Setting the Standard for Automation

Wilmington Delaware Section

The Sensor

August 2008

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Upcoming Events

August 19 WISA Nite @ Blue Rocks
September 23 WISA Section meeting
October 14-16 ISA Expo in Houston
October 28 WISA Section meeting
November 13 WISA Show @ Chase Center

August 19, 2008
WISA Nite @ Blue Rocks
7:05 PM at Frawley Stadium

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The Automation Destination Exhibition and Training Show

Thursday, 13 November 2008
Chase Center on the Riverfront
815 Justison Street
Wilmington, DE 19801

This event is the only Exhibit and Training Show dedicated to industrial automation and process control products and services in the area. Take this opportunity to join the WISA Section at our exhibit hall to see the latest in field instruments, automation and controls technologies.

- Exhibit Time: 10am – 5 pm
- Free Parking and Admission
- Free Technical Seminars
- Two National Training Sessions

Registration available at:
www.wilmington-isa.org

President's Message

By Matt Murphy

Hello to the Wilmington ISA membership. I am honored to be the new president of the Wilmington ISA and am excited to get started. Each month, I will do my best to ensure that our section meetings have valuable training, technical sharing, standards, and other discussions that are both stimulating and relevant to the members. My goal is that we can each help each other to grow in our careers and our professional/personal development. In addition, my hope is to increase participation such that all members of the WISA section will have a network of contacts throughout the section that they can work with to more rapidly disseminate best practices, new information, and novel solutions.

On August 19, the Wilmington section will have our annual trip to the Blue Rocks game and if you have never been or haven't been for a while, this is a night you don't want to miss. If you can make it, expect great food, clean fun, and not only can you meet the new president and executive committee, but see an exciting ball game featuring future major leaguers as well. This is a great way to kick-off the section year and tickets are going fast so get your tickets while they last.

In addition to our section meetings each month, this year we will have the "Automation Destination" ISA show in Wilmington on Thursday, November 13, from 10 AM – 5 PM. Information regarding the show including registration can be found at the Wilmington ISA website. This is shaping up to be the largest show that we have had in Wilmington if many years with over 50 instrumentation and automation vendors to attend. In these difficult times, with the US and global economy challenges, to have vendors committed to this show is a testament to the strength of the Wilmington section and to our members. In addition to the vendor presentations, several technical seminars as well as ISA training will be provided. I realize that it is difficult for many members to leave the worksite to attend a trade show, but in this case, it will be worth your time to attend and bring a co-worker.

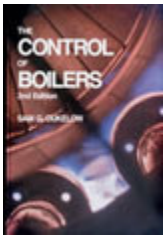
Once again, I am excited to be the new president and look forward to a great year.

Welcome New Members!

Jesse Paul Brown of Accudyne
Joe Caulfield 0f Accudyne
John Schaefer of TA Instruments
Srinivas Tiruveedi
John W. Wood of Dupont

Welcome New Members!

To Control Fire



The Control of Boilers
By Sam Dukelow
BBBBB (Bonus)
Reviewed by Nick Sands

Towards the end of his long career in boiler control, Sam Dukelow, PE, wrote The Control of Boilers to document the knowledge gained over 50+ years, including many years with Bailey Controls Company. Dukelow was president of Energy Conservation Services and a contributor to the Instrument Engineers Handbook and the Handbook of Energy Technology. Dukelow was also an ISA Fellow and the winner of ISA's Sperry Founders Award in 1991. This book has many short chapters focused on topics from start-up to combustion control by type of fuel.

The introductory chapter provides a guide to the SAMA symbology used to illustrate control strategies throughout the book, as well as a brief history on the development of boil controls. Succeeding chapters cover the basics of boiler design with illustrations of many types of boilers and the fundamentals of the mass and energy balances in boilers. Managing these balances is the purpose of boiler control. Feedback, feedforward, ratio, and cascade control are the basic tools.

Several chapters cover the control of the fireside of the boiler. First there is an overview of combustion, fuel types and fuel handling. This includes the heat values for the fuels and minimum air for combustion. There can be significant variability in both. The energy released from combustion and converted to steam is the basis for the efficiency calculations, for which there are multiple methods.

The connection between steam demand, or turbine energy demand, and the firing rate demand of the boiler is critical. There are different strategies, especially for industrial and utility boilers. The demand signals are dependent on the type of boiler and energy recovery systems, such as economizers or reheaters. In addition to the steam demand and the steam temperature control, the boiler feedwater must be controlled to prevent loss of the drum or boiler level control, which can result in an explosion. Interlocks should prevent this.

