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NETWORK

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In Networked Controls

Ethernet Infrastructure + BAS Router = Your Ideal Solution

Ethernet connectivity is everywhere in a typical structure. Why not use the existing Ethernet infrastructure? It's there, it's free. Let Contemporary Controls help with your next project.

Sales Manager Joe Stasiak says if you have BACnet MS/TP devices to install, but no MS/TP home run is available, use a BAS Router to make the BACnet/IP to BACnet MS/TP connection. "With the BAS router you can use the Ethernet infrastructure and locate the MS/TP devices where you need them. You can take advantage of the many MS/TP devices in the marketplace and connect them to any BACnet/IP enabled controller. And of course, if you're trying to maintain a standard selection of spare MS/TP ports, you can employ the same MS/TP devices connected to MS/TP controllers as those connected to the BACnet/IP controller."

The BAS Router routes messages between BACnet/IP and BACnet MS/TP networks as per the ANSI/ASHRAE 135-2004 standard. It allows BACnet/IP devices connected over Ethernet to communicate with MS/TP devices. The router is configurable via its web page.

The BASRT-B is housed in a metal case that mounts on 35-mm DIN-rail and is powered from a 24 VAC/VDC source. The unit contains one MS/TP port and one 10/100 Mbps Ethernet port.

The MS/TP port offers an optically-isolated transceiver. It has a removable 3-pin terminal block for the EIA-485 connection. Through this port, up to 127 devices can be addressed—as many as 32 on the local bus. All MS/TP baud rates are supported from 9.6 to 76.8 kbps.

The Ethernet port offers a shielded RJ-45 connector. Through auto-negotiation and Auto-MDIX, it automatically matches its duplex setting, data rate and signal polarity to

whatever is needed by the attached equipment. Therefore, any CAT5 cable can be used for hookup.

A resident web server allows commissioning, re-configuration and troubleshooting with a standard web browser. A reset switch is provided on the router to set the unit to the factory default IP address.

Three LEDs are provided: The power LED glows green when proper power is provided. A bi-color Ethernet LED glows green for 100 Mbps operation and yellow for 10 Mbps and indicates activity by flashing. A green LED flashes when valid MS/TP traffic is received.

Internal MS/TP bias and termination jumpers are provided to allow flexible bias and termination options. They can be removed for mid-span installations.

Each unit complies with Class A radiated and conducted emissions as defined by EN55022 and CFR 47, Part 15. For more information on the BAS Router, please visit <http://www.ccontrols.com/basrouter.htm>.



Contemporary Controls Takes Custom Design Seriously



Since its establishment in 1975, Contemporary Controls' engineers with their solid design and development skills have handcrafted products with improved features and functionality.

Operations Manager George Karones says the company can carry out a customer's idea in the least amount of time and expense, while focusing on the right product attributes that bring the customer value. Specific designs may come from the company's three technologies: ARCNET®, Industrial Ethernet, and CAN.

It may be a modification of an existing product or an entirely new product by altering its form factor or the method it mounts to a device. "Problem solving over a particular design is easy because we believe in the sharing of skills," explains Karones. "We also work with design-friendly tools."

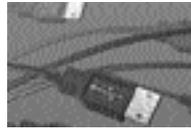
The engineering and research departments utilize the latest design and software tools including AutoCAD, Altium Designer, Protel 99 SE, PADS-PowerPCB, Visual Studio®, Eclipse, Linux, Keil Compilers, Paradigm, and NetBeans. These tools help meet time-to-market and time-to-volume objectives.

Karones says we have advantages in several areas of expertise. The company has more than 32 years experience so the engineers are well trained to handle a diversified group of specifications. "The real key is that Contemporary Controls has in-house manufacturing," he says. "With this capability we're able to target the requirements for our process and be able to build a prototype in a relatively short period of time. The minute the project begins we're thinking about the individual components and any issues relating to testing and verification. Our engineers understand what is needed to manufacture the product and deliver it to our customer's hands the way he wants it."

It all begins with a specification requested from one of the project leaders. This is a document that gets passed back and forth between the customer and the company's engineers to resolve any issues during the design process. Once everyone is in agreement, we fill that little piece of the puzzle with a customized product so the customer can release it to the market.

"What's interesting," says Karones, "many of our product lines are based upon an original design for a particular application." For example, one customer preferred the EIS Series for an Ethernet switch design, but these products didn't meet his size and temperature needs. The EIS switches are designed for industrial temperatures and support both twisted-pair and fiber optics. Select models of the EIS Series meet UL 1604 and/or UL 864 requirements. After our engineers came to the solution, they designed the EISX switch which was more compact in size than the EIS and could operate successfully in extreme environmental conditions.

From that one product, Contemporary Controls created the EISX Series for the company believed that if one individual benefited from it, others would also see its value. And they were right; the product line has been successful as were others in the past and so will new lines in the future.



