

BACnet International

The BACnet magazine for building automation

Journal

Global Testing for the Global Standard



In this issue: The BTL Mark, its unique role in the industry and the single-source listing

Crate&Barrel

04^{01/12}



Crate & Barrel – Streets of Southpoint 6

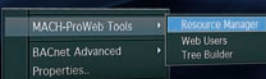
Energy-savings with BACnet –
A Perfect Fit 8

Conformance Testing
of BACnet Products 12

The Wireless Standard is Officially Here! 12

Web server. Simplified.

Publish your building automation system to the Web quickly and easily with the Reliable Controls® MACH-ProWeb™, a fully programmable BACnet® Building Controller (B-BC) with a built-in Web server and operator interface. The MACH-ProWeb™ is designed to meet and exceed the requirements of a BACnet® Operator Workstation® (B-OWS).

A screenshot of the MACH-ProWeb Web interface showing a table of users. The table has columns for 'User Name', 'Password', 'Level', 'Group', 'Permissions', and 'Status'. The users listed are 'VAVs', 'AC Units', 'Floors', 'VAVs', 'Alarms', 'Schedules', 'Calendars', 'Trend Logs', and 'Runtime Logs'. The table is titled 'MACH-ProWeb - Web Users'.

MACH-ProWeb™ Tools show the resources available for posting and the user permissions, and with a drag, drop and click, the Web operator interface is complete.

5 year
Warranty

Better by design



BACnet
International



Reliable
controls

www.reliablecontrols.com/MPWS

Editorial Notes

BACnet International Journal

The BACnet International Journal is a global 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.

Distribution

This Journal can be ordered free of charge by BACnet users as well as partners, members, media representatives and friends of BACnet International. Order the BACnet International Journal by e-mail at info@bacnetinternational.org

Online distribution

The BACnet International Journal is posted as a Portable Document Format (PDF)-File to www.bacnetinternational.org

Editor

MarDirect Marketing Direct GbR
Bruno Kloubert
Droste Hülshoff Straße 1
44141 Dortmund
Germany
Phone: +49 2 31 42 78 67 31
Fax: +49-2 31 42 78 67 32
Email: kloubert@mardirect.de
URL: www.bacnetjournal.org

Board of Directors

Brad Hill, Director
Honeywell International
Paul Jordan, Director
American Auto-Matrix
Andy McMillan, President
Philips Teletrol
Raymond Rae, Director
Delta Controls
Dave Robin, Director
Automated Logic
Nancy Stein
Siemens Building Technologies

Publisher

BACnet International
PMB 321
2900 Delk Road, Suite 700
Marietta, GA 30067-5350
Phone: 770-971-6003
Fax: 678-229-2777
info@bacnetinternational.org

Advertising

MarDirect Marketing Direct GbR
Phone: +49-2 31-42 78 67 31
Fax: +49-2 31-42 78 67 32
E-mail: america@mardirect.de

Picture credits

BACnet International, MarDirect and specified companies

Copyright

© BACnet International 2012 – Further editorial use of articles in the BACnet International Journal is encouraged (!) with reference to the source. Please send a specimen copy to publisher, or if published online, send the URL per mail to info@bacnetinternational.org

BACnet® is a registered trademark of the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE)

Content

5 BACnet-Enabling Globalization

Solutions

6 Crate & Barrel – Streets of Southpoint

7 Royal Saudi Naval Force Headquarters – Reduce Energy

BACnet insight

8 Energy-savings with BACnet – A Perfect Fit

9 Factory Mounted Controls Help Ensure Quality

10 ASHRAE SSPC 135 Working Groups – An Overview

12 Conformance Testing of BACnet Products

12 The Wireless Standard is Officially Here!

Products

13 BTL Listed Advanced Application Controller Sets New Standard

14 Combination CO₂, Temperature and Humidity Room Sensors

14 PPM – Ideal Choice for Expanding Existing Systems

15 I/O integration into BACnet the Easy Way

15 Graphical User Interface Compatible with BACnet Networks

16 Family of BTL Listed Products Broadened

BACnet around the world

17 BACnet on its Way to Standardization in China

BACnet International News

18 PlugFest Reaches Optimum

19 Leaders of the Pack Awards

20 BACnet International's Partnership with Facility Decisions Rolls on Through Name Change

21 BACnet Goes Mobile!

21 Live Presentations at light+building Frankfurt 2012

23 New to the BACnet International Family

23 Calendar of BACnet Events

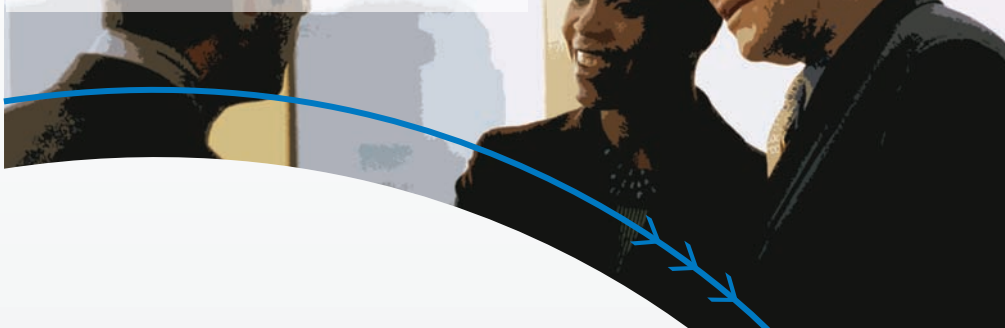


Cover Picture

Crate & Barrel – Streets of Southpoint Northbrook, Illinois, complete BACnet solution

The BACnet International Journal can be downloaded from www.bacnetinternational.org

Building Better with **BACnet** International



BACnet International encourages the successful use of the BACnet protocol in building automation and control systems through interoperability testing, educational programs, and promotional activities.

BACnet International community membership includes a who's who list of top tier companies involved in the design, manufacturing, installation, commissioning, and maintenance of control and other equipment that use BACnet for communication.

Does your company have a passion for controls excellence? Then join BACnet International.

2012 BACnet
International AHR Expo
Booth Participants



AMERICAN
AUTO-MATRIX
SMART BUILDING SOLUTIONS

AUTOMATEDLOGIC

DISTECH
CONTROLS

KMC
CONTROLS



neptronic
www.neptronic.com

PcVue Solutions
by PRC International

PHILIPS
teletrol

SIEMENS



Please visit our **FREE Education Sessions** at AHR Expo on **Monday 1/23** and **Tuesday 1/24** in **S103a**. All presentations will be posted following the show to www.bacnetinternational.org

Monday 9 a.m.

Specifying BACnet Based Network Controls

Speaker: Grant Wichenko, Appin Assoc.

Monday 10:30 a.m.

BACnet Goes Mobile

Speaker: Chris Hollinger, Siemens

Monday 2 p.m.

BACnet and the Cloud

Speaker: Terry Hoffmann, Milwaukee School of Engineering

Monday 3:30 p.m.

BACnet Operator Workstations

Speaker: Steve Tom, PE, PhD, Automated Logic Corp.

Tuesday 9 a.m.

Factory Mounting BACnet Controls

Speaker: Michael Facente, OEMCtrl

Tuesday 10:30 a.m.

BACnet Lighting Integration 101

Speaker: Ron Poskevich, Blue Ridge Technologies

Tuesday 1 p.m.

Building Sustainability through Building Automation

Speaker: Ben Dorsey, KMC Controls

Tuesday 2:30 p.m.

Guide Specifications

Speaker: Scott Ziegenfus, Lutron

Tuesday 4 p.m.

Enhancing Energy Efficiency and Cost Savings

Speaker: Kevin McKeigue, Honeywell

BACnet
International

PMB 321 • 2900 Delk Rd, Ste 700
Marietta, GA 30067 • info@bacnetinternational.org

BACnet-Enabling Globalization



Brad Hill is a technology leader with Honeywell International, and currently serves on the BACnet International Board of Directors, Brad.Hill@Honeywell.com

Globalization continues to drive both the manufacturers and customers of BACnet products to depend even more upon the benefits offered by BACnet.

The strengthening environment surrounding BACnet permits integrators and consultants to have increased confidence in the interoperability success of the products they select, and allows them to source from an international pool of products.

For the manufacturers of these products, modern product development methodologies and recent economic conditions have necessitated the centralized development of common product components, with a need to develop in one country all of the variations for an international market.

The global adoption of BACnet (ANSI/ASHRAE Standard 135) provides an excellent opportunity for manufacturers and their customers to standardize upon a well-established international standard. This peace-of-mind allows everyone to focus less on the underlying technology and to spend more time concentrating on the customer value provided by control systems.

The Method of Test for Conformance to BACnet (ANSI/ASHRAE Standard 135.1) provides a uniform way for manufacturers to verify that their products behave in accordance with the BACnet standard. This universal method of testing encourages adequate test coverage and assists in confirming the correct interpretation of the BACnet standard expectations.

The BACnet International PlugFest and BIG-EU Interoperability Workshop provide a great vehicle for manufacturers to verify their product adequately interoperates with other products. International participation ensures a rich exposure to various product configurations from around the world.

