

AFA4000/E/AS

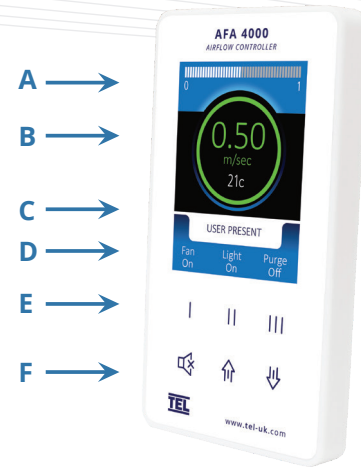
VAV Controller with Auto Sash Control

Installation and calibration guide



Operator Panel

- A** - Airflow bar-graph or timeline display & control status
- B** - Airflow velocity display with LED halo (red/amber/green)
- C** - Status window, airflow alarm and auto sash status
- D** - Airflow Controller Pushbutton Icons
- E** - Airflow Controller Pushbuttons
- F** - Auto Sash Up/Down/Cancel Buttons, Menu Pushbuttons & Alarm Mute



Overview

The AFA4000/E/AS VAV Controller is integrated with the Auto Sash Controller, to Set up the Airflow controller, the Auto Sash controller should be Disabled, Disconnected or Not Configured, this ensures that the sash is under manual control whilst the Airflow controller is commissioned. The Airflow Controller auto detects that the Auto Sash controller is connected, the Auto Sash menus and Operation status will not be displayed if the Auto sash is not connected.

Note - The Auto Sash can be used to provide a Sash position signal to the Airflow controller when a Volumetric output is required from the Airflow controller, this should be Set up once both the Airflow controller and Auto Sash controllers have been Set up and Calibrated.



Startup

The AFA4000/E/AS 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 and audible alarm (approximately 3 seconds)
2. At the end of the delay, the unit will do one of two things:
 - a. If the Airflow controller has been calibrated, the unit enters normal operating mode (displays airflow velocity, LED's and audible alarm enabled).
 - b. If the Airflow controller has not been calibrated, the unit will display "Requires set up, press Mute to continue"
 - c. If the Auto Sash Controller has been calibrated, the unit enters normal operating mode (displays status and alarms in the status window).
 - d. If the Auto Sash Controller is connected and has not been calibrated "Auto Sash Not Configured" will be displayed in the status window.
 - e. If the Auto Sash Controller is disconnected, the Auto sash controller status and menus will not be shown.



Airflow Controller Calibration

1. Press Mute from the "Requires set up" screen or if the controller is in the Run Screen Press and Hold the Mute button for 5 seconds until the Main Menu is displayed.
2. Using the ↑ / ↓ buttons select SET UP MONITOR, then select CONFIGURE, then enter the password (the factory default password is 0-0-0-0), press Mute to continue.
3. Using the ↑ / ↓ buttons select ECON CONFIGURE, then select MANUAL / AUTO and press Mute, select MANUAL and press Mute 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 Mute, then select DONE and press Mute 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 Mute to continue.
6. With the sash open to the normal operating height measure the face velocity using a calibrated instrument. Using the ↑ / ↓ buttons enter the measured face velocity then press Mute, 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.
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 Mute, 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 Mute 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 Mute to continue.
15. Using the ↑ / ↓ buttons select ECON CONFIGURE, then select MANUAL / AUTO and press Mute, then select AUTO and press Mute to continue, then select DONE and press Mute.
16. The controller will return to the MAIN MENU, select RUN to go to normal operating mode.

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Airflow Controller 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 due 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.

Airflow Controller 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. OUTPUT TYPE** -- 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 high 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. 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 period of time before switching back to face velocity control.
- 13. BOOST PERCENTAGE** -- This is used to adjust the pre-determined output position that the damper drives to when the boost function is active if the position needs to be adjusted.



Airflow Controller Coms Settings

The **MONITOR CONFIG** menu includes the following coms parameters: -

- 1. PROTOCOL** - Sets Modbus RTU, BACnet MS/TP or TEL protocol.
- 2. MODBUS SETTINGS** - Sets Slave ID, Baud Rate and Parity for the Modbus protocol.
- 3. BACnet SETTINGS** - Sets the Device Instance, Station ID, Baud Rate, Parity and Max Masters for the BACnet protocol.

The TEL protocol is used to connected to TEL Config Manager software and the TEL AFA5000 Room Space Controller, the Modbus Slave ID is used when set to TEL protocol.

Troubleshooting

Problem	Check for: -
No LED's, Screen blank	<p>Check the power supply is securely plugged into the controller.</p> <p>Check the power supply is securely plugged into the mains power socket.</p> <p>Check that there is 15VDC power supply on the monitor terminals (broken wire or snagged cable sheath)</p>
Sensor Error message	<p>Check the sensor cable is securely plugged into the sensor.</p> <p>Check the sensor cable is securely plugged into the monitor.</p> <p>Replace the sensor.</p> <p>If Sensor Error message still displayed replace the sensor cable.</p> <p>If Sensor Error message still displayed replace the monitor.</p>
Audible alarm not working	<p>Check for screen messages - if SETBACK is displayed the monitor has been remotely muted.</p> <p>Check if alarm has been disabled in Cal Config menu.</p>
Damper actuator not moving	<p>Check the run screen to ensure the displayed status is Automatic and not set to Manual</p> <p>Set the output to Manual and manually drive the actuator output, if the actuator doesn't move check the wiring and ensure the actuator is not manually overridden</p>
RS485 Coms not connected	<p>See Diagnostics menu, Coms Data.</p> <p>Check the correct Protocol, Slave ID, Baud Rate, Parity have been set.</p> <p>Tx & Rx = 0 - AFA4000 is not connected to the network</p> <p>Tx & Rx >0 but fixed values – AFA4000 has lost connection to the network</p> <p>Rx is counting but Tx is a fixed value – AFA4000 is connected to the network but the Master is offline or not polling the AFA4000.</p>



