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Journal

The BACnet magazine for building automation
in North America and the world

Welcome to the BACnet Evolution

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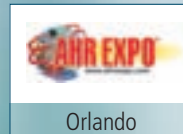
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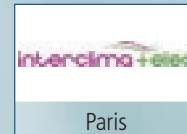
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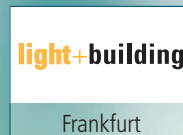
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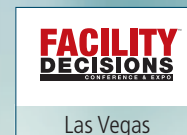
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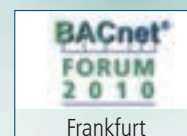
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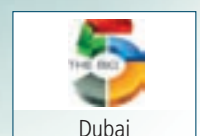
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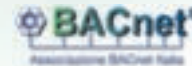
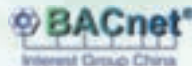
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Imprint

BACnet International Journal

The BACnet International Journal is the American magazine for building automation based on BACnet technology. Experts, practitioners and professionals show the way in applying and developing the BACnet standard – from building automation trends to devices and application projects; from qualification and training to testing and certification; from who's who in the BACnet community to useful information on events and publications. Special attention is given to members and activities of BACnet International.

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- BACnet France Journal
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Welcome to Our BACnet International Journal!

It is with great pleasure that I welcome you to the inaugural edition of the BACnet International Journal. I have spent most of my career working to promote, implement and apply open systems for automation, controls and information management. One thing I have learned is that in all open systems initiatives, communication on a global basis among users, suppliers and all interested parties is essential. The BACnet International Journal promises to be an important addition to the global flow of information and dialogue on BACnet and the solutions it enables.

BACnet was initially released fifteen years ago and the standard as well as the BACnet community has been rapidly growing and evolving

ever since. People and organizations who have been actively engaged in the standards development activity have access to information through a variety of formal and informal communications. However, the continuous growth in BACnet capabilities, applications and participants has created a demand for more accessible information and educational material.

The BACnet International organization is focused on the need for information and education and is working on a variety of initiatives to address it. We support the BACnet International Journal because we believe there is great value in having a straightforward periodical with easy to understand articles introducing readers to

the possibilities of BACnet and describing how users can get maximum value from BACnet – with both a North American and a global view. We look forward to a Journal that reflects the dynamic North American market while reaching out to encompass and present a global perspective.

The BACnet International Journal's positioning allows it to complement ASHRAE's BACnet Today publication, the various regional BACnet Journals as well as our own Cornerstones publication. It is a new link in the communications chain that ties the global BACnet community together and benefits us all.

BACnet International is centered in North America but is deeply committed to the

success of BACnet around the world. We want to ensure that all users and suppliers are aware of the benefits BACnet can provide. We also want to ensure they have access to information, support and encouragement as they adopt BACnet and seek to realize those benefits. As such, we are pleased to support the BACnet International Journal and hope you find it an inspiring and useful link in your own communications chain.

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The Journal for Millions of Producers, Developers and Users

I would like to add a few more words of welcome to those you will find elsewhere in this inaugural issue of the BACnet International Journal! The arrival of this Journal is significant for several reasons, both symbolic and practical. While the other journals that have been published so far have targeted either regions (Europe and the Middle East) or individual countries (China,

France and Italy), this Journal symbolizes the extension of BACnet information to the entire world. The use of English means that the Journal's content will be accessible not only to native speakers but to the many more millions of BACnet producers, developers and users for whom English is a second language.

While not strictly speaking

a publication of the BACnet International organization, the Journal will include information on its activities, including facilitation of BACnet promotion and adoption around the world. Its activities also include BACnet testing, listing and certification of products; development of educational materials; and the support of BACnet Interest Groups, wherever they may be. In

Let's Communicate the BACnet Evolution



The BACnet Committee celebrates the publication of the first BACnet International Journal. With so much happening in the BACnet community, it is important to find ways to communicate the activities of the committee and its working groups to a broad audience, and we hope you will enjoy reading about exciting success stories and the technology that enables them.

BACnet continues to grow in acceptance worldwide. With more than 400 vendor numbers handed out to date (and almost 100 of those in the last 12 months), the pace of development of new BACnet products is increasing tremendously. Manufacturers and customers alike are taking advantage of the power, robustness, flexibility, and

interoperability that BACnet systems can provide.

The scope of BACnet in the enterprise continues to increase, and this past year saw the addition of two more working groups, one for IT integration and one for elevators, bringing the total to thirteen. These working groups, along with the plenary committee, meet four times a year for a total of 26 days of face-to-face meetings. That represents a lot of commitment from a large number of vendors, consultants and customers. The Committee prides itself on its balance, seeking the input of a wide range of individuals so as to not be influenced solely by manufacturers. We all know this leads to a far better standard and is a large contributor to the

enthusiastic worldwide adoption of the standard.

Toward that end, I would like to invite any interested parties to participate in the committee process. While there are many dedicated individuals who attend all 26 days, there are other experts who may participate in only one working group. While their time commitment is less, their contributions are quite valuable, and the entire BACnet community benefits from their involvement in producing a relevant and useful specification.

As you will read in the pages of BACnet International Journal, the BACnet world is a big one. From the expanding and maturing Smart Grid efforts, to enterprise and IT integration with XML, IPv6

and state-of-the-art security, to its adoption of wireless technologies, BACnet continues to evolve and to embrace the best-of-class technologies, which keeps itself and your buildings on the leading edge. You never have to worry about being stuck in the past with BACnet.

If you would like to know more about the BACnet standard or to participate in its exciting future, you can find more information at bacnet.org, bacnetinternational.org, and ashrae.org.

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this latter regard, the group's International Liaison committee hopes to establish lines of communication this year with all of the existing BACnet Interest Groups in an effort to provide whatever assistance it can to help them succeed.

On the practical side, it is the hope that this Journal will provide information on BACnet products, best prac-

tices in the design and implementation of BACnet systems with case studies from around the world, and extension articles on a variety of applications. These contributions will come from design engineers, product developers and users of all kinds. There will be also be news about the activities of the ASHRAE BACnet committee as it seeks to enhance and improve the standard and

news from the ever-growing number of BACnet Interest Groups that have sprung up around the world. You will also find the latest information about BACnet training sessions, conferences and exhibitions worldwide.

I hope you enjoy this exciting new publication. Thanks for your interest and for being a part of the BACnet community!

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BACnet Shines on Smart Grid

Under the auspices of the Smart Grid Interoperability Panel (SGIP), an organization formed to implement the Energy Independence and Security Act (EISA) of 2007, some 400-plus organizations including electric power generators, transmission line operators, appliance and consumer electronics manufacturers, energy brokers, electric vehicle manufacturers and more, are working together to develop the EISA Smart Grid. BACnet already provides some capabilities needed for Smart Grid operation, and it will be extended to support new capabilities. Due to the international participation in the development of the Smart Grid, the end result will likely apply to BACnet systems globally.

The purpose of the Smart Grid is to use energy more efficiently, reducing the need to construct more power plants, to make better use of existing power plants, to integrate inconstant energy sources such as solar and wind, and minimize as much as possible the use of “peaking plants” – power plants that can be brought online very quickly, but which are inefficient to operate. In addition, the Smart Grid is intended to extend the use of the already burdened electric transmission grid in a time of growing demand for electrical power. This will be accomplished through new kinds of electronic interactions between the various participants, from power generating facilities to the end consumers.

There are several efforts underway to define the ways in which the Smart Grid will interact with its participants and the data exchanged in those interactions. Although these various definitions have yet to be merged into a single document, one organization, the Energy Information Standards Alliance (a.k.a. the “EIS Alliance¹”), has published review drafts of the interactions and data exchanges between the Smart Grid and commercial, industrial and residential buildings.

The following types of interactions draw on that work, focusing in particular on the elements that will apply to BACnet systems in commercial buildings. It should be noted that although the end goal is to have a fully automated Smart Grid, elements

of it will involve human interactions (in fact, a number of these interactions are already performed this way, in limited situations.)

Energy prices

One way to persuade consumers to change their electrical consumption patterns is through changing energy prices, whether the price is varying as a function of cost of generation (over time), or as a function of the cost of the energy source.