The accredited BACnet Testing Laboratories (BTL) provides additional confidence to customers that the capability of the listed products has been successfully validated by an independent body. The BTL product listing and subsequent issuance of the BTL Mark assists integrators and consultants in identifying such products, irrespective of the country of origin.

Recently, it was assessed that the accredited BTLs provide comparable testing results, indicating that products tested in either lab have been similarly tested in accordance with the testing standard. This permits manufacturers to engage with the lab most convenient for their location, and gives confidence to customers that listed products from any part of the world have the same level of quality in the validation process.

These factors solidify that BACnet and its environment provides an excellent foundation for global standardization, whether it manifests in a manufacturer's product strategy, or a customer's portfolio of preferred products.



Crate & Barrel – Streets of Southpoint

Crate & Barrel's contemporary, unique, and affordable housewares, furniture, and home accessories make them a favorite retail shop for many. Founded in 1962, Crate & Barrel is a 170+ store chain of retail stores, based in Northbrook, Illinois. As an innovator of the "vignette" style of retail, Crate & Barrel groups items together in the store as they might appear in the home.

Crate & Barrel's "Streets of Southpoint" retail store is a 25,000 square foot facility in Durham, North Carolina. The store opened in the spring of 2011 and is a LEED Gold project. Since Crate & Barrel's retail mission is to satisfy the 3 "P's" – People, Product, and Presentation, they chose a 1-story building with 10 varying ceiling heights and an abundance of natural light. The varying ceiling heights allow them to suspend over a mile of track lighting – over 1000 lights – all for the purpose of showcasing their products perfectly to customers.

Three unique challenges

There were 3 unique challenges associated with installing a control system in the Streets of Southpoint store:

1. The HVAC system had to be able to handle the extra heat load generated by over a mile of track lighting. While typical big box retail stores generate 3 watts of heat per square foot, the Streets of South-

point store generates 6 watts of heat per square foot, making it very challenging to keep customers in the store comfortable. Because Crate & Barrel sells both housewares and furniture, they want to make sure that customers linger and see all that the store has to offer. In order for them to linger, thermal comfort is a necessity.

2. The HVAC system must be able to provide precise humidity control in order to protect products, flooring, and furniture in the store.
3. Integrated lighting control is key for allowing fluid scheduling capabilities between the HVAC and lighting systems. In the past, stores used a separate system for lighting control, which was complex and expensive to maintain. A single system that schedules both lighting and HVAC equipment reduces not only installation costs



and commissioning time, but also the training time required for store operators.

Native BACnet controls

Temperature Equipment Corporation (TEC), a Carrier Distributor in Melrose Park, Illinois, was up for the Crate & Barrel challenge! Dominic Eorio, Manager of the TEC Controls Division, installed Carrier's latest i-Vu® Open Control System, which features native BACnet controls and the powerful i-Vu Open user interface for web-based monitoring and control of the entire facility. Native BACnet controls were installed on all of the equipment in the store, including 7 rooftops, 3 exhaust fans, 8 lighting zones, and a unit heater. In addition, Carrier also installed other manufacturer's equipment to complete the BACnet solution: BAPI wireless temperature sensors, GE CO₂ sensors, and Veris BACnet power meters. The retail store uses a total of 29 devices, 2,715 points, and 120 tons of total cooling.

John Moebe, Director of Construction for Euromarket

Designs (the corporate name for Crate & Barrel), was very pleased with the outcome of the project, stating that, "It is rare to find someone like Dominic who can design a solution based on our needs, rather than building a solution from a set of requirements." In addition, he commented that, "The cooperation of multiple vendors and their demonstration of teamwork played a huge part in the overall success of this project."



Laura Molesworth
Controls Product Manager
of Carrier
Email lmolesworth@
oemctrl.com
www.oemctrl.com

Royal Saudi Naval Force Headquarters – Reduce Energy

In Riyadh, KSA, the Royal Saudi Naval Force, (RSNF) founded in 1960, had a problem with their headquarters facility. Like any government facility, they were looking to reduce energy costs while facing higher operating costs. But the issues faced by the RSNF were exacerbated by their aging pneumatic control system, installed 25 years earlier. The knowledge and skills needed to maintain such a system were becoming as obsolete as the system itself.



Royal Saudi Naval Force Headquarters in Riyadh, KSA



Like any government facility, the RSNF were looking to reduce energy costs while facing higher operating costs due to aging pneumatic control system.

The RSNF headquarters in Riyadh is a 6-story building with 2 sub-basements of approximately 150,000 square feet. The specified project consisted of retrofitting all existing mechanical systems from pneumatic control to direct digital control. The retrofit included the central AHU systems and the smoke control system. The fire suppression system was also integrated into the new building management system.

Two large AHUs serve the core of the building providing over 50,000 CFM of air each. They were brought under control by KMC BACnet Advanced Application Controllers. The associated fan systems had three parallel fans with pneumatically powered inlet guide vanes that needed to be retrofitted. Bareeq Al-Tamayez, local energy contractor and authorized representative of KMC Controls, designed a special retrofit linkage kit

that enabled the existing 60PSI, 4" linear stroke pneumatic actuators to be replaced by a tandem coupled electronic actuator set consisting of dual KMC MEP-7852 (320 in. lb.) fail-safe actuators. The actuators ensure tight close-off when needed and smooth control throughout their range. The retrofit of the inlet guide vanes was chosen because the existing motors were not candidates for VFDs due to their age and design.

One of the more significant aspects of the retrofit is an integrated smoke control system using KMC's UL 864 (Category UUKL) BAC-5831 and 5801 series controllers. The digital smoke control panels replaced larger pneumatic manual control panels but with much smaller footprints. RSNF even noted an added benefit of increased storage space in the mechanical rooms as a result! More importantly, the smoke control system manages over 65 dedicated smoke control dampers in the supply, return, and exhaust air streams as well as 12 staircase pressurization and smoke exhaust fans. Additionally, the facility's high-security protection areas are provided with a Halon-based fire suppression system that is monitored from the BACnet DDC system with associated control actions taken when necessary.

The new, automated system has significantly improved both comfort levels and energy usage throughout the RSNF headquarters. RSNF officials have indicated that they are experiencing an 18% reduction in KWH consumption due to the implementation of a fully automated BACnet control system. In addition, they anecdotally note a greater peace-of-mind that critical, life-safety systems are now under digital control. Finally, they enjoy increased visibility of building performance through displayed data which was impossible under pneumatic control. ■



Ben H. Dorsey III
VP, Marketing & Communications
KMC Controls
LEED Green Associate
www.kmccontrols.com
BDorsey@kmccontrols.com

Energy-savings with BACnet – A Perfect Fit

Frank Schubert ¹

BACnet as an open communication protocol was designed to fit the requirements of a wide range of applications. The information transported with BACnet is organized in so-called objects, which present the information as properties of the object (e.g. the Present-Value, Description, Units, Limits, etc.).

Even if a communication-protocol itself (a „language“) cannot save energy, BACnet with its open and flexible platform offers the basis to exchange data between energy-efficiency applications, additionally allowing to connect different vendors to a homogenous network.

This Insight article explains why applications for energy-savings perfectly fit into the model of BACnet objects and services.

Presenting physical and virtual data

To exchange measurements and set-points as well as calculated (virtual) information BACnet specifies a total of 9 standard object types, each for inputs, outputs and values for Analog-, Binary- and Multi-State-Data. Functions like counting the elapsed active time or minimum-on/off handling are available as an option in these objects, too.

Representing Counter Values

To represent counters BACnet introduces two object types. The Accumulator-Object allows representation of raw impulse counting, while the Pulse-Converter Object takes the impulses from an Accumulator or an internal source and converts it into a calculated engineering unit like kilo-Watt-hours or Mega-Joule. Especially to count the energy-consumption these two objects are important for energy-savings.

Representing Control Loops

The Loop-Object offers representation of controls loops, while the control parameters are properties of the object and do not necessar-

ily need to be presented by additional objects. Depending on the application loop objects may be cascaded by connecting the output value of a cascade to the input of the successor.

Representing Log-Information

To provide access to log-buffers for long-term data-acquisition BACnet offers the Trendlog-Object (exactly 1 Buffer to store data from a single source) and the Trendlog-Multiple object offering multi-channel acquisition and representation of trendlog-data. Trendlog-objects can be protected from loosing collected data by issuing alarms, if the number of records in the buffer exceeds a certain threshold.

Representing Schedule-Functions

For scheduling purposes BACnet specifies the Calendar-Object (a list of data-values compared with the current date) and the Schedule-Object providing the schedule program either as a weekly or an exception schedule) With this it is possible to realize time- or date-based functions (e.g. holiday operation).

Representing Facility-Hierarchies

While the Group-Object (=group of objects within a single device) and the Global Group-Object (=network-wide object group) simply represent objects without any specific hierarchy the Structured-View-Object allows to represent the objects as a facility-hierarchy. This can be necessary in facility management e.g. for commercial purposes.

Representing Building Automation Functions

The Command-Object allows representation of commands, e.g. day- or night-operation, where the command-object contains the single actions of each command.

The program object allows access to the application program of a BACnet controller, so that

e.g. switching between normal and energy-savings programs becomes available to the user.

The Load-Control-Object is designed to actively provide energy-savings by maximum load control (e.g. E-Max). The parameters to be observed and the actions to temporarily shutdown components are stored within the object as properties.

