

News on the industry & Information  
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Most Valued Customers

# NETWORK

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## TRADE SHOWS

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## Contemporary Controls Participates in BACnet® Interoperability Workshop

**A**s a new member of BACnet International, Contemporary Controls participated in the 8th annual BACnet Interoperability Workshop (Plugfest) in Milwaukee, WI on October 16-18. Johnson Controls sponsored this year's Plugfest.

Bennet Levine, R&D Manager for Contemporary Controls, said the workshop provided an opportunity for our company to test our BAS Remote and BAS Router against a suite of interoperability tests with a number of other products from other vendors. Levine said Plugfest was beneficial. "It was more cost-effective to test our products in this informal environment," he explained. "We had the chance to converse with expert people on the other side of the table to discuss any issues."



Contemporary Controls worked with companies such as Honeywell and Delta Controls in one-on-one sessions and mini-round tables to test the simple functionality of our products and to detect any possible interoperability problems before they were discovered in the field. Testing was defined by the participants

as they met with each of their testing partners. "In general, the testing was just surface testing of services and communication protocols in BACnet," said BTL Manager Lori Tribble. "There was no time to perform any in-depth testing during this event." But it did prove that Contemporary Controls' BAS Remote and BAS Router could work without any errors.

Tribble said this year's event was attended by 108 engineers from 34 different companies and six countries. She said the objective of Plugfest was to bring implementers of BACnet together. "The idea was to share knowledge of BACnet and thus help participants to develop better product," said Tribble. "This event also helped the BACnet community to improve the BACnet standard by providing feedback to the committee."

The companies were divided into 46 teams forming 23 work work groups per session. Contemporary Controls and the other teams took part in 8 work sessions on the first day in order to inter-connect their hardware and communicate using BACnet services between the devices. Tribble said this year training sessions were offered on the second day as an option to attending additional work sessions for testing. "The training was held to introduce new participants and reinforce to experienced participants the BTL Testing Process and the tools that were available," she explained. On the third day, Plugfest provided time for teams to schedule their own testing time with other teams.

In conclusion, Tribble stated that Plugfest was a success for many reasons. "More companies participated in this year's event; six of which attended for the first time," she said. "We changed the format in order to provide a better learning experience for our new participants. Fast track sessions were offered on the first day to allow testing with many different vendors. We also provided more open time during the event to allow our experienced participants more flexibility in the testing schedule."

## ARCNET® Technology Still Going Strong

ARCNET is a viable solution in a world that is focused on Ethernet. Sometimes the easiest solution and the most cost-effective is to use a proven technology. The ARCNET choice may be the proper choice.

And in the opinion of one TRANE® employee, the ideal solution was to switch from Ethernet to ARCNET technology for their application. He says the application involved devices that relied on the MAC address of the card only. These devices did not have the ability to accept a static address. "It was difficult to obtain co-operation and support for the Ethernet configuration requirements while with ARCNET, it was just a matter of setting a switch."

TRANE sets up multiple building controllers for HVAC purposes. When the engineers configure these with ARCNET, it is very easy to diagnose a problem by simply cutting and bypassing one portion at a time. If there is a fault in the wire, it is quite easy to pull and crimp a new connector on. The employee says that if the customer needs to add another controller, TRANE engineers simply have to "tee" on to the link and they're finished. "With ARCNET, there is no need to set up a switch and have to find a local power supply. To add a work station, it is simple to "t" in and you're done. We had to switch from Ethernet to ARCNET because of unreliable connections. We have three devices on the network plus the work station. The three devices would work for a week or two and then one of the three would drop off."

The employee says it's not surprising to like ARCNET when you consider this technology's attributes. "ARCNET is quite cost-effective and fast." A control network using 156k ARCNET can use shielded twisted-pair cable, making wiring cost essentially the same as a slower MS/TP network and much lower than an Ethernet network.

ARCNET can run from 156k baud to 10 Mbps, but for HVAC control systems 156k can be ideal. The technology's advantage is really much greater because ARCNET utilizes a communication co-processor. In this type of network, the control processor and the communications co-processor can operate independently, allowing control logic and communications to operate much faster.

It is a robust communications network. The communications co-processor automatically reconfigures the network whenever a new controller is added or an existing device is removed from the network. This means that if something knocks one of the controllers off-line, the other controllers automatically reconfigure the network and continue to operate normally.

And finally, ARCNET has predictable deterministic performance (as a token-passing topology). This means it is possible to determine the maximum time it will take for any one controller to deliver a message over the network.

To assist the adoption of ARCNET and to help designers implement systems, Contemporary Controls was instrumental in the formation of the ARCNET Trade Association ([www.arcnet.com](http://www.arcnet.com)). This is a virtual organization where assistance is obtained over the web from users and designers who are willing to share their experiences.



## TECH UPDATE

### Matching Fiber Optic Ports

It is surprising how often a question arises about determining the fiber optic port compatibility between two Industrial Ethernet devices. The issue frequently involves matching a media converter to a switching hub.

