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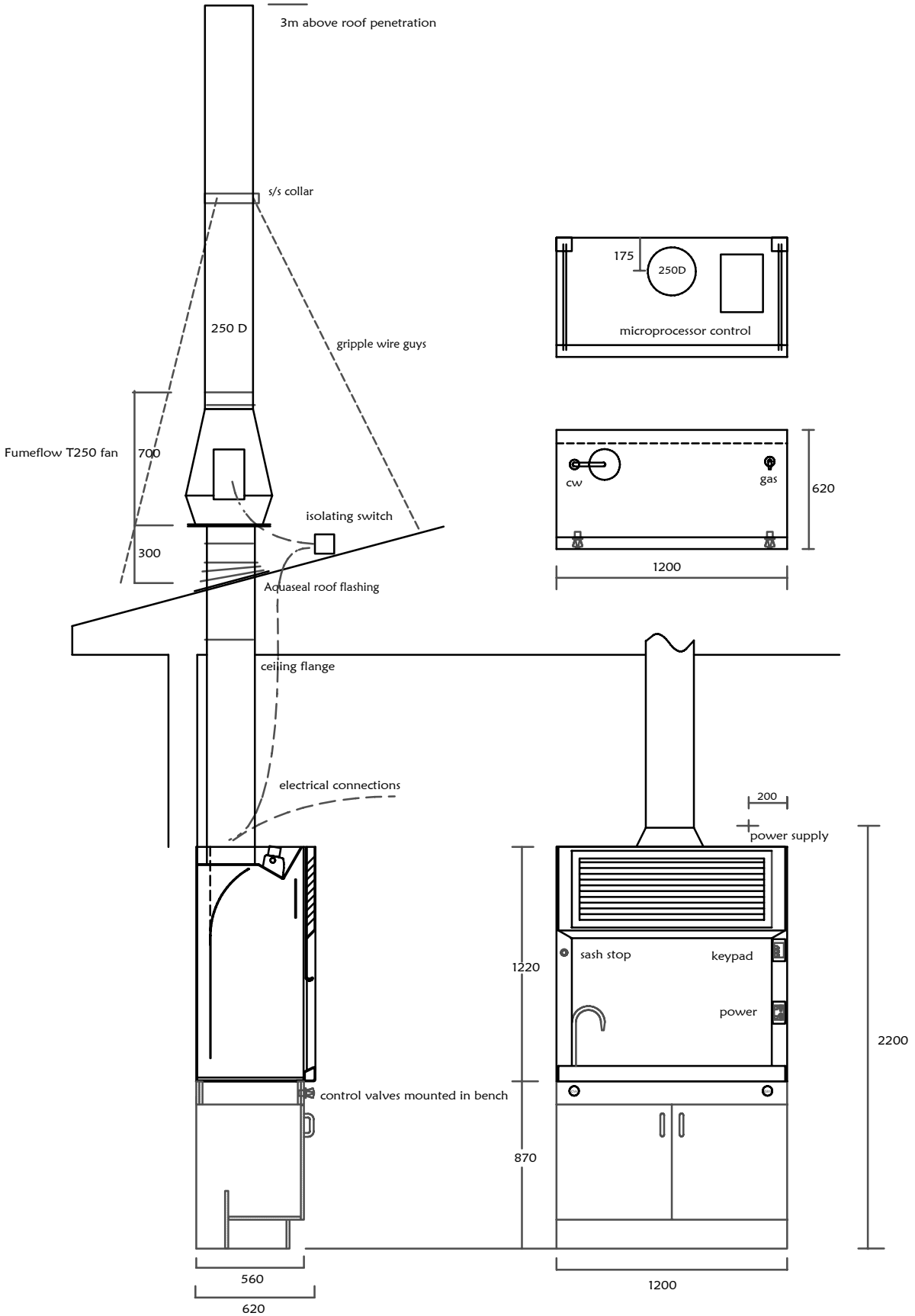
Smoothflow Student Fume Cupboard Installation Instructions

Refer Numbered Installation Drawing on the next page.