Representing load-shedding

The load-control object type represents the values used in load-shedding. While this is mainly used to prevent from peaks (and with this to prevent getting into higher price ranges for the energy provision) this is an excellent opportunity to globally save resources. The public utilities or other energy suppliers need to calculate the energy provision by the expected maximum. Preventing the peak-loads could not only save money but also global resources.

Outlook to other objects

For other areas in buildings BACnet specifies a various number of additional objects that have relationships to energy-savings.

The Lighting-Object allows representation of lighting systems and offers functions like dimming, group-switching, etc. which may be used for energy-savings as well.

Beyond the load-shedding smart-grid is the next generation of energy savings under discussion to be included into the BACnet standard. Explaining the smart-grid idea in detail is not the focus of this article but to explain the general idea, one aspect of smart-grid is to connect facilities including private homes to schedule consumption for certain devices to times of lower general consumption (e.g. nights). For this even home appliances may be made “intelligent” to allow this type of control for active energy savings.

Transporting Value-Changes

Besides the data representation the notification if values change plays a major role in energy-efficiency. For this BACnet provides the COV (Change-of-Value)

services to automatically notify value-changes for logging and analysis purposes.

Alarms and Events

BACnet offers two methods for alarm and event detection.

Intrinsic Reporting compares the present value against the limits (analog data) or alarm values (binary or multi-state data) and generates alarms or events in case of non-normal states

To observe other properties event-enrollment can be used in BACnet to provide a total of 9 algorithms for alarm-detection.

For energy-savings especially the Floating-Limit algorithms is of interest. With this e.g. the limits can be controlled in relation to the outside temperature and allow optimized observation compared to static limit definition.

Return to normal alarms or fault values are notified by the alarm handling of BACnet controllers as well.

Using BACnet for energy savings

The protocol (language) itself doesn't save energy but an integration of different parts of the building (including integrating multiple vendors) offers an excellent basis for savings. Simple methods like observing the current values and modifying set-points may be combined with an intelligent scheduling (e.g. in times of public holidays or on weekends) or changing programs from regular operation to an energy savings program. Trend-logging allows observation of actions taken and can serve as a basis for further optimization.

Conclusion

Putting everything together BACnet itself does not save energy directly but the various options of this international standard allow representation of all aspects in energy management including presenting the data, energy-analysis up to active energy-optimization and combining buildings to an integrated intelligent facility. ■

¹ Frank Schubert is member of the ASHRAE SSPC 135, the BACnet International BTL-WG, the Advisory Board and Working Group Technique and training-leader of the BACnet Interest Group Europe, frank.schubert@mbs-software.de.

Factory Mounted Controls Help Ensure Quality

Michael Facente ¹

The question, what the Factory Mounting Controls division of OEMCtrl (Original Equipment Manufacturers Control) actually does, often arises in connection with in-house training requests. This particular division specializes in the manufacture, sale, and support of factory mounted Direct Digital Controllers to equipment manufacturers. These training classes, usually populated with controls contractors tasked with installing field applied control solutions, often want to know what motivates producers of mechanical equipment to develop and apply a factory mounted controls solution. The motivations vary by customer obviously, but conversations generally revolve around a few key points.

Meeting Specifications is probably the most straightforward reason. Intelligent, communicating factory mounted controls are simply being specified more and more often. Manufacturers are driven to provide controls to meet this requirement. This is often the initial motivator that drives equipment manufacturers to explore a factory mounted control solution.

Quality

Equipment manufacturers who own their controls solution are able to maintain a higher standard of quality. Factory mounted controls help to ensure that no quality issues arise from field applied products supplied from a variety of unknown sources. The operation of mechanical equipment is dramatically impacted by the controls

and inconsistent or poorly applied solutions can erode customer perception of the factory's brand. Ownership of the controls solution also allows for the development of programming standards that promote consistency in the integration of mechanical products into Building Automation Systems.

Product differentiation

As we all know, fierce competition exists between the suppliers of mechanical equipment. Ownership of the controls solution allows for additional customization and enhancements that provide separation from competitors in the market place. For example, the option of providing power consumption data to a front end via an open protocol can easily be added as a feature to an existing mechanical product.

Intellectual property

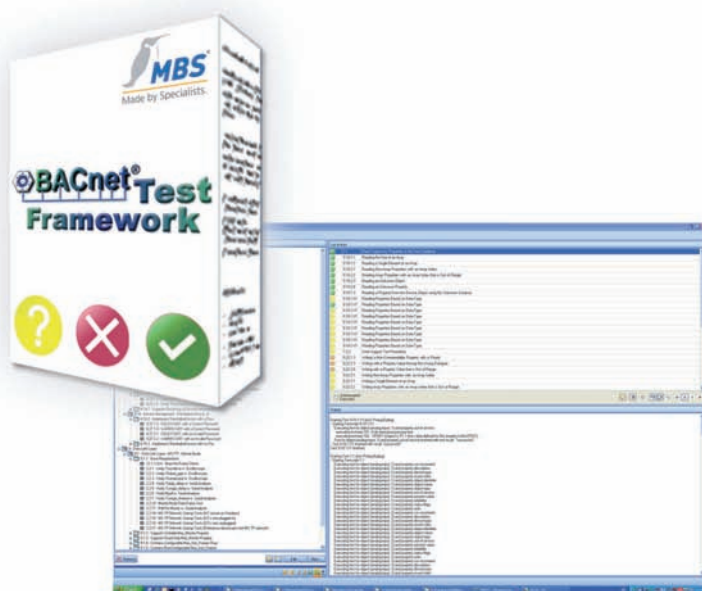
As the demands of the already competitive marketplace increase, the development and protection of intellectual property becomes even more important to manufacturers of mechanical equipment. Sophisticated algorithms designed to optimize performance, add differentiating features, and ease integration complexity become increasingly important. In some cases, these algorithms are patented and vigorously protected by their creators.

A factory mounted controls solution enables equipment manufacturers to meet specifications, enhance quality, differentiate product, and develop and protect intellectual property. All of these factors help drive equipment sales and revenue which at the end of the day is the ultimate motivator for the producers of mechanical equipment. ■

¹ Michael Facente is account sales engineer at OEMCtrl, mfacente@oemctrl.com www.oemctrl.com

BACnet Test Framework

The perfect tool for pre-testing and quality assurance



The BACnet Test Framework is a software to test devices on conformance to the BACnet standard. Since 2007, this software is used as the official European test tool.

The software supports the latest test-plans released by the working group BTL-WG. A comprehensive API with over 370 BACnet functions allows the programming of own test procedures based on the programming language Python.

Furthermore, the software can be used for quality assurance for continuous testing of BACnet-devices. A complete automation of the test steps is possible.



MBS GmbH
Roemerstrasse 15
D-47809 Krefeld

Phone: +49 (0) 21 51 / 72 94 - 0
Fax: +49 (0) 21 51 / 72 94 - 50
E-Mail: info@mbs-software.de



For further information visit:
www.mbs-software.de

ASHRAE SSPC 135 Working Groups – An Overview

Bernhard Isler ¹

The charter of the ASHRAE Standing Standard Project Committee (SSPC) 135, the “BACnet Committee”, is to maintain, revise and extend the ANSI/ASHRAE standards 135 and 135.1.

In order to accomplish this work, the committee has established informal working groups. These groups address particular topics and prepare respective proposals of changes to the standards. The working groups are open to anyone willing to contribute, to provide constructive comments and critics, or to observe group activities.

At this point, the following thirteen working groups are established:

AP-WG	Application Profiles and Interfaces
EL-WG	Elevator Monitoring
IP-WG	Internet Protocol Usage
IT-WG	Information Technology Convergence
LA-WG	Lighting Applications
LSS-WG	Life Safety and Security Applications
MS/TP-WG	Master-Slave/Token-Passing Datalink
NS-WG	Network Security
OS-WG	Objects and Services
SG-WG	Smart Grid Integration
TI-WG	Testing and Interoperability
WN-WG	Wireless Networking
XML-WG	XML Applications and Web Services

For larger topics, the working groups first establish consensus on a concept to pursue. Once clear on the concept, according change proposals that define the change or extension of the standard are written up by individuals. Also, individuals may submit a change proposal to the working group. Change proposals are then discussed, refined and approved

and moved forward to the committee for plenary discussion and review. The committee may approve a proposal, which is then sent to public review in an addendum to the current standard, using ASHRAE's well defined public review process.

The working groups are also responsible for resolving public review comments about addenda that originated from the working group. This includes proposing revisions to the addendum, and to draft responses to public review comments.

Now, what are the topics that these working groups are focusing on? They range from datalink layer issues to application representations to integration of building automation systems with the enterprise level and Smart Grid.

Working groups may be established or discontinued depending on the current topics and accomplishments. In the following an overview of the current activities is provided, starting with those groups that handle topics at the bottom of the protocol stack.

Datalink Layer Working Groups

The datalink layer working groups are focusing on issues of the various datalink layers that are supported by BACnet.

The *IP-WG* is the group that originally made Annex J of standard 135, the BACnet Virtual Link Layer that enables BACnet to use IP networks. Currently, work is ongoing on addendum 135-2010aj, which adds a new virtual link layer for IPv6. Auxiliary to this is the work on addendum 135-2010ai. This addendum adds a new Network Port object that represents the network port through which a BACnet device is connected to the network.

