

# Simple advances bring BAS to smaller buildings

 By [Neil Cameron](#)

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The internet of things (IoT) is expanding rapidly. There are more and faster chips as well as more sensors in every element of buildings. Paired with improved wireless networking technology and standardised communication protocols that make it easier to collect data, it's possible to transmit information, crunch numbers and use data like never before.



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This is putting the spotlight on building automation systems (BAS). With their ability to merge data and technology in innovative ways, BAS' are opening the door to automation and optimisation of building environments. In addition, new technology is making advanced BAS for smaller buildings a reality.

## Synchronising systems, not equipment

Today, sensors in valves, actuators and thermostats constantly report changes in their environment, while the chips embedded in electrical switches, door locks and lights, and massive chillers and boilers measure, monitor and report performance. The BAS is able to gather and share that information, orchestrating performance to maximise outputs and minimise energy costs.

How does this play out practically? Consider the activity in an office building as it opens for business. As it begins to fill with people, demand for heating or cooling grows. In the past, the BAS would just start up equipment so chillers, pumps, cooling towers and air handling units would initiate a start sequence and valves would open in response to heat buildup. Now, based on sensors, the BAS system optimises system performance by taking additional data, such as occupancy and predicated weather conditions, into account.

It automatically uses thermostats and valves to adjust temperature, and can provide the exact right kind of pressure drops needed in primary and secondary pumping systems. This reduces the work needed by chillers, boilers and pumps moving water throughout the building, so reducing cost and wear on the equipment. Equipment is optimised and the facility environment is conditioned more efficiently.

## Self-optimising buildings

Once the pumping network is optimised to condition the environment based on occupancy, the benefits multiply. Because

the pumping network is more efficient, impacts on other HVAC equipment such as chillers, boilers and air handling units can be determined and optimised. There is more that can be done with this data, however.

By sending the data into the cloud for further analytical review and benchmarking, the predictive nature of the data and the lifecycle of the building can be enhanced. Suppliers of BAS can aggregate this data, providing monitoring and analytics to alert facility owners to performance deviations and to suggest measures to enhance performance. This helps facilities to drive down energy usage and costs and extend the life of their equipment.

## **Smarter and more affordable**

Top-of-the-line advanced BAS are often portrayed as being for high-end, highly complex buildings. Now, with the components that work together to create systems becoming more affordable, the software becoming more user-friendly and the installation process simplified and improved, these systems are suitable for use at commercial buildings, such as offices, retail establishments, medical clinics and restaurants.

The investment in BAS will lower costs and increase efficiencies. With better management interfaces and functionality, users also get better insight into performance and – importantly – can measure and monitor those savings via graphic dashboards.

## **Better controls make it easier**

Companies wanting to leverage BAS technology for small facilities should look for plug-and-play systems that positions mechanical contractors as the end-to-end providers of HVAC/R equipment and intelligent controls. This will remove installation and maintenance barriers, giving mechanical contractors access to more system information and removing the need for programming expertise to put smart systems together.

Key features to look for:

- It should feature simple configuration settings - intelligent default values for control parameters should be pre-configured at the factory.
- No field programming, software tools or vendor installation labour should be required.
- Fault detection and diagnostics must be embedded to assist and solve mechanical and controls issues.
- Increased flexibility will accommodate a building's unique features and needs.
- Remote connectivity and notification anytime and anywhere should be built in.

Organisations should look towards leveraging the benefits that new technology trends such as the IoT deliver along with integration, providing smarter yet simple-to-use and manage functionality within BAS. As costs are driven down by the efficiencies and integration of these solutions, smaller buildings and facilities now have access to this technology that was often previously unaffordable.

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