Installation & Calibration Guide

Airflow Controls
AFA1000/E MK2

Startup

The AFA1000/E must be field-calibrated once the room air supply and exhaust is proportionally balanced. When the unit is powered up, the following sequence of events occurs:

1. The alarm performs a self-test of its functions, LEDs and audible alarm (approximately 3 seconds).
2. At the end of the delay, the unit will do one of two things:
   a. If the controller has been calibrated, the unit enters normal operating mode (displays airflow velocity, LED's and audible alarm enabled).
   b. If the controller has not been calibrated, the unit will display " Requires set up, press Enter to continue".

Calibration

1. Press Enter from the "Requires set up" screen or if the controller is in the Run screen Press and Hold the Enter button for 5 seconds until the Main Menu is displayed.
2. Using the + / - buttons select SET UP, then select CONFIGURE, then enter the password (the factory default password is 0-0-0-0), press Enter to continue.
3. Using the + / - buttons select ECON CONFIGURE, then select MANUAL / AUTO and press Enter, select MANUAL and press Enter to continue.
4. Open the sash to the normal operating height and measure the face velocity using a calibrated instrument. Using the + / - buttons adjust the Manual output so that the face velocity is equal to the design velocity, e.g. 0.50m/sec (100fpm) , then press Enter, then select DONE and press Enter again.
5. Using the + / - buttons select SET UP, then select CALIBRATION, then enter the password (the factory default password is 0-0-0-0), press Enter to continue.
6. With the sash open to the normal operating height again measure the face velocity using a calibrated instrument. Using the + / -buttons enter the measured face velocity then press Enter, the controller will then sample the airflow for 5 seconds.
7. If the airflow sample is unstable the controller will display "Deviations too High", follow the instructions to repeat the sample or quit the calibration.

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8. If the sample is accepted, lower the sash by half and measure the face velocity using a calibrated instrument. Using the + / - buttons enter the measured face velocity and press Enter, the monitor will then sample the airflow for 5 seconds.
9. If the calibration is successful the controller will return the Main Menu, select RUN to go to normal operating mode and check the velocity reading is accurate and stable.
10. If the airflow sample is unstable the controller will display “Deviations too High”, follow the instructions to repeat the sample or quit the calibration.
11. The controller will display “Increase higher airflow sample” if the second sample value is too close to the first value entered, close the sash a little and repeat the higher sample. The minimum difference between the samples that the controller will accept is 0.3m/sec (60fpm).
12. The controller will display “Sensor diff too low” if the controller doesn’t detect any difference in the sensor output between the 2 airflow samples, check that the sensor hose is connected and repeat the calibration.
13. If the calibration is stable and accurate Press and Hold the Enter button for 5 seconds until the Main Menu is displayed.
14. Using the + / - buttons select SET UP, then select CONFIGURE, then enter the password (the factory default password is 0-0-0-0), press Enter to continue.
15. Using the + / - buttons select ECON CONFIGURE, then select MANUAL / AUTO and press Enter, then select AUTO and press Enter to continue, then select DONE and press Enter.
16. The controller will return to the MAIN MENU, select RUN to go to normal operating mode.

