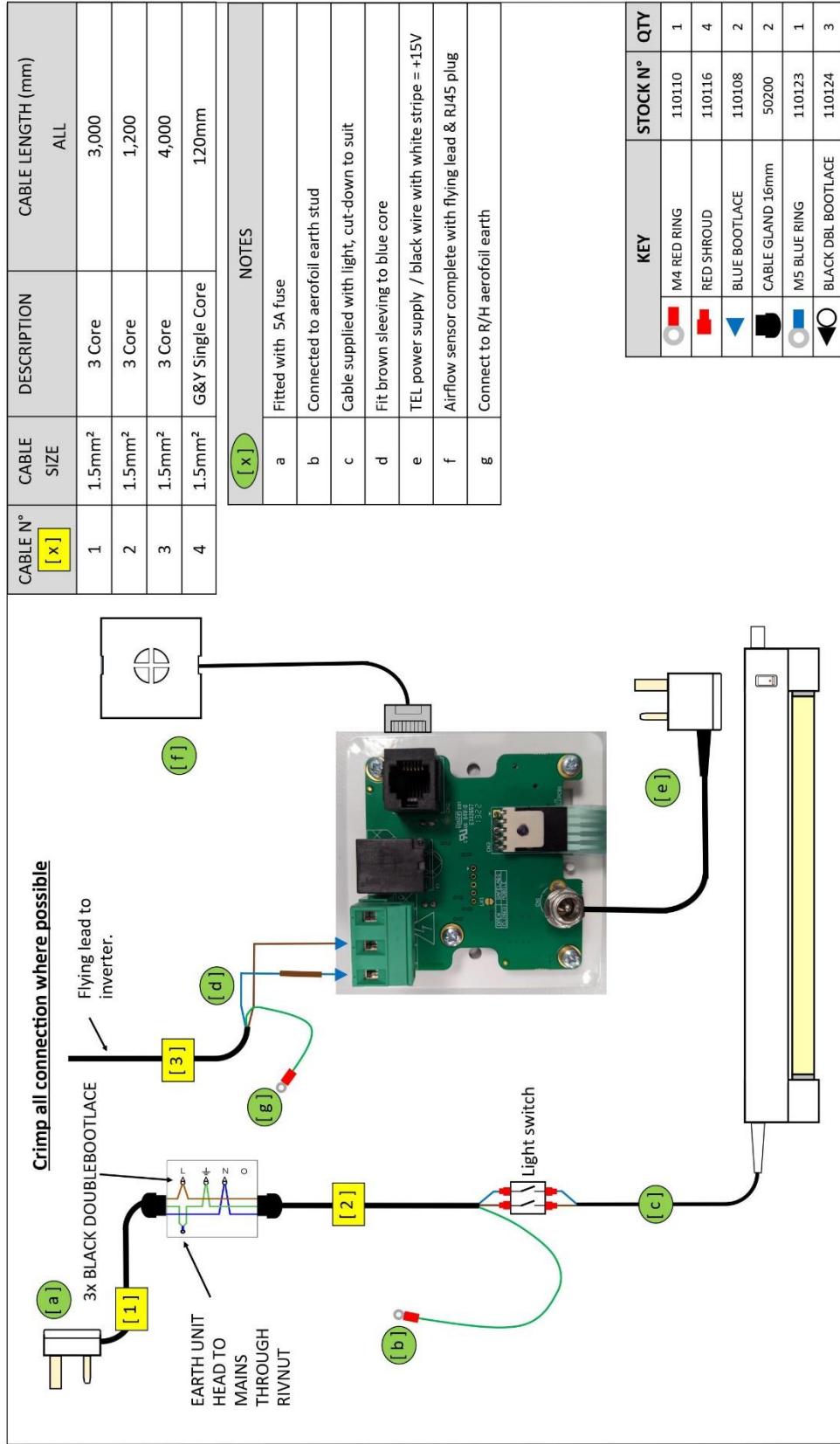
(ENSURE THE UNIT IS PLUGGED IN TO THE MAINS ELECTRICAL SUPPLY)

1. This unit can be supplied with two versions of controller. - the Master version (with a fan image on the bottom left-hand switch) and a Slave version (with an 'ON' image on the bottom left-hand switch) – see page 12.