Diagnostics Menu

Press the ↑/ ↓ buttons together from the Run screen to access the Diagnostics menu, the menu contains the following Input and Output data: -

Menu	Parameter	Action
Alarm Test		Sounds the Audible Alarm
Coms Data		Displays the following: - Protocol, Slave ID, Baud Rate, Parity Tx – Number of Data Packets transmitted (increments when transmitting) Rx – Number of Data Packets received (increments when receiving)
I/O Status	Input Data	Displays the following: - Input 1 – On/Off or Analogue Voltage status Input 2 – On/Off or Analogue Voltage status Input 3 – On/Off or Analogue Voltage status
	Output Data	Displays the following: - Relay 1 – On/Off status Relay 2 – On/Off status Relay 3 – On/Off status
	Sensor Data	Displays the following: - Airflow sensor status 0-100% (100% = 0 airflow, 0% = max flow) Temperature °C or °F (Optional with additional Temperature sensor fitted) Sash Position mm or inches (Optional with additional sash position sensor fitted) Volume l/sec or CFM (Optional with venturi pressure cell or sash position sensor fitted)

Auto Sash Controller Features

The Tiptronic Auto Sash Controller contains the following features: -

1. Auto Close
2. Auto Open (user selectable - enabled/disabled/auto open if auto closed only)
3. Tiptronic Open/Close -touch sensitive sash movement (menu selectable)
4. Sash Lock (Drive disable with alarm)
5. Manual sash operation
6. AFA4000 Pushbutton Open/Close
7. Footswitch Open/Close (optional)
8. BMS inputs: Open/Close + Emergency Open/Close + Fire Alarm Close
9. BMS outputs: Sash Open/Closed volt free contact+ Sash position (0-10v/4-20mA) + External Alarm Sounder output

Operation

The Tiptronic Auto Sash Controller operation is as follows: -

1. User Present

When the user is detected the sash can be moved in the following ways: -

- a. Manually - if the tiptronic feature is enabled the sash can be manually moved if it is kept moving for more than 1 second.
- b. Tiptronic - if the sash is manually moved for less than 1 second the sash will auto drive to its calibrated position.
- c. ↑ / ↓ pushbuttons - if pressed the sash will auto drive to its calibrated position.
- d. Footswitch (open and close options) - if operated the sash will auto drive to its calibrated position.

2. User not detected: -

When the user is not detected the sash will auto close to its calibrated position following a pre-set delay time unless: -

- a. The sash beam is broken (object detected in the sash opening).
- b. The controller detects no movement in the sash when the motor is driving.

3. Auto Open (user configurable): -

When enabled the sash will drive open when the operator returns following a pre-set time delay:

-

- a. If the sash was Auto closed the sash will Auto open back to the same position the sash was in before the Auto close.
- b. If the sash was closed by any other method (manually, tiptronically, pushbutton, BMS etc) the sash will Auto open back to its calibrated position.

The sash will not Auto open if: -

- a. The sash beam is broken (object detected in the sash opening).
- b. The controller detects no movement in the sash when the motor is driving.

4. BMS inputs: -

The sash can be set to operate from the BMS inputs as follows: -

- a. Open/Close - for single start or end of day operation from BMS input

The sash will only drive if the user is not present and the sash beam is clear.

- b. EV (Emergency) Open / Close (EV audible alarm tone will sound whilst the EV input is active).

The sash will only drive if the user is not present and the sash beam is clear. In EV mode the sash can be manually moved if the user is detected. The sash will then auto drive closed/open again if the EV input is still active when the user is not detected.

- c. Fire Alarm Close (Fire Alarm audible alarm tone will sound whilst the Fire Alarm input is active)

The sash will only drive if the user is not present and the sash beam is clear. In Fire Alarm mode the sash can be manually moved if the user is detected. The sash will then auto drive closed/open again if the EV input is still active when the user is not detected.

5. Sash Lock: -

The sash can be set to Lock (Auto Sash Drive Inhibited) when the sash is set to a calibrated position (e.g. fully open). An audible and visual alarm will activate following a preset alarm delay period to remind the user to lower the sash.

This function is used when the sash needs to remain in the open position for a prolonged period of time to allow loading or setting up of equipment inside the Fume Cupboard.

Startup

Ensure that the Auto Sash Controller is fully installed before attempting to calibrate the controller. On power up: -

1. The alarm performs a self-test of its functions, LEDs and audible alarm (approximately 3 seconds).
2. During the self-test period, all inputs and outputs are deactivated.
3. At the end of the delay, the unit will do one of two things:
 - a. If the controller has previously been calibrated, the controller enters normal operating mode (displays current status or alarm condition).
 - b. If the unit has not been calibrated, when the Tilt switch input is open the display will show "Sash Drive Inhibited", when the Tilt switch input is closed the status window will show "Auto Sash Not Configured".

Calibration — Tiptronic 1, 2 or 3 position calibration

1. Press and Hold the MUTE button for approx 5 seconds or Until the MAIN MENU appears.
2. Using the ↑ / ↓ buttons select SETUP AUTO SASH, the display will show "TEL SASH CLOSER"
3. Press the Mute button show the current Hardware and Software versions e.g. "1. HW2.0 FW1.1"
4. Press the ↓ button to scroll down and select "SETUP MENU" and press Mute.
5. Enter the PASSWORD (Factory default is 1-0-0-1) using the ↑ and Mute buttons.
6. In the Setup menu the controller will display "SYSTEM PROFILE"
7. Use the ↓ button to scroll through the menu and select "Sash 1 Settings" and press Mute.
8. In the S1 Settings menu the display will show "1. S1 Enabled"

9. Use the ↓ button to scroll through the menu and select “8. S1 Calibration” and press Mute.
10. The display will show on screen instructions.
11. Set the sash to the centre e.g. 250mm opening.
12. Press the ↑ / ↓ buttons to find which arrow represents the sash closing (e.g. down arrow) and Press Mute. Note - this tells the controller which direction the motor needs to drive to close the sash.
13. Fully Close the Sash and Press Mute. Note – this sets the sash position sensor output 0V position.
14. Fully Open the Sash and Press Mute. Note – this sets the sash position sensor output 10V position.
15. Set the sash to the bottom position and Press Mute.
16. Press Quit (↑ / ↓ together) if only bottom position required (close only) OR:
17. Set the sash to the normal working height (e.g. 500mm) and press Mute for 2 position operation.
18. Press Quit (↑ / ↓ together) if only 2 position (bottom and middle) required OR:
19. Set the sash to the full opening height (e.g. 750mm) and press Mute for 3 position operation.
20. Bottom, middle and top positions are now calibrated, press Mute to quit calibration mode.
18. Use the ↓ button and select” Back to Set up menu” and press Mute.
19. Use the ↓ button and select” Exit and Save Changes” and press Mute.
20. The controller will now go to run mode.

