

## APPLICATIONS

### Airflow Volume Control

**Constant volume (CV)**—Constant volume controllers (C) are typically used for snorkels, biosafety cabinets, CV fume hoods, ventilated cabinets and outside air regulation.

**Two-position**—Pneumatic controllers (P) are typically used for canopy hoods and two-position fume hoods. Base upgradable controllers (B) can be substituted when flow feedback is required or upgradability to VAV is desired.

## SPECIFICATIONS

### Construction

- 16 ga. spun aluminum valve body with continuous welded seam
- Valve bodies available as uncoated aluminum; or with corrosion-resistant baked-on phenolic coating, or PVDF (Polyvinylidene fluoride) coating
- 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) across valve
- Pressure independent airflow accuracy to ± 5% of airflow feedback signal
- No additional straight duct runs needed before or after valve
- Available in flows from 35-5600 CFM (9514 m<sup>3</sup>/hr)
- Response time to change in duct static pressure: <1 second

### Pneumatic Actuation\*

- Only applicable to PEV, PSV and BEV/BSV
- 20 psi (-0/+2 psi) with a 20 micron filter main air required
- Compressor sizing: Accel II Valves are not continuous air-consuming devices. For compressor sizing, use:
  - single and dual valves: 10 scim
  - triple and quad valves: 20 scim

### Flow Feedback Card

#### Mounting

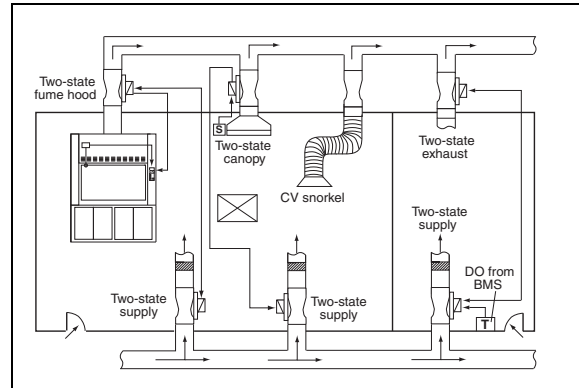
The flow feedback card is factory installed in a PPC flame retardant black box enclosure.

#### Enclosure

Dimensions: 6 x 3.2 x 1.9 inches  
Color: Black

#### Power

±15 Vdc, ± 15%, 35 mA  
Or  
24 Vac, ± 15%, 50/60 Hz, 1.5 VA



## FEATURES

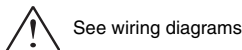
FEATURE/OPTION	CONSTANT VOLUME (CV)	TWO-POSITION (PEV/PSV)	UPGRADABLE (BEV/BSV)
Control type	<b>C</b> Constant Volume	<b>P</b> Pneumatic	<b>B</b> Base Upgradable
Actuator type	—	Pneumatic	Pneumatic or CV
Flow feedback signal	—	—	Option*
Fail-safe	Fixed	NO/NC	NO/NC**
Factory-insulated valve body (supply)	Option	✓	✓
Field-adjustable flow	✓	✓	✓
Flow alarm via feedback circuit	—	—	—
Flow alarm via pressure switch	Option	Option	Option
Low noise diffuser construction†	✓	✓	✓

All valves include pressure-independent controller.

†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 available with the 14-inch valve at this time.

\*\* Fixed fail-safe for CV actuation.



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# ORDERING GUIDE

**BSV A 1 1 0 L - A B F H C - P - - - -**

### VALVE FAMILY

CVV = Constant volume valve (see note 1)  
 PEV = Pneumatic exhaust valve (see notes 6-7)  
 PSV = Pneumatic supply valve (see notes 6-7)  
 BEV = Basic electronic exhaust valve (see notes 6-7)  
 BSV = Base electronic supply valve (see notes 6-7)

### 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)  
 D = Body, cone and hardware with PVDF coating, with PFA coated 316 stainless steel shaft (for highly corrosive fume hood applications) (see note 8)  
 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 (9.86"/251 mm actual diameter)  
 12 = 12" valve (11.88"/302 mm actual diameter)  
 14 = 14" valve (13.88"/352 mm actual diameter) (see notes 6-7)

### FLOW/PRESSURE OPERATING RANGE

Designation	Size	Operating Range in CFM (m3/hr)		Pressure Drop Across Valve
		Single	Dual	
L = Low pressure	08"	35-500 (60-845)		0.3-3.0" WC (75-750 Pa)
	10"	50-550 (85-930)	100-1100 (170-1860)	
	12"	90-1050 (155-1780)	180-2100 (310-3560)	
	14"	200-1400 (340-2375)	400-2800 (680-4750)	

