

ELECTRO-FLOW SERIES ANALOG / ELECTRONIC



The "Electra-Flow Series" (EFS) diffusers were developed to compliment the (VFS) thermally powered diffusers. The purpose of the diffuser is to provide a wide range of installation flexibility, accuracy of electronic control, and the comfort of individual room zone control. The diffuser uses a sleeve damper unique to "Vari-Flow" products to provide high levels of secondary room air induction with a minimum of primary air volume. This is accomplished by varying the discharge area of the diffuser. As the discharge area is reduced, the discharge velocity is increased to maintain a constant level of secondary air induction. This, in conjunction with the horizontal primary air discharge pattern, prevents "dumping."

The efficiency of the air distribution is proven by applying the diffuser to exposed duct. In this application, the diffuser will maintain a horizontal air flow pattern over the entire spectrum of air volume from full flow to close off. The efficient use of primary air energy sustains secondary air movement to minimize stratification and maintain comfortable levels of room ventilation with minimum amount of primary air flow.

FEATURES

Performance

- Positive horizontal discharge with high induction assures excellent air distribution and secondary air motion
- Quiet operation
- Exclusive ring damper prevents "dumping"

Control

- Solid state electronic-self-contained with or without remote set point adjustment
- Reliable thermal element motor
- DDC controls with energy management system capability

The EFS24 is powered by a unique "thermal motor" that proportionately operates the damper. The "thermal motor" operates without motor windings, stators, armatures or bearings. This distinctive power source operates on the simple, basic principal of thermal expansion when a substance changes state, in this case from a liquid to a solid. The thermal motor has a proven history of reliability and long life.

The EFS operates by sensing room temperature with a solid state thermistor temperature sensor. The signal from the thermistor over a 1 1/2 degree F. proportional band modulates the diffuser damper from closed to full open. A sensor in the primary air supply operates the unit in the cooling mode (Direct acting thermostat) when the supply air temperature is 65 degrees F. or less and in the heating mode (reverse acting thermostat) when the supply air temperature is 85 degrees F. or greater. The EFS series diffuser has a solid appearance panel and is available in an architectural series with a "drop down" architectural panel that will accept ceiling tile. The appearance and architectural panels conceal the electronic set point controls and are easily opened for convenient access to all of the unit controls.

Flexibility

- Multiple discharge patterns
- Suitable for master/slave configurations
- Fits modular ceiling systems (Spline, Plaster, Fine line grids)
- Simple to relocate with occupancy changes
- Suitable for low temperature distribution systems

Appearance

- Clean and simple lines
- Flush surface panel available with matching ceiling tile

Economical

- Simple to install, simple to service
- Self-contained control system
- Energy efficient, minimum static pressure required



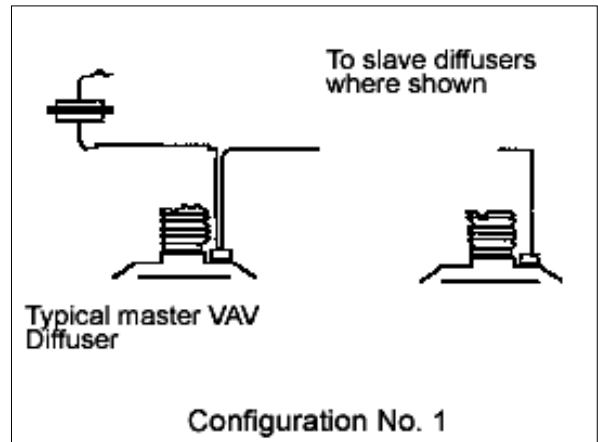
Designed in 1937, this fundamental concept has been in operation for over 50 years. The thermal motors have been used in the HVAC industry on hydronic and steam valves, in the automotive industry on radiator thermostats, and air pollution controls. The energy provided by the thermal motor is coupled to an efficient operating mechanism to control the damper position.

The solid state electronic controls allow for precise control of the room temperature conditions while allowing minimum and maximum control set points. A dual set point is provided on the heating/ cooling unit for individual heating and individual cooling set point temperatures. This unit is equipped with a primary air sensor for automatic change over for cooling and heating.

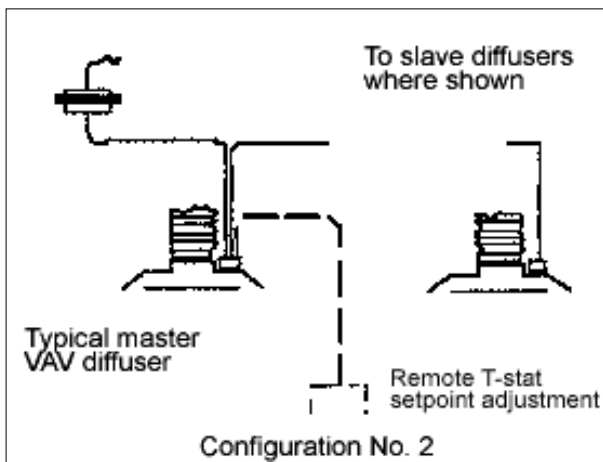
The EFS heating and cooling unit is available in three configurations for application versatility. The first configuration is a self-contained unit when the temperature sensor mounted in the induction guide of the diffuser.

The recommended application of this unit is the interior zones and perimeter zones where the exterior "skin" heat loss is 250 BTUH/linear ft. or less.

The second configuration is a self-contained unit with the set point controls mounted under the diffuser appearance panel and the remote temperature sensor mounted.



It is recommended that this unit with the remote sensor (thermistor) be used on perimeter applications that exceed 250 BTUH/linear ft. "skin" heat loss and or applications where the ceiling height is in excess of ten feet.



The third configuration is a self-contained unit with remote set points and integral temperature sensor (remote electronic thermostat). This unit may be used in all applications where easy access to the set point adjustments are desired.

