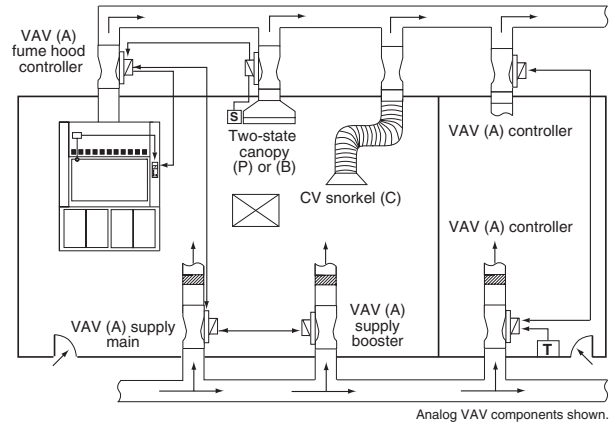


**APPLICATIONS**

**Airflow Volume Control**

Variable air volume (VAV): Analog and Digital VAV valve controllers are available. Both types are commonly used for laboratory airflow control of fume hoods, general exhaust, and room supply air.

- Analog (A): Typically used for standalone and point-to-point BMS integrated systems, using analog circuitry with 0-10 Vdc input and output signals. Associated analog valves are used as booster valves, receiving a command signal from an analog main valve.



Analog VAV components shown.

**SPECIFICATIONS**

**Construction**

- 16 ga. spun aluminum valve body with continuous welded seam
- Valve bodies available as uncoated aluminum or with corrosion-resistant baked phenolic coatings
- Composite Teflon® shaft bearings
- Spring grade stainless steel spring and polyester or PPS slider assembly
- Supply valves insulated with 3/8" (9.5 mm) flexible closed-cell polyethylene. Flame/smoke rating 25/50. Density is 2.0 lb/ft<sup>3</sup> (32.0 kg/m<sup>3</sup>)

**Operating Range**

- 32-122 °F (0-50 °C) ambient
- 10-90% non-condensing RH

**Sound**

Designed for low sound power levels to meet or exceed ASHRAE noise guidelines.

**Performance**

- Pressure independent over a 0.3"-3.0" wc (75-750 Pa) drop across valve
- Volume control accurate to ±5% of airflow command signal
- No additional straight duct runs needed before or after valve
- Available in flows from 35-6000 cfm (60-10,000 m<sup>3</sup>/hr)
- Response time to change in command signal: <1 second
- Response time to change in duct static pressure: <1 second

**VAV Controller**

Analog:

- ±15 Vdc, ±5% @0.145 amp (pneumatic only)
- 0-10 Vdc command signal
- 0-10 Vdc flow feedback signal
- 0-10 Vdc alarm signal

**Actuation**

Pneumatic:

- 20 psi (-0/+2 psi) with a 20 micron filter main air required (except for CVV)
- Compressor sizing:\* Accel II Valves are not continuous air-consuming devices, yet for compressor sizing, use:
  - single and dual valves: 10 scim
  - triple and quad valves: 20 scim

Electric (analog only):

- 24 Vac (±15%) @60Hz
  - single and dual valves: 48 VA
  - triple and quad valves: 96 VA
  - UL 916 listed

Teflon is a registered trademark of DuPont Co.

**FEATURES**

FEATURE/OPTION	VAV (EXV/MAV) Pneumatic	VAV (EXV/MAV) Electric
Control type	A	E
Flow feedback signal	✓	✓
Failsafe	NO/NC	NO/NC or Last Posit.
Factory-insulated valve body (supply)	✓	✓
Field-adjustable flow	✓	✓
Flow alarm via feedback circuit	✓	✓
Flow alarm via pressure switch	Option	Option
Low noise diffuser construction†	✓	✓

All valves include pressure independent controller, factory-calibrated position controller, and are available in flows from 35-6000 cfm (60-10000 m<sup>3</sup>/hr). †Accel II valves are designed to reduce sound over all frequencies, but significantly target the lower bands (125-500 Hz) to help eliminate the need for silencers.



