

# APPLICATION

## Variable Volume Box Conversion

### Pressure Independent to Static Pressure

The conversion of a pressure independent VAV unit (cooling-interior zone/perimeter heating) to static pressure where Vari-Flow diffusers can be used is a simple and cost effective means of providing individual VAV room control.

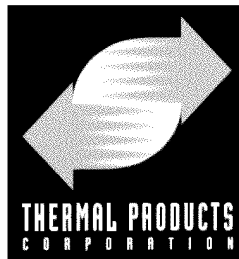
The VAV terminal unit is the master zone and the VFS Vari-Flow™ diffusers act as sub zones. This simple solution not only offers individual comfort but eliminates the need to change out the terminal unit and components, installing new duct work or re-routing existing duct work. Another added benefit is the improvement in air distribution. The standard diffusers installed are usually the fixed pattern variety such as perforated. With the installation of VFS Vari-Flow™ diffusers, the air volume will be reduced and the discharge velocity will be maintained or increased over the operating range of the unit resulting in a constant or increased amount of secondary air movement. In addition, drafts and dumping are eliminated.

Velocity reset controllers can be converted to constant static pressure controllers. On the back of this page is a diagram of a Krueter (or equivalent ) pneumatic box controller. The controller measures differential pressure across the flow cross. It adjusts the damper to maintain a constant differential pressure with respect to the flow cross to maintain constant discharge velocity.

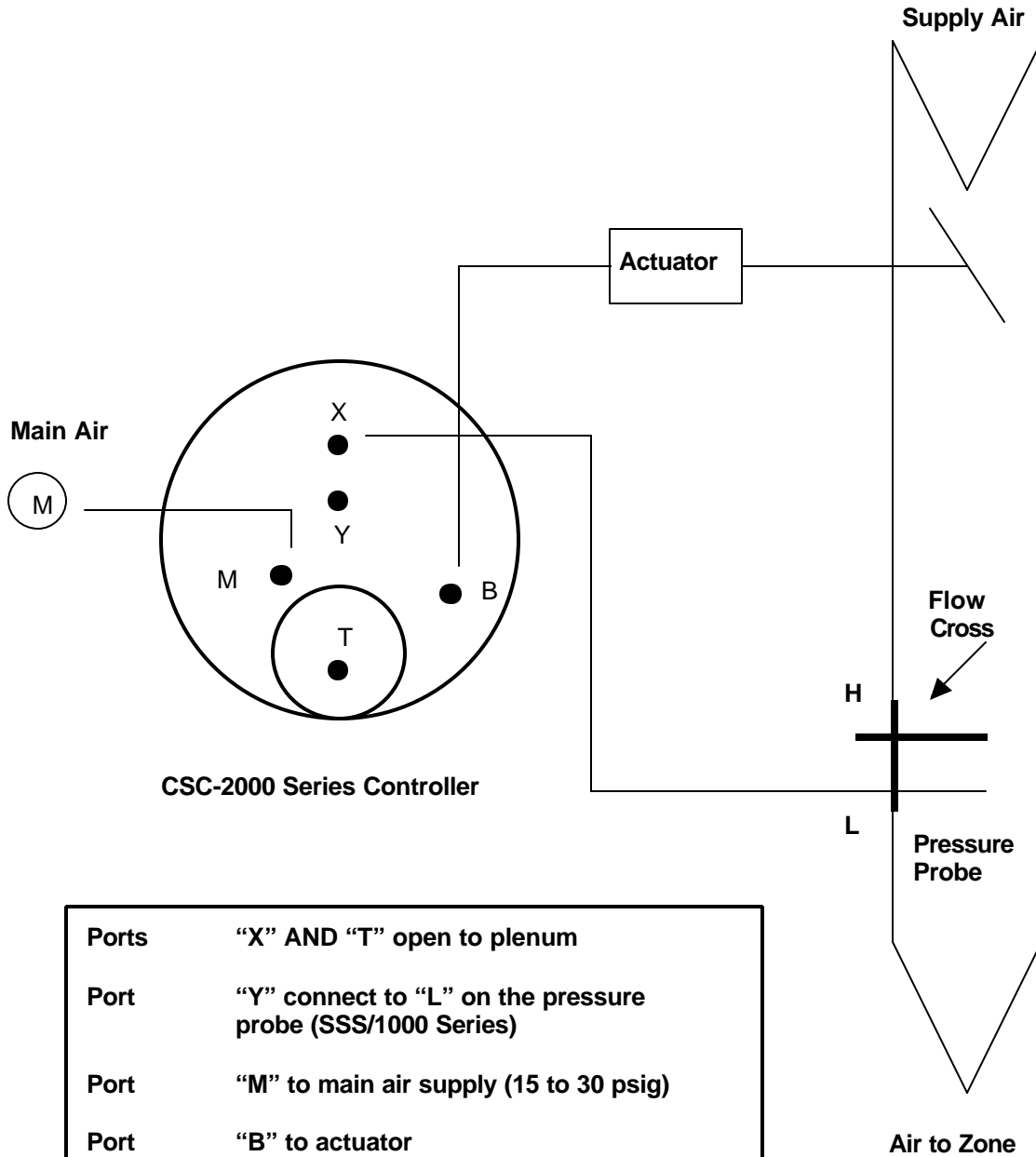
This function can be converted to maintain constant static pressure (down stream of the box) by the following steps:

1. Remove the thermostat line from the "T" port.
2. Connect the high pressure port of the pressure independent portion of the controller to a static pressure probe.
3. Leave the low pressure port of the pressure independent portion of the controller open in the return air plenum. (Disconnect the hose at the controller). This will cause the controller to measure the pressure between the supply duct and the room thus controlling the static pressure in the supply duct to the diffusers.

As temperature conditions change in the rooms, the Vari-Flow™ diffusers will vary the volume of air to maintain their respective temperature set points. Changes in discharge volume at the diffusers will cause the static pressure in the supply duct to change. The box will adjust the damper to maintain constant static pressure to the diffusers at any volume required. This configuration will also maintain the pressure independence of the box by maintaining constant downstream pressure as the upstream system pressure varies.



# VFS-Application-Static Pressure Balancing Station



<b>Ports</b>	<b>“X” AND “T” open to plenum</b>
<b>Port</b>	<b>“Y” connect to “L” on the pressure probe (SSS/1000 Series)</b>
<b>Port</b>	<b>“M” to main air supply (15 to 30 psig)</b>
<b>Port</b>	<b>“B” to actuator</b>
<b>Installation Calibration</b>	
<b>1.</b>	<b>Adjust “HI” center knob for desired static pressure</b>