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NETWORK

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The Virtual Industrial Ethernet University Continues to be a Valuable Learning Tool



By our very character as humans, we embrace the challenge of learning. We engage in new hobbies, read self-help books, and enroll in online courses all in an effort to improve our quality of life.

For the past several years, Contemporary Controls has brought learning to people with the sponsorship of the virtual Industrial Ethernet University (IEU). Because of the evolving nature of the workplace and the equipment that supports it, learning is of continuing concern in this technology.

IEU went online in the fall of 2003, providing objective, content-rich education on Ethernet, especially as it relates to installations on machines and in factories. Students are certified in both basic and advanced Ethernet topics.

There are nearly 2000 students enrolled in IEU, studying all or some of the 19 courses. Students take tests to verify comprehension, and all material is based on the IEEE Std. 802.3 and relevant Request for Comments (RFCs). The material is vendor-neutral since the purpose of the virtual university is to educate the public for the benefit of the industry. In addition, students are able to explore more topics through 11 lectures on the site provided by industry experts.

Bill Lydon, a Business Development Consultant who has worked in the controls and automation field for more than 25 years, has made this observation about IEU. "I have reviewed the Industrial Ethernet University offerings, and I am sure control engineers, manufacturing, and IT people will want to use this free resource. Many companies struggling with Ethernet waste a great deal of time and money solving configuration and network setup problems because they do not have a solid understanding of this technology. Taking advantage of this online site is a great way to gain knowledge on subjects including Hubs vs Switches, Internet Protocol, Subnetting, SNMP, Virtual LANs and much more."

Additional reference may be obtained through the university's library and bookstore. The bookstore has a direct link to <http://www.amazon.com>.

William Greer, the company's Senior Product Specialist, is IEU's virtual professor. Greer will answer any question by private e-mail. If he is unable to provide sufficient clarification, other experts from the company or outside sources will be consulted.

So far, 200 students have mastered and completed the minimum ten courses to qualify for "graduation." Upon "graduation" the student receives a certificate of accomplishment and, the opportunity to add his or her name to the IEU Alumni Directory.

Many graduates feel IEU sets a good example of online learning. "I found the courses to be excellent," says one graduate. "I was able to achieve my goal to improve my understanding of Ethernet protocols and use advance topics such as security issues. Please continue your work to help more professionals who really need better technical knowledge about networks."

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However, graduation is not mandatory. The student can select his or her courses of interest. To sign up at no cost, students may visit the "campus" at <http://www.ieu.cc>.

Also, networking specialists are invited to submit papers on all subjects related to Design, Commissioning, Maintenance, Theory and Emerging Technologies of Industrial Ethernet. We welcome case studies, research papers, technical bulletins and application stories. The only rigid requirements we have is that the material be technically accurate, helpful to users, and non-commercial. There are many talented writers and researchers who can gain recognition through this venue.

Washington Mutual Center's DDC System is More Unique than Common

Among the cities that foster their own architectural style, Seattle, WA is a clear winner by its creation of the 42-story Washington Mutual Seattle Art Museum. Its modern style is as special as its Alerton Distributed Digital Control (DDC) system that is the focus of integrating the facility's building operation systems. As the controls contractor, ATS Automation, Inc., in Seattle, employed the Alerton DDC technology.

"The project is unique due to the smoke control aspect," said Pete Segall, ATS Senior Sales Engineer. "Most buildings do not have the DDC system performing smoke control." Segall explained that the project goal was to satisfy the need to develop a control system that could monitor and control HVAC, Smoke, and Combo (Smoke and HVAC) equipment on both a day-to-day and alarm event basis. "Pure smoke control systems do not function on a day-to-day basis; however, HVAC and Combo systems do. The smoke and combo systems are able to be manually overridden by a firefighter through a networked firefighter smoke control command panel."

And in short, UL 864 is a system rating for performing engineered smoke control within buildings. Because an entire control system (that employs Ethernet) requires a switch, ATS used Ethernet switches from Contemporary Controls. The company provided the eight-port switches to be used during testing; therefore, it is considered part of the UL Listing. The EIS8-100T switches had to pass stringent hardware tests in order to acquire a UL Listing on the system. UL 864 Recognition on the switches is required to meet the NFPA 72 code requirements that any communication path used for transmitting critical life safety data be listed for fire-protective signaling use.

The two Ethernet switches are physically connected to the Alerton BACnet/Ethernet Smoke Control Network via CAT 5 cabling so that precise DDC logic routines could be carried out. The switches were linked together for keeping signal wiring distance within the 225 ft. limitation. One of the switches was used as a "gateway" path to the non-smoke control Global DDC logic boards as well as the Building Management System computer (user-interface to the system). One switch is located in the Central Fire Control room, and the other switch is in a Telecom Room on the building's lower two levels.

The greatest advantage for those who manage and operate the center on a daily basis is the ability to gather information using The Alerton Envision for BACtalk which is an automation system software. "Envision is the window into each system," said Segall.



TECH UPDATE

UL 1604 and Industrial Ethernet

Installing Industrial Ethernet entails conformance to agency regulations not required for commercial Ethernet. Industrial equipment is designed and tested to higher standards.

UL 1604 covers electrical equipment to control various apparatus tested for life and property risks according to standards for these situations:

Classes: Class I areas pertain to flammable gases, vapors or liquids; Class II for dangerous concentrations of dust and Class III for atmospheres containing fibers or flyings.

Divisions: Division 1 areas are usually risky; Division 2 areas are not.

Zones: How prevalent is the risky substance? In Zone 0 it is present and long-term, in Zone 1 it is likely but intermittent and Zone 2 risk is unlikely.

