

PROGRAMMING FOR CRITICAL SPACES

BULLETIN 875

Waddell Engineering Co offers the following factory developed and tested fundamental program functions. These functions can be arranged on the controller to meet any application with the only limitation being the hardware specified inputs and outputs.

1. Constant Volume (CV)

The CV program is used to maintain a constant air flow through the damper as the duct pressure changes. This is also pressure independence.

2. Variable Volume

The VAV program has been developed to modulate airflow based on a sensor value. An example of this program may be to modulate the airflow through a fume hood based on the value of the sash position sensor.

3. Two Position Constant volume

The two position CV program is used to maintain airflow through the damper at one of two values. The active set point is selected based on the position of a switch or dry contact sensor. An example of two flow requirements is an occupied or unoccupied space.

4. Pressure Independence, Temperature , Humidity

The pressure independence, temperature control and humidity control programs are all controlled using PI or PID loops depending on the type of controller. These control schemes are used to maintain a constant space set point.

5. Flow Offset (limited to one per control device)

The flow offset program is used to maintain a constant offset between the supply air volume and the exhaust air volume. The program compares the sum of the flow through the supply valves with the sum of the flow through the exhaust valves and compares this offset with a set point. The supply valves or exhaust valves are then modulated to meet the set point. Each valve will maintain the same proportion of flow to each other as designed.

6. Flow offset with pressure override

Space pressures are often determined by the offset between supply and exhaust flow ratings. Actual Space pressure swings can be closely monitored and controlled by selecting a min/max space pressure range in the controller.

7. IAQ sensing

Controlled ventilation based on CO2 sensing is often used for code compliance and energy saving.