1. Place Student fume cupboard on bench unit.
2. If there is a solid bench top, mark out for service penetrations in the fume cupboard such as drip cup, water & gas spouts, including wire for gas solenoid. When fitted, this wire is rebated into the underside of the fume cupboard near the front right corner. Move the fume cupboard and cut out penetrations in bench top.
3. Replace fume cupboard in position.
4. Plumb up for duct from top of fume cupboard to ceiling. Mark and cut 260mm dia hole through ceiling and roof.
5. Measure height 'H' from fume cupboard to high side of roof penetration. Length of duct is 'H' +350mm. Cut duct to length. Plain ends are required top and bottom to fit into fume cupboard and fan. Ensure ends are cut square and neat. De-burr edges.
6. Lower the duct through the roof. Fit the ceiling flange over the bottom end of the duct, and insert the duct into the fume cupboard outlet. Slide the flange up to the ceiling and fix neatly.
7. Fit the "Aquaseal" flashing over the top end of the duct, shape to the roof profile, and fix to the roof with sealant and screws or rivets. We recommend urethane sealants.
8. Fit the fan inlet socket over the top of the duct. Screw fix to the duct.
9. Cut a 2.1m long duct for the stack. Plain ends are required top and bottom. Ensure ends are cut square and neat. De-burr edges. Fit the stack into the fan outlet. Align vertically plumb and fix with screws. Apply (urethane) sealant around the stack at the top edge of the fan.
10. Fit the guy collar to the stack (see guy wire instructions, p3) and fix the guy wires securely to the building structure.
11. Make plumbing connections to fume cupboard (see Plumbing instructions)
12. Make electrical connections to fume cupboard and fan (see Electrical instructions, p5,6)
13. To commission the fume cupboard, test face velocity as commissioning instructions on page 9. Adjust the fan speed to achieve average velocity between 0.52 and 0.55m/sec with the sash open, and set the airflow alarm switch.



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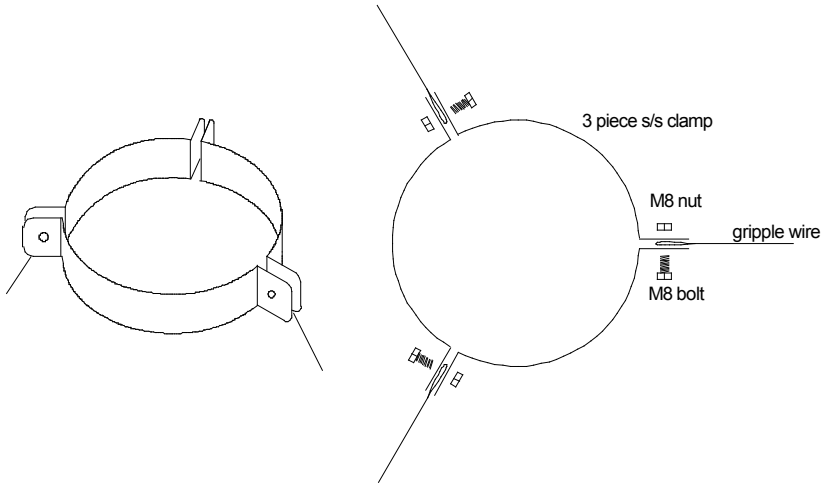
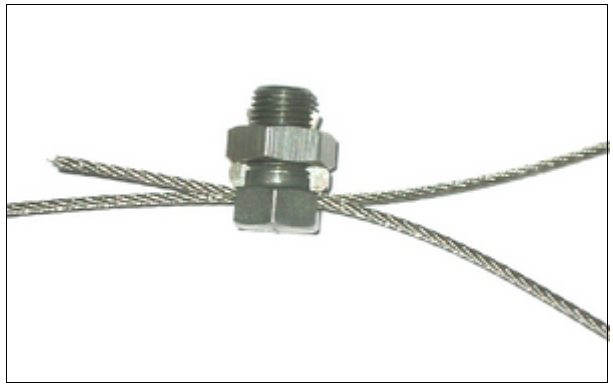
Smoothflow Student Typical Installation



