



Wilmington Delaware Section

The Sensor February 2012

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Upcoming Events

Feb 28	Meeting: Proc. Optimization
Mar 27	Meeting: To be Announced
Apr 24	Shrimp Boil
May 22	Meeting: Alarm Mgmt.
Jun 26	Annual WISA Picnic

WISA Section Meeting Process Optimization

Tuesday, Feb 28, 2012

5:30 PM

Applied Control Engineering (ACE)

(700 Creek View Road, Newark, DE 19711)

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Join us at this month's
WISA Section Meeting for:

**Process Optimization
Keeping an Eye on Your Process**

Presented by
Claude Flandro
of ControlSoft, Inc.

This presentation will point out indicators that recognize opportunities for improving the performance of the control system. Examples will help to describe these indicators, the implemented corrections, and resulting benefits. An overview of the variety of approaches to correct or improve the poor performance will be included as well as techniques to maintain the optimal performance into the future.

Visit Wilmington ISA on the Web!

<http://www.isa.org/community/wilmi>

President's Message

By Leata Mullen

Winter is passing quickly. We had a great turnout for our annual joint WISA / IEEE meeting on Advances in Industrial Ethernet in January!

We have one more winter event, our February 28th meeting, and the topic will be Process Optimization – Keeping an Eye on Your Process. Claude Flandro of ControlSoft (formerly of Bailey Controls and ABB) will be presenting on how to recognize opportunities to improve your control system's performance, what corrections to implement, the resulting benefits, and how to maintain optimal performance afterwards, with specific examples.

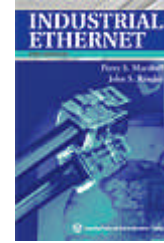
WISA will be awarding the 2012 Ralph L. Moore scholarship at our February meeting as well. This annual scholarship goes to a graduating high school senior pursuing a technical college degree. The award is offered in honor of the late Ralph Moore, ISA fellow and pH control expert.

This month also brings National Engineers Week, February 19-25. It is dedicated to ensuring a diverse and well-educated future engineering workforce by increasing understanding and interest in engineering and technology careers. It promotes recognition among parents, teachers, and students of the importance of a math, science, and a technical education. It also calls attention to the contributions to society that engineers make. National Engineers Week is observed by more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies. More info on Engineers week can be found at: <http://www.nspe.org/PartnersStates/eweek.html>. There are also several good links on that page for introducing the young people in your life to engineering.

Other upcoming WISA events include our March 27th meeting, and the annual WISA Shrimp Boil, April 24th.

WISA lost a staunch supporter last month, the late Hugh Wilson, who passed away in early January. Hugh was very active in ISA in the 70s and 80s, a former Wilmington section president, and a friend and mentor to many. He will be missed.

Book Review



A Packet of Information - BBB (Borrow)
Industrial Ethernet by Perry S. Marshall
Reviewed by Nick Sands

Perry Marshall has made a valiant effort to reveal the secrets of both media and protocols in his book *Industrial Ethernet*. Unlike books like *Automation Network Selection*, this book focuses just on ethernet and its application in the industrial environment. The book starts with an introduction to ethernet and a tutorial on digital communication, then hardware basics, the basics of protocols, the basic of devices, maintenance and troubleshooting, and ending with other protocols and security.

The tutorial on digital communication is an excellent start, covering encoding, error checking, topology, and collisions. It also explains the important difference between half and full duplex communication. Half-duplex communication is when two or more devices to share the channel of communication, requiring arbitration for control and collision detection. Ethernet was originally based on CSMA/CD which is applicable to halfduplex communication. Carrier Sense, listen for a clear line, Multiple Access, shared by multiple users, with Collision Detection, so that errors can be corrected. Full-duplex communication, where there are separate channels for receiving and transmitting, does not require collision detection.

The basics of hardware of course covers the different cabling, like thicknet, thinnet, and 10Base-T, all the way to gigabit ethernet. The MAC, or media access controller, the PHY, or physical layer line driver/decode, and the magnetic transformer are all located on the NIC, or network interface card. This section also explains the OSI/ISO 7-layer model, essential for understanding today's network communications. There is also an explanation of how the physical distances between nodes and communication rates interact, determining the collision domain.