The *MS/TP-WG* is working on topics of the MS/TP and PTP

datalink layers. At this time, the group has addendum 135-2010an in the public review process, which adds support of large frames to MS/TP. Also, a number of proposals are in discussion that are related to cost-optimizing MS/TP devices, such as setting the MAC address from remote.

The *WN-WG* was originally founded for enabling BACnet to use ZigBee wireless mesh networks. For integration with EnOcean field devices, the group cooperates with the *TI-WG* to create a gateway design best practices guideline.

Infrastructure Working Groups

The “infrastructure” working groups handle topics related to the BACnet protocol stack in its entirety and basic concepts of objects and services.

The *IT-WG* is working on extensions for BACnet to address communication requirements for today communication technologies and convergence with IT. This includes the discussion of a comprehensive use of IP protocols for the transport of BACnet services, use of standard IT security mechanisms, and making BACnet manageable within IT environments. A primary goal is to keep the objects and services model as is, facilitating integration with BACnet devices using the traditional BACnet protocol stack.

The *OS-WG* is focusing on common topics of objects, services, the protocol stack's application layer and network layer. As a major endeavor, the group is overhauling the alarming concepts. The revised alarming concept has just been published in addendum 135-2010af. In a second phase, alarming capabilities will be further enhanced. Other larger topics include the definition of a new timer object, runtime totalization concepts, and a consistent I/O model.

The *NS-WG* was founded in response to network security requirements of life safety applications. The group designed a new network security architecture, published in standard 135-2010, clause 24. Currently, there is discussion with the *LSS-WG* on a standardized authorization data model.

The *TI-WG* is focusing on conformance testing and interoperability issues of the protocol stack, objects and services. The group is currently working on addendum 135-2010al, which adds a gateway design guideline, and a bunch of BIBBs and device profiles for gateways, routers and broadcast management devices (BBMDs). This group also acts as the shadow group for the BACnet Testing Laboratories working group (BTL-WG), focusing on proposals and addenda for conformance tests enhancements of standard 135.1.

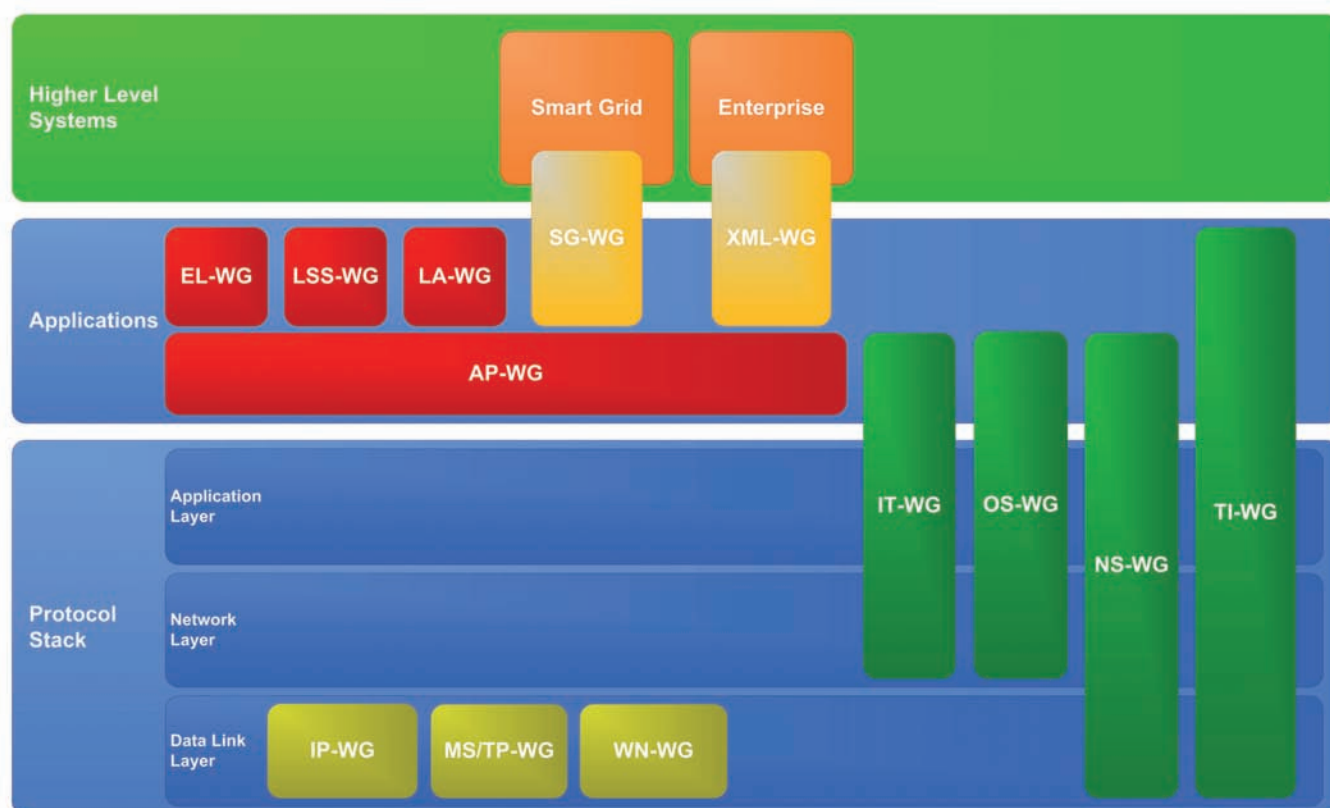
Applications Level Working Groups

The applications level working groups concentrate on support of specific applications and general mechanisms related to applications.

The *AP-WG* is working on a new general concept for standardized application interfaces. This concept will facilitate system integration through standardized aggregates of values that make up the interface of a piece of equipment, such as a variable frequency drive or an electrical meter. The interface descriptions will be available in text form for definition, in BACnet enhanced Structured View objects for online communication, and in XML descriptions for offline data exchange. A first collection of proposals is soon to be published for a first public review. The standardization of other application interfaces will follow.

The *EL-WG* is focusing on monitoring elevators through BACnet. The working group acts as a shadow group of elevator manufacturers. The current proposal includes

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



Working Group Focus Areas

new object types for representing elevators and elevator banks, and a new general purpose service for COV reporting of multiple properties, selected when subscribing.

The *LSS-WG* is focusing on object and service extensions to address the needs of life safety and physical security applications. The Life Safety objects were the first results of this group, covering the needs of fire safety and intrusion detection applications. Having completed extensions for physical access control, the group is now working on BIBBs, device profiles and conformance tests for these applications.

The *LA-WG* is working on extensions to address the needs of lighting control applications. The group has addendum 135-2010i in the public review process, which adds a new Lighting Output object type. Addendum

135-2010aa adds group commanding features to BACnet. Proposals for color lighting are in discussion.

Higher Level Systems Integration Working Groups

These working groups address requirements for integration of building automation systems with higher level systems such as enterprise resource management systems or the Smart Grid system.

The *XML-WG* is focusing on the definition of web services based interface to building automation systems, and other applications of XML. After completion of the first version of BACnet Web Services, the group defined general purpose XML data formats for BACnet. Currently, the group is working on addendum 135-2010am. This addendum extends the BACnet

Web Services with new features using the Atom Publishing Protocol and the PubSubHubbub concepts for notification subscription and delivery.

The *SG-WG* is considering topics related to the integration of BACnet building automation systems with Smart Grid system. In focus are extensions to objects and services for interactions with the Smart Grid, such as the representation of shedable loads. This group is connected to ASHRAE SPC 201P (Facility Smart Grid Information Model).

The SSPC 135 working groups are working on the standards that enable interoperable building automation. If you would like to contribute to these standards and would like to participate in a working group, please contact the convener of the working group. Information

on the working groups is available through the “SSPC Working Groups” page on the BACnet website: <http://www.bacnet.org/WG/index.html>. For details and contact of a particular working group, click on the working group abbreviation in the respective header bar. ■

Conformance Testing of BACnet Products

Carl Neilson ¹

In 2000, BACnet International (called the BACnet Manufacturers Association at the time) started developing a comprehensive test framework for conformance testing of BACnet products. Now, over 10 years later, the testing process has matured and has expanded to provide not only the coveted BTL Mark, but also allows vendors to apply for a BACnet Certification for the product.

The driving force behind the BACnet International testing and listing program is the aim to reduce the probability that products from differing vendors will fail to interoperate. The BACnet standard is a comprehensive and complex communication standard and as such can prove challenging to design and implement without defects. The testing process allows for verification that BACnet products correctly implement the BACnet standard and have made design decisions

that will reduce interoperability issues in the field.

The development of the test package began back in 2000. The BTL Working Group (BTL-WG), which is responsible for developing the test package, decided to build the test package in stages and in 2002 deployed the first version of the test package. The first BTL Marks were issued for application specific controllers, smart sensors, and smart actuators. In 2003, the BTL released the next version of the test package with the ability to test advanced application controllers. In 2005, the test package expanded to cover building controllers as well.

