

ESSENTIALS



Building on BACnet® Connecting BAS Devices to an IP Infrastructure

This article was originally published in April 2011 by automatedbuildings.com as an interview between George Thomas, president of Contemporary Controls, and Ken Sinclair, owner and editor of AutomatedBuildings.com, which has been an online magazine and web resource for the building automation industry since 1999.



George Thomas is president of Contemporary Controls with headquarters in Downers Grove, Illinois. The company designs and manufactures networking products used in various automation industries

and has been an OEM supplier to major BAS companies for the last 25 years. The company has three subsidiaries in Suzhou, PRC, Leipzig, Germany and Coventry, United Kingdom. Manufacturing is accomplished in both China and the USA. George Thomas received his BSEE and MSEE degrees from the Illinois Institute of Technology.

Sinclair: “Building on BACnet” is a nice play on words, but what does it mean?

Thomas: It means that having a BACnet system is not enough. Modern building automation systems are utilizing the Internet Protocol (IP) and Ethernet communication over structured wiring requiring BAS professionals to learn more about these IT technologies. They cannot be experts in all disciplines so we help out by providing the tools and the equipment necessary in order to connect BAS products to an IP infrastructure consisting of unmanaged and managed switches, media converters, and IP routers utilizing twisted-pair and fiber optic cabling.

Sinclair: Doesn't the IT department specify what is to be used in an installation?

Thomas: That assumes there is an IT department on-site. Some BAS contractors indicated to us that they are the IT staff for smaller buildings and school districts when they receive maintenance contracts from the building owner. Even if an IT department is involved, it is best to be able to communicate to them in their language. They are not going to understand building controls and protocols like BACnet, but you need to be able to explain to them why you need fixed IP addresses and remote access. If you use their terminology, you may gain an ally.

Sinclair: Does this only apply to BACnet?

Thomas: Not really. We suggest using BACnet/IP at the highest level but not all equipment in a building is BACnet compliant. Modbus serial is commonly found as well as Modbus TCP which also runs over an IP network. Sedona Framework is also IP-based. The movement is to “put everything up onto IP.” One day that may happen but for now there is plenty of fieldbus wiring that needs to be accommodated.

Sinclair: How do your products “put up everything onto IP?”

Thomas: For Ethernet connectivity we have the CTRLink® line consisting of wired and wireless IP routers, unmanaged and managed Ethernet switches, media converters and Power Over Ethernet (PoE) injectors and splitters. Our IP routers will gain access to the Internet using either Ethernet-to-Ethernet routing using an external cable or DSL modem or via the cellular network using our wireless routers. For UL 864 Control Units and Accessories for Fire Alarm Systems, we worked with several OEMs who incorporated one of our switches into this special application.

For those devices without an Ethernet connection, our BASautomation™ line of BACnet routers and gateways can help getting fieldbus equipment up onto IP. The BASrouter and Portable BASrouter convert BACnet MS/TP or BACnet Ethernet to BACnet/IP. The BASgateway and the BASremote can interface Modbus serial to either BACnet/IP or Modbus TCP.


Sinclair: How do your Ethernet products differ from those that can be purchased at a computer store?

Thomas: Our CTRLink products utilize metal enclosures and are intended to be mounted into control cabinets for a professional look. Having a small office-home office (SOHO) Ethernet switch tie-wrapped onto the side of a control panel is not professional looking. Using Velcro® is worse. We have models that can be either DIN-rail or bulkhead mounted. They can share power with other BAS devices using a common 24 VAC or VDC supply eliminating the need for installing a convenience outlet to accommodate a “wall-wart” just for the store-bought switch. We also supply responsive technical support on our products from our subsidiaries and the factory. As for our BASautomation products, you will not find a BACnet router or Modbus to BACnet gateway at a computer store.

Sinclair: You mentioned helping the BAS professional learn more about IT technologies. How do you do that?

Thomas: They can go to www.industrialethernetu.com which is a website we sponsor. The Industrial Ethernet University has on-line training material and courses that can be completed in order to earn a certificate of accomplishment. About 500 individuals around the world have completed our courses and earned a certificate. This non-commercial site is free representing our effort in assisting people in learning the technology.

The other opportunity is to just visit our website at www.ccontrols.com and visit our Learning Center. This is where we deposit our white papers, articles, application notes and videos that we have developed over the years. We divide the material based upon topics to assist the visitor in finding what they want. We have received praise for providing this material so we know that there are BAS professionals out there who want to increase their understanding of IT issues.



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Industrial Ethernet University educates the public on the benefits of deploying Industrial Ethernet in a variety of applications. Understanding Industrial Ethernet technology can become a confusing process. The university has structured course work where students can learn at their own pace.

Students are taught the basics of Industrial Ethernet from the physical and data link layers up through the network, transport and application layers. All material comes from the IEEE Std. 802.3 and relevant Request for Comments (RFCs). The material is vendor-neutral since the purpose of the university is to educate the public for the benefit of the industry.

Learn more by visiting <http://industrialethernetu.com/>