Groups: Classes I and II, specify the risky materials. Class I gas groups are A (acetylenes), B (hydrogens), C (ethylenes) and D (propanes). Class II has three dust groups: E (metals), F (coal) and G (grains).

Temperature: Classes I and II specify the maximum ambient temperature for rated equipment with a T-Code values corresponding to temperatures.

Markings: Finally, UL 1604 rated Industrial Ethernet products must have markings which commonly include:

- listee name
- model number
- electrical input ratings
- terminal identification
- hazardous location rating
- operating temperature T-Code
- date of manufacture
- "Supplied from Class 2 Source"

For example, a Class I, Div. 2 switch is suited for an area where dangerous gases, vapors or liquids are possible, but not usually present. Often such gear is qualified for all four groups (A,B,C,D) and rated T4A (120°C).

By Bill Greer, Senior Product Specialist

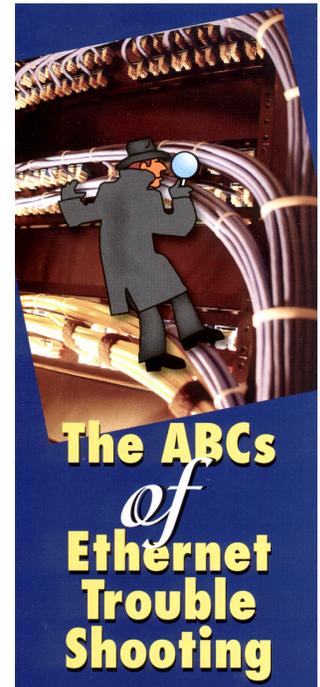
New Technical Guide Asks Questions About Troubleshooting Ethernet Networks

Is proper power supplied to switch and end devices? Are you having mis-communication along a path through multiple switches and routers? Can you successfully ping devices but fail to communicate at a higher level? These are just some of the 22 common questions asked in a technical guide published by Contemporary Controls to assist you when troubleshooting Ethernet networks. By applying the principles discussed within these questions in "The ABCs of Troubleshooting Ethernet," your efforts can be more effective in solving network problems.

The questions focus on LEDs, proper cabling, fiber optic cabling, Auto-MDIX, the DHCP server, TCP/IP for communication, IP addresses, VLANs, trunk ports, and much more. The guide also includes two tables: one illustrating T568 Wire Color Variation and the other table showing Ethernet Cabling Parameters.

For additional informative documents, written by the engineers who design and manufacture our Ethernet products, visit www.ccontrols.com. Topics include the basics to the more advanced. Go to this site to read documents such as the ABCs of selecting the proper Ethernet switch, troubleshooting with Ethereal software, the introduction to real-time Ethernet, the ABCs of Ethernet redundancy and much more.

And for all your Industrial Ethernet switches, Plug-and-Play or Managed and Media Converters, visit www.ccontrols.com. Remember, trouble-free Ethernet starts with Contemporary Controls.



Contemporary Controls Participates in Benchmark Study



A growing number of companies are undergoing the testing of their products by independent research laboratories. Testing is not a minor item. It is a responsibility as significant as product planning or development, and it requires the participation by all involved in the process.

Contemporary Controls recently agreed to have specific devices tested by netLab which has had a great influence on today's research. NetLab is the research laboratory for Network Technology of the Lippe University of Applied Sciences, located in northern Germany. Professor Dr. Jürgen Jasperneite, head of the Network Technology Research Group netLab, said the lab's mission is conducting education and applied research on communication networks (computer networks) used in distributed real-time systems (e.g. industrial automation). "It allows our industrial partners to exploit new technologies using the facilities and human resources of netLab without having to commit a large development fund upfront," he added.



netLab is located in the Laboratories building of the university in Lemgo, Germany.

Testing on the company's EIS8-100T, EISB8M-100T, EISX8M-100T, and EISM5-100T units was conducted together with products from other vendors for a benchmark study of Industrial Ethernet switches. The results would be published in April 2007 by the German magazine "Elektronik." "The objective of this study is to assist the customers of Industrial Ethernet equipment with a product comparison," stated Professor Dr. Jasperneite.

The tests were oriented to the Internet Standards RFC-2544 and RFC-2889. "Latency, throughput, and Quality of Service (QoS) under different load conditions were measured," he explained.

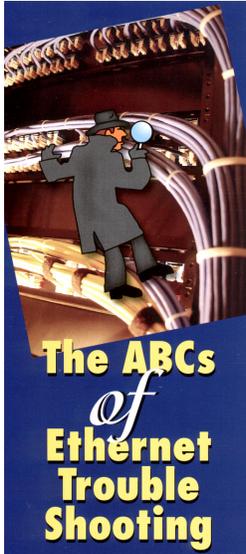
What were the results? The Contemporary Controls products passed the tests according to Professor Dr. Jasperneite.

"Obtaining independent verification is important to our customers," said George Thomas, President of CCSI. "We were happy to participate in this study, and we have gained a better perspective of the intricacies of the RFCs. We found the netLab report to be very professional, and we are allowed to share the results with our customers."

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- How many people have sufficient knowledge concerning Ethernet technology to ensure the success of their Ethernet projects? It is a question that Contemporary Controls takes on with its continued sponsorship of the virtual Industrial Ethernet University (IEU). Read what industry experts and IEU graduates have to say about this valuable online resource.
- This month's Tech Update takes a look at UL 1604 and Industrial Ethernet. Learn about the different Classes, Divisions, Zones and more.
- As part of International News, you'll read about an independent laboratory in northern Germany which conducted tests on some of the company's Ethernet switches. Find out the results.