As the BTL worked on extending the test package to cover operator workstations, BACnet Interest Group Europe (BIG-EU) was working on getting their test process in place, including automat-

ed testing of BACnet products. The work of the BIG-EU saw minor modifications to the BTL Test Package and release four, a European specific test package was released in mid-2008. In mid-2009, the fifth version, with support for testing user interface products, was released.

The fifth release marked a milestone for the BTL. The test package was now able to test all types of BACnet products up to protocol revision 7. With the package now able to test all BACnet device profiles, the development process changed to a process where the package is updated to match advances in the BACnet standard.

The latest BTL Test Package, version 9, was released in December 2011. This release saw a re-numbering of the test package versions, with the version number now indicating the latest protocol revision that can be tested. The BTL working group is actively developing the next version of the test package and is aiming to release it in the first half of 2012.

The next version will allow testing of products up to protocol revision 12.

The year 2011 saw another milestone for the testing process. The test lab contracted by BACnet International achieved ISO accreditation, and is now recognized by the BIG-EU certifier. Up to this point, only one test lab in Germany was able to provide test reports for BIG-EU certification. Now manufacturers have a choice, and the testing process has been unified worldwide.

The BTL-WG's work is definitely not complete; the BACnet Committee is working on many more extensions to the standard. For each of those, the BTL-WG members will be tasked with extending the test package. We will continue to slave over the standard, develop tests specifications, and write test automation scripts.

And hopefully, we achieve our ultimate goal, a BTL Mark that signifies an interoperable product for years to come.

¹ Carl Neilson, Project Manager, BACnet Committee participation: ASHRAE SSPC 135 - Vice Chair, BTL-WG - Voting Member, BACnet International Steering Committee - Member BIG-EU WG-Technique - Member BIG-EU Certification Handbook WG - Member

The Wireless Standard is Officially Here!

Jay Hendrix ¹

To quote a famous song by a famous artist, it's been a long and winding road! We now have an official wireless mesh network standard for BACnet. This comes with the announcement of the completion of the ZigBee Building Automation Standard (press release September 27, 2011).

This effort started as a partnership between BACnet and the ZigBee Alliance. ANSI/ASHRAE Standard 135-2008 BACnet Addendum Q released in 2009 made ZigBee an approved datalink option in BACnet. The release of the ZigBee Building Automation Standard by the ZigBee Alliance completed the picture. This combination provides the only standard, end-to-end mesh wireless network for BACnet.

A critical reason why ZigBee is an important alternative to traditional IT wireless networking (WiFi 802.11) is it uses mesh technology which provides redundant paths of communication. This is a necessity for commercial buildings where the environment can be challenging for wireless communication. ZigBee also provides the security mechanisms tailored for our industry. Options are there to provide as little or as much security as a given project requires. ZigBee offers the ability to provide message confidentiality and integrity through the use of AES-128 bit encryption with optional certificate based authentication. This provides security to the vital BACnet requests for real time values, changes and updates to the application.

The use of wireless for building automation communication within facilities will continue to increase over time. This has to be true, right? Today wireless permeates our lives in so many ways. From smart phones to wireless internet access in your office, home or local coffee house, we depend on it. The technology will only improve and become more cost effective going forward. It will become the preferred method for buildings in the future. Less wiring also means less strain on our environment and scarce natural resources.

Our industry is conservative and a switch may not happen overnight. With any new technology there will be growing pains or adoption issues. Is this really a new technology? Not really. It's more about using an existing wireless concept in a new way. To enable greater adoption, our challenge going forward is to im-

prove diagnostic tools to enable better network communication troubleshooting. Improved wireless product application training, with better tools will key future success.

For our customers wireless provides many benefits including the opportunity to make system retrofits more affordable, increasing occupant comfort since wireless sensors can be easily relocated for optimum control, lower life cycle costs and its suitability for use in sensitive environments such as hospitals where controls can be installed without intrusion or disruption.

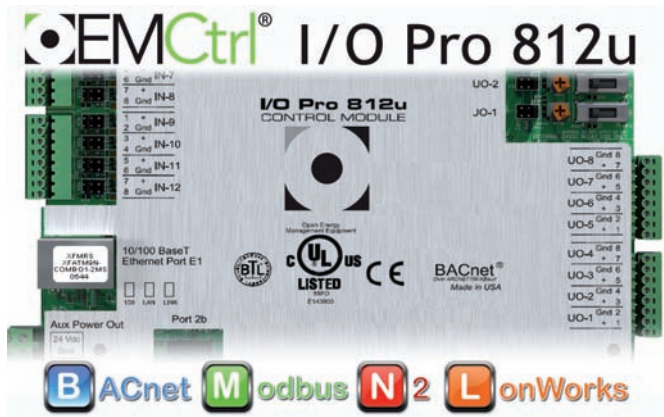
With the ever increasing adoption of wireless networks, and adoption by the building automation industry as the BACnet wireless mesh network standard, expect BACnet/Zigbee to be considered in your next projects!

¹ Jay Hendrix -Commercial Building Automation Marketing Group of ZigBee Alliance: www.zigbee.org, jay.hendrix@siemens.com

BTL Listed Advanced Application Controller Sets New Standard

OEMCtrl's most powerful controller has the flexibility to handle the most demanding control applications in the industry. This robust multi-protocol native controller can support complex control strategies with plenty of memory for schedules, alarms and trends.

Easily customized to meet any sequence of operation needs and fully capable of operating in stand-alone or integrated control mode. The I/O Pro 812u connects to a Building Automation Systems (BAS) using any of today's four leading protocols. Point mapping to all protocols can be pre-set, so that the protocol and baud rates desired can be easily field-selected without the need for any additional downloads or technician assistance. The I/O Pro 812u provides ample input/output capacity on the base controller, plus support for multiple expansion boards if additional I/O capacity is needed. ■



OEMCtrl
Controls for Manufacturers
info@oemctrl.com
www.oemctrl.com



OPTIMIZED EQUIPMENT CONTROL
BENEFITS EVERYONE

ADD REAL VALUE
COST EFFECTIVELY

SMALL
APPLICATIONS

MEDIUM
APPLICATIONS

LARGE
APPLICATIONS

ENSURE INTEGRATION WITH
THE INDUSTRY STANDARD
PROTOCOL



BACnet (Building Automation and Controls network) is building control protocol developed by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) and Air-Conditioning Engineers).

NO BACNET?
NO PROBLEM!

Support four open protocols



Simply Smarter

Controls for Manufacturers

WWW.OEMCTRL.COM

By supporting every major open building control protocol, your equipment is ensured interoperability with building control networks.

Combination CO₂, Temperature and Humidity Room Sensors

Siemens has introduced the Series 2200 range of combination CO₂, Temperature and optional relative humidity room sensors. Designed to work with Siemens BACnet Programmable Terminal Equipment Controllers (PTECs), this line of room sensors includes sensing-only and fully user-interactive models. The family includes combination CO₂/Temperature, and combination CO₂/Temperature/Relative Humidity sensing variants.

These units connect to the BACnet PTEC controller via the controller's room sensor port. Ventilation slots in the room unit housing optimize airflow through the cover for fast measurement response and superior control.

The BACnet Programmable TEC enables the zone control for a variety of applications. The BACnet PTECs are BTL listed. The BTL listing certifies that the BACnet PTECs conform to the BACnet standard. This enables product

interoperability on BAS networks with other BACnet (BTL listed) devices.

Together, the PTEC and CO₂ room unit can enable nearly any room/zone level control strategy that requires

CO₂ measurement for either monitoring, control or zone demand ventilation. ■

Siemens USA
wes.disselkoen@siemens.com
www.usa.siemens.com

PPM – Ideal Choice for Expanding Existing Systems

The Point Pickup Module (PPM) from Siemens lowers product installation and commissioning costs with cost effective I/O (Input/Output) available for installation anywhere there is a BACnet MS/TP network. The operational savings and reduced hardware requirements make the PPM the ideal choice for expanding an existing system to meet monitoring and control needs in a wide variety of building control and monitoring applications.

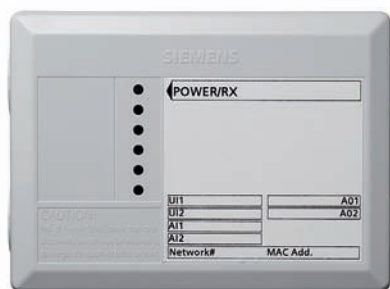
Point Pickup Modules from Siemens allow for incorporation of a small cluster of remote I/O points into the building automation system. The PPM

family leverages the BACnet MS/TP network to extend the reach of any BTL-listed BACnet Building Controllers application program.

Special features of the PPM include:

- Wide range of I/O signal type support for flexible I/O solutions.
- Fast start-up with auto-populated device name and device ID eliminates need for a special tool.
- Highly-visible LEDs indicate the power, communication and point status.
- Plenum rated enclosure providing lower installation costs, as no additional enclosure is required.

- Flexible mounting options including DIN rail, surface mounting, and on 4" x 4" junction box. ■



Siemens USA
ryan.schlotfeldt@siemens.com
www.usa.siemens.com

I/O integration into BACnet the Easy Way

With a total of 3 I/O products, this product-line covers the typical requirements for digital input and output as well as for analog input to acquire data de-centrally.