Calibration Notes

Even though the sash drive has acceleration and deceleration the sash may slightly over run past the calibration points if the sash motor drive is set to a very fast speed. When calibrating the sash positions allow a margin for the sash to over travel past the calibration height e.g. bottom position calibration, close sash fully and open 5mm before calibrating, normal height calibration, open sash to the normal height and lower by 5mm before calibrating.

Calibration - Sash Lock Function

1. Press and Hold the MUTE button for approx 5 seconds or Until the MAIN MENU appears.
2. Using the ↑ / ↓ buttons select SETUP AUTO SASH, the display will show "TEL SASH CLOSER"
3. Press the Mute button show the current Hardware and Software versions e.g. "1. HW2.0 FW1.1"
4. Press the ↓ button to scroll down and select "SETUP MENU" and press Mute.
5. Enter the PASSWORD (Factory default is 1-0-0-1) using the ↑ and Mute buttons.
6. In the Setup menu the controller will display "SYSTEM PROFILE"
7. Use the ↓ button to scroll through the menu and select "Sash 1 Settings" and press Mute.
8. In the S1 Settings menu the display will show "1. S1 Enabled"
9. Use the ↓ button to scroll through the menu and select "11. S1 Auto Lock" and press Mute.
10. Set to Enabled and press Mute.
11. Use the ↓ button to scroll through the menu and select "11b. S1 Lock Alarm" and press Mute.
12. Use the ↑ / ↓ buttons to set the required alarm delay time and press Mute.
13. Use the ↓ button to scroll through the menu and select "11c. S1 Lock Pos Calibration" and press Mute.
14. The display will show on screen instructions.
15. Open the sash to the Lock position and press Mute.
16. If the position chosen is too low (lower than the calibrated Bottom, Middle or Top positions) "Bad position - try again" will be displayed.
17. If the chosen position is OK the lock position will be set.
18. Use the ↓ button and select" Back to Set up menu" and press Mute.
19. Use the ↓ button and select" Exit and Save Changes" and press Mute.
20. The controller will now go to run mode.

Auto Sash Operation and Alarm Indication

In run mode the AFA4000 Status Window will show the current status: -

1. **"User present"** - the user is detected, the sash drive is inhibited, Tiptronic & manual drive is enabled.
2. **"XX Seconds to close"** - the user is not detected; the sash will close following the countdown delay time.
3. **"Sash Closing"** will be displayed when the sash is driving closed (auto close, tiptronic, footswitch or pushbutton).
4. **"Sash Closed"** - The user is not present and the sash has closed. (Keypad Backlight dimmed).
5. **"XX Seconds to open"** the user is detected; the sash will open following the countdown delay time.(Auto open enabled)
6. **"Sash Opening"** will be displayed when the sash is driving open (auto open, tiptronic, footswitch or pushbutton).
7. **"Operator Manual Move"** will be displayed if the sash is manually opened or closed.
8. **"Sash Inhibited"** will be displayed if the Tilt switch input is open, drive is inhibited until Tilt switch is closed.
9. **"Sash Disabled"** will be displayed if the sash drive has been disabled in the menu settings.
10. **"Sash Locked"** will be displayed if the sash is at or above the calibrated lock position.

If the Auto open feature is enabled in the menu and is switched on from the keypad: "*" (asterix) will be displayed in the left-hand corner of the Status Window, e.g. **"* User present"**.

To enable Auto open press and hold the Mute and ↑ buttons for 1 second or until the "*" symbol is displayed.

To disable Auto open press and hold the Mute and ↑ buttons for 1 second or until the "*" symbol disappears.

The Auto sash can be set to be disabled, enabled or USB enabled, USB enable is User enable / disable.

To User enable the Auto Sash Press the Mute and ↓ buttons for 1 second.

To User disable the Auto Sash Press the Mute and ↓ buttons for 1 second. "USB disabled" will be displayed in the Status window.

Note - Auto open can be set to disabled / enabled / enabled if auto closed. If set to enabled if auto closed the sash will only Auto open if the sash has Auto closed, closing the sash manually or by using the pushbuttons will inhibit the Auto open when the user returns to the Fume Cupboard.

In an Alarm condition the Status Window will show the current alarm:-

1. **“Obstruction Detected”** will be displayed if the sash beam is broken when the sash starts to close - remove obstruction and press the Mute button to reset the alarm.
2. **“Sash Fault”** will be displayed if the sash does not close or open when expected - press Mute to reset alarm. Check sash drive for faults.
3. **“Remove Sash Lock / Cancel to Reset”** will be displayed if the sash is at or above the calibrated lock position for longer than the preset alarm time - press Mute or lower the sash to reset the alarm.

