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SUBJECT: **AIR PRESSURE/DIFFERENTIAL SWITCH**
UNITS: **IMD & IMD-Y Units c/w Electric Heat**

Background: An air pressure differential switch is fitted in IMD and IMD-Y Series fan coils when electric elements are fitted.

Air Pressure/Differential Switch Set-up Check & Adjustment

Range of adjustment: 20~300 kPa

Description of function: This is an additional safety device Temperzone includes, over and above the one manual and other auto reset temperature safeties required to comply with Standards.

Even though the Air Pressure Switch is factory tested and set up, fan coil units are applied to a huge range of air flow and static pressures on site. If not functioning at time of commissioning the switch should be adjusted and verified for the specific application.

The following is a step-by-step guide on how to check and set-up the air pressure switch.

Note: This work must be carried out by those who hold an appropriate electrical license and calibrated instruments, to carry out this work.

IMD Models (c/w set speed fan motors):

Proving test of Air Pressure Switch safety switch for electric elements.

1. Set fan coil to the required air flows (l/s) with system balanced to required grille outlets, inlets and fresh air.
2. Ensure filters are installed and in clean state.
3. Set the fan coil controls to heating mode (depending on how the element control is set up for specific installation/application)
4. Air Pressure Switch and one of the two temperature safeties are in series with coil control of HCC2 contactor.
5. Check that both HCC1 and HCC2 are energized when fan coil is operating (required air flow is present).
6. Remove filter and half block the inlet using suitable material to simulate dirty filter condition). Refit filter and check that the elements are still being allowed to operate via two contactors HCC1 and HCC2 being energized.
7. Isolate the fan coil power supply and remove fan motor power feed depending on wiring schematic of fan coil fitted.
8. Turn back on power supply and check that elements (HCC2 contactor) are not operating/energized, as there should be no air flow or pressure differential able to be detected.
9. If this proves that air flow differential switch is working as intended, then no further work or adjustment is required.

Air Pressure Switch adjustment:

10. If the Air Pressure Switch is not allowing HCC2 to make contact (allowing element to heat) when heating command is called for, then adjustment of switch is required.
11. Set system as per instructions above, 1 to 3.
12. Prior to powering unit after initial switch check verification, disconnect wiring to Air Pressure Switch and suitably isolate wires, so an Ohm meter can be used to measure continuity across electrical circuit terminals of switch when adjusting/checking.
13. Set meter to ohms 'Ω' and fit probes of meter across terminals (two of). There will be no continuity across terminals (open contacts) when switch is not indicating an air flow via the pressure differential ports.
14. Turn on power supply so that air flow is achieved.
15. Adjust the switch using screw provided to make circuit of switch. Check this with ohm meter that contacts are now closed when air flow is present, as is required for application.

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16. Check that this also functions in 'made' circuit when dirty filter condition is set up (refer number 6 above).
17. Check that when the power supply of fan motor is disconnected and there is no air flow, that Air Pressure Switch is open circuit by way of Ohm meter reading.
18. Check that the heat given off from elements after Air Pressure Switch has been adjusted to allow heating is not tripping the temperature safeties fitted.

IMD-Y Models (c/w EC fan motors):

Proving test of Air Pressure Switch safety switch for electric elements:

1. Set fan coil to the required air flows (l/s) with system balanced to required grille outlets, inlets and fresh air.
2. Ensure filters are installed and in clean state.
3. Set the fan coil controls to heating mode (depending on how the element control is set up for specific installation/application)
4. Air pressure switch and one of the two temperature safeties are in series with coil control of EHCC contactor.
5. Check that both EHC1 and SSRs are energized when fan coil is operating (required air flow is present).
6. Remove filter and half block the inlet using suitable material to simulate dirty filter conditions. Refit filter and check that the elements are still being allowed to operate via two contactors EHC1 and SSR's being energized.
7. Isolate the fan coil power supply and remove fan motor power feed depending on wiring schematic of fan coil fitted.
8. Turn back on power supply and check that elements/EHC2 contactor is not operating/energized, as there should be no air flow or pressure differential able to be detected. This should also see SSR relays not making contacts of elements fitted.
9. If this proves that air flow differential switch is working as intended, then no further work or adjustment is required.
10. If the Air Pressure Switch is not allowing EHC2 to make contacts (allowing element to heat) when first heating command is called for then adjustment of switch is required, as follows.

Air Pressure Switch adjustment:

11. Set system as per instructions above, 1 to 3.
12. Prior to powering unit after initial switch check verified adjustment is required, we advise that wiring to air pressure switch is disconnected and wires suitably isolated, so an Ohm meter can be used to measure continuity across two terminals of switch when adjusting / checking.
13. Set meter to ohms 'Ω' and fit probes of meter across terminals (two of). There will be no continuity across terminals (Open circuit) when switch is not indicating an air flow.
14. Turn on power supply so that air flow is achieved.
15. Adjust the switch using screw provided to make circuit of the switch. Check this with ohm meter when air flow is present, as is required for application.
16. Check that this also functions when dirty filter condition is set up (refer note 6 for set speed fans)
17. Check that when the power supply of fan motor is disconnected and there is no air flow that air pressure switch is open circuit by way of Ohm meter reading.
18. Check that the heat given off from elements after air pressure switch has been adjusted to allow heating is not tripping the temperature safeties fitted.

IMPORTANT:

Temperzone designs the IMD/IMD-Y fan coil products for nominal air flows. If installer reduces the air flows too much with supplied element (kW) fitted, there is risk of high temperature trips and no heating available as the air flow is not adequate to dissipate heat from elements fitted. If the adjustment of air pressure switch is seeing high temperature trips, then air flow is below an acceptable tolerance that elements can safely operate in without causing element over temperature. If this occurs, you must either replace the element fitted with a lower capacity, or increase the air flow to provide adequate flow across elements fitted when in heating mode.