



Wilmington Delaware Section

The Sensor

March

2006

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- June 27** Picnic at Our Lady of Grace

March 28, 2006
Section meeting
Wireless Instrumentation
Wallace Lueders of Accutech
At the ACE office in Newark
5:30 PM

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Wireless Instrumentation

Speaker Wallace Lueders of Accutech

Wireless Instrumentation provides a highly reliable and extremely economic implementation path to best practices in monitoring and automation and is enabling double digit improvements in efficiency and providing cost effective solutions for environmental compliance projects.

The industrial community has seen ever increasing numbers of wireless products. Many of these have been very successfully applied to solve difficult data communications problems. Similarly, there have been many attempts at wireless installations that have not performed to up to the user's satisfaction, prompting many instrumentation professionals to believe that "wireless will not work in this facility".

This presentation reviews the various wireless protocols and compares how well these protocols meet the needs for monitoring in the industrial process. In particular, new wireless sensors are surveyed that require no power wires out to the sensor. Common difficulties with wireless installations, such as line-of-sight, and Class I, Div I area classifications are discussed and solutions presented for these issues. Point-to-point radio solutions are contrasted to mesh network data communications solutions and hierarchical mesh networks.

A brief summary of applications is given where wireless solutions enable new capabilities for automation. This applications survey is intended to show that wireless solutions do have a place in the toolbox of instrumentation engineers and, when properly applied, this technology will solve difficult measurement problems not presently served with wired instrumentation.

President's Message

By Steve Prettyman

The weather is improving, outdoor activity is increasing, and the Wilmington ISA is preparing for some exciting events. The month of March is filled with ISA events. There are training opportunities, leadership conferences, and section meetings. Each of these events raises awareness and encourages participation in the growth and maintenance of the ISA.

The upcoming training event held in Philadelphia from March 27 to March 31 is a world class event featuring 22 top notch automation and control courses taught by some of the most knowledgeable and experienced folks in the field today. If you choose to attend this fantastic opportunity in our own back yard, you will receive CEUs for the courses you complete and you will gain valuable insight and establish priceless networking connections. This event is essential for anyone interested in joining the ISA, anyone wishing to develop their current skills, and anyone looking to grow their career. The mission of the ISA is to provide training to the automation community and the Spring Training event is loaded with tremendous potential for learning. If you are interested in receiving best in class training, go out and support the Philadelphia Spring Training Event.

The ISA is not limited to technical training, however. There are also opportunities to participate in leadership functions. One such opportunity is the District II Leadership Conference held in Williamsburg, VA on March 24 and 25. This is an opportunity to represent the Wilmington section and develop a broader understanding of what the ISA has to offer, how the ISA is structured, and what you can do to support the ISA. The Leadership Conference is a chance to meet with like minded people who share the same passion and enthusiasm for automation and controls in the Mid-Atlantic region.

Finally, the Wilmington section of the ISA holds its section meeting on Tuesday, March 28 at ACE headquarters in Newark. Pizza is provided and you are certain to be educated by the Wallace Lueders as he discusses Wireless Instrumentation. There will be tabletop displays of relevant vendor's products and of course the chance to make new friends or speak to old friends again.

There is tremendous value in the ISA and the Wilmington Section, but it can't happen without your support and involvement. Please take the time to attend some of these events and connect with the community the supports instrumentation, systems, and automation from the ground up. Your involvement and participation can make a difference. Volunteer today!

The World Famous WISA Shrimp Boil

Sponsors needed

Friends of the Shrimp: \$150 donation. Table top at the Boil and Sponsorship listed in the Sensor.

Boil Buddies: \$50 donation. Sponsorship listed in the Sensor.

Contact jennifer.K.Slivka@usa.dupont.com

Uniqema Atlas Point Plant Tour with Fieldbus

By Eric Waugh

A packed house was in attendance for February's joint meeting with the South Jersey ISA at Uniqema's Atlas Point Facility. Those present were treated to a field tour of the plant's new Fieldbus installation, as well as an enlightening presentation on the project by Proconex's Ed Smigo, and a question and answer session with Uniqema's process control leader, Nancy Givens.

