



Fall 2011 Newsletter

In this Issue

- 1 President's Message
- 1 Newsletter Editor's Welcome
- 2 November 29 Member Event – Plant Tour
- 2 ISA Hamilton Expo – Save the Date: March 20, 2012
- 2 ISA Hamilton Expo – Info for Exhibitors/Vendors
- 3 Technical Article: “Basic Motion Control - Part 1”
- 3 ISA Announces e-Books
- 4 2011 ISA Automation Week Report
- 4 ISA 2012-2013 Student Scholarships
- 5 Making the most of your ISA membership: ISA Divisions
- 6 Call for Speakers
- 6 ISA Hamilton Contacts & About ISA Hamilton Section

Upcoming Events

- Tues, Nov 29, 2011 **Plant Tour**
Oakville South West Wastewater Plant
Tour of one of Halton Region's largest facilities
RSVP required by Nov 23
- Tues, Jan 31, 2012.....**January Member Meeting**

Section President
Kenneth Hamilton

Newsletter Editor
Jennifer Loeffler

Editor Assistant
Graham Nasby
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President's Message

Fall is a time of year that always reminds of me of why I like living in Canada. We have real seasons. Summer is now a distant memory and the fall leaves are starting to change. Soon we will be into the white stuff that all of us are so familiar with. With the coming of winter, the ISA Hamilton section's activities start to get into full swing.

We have had two successful member events so far this year. In September we had a presentation entitled 'Stress Management – At Work and At Home'. In October we had a technical talk on "Cellular Applications for SCADA".

For our November member event we have organized a tour of the Oakville South West Wastewater Plant. Space is limited so please RSVP to program@isahamilton.com by Nov 23 at the latest. The tour itself is on Tues, Nov 29.

We are currently in the process of lining up speakers for our member meetings in in the New Year. We will be making an announcement about these soon. In the meantime, please mark your calendars for our upcoming Expo which will be taking place on Tues, March 20, 2012.

Kenneth Hamilton
Section President

Newsletter Editor's Welcome

Welcome to the ISA Hamilton's Fall 2011 newsletter. In this issue we have a report on this year's ISA Automation Week, information about our upcoming November plant tour, a technical article about PLC-based motion control, and our regular column about membership benefits. The newsletter concludes with our usual call for speakers and list of executive contacts.

Last month, I had the great honour of representing our section as a delegate at the ISA Fall Leader's Meeting which was held in Mobile, Alabama, USA. At that meeting I had a chance to meet ISA members from all over the world and to hear about how automation is truly a world-wide discipline. At the meeting I attended workshops on leadership development, section business planning, and how the society functions as a whole. It was a worthwhile experience and actively encourage you to make the trip to attend one of the large ISA society level meetings.

As I write, the plans for our Winter 2012 newsletter are already taking shape. In it will have more details about our upcoming ISA Hamilton Expo on March 20, 2012.

Jennifer Loeffler
Newsletter Editor

November 29, 2011 Plant Tour

The Region of Halton has kindly agreed to give us an evening tour of their **Oakville South West Wastewater Plant** located on Lakeshore Drive in Oakville, Ontario. The plant has recently completed a major upgrade, and plant supervisor Mike Di Iorio is looking forward to showing off the newly upgraded facility.

The tour also dovetails nicely with a tour that we did last year. On Feb 22, 2011 Halton Region gave us a tour of their Burloak Water Purification Facility. The Burloak plant is a drinking water plant. The Oakville South West plant deals with the other side of the equation: wastewater (also known as “sewage” to those of you who like to put it bluntly). Providing water service in cities always involves both of these aspects. For those of you who attended the Burloak tour last year, you will have the opportunity to compare and contrast the two processes that cities use to treat water – there are more similarities at a process level than you would think!

