

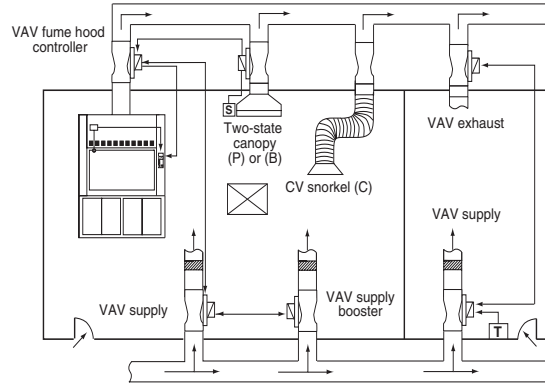
APPLICATIONS

Airflow Volume Control

Variable air volume (VAV): VAV control schemes are commonly used for laboratory airflow control of fume hoods, general exhaust, and room supply air.

- Fume Hood Control: For typical fume-hood applications, high-speed (< 1 second speed of response) actuation is required. The Celeris valve controller interfaces with our current fume hood monitors for actuation. The Celeris platform provides room-level control functions in either standalone or integrated systems.
- Tracking Pair Control: In applications where the Make-up Air Control and an interface with the Phoenix Fume Hood Controllers are not required, low-speed electric actuation offers an economical solution for room-level control in either standalone or integrated systems.

Celeris controllers provide room pressurization, temperature, humidity, occupancy and emergency control functions in the Make-up Air and Tracking Pair Control applications.



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 lb/ft³ (32 kg/m³)

Operating Range

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

Performance

- Pressure independent over a 0.6"-3.0" wc (150-750 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 m³/hr)
- Response time to change in command signal:
 - <1 second (control type M and N)
 - <1 minute (control type L)
- Response time to change in duct static pressure: <1 second

Pneumatic Actuation

- 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

Sound

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

VAV Controller

Power:

- 24 Vac (±15%) @ 50/60 Hz

Power Consumption:

Control Type	Single	Dual
L (low-speed electric)	13 VA	15 VA
M (high-speed electric)	96 VA	96 VA
N (pneumatic)	11 VA	11 VA

I/O available for connecting field devices:

- 3 universal inputs. Accepts volt, mA, ohms or NTC 2 or 3 thermistor signals.
- 1 digital input
- 2 analog outputs. Provides volt or mA signals.
- 1 digital output (Type C, 1 amp @ 24 Vac/Vdc)
- Input accuracy
 - Voltage, current, resistance: ±1% full scale
- Output accuracy
 - 0 to 10 Vdc: ±1% full scale into 10 kΩ minimum
 - 4 to 20 mA: ±1% full scale into 500 Ω +0/-50 Ω

Agency compliance:

- CE
- UL 916 listed (M option pending)
- FCC Part 15, Subpart J, Class A

Room-level communications:

- FTT-10, 78 KB, bus topology, LonTalk™ network

Building-level communications:

- TP-1250, 1.2 MB, bus topology, Lon-Talk™ network

* Not applicable to CVV series.

Teflon is a registered trademark of DuPont Co. LONWORKS is a registered trademark of Echelon Corp.

FEATURES

FEATURE/OPTION	VAV (EXV/MAV)		
	L	N	M
Control type	L	N	M
Actuator type	Low-speed electric	Pneumatic	High-speed electric
Flow feedback signal	✓	✓	✓
Failsafe	Last Posit.	NO/NC	NO/NC/Last Position
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.

†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.

FCC COMPLIANCE FOR DIGITAL VALVES

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance (Phoenix Controls) could void the user's authority to operate the equipment.

NOTE:

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
- This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual (Phoenix Controls product data sheets and wiring diagrams), may cause harmful interference to radio communications.
- Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- Shielded cables must be used with this unit (for Accel-Link) to ensure compliance with the Class A FCC limits.