The Master version should be used when the Fume Cupboard control panel is used to switch on the extract fan. The Slave version is used if the fan is switched on via an external, to that Fume Cupboard, method.

2. Switch on at the mains socket (Note: Once commissioned, the unit should be left connected to a live mains socket) and use the green ON/OFF switch (5) on the Cupboard to switch on the integral LED light.
3. If Master configuration, turn on the extract fan with the fan switch and observe that the green LED is lit on the low airflow alarm and extract fan panel (6). If the unit is supplied in Slave configuration, switch the controller to 'ON' using the bottom left-hand corner switch and then switch the fan on.
4. Always use appropriate PPE (personal protection equipment) when using the Airone X2 Fume Cupboard.
5. Assess the potential hazard of the intended procedure before commencing work.
The hazard level can be reduced by:
 - Working with a reduced height of sash opening
 - Using reduced quantities of substances involved
 - Lowering reaction rates where acceptable**Do not use the Fume Cupboard if the green 'AIR SAFE' light is not on.**
6. When working in the Cupboard, try and ensure that the sliding sash is in the lowest practical position, and always lower the sash when the Fume Cupboard is not in use.
7. If using Bunsen Burners, place them at least 200mm from the front sash, sides or rear baffle (and ideally not directly below the airflow sensor).
8. Try to place everything required for your process inside the Fume Cupboard prior to starting any operation. This will reduce the amount of arm movements into and out of the Fume Cupboard and hence reduce possibility of breakout (fume escape).
9. Position apparatus inside the Fume Cupboard so that any disturbance to the airflow at the sash opening is minimised.
10. After use, follow the correct procedure for disposal of any residues and leave the Fume Cupboard in a safe state for further use by others.
Note that if the unit is being used in a Slave configuration the 'ON' button will need to be switched off after the fan is switched off.

WIRING DIAGRAM



CABLE N°	CABLE SIZE	DESCRIPTION	CABLE LENGTH (mm)
[x]			ALL
1	1.5mm ²	3 Core	3,000
2	1.5mm ²	3 Core	1,200
3	1.5mm ²	3 Core	4,000
4	1.5mm ²	G&Y Single Core	120mm

NOTES	
[x]	
a	Fitted with 5A fuse
b	Connected to aerofoil earth stud
c	Cable supplied with light, cut-down to suit
d	Fit brown sleeving to blue core
e	TEL power supply / black wire with white stripe = +15V
f	Airflow sensor complete with flying lead & RJ45 plug
g	Connect to R/H aerofoil earth

KEY	STOCK N°	QTY
	110110	1
	110116	4
	110108	2
	50200	2
	110123	1
	110124	3



CALIBRATION

(SHOULD ONLY BE UNDERTAKEN BY A SUITABLY QUALIFIED/ COMPETANT PERSON)

Switch on the power to the Airone X2 Fume Cupboard at the mains socket

Master Controller



Slave Controller



Start Up

The Fume Cupboard fan can be switched on using the fan button if in Master configuration, or using an external fan switch if in Slave configuration. If in Slave configuration, the 'ON' switch, on the bottom left-hand corner of the controller, will need to be switched on before starting the fan.

When the unit is powered up, the following sequence of events should occur:

- If the unit **has not** been calibrated, the red and green LEDs will flash simultaneously, the audible alarm will be muted
- If the unit **has** been calibrated, the unit enters normal operating mode (solid green light for safe velocity, red light and audible alarm for low velocity)
- The alarm performs a self-test of its functions. A delay timer of 30 seconds is initiated to allow the airflow sensor to stabilise.
- During the 30 second stabilising period, the audible alarm is deactivated.