The Oakville South West Wastewater Plant tour is open to both ISA members and non-members, but attendees must RSVP prior to Wednesday, November 23, 2011. To reserve a spot visit www.isahamilton.com and click on “Member Meetings” in the pull-down menu, or contact our program chair Jerry Gelata at program@isahamilton.com

The tour program starts at 6:00pm with a light dinner and an informal presentation from the plant operator about the plant’s history and the process works. This is then followed by the actual tour from 6:30-7:30pm. Please note that for safety reasons attendees must pre-register, and wear long pants and closed toe shoes.

Some more information about the plant:

The Oakville South West wastewater treatment plant is Halton Region has just completed a major upgrade and capacity increase. The Region is pleased to show off its newly completed plant upgrade in this exclusive ISA Hamilton section tour. The plant is equipped to handle a peak flow of 200 MLD, and uses several new technologies. The process starts with a screening station followed by a dual wet well, constant head, 8 pump station followed by grit removal. This is followed by seven parallel trains of primary and secondary clarification, along with UV disinfection and a self-flushing APV system. An fully automated process is used for the aerobic digestion of sludge, and an integrated biosolids building is used for sludge thickening and storage. The plant also includes onsite 8000m3 equalization tanks and additional pumping capacity to reduce the effect of weather-related high flow rates. For security reasons, tour attendees must sign-up for the tour ahead of time. Closed toe shoes and long pants are required.

ISA Hamilton Expo – Save the Date

Make sure to save the date for the 2012 ISA Hamilton Expo. This year’s expo will be held on Tuesday, March 20, 2012 and will feature a trade show, seminars and exhibits. For more information about this event or to book your exhibit space, please contact our Expo Coordinator Alice Kelly at expo@isahamilton.com



ISA Hamilton Expo – Exhibitor Info

The ISA Hamilton Expo is a perfect event to promote your local automation business. The show uses the table top format and invites local vendors and manufacturer reps to setup displays to promote their product lines.

The cost to exhibit is very affordable and our attendees come from a targeted audience of technical and users and decision makers. We also work hard to ensure that folks want to come to our Expo – we offer a free lunch, coffee service, and a program of technical speakers throughout the day. The event itself is kicked off by a keynote technical talk at 9:00am, and the doors are open immediately afterwards at from 10am to 5pm.

For more information about this event or to book your exhibit space, please contact our Expo Coordinator Alice Kelly at expo@isahamilton.com

SAVE THE DATE

ISA Hamilton

EXPO 2012

**Instrumentation & Process Technology
Exhibition & Conference**

TUESDAY, MARCH 20, 2012

Trade Show, Seminars, and Exhibits

Royal Botanical Gardens
680 Plains Road West
Burlington, Ontario

Basic Motion Control - Part 1

By Glen Taylor

Question: We have a PLC application with a motor, we would like to know the speed of rotation, and the distance traveled. How to proceed?

Answer: Well...a typical solution would be to install an optical encoder.

Great, what is an Optical Encoder?

An optical encoder is a device attached to a motor capable of telling us the distance traveled and the speed of rotation. It is generally available in two flavours, absolute or incremental. Absolute encoders provide the shaft's actual position and speed. Less costly incremental encoders only inform the distance of movement relative to the motor's last position. In this first installment, I will look at incremental encoders.

Incremental Encoders

A quadrature type incremental encoder is a circular disc with two (top and bottom) rows of equally spaced slits around the circumference. Each row is shifted the width of one slit, effectively placing the two rows 90 degrees out of phase. In operation, separate beams of light are focused through each row of slits. When light hits a slit it passes through to a receiver (one on the top row another on the bottom), every transition from light to dark can be inferred to mean 'x' degrees of rotation. The time it takes to go from light to dark and back to light can be used to calculate the rate of rotation (speed), direction can be determined by examining the relationship between rising and falling edges resulting from the alternating periods of light and dark.