Installing Guy Ropes

- Assemble the three piece duct clamp with the bolts provided.
- During assembly, fit the loop end of a guy wire over each bolt, securely between the flanges, as shown above
- Fit the duct clamp around the stack, about 2m above the roof penetration, and tighten the bolts evenly.
- Attach the guy wires to secure points on the building structure using the loop fittings and adjustable wire grips as shown below.
- Adjust the wire tension and tighten the clamp.



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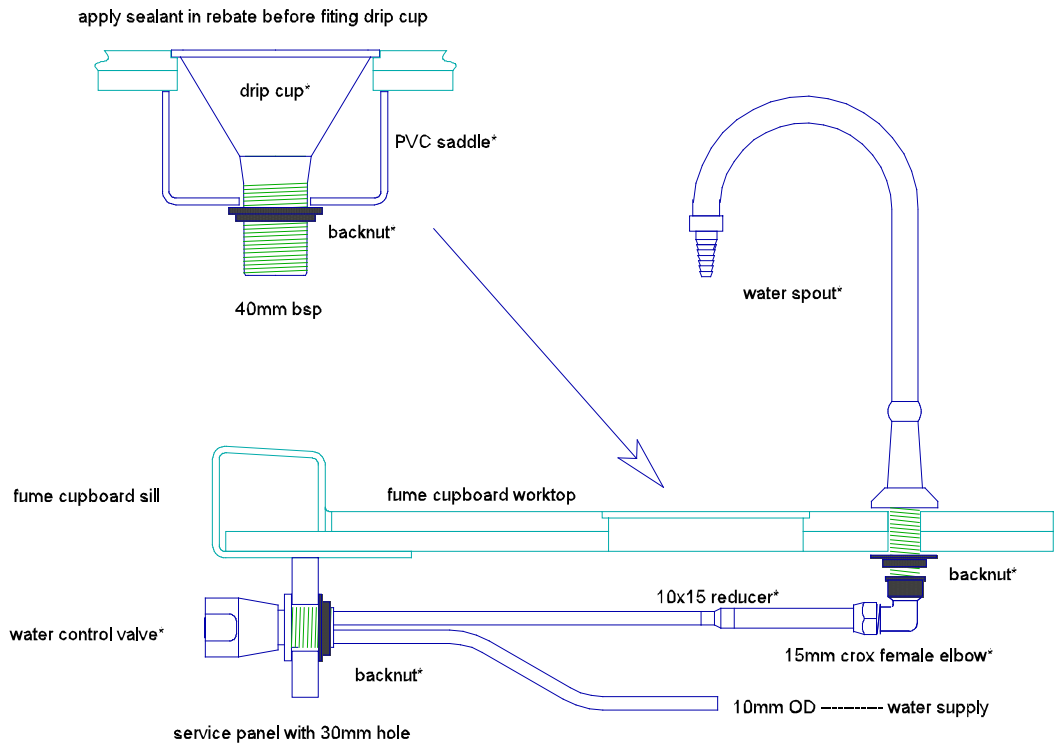