Calibration Single Point

1. The calibration process captures the 'Alarm Point Face Velocity' flow rate.
2. For units with a Master controller, use the Fan button on the control panel to switch the fan on. If a Slave controller is fitted, the 'ON' button should be pressed before the fan is switched on.
3. Using an inverter, or damper, adjust the face velocity to the 'Alarm Point Face Velocity'. This should be measured with a calibrated 100mm diameter vane anemometer.
4. Press and hold the Mute button for 10 seconds to capture the air fail flow rate.



5. If calibration is successful, the monitor will beep 4 times with the green LED flashing. The monitor will then automatically enter run mode
6. After a short delay the air fail LED will illuminate and the buzzer will sound. You can press Mute to silence the alarm whilst you increase the flow, using the inverter or damper, to the design face velocity (between the minimum and maximum figures).

Standard Non-School Application		School Application	
Minimum Face Velocity:	0.50 m/s	Minimum Face Velocity:	0.45 m/s
Maximum Face Velocity:	0.55 m/s	Maximum Face Velocity:	0.48 m/s
Alarm Point Face Velocity:	0.38 m/s	Alarm Point Face Velocity:	0.35 m/s

- When the fan is Off (Master controller) or the 'ON' button is switched off (Slave controller), the alarm will be muted by default.
- When the fan is switched On, there will be a delay of 30 seconds (during this time the audible alarm is muted) before the air safe condition is checked. If it has not achieved Air Safe then the alarm will sound and the alarm Mute LED will flash. Pressing the Alarm Mute switch will silence the alarm and the Mute LED will go steady.
 - If the air flow changes from Air Fail to Air Safe whilst the sounder is muted, then the mute condition will reset
- Switching the fan Off (Master controller), or the 'ON' button off (Slave controller), will reset the alarm Mute condition
- If the Airflow sensor is disconnected at any time the Air Fail LED will illuminate and the audible alarm will sound

MAINTENANCE AND PERFORMANCE MONITORING:

Your Airone X2 Fume Cupboard should have an annual service by a suitably qualified person to maintain its optimal working condition and reduce the possibility of hazard to the operator. We recommend that a service programme be arranged with **Safelab Systems Ltd.**

Regular maintenance by our qualified personnel will ensure safe running of your equipment and also ensure that you meet your requirements under COSHH regulation 9.

The minimum requirement to comply with COSHH Regulations is that a routine service and inspection is carried out at least once every 14 months, and a written record kept of the results. Tables printed on back pages of the Operational Safety Log-Book are suitable for keeping these records.

Refer to page 14 for face velocity checking procedures.

Safelab Systems offer Service Contracts for regular servicing of all Airone Fume Cupboards. Please contact our Service Department for details:

Email service@safelab.co.uk
Phone 01934 421340



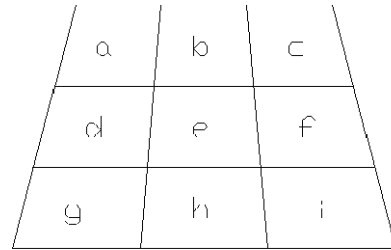
MAINTENANCE AND PERFORMANCE MONITORING (CONTINUED):

INSTRUCTIONS FOR FACE VELOCITY MEASUREMENTS (Record results on record form - page 15)

PROCEDURE:

Imagine the face of the Fume Cupboard divided into nine cells.

Stand as far as practical from the Fume Cupboard with the sensing head in the plane of the sash and take airflow readings at approximately the centres of each of the nine cells.



Record for each cell the approximate average reading over a period of at least ten seconds, applying any corrections from the air flow meter calibration chart.

Look at the table and repeat any reading which seems to be very different from the general pattern. Record the average of this and the previous reading.

CALCULATION:

Minimum face velocity:

Record which of a, b, c, d, e, f, g, h, i, is the smallest, i.e.: the minimum face velocity.

VARIATION:

Check for variation as follows:

- Add together the values a, b, c, d, e, f, g, h, i and divide by 9 to get the average (mean).
- Find the biggest and smallest of a, b, c, d, e, f, g, h, i.
- The upper percentage variation is the biggest minus the average, divided by the average (mean) and multiplied by 100.

The lower percentage variation is the average minus the smallest, divided by the average (mean) and multiplied by 100.