When a BMS input is in an active condition the display will show the current alarm:-

1. **“Fire Alarm”** will be displayed along with the normal text (e.g. “Fire Alarm, User present”) when the fire alarm input is activated - the sash will drive closed if the user is not detected and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).
2. **“BMS open”** will be displayed along with the normal text if the user is not detected when the BMS Open input is activated - the sash will drive open if the user is not present and the sash is clear. The sash can be operated normally if the user is detected (auto open, tiptronic & pushbuttons are active).
3. **BMS close input** - when the BMS Close input is activated the sash will drive closed if the user is not present and the sash is clear. The sash can be operated normally if the user is detected (auto open, tiptronic & pushbuttons are active).
4. **“Emergency (up)”** will be displayed along with the normal text if the user is not detected when the EV Open input is activated - the sash will drive open if the user is not present and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).
5. **“Emergency (dn)”** will be displayed along with the normal text if the user is not detected when the EV Close input is activated - the sash will drive closed if the user is not present and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).
6. **“Sash Opening”** will be displayed if the Sash Open Footswitch has been operated whilst the operator is present.
7. **“Sash Closing”** will be displayed if the Sash Close Footswitch has been operated whilst the operator is present.

Auto Sash S1 Settings Menu

- 1.** S1 Enabled - Set to permanently menu disable / enable the drive or Keypad (USR) disable / enable the drive (Enabled/Disabled/USR Enabled).
 - 2.** S1 Auto Close – Set to enable or disable Auto Close.
 - a. S1 Close delay - Sets the time delay before the sash closes (0-3600 seconds).
 - b. S1 Close Alarm - Sets alarm time delay - Time before Alarm activates before the sash closes (0-10 seconds).
 - 3.** S1 Auto Open - Set to enable or disable Auto Open feature (Enabled/Disabled/Auto Close Only).
 - a. S1 Open Delay - Sets the time delay before the sash opens (0-10 seconds).
 - b. S1 Open Alarm - Sets alarm time delay - Time before Alarm activates before the sash opens (0-10 seconds).
 - 4.** S1 Motor Voltage – Sets the Motor Voltage (via Password protected Engineering menu)
 - a. S1 Motor Speed Open - Sets motor drive speed – sash opening (0-100%)
 - b. S1 Motor Speed Close - Sets motor drive speed – sash closing (0-100%)
 - c. S1 Clutch Off Delay –Sets a run on time for the clutch to remain energized once the motor stops driving to aid braking.
 - 5.** S1 Tilt Switch - Sets input activation (Normally Open/Normally Closed/Disabled).
 - 6.** S1 Light Curtain - Sets input activation (Normally Open/Normally Closed/Disabled).
 - a. S1 Light Curtain Test – Activates sensor test if Fail Safe sensors with Test wire are fitted.
 - b. S1 Auto Clear Obstruction – Auto resets Obstruction Alarm if Obstruction is removed.
 - 7.** S1 Personnel Sensor - Sets input activation (Normally Open/Normally Closed/Disabled).
 - a. S1 Personnel Sensor Power Cycle – menu sensor calibration.
 - 8.** S1 Calibration - Calibrates sash position sensor and motor direction.
 - a. Close Threshold – Sets height the Auto sash will accept as closed if the sash is stopped whilst travelling.
 - 9.** S1 Tiptronic - Enables or Disables Tiptronic touch sash to open or close feature (Enabled/Disabled).
 - 10.** S1 Min Tiptime - Sets Tiptronic touch sensitivity (0-1500ms - 0-1.5 seconds) Min time.
 - a. S1 Max Tiptime - Sets Tiptronic touch sensitivity (0-1500ms - 0-1.5 seconds) Max time.
- Note - Tiptime is the time the sash must travel to be operated manually, above or below the set times the sash will drive to the calibrated position.
- 11.** S1 Auto Lock - Enables or Disables Auto Lock function.
 - a. S1 Auto Lock alarm - Sets alarm delay time - Time before Alarm activates if sash remains locked.
 - b. S1 Auto Lock Position Calibration - Calibrates the Lock position.
 - 12.** S1 Sensitivity, 0-6, 6 = least sensitive, allows sash travel to stutter for 1 second before Sash Fault alarm is triggered.

BMS Input Settings Menu

1. Fire Alarm BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
2. Open Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
3. Close Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
4. EV Open Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
5. EV Close Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).

BMS Output Settings Menu

1. Remote Alarm Sounder - Enabled/Disabled
2. Analogue V Output - 0-10V/1-10V/0-5V/1-5V (Analogue output voltage for sash position indication)
3. Analogue C Output - 0-20mA/4-20mA (Analogue output current for sash position indication)
4. Relays 1 to 4 - Always open/closed, Open/Close on sash alarm, Open/Close on obstruction detected, Open/Close on user detected, Open/Close on sash open, Open/Close on sash closed.

Troubleshooting

The AFA5000 Room Space Controller contains the following I/O:

Problem	Check for: -
Auto sash status and menus not shown	Check the RJ45 cable is connected at both ends Check the Auto Sash controller power supply is securely plugged into the mains power socket. Power cycle the AFA4000 and check the version shown is AFA4000/E(S) S = Auto sash compatible
Sash motor does not drive	Check the motor and clutch are connected Check the sash position sensor or limit switch are connected
Obstruction detected Alarm always shown	Check the Light curtains or Under sash sensors have been calibrated Check the Light curtain or Under sash sensor Input polarity is correct (block the beam, if the error resets then the input polarity is wrong).
Sash Fault Alarm always shown	The controller does not detect that the sash position sensor or limit switch is fitted, check the connections.
Sash does not drive to the correct positions	Check the calibration is correct, re-calibrate the sash stop positions.