Uniqema recently expanded their operations, and took the opportunity to upgrade their control system. Typically the plant has standardized on a Modicon PLC-based system with traditional I/O. The new installation controls 4 reactor systems using Emerson's DeltaV Digital Automation System with Actuator Sensor Interface (AS-I) discrete I/O, Fieldbus and Profibus DP, as well as some Modbus and traditional analog I/O.

Because of the high attendance, Ed Smigo went over a brief introduction, and then everyone split into 4 groups for the tours. While two groups attended the detailed presentation, the other two groups started with the plant tour. During the tour, the attendees were privileged to see the operator control room, the control cabinets, and the plant floor device installations.

Nancy estimated some of the savings Uniqema achieved using bus technology to implement their control strategy. The installation has 44 pair wires, as opposed to an estimated 2000. The project used about 11,000 m of wire, while Nancy calculated a traditional installation could have required 38,000 m. She also believes the number of terminations was lowered from around 8,500 down to around 3,500. In addition, commissioning time was much shorter than it would have been for a traditional installation, and the plant has easily converted more manual valves into the automation system post-startup.

Uniqema also learned some valuable lessons about bus technology installations during the project. They learned that project implementation would have been easier if the design had been complete prior to installation. Due to the nature of construction schedule, there are some inefficiencies in the wiring of the bus segments. Also, they learned that installation of the AS-I bus must adhere to the specified maximum length of 100 m (scalable to 300 m with repeaters), or communication issues can arise.

Although the bus technologies have presented some new troubleshooting issues, such as one loose connection taking down an entire segment of devices, system maintenance has been straightforward so far. The plant is hopeful that the digital diagnostics available will help with troubleshooting in the future.

2006 Ralph L Moore Scholarship

By P. C. Gopalratnam & George C. Bentinck

Each year the Wilmington section ISA extends a \$1,000 scholarship to a high school senior who is planning to attend a 4-year college, University or a technical training school. An ISA member of our section must sponsor the candidate and applicants pursuing a technical or science degree will be given higher preference.

The scholarship committee will select the successful candidate. The application deadline is May 15 and the check written to the college of the candidate's choosing will be presented at the ISA Annual Picnic in June. The details of the selection criteria and the application may be found on the Wilmington Section ISA website www.isa.org/community/wilmi after March 15, 2005.

Scholarship Committee

Standards & Practices: SP67 Nuclear Power Plant Standards (Part 1)

By Nick Sands

The SP67 committee is the focal point for the development of standards and practice for instrumentation and controls in the nuclear power generating industry. Bill Sotos is the chairman and Timothy Hurst is the vice chair.

ANSI/ISA 67.01.01-2002 Transducer and Transmitter Installation for Nuclear Safety Applications. The title is an adequate explanation.

ANSI/ISA 67.02.01-1999 Nuclear Safety-Related Instrument-Sensing Line Piping and Tubing Standard for Use in Nuclear Power Plants. This standard incorporates the 1994 standard, ANSI/ISA-67.10, Sample-Line Piping and Tubing Standard for Use in Nuclear Power Plants and address sample systems as well.

ISA-67.03-1982 Standard for Light Water Reactor Coolant Pressure Boundary Leak Detection. This standard covers identification and quantitative measurement of reactor coolant system leakage in light water cooled power reactors. Leak detection for gas and liquid metal cooled reactors and for containment building structures surrounding the reactor coolant pressure boundary is not covered in this standard.

ANSI/ISA-67.04.01-2000 Setpoints for Nuclear Safety-Related Instrumentation. This standard defines the requirements for assuring that setpoints for nuclear safety-related instrumentation are established and maintained within specified limits in nuclear power plants and nuclear reactor facilities.

ISA-RP67.04.02-2000, Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation, is a recommended practice on implementation of related standard.

To be continued...