On several occasions I have been asked why existing equipment is not communicating through a newly installed media converter. The problem is usually that the fiber optic port of one device is incompatible with that of the other. It seems that installers tend to assume that because the copper port of the media converter auto-negotiates the data rate to either 10 Mbps or 100 Mbps, then the fiber optic port will also adjust automatically. But that is not so (except for seldom-used equipment that is compliant with the 100BASE-SX specification).

Industrial Ethernet hubs and switches that operate *exclusively* at 10 Mbps—and have at least one fiber optic port—will most likely comply with the 10BASE-FL specification for fiber communication (unless the equipment is very old). Most modern switches are capable of operating at *either* 10 Mbps or 100 Mbps—but although their copper ports may adjust for data rate, their fiber ports will comply *only* with the 100BASE-FX specification.

A fiber optic port will *not* negotiate its data rate because it is *fixed* at the rate specific to the transceiver type. A 10BASE-FL transceiver passes a 10 Mbps data stream using a fixed wavelength of **850 nm**. On the other hand, a 100BASE-FX transceiver passes a 100 Mbps data stream at a wavelength of **1300 nm**. If someone connects an 850 nm fiber optic port to a 1300 nm fiber optic port, communication will not occur due to this difference in wavelength.

When troubleshooting a problem in which newly installed equipment with fiber optic ports is not communicating, do this first: Confirm that the port characteristics at one end of a run of fiber optic cable *matches* the port characteristics at the other end.

By Bill Greer, Senior Product Specialist

## Modernization of Material Handling System Results in Increased Reliability

When a major commuter railroad looked to modernize its 20-year-old automated material handling system in one of its maintenance facilities, the designs they found were not a perfect fit. That has since changed. One Systems Integrator (SI) modified the system's subsystems.

To deliver the best system to its customer, the SI opted to choose the EICP8M-100T/FC switch from Contemporary Controls to connect the control equipment to the network.

Within the facility, seven subsystems comprise a fairly complicated automated material handling system. The SI Senior Lead Engineer said the modernization of the system was necessary. "It was primarily driven by the difficulty of getting service for control equipment and the inability to purchase replacement parts."

The use of fiber optics was dictated by the large distances in the facility. One of the PLCs was well over 1,000 feet from the control room, and taking into account cable routing, it was even further.

"In fact that's why we used the 8-port fiber optic switch," said the Senior Lead Engineer. "It met our requirements better than competitive offerings. Its compact size and DIN-rail design made it easy to install in the control cabinets. Another essential reason for its use was to achieve more than basic communications. In the near future, we intend to use its management functionality."

Each subsystem has at least one PLC and one HMI connected to the network. An EICP8M-100T/FC switch is installed in each of the control cabinets to connect the equipment to the network. The seven PLC panels house remote I/O. An HMI is located in each PLC panel. Three of the new seven PLCs have remote I/O of various types which are not in the PLC enclosure. The Ethernet switch is inside the PLC enclosure. Various segment lengths of fiber optic cable (hundreds of feet) make the connection.

The Senior Lead Engineer said the switch has worked well on this project. "After implementation of the switch and the other modifications, the updated system increases the number of parts which could be moved in a given period of time due to increased reliability. Before the project, the system was frequently down for an extended period of time. This also contributed to excessive overtime on the part of the material handling system maintenance personnel. Overtime is essentially non-existent now."



## SPS/IPC/Drives Continues to Grow

Contemporary Controls exhibited in Hall 9 during this year's SPS/IPC/Drives show in Nürnberg, Germany with personnel from the US, UK and Germany. It was not too long ago that this show only occupied 2 1/2 halls. This year had to have been a record with a total of 10 halls occupied. There were 1,321 exhibitors from 31 countries. It was difficult to visit 88,000 m<sup>2</sup> of exhibit space in this three-day show. Although the 45,000+ exhibitors mostly came for Germany, the show is quickly becoming an international event. Unlike the broad-based Hannover Fair, the SPS show focuses on

industrial automation, and Contemporary Controls was there with our CTRLink® Industrial Ethernet products including switches, routers and media converters under the theme "Network with Us."

The company demonstrated a "Simon Says" game using two BAS Remotes powered over Ethernet from a 19" rack-mounted PoE Industrial Ethernet switch. Contemporary Controls has developed a rich portfolio of intellectual property that can be applied to solving customer problems. With two world-class manufacturing sites, Contemporary Controls is ready to serve the OEM customer.

At the end of the first day, the show organizers invited all the exhibitors to a party thanking them for their business. Much of the food was traditional German but there were other fine choices from Europe. There was live entertainment and plenty of good German beer. The show organizers did not disappoint.



Peter Jefferson from the UK office and Jörg Wehnert from the Germany office were on hand to help answer customer questions.

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*At the close of another year,  
we gratefully pause to wish  
you a peaceful and prosperous  
New Year, and many more.*