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Book Review (cont.)

(continued from page 2)

The protocol basics section contains a map out the content of the ethernet packet. There is a discussion of network addressing, network classes, the importance of ports and which ports are used by the most common TCP (transmission control protocol), IP (internet protocol) and UDP (user datagram protocol) protocols, like FTP, telnet, SMTP, HTTP, and POP3. The differences between TCP and UDP protocols are explained as well.

The next chapters cover the basics of network devices, maintenance, and troubleshooting. Switched networks have advantages over hubs, like the intelligent routing, especially for deterministic ethernet in industrial applications. Industrial networks should be managed for the best performance. Protocols like SNMP and RMON are excellent tools for managing networks. There are also software utilities and diagnostic tools that can help monitor networks and diagnose problems.

After the first chapter I was very excited about Marshall's book. Here finally was the book that could explain how ethernet and TCP/IP work in the industrial environment, I thought. Industrial Ethernet is close, but not quite the book I was looking for. The 107 pages are packed with information, it just is not well organized and there are some gaps. But Industrial Ethernet is well worth reading, especially if you can borrow it.

A second addition is available from ISA for \$63 (member price).

January 2012 WISA/IEEE Joint Meeting Industrial Ethernet

On Tuesday, January 24th, the Wilmington Section of ISA and the Delaware Bay Section of IEEE hosted their annual joint meeting at the DelTech Stanton campus. Lex Kasacavage, a Solution Architect with Rockwell Automation, presented on "Advances in Industrial Ethernet: Convergence of Control and Information."

After outlining the progression in industrial networks over the last two decades, he identified four key trends in industrial networks. First, "open networks are in demand." There is a broad availability of products, applications, and vendor support leading to network standards for coexistence and interoperability. Second, there is a general "convergence of network technologies" with the use of common network design and troubleshooting tools across the plant and enterprise, avoiding special tools for each application. Third, there is "better asset utilization to support lean initiatives" through common training, support and inventory. Fourth, it is important to be "future-ready" to support new technologies and features.

He identified best practices for reducing latency and jitter, while increasing availability, integrity, and confidentiality. In particular, he discussed how Industrial Automation and Control System (IACS) networks must prioritize control traffic over other traffic types. Therefore, the priorities may differ significantly from other networks (e.g., voice and video networks). He also outlined various resiliency protocols and redundant topologies available.

The presentation was very interesting and informative.

Encourage colleagues to join ISA!

Benefits include:

- Membership in Local Section
- Membership in 2 Divisions
- Free access to ISA Standards
- Free access to ISA Technical papers
- Free access to ISA Webinars

Join us for our next meeting

Process Optimization by Claude Flandro of ControlSoft

Tuesday, February 28, 2012
@ Applied Control Engineering (ACE)
Newark, DE

Join us for the Famous

WISA Shrimp Boil

Tuesday, April 24, 2012
@ Applied Control Engineering (ACE)
Newark, DE

We invite sponsors to participate as a
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For \$125, a Friend of the Shrimp receives

Recognition in April and May 2012 Newsletters
Recognition at the Shrimp Boil
Option for a **Table Top Display** at the Shrimp Boil

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To join us in sponsoring this popular event
contact Lee Cline (lcline@rumsey.com)

In Memory of Hugh Wilson

Hugh Wilson passed away on December 23, 2011. He was 85 years old. A memorial service was held in January 2012. Hugh was an icon of Moore Products Co. He started in Chicago as a young sales engineer and quickly moved to branch manager. He volunteered to take over the DuPont account, which had been stagnant for many years. He started their operations in the UK, Canada, South Africa, Asia Pacific, among other areas of the world. He retired as Vice President, International Sales/Operations.

Hugh was an active member of ISA both at the section and society levels. He was active in the Wilmington Section through the 1970s and 1980s, serving as a section president among other roles. At the society level, he served in many roles, most notably as 1978 ISA President.

He was a friend and mentor to many and will be missed.

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Mark your calendar for **ISA Automation Week 2012**

September 24-27, 2012, Orlando, FL

Abstracts and Bios due March 5, 2012

Visit: www.isaautomationweek.org