



# Wilmington Delaware Section

# The Sensor January 2012

## In this Issue

1. Next Meeting: Industrial Ethernet
2. President's Message
3. Book Review
4. Fall 2011 Summary
5. In Memory of Ralph L. Moore

## Upcoming Events

Jan 24	Meeting: Industrial Ethernet
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/IEEE Joint Meeting Industrial Ethernet

**Tuesday, Jan 24, 2012**

**5:30 PM**

**DelTech Stanton Campus (www.dtcc.edu)**

(400 Stanton-Christiana Road, Newark, DE 19713)

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Visit Wilmington ISA on the Web!

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

Join us at this month's  
WISA/IEEE Joint Meeting  
for:

**Advances in Industrial Ethernet  
Technology and its Impact  
on Controls, Instrumentation, and  
Power Products in Manufacturing**

**Presented by Alexis Kasacavage  
of Rockwell Automation**

### Agenda

- Industrial Ethernet Overview:  
The Convergence of Control and Information
- Trends in Industrial Networks
- Fundamentals of Ethernet & Ethernet/IP
- Segmenting and Prioritizing
- Resiliency and Redundancy
- Physical Layer Considerations
- Securing Industrial Networks

## President's Message

By Leata Mullen

Welcome to 2012!

This month we are holding our annual joint WISA / IEEE meeting, January 24th. The topic this year is Redundancy in Ethernet IP. As in recent years, the meeting will be held at Delaware Technical and Community College in Stanton. The joint meeting has had a full house in recent years and we look forward to a good turnout again this year.

Thank you to our members for coming out to the 2011 WISA Automation Show and technical training in November! Thank you also to those who helped to publicize the show by telling their coworkers and industry contacts. We had a surprisingly good weather, and a nice turnout. Attendees were happy with the number and variety of vendors available, and vendors were happy with the foot traffic and number of leads the show generated. The free technology seminars throughout the day were interesting and well attended.

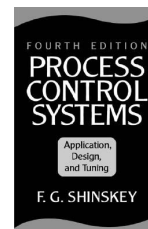
For Pennsylvania Professional Engineers (PEs), I have learned that attending WISA meetings counts towards the ongoing learning requirement. Why not come out to a meeting where you can reconnect with other ISA members and fulfill your requirements at the same time?

Please note, the application deadline for the Ralph L. Moore scholarship is changing this season! This year we plan to award the scholarship award at our February membership meeting, to coincide with Engineers Week. All applications must be received by **January 16<sup>th</sup>**. If you know a high school senior interested in pursuing an engineering or technology career, please contact George Bentinck for an application at [george.c.bentinck-2@usa.dupont.com](mailto:george.c.bentinck-2@usa.dupont.com), or check our website. The website also has information on ISA Educational Foundation scholarships for college students.

Join us for the Famous  
**WISA Shrimp Boil**

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

## Book Review



### **A Toolkit for Process Control - BBBBB (Bonus)**

*Process Control Systems Application, Design, and Tuning*  
4<sup>th</sup> Edition by F. G. Shinskey

Reviewed by Nick Sands

It has been over 10 years since the 4<sup>th</sup> edition of F. G. (Greg) Shinskey's classic *Process Control Systems: Applications, Design, and Tuning* was published and 40 years since the 1<sup>st</sup> edition. It is still a good practical guide to process control. Francis G. (Greg) Shinskey graduated from the University of Notre Dame and worked for DuPont, Olin Chemical, and most famously for The Foxboro Company. He is an ISA Fellow and was one of the initial inductees to Control Magazine's "Process Automation Hall of Fame" in the 2001. He has written 7 books, and contributed to many others including The Instrument Engineer's Handbook, The Control Handbook, and Perry's Chemical Engineer's Handbook. He has received many awards including The Foxboro Company's Bristol Fellowship, ISA's Education and Founder's awards, AIChE's Computing Practice award, the Institute of Measurement and Control's Hartley award, and the Nordic Process Control award.

Shinskey begins with a quick guide to feedback, deadtime, capacitance and first order models. He builds on those basics to cover the elements of the control loop, including transmitters and valves. The highlight of this section is the discussion of the five most common control loops; flow, pressure, level, temperature, and quality. The brief discussion provides practical guidance.

