



Installation & Calibration Guide

Pressure Controller AFA1000/AHU

Startup

The AFA1000/AHU must be field-calibrated once the Fume Cupboards are commissioned. When the unit is powered up, the following sequence of events occurs:

1. The controller 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 pressure, LED's enabled).
 - b. If the controller has not been calibrated,** the unit will display " Requires set up, press Enter to continue".

Calibration

1. Remove the pressure tube from the transducer or duct or switch off the AHU fan.
2. 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.
3. 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.
4. The controller will sample the pressure transducer output voltage and return to the Main Menu.
5. If the pressure sample is unstable the controller will display "Deviations too High", follow the instructions to repeat the sample or quit the calibration.
6. 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.
7. Using the + / - buttons select CONTROL CONFIGURE, then select MANUAL / AUTO and press Enter, then select MANUAL and press Enter to continue. Use the + / - buttons to set the Inverter to the required manual frequency and press Enter, then select DONE and press Enter.
8. The controller will return to the MAIN MENU, select RUN to go to normal operating screen.

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TO SET THE CONTROLLER TO AUTO CONTROL:-

9. Set the ventilation system to the normal operating position (e.g. all Fume Cupboard sashes open).
10. Note the pressure reading on the AHU Controller (e.g. 250 Pascal's).
11. Press and Hold the Enter button for 5 seconds until the Main Menu is displayed.
12. 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.
13. Using the + / - buttons select CONTROL CONFIGURE, then select MANUAL / AUTO and press Enter, then select AUTO and press Enter to continue, then select SET POINT and press Enter to continue.
14. Using the + / - buttons enter the set point, this should be the controller pressure reading in step 10 plus 10% (e.g. 275 Pascal's).
15. Using the + / - buttons select DONE and press Enter.
16. The controller will return to the MAIN MENU, select RUN to go to normal operating screen.

Control and Calibration Setting Tips

1. Once the controller has been calibrated the low warning and high pressure alarms should be set considering the operating pressure (set point value). E.g. Set point of 250 Pascal's, Low pressure alarm = 50 Pascal's, Warning pressure = 100 Pascal's, High pressure alarm = 350 Pascal's. These are located in the CAL CONFIG menu from the SET UP menu.
2. If the controller is mounted in an unmanned area the audible sounder can be disabled, the AUDIBLE ALARM parameter is also located in the CAL CONFIG menu from the SET UP menu.
3. The controller and pressure transducer have selectable operating ranges; factory set to 0-500 Pascal's (0-2 ins/wg). If the pressure is relatively low the ranges can be reduced to increase accuracy. Refer to the label on the underside of the pressure transducer lid for the range switch settings if the transducer, the pressure range in the controller is located in the CAL CONFIG menu from the SET UP menu. Note - if the ranges are changed the controller will need to be re-calibrated.
4. Control Settings:- The controller settings can be changed to increase stability if the pressure sensor is measuring in a turbulent area of the duct.

a. PROP BAND - this can be increased in small steps to reduce control sensitivity.

b. INTEGRAL TIME - this can be reduced in small steps to reduce control sensitivity.

Note - if the instability is caused by turbulence in the duct and changing the Prop Band and Integral time had no effect the sensing point will have to be moved to a straight length of duct.