Establishing Position - zero point reference

Since incremental encoders only measure relative movement, a known position must be established to determine location. A simple way to accomplish this is to move the motor until a limit switch is tripped. This fixed position becomes the zero point reference. However, since it is only a relative measurement, if we lose power the position is lost. On the next power up the zero point must be re-established.

About the Author: *Glen Taylor is the owner of eWerks Inc. (www.ewerksinc.com) for over 25 years he has been involved in the design and manufacture of industrial electronics. Glen holds a Master of Science degree (with distinction) in Electronic Product Development from the University of Bolton in the UK, a CID certification in circuit board design from IPC Designers Council, and is an authorized Microchip Design Partner. He is also a senior member of both the IEEE and the ISA.*

ISA Announces e-Books

The ISA has recently launched e-Books as a new offering to complement its traditional book publishing. E-Books will be available for sale on www.isa.org, Amazon, iBooks, Barnes & Noble and several other eRetail stores.

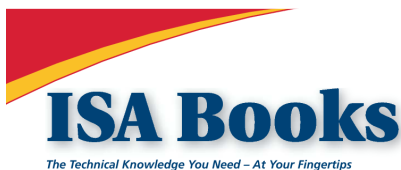
"We are pleased to be launching eBooks and adding a new online format to our extensive automation library," said Susan Colwell, manager, publications development at ISA. "The demand for this format has grown tremendously and offering eBooks is a must in today's publishing environment."

Three books have currently been published as eBooks: *Sell More Through Effective Technical Presentations*, 2nd Edition, by Paul Gruhn; *MES Guide for Executives: Why and How to Select, Implement, and Maintain a Manufacturing Execution System*, by Bianca Scholten; and *Control Loop Foundation - Batch and Continuous Processes*, by Terrence Blevins and Mark Nixon.


"We had a humble goal of having one eBook title ready to go in time for ISA Automation Week 2011, but in fact, we ended up with three titles ready and three more just around the corner," commented Eoin Ó Riain, ISA publications department vice president. "Launching eBooks is a major step for ISA. It demonstrates our enthusiastic commitment to offer our members and customers timely products at a lower price level, and to making our valuable resources more accessible to members throughout the world."

Three more book titles are expected to be available before the end of the year. To view available eBooks, visit

www.isa.org/ebooks



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www.isa.org/books/

2011 ISA Automation Week Report

This year's ISA Automation Week was held on Oct 17-20, 2011 at the Arthur R Outlaw Convention Centre in Mobile, Alabama, USA. The event brought automation professionals from 19 countries to learn the latest in their technical fields, network, share knowledge, present new products and technologies and discuss the future of the world of automation with industry experts.

The technical program offered 63 sessions, each 1.5 hours in length, across eight technical tracks, including safety and security; advanced process control techniques; energy, automation and control system design; analyzers; wireless technology and applications; human asset optimization and installation, operations, and maintenance.

The keynote presenters included

- Charlie Cutler, who gave the Tuesday address, "The Status of Real Time Optimization and Multivariable Predictive Control"
- A general-session panel on Wednesday, which consisted of Cutler, Béla Lipták, Greg McMillan, Russ Rhinehart and Terry Tolliver presented ideas on "The Present and Future of Automation Worldwide"
- Lipták, who presented the Thursday address, "The Present and Future Role of Automation (the Maturing of a Profession)"

The Supplier Showcase featured 129 solutions providers who offered demonstrations, briefings, and product and service information to attendees. The showcase also offered 30 technical presentations—from suppliers, authors, and experts—in two Technology Solutions Theaters, as well as five technical poster sessions.

The ISA Fall Training Institute ran concurrently with ISA Automation Week, offering students 10 courses, while a special Technician Day provided basic and advanced workshops on key topics for technician education.

ISA Automation Week was rounded out by participation from the larger automation community through our partners in the Automation Federation Pavilion, with FIRST® and the young automation professionals and students who joined us for our Automation Career Connections activities

Alabama's Bishop State Community College (<http://www.bscc.cc.al.us/>) also supported the Automation Career Connections activities. These groups showed more than 600 Mobile-area high school and college students some of the automation career choices available to them, to support the growth of the next generation of automation professionals. Special guest Calum Pearson of Cirque du Soleil, gave a keynote address to the young audience.