### FAIL-SAFE POSITION

#### Exhaust Valves

O = Normally open exhaust valve  
 E = Normally closed exhaust valve  
 X = Fixed flow exhaust valve

#### Supply Valves (provided with insulation)

C = Normally closed supply valve  
 S = Normally open supply valve  
 F = Fixed flow supply valve

### VALVE ORIENTATION

H = Horizontal  
 U = Vertical upflow  
 D = Vertical downflow

### VALVE CONTROLLER DESIGNATION

N = No electronics  
 F = Flow feedback (BEV, BSV only) (see notes 5, 7)  
 G = Two-state controller, flow feedback and high wattage 24 Vdc solenoid valve  
 T = Two-state controller and high wattage 24 Vdc solenoid valve

### CONTROL TYPE

C = Constant volume  
 P = Pneumatic (see note 6)  
 B = Base upgradable/pneumatic (see note 6)  
 F = Fixed, field adjustable - BEV, BSV only (see note 6)

### 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  
 H = High wattage 24 Vdc solenoid valve, controlled by FHM530 monitor (BxV/PxV/"S" analog only)  
 I = High wattage 24 Vac solenoid valve, controlled by non-Phoenix device (BxV/PxV/"S" analog only)  
 L = Low wattage 24 Vdc solenoid valve (BxV/PxV only)  
 P = Pressure switch (see note 2)  
 O = Power supply, valve-mounted, 120 V (see notes 3-4)  
 T = Power supply, valve-mounted, 230 V (see notes 3-4)  
 01-99 = Denotes factory-assigned special

### NOTES:

- Accel II upgrades (AUG) are available to convert a BEV/BSV into a fully electronic, analog or digital valve.
- Pressure switch set point = 0.3" WC (75 Pa).
- Valve-mounted power supplies not available with CVV valves.
- A pneumatic actuator is not supplied with the FF option (fixed field adjustable with flow feedback).
- Not available in the 14" valve size.
- 14" PxV and BxV are only available as a single valve with a pneumatic actuator.
- 14" Valves are not available with the flow feedback option at this time.
- Class D valves are only available in single body valves (F or 1) without square flanges and only offered in sizes 8, 10, 12 and 14-inch valve bodies.

## VALVE CONTROLLERS AND DESIGNATIONS

### Valve Controller Designation

**Flow feedback (F)**—Includes a circuit board installed on a Base series control valve to provide a 0-10 Vdc feedback signal scaled to indicate airflow. (NOTE: This option is not available for the 14-inch valve at this time.)

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

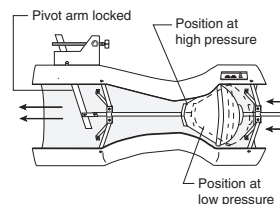
**Single square flange (F)**—Provides a single connection from a round single body valve to a square duct. On the inlet of single body exhaust valves; discharge of single body supply valves. Typically used in Neutralizer™ applications.

**Solenoid valves (H, I, L)**—Installed on a two-position valve to pneumatically switch the valve between maximum and minimum flows.

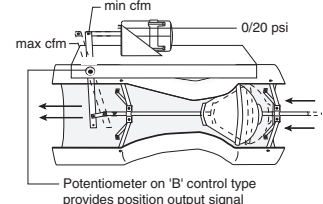
**Pressure switch (P)**—Detects low static pressure across the valve. Installed on non-hood exhaust valves to provide low static pressure alarm monitoring.

**Power supply (O, T)**—Valve-mounted power supply provides +15 Vdc, -15 Vdc power to Phoenix Controls base upgradable valves with flow feedback.

