



CONTROLS UPGRADE AND INTEGRATION PROVIDE IMPRESSIVE ENERGY SAVINGS AND IMPROVED OCCUPANT COMFORT



Cardinal Health
Fort Mill, SC



Background

The Fort Mill facility of Cardinal Health houses surgical and procedural kitting and distribution operations. Because United Mechanical handles the Preventive Maintenance for this facility, they were consulted about replacements for a couple of aging chillers. In the process of analyzing all viable options to straight chiller replacements, UMC engineers brought in their fellow United Automation engineers to see if they could uncover opportunities to maximize the chiller investment Cardinal was going to make—achieving even broader improvements. Those improvements were eventually centered around energy savings and occupant comfort by means of a controls upgrade, integration, and customized programming. The ongoing energy savings has turned out to be significant and the payback better than the expected two –three years.

Accomplishments

- Converted three-way valves to two-way valves and added variable speed pumping to the chilled water and hot water systems
- Programmed the new chilled and hot water controls to allow the main system loop to modulate down to the minimum speed needed to maintain the water system load requirements.
- Integrated the proprietary, ill-performing controls managing the building's HVAC system, giving United Automation access to troubleshoot and monitor it and Cardinal more flexibility in the future.
- Stabilized Clean Room temperatures to within 1° and humidity to within $\pm 1\%$. Previous attempt at dehumidification was causing additional heat in the Room and compounding occupant discomfort.
- Removed excess humidity in the Breakroom and Auditorium by replacing the controls for the air handling units responsible for those rooms and improving the programming.
- Saved energy in the Breakroom and Auditorium by adding CO² sensors to detect room occupancy, adding VFDs to the supply fans serving these rooms, and designing a controls sequence that modulates the speed of the fans to match the room requirements.