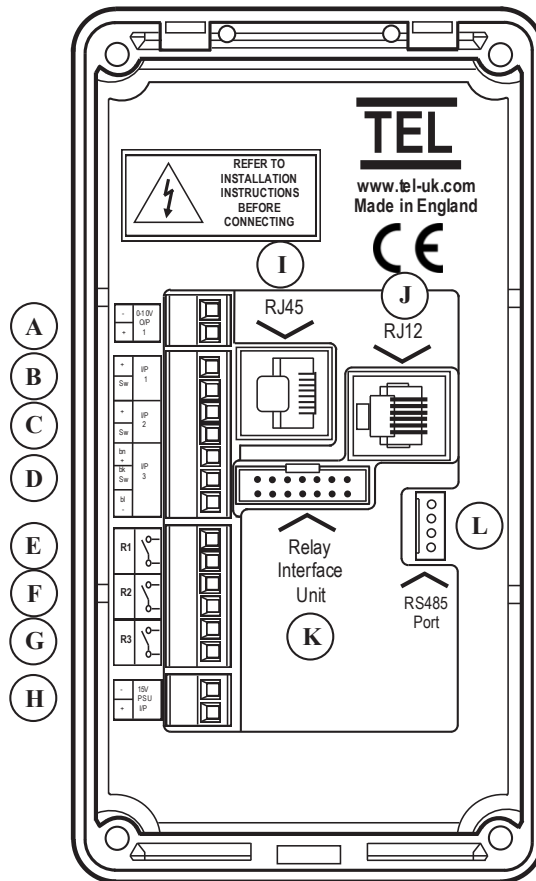


Diagnostics Menu

Press the ↑ / ↓ buttons together from the Run screen to access the Diagnostics menu, the menu contains the following Autosash data: -

Menu	Parameter	Action
Auto Sash Data		Position Status – Sash position as % open if sash position sensor is used Alarm On/Off status Moving On/Off status Sash Closed On/Off status Obstruction On/Off status User On/Off status (User detected) Sash open On/Off status Sash Locked On/Off status

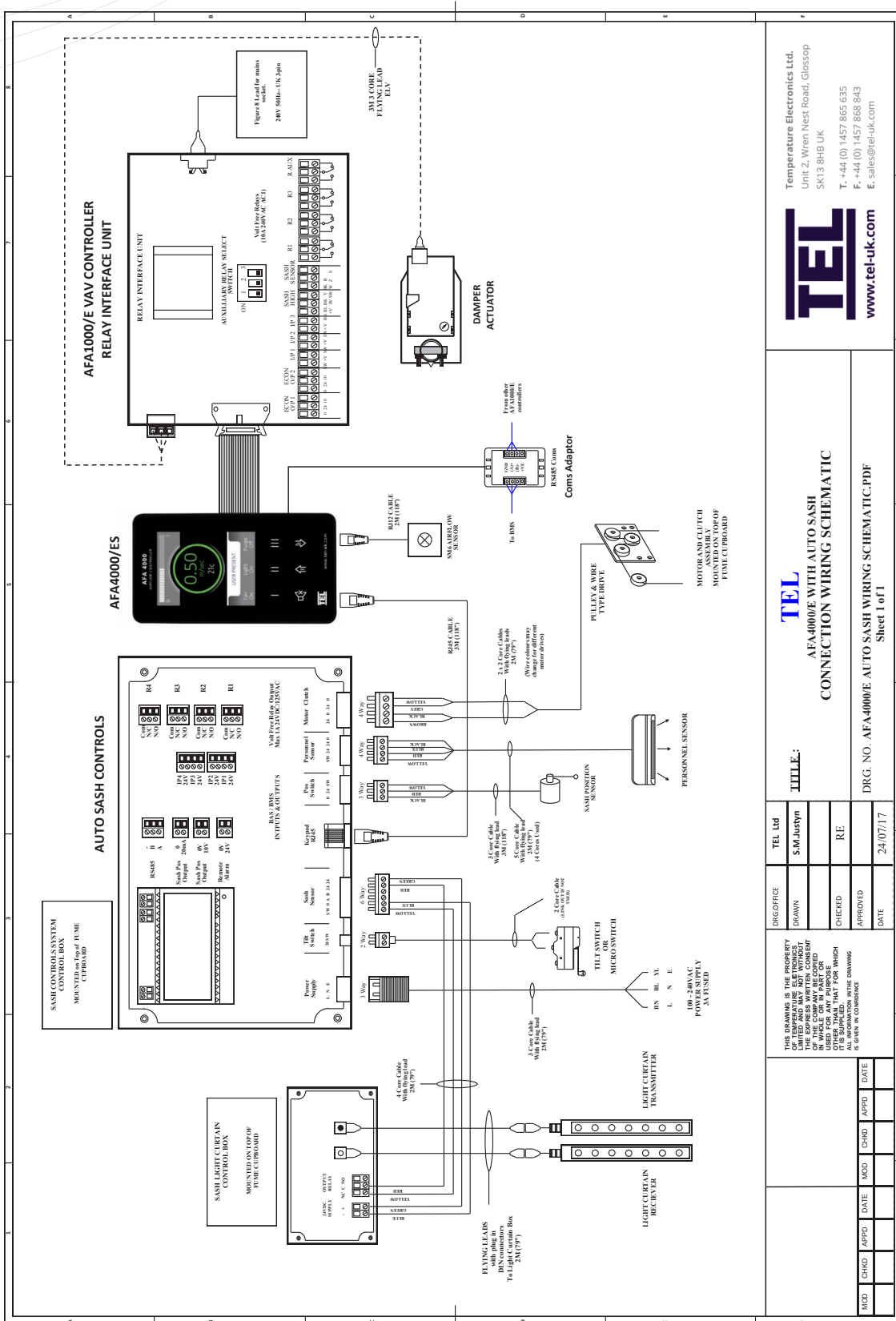
AFA4000/E/AS Controller Connection Details



- A** – 0-10V Econ Retransmission Output 1 (used if relay interface is not fitted)
- B** – Input 1 – Digital Or Analogue
- C** – Input 2 – Digital Or Analogue
- D** – Input 3 – Digital Or Analogue
- E** – Relay Output 1 (Used If Relay Interface Is Not Fitted)
- F** – Relay Output 2 (Used If Relay Interface Is Not Fitted)
- G** – Relay Output 3 (Used If Relay Interface Is Not Fitted)
- H** – 15Vdc Power Supply (Used If Relay Interface Is Not Fitted)
- I** – Auto Sash RJ45 Connection
- J** – Airflow Sensor RJ12 Connection
- K** – 14 Way Ribbon Cable Connection To Relay Interface
- L** – RS485 Coms Port Connection



