PRODUCTS APPLIED FOR AIR HANDLER APPLICATION

Dirty Filter Alarm
The differential pressure loss across the filter is monitored.
• Products used: ADPS Pressure Switch and 616KD Differential Pressure Transmitter

Fan Validation
Proving a fan is operating can be done in several ways:
1. Monitor the differential pressure between upstream and downstream of the fan.
   • Product used: ADPS Pressure Switch
2. Monitor the air flow or velocity exiting the fan.
   • Products used: DH, DHII, DH3, MS, AVU, VTT, 641 Transmitter or 616KD Differential Pressure Transmitter in conjunction with an air flow station FLST
3. Monitor the current usage of the fan.
   • Product used: SCS Current Switch

Duct Static Pressure
A pressure transmitter is used with a static pressure tip or optional inherent static probe to monitor discharge or mixing air duct static pressures.
• Products used: 1831 Low Differential Pressure Switch and MS Pressure Transmitter with A-302 Static Pressure Tip or MS with integral static pressure probe

Duct Humidity Sensor
A humidity transmitter is inserted into the duct to monitor the zone discharge humidity.
• Product used: RHP Humidity Transmitter

Duct Humidity/Temperature Sensor
A dual humidity and temperature transmitter is inserted into the duct to monitor the exhaust air humidity and temperature.
• Product used: RHP Humidity/Temperature Transmitter

Duct Temperature Sensor
A temperature sensor is inserted into the duct to monitor the supply air, mix air, and exhaust air temperature.
• Products used: TE-D Series Temperature Sensor, TE-A Averaging Temperature Sensor or DFS Low Limit Temperature Switch

Frozen Coil Alarm
A differential pressure loss across the cooling coil indicates ice build up on the coil.
• Products used: ADPS Pressure Switch or EDPS UL508 listed Pressure Switch
**Air Handler Application**

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**Duct Static Pressure**
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**Duct Humidity Sensor**
- A humidity transmitter is inserted into the duct to monitor the zone discharge humidity.
- **Product used**: RHP Humidity Transmitter

**Duct Humidity/Temperature Sensor**
- A dual humidity and temperature transmitter is inserted into the duct to monitor the exhaust air humidity and temperature.
- **Product used**: RHP Humidity/Temperature Transmitter

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- A differential pressure loss across the cooling coil indicates ice build up on the coil.
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PRODUCTS APPLIED FOR AIR HANDLER APPLICATION

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• Product used: RHP Humidity/Temperature Transmitter

Duct Temperature Sensor
A temperature sensor is inserted into the duct to monitor the supply air, mix air, and exhaust air temperature.
• Products used: TE-D Series Temperature Sensor, TE-A Averaging Temperature Sensor or DFS Low Limit Temperature Switch

Frozen Coil Alarm
A differential pressure loss across the cooling coil indicates ice build up on the coil.
• Products used: ADPS Pressure Switch or EDPS UL508 listed Pressure Switch
Outdoor humidity/temperature sensors are used for determining how much outside air to bring into the building for economizer applications.

- **Products used:** WHT and RHP Humidity/Temperature Transmitters

Outdoor temperature sensors are used for low humidity regions to determine how much outside air can be used as free cooling.

- **Products used:** O-4, TE-RND, TE-OND

**Products Applied for Heating & Cooling Application**

- **Variable-Air-Volume Application**
  - Water mixing valve
    - Three-way valves are used to mix return and supply water and chilled and hot water together.
    - **Products used:** GV Globe Valve with EVA Electric Actuator, or BV3 Ball Valve with Electric Actuator
  - Water temperature monitor
    - A temperature sensor is inserted into the water pipeline to monitor the system supply, system return, condenser return, condenser supply, and boiler supply water temperature.
    - **Product used:** TE-I RTD Temperature Sensor with Thermowell
  - Pump validation/flow proving
    - Proving a pump is operating can be done in several ways:
      1. Monitor the differential pressure between upstream and downstream of the pump.
      - **Product used:** DX Pressure Switch
      2. Monitor the water flow exiting the pump.
      - **Products used:** FS-2, V8 or V7 Flow Switch
      3. Monitor the current usage of the pump.
      - **Product used:** SCS Current Switch
      4. Ensure proper differential pressure is created from sufficient flow through chiller.
      - **Product used:** 629 Differential Pressure Transmitter
  - Leak detection/drip pan monitor
    - A conductivity sensor is used to detect leaks of fluids around equipment and valves or to detect full drip pans.
    - **Products used:** WD or WD3 Leak Detectors

- **Outdoor & Parking Garage Application**
  - Water flow control
    - VAV systems can include heating coils of hot water that the air flows past. A zone valve is used to change the amount of hot water added to the heating coil. Zone systems can include radiant heating systems. A zone valve is used to change the amount of hot water added to the radiator in the zone.
    - **Products used:** ZV1 or ZV2 Zone Valves
  - Duct supply temperature
    - VAV duct temperature sensors measure the supply or discharge air to determine if the reheat coils are needed to condition the air entering the room.
    - **Products used:** TE-D Series Temperature Sensors
  - Air volume control
    - The amount of air added to the zone is controlled by opening and closing the air duct via a damper with a damper actuator which receives a feedback signal from a differential pressure transmitter.
    - **Products used:** DDA Damper Actuator and 616KD Differential Pressure Transmitter
  - Room temperature and carbon dioxide
    - The amount of air flow to a zone is varied based on occupancy in a zone. The occupancy is determined by the concentration of carbon dioxide in the zone.
    - **Product used:** CDT-W Carbon Dioxide and Temperature Transmitter
  - Room temperature and humidity
    - A wall mounted temperature and humidity transmitter is placed in the zone to monitor the zone conditions and determine demand.
    - **Product used:** RHP-W Humidity and Temperature Transmitter