In one case of the first method, the various electrical loads within the building are defined as “shedtable”, those loads that can be reduced or turned off if necessary, as opposed to “critical” loads which could include production processes; there are many factors to this determination, including personnel safety, comfort, production schedules, and so on. Electricity prices for specified periods of time are conveyed to the building in advance, and it responds in pre-programmed form during each interval.

In a similar case, energy prices, as well as requests from the utility to reduce demand for a period of time (usually under contract in exchange for lower prices), are used to optimize production processes for cost.

A different use of advance utility energy pricing information is to determine (manually or automatically) whether to use energy from the grid or to switch to on-site generation or use stored

energy instead. It can also be used to decide whether or not to generate electricity to feed back to the grid.

The last case presented here involves the availability of multiple energy suppliers, receiving rates from each, and selecting a less expensive source over a more expensive one. (LEED buildings may use slightly different criteria to meet “green” energy source requirements.)

Forecasting energy consumption

Knowing more accurately in advance what the electrical demand is likely to be helps the energy utilities to determine how best to plan and manage their ability to meet that demand. This forecasting can be done today generally using input from a few big consumers

and observing a number of other factors such as a historical time-of-day, time-of-year, weather and other factors. To improve the utilities’ forecasts the consumers (commercial and industrial buildings) forecast their energy usage hours, days or even months ahead and share that information with the utilities.

Measuring energy consumption

Measuring a building’s energy consumption with billing grade meters and conveying that to the utility is an element of energy consumption measurement, but there are a number of other applications of energy-use measurement that apply within the building for reducing demand. Many of these applications can use BACnet meters to supply this information for a number of end uses.



The “backend” of the shedding and restoring capability is already present in BACnet.

¹ www.eisalliance.org

If the consumer can measure his energy consumption, he can manage it better. One method for doing this is to use submeters to measure the energy consumption through electrical outlets (a.k.a. "plug loads"), by power circuits and at the panel level. Another method is to meter specific devices for their consumption (some devices already measure their own consumption and can provide this data).

A similar application uses temporary equipment to measure and verify the performance of energy-efficiency upgrades.

If the goal is to have a building whose energy-efficiency is well above normal, one will want to display it! The energy consumption is measured and pricing information is used to calculate the resultant costs and greenhouse gas emissions for display on a screen, say, in the lobby, and/

or for inclusion in reports. It can be used for comparisons against similar buildings or other buildings within the owner's portfolio. Finally, it can be used for Energy Star or green building rating purposes.

Controlling loads

Shedding and restoring loads as requested by the utility is another aspect of the Smart Grid, one that will affect BACnet systems. As noted earlier, building loads may be shed as a result of pricing information, but they could also come as direct requests from the utility, presumably to avoid brown-outs.

Although the particulars of the communications with the building have yet to be defined, the "back end" of this shedding and restoring capability, whether the result of pricing or utility requests, is already present in BACnet through its Load Control object.

Grid maintenance

Communications between the building and the utilities can be very important when it comes to grid maintenance activities.

Having the utility receive the status of the building's generation capacity intended for the grid is quite important for times when the utility is planning maintenance of its electrical distribution system. Similarly, conveying those plans to the building can provide warning of possible power outages or lower quality power.

Conclusion

The Smart Grid is still in its early stages of development, and it is possible that as its definition and development progresses, additional interactions between the utilities and the building automation systems in commercial buildings will be defined. These interactions may even be driven by different

regulatory, environmental or social requirements around the world. And though the specific drivers for Smart Grids will vary from place to place, the need will be almost universal and it is in this realm that the one international data communications protocol designed explicitly for buildings, BACnet, is positioned to shine. ■



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Ski-jump at the 2010 Winter Olympics is the first ski-jump facility in the world with a steel-pipe cooling system.

BACnet Wins Gold at the Greenest Olympics

The 2010 Olympic and Paralympic Winter Games in Vancouver, British Columbia, Canada received international attention not only for the caliber of athletic performances, but also for the focus the games had on sustainability. The 2010 Winter Olympics were touted as the greenest Olympic Games in history.



Alongside the goals for a sustainable Olympic venue, Canada also set aggressive goals for medal achievement, and created the Own the Podium (OTP) program. Own the Podium set specific targets for Canadian athletes to achieve excellence as a world leader in performance sport. The OTP program resulted in a total of 14 gold medals for Canada, more than any previous host nation has won during the Winter Olympics.

It could also be said that through the efforts of Delta

Controls partner ESC Automation, and Delta Controls OEM partner CIMCO Refrigeration, that BACnet owned the podium in 2010. The number of 2010 Winter Olympic facilities that have Delta Controls BACnet products installed is impressive. Whether it was speed skaters practicing laps at the Richmond Speed Skating Oval, or Ski Jumpers preparing to catch the best air up at Whistler or the world's finest hockey players battling to compete for Gold; behind the scenes Delta Controls BACnet-based control

systems were ensuring all athletes had the best possible environment in which to compete.

Some of the facilities in which Delta Controls BACnet product was installed for the 2010 Winter Games are as follows:

The Whistler Sliding Center, Whistler BC:

Home to the Bobsleigh, Luge and Skeleton events, the waste heat from the ice track refrigeration plant is captured and reused to heat buildings on-site. Delta Controls BACnet

controllers operate in six individual buildings at the Sliding Center. All buildings are networked into the main refrigeration plant situated at the bottom of the Sliding Center. The 1400TR central plant refrigeration system utilizes 121 custom evaporator coils with 450,000 feet of steel piping embedded into approximately 6000 feet of concrete track. Cimco's ECO CHILL® system converts approximately 1,500,000 btu/hr of waste heat into heat for the building's heating system. A network of DDC panels located

in five CIMCO fabricated weather proof panels were used to track temperature sensors located throughout the track.

Nordic Center, Whistler BC:

Home to the Cross-Country Skiing, Biathlon and Ski Jumping events, this 4 building site is an independent BACnet facility. A combination of HVAC heat recovery ventilators with electric coils and hydronic heating systems help make this a LEED Gold project. A CO2 demand control system and tempered heating ventilators for outside air rounded out this project.

Olympic Park Ski Jump Center, Whistler BC:

Home to the ski jumping events, both the 96 meter and 125 meter ski jumps were mechanically cooled by a custom-designed CIMCO

refrigeration package. It is one of only two ski jump facilities in the world to be refrigerated, and the first to utilize a steel-pipe cooling system.

Richmond Olympic Speed Skating Oval, Richmond BC:

This \$178 million state of the art speed skating track was identified as the "sexiest" 2010 Olympic competition venue in Omega Lifetime magazine. Additionally, the Institution of Structural Engineers awarded the Richmond Olympic Oval its top award for Sports or Leisure Structures. Technically, the CIMCO 700TR central plant refrigeration system utilizes four screw compressors and two plate & frame evaporators circulating up to 10,000 USGPM of calcium chloride brine throughout the floor. The refrigeration system is convertible to pro-

vide cooling for two Olympic sized ice sheets and the building air conditioning in its legacy configuration. A Cimco ECO CHILL® system is used for heat recovery.

Athletes Village Energy Center, Vancouver BC:

The \$30 million Olympic Athletes' Village energy plant received the highest environmental certification in the world, Leadership in Energy and Environmental Design, (LEED) platinum. The Energy Centre, one of the first in North America to use sewage as fuel, kept 2,800 athletes and officials warm during the Olympics. The False Creek Energy Centre is part of Vancouver's attempt to become a world leader in green energy.

UBC Winter Sports Centre, Vancouver BC:

Home to the ice hockey events, the eye on the ice system monitors ice temperature and humidity on the surface as well as building temperature and humidity, reporting the data to a centralized BACnet Advanced Operator Workstation. This stream of information allows the ice maker to manipulate the venue conditions and optimize the ice surface. Through CIMCO Refrigeration, a 400TR central plant refrigeration system was installed cooling three sheets of ice. The ECO CHILL® system recovering 3,800,000 btu/hr of refrigeration waste heat dramatically reduces the natural gas usage in the facility.

BC Place, Vancouver BC:

Delta Controls partner, ESC Automation was instrumental in providing the controls system that monitored the environment inside BC Place. This included the gas detection system that was used to monitor for gas leaks during the torch lighting ceremonies.