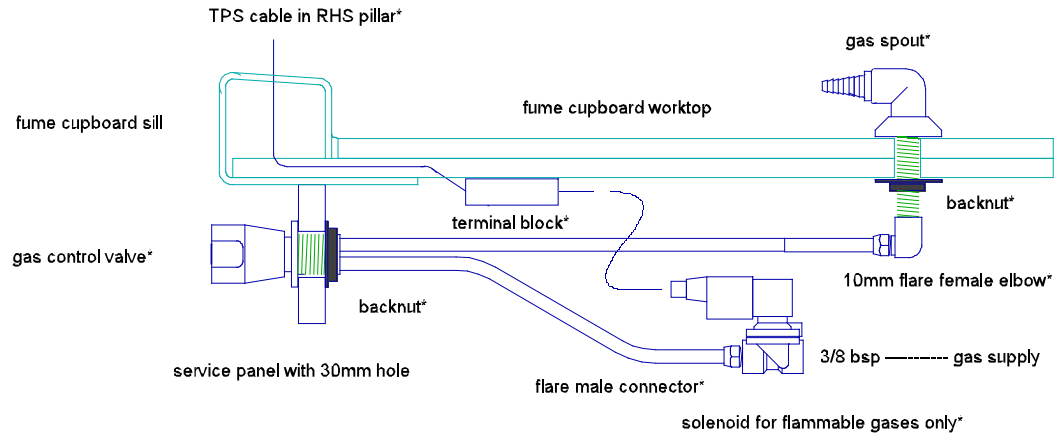

* fittings supplied with fume cupboard

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Fume Cupboard Plumbing Connections

22 Sept 2001

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Fume Cupboard Microprocessor Safety Sequence Controller

Electrical Connections, Single Phase

The control box is a grey plastic enclosure located on top of the fume chamber. Refer the diagram attached. The control box contains

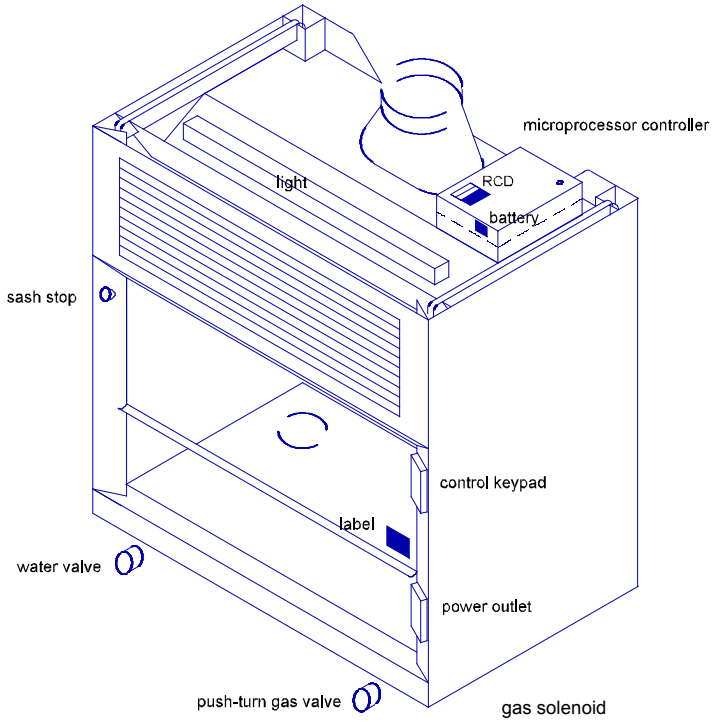
a local mains isolator,
a circuit breaker for the fan,
an RCD circuit breaker for the power socket
coloured strip connectors for Neutral and Earth
a printed circuit board with a row of relays along the (left) side
a pressure switch (in the lid)