# ORDERING GUIDE

**MAV A 1 1 0 M - A E M H N - P**

### VALVE FAMILY

EXV = Electronic exhaust valve  
MAV = Electronic supply valve

### VALVE CONSTRUCTION

**A** = Body and cone—uncoated aluminum; Shaft—uncoated 316 stainless steel  
**B** = Body and cone with baked phenolic coating, Teflon-coated stainless steel shaft (for standard fume hood applications)  
**C** = Body, cone, and hardware with baked phenolic coating, PFA coated stainless steel shaft (for highly corrosive fume hood applications)  
**S** = Special coating and/or components

### NUMBER OF VALVE BODIES

**F** = One valve body with welded circular flange (single flanged)  
**1** = One valve body (single no flange)  
**2** = Two valve bodies (dual)  
**3** = Three valve bodies (triple)  
**4** = Four valve bodies (quad)

### VALVE SIZE

**08** = 8" valve (7.88"/200 mm actual diameter)  
**10** = 10" valve (9.88"/251 mm actual diameter)  
**12** = 12" valve (11.88"/302 mm actual diameter)

### FLOW/PRESSURE OPERATING RANGE

Designation	Size	Specified cfm (m <sup>3</sup> /hr) Range				Pressure Drop Across Valve
		Single	Dual	Triple	Quad	
L = low pressure	08	35-500 (60-850)	—	—	—	03"-3.0" wc (75-750 Pa)
	10	50-550 (85-925)	100-1100 (170-1850)	—	—	
	12	90-1050 (150-1750)	180-2100 (300-3500)	270-3150 (450-5250)	360-4200 (600-7000)	

### FAIL-SAFE POSITION

#### Exhaust Valves

**O** = Normally open exhaust valve  
**E** = Normally closed exhaust valve  
**M** = No fail-safe exhaust valve (electric actuation only)

#### Supply Valves (provided with insulation)

**C** = Normally closed supply valve  
**S** = Normally open supply valve  
**N** = No fail-safe supply valve (electric actuation only)

### VALVE ORIENTATION

**H** = Horizontal  
**U** = Vertical upflow  
**D** = Vertical downflow

### CONTROL TYPE

**A** = Analog/pneumatic  
**E** = Analog/electric

### VALVE DESIGN

**A** = Conical shape diffuser (Accel II®)

### VALVE OPTIONS

(As required, list alphabetically then numerically)

**B** = Two single square flanges mounted on both ends of single body valves  
**F** = One single square flange mounted on inlet of single body exhaust valves or discharge of single body supply valves  
**M** = Module, scaling function (E or M analog only)  
**P** = Pressure switch (see note 1)  
**O** = Power supply, valve-mounted, 120 V  
**T** = Power supply, valve-mounted, 230 V  
**01-99** = Denotes factory-assigned special

### VALVE CONTROLLER DESIGNATION

**E** = Electronic valve with no booster valves  
**M** = Main electronic valve with booster valves  
**H** = Hood exhaust valve with no booster valves, includes H/I card and pressure switch (see note 3)  
**I** = Hood exhaust valve with booster valves, includes H/I card and pressure switch (see note 3)  
**R** = Hood exhaust valve with no booster valves, includes H/I card with alarm relay output and pressure switch (see note 3)  
**Q** = Hood exhaust valve with booster valves, includes H/I card with alarm relay output and pressure switch (see note 3)  
**S** = Associated (or standalone) analog valve without pneumatic solenoids  
**P** = Associated analog valve with pneumatic solenoids (see note 2)

### NOTES:

1. Pressure switch setpoint = 0.2" wc (50 Pa).
2. All hood exhaust booster valves must have "P" type controllers and pressure switches.
3. Electrically actuated hood valves require valve controller designation R or Q. Do not use H or I designators.

## VALVE CONTROLLERS & OPTIONS

### Valve Controller Designations

**Hood exhaust (H or I):** Includes an interface board and pressure switch for tri-state alarming and connection to fume hood monitor.

**Hood exhaust with relay (R or Q):** Same as analog H or I, but also includes an alarm relay output.

**Associated analog valve (S or P):** Depopulated versions of the analog valve controller.

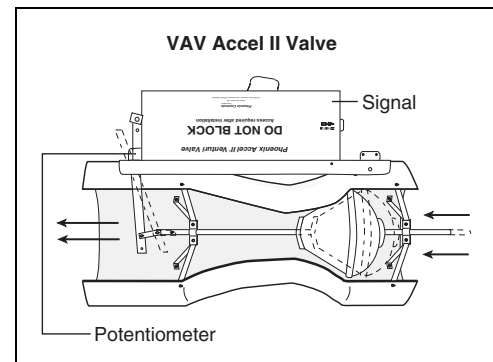
**Valve Options** (components added to enhance a valve's functions)

**Single square flange (F):** Provides a single connection from round single body valve to square duct. On inlet of single body exhaust valves; discharge of single body supply valves. Typically used in Neutralizer™ applications.

**Scaling function module (M):** Electronic board installed on an analog E or M valve controller to adjust input signal for offset control, inverse operation or scaling.