Performance criteria for controllers are introduced in order to evaluate which controllers are best for which processes. Integrated error, and when necessary, integrated absolute error, are Shinskey's criteria of choice. He demonstrates the difference in performance tuning for setpoint changes, servo control, vs load changes, regulatory control, as well as the benefits of wind-up protection. Advanced controllers such as internal model controllers, model predictive controllers, fuzzy logic and dead time compensated controllers are only briefly discussed. More time is spent evaluating filters, deadbands, velocity limits, and on-off control.

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The section on multi-loop systems introduces cascade control and the value of external reset using the secondary process variable. This is another highlight of the book and a practical tip found in few text books. Other topics include valve-position control, which is not what a valve positioner does, override and selector control, feedforward and ratio control and types of adaptive control. The interaction analysis using relative gain arrays is an excellent chapter.

The applications section builds on the previous sections, and adds fundamentals about each process. The chapter on energy transfer covers pumps and compressors. The section on reactors starts with kinetics and ends with pH control. The mass transfer chapter provides an overview of distillation as well as dryers, kilns, and evaporators and techniques to determine the best control strategies. Ryskamp's decoupler is a very useful strategy. The final chapter on batch control is more focused on PID controllers in batch applications.

Process Control Systems is not an introductory book on process control. Many things are not explained to the reader, but assumed that the reader already understands. This is not only a must read and a must buy for a process control engineer, but likely one of the best references you can have in your library. It is a genuine bonus (BBBBB). While the book is out of print, it is still available on Amazon.com for about \$20. [It is also now available from Invensys.]

On Tuesday, September 27th, we began the year with a tour of the instrumentation and controls at Longwood Gardens. Mark Lobach, Programming and Electrical Division Manager, and his team graciously provided us an extensive, in-depth tour. It was very interesting to learn about the applications of instrumentation and controls in the gardens.

On Tuesday, October 25th, Kevin Lavelle of Endress+Hauser presented on "Ethernet/IP Enabled Instrumentation." It was very interesting to learn how the Ethernet/IP can be used to communicate with field devices, particularly with the ability to perform diagnostics using a web interface without the need to install proprietary diagnostic software tools.

On Thursday, November 10th, we held our WISA Automation Show at the Chase Center on the Riverfront in Wilmington, from 10am-5pm. This one day exhibition and training event dedicated to industrial automation, instrumentation and control products, and services for the Mid-Atlantic area attracted a good turnout.

The WISA Automation Show included seminars on "Addressing Security for Industrial Automation and Control Systems," "Preparing Your Control System for Advanced Process Control," "A Review of ANSI/ISA—75.25.01-2000, Control Valve Response Measurement from Step Inputs, and Its Use in Industry," "MES Strategies for Business Success," and "The Return on Investment from Process Analytical Technology"

Proceeds from the show allow WISA to continue to support scholarships for high school and college students pursuing technical degrees and careers.

### 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 Control Soft

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  
**Friend of the Shrimp or Boil Buddy**

**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

**For \$50, a Boil Buddy receives**

Recognition in April and May 2012 Newsletters  
Recognition at the Shrimp Boil

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

## In Memory of Ralph L. Moore

Ralph L. Moore passed away on October 9, 2011. Ralph was a World War II veteran and served in the US Navy from 1943 to 1946. He received advanced degrees in engineering from the University of Delaware, Drexel University, and Case Western. He was a mechanical engineer at DuPont for 45 years, continuing to serve as a consultant for the company after his retirement.

Ralph was an ISA Fellow and led the publication department for a time. He was an active member of the Wilmington ISA section. He was a section president and a long time member of the executive committee with a focus on education.

Ralph was a great mentor to many and a true gentleman. He authored several ISA books on pH control and training modules for process control and has numerous published articles.

Every year, the Wilmington ISA awards the Ralph L. Moore scholarship to a deserving high school senior pursuing a college degree and a career in a technical field.

He will be missed by family and friends.

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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](http://www.isaautomationweek.org)