

E-TES SD AIR FLOW SENSOR OPERATION

For continuous reliable operation of the new E-TES SD the Air Flow Sensor must sense and measure the air flow from the air mover to know when the heater should turn on and off.

Part of this process involves the proper placement of the air mover in the E-TES SD box.

The measured range of air flow can vary greatly with small changes in the direction of the air flow from the air mover snout. A more narrow range of air flow detection may not matter in open flow operation, but when the E-TES SD output air flow is restricted by ducting or the weight of a carpet being floated a narrow range may cause the heater to turn on & off during operation.

E-TES SD Air Flow Terminology:

- ◆ **OFF Set Point:** This is the resistance reading of the air flow sensor with the fan off.
- ◆ **ON Set Point:** This is the resistance reading of the air flow sensor with the fan on.
- ◆ **Air Flow Trigger:** This is the resistance reading of the air flow sensor at which the heater will turn on and off. During the calibration process the E-TES SD automatically calculates and sets the Air Flow Trigger half way between the Off Set Point and ON Set Point.
- ◆ **Limits:** This is a method by which the processor measures the variation in resistance caused by turbulence in the air flow. This allows the processor to shut off the heater if the air flow sensor gets stuck or fails before the air mover turned off. Even if the measured air flow sensor resistance is above the Air Flow Trigger the lack of air flow will be detected by the low level or lack of limit readings. If the limits are not detected the processor will turn the heater off.
- ◆ **254:** An off reading of 254 indicates the wires to the air flow sensor have been cut or the air flow sensor has come unplugged from the circuit board. The E-TES SD will not function and the air flow sensor must be connected correctly, repaired or replaced.
- ◆ **0:** An off reading of 0 indicates the wires to the air flow sensor have been shorted out or the air flow sensor connection to the circuit board has been reversed. The E-TES SD will not function and the air flow sensor must be connected correctly, repaired or replaced.

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To get the best Air Flow Sensor operation and widest range of measurement make sure the snout of the air mover points toward the front of the E-TES SD.

Air Mover Installation:

Place the snout of the air mover through the sealing gasket into the opening on the top of the E-TES SD. Once the snout is inside the opening, rotate the air mover to point the snout toward the front of the E-TES SD. Different models of air movers will sit differently on the top of the E-TES SD box. If needed, a foam furniture block, a folded towel or other object can be used as a spacer between the air mover and the support cradle on top of the box to maintain the proper alignment.

If the E-TES SD is to be pointed up the towel or other spacer is placed under the top of the E-TES SD box raise it up off of the floor and allow the air mover snout to maintain the proper air flow angle.

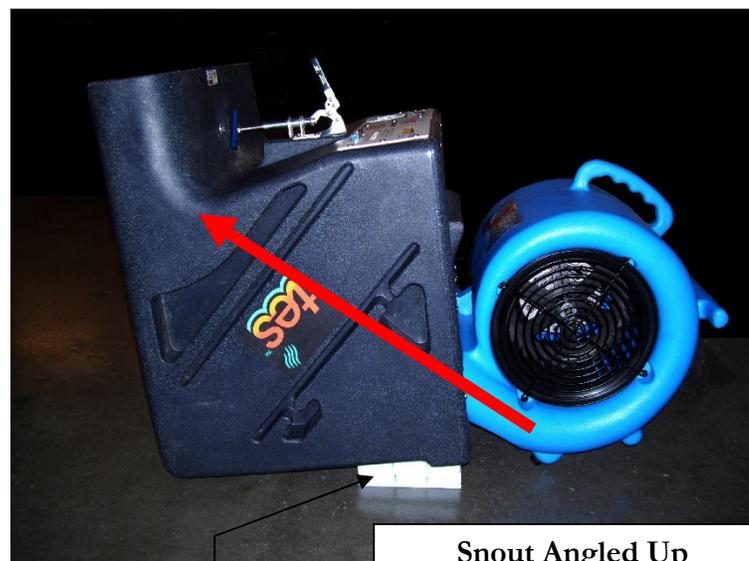
Connect ducting, Flexi-Dry, snout adapter with ducts, or place the E-TES snout under the carpet to be floated before calibrating the air flow sensor.



Snout Not Angled Properly



Snout Angled Forward



Snout Angled Up

Foam Blocks used as spacer

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Air Flow Setup Screen: This allows you to recalibrate the Air Flow Sensor to maintain proper Air Flow Sensor function for reliable heater operation.



Press **SELECT** to set the Air Flow Sensor trigger point. Follow the screen directions using the **DOWN** button to set the levels with the air mover OFF & ON.



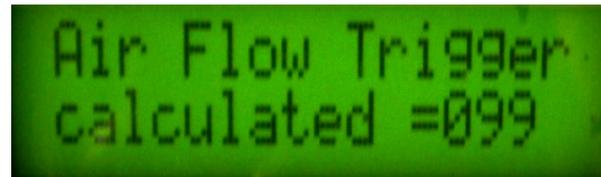
1. First turn the air mover OFF. When the fan is off and the number stops changing, press **DOWN**. This is the Off Set Point.
(Shown as 033 in this example)
2. Then turn the air mover ON at low speed. When the number stops rising or the rate of change slows, press **DOWN**. This is the ON Set Point.
(Shown as 154 in this example)



In most cases the numbers on the screen with the fan on will go very high, even reaching the maximum of 254. Rather than waiting for the numbers to stop rising, you can press down as soon as the fan on number is about 100 points higher than the Off Set Point. This will set the On Set Point and Air Flow Trigger a little lower, so the unit turns on quicker and will stay on even if there is some variable restriction in the air flow.

3. The Air Flow Trigger point is now set. The Air Flow Trigger is approximately half way between the Off Set Point and the On Set Point.
(Shown as 099 in this example)

Press **SELECT**, to exit the Air Flow Setup and return to the Air Flow Setup Screen in the main menu.



Ideally the Off Set Point will be between 12 & 31, but as the E-TES SD is used, the air flow sensor will become more flexible and may get some bend memory. This will cause the Off Set Point to rise. With a larger difference between the Air Flow Trigger and the ON and OFF Set Points the heater will operation will be more reliable, but as long as the ON set point is higher than the Air Flow Trigger setting and there are sufficient limits the heater will run.

If the OFF set point is too high, over 100, replacement of the Air Flow Sensor should be considered.

The ON Set Point will be higher with a more powerful air mover with more air flow or the same air mover on medium or high setting compared to the low setting. In some cases you may need to turn the air mover to medium or high to get enough air flow for your drying application. Set the Air Flow Trigger on the low speed and then turn the air mover to medium or high speed if needed.

The ON Set Point will be lower when a Flexi-Dry or other restriction is placed on the E-TES SD snout. Connect the Flexi-Dry or other ducting and then set the Air Flow Trigger. Try to set the Air Flow trigger using low speed, but if you need a higher speed to properly inflate the Flexi-Dry or ducting, or to float the carpet, it is OK to use the higher speed to set the Air Flow Trigger.