Real Tips for Real Trouble Troubleshooting: A Technician's Guide



Troubleshooting: A Technician's Guide by William Mostia, Jr
BBBB (Buy)
Reviewed by Nick Sands

Troubleshooting sounds like a difficult subject for a book. Bill Mostia tackles the subject in the second edition of *Troubleshooting: A Technician's Guide*. With over 30 years of experience applying instrumentation and control in process facilities, including time with Amoco, Eastman, Dow, Exida, and SIS-Tech, Mostia has a wealth of experience upon which to draw. He is the owner of WLM Engineering, a Professional Engineer, and an active member of ISA, participating on SP18, SP84, and SP91. Mostia has published over 50 articles and contributed to the *Guide to the Automation Body of Knowledge*.

In the introductory chapter Mostia states that troubleshooting is a skill that can be developed, by experience, mentoring, training, and other methods. The next chapters cover factors that influence failure rates and some basics on the types of failures. One chapter is devoted to the general logical approach to troubleshooting; a seven step process of defining the problem, collecting information, analysis, checking if more information is needed, proposing a solution, testing the solution, and completing the repair. Another chapter provides other troubleshooting methods, such as divide and conquer, remove and conquer and add and conquer. It is interesting to read about these methods.

A constant theme through the book, reflecting real experience, is Mostia's emphasis on safety. A complete chapter is dedicated to working safely, from common causes of incidents to conditions in classified areas, to permits. The next chapter provides an explanation of common troubleshooting tools and their uses. The final chapters give example scenarios, tips for troubleshooting, and some documentation that can aid in troubleshooting.

Mostia does an admirable job with what could be a vague subject. As he states in the beginning, troubleshooting is a skill that can be developed. Reading his book is a good step in that development. The combination of troubleshooting methods, overview of tools, safety reminders, and practical tips makes this a book a good buy (BBBB) for even an experienced person. *Troubleshooting: A Technician's Guide* is available at ISA.org for \$59 (member price).

Welcome to New WISA Members!

Eric Waugh of Dupont

ISA Spring Training Philadelphia, March 27-31

The ISA training team will take the field again during our second annual ISA Spring Training event in Philadelphia, PA, on 27-31 March.

Safety & Security Courses

- Safety Instrumented Burner Management Systems: A How To Primer
- Cyber Security Vulnerability and Risk Assessment
- Grounding and Noise Considerations for Control Equipment and Computers
- Securing Industrial Networks: Cyber Protection for Automation, Control, and SCADA Systems
- Principles of DCS Alarm Management
- Introduction to Boiler Control Systems
- Safety Instrumented Systems: Design, Analysis, and Justification
- Understanding and Applying Instrumentation in Hazardous Locations
- Boiler Burner Management Systems: Meeting NFPA Standard

Networking Courses

- Ethernet and TCP/IP on the Plant Floor
- Picking the Right Bus - A Comparison of Field and Device Networks
- Implementing Wireless Technologies

Process Control & Automation Courses

- Introduction to Industrial Automation and Control
- Installing, Calibrating and Maintaining Electronic Instruments
- Understanding and Tuning Control Loops
- Troubleshooting Instrumentation and Control Systems
- Understanding Electrical Systems
- Planning, Justifying and Executing Automation + Control Projects
- Industrial Electronics

Certification & License Exam Review Courses

- Certified Automation Professional (CAP) Review Course
- Control Systems Engineering (CSE) PE Exam Review Course
- Certified Control Systems Technician (CCST) Review Course

For complete course descriptions or to register online:

Visit www.isa.org/springtraining or call (919) 549-8411 for more event information.

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Wallace Lueders of Accutech

Wallace Lueders is Sales Manager for Accutech and has worked in the control and instrumentation products industry for over 30 years. He has worked at Texas Instruments, Masoneilan, Crosby and was the founding principal of Strategic Resource Associates. His experience includes extensive international business management, having dealt with customers in more than 80 countries and traveled to 45. His credentials include Engineering and Operations Research degrees from Brown University, an MBA, with High Distinction from Babson College, and graduate of the University of North Carolina's Executive Program. At Accutech, Wallace is responsible for Accutech sales and business development.

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