Calibration Tips

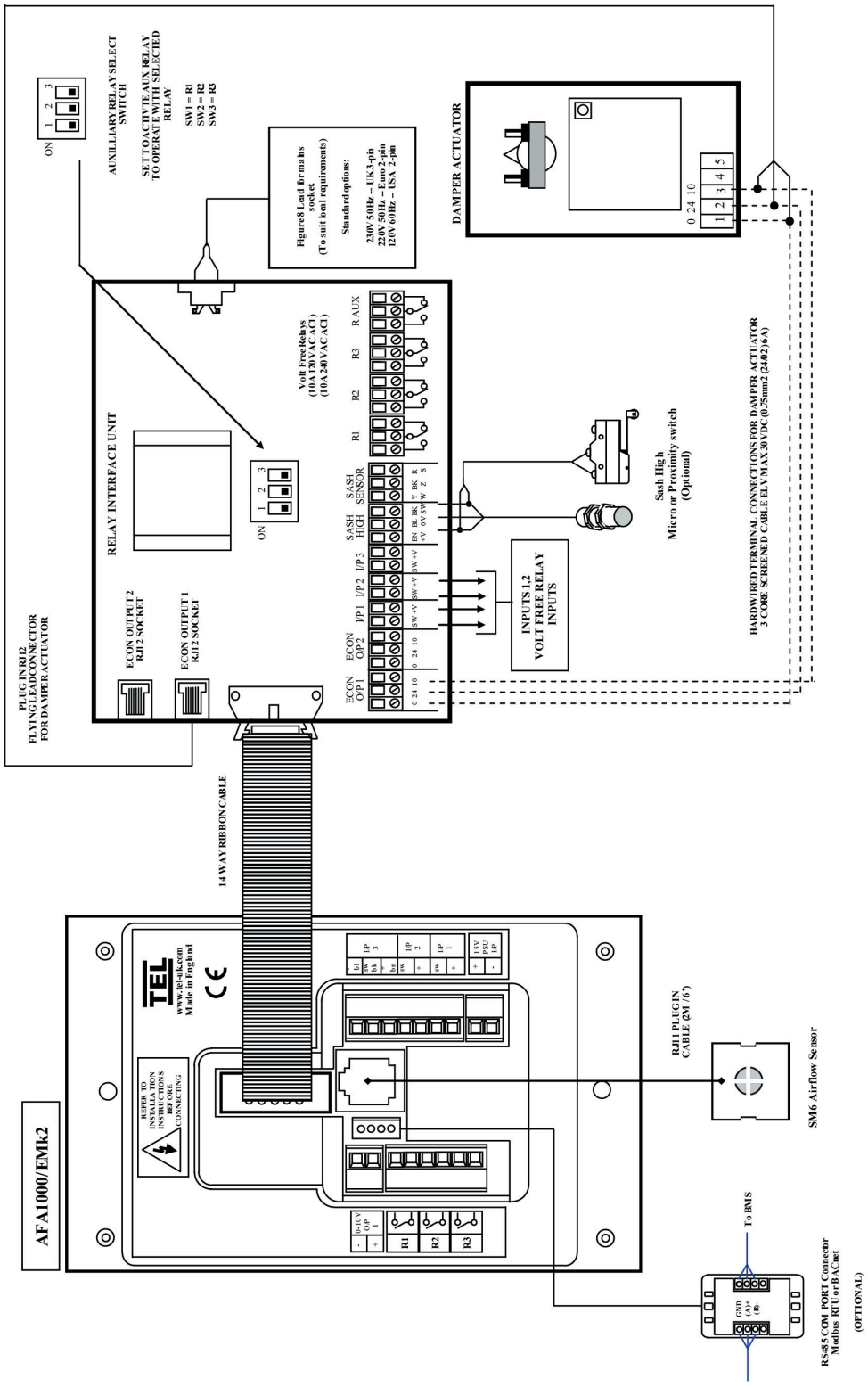
1. Ensure that the sensor hose is connected correctly at the side wall and rear of the sensor.
2. Ensure that the extract fan is running and the Fume Cupboard is balanced before calibrating the monitor.
3. Take extra time (at least 15 to 20 seconds) to wait for the airflow to settle before capturing the airflow samples. This will minimize the chance of a calibration error due to turbulence or fluctuations.
4. Avoid movement in front of the Fume Cupboard whilst calibrating the monitor.
5. The Low and High air samples must be at least 0.3m/sec (60 fpm) apart to calibrate the monitor. This is to avoid inaccuracy in the calibration sue to insufficient difference between the samples. The minimum difference can be changed in the “Low High diff” parameter in the Cal Config menu.
6. Do not use fully open and fully closed sash positions for the calibration points, the recommended positions are normal operating height (e.g. 500mm 20”) for the first sample and approximately half the sash opening (e.g. 250mm 10”) for the second sample.

