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Products: Complete Split Systems

Controls: AAON Factory Controls

A2L Mitigation

Complete Split Systems with AAON Factory Controls

Introduction

This technical bulletin outlines the mitigation actions for A2L gas detection in AAON systems for each of the possible detection methods. This bulletin applies to complete split systems with AAON provided factory controls.

This arrangement may have two separate cabinet sensors with cooperative operations.

A2L Gas Sensed only by the Air Stream Sensors

- All compressor operations will be commanded off by the controls regardless of operating mode (heating or cooling).
    - Additionally, the mitigation board will provide a relay that can be field wired to the condensing unit to force stopping of all compressors through relays.
- If the unit is a Make Up Air unit or otherwise designated to operate only with 100% outside air, the outside air damper will be opened.
    - Return air units potentially utilized in a MUA arrangement will not be recognized as a known MUA and will not have circuitry to force the outside air damper to open.
- The main supply fan will be ramped at a predetermined rate to its maximum configured operating speed. This ramp is to allow time for other system functions such as dampers and VAV boxes to react to the A2L alarm condition.
    - This speed is regardless of other intended operating controls such as static pressure control. It is up to the building designer to ensure that all VAV boxes open to allow for this airflow.
    - This operation should not be blocked or interfered with as it is specifically a required operation for A2L mitigation.

  - **Note:** This operation may run the risk of introducing unconditioned air to an interior space; appropriate mitigation measures are left to the building engineer.
- Any return or exhaust fans will operate as would be normal for occupied operation.
- Non-compressor heat and cooling are available and will be utilized as appropriate for conditioning as needed.

A2L Gas Sensed only by the Gas Heat Cabinet Sensors

- The air handler portion of the split system will only have a cabinet sensor if it has gas heat, and the sensor location will be in the gas heat cabinet.
  - The alarm from the mitigation board in the condensing unit will be wired in series with the alarm signal from this gas heat cabinet mitigation board so the actions and indications can be shared to the main controller.
- All compressor operations will be commanded off by the controls regardless of operating mode (heating or cooling).
  - Gas heat operation is disabled.
  - The mitigation board will provide a relay that can be field wired in series with the appropriate relay from the air stream sensing mitigation board to force the condensing unit to stop all compressors.
  - **Note:** This operation may run the risk of introducing unconditioned air to an interior space; appropriate mitigation measures are left to the building engineer.
- Normal unit operation as commanded (occupied or unoccupied) will continue.
  - Non-compressor heat and cooling are available and will be utilized as appropriate for conditioning as may be needed.

A2L Gas Sensed only by the Condensing Unit Cabinet Sensors

The CF component of this equipment only has a cabinet sensor.

- On activation, all compressor operations will cease regardless of operating mode (heating or cooling).
- The mitigation board will have a relay that can be field wired back to the air handler in series with the cabinet sensor or in lieu of the cabinet sensor if the air handler does not have gas heat. This will serve to indicate an A2L alarm and indicate compressors are disabled.

A2L Gas Sensed by the Air Stream Sensors and by either or both the Gas Heat Cabinet Sensors or the Condensing Unit Cabinet Sensors

- All operations will be the same as the "A2L Gas Sensed only by the Air Stream Sensors" above, except:
  - A DX air handler will only have a cabinet sensor if it has gas heat, and the sensor location will be in the gas heat cabinet.
  - All mitigation boards will provide relays that can be field wired in series to the condensing unit to force stopping of all compressors.
  - Gas heat operation is disabled.
  - The mitigation board will provide a relay that can be field wired in series with the appropriate relay from the air stream sensing mitigation board to force the condensing unit to stop all compressors.
  - **Note:** This operation may run the risk of introducing unconditioned air to an interior space; appropriate mitigation measures are left to the building engineer.

Ensure that all actions related to A2L gas detection and mitigation are carefully monitored and managed by the building engineer to maintain safety and operational efficiency.

Any applications changes or SPA's must assure that they do not alter the A2L operations from what is documented here without first being approved by engineering.

Technical Specifications

- Board part number: ASM07503
- Sensors Part Number: G137750
- Mitigation Board Plug: G145190

Note: Refer to appropriate IOM for additional information.