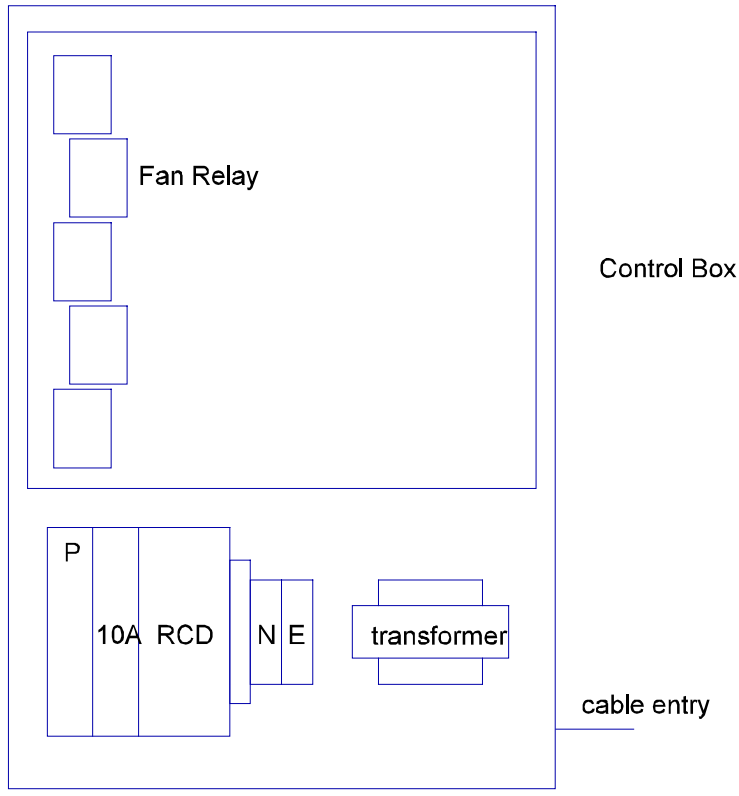
FAN The fan is usually located above the roof.
The fan has a single phase 230V motor with a 3core cable about 1.2m long.
Provide a weatherproof isolating switch beside the fan.
Terminate the motor cable at the switch.
Provide and terminate a 1mm^2 T+E 3 core cable from the fan isolating switch to the fume cupboard controller.
The fume cupboard controller has a cable entry at the front right.
Terminate the fan Neutral conductor at the blue terminal block
Terminate the fan Earth conductor at the yellow/green terminal block
Terminate the fan Active conductor at the FAN relay (see diagram)

POWER Required supply is 230V 50Hz
Provide and terminate a 2.5mm^2 T+E 3 core cable from the mains distribution board to the fume cupboard controller.
This circuit should be fused at 20A.
The fume cupboard controller has a cable entry at the front right.
Terminate the fan Neutral conductor at the blue terminal block
Terminate the fan Earth conductor at the yellow/green terminal block
Terminate the fan Active conductor at the local isolator switch(see diagram)

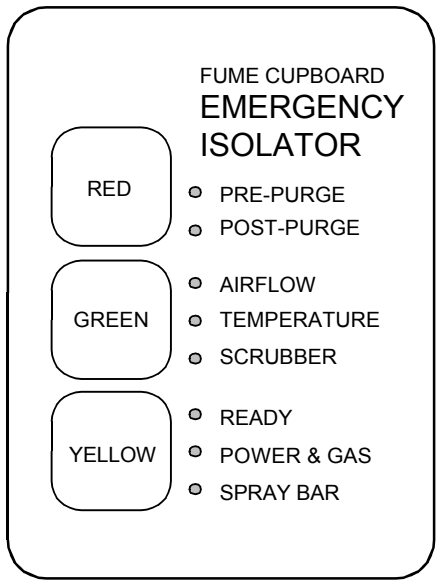
GAS SOLENOID The gas solenoid is an optional accessory.
A 3 core cable to operate the solenoid is provided under the fume cupboard. below the right front corner. A junction box is also provided.
Fix the junction box under the fume cupboard, and terminate the cable.
The solenoid has a cable about 1m long. When the valve is plumbed into the gas supply under the bench, terminate it in the junction box.

CHECK Check that all screw terminals are tight
Check the air pressure pilot tube is inserted in the duct outlet.
Check that installation of the duct and fan is complete
Turn on the fan isolating switch
Read the operating instructions before livening the control box.