ISA 2012-2013 Student Scholarships

If you have a student in your family, now is the time for him or her to apply for 2012-2013 academic year ISA Educational Foundation Scholarships. You could also spread the word to your co-workers, your friends, and your neighbors!

ISA is now accepting applications for the 2012-2013 academic year scholarships. These scholarships are awarded to students worldwide who demonstrate outstanding potential for long-range contribution to the fields of automation, instrumentation, and control. The application must be postmarked by 15 February 2012 and received by ISA by 25 February to be eligible. The recipients will be chosen at ISA's annual Spring Leaders Meeting in 2012 and notified in July 2012.

Scholarships of \$5,000 are provided to the top two undergraduate students, while the amounts of the other scholarships vary.

To be eligible for consideration, applicants must be currently enrolled in a graduate or undergraduate program in an instrumentation, systems, or automation discipline (two-year program or four-year baccalaureate program or its equivalent) at an educational institution in their country of residence. Two-year-program applicants must have completed at least one academic semester or 12 semester hours or the equivalent. Four-year-degree program applicants must be in the sophomore year or higher of their study, or the equivalent, at the time of application. Also, applicants must be full-time students and have an overall grade-point average (GPA) of at least 2.5 on a 4.0 scale. Additionally, applicants must show how they plan to use their degrees in the automation profession.

Spread the word! You can learn more and find an application form at www.isa.org/scholarships

2012 ISA Automation Week Orlando, Florida – Sept 24-27, 2012

ISA Automation Week 2012: Technology and Solutions Event will be held at the Orange County Convention Center in Orlando, Florida during Sept 24-27, 2012

ISA Automation Week 2012 will be held at the award-winning Orange County Convention Center, which is one of the most modern convention facilities in North America. It is located only 15 minutes from the Orlando International Airport and provides attendees traveling from around the globe a welcome, relaxing venue as they pursue their professional development and business objectives. The Rosen Centre Hotel, connected to the convention center, will serve as ISA's host hotel.

Making the Most of your ISA Membership: ISA Technical Divisions

By Graham Nasby

This article is part of a series of articles about taking advantage of the resources and opportunities that come with your ISA membership.

This issue's column was originally going to be about ISA Division symposia, but it occurred to me that I need to first talk about ISA technical divisions. It is the divisions that put on the technical symposia, so to understand the symposia one must first look to the ISA's divisions.

To some the ISA can appear to be a very large and complex organization. With over 30,000 members around the world, it is not surprising that there are many different aspects and parts to the ISA as an organization. For many ISA members, there are two main ways they tend to get involved: ISA sections and ISA divisions.

ISA sections are typically associated with geographical areas. For example, the ISA Hamilton section is focused on the area around Hamilton, Ontario, Canada. Sections focus on providing events for ISA members in their local geographical area. Since section members are typically close by, section activities are usually face-to-face events such as member meetings, plant tours and workshops.

For divisions the breakdown is not geographical. Divisions are instead defined by common technical areas of interest, industry classifications, and/or specific technical topics. For example there is a division for the water/wastewater sector and there is another division focused entirely on process safety. Furthermore there are divisions for automation professionals that are interested in topics such as automatic control and robotics, the construction industry, and even automation management. Because divisions are not geographically based, division members can be from all over the world – and they often are!