ORDERING GUIDE

MAV A 1 1 0 M - A L E 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 phenolic coating, PFA coated stainless steel shaft (for standard fume hood applications)
C = Body, cone and hardware with phenolic coating, PFA coated stainless steel shaft (for highly corrosive fume hood applications)
S = Special coating and/or components

NUMBER OF VALVE BODIES
(see note 1)
F = One valve body with welded circular flange (single flanged)
1 = One valve body (single no flange)
2 = Two valve bodies (dual)

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

FAIL-SAFE POSITION
(see notes 3 and 4)
Exhaust Valves
O = Normally open exhaust valve
E = Normally closed exhaust valve
M = Fail to last position exhaust valve (control types L and M only)
Supply Valves
C = Normally closed supply valve (with insulation)
S = Normally open supply valve (with insulation)
N = Fail to last position supply valve (control types L and M only, with insulation)

VALVE ORIENTATION
H = Horizontal
U = Vertical upflow
D = Vertical downflow

CONTROL TYPE
(see note 3)
L = Celeris 2—low-speed electric actuation
N = Celeris 2—pneumatic
M = Celeris 2—high-speed electric

VALVE DESIGN
A = Conical shape diffuser (Accel II®)

VALVE OPTIONS
(As required, list alphabetically, then numerically)
B = Square flanges on each end of single body valves
F = Single square flange mounted on *either*:
• Inlet of single body exhaust valves *or*
• Discharge of single body supply valves
P = Pressure switch (see note 2)
O = Power supply, valve-mounted, 120V (see note 3)
T = Power supply, valve-mounted, 230V (see note 3)
01-999 = Denotes factory-assigned special

VALVE CONTROLLER DESIGNATION
(see note 3)
E = Electronic valve
H = Hood exhaust valve with pressure switch

FLOW/PRESSURE OPERATING RANGE

Designation	Size	Specified cfm (m ³ /hr) Range				Pressure Drop Across Valve
		Single	Dual	Triple	Quad	
M = medium pressure	08	35-700 (60-1175)	—	—	—	0.6"-3.0" wc (150-750 Pa)
	10	50-1000 (85-1700)	100-2000 (170-3350)	—	—	
	12	90-1500 (150-2500)	180-3000 (300-5000)	See note 1	See note 1	

NOTES:

- For triples, specify one single with B option and one dual valve; for quads, specify two dual valves. Triples and quads will represent two nodes on the network.
- Pressure switch setpoint = 0.3" wc (75 Pa).
- Fail-safe options: Normally closed (NC) and normally open (NO) for high-speed electric and pneumatic only. Fail-to-last position for high- and low-speed electric only.

VALVE CONTROLLERS & OPTIONS: CELERIS VALVES

Valve Controller Designation

Controller Type E: Suitable for supply, make-up air, and general exhaust valve applications.

Controller Type H: Suitable for fume hood applications and includes a pressure switch for alarming.

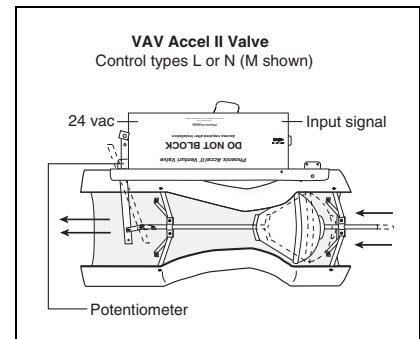
Valve Options (components added to enhance a valve's functions)

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.

Two square flanges (B): Transitions each end of a single body valve from a round to square duct.

