




# Celeris® Control Systems for High-Performance Research Environments

The Celeris® brand of products are designed specifically for fume-hood intensive, high-level containment and pharmaceutical manufacturing facilities and protects researchers and safeguards the integrity of a research environment in critical control environments while offering optimum energy efficiency.

## Why Celeris?

Leveraging the proven accuracy, stability and reliability of the Phoenix Controls Accel® II venturi valve, the Celeris system provides a flexible and feature rich solution for all your airflow and climate control needs. The Celeris environmental control system integrates seamlessly with BACnet capable Building Management Systems.

| Building on the foundation that made Phoenix Controls the premier fume hood control system, we have applied the following principles to valve level, room level, and suite level control: | |
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| **Precision ventilation and pressurization control over wide flow ranges** | The Accel II valve accurately meters flow over turn down ranges of 20 to 1 to within ±5% of flow. |
| **Pressure independence** | Automatically compensates for changes in duct static pressure |
| **Unmatched Speed of Response** | Independently respond to changes in air flow command or duct static pressure in 1 second or less |
| **Inlet and outlet insensitivity** | Unique design and flow metering technologyeliminates the need for straight duct runs upstream or downstream of the Accel II valve |

Available with electric or pneumatic actuation, the Celeris valve mounted controller leverages LonWorks technology to create a peer-to-peer control network capable of performing sophisticated control strategies. Input and output connections on each valve controller provide sufficient I/O for connecting sensors and actuators.

## Control Functions

**The highly configurable applications resident in the Celeris valve controllers utilize the LonWorks network to provide tremendous flexibility in implementing the desired room-level control strategy.**

| Grouped into basic functions the Celeris capabilities include: | |
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| **Zone balance control** | Provides superior ventilation and pressurization control by monitoring and controlling all networked and non-network flow devices in the pressurization zone. Advanced control features are built in:<br>• Indoor Air Quality (IAQ) Control – decrease air change rate when air quality is good to reduce energy consumption. Increase air change rates if air quality deteriorates<br>• Return air control – vary the ratio of 100% exhaustto return air based on indoor air quality |

### Video: Inlet Insensitivity

This video demonstrates the inlet and exit insensitivity of the Phoenix Controls valve.

### Video: Pressure Independence

This video demonstrates the characteristics of an airflow control device needed to maintain constant airflow.

### PC Optimizer

PCOptimizer Airflow & Energy Modeling

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| **Temperature control** | Provides basic cooling and reheat control with 2nd stage of cooling or heating control or use more sophisticated control schemes:<br>• Control off of the average of multiple temp sensors<br>• Set up to four temperature zones per pressurized space<br>• Discharge temperature control<br>• Discharge set point reset control<br>• BTU Compensation<br>• Thermal Anticipatory Control<br>• Hot Deck/Cold Deck control |
| **Occupancy Control** | The BMS can adjust the air change rate and temperature set points based on work schedules to reduce energy consumption during unoccupied periods. Users may override the occupancy schedule on a room by room basis. |
| **Humidity Control** | Control local humidification and dehumidification systems to maintain optimum comfort |
| **Mode Control** | Initiate configurable flow conditions in response to local events (purge mode, decontamination mode, decommission mode) up to nine different states |

Many built-in functions provide opportunities for substantial energy savings, reduced installation costs and as with all Phoenix Control products no on-going maintenance expense. These types of benefits can help an organization achieve many of its goals from dollar savings to LEED certification.

Phoenix Controls Celeris systems start up faster and require less balancing support then conventional flow measurement systems. For your high performance research labs, biocontainment or pharmaceutical manufacturing facilities, the Celeris system provides the safest, most reliable, cost effective solution for control of critical environments.