Control Settings

The ECON CONFIG menu includes the following control parameters:-

1. MANUAL / AUTO -- Allows the control output to be set to Auto or Manual control, manual control is shown as 0-100% and can be adjusted using the + / - buttons. In Auto control the output will automatically adjust to maintain the velocity set point.
2. HIGH SET POINT -- This is used to enter the required face velocity set point for standard VAV control or the High set point for dual set point occupancy control.
3. LOW SET POINT -- This is used to enter the required reduced face velocity set point for dual set point occupancy control.
4. DAMPER / INVERTER -- This is used to set the output to 0-10v (direct - for damper) or 10 to 0v (reverse - for Inverter)
5. MIN OUTPUT -- This is used to set the MIN output volume when pushbutton III is set to Min/Run/Max operation.
6. MAX OUTPUT -- This is used to set the MAX output volume when pushbutton III is set to Min/Run/Max operation.
7. LOW LIMIT -- This is used to set the fume cupboard minimum volume when the sash is closed (limits the damper closed position).
8. HIGH LIMIT -- This is used to set the fume cupboard maximum volume (limits how far the damper opens).
9. OUTPUT RANGE -- This is used to set the output range to 0-10v (Inverter) or 2-10v (actuator).
10. PROP BAND -- This is the main control parameter for the VAV control output. If the value is too low the damper will be unstable and hunt, if the value is too low the damper will react too slowly. The ideal setting for this value is to select a value that is as small as possible but that gives stable control of the damper or Inverter without 'hunting'.
11. INTEGRAL TIME -- The Integral Time is the corrective action of the control output. The PROP BAND control will result in an offset from the set point, the Integral will correct the error in small steps over time. The ideal setting is to select the highest possible value that gives stable control.
12. INTERAL CUT OFF -- This is a unique parameter that is used to give a rapid response in control output when the sash is raised to boost the speed of the output. The parameter monitors the rate of change of the face velocity. This parameter should not require changing from the factory default setting.
13. BOOST DURATION -- The BOOST DURATION is used in conjunction with a sash position sensor for VAV control. The controller will drive the output to a pre-determined position for a brief periof of time before switching back to face velocity control.

Connection Details



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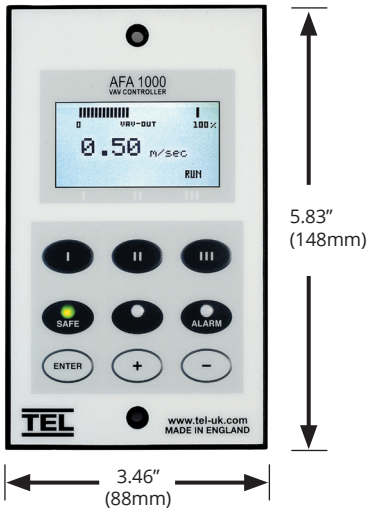
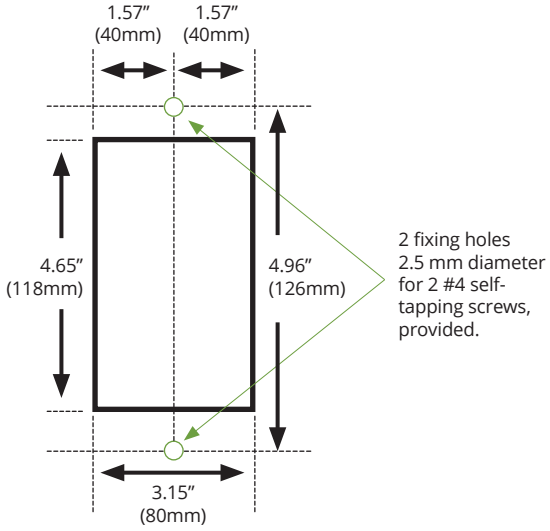
Control Panel Dimensions

