

Demand Control Ventilation: ventilation that thinks



What is Demand Control Ventilation (DCV)?

DCV uses carbon dioxide (CO₂) sensors to monitor occupancy levels and automatically adjust ventilation. Instead of running at full capacity all the time, DCV systems deliver just the right amount of fresh air, saving energy and improving comfort.

Why DCV matters

- 1 Save energy:** avoid over-ventilation by matching airflow to actual occupancy
- 2 Lower costs:** reduce HVAC energy use by 10–30%
- 3 Improve comfort:** maintain consistent air quality and temperature
- 4 Boost property value:** energy-efficient buildings are more attractive to tenants and future buyers
- 5 Support sustainability:** reduce carbon emissions and environmental impact

How economizers work

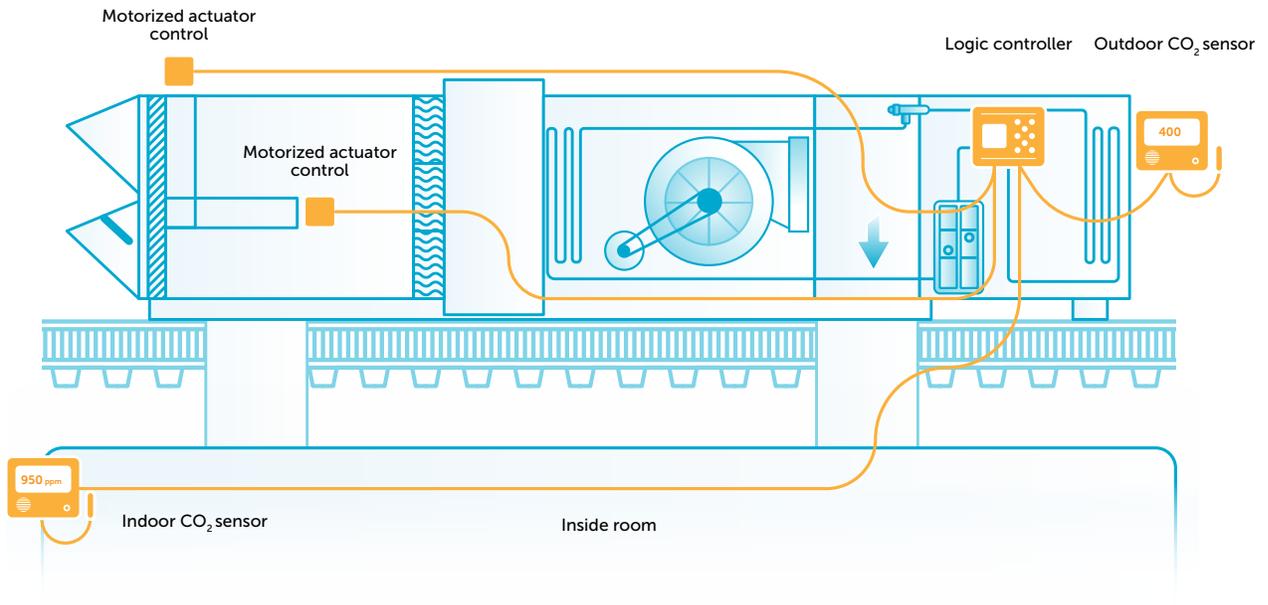
- CO₂ sensors detect how many people are in a space
- Ventilation increases as occupancy rises
- When occupancy drops, airflow decreases automatically
- The system adjusts in real time—no manual changes needed

Example: As employees arrive in the morning, CO₂ levels rise. DCV increases ventilation to maintain air quality. When employees leave, the system reduces airflow, saving energy.

Maintenance matters

Each DCV component is vital to system efficiency. If one fails, performance – and your energy and cost savings – suffers. Regular maintenance of all parts ensures optimal operation and maximum savings. Common issues can include:

- Stuck or dirty dampers
- Faulty sensors giving incorrect readings
- Broken actuators
- Malfunctioning control boards
- Incorrect damper settings affecting ventilation



Environmental benefits

- Less energy waste: traditional systems ventilate for full occupancy, even when spaces are empty
- Lower emissions: reduced HVAC energy use means fewer greenhouse gas emissions
- Smaller carbon footprint: DCV helps buildings operate more sustainably

Is DCV right for your building?

DCV is ideal for:

- Offices, schools, retail spaces, and other variable-occupancy buildings
- Facilities looking to improve energy efficiency and indoor air quality
- Buildings with existing HVAC systems that can be retrofitted

Next steps

Talk to your HVAC professional about:

- Installing CO₂ sensors and DCV controls
- Integrating DCV with economizers and VFDs for maximum savings
- Setting up a regular maintenance schedule
- Exploring rebates and incentives for energy-efficient upgrades

About Efficiency Works

Efficiency Works is a regional utility collaboration that provides guidance and resources to enable customers to use energy effectively, work toward a noncarbon energy future and build strong, resilient communities for customers served by Platte River Power Authority and its owner communities of Estes Park, Fort Collins, Longmont and Loveland.