AFA4000/E/AS Typical Connection Diagram



Temperature Electronics Ltd.
 Unit 2, Wren Nest Road, Glossop
 SK13 8HB UK
 T: +44 (0) 1457 865 635
 F: +44 (0) 1457 865 843
 E: sales@tel-uk.com



TEL
 AFA4000/E WITH AUTO SASH
 CONNECTION WIRING SCHEMATIC

TITLE:

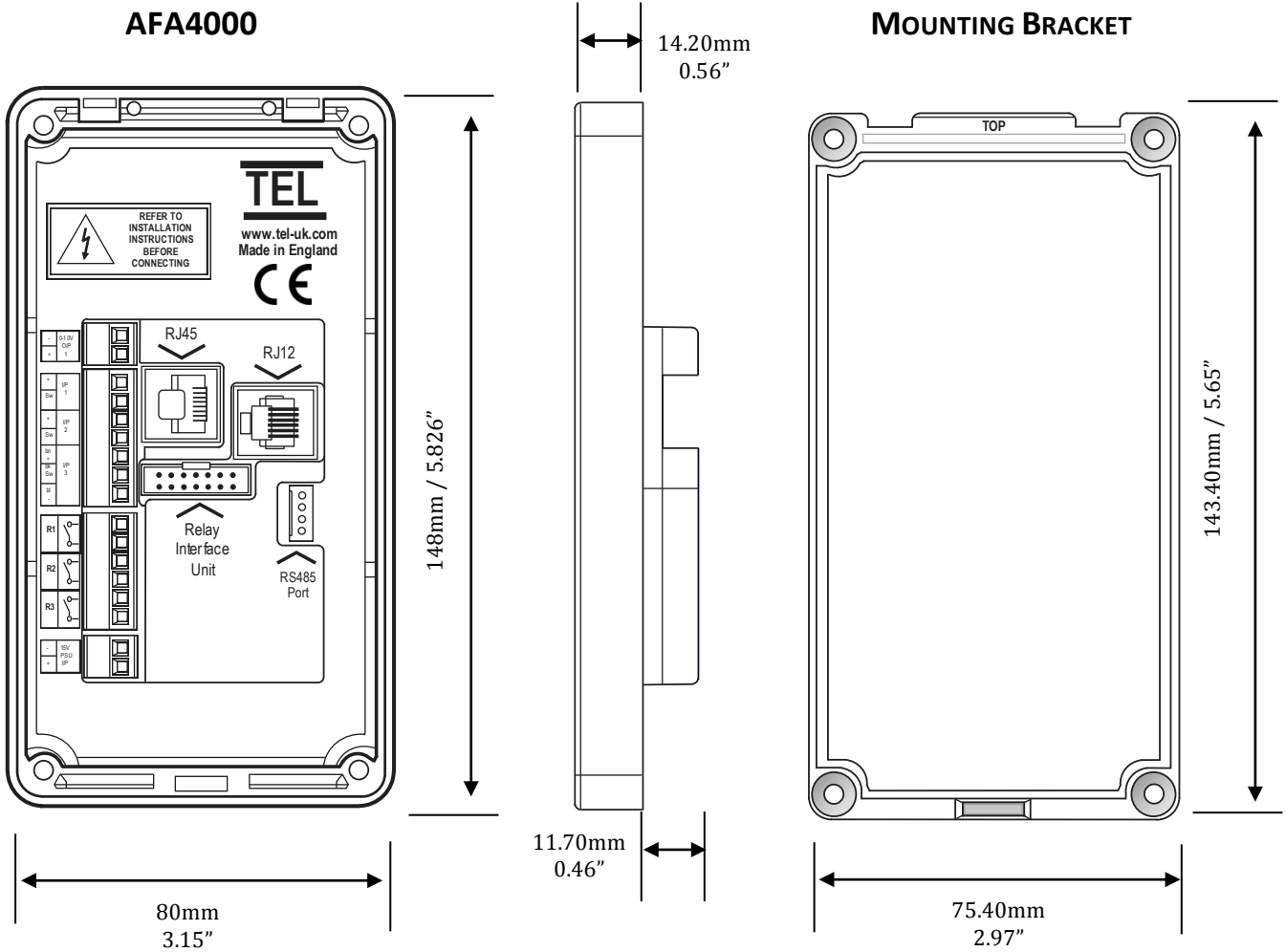
DRG/OFFICE	TEL Ltd
DRAWN	S.M.Justyn
CHECKED	R.E.
APPROVED	
DATE	24/07/17

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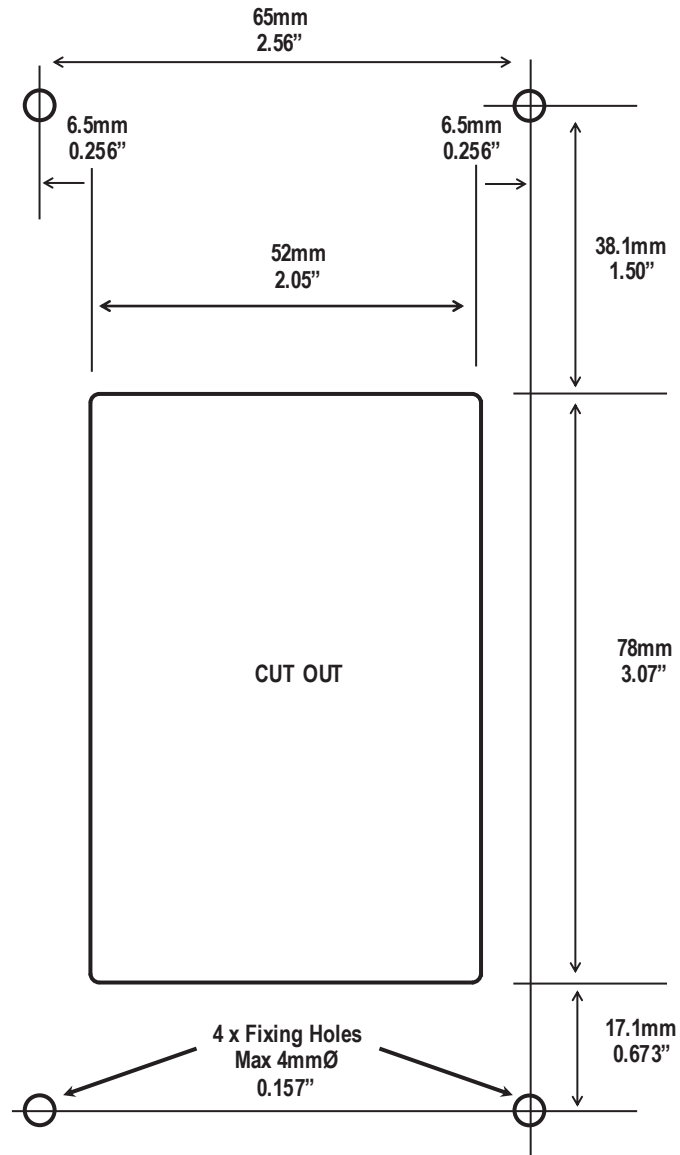
MOD	CHD	APPD	DATE	MOD	CHD	APPD	DATE