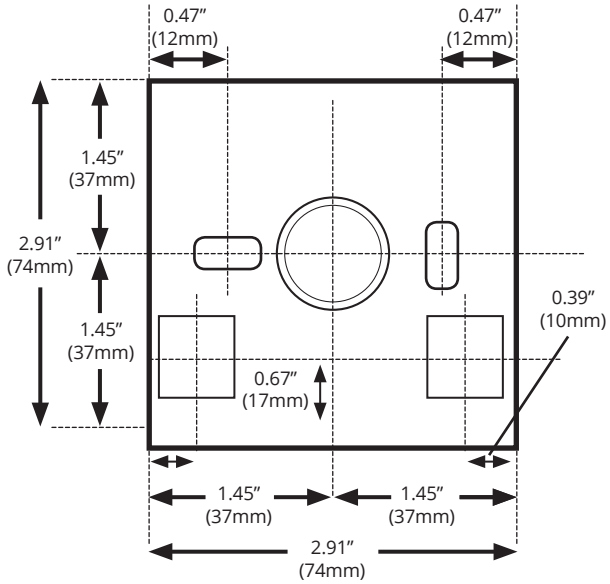


Control Panel Cutout Dimensions

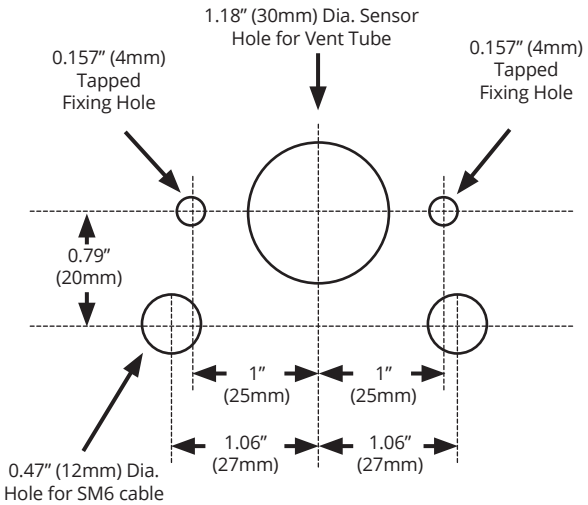
(NOT shown to scale)



SM6 Sensor Dimensions (rear view)



SM6 Sensor Dimensions (front view)



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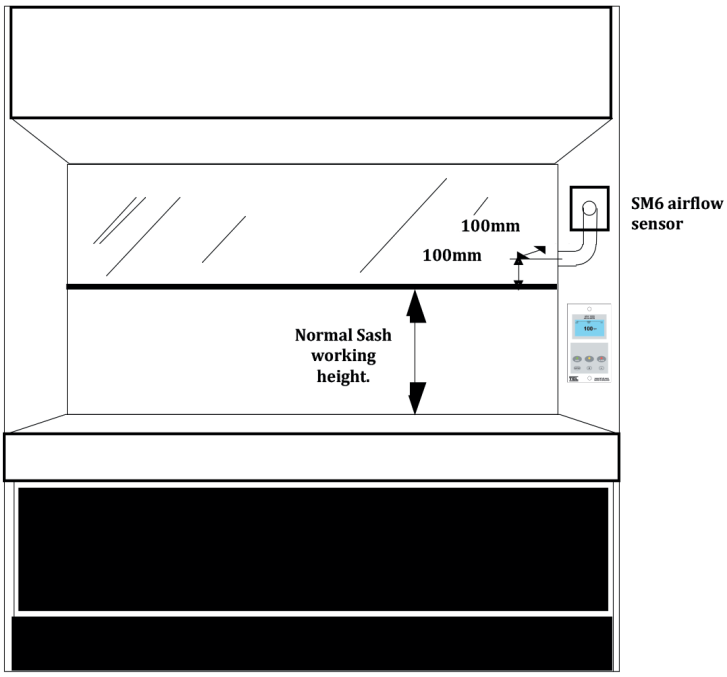
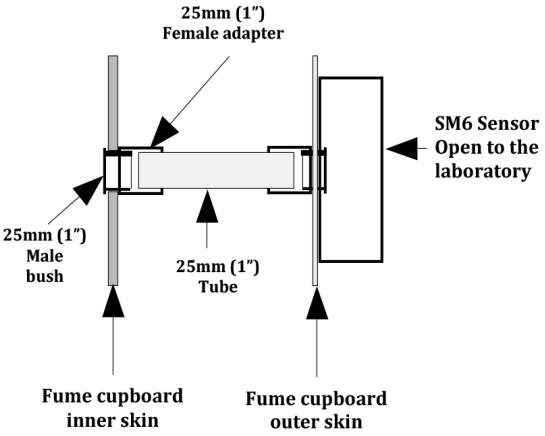
Airflow Sensor Installation Diagram





For complete manual and product information, log on to **www.tel-uk.com**

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