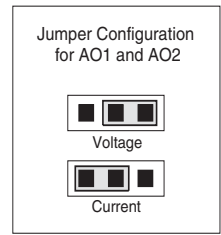
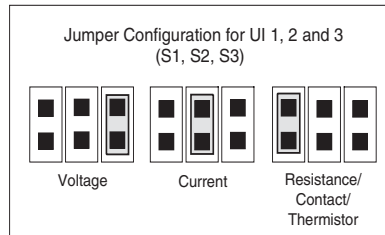
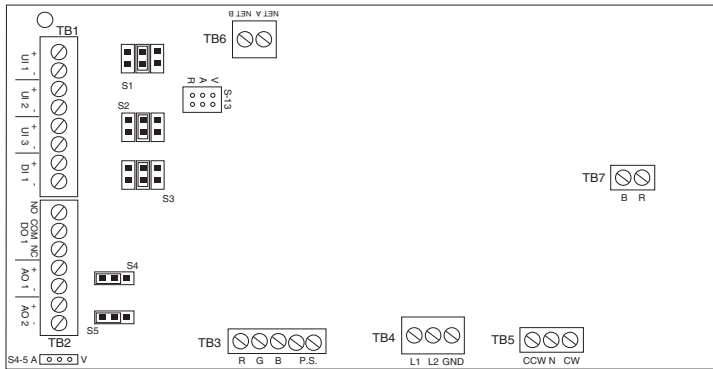
Pressure switch (P): Detects low static pressure across the valve. Installed on non-hood exhaust valves to provide low static pressure alarm monitoring.

Power supply (O, T): Valve mounted power supply provides +15 Vdc, -15 Vdc power to Phoenix Controls fume hood monitors and zone pressure sensors.



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

Celeris Valve Controller



TERMINAL BLOCKS—CELERIS VALVE CONTROLLERS

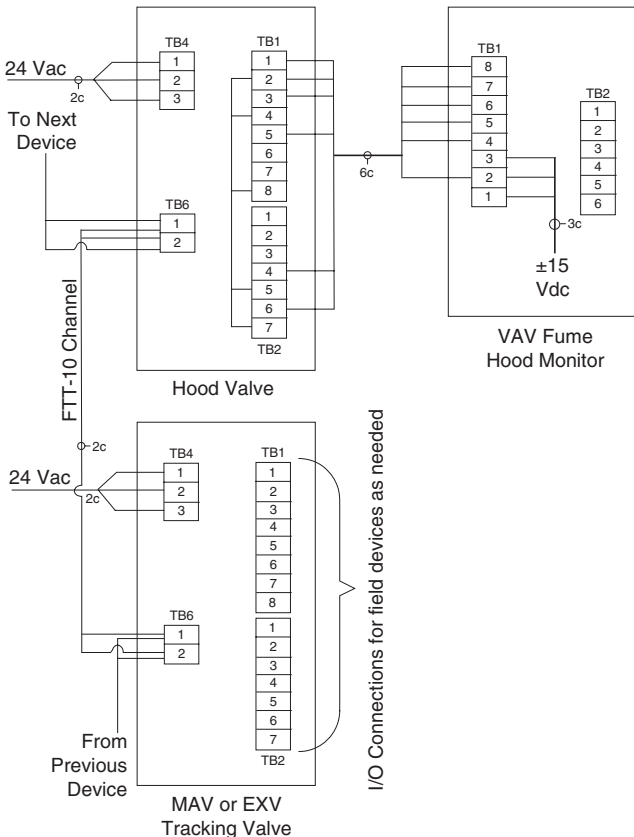
Terminal Block	Typical Function	No. of Terminations
TB1	Input Connections	8
TB2	Output Connections	7
TB3	vPot & Pressure Switch	5
TB4	Power (24 Vac Input)	3
TB5	Actuator (control type L only)	2
TB6	Communication (FTT-10)	2
TB7	Actuator (control type M only)	2

NOTES:

- Power—18 AWG pneumatic and low-speed electric valves
14 AWG high-speed electric valves and must be connected in a star configuration
- Signal—16-22 AWG Twisted Pair
Communication—22/16 AWG Level IV or Beldco 8471 (or equivalent)
- Each termination block (except TB3, 5 and 7) uses a depluggable connector with screw-down terminations for ease of installation.

Typical Wiring Diagrams

Hood Applications



Tracking Pair Applications