All modules support the layer BACnet MS/TP based on EIA-485 and may be connected to a field-network or as a remote I/O to a BACnet controller. MS/TP allows easy setup of network segments with up to 32 devices each and a segment-length of more than 4.000 feet with a total of up to 255 devices within the entire field-network using simple twisted pair cable.

All baud-rates specified in the BACnet standard within the range of 9600 to 76800 bit/s are supported and all modules can be setup to run in MS/TP master – as well as in slave-mode. This allows

flexible configuration according to the project requirements.

The basic settings of the modules are provided by jumpers, so that setup becomes easy even without extensive BACnet knowledge and w/o using any computer. Further settings may be defined by writing to the module over BACnet, so that Description- and State texts may be specified, even baud-rate or COV-U (Change of Value Unsolicited) can be configured over BACnet.

In master-mode the modules support the BACnet Device-



Analog Input Module AI -24 connector

Profile: B-ASC (Application Specific Controller). Writable properties are (amongst others): Object-Instance number, Object-Name, Description, State-Texts, MAC-Address.

All Modules are available as a variant supporting the

communication protocol
Modbus/RTU. ■

MBS GmbH
Roemerstrasse 15
D-47809 Krefeld
www.mbs-software.de

Graphical User Interface Compatible with BACnet Networks

The BACnet Web Server from Siemens enables web access, remote alarm notification, and mobile smartphone access to your BACnet based Siemens system. The solution provides a graphical user interface compatible with BACnet networks, hosted directly from web enabled field panels. The web server allows remote access through an intuitive web-based and mobile application based user interface to monitor, control, command and configure a building automation system from Siemens.

Advantages include:

- Cost-effective interface and alarm notification solution for large and small projects
- Incredible productivity and mobility while fully

connected with the building automation system

- Remote access and alarm notification during project startup, database configuration and editing, and troubleshooting

- Simple interface leads to increased productivity
- Local and remote control for distributed sites
- Complete configuration and editing tool-set from anywhere in the world ■

Siemens USA
chris.hollinger@siemens.com
www.usa.siemens.com

Family of BTL Listed Products Broadened

2011 continued as a banner year for new BTL Listed products. The family of BTL Listed products broadened this year to include many which were previously only listed on the BIG-EU website. The BTL Mark is increasingly becoming the recognized worldwide credential to establish that the product is tested, compliant, and that it correctly implements the BACnet standard.

The BTL Listing is a testimonial that the product was subjected to rigorous verification by testing; demonstrating that it correctly implements interoperable BACnet. This requirement is steadily becoming the benchmark stated in project specifications, to avoid sub-standard implementations.

The BTL Mark is permitted to be displayed on devices which have passed BTL Testing. This testing ensures that a device correctly implements all of the BACnet functionality that it contains. ASHRAE standard 135.1 - 2009 and the BTL Test Plan govern the testing. There are three documents required to be filled out and mailed/emailed to <btl-manager@bacnetinternational.org> in order to make application for testing and commence the testing process. Please find forms and instructions describing the entire testing process in the 9.0 test package at: http://www.bacnetinternational.org/associations/8066/files/BTL_Test_Package_9.0.final.zip

The BTL Checklist and BTL Testing Application determine the testing which will be performed. Every device is different, but a schedule estimate and testcase can be created from those two documents. A signed BTL Testing Agreement and US\$1,000

deposit secures a place in the test queue. BACnet International member companies at Silver level or higher receive a discount on testing fees.

It is common for testing and a Listing to apply to a family of devices that share underlying BACnet software. We test only the BACnet functionality. If the same firmware is used in common amongst devices, one testing and one Listing can apply to the family.

If you have any further questions please do not hesitate to ask. I look forward to seeing your application for BTL testing.



Duffy O'Craven
Manager of the BACnet
Testing Laboratories (BTL)
Chair of the
BTL Working Group
[btl-manager@
bacnetinternational.org](mailto:btl-manager@bacnetinternational.org)

In the last half of 2011, the following vendors' devices have earned the right to display the BTL Mark:

Alerton

- VLX
- VLX-Platinum

Carel

- pCOWeb
- pCOnet

Control Solutions Inc.

- Babel Buster BB2-3010

Schneider Electric

- AS-B

Danfoss

- FC102

Delta Controls

- enteliBUS
- System Controller
- Lighting Controller
- Access System Manager
- System Manager
- Application Controller
- Programmable Network Thermostat: Room
- Lighting Controller

DEOS

- COSMOS 600 OPEN
- COSMOS 810 OPEN
- COSMOS 4100 OPEN

Distech Controls, Inc.

- ECB-1000 series BACnet Programmable Controllers

Honeywell

- ComfortPoint CP-600 Building Controller
- Honeywell WEBs-AX WEB-602 Building Controller
- Honeywell Enterprise Buildings Integrator
- SymmetrE

KMC Controls

- ASC for Titus VAV

LG Electronics

- BNU-BAC

Log One

- EMS-EDU-B

Reliable Controls

- MACH-ProCom
- MACH-ProWebCom
- MACH-ProSys
- MACH-ProWebSys

Siemens

- BACnet PTEC Heat Pump Controller
- BACnet PTEC I/O Expansion Controller
- BACnet PTEC VAV with Series Fan and 3-Stage Electric Heat Controller
- BACnet PTEC Unit Vent Controller
- BACnet PTEC VAV with DCV Chilled Beam Controller
- BACnet PTEC VAV Controller (long)
- BACnet PTEC Fan Coil Controller (long)
- BACnet PTEC Dual Duct Controller
- BACnet PTEC Constant Volume Controller
- BACnet PTEC AP Fan Coil Controller
- BACnet PTEC Heat Pump Controller UUKL
- BACnet PTEC I/O Expansion Controller UUKL
- BACnet PTEC VAV with Series Fan and 3-Stage Electric Heat Controller UUKL
- BACnet PTEC Unit Vent Controller UUKL
- BACnet PTEC VAV with DCV Chilled Beam Controller UUKL
- BACnet PTEC VAV Controller (long) UUKL
- BACnet PTEC Fan Coil Controller (long) UUKL
- BACnet PTEC Dual Duct Controller UUKL
- BACnet PTEC Constant Volume Controller UUKL

Trane

- Tracer System Controller

Yaskawa

- Z1000
- BACnet Option Kit SI-B3

BACnet on its Way to Standardization in China

Forum in Hong Kong makes strong impact on Asian Pacific building automation market. The increasing demands for the global BACnet standard in China and Asia Pacific was evident at the first BACnet Forum ever held in Hong Kong, on November 10th, 2011. Douglas Chan, president of the BACnet Interest Group China (BIG-CN), announced the commissioning of the BACnet standard ISO 16484-5 as Chinese standard. He anticipates extreme growth of the Chinese user group in the next two years. A strong BIG-CN that supports the Chinese standardization is needed.



International specialists, scientists, BIG CN, BIG EU and BIG AA members at Hong Kong Forum.

The first independent BACnet introduction in Hong Kong was focussed on BACnet as enabler of sustainable building automation for construction and refurbishment. Jointly hosted by the BACnet Interest Groups AustralAsia (BIG-AA), Europe (BIG-EU), China (BIG-CN) and BACnet International (BI)

it was a unique congress and trade show about the newest BACnet technology and recent applications in large buildings. Simon D. Mahoney President of BIG-AA, Raymond Rae from the BI Board of Directors, Klaus Wächter Executive Board of the BIG-EU and Douglas Chan welcomed experts from China,

India, Vietnam, Malaysia, Singapore and Hong Kong.

130 specifiers, consultants, integrators and operators attended the congress. Dr. Albert So presented the city of Hong Kong's application for an elevator addendum to the BACnet standard which is currently being developed by a dedicated working group of the standardising committee. The leading building automation manufacturers pointed out the added value of interoperable BACnet technology. An intensive, lively discussion on technical, economic and ecologic potential demonstrated the progressive intentions of the Asian "BACneteers".

In the end, they voted for more dissemination activities – BACnet Forums® BACnet Journals®, trade show presentations – on the one hand

in the Asian Pacific megacities, in cooperation with the BACnet Interest Groups AustralAsia

(BIG-AA), Europe (BIG-EU) and BACnet International (BI) on the other hand in the area of Hong Kong, Shenzhen, Guangzhou, in Beijing, Shanghai and other Chinese economic centres.

The BACnet Forum Hong Kong was supported by Carrier, Contemporary Controls, Delta Controls, Loytec, PcVue, Saia-Burgess, Siemens and Guangzhou Electrical Building Technology.

More information about the global development of BACnet at: www.bacnetforum.org and www.bacnet-journal.org.



Douglas Chan,
Delta Controls CN President



Raymond Rae, Delta Controls
at BACnet Forum Hong Kong



BACnet Information at
Buildings Save Energy trade show.

PlugFest Reaches Optimum

PlugFest 2011 was another rousing success. 44 teams from 34 different companies came to Atlanta, Georgia (USA) for three days of testing, learning, and multi-vendor education. Judging by the devices seen at this PlugFest, BACnet is maturing, with a large number of devices now implementing the more sophisticated Device Profiles.

PlugFest has reached the optimum size that it can accommodate in practical terms, given 12 pairing rounds spanning three days. Already there are compromises forced by the large number of participants, and especially by devices implementing the simplest Device Profiles. In rounds seven and 12 this year, almost as many teams had to be sent involuntarily to the roundtables as received their requested pairings. This is inevitably the consequence of companies sending multiple teams with identical functionality, and of nearly the majority of devices having no ability to initiate services.