Pacific Coliseum, Vancouver BC:

Home to the figure skating and short track speed skating events, the Pacific

Coliseum had an upgrade from an existing Delta Controls legacy system to the latest Delta Controls BACnet system. This project involved integration to a CIMCO 560TR central plant refrigeration system that is responsible for cooling the main rink surface. This facility also utilized the Delta Controls BACnet Lighting Control System for event and area controlled lighting. An average of 15% reduction in energy use was achieved through more efficient lighting, DDC controllers and dehumidification upgrades.

These Games set an incredible standard for sustainability, so much so that the venues have received the Excellence for Green Building Award from the Globe Foundation and the World Green Building Council.

Delta Controls BACnet products helped fulfill the goal of sustainability and performance, just as the OTP program did for the Canadian athletes. Though BACnet wasn't on the athletes minds while they were on the podium, it was responsible for ensuring that the environments in which the athletes performed met their world-class standards. ■



The mechanically cooled ski jump construction has a height of 125 meter.



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Irvington High School Wins Greenest School in Nationwide Essay Contest

Irvington High School in Fremont, California, opened in 1961 with an enrollment of 1,450 students; today, the campus includes a 350-seat theater, two gymnasiums, two cafeterias, and 93 classrooms that host more than 2,000 students. Irvington is one of five high schools in the Fremont Unified School District, one of the largest school districts in San Francisco's Bay Area.

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For years the high school students and faculty took formal measures to reduce waste and make the campus greener, including creating a green advisory committee that collects recyclable materials from all the rooms on campus every week. In 2009 the school was named the nation's greenest school in a nationwide essay contest sponsored by IC Bus, LLC, who awarded Irvington High School a \$200,000 hybrid electric school bus for winning the title. In addition

it was named an Energy Star in 2007 by the U.S. Department of Education, and received California's Flex Your Power Award for the energy savings it generated between 2006 and 2007.

As part of its continuing efforts to maximize efficiency, Fremont Unified School District elected to update its existing dial-up building automation system (BAS), so that it could leverage an existing wide-area network (WAN) to centralize con-

trol of all the heating, ventilating and air conditioning (HVAC) equipment on campus. The school chose an Alerton building solution installed by Syserco, Alerton's San Francisco-based dealer.

Update challenges

There were two primary challenges with the update project. The first was converting from the existing dial-up system to a BACnet based, direct digital controls (DDC) system. The inherent nature of a dial-up sys-

tem required the district maintenance staff to communicate one-to-one with devices, so establishing separate schedules, for example, for different zones – and different schools, once they are all tied into the single BAS – was difficult.

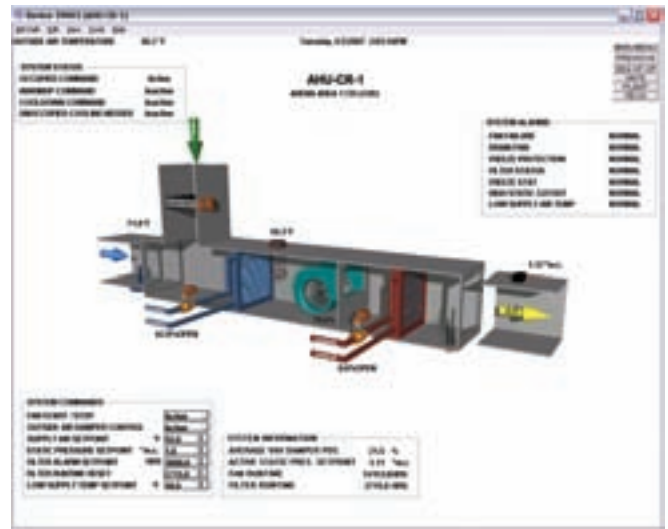
The other challenge was using the BAS to administer scheduled load-shedding as part of the Critical Peak Pricing (CPP) program through Pacific Gas & Electric, the electric utility

"Energy Star" Irvington High School in Fremont, California.





Vision of central plant for energy saving high school.



provider for northern and central California. The CPP program is designed to reduce electrical demand during high-peak periods, so a participating organization commits to trying to shed a certain percentage of its load. In return, the organization receives reduced electrical rates for times during the program period when Pacific Gas & Electric does not call for a load reduction. Irvington High School's CPP program period includes 12 "event days" that fall between May 1 and October 31. From noon to 3:00 p.m., the electrical rate is three times the normal charge; during 3:00 and 6:00 p.m., rates are five times higher. Fremont Unified and Irvington High School were pioneers in Pacific Gas & Electric's CPP program, but needed to make sure its own BAS could respond effectively when the call came out to shed its load.

Systems installed

Syserco installed an Alerton BAS on the district's existing WAN that monitors and controls all the HVAC equipment on campus, and uses BACnet to execute multiple control strategies for automatic load-shedding. The high school's BAS includes operator workstations that run Alerton's Envision™ for BACTalk® software, which manages all the building's

functions. Syserco was able to leverage nearly all the school's existing legacy IBEX hardware, so only minimal replacements were necessary. Additional tasks included converting IBEX™ to BACTalk using an Alerton global controller with BCM-TUX modules, updating to the latest version of Envision for BACTalk, and adding new screen graphics. All told, BACTalk controls the HVAC and exterior lighting at the high school, and implements the Auto Demand Response energy reduction.

The CPP program through Pacific Gas & Electric asks participants to commit to shedding a pre-determined percentage of their electrical load on pre-scheduled days between May 1 and October 31 each year. Irvington High School is currently enrolled with 12 automatic demand response (Auto DR) days during which Pacific Gas & Electric can call, 24 hours in advance, to prompt curtailment.

The high school sheds its load in two phases: Stage One cycles the HVAC equipment on and off starting at 12:00 p.m. through 3:00 p.m. Stage Two begins at 3:00 p.m. and ends at 6:00 p.m. – all units are shut down at 3:00 p.m. While most of the school is closed by 3:00 p.m., it's still possible to

override some selected areas that may be still occupied, such as the principal's office or a gymnasium.

A client logistic interface relay (CLIR) receives the signal from Pacific Gas & Electric through the Internet and passes it onto the BACTalk software to invoke the curtailment program. The CLIR features eight outputs that execute multiple control strategies. One output receives notice of the pending Auto DR day. The Irvington system displays a graphic of a red light so the operator knows the prompt will come in the next 24 hours. At noon on the Auto DR day, the operator reads the second output as an incoming dry contact and it implements the 12:00 – 3:00 p.m. load reduction, cycling four zones within the targeted area off and on for 15 minutes each. A third contact implements the 3:00 – 6:00 p.m. strategy for curtailment.

In return for decreasing its energy use through Pacific Gas & Electric's CPP program, Irvington High School pays a reduced rate for kilowatts. In addition to other schoolwide energy-saving measures, the school was able to cut its energy consumption by 33 percent in a single year. The district-wide CPP program has saved approximately \$10,000 each year

for the last three years, and is a significant achievement considering the annual electrical bill for entire district is \$2 million.

Irvington High School was able to standardize all the various building systems with the Alerton BAS and since it leverages the existing WAN, the staff now views data from multiple sites more quickly without having to individually dial up the data.

Other schools have already begun their own efforts to duplicate the success Irvington High School staff has had in increasing energy efficiency. ■



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How Quality Counts – Builders of Drives See How Their Work Helps Save Lives

Visit by assemblers to end users, includes seeing how Aurora St. Luke's Medical Center in Milwaukee uses drives to control critical environments.



Visit at St. Luke's Medical Control Center by makers of drive.

If you have ever wanted to appreciate why quality and fast order fulfillment are crucial to end users, you would have enjoyed being part of the visit ABB personnel working in the New Berlin factory made to the Aurora St. Luke's Medical Center in Milwaukee on June 29th. Gene Brittain, Paul Jacob, Houxeng Xiong, Alan Pelishek, and Seng Yang volunteered for the visit to St. Luke's, to see how drives leaving the factory reach their final destinations.