- **Excess gas exhaust**
  - High gas concentrations of carbon monoxide and nitrogen dioxide from vehicle exhaust are expelled from a parking garage by bringing in fresh outside air through dampers and exhausting the gas saturated air via exhaust fans.
  - **Products used:** GSTA-C and CMT200 Carbon Monoxide Transmitters, GSTA-N Nitrogen Dioxide Transmitter, SCD Process Controller, DD Damper Actuator

- **Exhaust fan validation**
  - Proving an exhaust fan is operating in a parking garage is done by using current switches to monitor the current usage of the fan.
  - **Products used:** SCS, CCS
Outdoor humidity/temperature transmitters are used for determining how much outside air to bring into the building for economizer applications.

- **Products used:** WHT and RHP Humidity/Temperature Transmitters

Outdoor temperature sensors are used for low humidity regions to determine how much outside air can be used as free cooling.

- **Products used:** O-4, TE-RND, TE-OND

**Heating & Cooling Application**

- **Products applied for:**
  - Variable-Air-Volume Application
  - Outdoor & Parking Garage Application

**PRODUCTS APPLIED FOR**

**Variable-Air-Volume Application**

- **Water Mixing Valve:** Three-way valves are used to mix return and supply water and chilled and hot water together.
  - **Products used:** GV Globe Valve with EVA Electric Actuator, or BV3 Ball Valve with Electric Actuator

- **Water Temperature Monitor:** A temperature sensor is inserted into the water pipeline to monitor the system supply, system return, condenser return, condenser supply, and boiler supply water temperature.
  - **Product used:** TE-I RTD Temperature Sensor with Thermowell

- **Pump Validation/Flow Proving:**
  1. Monitor the differential pressure between upstream and downstream of the pump.
     - **Product used:** DX Pressure Switch
  2. Monitor the water flow exiting the pump.
     - **Products used:** FS-2, V8 or V7 Flow Switch
  3. Monitor the current usage of the pump.
     - **Product used:** SCS Current Switch
  4. Ensure proper differential pressure is created from sufficient flow through chiller.
     - **Product used:** 629 Differential Pressure Transmitter

- **Leak Detection/Drip Pan Monitor:** A conductivity sensor is used to detect leaks of fluids around equipment and valves or to detect full drip pans.
  - **Products used:** WD or WD3 Leak Detectors

- **Water Flow Control:** VAV systems can include heating coils of hot water that the air flows past. A zone valve is used to change the amount of hot water added to the heating coil. Zone systems can include radiant heating systems. A zone valve is used to change the amount of hot water added to the radiator in the zone.
  - **Products used:** ZV1 or ZV2 Zone Valves

- **Duct Supply Temperature:** VAV duct temperature sensors measure the supply or discharge air to determine if the reheat coils are needed to condition the air entering the room.
  - **Products used:** TE-D Series Temperature Sensors

- **Air Volume Control:** The amount of air added to the zone is controlled by opening and closing the air duct via a damper with a damper actuator which receives a feedback signal from a differential pressure transmitter.
  - **Products used:** DDA Damper Actuator and 616KD Differential Pressure Transmitter

- **Room Temperature and Carbon Dioxide:** The amount of air flow to a zone is varied based on occupancy in a zone. The occupancy is determined by the concentration of carbon dioxide in the zone.
  - **Product used:** CDT-W Carbon Dioxide and Temperature Transmitter

- **Room Temperature and Humidity:** A wall mounted temperature and humidity transmitter is placed in the zone to monitor the zone conditions and determine demand.
  - **Product used:** RHP-W Humidity and Temperature Transmitter

- **Excess Gas Exhaust:** High gas concentrations of carbon monoxide and nitrogen dioxide from vehicle exhaust are expelled from a parking garage by bringing in fresh outside air through dampers and exhausting the gas saturated air via exhaust fans.
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- Products used: WHT and RHP Humidity/Temperature Transmitters

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- Products used: O-4, TE-RND, TE-OND

**Water Mixing Valve**
Three-way valves are used to mix return and supply water and chilled and hot water together.

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**Water Temperature Monitor**
A temperature sensor is inserted into the water pipeline to monitor the system supply, system return, condenser return, condenser supply, and boiler supply water temperature.

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The amount of air added to the zone is controlled by opening and closing the air duct via a damper with a damper actuator which receives a feedback signal from a differential pressure transmitter.

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outDoor HumiDity & temPerAture trAnSmitterS

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- **Products used:** WHT and RHP Humidity/Temperature Transmitters

outDoor temPerAture SenSorS

For low humidity regions, outdoor temperature is used to determine how much outside air can be used as free cooling.

- **Products used:** O-4, TE-RND, TE-OND

**HeatinG & coolinG APPlicAtion**

**PRODUCTS APPLIED FOR**

- **Variable-Air-Volume Application**
- **Outdoor & Parking Garage Application**

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- **Variable-Air-Volume Application**
- **Outdoor & Parking Garage Application**

WAter miXinG VAlVe

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eXceSS GAS eXHAuSt

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eXHAuSt FAn VAliDAtion

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