Combustion air flow, and draft control, are also critical, and connected to the firing rate demand. Forced and/or induced draft fans can be used. The total flow of air should meet the minimum for combustion and appropriate control of flue gas. This can be done using combinations of O2, CO, CO2, and opacity. Depending on the fuel and system, the method may change. The fuel flow should be coordinated with the air flow through methods such as linked positioning, parallel positioning, or metered control. Often the metered control will use cross-limiting, or lead-lag, control for safety.

Standards & Practices: ISA100

Wireless Systems for Automation

By Nick Sands

Wireless is one of the hottest topics in automation, and the ISA100 is one of today's hottest standards. Pat Schweitzer of Exxon-Mobile and Wayne Manges of Oak Ridge National Lab.

The ISA100 Committee addresses wireless manufacturing and control systems in the areas of the:

- Environment in which the wireless technology is deployed
- Technology and life cycle for wireless equipment and systems
- Application of Wireless technology

The wireless environment includes; the definition of wireless, radio frequencies (starting point), vibration, temperature, humidity, EMC, interoperability, coexistence with existing systems, and physical equipment location.

Global short-, medium-, and long-term technology needs and solutions will be incorporated on a non-exclusive technology basis with no bias towards or against a particular wireless technology. The standards themselves may influence the allocation and use of resources and spectrum.

Application of the technology will include:

Field sensors used for monitoring, control, alarm, and shutdown that can be vertically integrated from field to business systems.

Wireless technology whose uses include real time field-to-business systems (e.g. wireless equipment interfacing work order systems, control LAN, business LAN, voice)

Across all industries – fluid processing, material processing, and discrete parts manufacturing environments

WISA Family Picnic

By: Steve Prettyman

The annual June Wilmington ISA Section picnic was held at a new location this year and it was a superior experience for the approximately 25 ISA members and their families in attendance. The event was held at the beautiful and spacious DuPont Chestnut Run pavilion. The venue provided a large covered pavilion with indoor restroom facilities, a ball field, a volleyball court, a children's playground, and a top notch kitchen area complete with charcoal.

The weather was beautiful, the food and drink were great and the crowd was energized by the event's new surroundings and amenities. In attendance were several past presidents as well as other former executive board members, there was even a Merlynn Wegter sighting. Did I mention the drink? ;-)

Many thanks go out to all who participated in the planning, preparation, cooking, cleaning, and shopping activities. As always, it is the Wilmington Section people that make this event memorable for everyone.

As always, the highlight of the event was George Bentinck awarding the annual scholarships, the acceptance speeches made by our local technology students, and of course, the momentous passing of the presidential gavel. This year's outgoing Section President Bill Balascio had the pleasure of passing the exulted position of WISA President to our own Matt Murphy who in turn, secured the succession plan which includes Shawn Coughlan as President-Elect.

The June WISA picnic is always one of the most well attended events in the Wilmington section calendar; although, we would love to see more of the section membership participate in this rewarding annual networking event. This is the one section event that unites new friends, old friends, and colleagues alike, making it a powerful and invigorating experience for everyone. Don't be afraid to volunteer for next year!

WISA Trivia Question?

What type of detector is covered by ISA-92.06.01-1998 ?

Email your answer to
WISA newsletter editor Nick Sands
At nicholas.p.sands@usa.dupont.com

Win an ISA shirt.

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Water & Wastewater Division

The Water & Wastewater Industries Division (also known as WWID) is organized within the Industry and Sciences Department of ISA. WWID was established as a means for information exchange among professionals working with instrumentation related to commercial and public systems associated with water and wastewater management.

The ISA Water and Wastewater Division is concerned with all aspects of instrumentation related to commercial and public systems associated with water and wastewater management.

Membership in this Division provides the latest news and information relating to instrumentation and control systems in water and wastewater management, including water processing and distribution, as well as wastewater collection and treatment.

WWID is invaluable to professionals interested in sanitary technology and engineering, and the operation and maintenance of wastewater facilities. The Division sponsors a yearly symposium, with a proceedings volume.

ISA - Wilmington Section
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To Control Fire Continued…

The NFPA regulates burner systems in the US. The requirements in the burner light-off sequence are covered as well as flame safety interlocks. Several chapters follow that explain the control strategies for various aspects of coal fired boilers, which can be challenging to automate and may require control to determine fuel value. The final chapter predicts trends in boiler control, which we can now assess.

This book is an excellent guide to those who follow in Dukelow's footsteps and seek to control fire to produce steam. Beyond that, this book showcases so many applications of theory that it ranks among the great books of process control, but only if the reader can follow SAMA diagrams. Dukelow demonstrates many times the power of combined understanding of the process and the control system. The Control of Boilers is a bonus book (BBBBB) and available from ISA.org for $89 (member price).