

HVAC Control

Application: all buildings

Regulate temperature by maintaining air pressure

It is difficult to make heating and air conditioning systems more energy efficient without affecting occupant comfort. The fact that HVAC systems are often set up by floor further complicates the situation. I need a flexible solution that can adapt to fluctuating occupancy while using only the amount of energy that is actually needed.

Use variable speed drives to regulate air pressure and temperature

Take a chilled-beam heating system, for example. The most energy-efficient solution for this type of heating system would be to add temperature regulation functions via a thermostat, plus pressure regulation in the beam and the room.

The thermostat (T) (see diagram opposite) controls air flow by adjusting the shutters on the intake vent (1). The pressure in the heated beam (2) and the room (3) are kept at constant levels by varying fan speed. The two ATV21 variable speed drives feature an integrated proportional regulation function that allows them to control the fans directly based on information from the pressure sensors (P).

The solution optimizes regulation regardless of fluctuating occupancy patterns. To fine tune energy consumption even further using presence detectors, automatic blind controllers, and timers, a building management system would be required. In this type of setup, the variable speed drives and sensors would be connected to the BMS via a communication bus.

Benefits

For professionals

+ Design

- Eliminates direct starts, so motor size can be decreased
- Simplifies electrical architecture as all functions are integrated into the variable speed drive
- Eliminates the need for additional anti-harmonics filters
- Includes integrated communication bus

+ Installation

- Products are compact in size
- Optional features can be added without increasing product size
- Simple user interface

+ Maintenance

- Local or remote troubleshooting
- Smoother starting increases the lifespan of mechanical components and reduces frequency of maintenance

For the user

> **Save up to 20% off your energy costs** by using independent variable speed drives

> **Minimize maintenance and filter clogging**

> **Quieter operation**

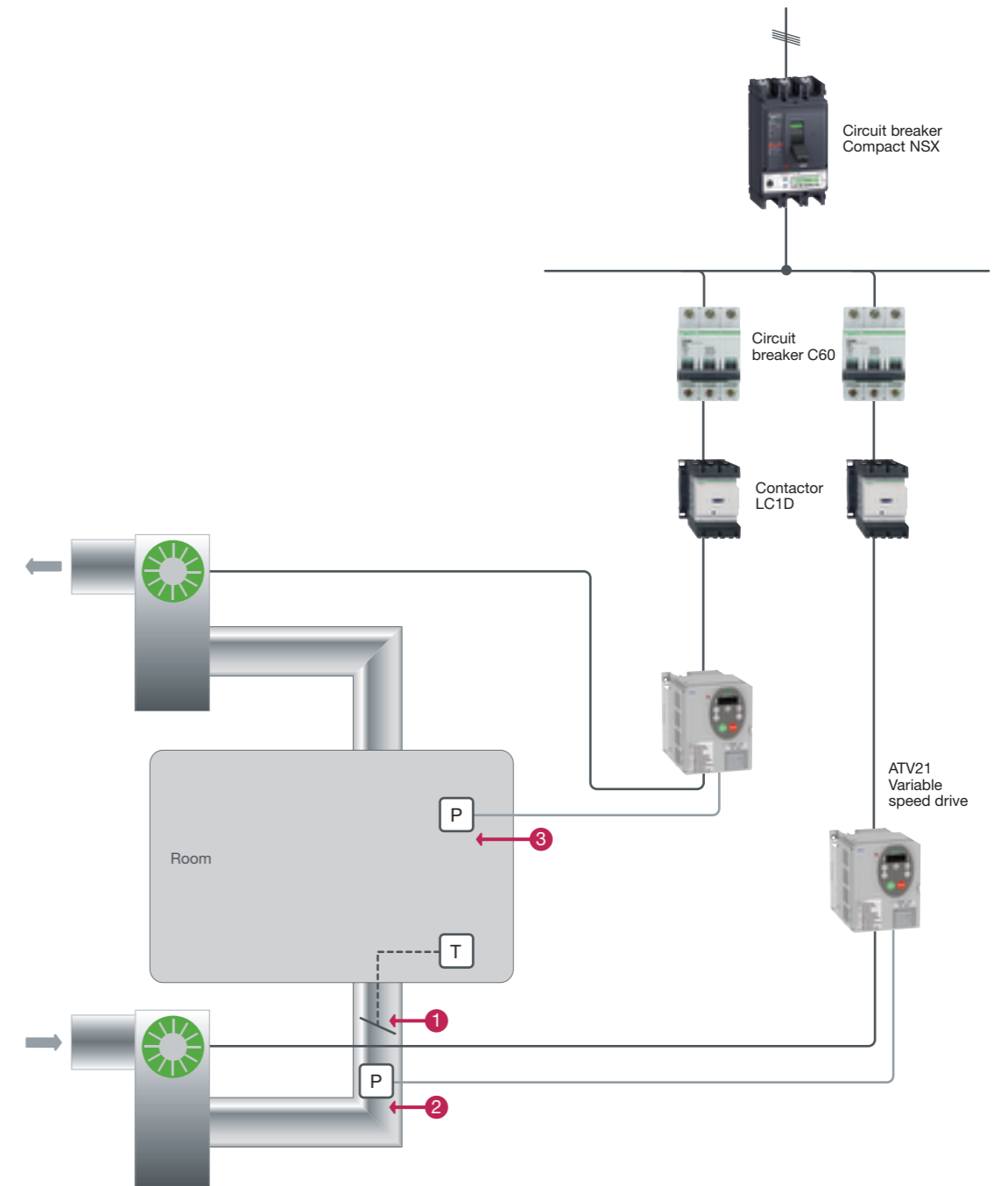
> **Use up to 50% less energy** by integrating variable speed drives into your building management system (BMS)

> **Regulate temperature within a limited range**

> **Provide constant ventilation**

> **Add presence detectors and automation systems** to further optimize the system

- Measure Reduce energy consumption Reduce energy costs



The Altivar 21 variable speed drive is designed specifically for building systems

- Low harmonics (THDI < 30%) thanks to C-less technology (with reduced DC bus capacitors)
- Optional versions with integrated EMC (electromagnetic compatibility) filters

- Modbus standard on all models
- LonWorks, Metasys N2, Apogee FLN, and BACnet available as options

Solution