The visit began at JMB & Associates, the local ABB Representative for HVAC products, serving the medical center. Jody Seidler, the service manager for JMB & Associates, explained to the group how "having ABB support us enables us to serve customers on a daily basis." He ex-

plained that the advantage of ABB drives is the fast warranty and "hot job" turnaround time on emergency orders. "Competitor units have to go back to the factory and sit. ABB has the ability to replace a unit within hours. This can be a big advantage for future sales. A lot of the time, the way to win customers is with the hot, one-piece orders for emergencies."

In the case of St. Luke's, it's a good partnership, Seidler noted, and "most hospitals throughout the state utilize ABB products, due to their quality – and the service and performance that our business works day and night to deliver with these products."

Clean air and temperature control helps save lives around the clock

In many instances, the failure

of a drive in the field can result in production downtime and significant financial loss; in the case of St. Luke's and other medical facilities like it, the failure of a drive can be much more catastrophic.

Cherian Varghese, HVAC Supervisor at St. Luke's, explained to the group that, in hospital environments, "HVAC systems are vital because, just as one example, for surgeons, any fluctuation in temperature can cause their glasses or computer screens to fog, and that impedes critical conditions, so it is crucial to keep air temperatures in control."

Along with temperature control, ABB drives also control the fans for the hospital's 3-filter system, which filters the "supply" air into the building and surgical rooms, keeping the air sterile and preventing infection. "Hospitals never close," noted Cherian, "so reliability is key – and we are very pleased with how ABB VFD's helps us ensure these operating conditions that we need."

St. Luke's has nearly 100 ABB drives controlling cooling towers, chilled water pumps and supply and return fans throughout the facility, including in the new Patient Tower – the 12 storey, 430,000-square-foot addition that houses eight new operating rooms, 78 intensive care units, and 192 private patient rooms.

A circle of care

When the ABB employees

were asked about their experience on this customer visit, Gene Brittain, a regional application engineer, noted, "It's easy to see how every person has a hand in providing the highest product quality and support possible, so hospitals like St. Luke's feel confident to use our products."

This is the second of ongoing customer-site visits, initiated by Aaron Aleithe, VP and GM of Low Voltage Drives and Motors. "Our goal with these visits is to see both how products our factory teams produce are used – and also how they truly impact peoples' lives, across a host of operations," said George Lord, the managing director of operations for the ABB factory. Lord coordinated the visit with Todd Wimmer, the Northern Regional HVAC sales manager. ■



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Everything under control

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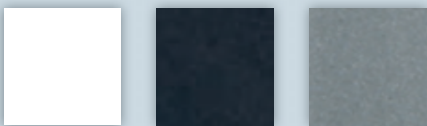
Flexible design and highly adaptive: The BACnet multifunctional room operating panel WRFo8



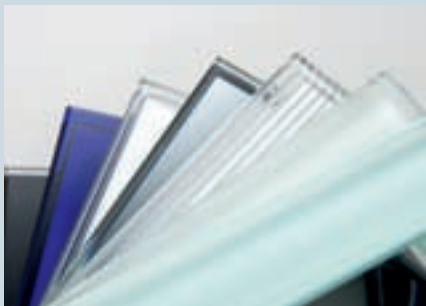
Combine various colours of enclosures with attractive design frames. We do not set any limits to your fantasy – just advice your individual and preferred combination of colour and material: glass, plastic, stone or wood.

Your advantages:

- » Display functions: room temperature, setpoint adjustment, operation mode, fan steps, presence
- » Operating functions: light on/off/dim, blind up/down/adjust
- » Illuminated function buttons with coloured status indication
- » BACnet MS/TP communication protocol



- » **Standard colour of enclosure:**
pure white, anthracite, aluminium



- » **Flexible design:**
Select from a variety of modern design frames.

» NEW! The WRFo8 – now with BACnet!





The implementation of the technology in the Promutuel building showed the way to significant savings.

Building Automation Unencumbered by Cables – Make Way for LEED

EnOcean technology will contribute to LEED gold certification of the corporate headquarters of Canada's Promutuel insurance group.



Global climate change and rising energy prices mean that efficiency, sustainability and flexibility in building are becoming increasingly important. To successfully implement these prerequisites, more and more operators and building owners invest in modern automation solutions. The aim is to automate various functions – such as control of lighting, shading or heating – with the aid of innovative technologies and sustainable solutions, thus making them simpler and more economical. Users benefit from extra comfort and convenience, while

operators and owners have buildings and space they can lease for an attractive return. Sustainable building can be made measurable and transparent by the award of a LEED certificate.

LEED (Leadership in Energy and Environmental Design) certification was developed by the US Green Building Council in 1998 as a suite of standards designed to classify the sustainability of buildings. This voluntary certification procedure promotes environmentally friendly and economical building. Rating is done by a

system using points, which are awarded for sustainable site, water efficiency, energy and atmosphere, materials and resources plus indoor environmental quality. There are four levels of LEED qualification: certified, silver, gold and platinum. The most common recipients of LEED certification are office buildings, schools and universities. One example of a building aiming to get a gold level LEED certification is the corporate headquarters of the Canadian Promutuel insurance group, situated in a complex owned by Immo-

Building automation unencumbered by cables and batteries

To make its head office in Quebec really sustainable, the Canadian insurer decided to partner with the building's owner to have the new building LEED certified. To achieve this, they installed innovative technologies such as EnOcean wireless. This technology works entirely without batteries, so it can operate without the need for servicing or maintenance. The current it needs is harvested from the energy in its surroundings: linear motion, light or differences

in temperature for example. A further advantage of the innovative solution is its speedy and straightforward installation – no cables have to be routed. That fact alone means savings of as much as ten percent.

Energy-efficient lighting and heating

A total of 800 EnOcean-enabled products from various manufacturers were installed – including energy-autonomous presence detectors and light sensors from Servodan, light switches and receivers from Echoflex Solutions plus EnOcean-based and BACnet-based gateways from Regulvar. All products integrating EnOcean technology are interoperable, enabling them to communicate with one another in any application.

To prevent energy waste and carbon emissions right from the start, an intelligent lighting and shading control system which also increases comfort levels throughout

the building was installed. Assisted by light sensors, the lighting is automatically dimmed or turned off according to given levels of daylight. When the daylight levels reach a higher level, the window blinds are gradually automatically closed to ensure that lighting levels within the building remain constant throughout the day. This also reduces temperature increases inside the building, which in turn significantly reduces the cooling energy requirements. To meet the requirement, maintenance-free and energy autonomous presence detectors were also installed to control the lighting in the building, which they do by sensing whether a room is occupied or not. Movement information is transmitted wirelessly to a receiver, which automatically turns off lights if no movement is registered after a determined period of time. If required, users can still adjust their lights manually.

The EnOcean-enabled light



New possibilities in planning and room arrangement. Later changes can be made without the need for new cabling.

switches were also put in place in the various rooms. These switches generate their own operating energy from finger pressure: a miniature dynamo uses this to produce an electric voltage. Requiring no cables, they are simply screwed or stuck to a wall or another suitable surface.

The individual components are linked by BACnet to the building management system. The system is programmed so that lighting and heating or air-conditioning are automatically turned down or off outside of office hours. If someone is nevertheless in the office, they can turn on the light by simply pressing the switch. The EnOcean-based and BACnet-based systems from Regulvar also allow central control and monitoring over the internet.

The entire installation was completed in just a few weeks. Regulvar was the executive partner and consultant for the entire duration of the project.

New possibilities in planning and room configuration

The implementation of batteryless wireless technology in the Promutuel building

showed the way to significant savings in energy and operating costs, without in any way hindering the company's performance. Also, this opened new possibilities in planning and room arrangement because any later changes can be made without the need for new cabling. An additional advantage is the fact that these products can be speedily and simply removed or placed elsewhere for later renovations. These smart building automation solutions clearly demonstrate their leadership in energy and environmental design. ■



EnOcean-based and BACnet-based control center.