Within the ISA there are two main groupings of divisions. The first is the "Industries and Sciences" department and the second is the "Automation and Technology Department". The first grouping is focused more on certain industries or sectors, while the second is more technology based. The current list of ISA divisions is as follows:

Divisions in the Industries and Sciences Department

- [Aerospace Industries Division](#)
- [Building Automation Systems](#)
- [Chemical & Petroleum Division](#)
- [Construction & Design Division](#)
- [Education Division](#)
- [Food & Pharmaceutical Division](#)

- [Glass & Ceramics Technical Interest Group](#)
- [Mining & Metals Division](#)
- [Power Industry Division](#)
- [Pulp & Paper Division](#)
- [Textiles Technical Interest Group](#)
- [Water & Wastewater Division](#)

Divisions in the Automation & Technology Department

- [Analysis Division](#)
- [Automatic Controls and Robotics Division](#)
- [Communications Division](#)
- [Management Division](#)
- [Process Measurement & Control Division](#)
- [Safety Division](#)
- [Test Measurement Division](#)

In a future column, I will give an overview of each of the divisions and what its focus is. However, for the time being there are several common things between the divisions that I will touch on.

Divisions will typically have an email mailing list and/or LinkedIn discussion group associated with them. The email mailing lists and discussion groups give automation professionals in that particular area a venue to talk about common technical problems, share areas for process improvements, and network with each other.

Divisions can be quite active when it comes to newsletters. Some divisions publish a quarterly newsletter, while others do it annually – it all depends on the preferences of the individual division. Division newsletters provide another avenue for ISA members interested in a particular area to share knowledge and network with each other.

Lastly, some of the larger divisions put on annual symposia for their specific area of interest. For example, the ISA Power division has an annual symposium that has papers and presentations on topics concerned with power plants and the electric power industry in general/. Likewise, the ISA Water/Wastewater Industries Division and the Management Division also put on their own area-specific symposia. I will be providing an overview of the various ISA division symposia in a future column.

For more information ISA technical divisions visit the ISA website at www.isa.org/divisions

NEXT ISSUE: ISA Divisions – Industries & Sciences

About the Author: *Graham Nasby is the Director-elect of the ISA Water/Wastewater Industries Division and the VP & President-elect of the ISA Hamilton Section.*



Member Meetings: Call for Speakers

As a service to its members, the ISA Hamilton section holds monthly membership meetings. The meetings consist of dinner and a speaker. The meetings generally start at 6:00pm, followed by a 45 minute seminar that begins at 6:30pm.

Meetings are open both members and non-members of the ISA. Pre-registration is required so that we know how many dinners to order. Please see our website for the meeting schedule.

We are currently seeking speakers for several of our upcoming membership meetings. Our focus is technical content. Note for Vendors: The goal of the member meeting presentations is to present technical topics of interest to our members – not to just be sales presentations. We do accept vendor presentations provided that they are geared towards general technical knowledge and not specific product lines. We have had many excellent vendor-provided presentations in the past, and we look forward to many more.

Please visit our website to see what meeting presentation slots are available. Feel free to contact us if you are interested in sharing your knowledge with your fellow automation professionals through our membership meetings program. We look forward to seeing you at our next meeting.

ISA Hamilton Section Contacts

For more information about ISA membership, the ISA Hamilton section or the upcoming section events, please do not hesitate to contact any one of us. (Note: Email addresses are @isahamilton.com)

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About ISA Hamilton Section:

The *ISA Hamilton Section* is the local section of the *International Society of Automation for the Hamilton, Burlington, Guelph and Golden-Horseshoe areas of Southern Ontario, Canada*. *ISA Hamilton Section* holds regular meetings, sponsors a variety of educational endeavors, produces an annual exhibition, encourages an open exchange of career opportunities, and promotes the goals & objectives of ISA.

About the ISA:

Founded in 1945, the *International Society of Automation* is a leading, global, nonprofit organization that is setting the standard for automation by helping over 30,000 worldwide members and other professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities. Based in *Research Triangle Park, North Carolina*, ISA develops standards; certifies industry professionals; provides education and training; publishes books and technical articles; and hosts conferences and exhibitions for automation professionals. The ISA has over 150 local sections worldwide which includes the *ISA Hamilton Section*