AFA4000/E/AS Dimensions

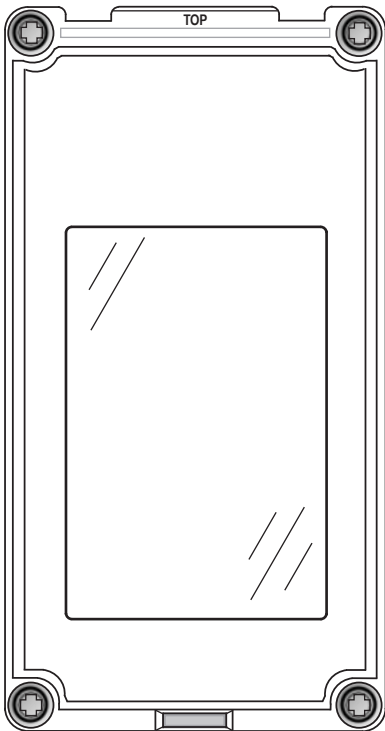


AFA4000 Cut Out Template

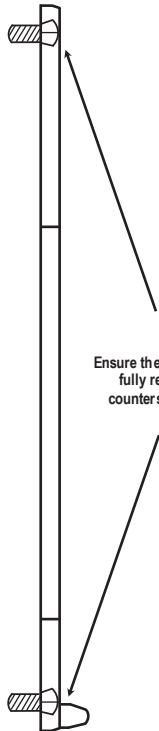


Note – Print to A4, do not scale or print to fit page.

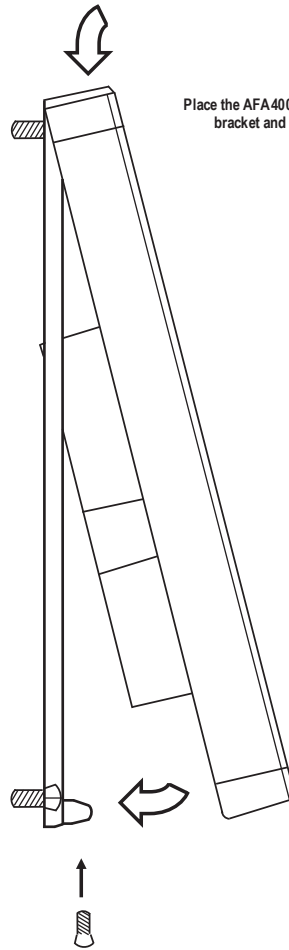
AFA4000 Installation



Fix the Bracket to the Front Panel using 4 Fixing screws.



Ensure the 4 fixing screws are fully recessed into the countersunk fixing holes.



