

Re-Tuning Training Guide: Trending for Re-Tuning

Air-Handling Units (AHU's):

For Single Duct Variable Air Volume (SDVAV) air-handling units, the corresponding parameters that must be monitored (15-minute intervals) and collected within the Building Automation System (BAS) to effectively trend and analyze the system include:

- Outdoor-air temperature (OAT)
- Mixed-air temperature (MAT)
- Return-air temperature (RAT)
- Discharge-air (supply-air) temperature (DAT or SAT)
- Discharge-air temperature set point
- Discharge (duct) static pressure
- Discharge (duct) static pressure set point
- Mixed-air damper position
- Outdoor-air damper position
- Fan status
- Fan speed (on both supply and return fans, feedback or command)
- Cooling coil valve command
- Heating coil valve command

Guidelines: If there are fewer than 6 AHU's in the building, we recommend that all AHU's be trended. If the building is less than 4-stories tall, pick at least one AHU from each floor, If the building is 20-stories tall, trend all AHU's if there are fewer than 6. If there are more than 6, trend one AHU on every other floor (maximum of 10 AHU's trended). Don't pick the AHU that is operating the best, but rather take a random sample of AHU's to monitor. If possible, choose from AHU's that are most common throughout the building in configuration and layout.

VAV Zones:

At the zone level of the SDVAV air-handling unit, the corresponding parameters that must be monitored (15-minute intervals) and collected within the BAS to effectively trend and analyze the system include:

- Zone temperature
- Zone temperature set point
- VAV box damper position
- Reheat valve position (if supply air is reheated at the zone)
- Recool valve position (if supply air is recooled at the zone)
- Occupancy mode (occupied/unoccupied)
- Zone CFM

- Zone CFM set point
- Zone discharge-air temperature
- Fan status, or fan command (for fan powered boxes only)

Guidelines: If there are fewer than 8 zones per floor, trend all zones on the floor. For each floor, trend at least one zone on each of the four directions (north, south, east, and west) and at least four zones in the core of the floor (total of 8 VAV box trends per floor minimum). If the building is less than 4-stories tall, trend 8 zones on every floor, otherwise trend all 8 zones on every other floor (maximum of 80 VAV boxes to trend). If possible, choose zones that are most common throughout the building in configuration and layout.

Physical Plant:

For the physical plant, the corresponding parameters that must be monitored (15-minute intervals) and collected within the BAS to effectively trend and analyze the system include:

- Chilled-water supply temperature
- Chilled-water return temperature
- Chilled-water set point
- Hot-water supply temperature
- Hot-water return temperature
- Hot-water set point
- Condenser supply temperature
- Condenser return temperature
- Condenser-water set point
- Each chiller load (current)
- Each pump status (if there are multiple pumps record all of them)
- Each chiller status
- Chilled-water gpm
- Chilled-water differential pressure
- Chilled-water differential pressure set point
- Cooling-tower fan speed
- Cooling-tower fan speed set point
- Cooling-tower fan status

Whole Building Electrical Consumption

If the electric consumption is monitored using the energy management and control system, trend the consumption at 15-minute intervals for a 2- to 3-week period:

- Whole building electrical consumption (either average kW or kWh)