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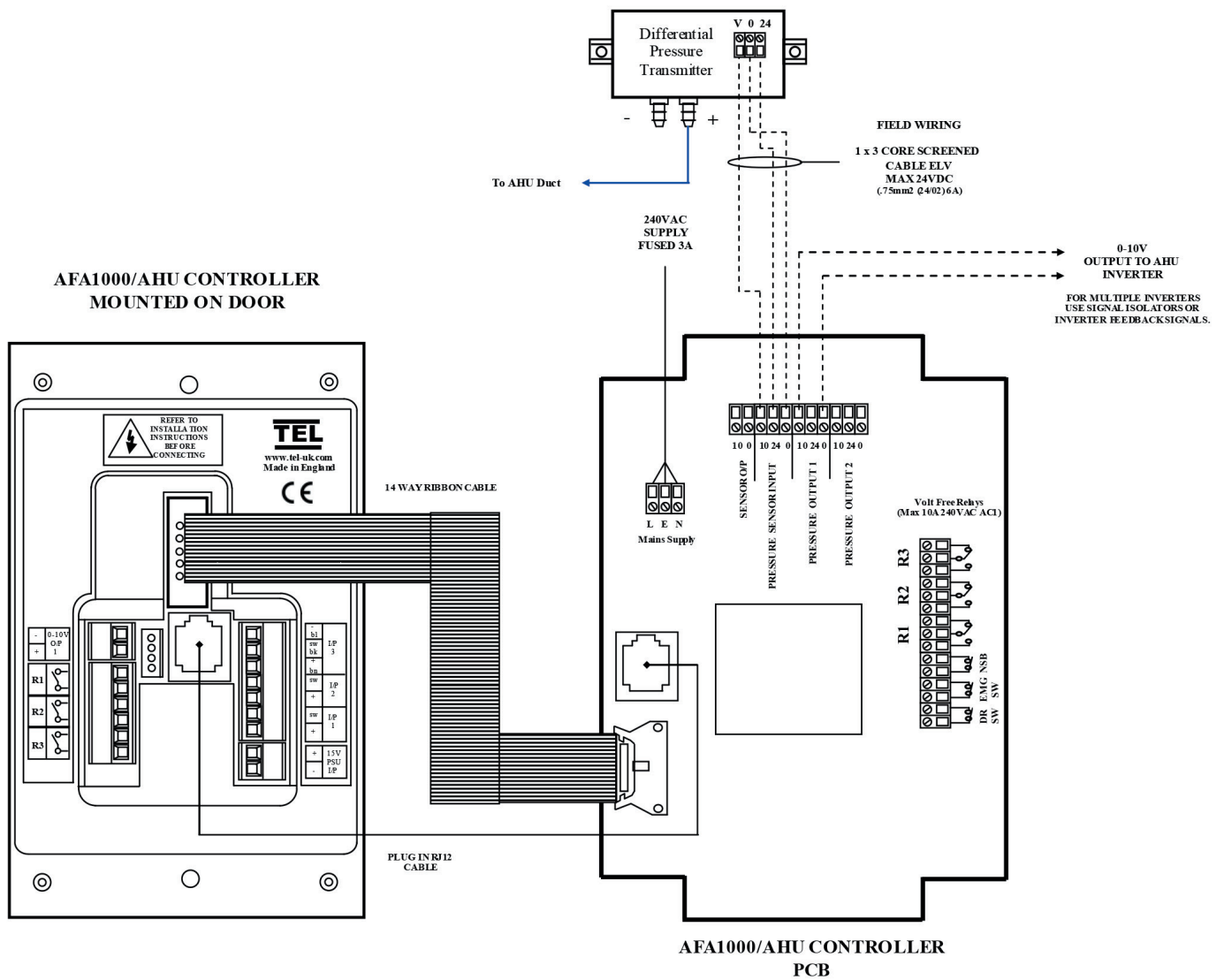
Control Settings

The CONTROL 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 pressure set point.
2. **SET POINT** - This is used to enter the required pressure set point.
3. **CONTROL FUNCTION** - This is used to select the correct output function (gives direct or reverse output).
4. **MIN OUTPUT** - This is used to set the MIN output in SETBACK mode.
5. **MAX OUTPUT** - This is used to set the MAX output EMERGENCY mode.
6. **LOW LIMIT** - This is used to limit the damper minimum (closed) position.
7. **HIGH LIMIT** - This is used to limit the damper maximum (open) position.
8. **OUTPUT RANGE** - This is used to set the output range to 0-10v (Inverter) or 2-10v (actuator).
9. **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'.
10. **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.



Connection Details



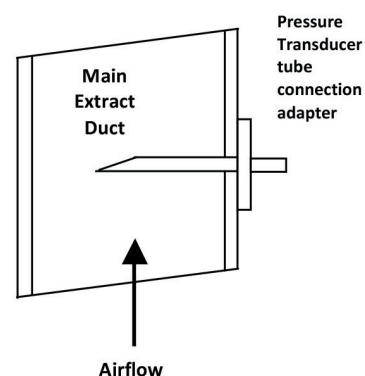
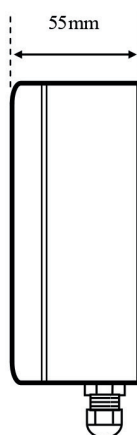
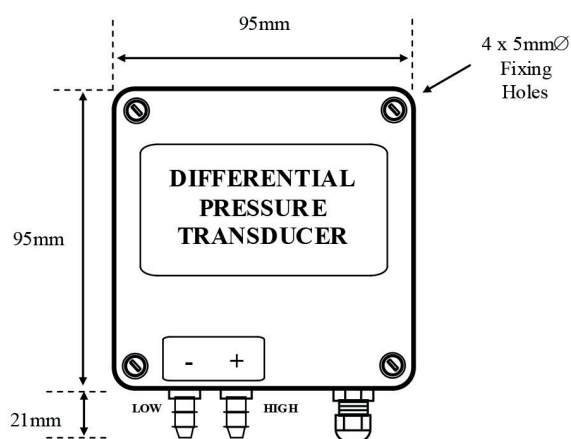
Enclosure Dimensions



4.33" (110mm) Deep

Enclosure with hinged lid, Cable Knock outs: 3 x M20 Top & Bottom

Differential Pressure Transducer Dimensions



1. The transducer should be mounted vertically using the fixing lugs with the tube and cable connections at the bottom.
2. The transducer is rated to IP66 and is suitable for installation outside providing that the cable connection gland is weather proof.
3. The pressure tube should be connected to the + (High) port on the transducer and the duct connection spigot should be mounted in a straight length of duct.

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