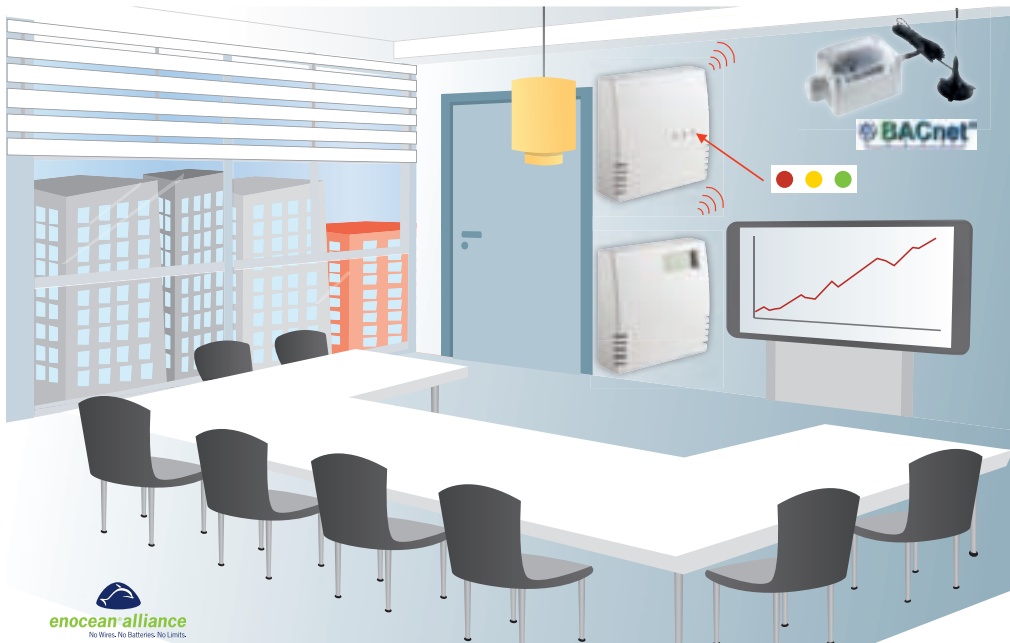


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The Intelligent Classroom

By means of Thermokon sensor solutions, intelligent equipment of office spaces and classrooms is feasible without any problems. The monitoring of air quality actively contributes to an increase in capability and performance of the people concerned.

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Sensortechnik GmbH



The colors red, yellow and green provide an optical signal of the air quality for the people in the room.

In frequently occupied rooms the air quality plays a significant role with regards to wellbeing and the capabilities of the people involved. The concentration of mixed gas and especially carbon dioxide (CO₂) determine the air quality of the breathable air. Therefore, air quality measurements in offices and classrooms have become of paramount importance and are part of modern building automation.

By means of the wireless sensor module SR04-CO₂ Thermokon offers an intelligent solution for the connection to room automation. The sensor module cyclically detects the current prevailing CO₂ value in ppm (parts per million). As a reference point a continuous self-calibration of the module is used. The

so called ABC-Logic calculates the lowest level within a time period of 24h as a reference point, which is estimated to be equal to the outside air. Thanks to this continuous self-calibration a time and cost intensive recalibration is eliminated.

After the detection of the CO₂ concentration via a NDIR sensor (Non Dispersive Infrared) the data is conveniently transmitted to a receiver by an EnOcean based RF telegram and gets evaluated. Thus, a direct fan control can be realized via a wireless actuator. Transmission is made with the approved 315 MHz frequency (frequency for North America).

Alternatively, the device is also available with a traffic

light function to evaluate the prevailing air quality. The colors red, yellow and green provide an optical signal of the air quality for the people in the room.

The SRC65-BACnet receives radio telegrams and forwards them to the BACnet system of the building. Thus, the device includes the function of a wireless receiver for EnOcean based RF telegrams and is always operating together with other BACnet automation stations. All parameterization and configuration settings are feasible via the BACnet network.

The used and internationally standardized BACnet MS/TP protocol enables the connection to automation stations or building control

technologies. The baud rate is field selectable and can be adjusted via a DIP switch. The RS485 standard is the interface on the bus side. The maximum number of bus participants is defined by the RS485 transceiver used and enables 128 devices per segment. The addressing of the products for identification in the network is also made via a DIP switch and is assigned individually to each device.

The gateway works with the device profile B-ASC and makes a number of BIBBs available.

It is possible to seamlessly connect and use up to 32 EnOcean based products. After a successful "getting to know" procedure of sensors and SR65 BACnet, a combined operation of both network technologies is instantly possible. Thus, existing room automations can also be easily extended. ■



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BACnet Test Framework – The Perfect Tool for Pre-testing and Quality Assurance

Frank Schubert¹

For a long time conformance tests for BACnet have been available only as manual tests. This complicates reproducibility and due to the higher effort for manual repetition costs are pretty high compared to automated tests.

The software BACnet Test Framework (BTF) from MBS makes automated BACnet tests available and allows easy, cost-effective and reproducible tests not only for conformance testing but also for quality assurance or similar applications in automated testing and analysis.

The software, running on Microsoft Windows, is based on four main components:

1. The BACnet protocol-stack:

This service allows communication to the connected BACnet devices.

2. The Python-script-engine:

Python is an easy-to-use, but powerful scripting language. This allows users to write their own scripts and to design own user-tests.

3. The graphical user-interface:

This application is the “stage direction”, where test-plans are defined, results are displayed and analysis is operated.

4. The SQL-database:

Directly connected to the user-interface is the MS-SQL database, which contains the full BACnet standard in various tables as well as the test-projects and their results.

Example procedure

In the first step the device and its capabilities must be introduced to the test framework. For this, the electronic PICS-for-

mat (PICS = Protocol Implementation Conformance Statement) EPICS is used, where all the device capabilities are listed.

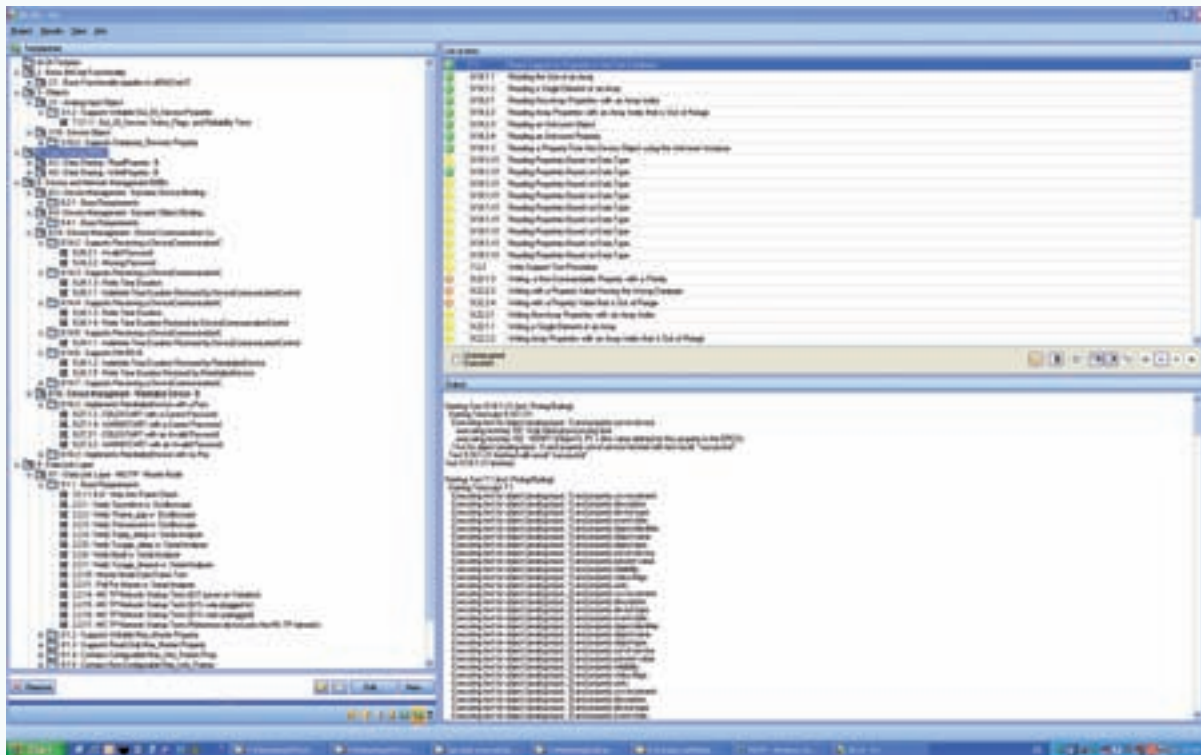
In the first test the consistency of the EPICS, this means integrity and accuracy of the EPICS are checked.