Constant Volume Accel II Valve  
C—constant volume type

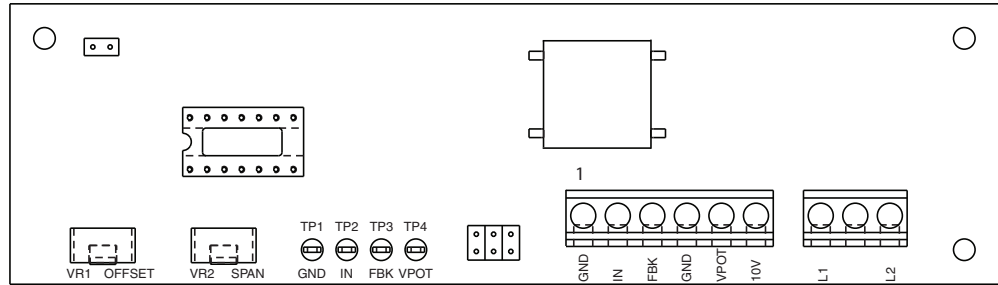


Two-position Accel II Valve  
P—pneumatic type or B—base upgradable type



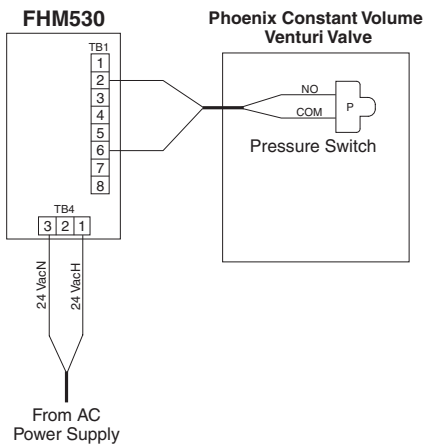
**POINTS AND WIRING** (See submittal wiring diagram for project-specific details.)

**Flow Feedback Option**

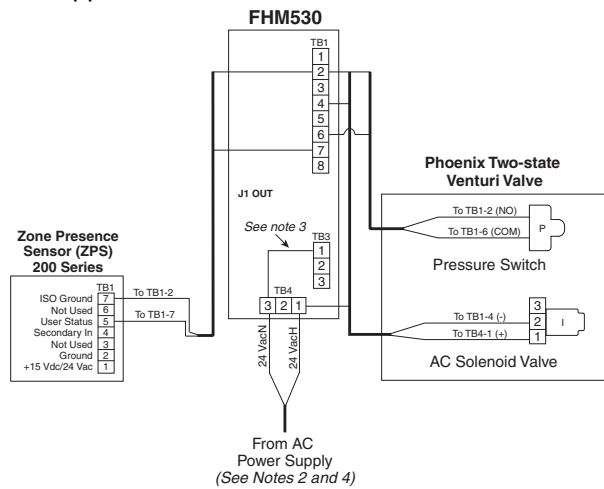


**Typical Wiring Diagrams**  
(see Note 1.)

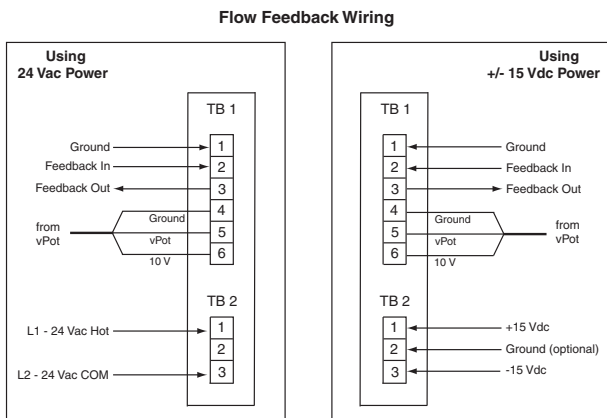
**Hood Applications: Constant Volume**



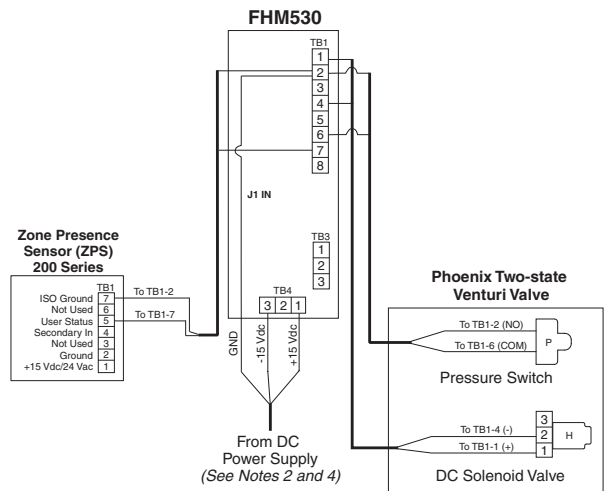
**Hood Applications: Two-State with AC Solenoid**



**Flow Feedback Wiring (24 Vac and +/-15 Vdc)**



**Hood Applications: Two-State with DC Solenoid**



**Notes:**



1. See *Phoenix Recommended Cables* for more wiring information.
2. Fume hood monitor enclosure must be earth grounded via the mounting hole ground straps.
3. For AC-powered solenoid, two-position applications, you must install a field jumper between TB3-1 and TB4-3 (not required for DC-powered solenoids).
4. AC solenoids require the fume hood monitor to have AC power. DC solenoids require the fume hood monitor to have DC power.