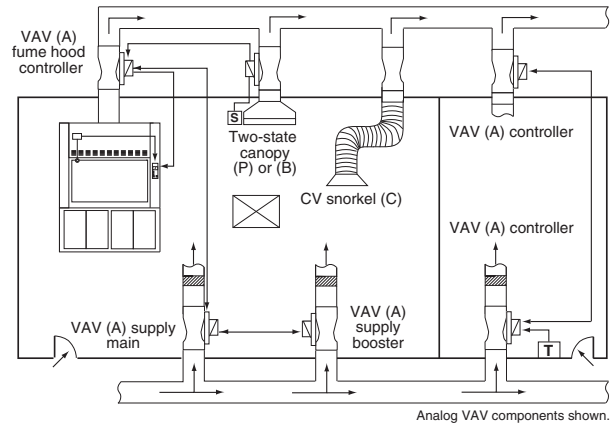


**APPLICATIONS**

**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) valves are more 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/ft³ (32.0 kg/m³)

**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%, 5cfm of airflow command signal
- No additional straight duct runs needed before or after valve
- Available in flows from 35-5600 cfm (9514 m³/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%) @ 60 Hz
  - single and dual valves: 96 VA
  - triple and quad valves: 192 VA

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	✓	✓
14-inch valve*	—	—
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 35-5600 cfm (60-9514 m³/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.

\*Not offered in the 14-inch valve at this time.



# ORDERING GUIDE

**MAV A 1 1 0 L - 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)

**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*)

**FLOW/PRESSURE OPERATING RANGE**

Designation	Size	Operating Range in CFM (m3/hr)			Pressure Drop Across Valve
		Single	Dual	Triple	
L = Low pressure	08"	35-500 (59-850)	—	—	0.3-3.0" WC (75-747 Pa)
	10"	50-550 (85-934)	100-1100 (170-1869)	—	
	12"	90-1050 (153-1784)	180-2100 (306-3568)	270-1350 (459-5352)	

**NOTES:**

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

## VALVE CONTROLLERS AND 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.

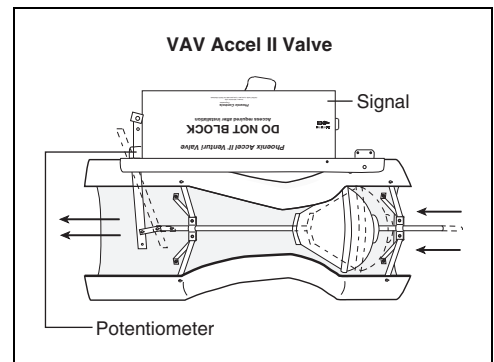
### Valve Options (components added to enhance a valve's functions)

**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.

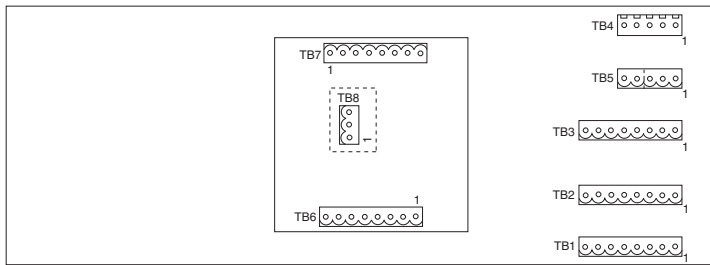
**Pressure switch (P)**—Detects low static pressure across the valve. Installed on non-hood exhaust valves to provide low static pressure alarm monitoring.

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



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

**Analog Pneumatic Controller**

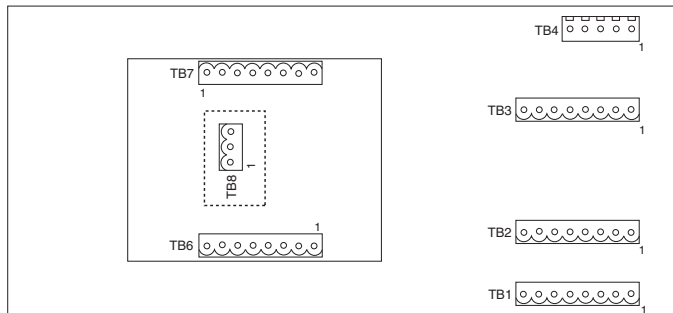


**Legend:** Dashed line around TBB denotes HR option.

**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**



**Legend:** Dashed line around TBB denotes HR option.

**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 (see note 3)	2

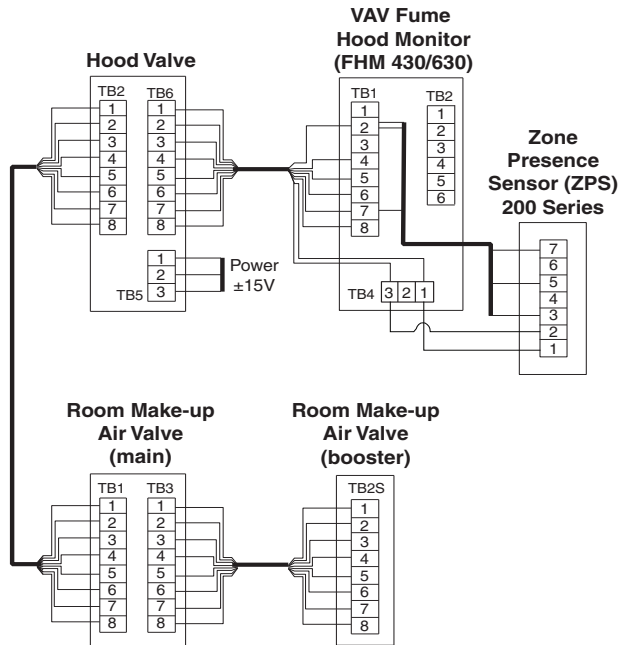
**NOTES:**

1. Cable is 22 ga. Eight-conductor is Belden 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