If the EPICS is correct, the test-plan may be generated. The software supports this process by selecting the tests according to the device profile and the current testplan (BTL 5.0 final).

This allows a wide range of applications far beyond conformance testing. The BACnet test framework with its highly flexible structure is qualified for all kinds of automated tests and allows programming own tests, reports or statistics.

This makes the BACnet test framework the excellent choice for quality assurance, for long-term tests or similar applications.

The software was introduced in the first European test round in 2007 and is used in the European test laboratory and for BACnet QA-purposes by various manufacturers since then.



The BACnet Test Framework from MBS.

¹ Frank Schubert, MBS GmbH, is a member of the Advisory Board and the Working Group Technique of the BIG-EU, as well as training-leader of the BACnet Interest Group Europe, frank.schubert@mbs-software.de

ASHRAE's 2010 Winter Conference – BACnet Proceedings



Berhard Isler¹

At ASHRAE's 2010 Winter Conference held in Orlando, the BACnet committee celebrated the approval for final publication of eight addenda to the ANSI/ASHRAE Standard 135

On January 23rd and 25th the members of ASHRAE Standing Standard Project Committee SSPC135 met in Orlando Florida for their winter meetings. The main topic was the development of the worldwide manufacturer neutral BACnet building automation network standard ANSI/ASHRAE 135 and ISO 16484-5.

Eight addenda were approved by the ASHRAE board of directors for publication:

- Addendum 135-2008h Miscellaneous Changes
- Addendum 135-2008k Character Sets
- Addendum 135-2008n Backup and Restore Improvements
- Addendum 135-2008t XML Data Formats
- Addendum 135-2008u Errors, Aborts, and Rejects
- Addendum 135-2008w Primitive Value Objects
- Addendum 135-2008x Clarifications to the standard
- Addendum 135-2008y Deployment options for MS/TP

In the course of the meetings the SSPC was working on other BACnet Addenda to prepare them for publication or a next public review:

- Addendum 135-2008g Network Security
- Addendum 135-2008i Lighting Control
- Addendum 135-2008p Global Group Object
- Addendum 135-2008z Miscellaneous Changes
- Addendum 135-2008aa Channel Object and WriteGroup Service

In addition, new change proposals, for higher MS/TP baud

rates and clarification of usage of date and time, were voted out for inclusion into a next addendum and public review.

XML – IT-friendly way of representing building data

The new Addendum 135-2008t specifies a standard way of representing data in XML that will give BACnet new capabilities for communications and data exchange in a wide range of applications. The Extensible Markup Language (XML) is a popular technology in the data processing and communications worlds due to its capability to model complex data and its flexibility to be transformed and extended.

“With this new IT-friendly way of representing building data, BACnet will open up new ways to communicate. XML can be used for exchanging files between systems, communicating with the Smart Grid, and expanding enterprise integration with richer Web services,” said Dave Robin, chair of the BACnet committee.

UTF-8 to extend ubiquitous ANSI/ASCII character set

Addendum 135-2008k adds an important new capability for human languages globally. When the Unicode character set was created many years ago, it was constructed to be a universal set of characters to support most of the world's languages together in one stream. However, its original multibyte encoding caused troubles with a lot of existing systems that were designed to process only the 1-byte characters common in western languages. The UTF-8 encoding was created by the Unicode Consortium to solve this problem and quickly became a very popular method of conveying international text on the World Wide Web. BACnet has also embraced this standard now and uses it in a way that fully takes advantage of its compatibility with the ubiquitous but limited ANSI/ASCII character set. The commit-

tee considered this to be the starting point on the path to end the long debate on character set interoperability within BACnet.

More data types supported by new value objects

With Addendum 135-2008w, BACnet has added support for more data types. A set of new Value objects rounds out BACnet's ability to represent different data types in a uniform and standard way. Added to the original Analog, Binary and Multi-State Value objects are new Value objects for almost every primitive datatype that BACnet supports, including support for character strings, bit strings, date, time and large numeric values.

Test Standard Developments

The need to define a set of procedures for the testing of BACnet implementations has led to the development of an accompanying standard, ANSI / ASHRAE 135.1 and ISO-16484-6. The ANSI/ASHRAE Standard 135.1, Method of Test for Conformance to BACnet®, defines extensive testing for each feature of the BACnet protocol and provides the basis for the testing and listing program, as defined by BACnet International. Also for this accompanying standard, the committee was working on a number of addenda:

- Addendum 135.1-2007d
 - Add test to verify that COV subscription lifetimes are not affected by time-sync requests
 - Add new Active-COV-Subscriptions tests
- Addendum 135.1-2007e
 - Revise BACnet/IP tests
- Addendum 135.1-2007f
 - Clarify Tests for Ack Notification Timestamps
 - Add new Database Revision tests
 - Update CreateObject Service Tests
 - Update DeleteObject Service Tests

- Addendum 135.1-2007g
 - Many new Tests, Updates and Corrections of tests
- Addendum 135.1-2007h
 - Change Chaining Test
 - Change CHANGE-OF-STATE Test for Event Enrollment Object
 - Change Confirmed COV-EventNotification Service Initiation Tests to Non-infinite Lifetimes

Elevator working group established

In the discussion of new work items after the individual working group reports, the question of “elevator monitoring and control via BACnet networks” was brought up. A while before the Orlando meeting, Professor Dr. Albert So of the Hong Kong University contacted Bill Swan to help work on a proposal to represent large elevator systems in BACnet.

Alerton hosted an elevator manufacturer summit to collect input and to review the revised proposal. At that summit, it was decided to form a BACnet Elevator Working Group among the manufacturers.

The SSPC 135 constructively discussed and decided for the establishment of an Elevator Working Group that should shadow the manufacturers' group in the committee. This new EL-WG is chartered to observe and support further developments of the elevator control and monitoring proposals, and to act as a peer for the manufacturers' working group.

The next ASHRAE Winter Meeting will be right before the AHR Expo 2011 in Las Vegas, on the last weekend of January 2011. ■

¹ Bernhard Isler is the Secretary of the ASHRAE SSPC 135 and Producer Voting Member. He also convenes the Objects & Services Working Group of the committee. He is a member of Siemens Switzerland Ltd, Building Technologies Group, located in Zug, Switzerland. bernhard.isler@siemens.com

CETCI Manufactures Economical & Smart BACnet Transmitters

BST BACnet, digital gas detection transmitters are rugged, user-friendly, configurable gas detectors that are available with a variety of sensor types to detect a wide range of gases, including solid state, electrochemical, catalytic, and PID sensor technologies. The sensors utilized in this device are accurate enough to measure to Occupational Health & Safety hazardous levels for toxic and combustible gases and oxygen levels.

Featuring a thermal resetting fuse and LED indicator for power and alarm, the BST transmitters communicate with a building automation system via BACnet MSTP. Options include a field settable dry contact relay and a local digital display. Calibration and maintenance procedures are automated and are easily performed in the field. BST transmitters are supplied in rugged polycarbonate, general purpose or water tight enclosures with secured, hinged doors.

The BST BACnet, digital gas detection transmitter is ideal for use in non-hazardous (non-explosion rated) environments for commercial HVAC and light industrial applications. Every CETCI product is designed to deliver years of reliable operation and is easy to operate.



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Contemporary Controls' BAS Router – BACnet Multi-network Router

The world is moving towards IP-networks and buildings are following the lead by installing Ethernet and IP-wireless networks. Therefore BACnet/IP is an obvious choice when deploying building automation equipment. However, not all building automation devices are IP-based. For example, most BACnet field controllers are based upon MS/TP because of its low-cost and the ability to wire devices in a bus topology instead of a star topology dictated by Ethernet cabling rules. How do we take advantage of Ethernet structured wiring while maintaining bused field controllers? A BACnet router is the answer.

A BACnet router provides the path between a BACnet/IP network and a BACnet MS/TP network. BACnet building controllers (B-BC) usually provide this functionality but the expense of a building controller to pick up some BACnet MS/TP points is not always necessary.

