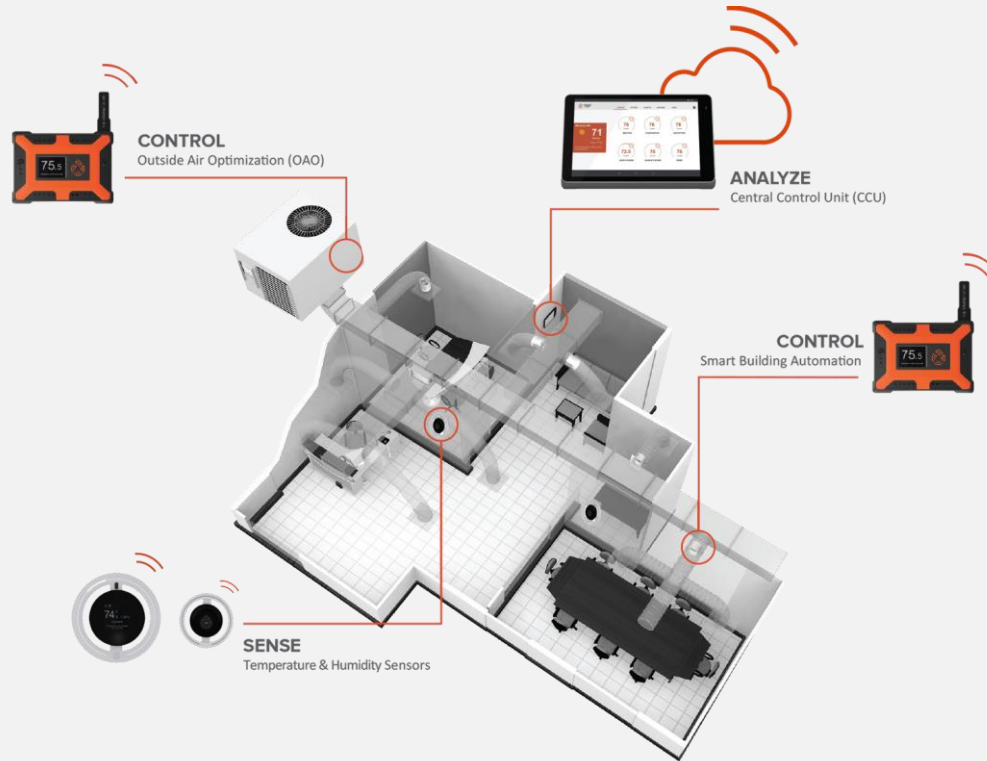


75F® Dynamic Airflow Balancing™

Save energy and provide comfort



APPLICATION OVERVIEW

75F Dynamic Airflow Balancing (DAB) is a proactive zone control system that remotely monitors and controls conditions in individual spaces for superior comfort and efficiency. Predictive machine learning algorithms optimize heating and cooling capacity by redirecting conditioned air to the spaces that need it most, a strategy that multiple third-party, independent tests prove can lower utility cost by between 26 and 45 percent. The DAB design is fine grained, so every space gets its own individual temperature control.

With these tools, building engineers who implement 75F's DAB technology can expect vastly improved energy efficiency, occupant comfort, and productivity. These advantages are accessible to a wide variety of commercial buildings thanks to a full-stack solution that works out of the box, scalability across a range of central plant equipment and site footprints, and intuitive and user-friendly tuners like zone prioritization for hassle-free operation.

FEATURES

- Compatible with equipment from simple RTUs to advanced hybrid AHUs
- Indoor Air Quality (IAQ), CO₂ and occupancy control
- Dynamic Zone Priority setting
- Wireless installation and 900mHz wireless mesh network
- Integration with 75F Facisight web portal and the 75F Occupant App

ADVANTAGES

- Energy savings of up to 45 percent compared to traditional systems
- Enhanced IAQ Management and comfort
- Connected sensors eliminate hot and cold spots before they occur
- Easy-to-use interface with zero programming required
- Remote configuration and easy scheduling
- Out-of-the-box install, but advanced zone controls that scale



HOW IT WORKS

Dynamic Airflow Balancing is a full-stack solution, with components that include sensors connecting to 75F Athena for cloud analysis, A 75F Central Control Unit (CCU) as a supervisor with built-in wall interface, 75F Smart Nodes as terminal equipment controllers, 75F Dampers or third-party units in various configurations, and Facilisight, 75F's building intelligence suite of web and mobile apps for secure remote monitoring and control.

75F's wireless sensors, placed in each zone, capture thousands of data points a minute and millions of data points daily on temperature and humidity. Via a 900 MHz wireless mesh network, these sensors upload to 75F Athena and a dynamic thermal model of your space in the cloud. Athena's algorithms include a live weather stream and forecast data so 75F can predict optimal control strategies. Each zone is configured for parameters such as size of damper and the min/max damper positions for tracking in the algorithms. After a few days, the 75F technology can very accurately anticipate heat loads and can use that information to predictively and proactively control the temperature and air volume in the zones or offices of a building.

This information is combined with pre-determined zone priorities and setpoints (such as desired temperature and relative humidity), to make decisions every minute at the 75F Central Control Unit. If Athena determines the optimal scheduling for a building at any point in time, the CCU delivers instructions on how equipment should operate back over the mesh network and monitors the efficiency and comfort of the HVAC system. In addition, the CCU controls the AHU heating, cooling, and fan speeds either physically or via an API.

75F's Smart Nodes receive instructions on damper position and make micro adjustments continuously, redistributing or balancing airflow dynamically to the zones that need it most.

Each building zone contains one damper that controls the flow of conditioned air into that

zone. These can be radial, rectangular, or butterfly in configuration, and can have 0-10, 2-10, 10-0, or 10-2 volt modulating actuators. A 10K thermistor is added to provide precise airflow temperature. Each damper receives 24V AC power and sensors for room and duct temperatures. If a 75F Smart Node is connected to a sensor that detects CO₂ and that mode is enabled, damper positions will increase when CO₂ levels are above the threshold automatically.

With Dynamic Airflow Balancing from 75F, heating and cooling capacity is optimized by redirecting conditioned air. No master electrician is needed and no programming is required. Because 75F DAB is a wireless solution, there is no pulling communication lines, and installation is faster and less invasive than other systems on the market today. Dynamic Airflow Balancing is an affordable and effective option for retrofits or other dynamic indoor environments.