TECH UPDATE

A Common Switch Mistake

Have you ever installed a switch only to discover that certain communication does not pass through it? One of the most common issues that arises in the installation or reconfiguration of an Industrial Ethernet switching hub (managed or unmanaged) involves the most defining feature of a switch—its address table.

Typically installers attach various CAT5 cables to a switch, power it up and check for initial functionality. Sometimes the initial functionality will be less than perfect for various reasons: a remote device has not been turned on, auto-negotiation was disturbed by some transient condition, initial cable placement needed to be changed, or some other issue caused a glitch.

Any of the issues mentioned above (among many others) could prompt the installer to move a cable from one port to another to see if the second port behaves in the same way as the first one that experienced the problem. Indeed, your natural inclination might be to move a cable from one port to another, then to another, and so on until each port Link LED has been confirmed to glow as expected.

But the port-swapping scenario described above can create headaches because of how the switch address table works. When a source device sends a message through the switch for the first time, the switch learns that the originating device is connected to a specific switch port and the switch records this device/port association in its address table for future use. If you then move that device's cable to another port on the switch, the switch still "thinks" the device is attached to the first port. Consequently, messages bound for the device will be mis-sent to the original port until the switch "realizes" the situation and updates its table—a process that usually takes several minutes. Until the mis-addressing is corrected, you might well think that the switch is defective. Pings to devices that are "lost" due to port swapping will go unanswered until the address table is correct.

If you find yourself confronting this address issue, the situation will self-correct in a few minutes (typically five)—or you can correct it immediately by cycling power to the switch.

By Bill Greer, Senior Product Specialist

Is More Knowledge Important When Using Industrial Ethernet?

With Ethernet rapidly becoming the network of choice for intelligent buildings and for automating processes, comes the realization that knowledge is essential. The constant changes in this technology dictates that the individual learn more than the basic Ethernet concepts.

Contemporary Controls' virtual Industrial Ethernet University (IEU) now offers its first graduate level course entitled *Object Modeling a Physical BACnet® Device*. "With the addition of this course and more in the future, the IEU participant will be better prepared to spot any potential problems with a network," says Sales Manager Joe Stasiak.

This information is valued because knowledge of application protocols has become more important as modern networks are deployed. The latest protocols are all based upon Object Modeling which can be quite confusing to someone who is not familiar with this abstract term. This course introduces object modeling, object properties, and services as they pertain to a physical BACnet/IP device. Although the majority of BACnet devices support the master-slave/token-passing (MS/TP) network, newer devices now function over Ethernet.

So What is LEED?



Building automation systems can affect and help support a (LEED) Green building. Contemporary Controls is doing their part by designing equipment that would allow the user to attach to an existing Ethernet infrastructure eliminating the need to install dedicated BAS cabling. Not only does this save the cost of purchasing and installing the cabling, but you may gain LEED's points as well.

So what is LEED? Leadership in Energy and Environmental Design (LEED) is the voluntary, consensus-based national rating system used for the design, construction, renovation and operation of green buildings. The rating system addresses six major areas: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process. The U.S. Green Building Council (USGBC) developed the LEED System. The LEED committee assigns points for various steps in new construction or in existing buildings. Four levels of certification (certified, silver, gold or platinum) are available. Visit www.usgbc.org/leed for more information on certification and the rating system.



Electronics Engineer Shares Her Skills and Knowledge With Company's Subsidiary in China

Sharing human resources is often necessary for companies to maintain their competitive edge in the global marketplace. From that perspective, Contemporary Controls' Electronics Engineer Rhiannon LaPointe will spend one year at Contemporary Control (Suzhou) Co. Ltd (CCC) to help control design efforts and to improve communication between the two organizations.

Operations Manager George Karones says LaPointe has much knowledge that she is bringing to the CCC group and that knowledge will transfer to huge benefits. "She will help the company become a better manufacturing facility, help them streamline their processes, reduce their processing times and be their available engineering resource. Rhiannon will be on-site so she can direct her efforts to any problems that may come up immediately and keep things moving smoothly," explains Karones.

Karones says the most valued benefit is that we foresee the reduction of time-to-market. "We would be able to qualify prototypes on-site as opposed to having items sent back to the U.S. for qualification and approval. Her long-term goal is to develop and put into action an engineering group."

"Rhiannon will learn how a different culture operates and adapt to the workings of that culture in order to facilitate the development and progress of the company," he says. "She is well-qualified for this assignment."



Rhiannon couldn't hold the tears back as her boss, George, and everyone at the company wished her well on her adventure in China. She will help to strengthen CCC's project management, design capability, and service to the company's global customers.

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- Ethernet connectivity is everywhere in a typical structure. Why not use the existing Ethernet infrastructure? It's there, it's free. Let Contemporary Controls help with your next project.
- Have you ever installed a switch only to discover that certain communication does not pass through it? Find the answer in this month's Tech Update.
- Since its establishment in 1975, Contemporary Controls has taken custom design seriously. Their engineers have handcrafted products with improved features and functionality.