Stand alone router

A standalone router such as Contemporary Controls' BAS Router can do the trick. Any number of BAS Routers can be incorporated into one BACnet internet-work by simply attaching to an available Ethernet switch port within the Ethernet infrastructure. Therefore, if

some BACnet MS/TP devices are isolated from their building controller due to a lack of an interconnecting MS/TP cable, these points can be accessed over Ethernet via the BAS Router.

On the BACnet/IP side is a 10/100 Mbps Ethernet RJ-45 port and on the BACnet MS/TP side is an isolated EIA-485 port that can be connected to either 2-wire or 3-wire MS/TP networks. An isolated EIA-485 port provides greater protection and better noise immunity but can interface with either isolated or non-isolated field devices. The Ethernet port will auto-negotiate with the Ethernet switch port speed

The BAS Router makes the BACnet/IP to BACnet MSTP connection.

and duplex. Auto-MDI/X ensures a connection regardless if straight-through or crossover cable is used. On the MS/TP side, the baud rate (9.6–76.8 kbps) is set as part of the webpage configuration. Auto-bauding MS/TP field devices will then match their data rate to that of the BAS Router. Up to 63 field devices can attach to the MS/TP port on the router. As part of the configuration, unique BACnet network addresses are assigned to each BACnet network.

For sub-netted Ethernet networks, more advanced features are needed in order for BACnet broadcast messages to bridge across IP-routers. The BAS Router provides BACnet/IP Broadcast Management Device (BBMD) and Foreign Device Registration (FDR). A Broadcast Distribution Table (BDT) is webpage configurable. A Foreign Device Table (FDT) can be viewed to learn what foreign devices have registered to the BAS Router.



The BAS Router is versatile in that it will support three-way routing between BACnet/IP, BACnet Ethernet and BACnet MS/TP. Any two or all three protocols can be routed. As an aid to troubleshooting, a diagnostic page will display the number of messages received and sent for each of the protocols supported.

A companion product called the BAS Portable Router provides much of the same functionality as the BAS Router, but it is intended for commissioning and troubleshooting without making a permanent connection. Thus, the portable device does not implement BBMD nor FDR functionality. Intended for use with a laptop, the BAS Portable Router is USB powered while the BAS Router is 24 VAC/VDC powered.



The BAS portable router is intended to work with a laptop.

Contemporary Controls
gthomas@ccontrols.com
www.ccontrols.com

BACnet Integration is Easy with Innotech

Innotech have simplified their integration process by adding hardware and software solutions using the BACnet protocol.

With the addition of BACnet into the Innotech hardware, and software, Innotech have the direct ability to monitor and control BACnet hardware such as Variable Frequency Drives, Chillers, and VRV/VRF air-conditioning systems, Security, Lighting and any other BACnet control system for the complete BMS Solution.

For a cost effective solution that is required to be failsafe (Not reliant upon a computer), Innotech have introduced the "IG03" BACnet Gateway to its product range.

The Innotech BACnet Gateway is a programmable device that provides a data bridge between an Innotech network and BACnet/IP or BACnet/MSTP network.

The "IG03" programming software "Fusion" ensures fast and accurate integration, with the ability to cre-

ate reports for all BACnet and Innotech data, ensuring the client has all information necessary for future integration. Innotech have always believed in "Open Technology", and therefore have always made the complete Innotech software readily available.

The Innotech BACnet Gateway allows an integrator to link points on an Innotech network to objects on a BACnet network, in order to send or receive values and commands between the two systems. Once programmed no software is required to allow the exchange of data between the Innotech and BACnet hardware.

The Innotech BACnet Gateway also allows any Innotech data to be exported as BACnet. This technology opens new avenues where an existing BACnet SCADA system is in place, or for direct connection with an existing BACnet Control Sys-



IG03 BACnet Gateway – programmable device that provides a databridge.

tem using Innotech's BMS software as the SCADA solution. (Magellan).

An on-board Web-Interface "FusionLIVE" provides access to view and modify the General Settings of the device, as well as view specific real-time performance Information.

Innotech have also incorporated the BACnet protocol into its communications server, "iComm".

The addition of the BACnet protocol into iComm has allowed direct integration into Innotech's powerful "Magellan" SCADA package. (Available as a single or



ATOM 3 Power Meter- allows the client to monitor and review.



ATOM 2 summary report of accumulated data for projections, historical analysis and comparisons.

multi-user licence with Web-Browser called "eServer")

Innotech have also developed a Data Acquisition, Reporting, Analysis and Billing package "A.T.O.M". This software package allows the client to monitor and review their Electrical use, Carbon Emissions, Energy, Water,

Gas and any other building services.

The addition of BACnet to iComm allows the BACnet Power Analysers to communicate directly with the Innotech software (A.T.O.M), and accumulate data for projections, historical analysis and compar-

isons. This aids to reduce cost, and ensures simplicity for the installer and client. BACnet implementation has allowed Innotech to continue its success in the global BMS markets.

Innotech Control Systems are Australia's largest manufacturer of BMS controls

and are represented worldwide including over 20 representatives in North America.

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E-Cclipse Bypass Option for the ACH550 Series VFD BTL Approved and Listed

The ABB E-Cclipse Bypass option for the ACH550 Drive for HVAC applications is the first, and presently only, VFD bypass to be BTL (BACnet Testing Laboratories) approved and listed. BTL, an independent lab that tests devices for conformance to the BTL testing specification, confirmed the listing to the ABB, Low Voltage Drive, U.S. headquarters in New Berlin, Wisconsin the week of February 18, 2008.

Serial communications, sans gateway

"We are honored to have an independent testing organization provide this stamp of

approval," said Jeff Miller, vice president, commercial sales, ABB Low Voltage Drives. "A two-year internal R&D program achieved building into these bypasses this final piece of the serial communications puzzle, and to eliminate the expense and challenges of hardware and gateways. BACnet replaces those (gateways & hardware) with one language, able to work in real time, anywhere." Bypasses are a very common VFD option, often specified by consulting engineers and owners. A bypass controller allows the user to operate the motor on utility power at full speed in the event that the VFD is out of service for any reason.

Officially, BTL has listed the ABB E-Cclipse Bypass as a BACnet Application Specific Controller (B-ASC).

System tested for compatibility with all BACnet devices

What does the approval and listing mean? "This gives an end user a very high degree of confidence that the ABB E-Cclipse Bypass and ACH550 VFD will interoperate with other BTL-listed devices," notes Mike Olson, manager, HVAC applications, for ABB. The controller also complies with the ANSI/ASHRAE Standard 135-2004, he said. The ABB E-Cclipse Bypass option features a standard connection that is MS/TP, RS485-based; and it supports all BIBBs defined by the BACnet standard profile for an Application Specific Controller (B-ASC), Olson said.

The listing is available for review and reference

at the main BTL page: <http://bacnetassociation.org/btl/default.htm>.

The ABB drive and bypass are listed at: <http://bacnetassociation.org/btl/Listings/ABB/ABB.htm>. Or, review the shared B-ASC page at [http://bacnetassociation.org/btl/Listings/Profiles/Application Specific Controller.htm](http://bacnetassociation.org/btl/Listings/Profiles/Application%20Specific%20Controller.htm).

In addition to the U.S. BACnet Testing Laboratory office in India, BACnet products also are being tested at a lab in Germany.

ABB
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E-Cclipse Bypass option for the ACH550 Drive for HVAC applications.



The BACnet journey in China began at the BACnet Forum Beijing in 2009. It will be continued in Shanghai at the World Expo. The estimation is that within the next 20 to 30 years urban construction areas will double.

BACnet Forum in Shanghai on the Occasion of the World Expo

The newly founded BACnet Interest Group China (BIG-CN) announces the first independent BACnet Forum in Shanghai. It will take place on October 20th at the Shanghai World Exposition, with the title "Efficient system integration for green buildings in China". BACnet International will once again endorse the Shanghai Forum – like the successful Beijing Forum in 2009 with 180 participants.

Last year's Forum had a great effect on building automation in China. The media reported that it was "one of the most important events for the intelligent building industry in China in 2009". Following this success BIG-CN decided to link the upcoming Forum to the Shanghai Expo – for even better BACnet promotion.