Consider: if two teams from one company each bring devices having no ability to initiate services, and there are 12 rounds, that would

require pairing with 24 different A-side implementations. There have never been 24 different A-side implementations seen at a PlugFest. The devices having no ability to initiate services disadvantage themselves. There is also a stratification effect across PlugFest as a whole. Preferences submitted beforehand give an idea of which pairings would be most beneficial, and which are less desired. But to accommodate pairing requests from devices with no ability to initiate services, A-side implementations can seldom be paired with other A-side implementations. The attempt to give everyone a pairing in the rounds they request forces some of the preferences to be disregarded.

We would always welcome additional A-side implementations. This problem would

solve itself if more devices had the ability to initiate services. There are facets of BACnet that are worth dynamically reading from peer devices. The BACnet standard provides extensive capabilities for discovery, and information that can be valuable for self-configuration. Even simple devices would do well to read portions of the Device Object of their peers, for optimal efficiency, and especially, to provide automat-

ic selection of configuration parameters where there is really only one right answer. Whenever you are considering adding a configuration selection, think of it this way: Why would the user choose one value vs another? Does the information to make the right selection involve such esoterica that the user will probably leave it set to the default? If the information needed to make the decision were available, is the optimal default decidable using simply a set of conditionals? If so, then go ahead and get that information across the network and make the right decision that way.

Save yourself the coding of a configuration selection. Save the user the need to learn and understand esoterica in order to make a configuration selection. Save the building occupants from wrong selections made due to insufficient information at configuration time.

Everybody wins. And serendipitously, your poor beset BTL Manager while crafting pairings for PlugFest will thank you for having a device with the ability to initiate. :-)



Leaders of the Pack Awards

Join BACnet International in recognizing outstanding achievements of individuals and companies in the BACnet International community. These awards are intended to allow BACnet International members the chance to recognize and celebrate the hard work, commitment and accomplishments of its members.



Award	Winner	Comment
Alpha Dog Award	Carl Neilson of Delta Controls	The Alpha Dog Award is presented to an individual who exhibits outstanding leadership. Carl Neilson is a constant and dynamic voice of BACnet International through his leadership. His passion is truly inspiring.
St. Bernard Award	Michael R. Wilson of OEMCtrl	The St. Bernard Award goes to an individual who is always coming to the rescue. Michael R Wilson always steps up if something needs to be done, especially if no one else is available to do it. If you need something done at the last minute, he is there.
German Shepherd Award	Joel Bender of Cornell University	The German Shepherd award is given to an individual who is known for keeping the group in line and upholding the BACnet Standards. This year, it is being presented to two individuals equally deserving of the honor. The first award goes to Joel Bender, who is the essence of what BACnet is by constantly asking, „what can we make that people can use?“ He also contributes massively himself, maintaining the key pieces of the infrastructure that ties us all together.
German Shepherd Award	Steve Karg of WattStopper	The second German Shepherd award is presented to Steve Karg who is like a Swiss Army Knife, and applies his varied skills to help produce the best that the BACnet community has to offer.
Labrador Award	Grant Wichenko of Appin Associates	The Labrador Award is presented to someone who shows unquestioning loyalty to BACnet International and the BACnet Standard. Anyone who works with Grant Wichenko is aware of his total loyalty to the BACnet product. Those involved in standards work will understand the commitment required to work in the standards development area and the unquestioning loyalty required for such sustained activity. He also expends enormous effort to implement BACnet in any project in which his company is engaged.
Rottweiler Award	Brad Hill of Honeywell	The Rottweiler Award was designed to honor a fierce protector of BACnet International and BACnet Standards. This year's recipient is Brad Hill, who is a fixture in BACnet International and who contributes by participating on the BACnet International Board of Directors.
Jack Russell Award	Ben Dorsey of KMC	The Jack Russell Award goes to an individual who is always doing something for the betterment of BACnet International and the BACnet Standard. Ben Dorsey is constantly involved with improving BACnet International through his work with the BACnet International marketing committee. He is heavily involved in improving the website and other publications that BACnet produces.
Howler Award	Ken Sinclair of Automated Buildings	The Howler Award serves to recognize an individual for making a lot of noise about BACnet International and BACnet Standards. This year's recipient is Ken Sinclair, who continues to keep BACnet in the forefront of industry media via his coverage on AutomatedBuildings.com
Fox Hound Award	Jack Lee of Airtek	The Fox Hound Award goes to an individual who quickly and stealthily came up from behind in BACnet International. As a newcomer to BACnet International participation, Airtek in a single year has moved from BACnet-ambitious to BACnet-commanding. With 21 different BTL Listed models in three different device profiles, Airtek has risen to technical mastery of correct and interoperable BACnet.
Best in Show Award	Carrier	The Best in Show Award goes to a project posted in the BACnet Success Stories. This company's very first BACnet Success Story is an impressive piece of work. This LEED Gold project with a recognized retail industry leader is the ideal example of what we want submitted as a BACnet Success Story. It identifies the project challenges and solutions. It is a clear, cogent, compelling and well-composed narrative. It identifies BACnet as the key to success on this project. It contains customer and integrator quotations. It identifies all contributing firms, consultants, integrators, contractors and manufacturers with hyperlinks to their web sites. It supplies a system schematic made available in the, "Systems Integrated," section, and it uses outstanding project photos.

BACnet International's Partnership with Facility Decisions Rolls on Through Name Change

BACnet International's partnership with Trade Press's Facility Decisions conference and expo at the Mirage Hotel in Las Vegas was the most successful in its history. With solid growth in attendees and vendors, alongside extensive education sessions, participants were provided with an opportunity to discuss the issues that facility managers are facing in today's complex environment. While over one hundred companies exhibited at the show, a section of the exhibit floor was reserved for BACnet International members, creating an area exclusively dedicated to BACnet based solutions for HVAC, refrigeration, and lighting. This BACnet sponsored area was a prime example of what BACnet International's mission is all about, increasing interoperability by promoting the successful use of the open based BACnet protocol products in building automation and controls systems.

Networking

BACnet International's involvement in Facility Decisions was augmented this year by sponsoring the opening night networking party for the first time. The networking party was held on the exhibit floor, which allowed attendees and exhibitors to quickly transition from solutions to socializing, resulting in an increase in attendance over previous years. „As exhibitors and attendees ourselves, we have always enjoyed the spirited networking and camaraderie at the Facility Decisions opening night party. Now BACnet Inter-

national is thrilled to be the hosts of this fun and productive soiree,” said Michael R. Wilson, Marketing Committee Chair for BACnet International. “With our organization's event co-located at Facility Decisions, we are proud to offer a networking event that brings together all Facility Decisions participants including students, facility managers, engineers and building owners.”

During the networking party BACnet International presented the second annual “Leaders of the Pack” awards. The awards, based on common attributes of dog breeds, provide an opportunity for BACnet International to honor individuals and companies that are working to promote and enhance BACnet. Especially poignant was the presentation of the first ever Scottish Deerhound lifetime achievement award, given to the late Bill Swan, or as most people knew him, BACnet Bill. The Scottish Deerhound award, a dog known for being gentle and friendly, yet not afraid to join the hunt, was named in honor of Bill Swan as a tribute to his involvement with the BACnet community. A few of the other awards included the Jack Russell Award presented to Ben Dorsey of KMC controls for tenaciously working to improve BACnet International, and the 2011 Best in Show Award went to Carrier's Crate and Barrel project in Durham North Carolina.

Education

To complement the exhibit and networking opportunities, BACnet International also sponsored

a BACnet based education track to help meet its objective of promoting and improving BACnet. “The inherent synergy between BACnet International and Trade Press Media Group is mutually beneficial. Together we have built a signature event that contributes to the broader FM mission; Facility Decisions stimulates and promotes interaction, learning and career advancement for our attendees,” said Wendy Dietzler, Director of Education. “Each year BACnet's presence at the conference continues to grow, which enables us to offer a richer, deeper continuing education experience for facility managers.” Some of the more popular sessions included BACnet Fundamentals, a discussion about the pitfalls of “interoperability”, and an introduction to BACnet Lighting Integration. In addition to the BACnet education classes, other continuing education units focusing on energy, leadership, technology, security, and sustainability were offered, and copies of all of the BACnet presentations are available on the “Learn” tab of the BACnet International website.

Moving forward

One of the major developments at the conference was the announcement that this would be the last show to use the Facility Decisions title, as Trade Press announced that moving forward the show would now be known as NFMT Vegas. “The name change from Facility Decisions to NFMT Vegas ushers in a new era for our family of events dedicated to facili-

ties management professionals,” said Todd Kotlarek, Director of Events for Trade Press Media Group. “It's a brand facility managers, building owners, maintenance engineers, and directors of sustainability hold in the highest regard – just as they do for BACnet International, which will be collocating its annual conference at NFMT Vegas for the fourth year in 2012.” The name change helps to align the show with NFMT in Baltimore, NFMT Mexico, and the NFMT virtual show, and the 2012 show will return to the Mirage Event Center on October 2-3. BACnet International is looking forward to continuing its sponsorship of the conference, and we hope to see you there. ■



Dennis Swoboda
District Manager for
Blue Ridge Technologies
BACnet International
Marketing Committee
Member

BACnet Goes Mobile!