- Fail if upper and lower variations not below 30% from average (mean).
- Fail if more than one reading varies by more than 20% from average (mean).



MAINTENANCE AND PERFORMANCE MONITORING (CONTINUED):
SHOULD ONLY BE UNDERTAKEN BY A SUITABLY QUALIFIED AND COMPETANT PERSON)

We recommend that a service programme be arranged with Safelab Systems Ltd.

Regular maintenance by our qualified personnel will ensure safe running of your equipment and also ensure that you meet your requirements under COSHH regulation 9.

The minimum requirement to comply with COSHH Regulations is that the face velocities must be monitored (at least once every 14 months) and a written record kept of the results. Tables printed on the back pages of the Operational Safety Log-Book are suitable for keeping these records.

Six Monthly Maintenance

- a) Lift the airflow sensor so that the top baffle can be removed
- b) Remove the two halves of the rear baffle and top baffle from its retaining lugs and clean both the baffle and the rear chamber.
- c) Wash the interior surface of the chamber with diluted detergent solution
- d) Inspect the sash mechanism for corrosion and damage, lubricate pulley with light machine oil or silicone spray.

Twelve Monthly Maintenance

- a) Items a) to d) as above.
- b) Check the condition of the services to the Fume Cupboard, including their service valves, check bedding of sinks, drip cups, washes and troughs etc for signs of leaking, remake joints and test where required.
- c) Check the functions of the sash stop and the alarm mechanism.
- d) Carry out face velocity, check across the open area of the sash at working height (see page 14). Record the mean velocity and update your record accordingly in line with COSHH requirements.
- e) Inspect the fire damper(s) (where fitted) and its release mechanism.
- f) Inspect the condition of the extract ducting, particularly the joints.
- g) Check the stability and condition of the discharge stack.

If the Fume Cupboard is frequently used for substantial quantities of corrosive substances, the six monthly checks should be carried out monthly, the twelve monthly checks every six months.



CLEANING

The materials used to construct the Airone X2 Fume Cupboard have been selected to give maximum durability and a long life. It is beneficial however to regularly clean and decontaminate the internal and external surfaces.

It is recommended that the fan is left running during any cleaning procedure and that suitable protective clothing (face-mask, gloves and safety glasses) is worn.

All surfaces should be cleaned with a mild detergent solution then finished off with a damp cloth and wiped dry.

If required, the rear/upper baffles can be removed for cleaning. It is recommended that two people undertake this operation' with the airflow sensor lifted prior to any works taking place.

Remove the upper screws from the rear baffle, then undo and remove the thumbscrews supporting the front of the upper baffle and allow it to fold down flat against the rear baffle.

Carefully remove the remaining bottom two screws holding the rear baffle while its weight is being supported.

Note: Special care should be taken to reposition the airflow sensor in the correct position once cleaning has taken place

SPARE-PARTS

Green Light On/Off switch:	Part No. 050245
Sash cord kit:	Part No. 000018
Low airflow PCB:	Part No. tbc
Airflow sensor:	Part No. tbc
LED light:	1000 X & 1200 X - Part No. 050520/L
	1500 X & 1800 X - Part No. 050521/L



CERTIFICATE OF CONFORMITY



Safelab Systems Ltd

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E.C. DECLARATION OF CONFORMITY

Safelab Systems Ltd

hereby certify that the

**Airone X
Ducted Fume Cupboard**

Conforms to the requirements of the
Low Voltage Directive #73/23/EEC and the
Electromagnetic Compatibility Directives # 89/336/EEC and #92/31/EEC

Complying with the conformity criteria of European Standards:

- EN 61010-1: 1993 safety requirements for electrical equipment for measurement, control and laboratory use Part 1 : General requirements
- EN 50081-1, EN 50082-1 : Emission Limits to Reference Standards:
EN 60555-2 & 3, EN 55022/B, EN 55014

Signed:

Roger Guess, Manager Director
Safelab Systems Ltd

Dated: 1st November 2015

The single source for the complete clean air solution

Registered No: 5336826 England and Wales
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