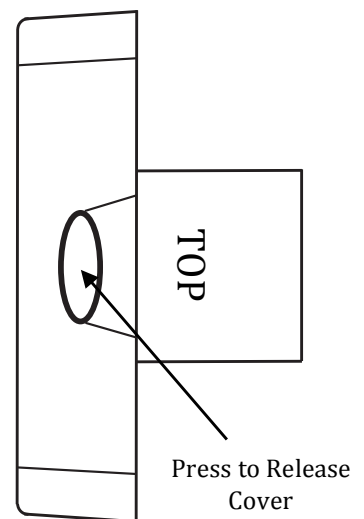
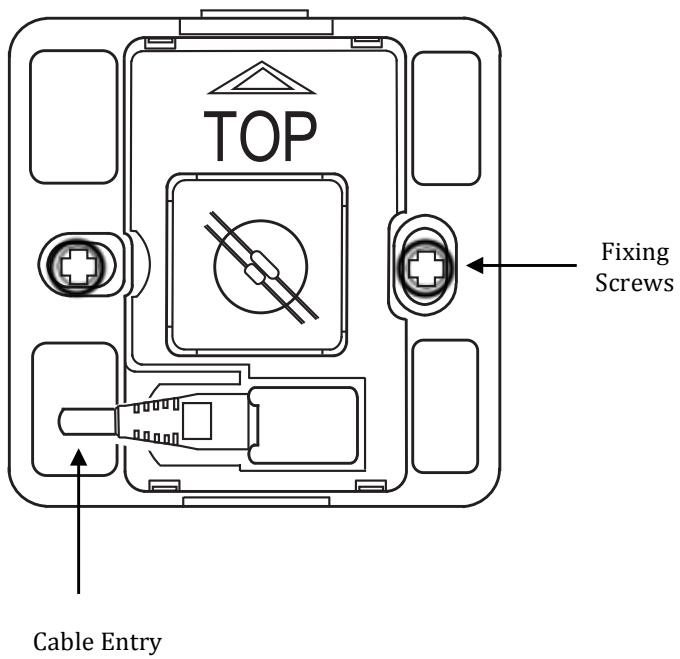
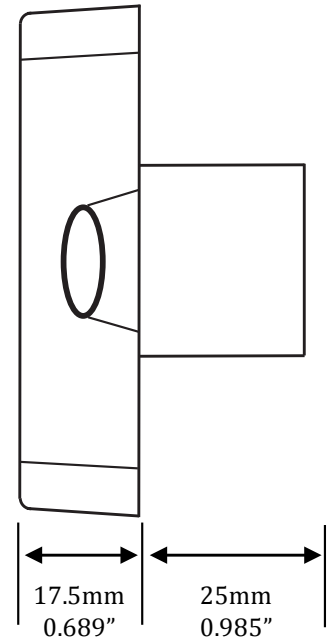
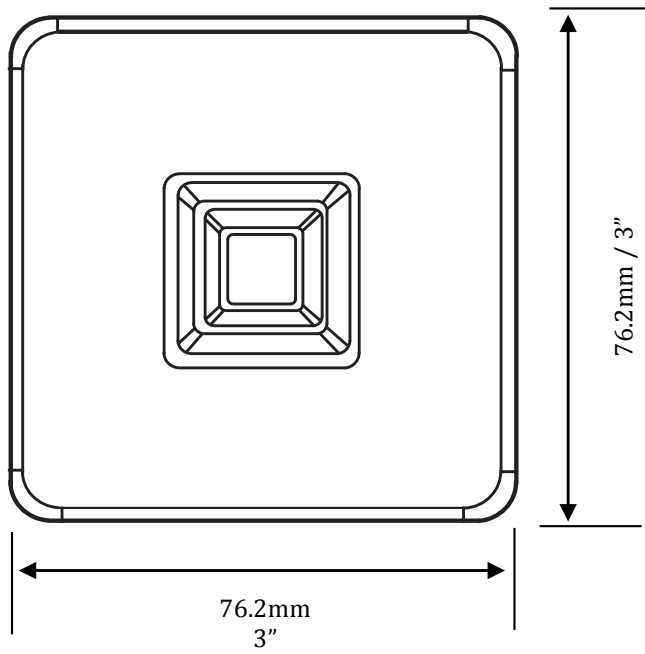
Place the AFA4000 onto the top of the bracket and click into place.

Push the bottom of the AFA4000 onto the bracket.

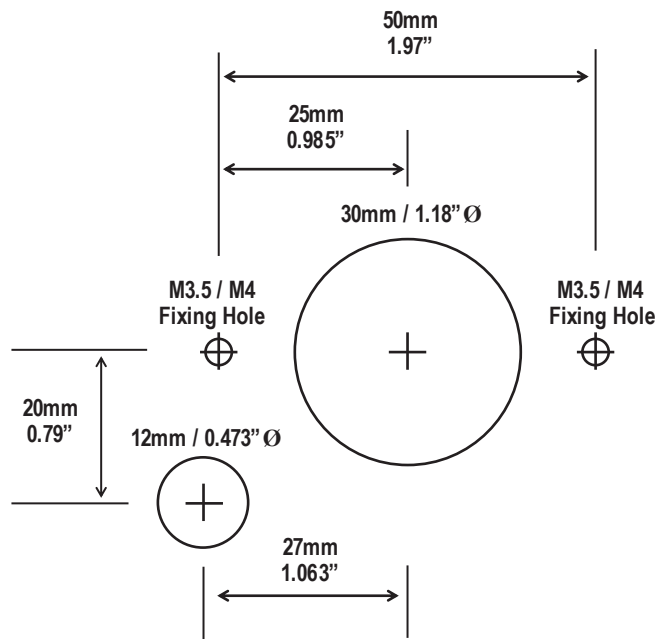
Secure the AFA4000 to the bracket using the Fixing screw in the bottom face of the monitor.



SM7 Airflow Sensor Dimensions

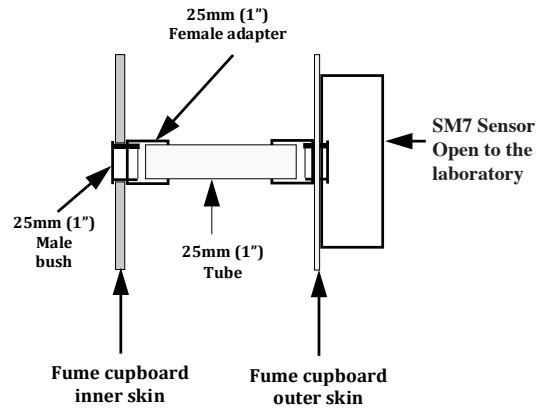
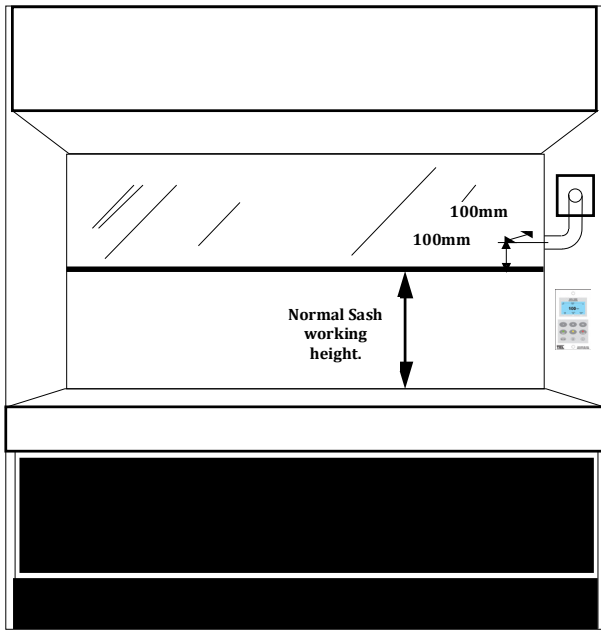


SM7 CUT OUT TEMPLATE



Note – Print to A4, do not scale or print to fit page.

Airflow Sensor Installation Diagram



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