Our world has changed greatly since the BACnet standard was first introduced as an ASHRAE standard in 1995. But despite the technology changes since then, products today using the BACnet standard can take full advantage of the latest technologies in mobile devices.

If we step back in time, in the mid 1990's, mobile phones were still in the early adoption phase for facility managers. Back then, mobile phones such as the Motorola StarTAK and Nokia 8110 were state of the art, with slim and lightweight designs, but the features were limited. During the early 2000's, pagers and cell phones for remote alarm notifications and alarm escalations became a popular facility management productivity tool to remotely manage irregular conditions in buildings. This development marks the beginning of the tightening relationship between mobile phones and BACnet standard based building automation systems (BAS).

Fast forward to today, some of us still use mobile feature phones for basic communication, but approximately 44 % of all Americans have a smartphone which includes Inter-

net browsing, messaging, and loading of dedicated applications. We will focus on the latter, as dedicated applications is where the feature-rich BAS experience comes to life on a smartphone.

A common belief is that with Internet enabled smartphones, a facility operator has all they need to manage the building productively and with incredible mobility. The mobility part is certainly true. However, a smartphone Internet browser does not provide an optimum user experience due to the format and display differences between laptop and desktop computers, and smartphones.

A user friendly interface sets apart dedicated smartphone applications for a feature rich and completely mobile BACnet based BAS application. So what specifically can the dedicated smartphone application provide that is

better than a smartphone based Internet browser? The answer is the following:

- Optimized paths to critical building information in the fewest possible steps
- Smartphone specific user interface format and viewing area, scaled specifically to the smartphone screen
- Live updates and notifications to dynamic information in real time
- Application specific interface for graphics, system monitoring, commanding, scheduling, alarming and trending
- Touch screen interface specific to smartphone format
- Energy savings applications to facilitate real time energy reduction

So the next time you hear conversations about the use of smartphones in BACnet based BAS solutions, remem-

ber that the more specific the application written for a smartphone, the better the user experience will be for the facility manager. ■



Chris Hollinger
Siemens Industry, Inc.
Building Technologies
Control Products &
Systems
chris.hollinger@
siemens.com
www.siemens.com

Live Presentations at light+building Frankfurt 2012

Strengthened by the world-wide harmonization of BACnet tests for products, BACnet vendors approach light+building 2012 in Frankfurt, Germany with new vigor. From April 15th-20th the BIG-EU will present itself with live presentations, top references and a BACnet technology calendar at the Messe Frankfurt, Hall 9.0 at Stand B60. For the first time a comprehensive program of live presentations will BACnet to the visitors.

Under the main theme „Scalable solutions for every need“ the manufacturers will be showing trade-spanning interoperability. Here market researchers will see the vast potential of the BACnet stan-

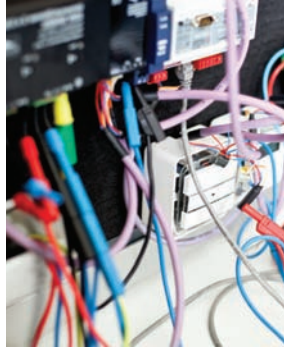
dard ISO 16484-5, in cross-trade integration.

Registered exhibitors – some with two or three panels each – are ABB, DIAL, Elesta, HERMOS, Honeywell Build-

ing Solution, Honeywell, Invensys, ITENOS, Johnson Controls Systems&Services, Kieback&Peter, MBS GmbH, Novar/Trend, PC-Vue, Saia-Burgess, SAMSON, Sauter-Cumulus, SE-Elektronik and

Siemens Building Technologies. Eight more manufacturers are very interested.

For new buildings as well as for energy upgrading, technical equipment for commercial and public buildings without BACnet is hardly conceivable. Expanded to 200 square meters, the BACnet joint booth provides building engineers, planning engineers and facility managers with a unique wealth of expertise and know-how. ■



Information and Enrolment
www.dial.de
 Phone +49 23 51 10 64-360

BACnet basics of system integration (5 days)
 > 15 - 19 October 2012

DIAL GmbH · Gustav-Adolf-Str. 4 · D-58507 Lüdenscheid · Phone +49 23 51 10 64-360 · Fax +49 23 51 10 64-361 · www.dial.de

DIAL
 light, building, software.



FieldServer Technologies Leader in BTL Approved Gateways

Select BACnet gateway solutions ranging from ProtoCessor and ProtoNode products for OEMs to low-cost FieldServer and QuickServer products for integrators/end-users plus multichannel solutions for building and campus integration.

- YOUR ONLY SOURCE OF BTL MARKED GATEWAYS
- LARGEST DRIVER LIBRARY IN THE INDUSTRY, ACCESSING OVER 100 PROTOCOLS AND HUNDREDS OF DEVICES
- OVER 10 YEARS OF INTERFACE EXPERIENCE LINKING BACNET AND LONWORKS, MODBUS, JCI METASYS, ETHERNET/IP, FIRE PANELS AND MORE
- BACNET/IP, BACNET MS/TP AND BACNET ETHERNET SOLUTIONS
- RELIABLE, COMPREHENSIVE INTERFACE EXPERIENCE AND TRUSTED SUPPORT



PROTOCESSOR

FIELDSEVER

PROTOCESSOR



PROTONODE



QUICKSERVER



FIELDSEVER.COM
 408.262.2299

PROTOCESSOR.COM
 408.964.4433

New to the BACnet International Family



BACnet International is the international organization that encourages the successful application of BACnet through interoperability testing, educational programs and promotional activities. The international community complements the work of other BACnet-related groups whose charters limit their commercial activities. BACnet International community membership includes a who's who list of top tier companies involved in the design, manufacturing, installation, commissioning and maintenance of control and other equipment that use BACnet for communication. We are pleased to congratulate FieldServer Technologies and Trane for upgrading their membership level to Gold.

We are also proud to welcome the following new members to our ranks:



ARC Informatique
France
Corporate Affiliate Member
of BACnet International
www.pcvuesolutions.com/

ARC Informatique is a leading European company in Industrial IT, which has dedicated 30 years to providing solutions for monitoring and control. We invest in new technologies and integrate them into our products to deliver solutions that enable our clients to reduce their

production costs, manage their energy usage and make their facilities more productive.



LG Electronics
South Korea
Silver Member of BACnet
International
<http://kic.lgeaircon.com/>

LG Electronics, Inc. (KSE: 066570.KS) is a global leader and technology innovator in consumer electronics,

mobile communications and home appliances, employing more than 93,000 people working in over 120 operations around the world. With 2010 global sales of \$ 48.2 billion, LG comprises four business units – Home Entertainment, Mobile Communications, Home Appliance, and Air Conditioning & Energy Solutions. LG is one of the world's leading producers of flat panel TVs, mobile devices, air conditioners, washing machines, and refrigerators.



Emerson Control Techniques
Wales
Silver Member of BACnet
International
www.emersonindustrial.com/en-US/controltechniques/Pages/home.aspx

Control Techniques is a leading manufacturer of AC and DC variable speed drives, servos and power conversion equipment for commercial and industrial applications. Our innovative products are used in the most demanding

applications requiring performance, reliability and energy efficiency.



The S4 Group, Inc.
United States
Silver Member of BACnet
International
www.thes4group.com/

The S4 Group provides cutting-edge enabling technology that transforms building automation systems (BAS) into enterprise solutions.

S4 Open Appliances attach to legacy proprietary BAS, extending systems' lifespans and greatly enhancing their value to building owners.

With the S4 Group, migration to new systems is cost-effective. Facilities can add advanced visualization, energy monitoring/management, and continuous commissioning/tuning to cut operational costs. Competition for procurement and support processes benefits the bottom line. ■

Calendar of BACnet Events

Date	Location	Event	Information	
2012				
January 23-25, 2012	Chicago, IL	AHR Expo	BACnet International booth (member product showcase display) and education track	Sarah Jackson, BACnet International Office, sarah@bacnetinternational.org
May 9-11, 2012	Las Vegas, NV	LightFair International	BACnet International booth	Sarah Jackson, BACnet International Office, sarah@bacnetinternational.org
October 2-3, 2012	Las Vegas, NV	NFMT Vegas	BACnet International booth, education sessions, awards ceremony and reception	Sarah Jackson, BACnet International Office, sarah@bacnetinternational.org
November 13-16, 2012	San Francisco, CA	Greenbuild	BACnet International booth	Sarah Jackson, BACnet International Office, sarah@bacnetinternational.org
Fall 2012	TBA	PlugFest	Hosted by BACnet International, includes interoperability testing, roundtable testing, education sessions	Sarah Jackson, BACnet International Office, sarah@bacnetinternational.org



The first thermal energy calculator with **BACnet®**



Communication talent CALEC® ST now also with BACnet® interface

Aquametro AG has for years supplied the market with high accuracy BTU meters from its well-known CALEC® family. We are proud to announce that our CALEC® ST, as the first ever BTU meter on the market, is now also available with BACnet®. The introduction of BACnet® extends our range of communication interfaces which include LonMark®, M-Bus, Modbus and N2Open.



Swiss Made

Contact us:

info@aquametro.com
www.aquametro.com