Fume Cupboard Controller Connections



OPERATING THE FUME CUPBOARD

Start up Press the green button
The fan and light turn on
The **TEMPERATURE LED** will be green
The controller waits 7 seconds for airflow

Pre-purge The **AIRFLOW LED** turns green
The **PRE-PURGE LED** will be amber for 50 seconds then flash for another 10 seconds, then go out

Ready The **READY LED** turns green
Four beeps sound

Active Press the yellow button
The **POWER & GAS LED** turns green
The fume cupboard is now operational - power & gas can be used

Isolate / Ready Press the red button
Power & Gas turn off automatically
The **POWER & GAS LED** goes out
The **READY LED** turns green
Press the yellow button to re-activate, or

Shut down Press the red button again

Post-purge The fan and light continue to operate
The **POST-PURGE LED** will be amber for 4 minutes then flash for another 1 minute, then go out.
The light and fan turn off automatically

Re-start Press the green button to return from post-purge to pre-purge

FAULT ALARMS

If the **Power** is cut, an alarm will sound a slow beep
The **READY LED** will flash red
Press the red button to mute the alarm
A long beep will sound as the controller shuts down.
When the **Power** is restored,
The fan will automatically turn on for 20 minutes then turn off;
An alarm will sound for 30 seconds, then turn off
The **LED**'s will keep flashing.
Press the red button to reset the controller and stop the fan.
Press the green button for normal start up.

If the **Airflow** gets low
An alarm will sound , and the **AIRFLOW LED** will flash
Press the red button to mute the alarm
The fume cupboard will go into normal post-purge,
but the **AIRFLOW LED** will be red
Check out what caused the alarm.
Get it fixed before using the fume cupboard again.

If the **Temperature** inside the fume cupboard gets high
The **TEMPERATURE LED** will flash green as a warning
Turn down the heat inside the fume cupboard
If the temperature inside the fume cupboard gets higher
An alarm will sound , and the **TEMPERATURE LED** will flash
Press the red button to mute the alarm
The fume cupboard will go into normal post-purge,
but the **TEMPERATURE LED** will be red
Check out what caused the alarm.
Get it fixed before using the fume cupboard again.
The temperature sensor works even when the fume cupboard is turned off.
Press the red button to mute the alarm

TECHNICAL SUPPORT FREEPHONE 0800-422-542

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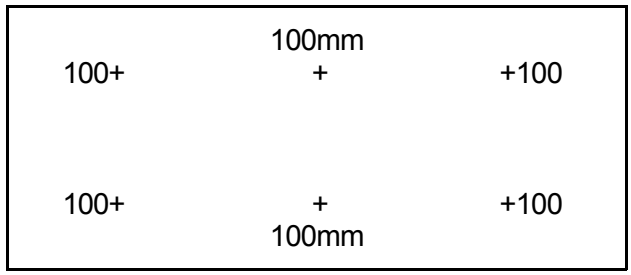
COMMISSIONING

Refer the operating instructions
Turn the power on and reset the controller.
Start the fume cupboard controller.
If the airflow alarm goes off, mute the alarm.

Measure the airflow

Raise the sash to the maximum operating position (sash stop)
Measure the air velocity in the plane of the sash at six (6) positions



The average velocity should be more than 0.5m/sec
Record the velocity measurements in a commissioning report.
Adjust fan speed as below.
Conduct a smoke test (AS 2243.8) and record the observations.

Adjust the fan speed (Fumeflow TD250 fan):

The Fumeflow TD250 fan is usually installed above the roof.
There is a speed regulator in a plastic box beside the fan motor.
Adjust the speed regulator clockwise to increase speed, or anti-clockwise to reduce speed.
When the correct speed is set for fume cupboard face velocity, apply a bead of silicone sealant to the speed regulator shaft

Adjust the airflow alarm sensor (pressure switch):

The pressure switch is mounted in the lid of the fume cupboard controller.
Adjust the white plastic cross-head screw clockwise to raise the set point (more sensitive) or anticlockwise to reduce the set point (less sensitive).
A practical guide:

1. Turn the set point up until the Airflow alarm sounds
2. Press the red button to mute the alarm.
3. The Airflow LED should still be red.
4. Turn the set-screw down until the LED turns green.

To check the alarm, pull the clear PVC pilot tube out of the duct.
The alarm should sound after 2-3 seconds.
Ensure the pilot tube is re-fitted in the duct.