Urbanization in China is developing rapidly these days. It is estimated that

within the next 20 to 30 years urban construction areas will double, and that 40 billion square meters of new building space will be established. Meanwhile there is also a rapidly growing demand for implementing energy conservation renovations in old buildings. At the moment there are nearly 3,000 intelligent building product vendors in China, and around 1,100 companies are qualified in contracting with intelligent

engineering. Most of the products sold by these vendors are imported.

It seems that China will definitely become the most important market for intelligent building system companies. Thus, at the BACnet Forum Shanghai advanced BACnet technology and products from America, Europe and Asia will be introduced to one of the most important economic centers of the Chinese market.



At the Forum investors, specifiers, system integrators, operators and users will learn about the benefits of BACnet and the immediate future of independent building system integration. Read the details on sponsoring and participation at www.bacnetforum.org. ■

BACneters Recognize Big5 Dubai as Marketplace

BACneters in America, Europe and Middle East are discovering Dubai as a worthwhile marketplace. The potential of building system integration via BACnet can be perfectly presented to investors and specifiers at the Big 5 trade show. From November 22-25 building automation exports will be stimulated. A prestigious interoperability show at the Big 5 Dubai 2010 will attract decision makers from Africa, Asia, Europe and the Middle East.



Impressive tender announcements in Qatar on the one hand and Asian controller vendors at the Big 5 on the other hand – the building automation market in the Middle East is on the move. Therefore the members of the American, European and Middle Eastern BACnet associations are keeping an eye on the prospects there.

The Working Group Marketing of the BACnet Interest Group Europe

(BIG-EU) voted for a global joint booth at this year's Big 5. BACnet International (BI) members who had participated in the very first BACnet booth at Big 5 2008 also signaled they wanted to be a part of the booth. Last but not least the members of the BACnet Interest Group Middle East (BIG-ME) are highly interested.

The benefits of the common booth are high visibility and low costs compared to an

individual booth. The capability to equip and manage multivendor systems can be proven by real interoperability. Unanimous opinion of all parties interested was that the booth must appear in a premium outfit and transport the higher value of BACnet.

Expert opinions

Delta Controls: "There are big export chances. We have recognized them at the Big5 in 2008 as an exhibitor of the BACnet booth. In 2009 we had an individual booth. With a prestigious joint BACnet booth the visual impact on investors and decision makers could even be greater."

Siemens Building Technologies: "The economic situation of Dubai itself is irrelevant. But wealthy states like Qatar are close to the spotlight. And short distances to North Africa, India, even Russia, and the Arab World

guarantee for an international range of visitors that are inclined to buy."

Automated Logic: "Dubai is more than the headline making Burj Khalifa. It is a trade center for all the Emirates and the Gulf region. This lively economic region stands for a big number of huge running construction projects. Therefore the Big5 Dubai is a worthwhile spot for BACnet promotion."

As in 2008 the BACnet booth at the Big 5 Dubai 2010 is again organized by MarDirect. The call for participation was recently sent to the BACnet groups in America, Europe and the Middle East. Receive your copy via willems@mardirect.de



BACnet is on the move in Dubai since 2008. A prestigious interoperability show at the Big 5 2010 will again attract decision makers from Africa, Asia, Europe and Middle East.

German Forum on Security of Investments

The BIG-EU invites the German speaking building automation market to the second German BACnet User Forum on the 10th of November 2010 in Frankfurt. Five years after the first German BACnet Forum, the extended possibilities of BACnet and the use of energy efficient buildings will be presented.

The new version of the BACnet standard, published

in late 2008, supports the integration of energy management and energy services. A total of seven points of the ANSI standard has been upgraded – including new ways of Internet use, access control and connection to ERP systems. The BACnet Forum is showing new possibili-



ties even before the 16484-5 ISO standard is adapted.

The BIG-EU meets the challenge of the growing demand for BACnet know-how on the German market at the BACnet Forum Frankfurt. Hardly a tender for commercial buildings comes without

BACnet. With the correct application of the standard, value rises for the parties involved, while reducing investment and operating costs of the owners.

For more information see www.bacnetforum.org.

Welcome to BACnet International

In the past eight months 23 new companies have joined BACnet International. In this inaugural edition of the BACnet International Journal we welcome this year's new members from Canada, Germany, Japan, Korea, the Netherlands, Switzerland, Taiwan, the United Kingdom and the USA. The community includes over 500 manufacturers, system integrators and end users.

BACnet International is the global organization that encourages the successful application of BACnet. Interoperability testing, educational programs and promotional activities meet the demands of the building automation and control systems markets. The international community complements the work of other BACnet-related groups whose charters limit their activities.

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More information on joining BACnet International is available at www.bacnetinternational.org. Questions about the membership can be sent to info@bacnetinternational.org.



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BTL Lab Accredited – Market Appreciates Interoperability Testing

Duffy O'Craven is the Manager of the BACnet Testing Laboratories (BTL), and Chair of the BTL-Working Group. He is the point of contact for all aspects of BTL customer communications, BTL-WG activities, and the pursuit of all things fruitful for improving interoperability testing. We asked him for a report on the recent achievements and future highlights.



Report of the BTL Manager

We have seen a flurry of applications for testing so far in 2010. The lab now has a backlog of 17 devices and a waiting list of about 4 months between date of application and start of testing. It is nice to see our product offering so well received, and appreciated by the BACnet community. We test the whole range of BACnet Device Profiles, from B-AWS, B-OWS and B-OD workstations, B-BC buildings controllers, B-AAC and B-ASC application controllers, B-SA and B-SS actuators and sensors, and B-OTH BACnet routers. Using the BTL Test Package 5.0.final which has now been adopted by all BACnet test laboratories worldwide, we bring certainty to the market for interoperable BACnet devices.

A highlight of my tenure thus far was the accreditation issued to the BTL lab on

19-Jan-2010:

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with the A2LA Information Technology Program Requirements), accreditation is granted to this laboratory.

We are working with WSP-Cert and the BIG-EU Liaison and Technical committees to establish the process for European certification to apply to all ISO accredited BACnet testing laboratories. Devices tested at our lab in Pune India are in accord with all ISO accredited testing procedures and requirements, and should qualify for a certificate to be granted to those customers henceforth who wish to apply for it.

Among highlights that I anticipate in future is the release of updated Test Packages. The next release should cover all

testing of capabilities specified in SSPC-135 Addenda up through Protocol Revision 8. Availability of that Test Package is expected around Labour Day 2010 (Sept 6).

I want to express my thanks to the hardworking volunteers on the BTL-WG and other working groups, who have made the BACnet community so vibrant, innovative, and successful. It is through their efforts that the market for networked building systems flourishes and the promise of a greener world and smarter operational control is coming to fruition. Join us, and celebrate the contribution that you can make to further enriching this technology and realizing all of its potential.

Duffy O'Craven can be reached at btl-manager@bacnetinternational.org. He works primarily in Toronto Ontario CANADA. You will also see him at the SSPC

working group meetings held Winter, Spring, Summer, and Autumn, or at the BACnet-International annual Plug-fest and the FacilityDecisions conference held each year. ■



Duffy O'Craven
Manager of Testing
Laboratories (BTL)
Chairman of BTL-Working
Group
btl-manager@bacnetinternational.org

Calendar of BACnet Events

Date	Location	Event	Information
Oct 5-6, 2010	Las Vegas, NV	BACnet International Conference at Facility Decisions Conference & Expo	Natalie Nardone, BACnet International Office, natalie@bacnetinternational.org , www.bacnetinternational.org
Oct 20, 2010	Shanghai, China	BACnet Forum Shanghai – on occasion of the World Expo 2010	Maguy de Mercurio, Yifan Kou, MarDirect, mercurio@mardirect.de , www.bacnetforum.org
Nov 16-18, 2010	Atlanta, GA	BACnet International PlugFest 2010	Natalie Nardone, BACnet International Office, natalie@bacnetinternational.org , www.bacnetinternational.org
Nov 22-25, 2010	Dubai, UAE	BACnet Interoperability Show at Big5 International Building and Construction Exhibition	Jochen Willems, MarDirect, willems@mardirect.de
Jan 31-Feb 2, 2011	Las Vegas, NV	BACnet International Booth and Educational Tracks at AHR 2011	Natalie Nardone, BACnet International Office, natalie@bacnetinternational.org , www.bacnetinternational.org

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