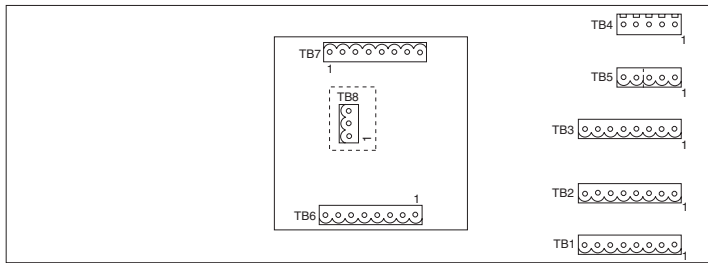
**Pressure switch (P):** Detects low static pressure across the valve. Installed on non-hood exhaust valves to provide low static pressure alarm monitoring.

**Power supply (O, T):** Valve-mounted power supply provides +15 Vdc, -15 Vdc power to Phoenix Controls system.



**POINTS & WIRING** (See submittal wiring diagram for project-specific details.)

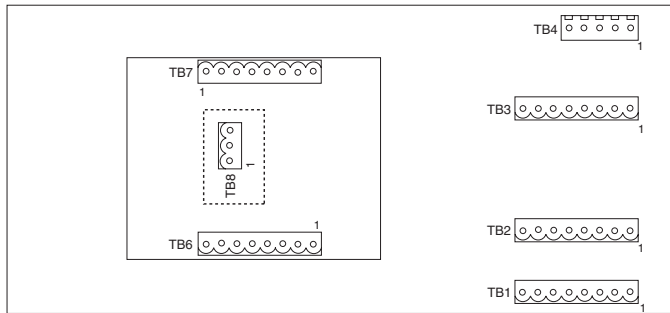
**Analog Pneumatic Controller**



**TERMINAL BLOCK—ANALOG PNEUMATIC VALVE CONTROLLERS**

Terminal Block	Typical Function	No. of Terminations
<b>TB1*</b>	Input from command device	8
<b>TB2*</b>	Output	8
<b>TB2S*</b>	Booster valve output	8
<b>TB3</b>	Prior booster valve input	8
<b>TB4</b>	Pot and pressure switch	5
<b>TB5</b>	Power input	3**
<b>TB6*</b>	Input from monitor (H/I card)	8
<b>TB7*</b>	Hood valve output (H/I card)	8

**Analog Electric Controller**



**TERMINAL BLOCK—ANALOG ELECTRIC VALVE CONTROLLERS**

Terminal Block	Typical Function	No. of Terminations
<b>TB1*</b>	Input from command device	6
<b>TB2*</b>	Output	6
<b>TB2S*</b>	Booster valve output	6
<b>TB3</b>	Prior booster valve input	6
<b>TB4</b>	Pot and pressure switch	5
<b>TB5</b>	Power input and test	3**
<b>TB6*</b>	Input from monitor (H/I card)	8
<b>TB7*</b>	Hood valve output (H/I card)	8
<b>TB8*</b>	Relay output	3
<b>J1</b>	Power Input (Note 3)	2

**NOTES:**

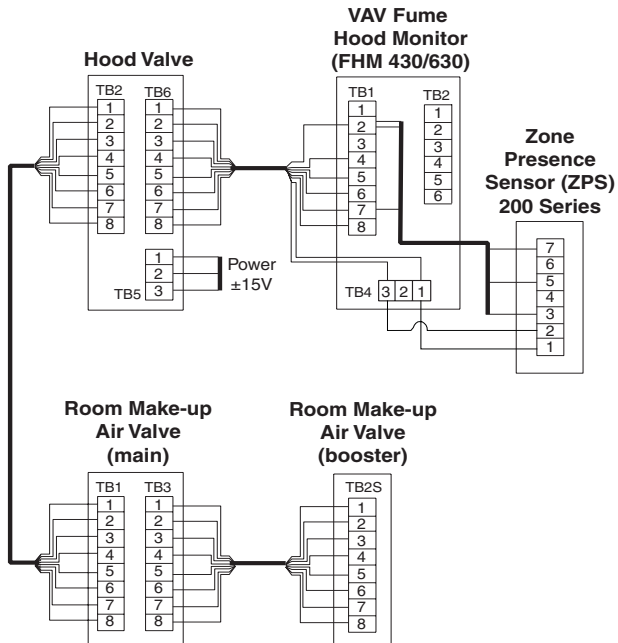
1. Cable is 22 ga. Eight-conductor is Beldon 9421 or equivalent.
2. Each termination block (except TB4) uses a depluggable connector with screw-down terminations for ease of installation.
3. Electric actuation power wiring must be 14 AWG, connected in a star configuration.

\*These terminal blocks are application specific and are provided only when required.

\*\*For electric actuation, S and P type valve controllers, TB5 is a 5 pin.

# Typical Wiring Diagrams

## ANALOG PNEUMATIC VALVES



## ANALOG ELECTRIC VALVES

