Update

Newsletter for ISA Certified Control Systems Technicians® (CCST®)

Spring 2009

In this issue:

CCST Profile of the Quarter: Antonio J. Biondo, Sr.

Antonio J. Biondo, Sr. is a Service Account Manager for ABB Instrumentation. He works from his home in Baltimore, MD. His responsibilities include all field service contract labor, repair, start–up of ABB and competitor equipment within the northeast region. He has over 30 years experience in the control systems industry, with ABB, the last 8 being Service Account Manager in the Northeast USA.

ABB Instrumentation is part of the Automation Products Division within ABB. ABB is the world's largest automation services provider , according to ARC, and is a market leader in instrumentation. ABB Instrumentation US is headquartered in Warminster, PA, where it manufactures flow, pressure & temperature instruments as well as actuators and positioners. Warminster also has a NIST traceable flow calibration lab and offers repairs and spare part services. Its Reno, NV, instrumentation plant manufactures analyzers and provides service and repairs.

"ABB wants our customers to recognize our certification and compare that to our competitors when making business relationship decisions." — Antonio J. Biondo, Sr.

He learned about ISA's certification options from his service director. They discussed how certification would improve his personal marketability and its positive effects on the company as whole. ABB agreed to cover his certification fees. Biondo decided to learn more about both the Certified Control Systems Technician® (CCST®) and Certified Automation Professional® (CAP®) certification on the ISA website. "CCST was a good start for me," he said. "I decided to pursue it for personal growth, a sense of satisfaction, as recognition for my industry knowledge outside of ABB, and to earn credibility within the company. ABB wants our customers to recognize the certifications we hold and compare that to our competitors when making business relationship decisions." ABB requires industry certification for all service account managers, and actively encourages field service engineers to become certified.

The CCST exams cover seven performance areas or domains: calibration, loop checking, troubleshooting, startup, maintenance/repair, project organization, and administration. The CCST program offers three levels of certification, with varying education and experience requirements, and a technician may enter the program at any level. Level I requires a minimum of five years of education, training, and/or work experience. Level II requires seven years of education, training, and/or work experience with at least two years in instrumentation/measurement and control. Level III requires 13 years of education, training, and/or work experience with at least five years in instrumentation/measurement and control.

CCSTs must renew their certification every three years. This is accomplished by earning Professional Development Points (PDPs) by working, training, and continually gaining knowledge in the field.

To prepare for his exam, Biondo visited the ISA website and downloaded the certification practice tests, purchased the study guides, and then attended the three–day review course prior to taking the exam.

Biondo says that even with 33 years of experience in the control system industry, the test was challenging. His advice to anyone preparing for the certification exam is to study and be prepared. "It will be well worth the effort," he says. "I wear my CCST logo on my hard hat and jacket. It is my stamp of approval."

Testing in Houston, Texas, during ISA EXPO 2008, he achieved CCST Level I certification. He is due for renewal in October, 2011. He is also looking into the CAP certification as a means of differentiating himself from other professionals in the industry.

Engaging the Next Generation of Automation Professionals during Automation Career Week

On the final day of ISA EXPO 2008, 400 high school and middle school students exploded into the Reliant Center to engage in three informative hours of automation insights and an introduction to the possibilities of a career in the automation field. The event, called iAU2M8.08, focused on teaching students about interesting and rewarding career opportunities. Students went on a guided tour of the ISA EXPO exhibit floor to get an all-encompassing view of the many industry products and services. Event sponsors Asco Numatics, C-STEM, FIRST, JETS,

iAU2M8.09 will include more activities, host more students, and spend more time educating the next generation of automation professionals!

National Instruments, Shell, the Department of Engineering Technology @ University of Houston, and Yokogawa joined in the outreach effort. Some sponsors provided materials for the students to take home, others set up student-specific exhibits in the mezzanine area of the exhibit hall, and some conducted presentations right from their exhibit space for volunteer-led student groups.

Topping off the day, a dynamic keynote speaker, John Hanks from National Instruments, addressed the young Houston school crowd. Hanks was a good fit for the keynote presentation. He discussed his role as Vice President of Industrial and Embedded Products at National Instruments, which prompted rich dialogue among the group. He talked about his job requirements in leading NI's future software and hardware product strategy and marketing, and covered other career paths in the automation profession as well.

The event was well-received by teachers and students of the Houston Independent School District. Plans are in the works for a larger scale event this year during ISA EXPO. iAU2M8.09 will include more activities, host more students, and offer more time to educating the next generation of automation professionals!

ISA also hosted another demographic during Automation Career Week – college students and young professionals. YAPFEST, a networking festival for automation professionals and students ages 18-30, attracted more than 250 attendees, breaking the attendance record from previous years. Attendees enjoyed the following activities:

- Keynote presentation from Monte King, Manager of Workforce Development for Shell Oil Company
- Panel discussion focused on workforce development, hosted by Bob Vavra of Plant Engineering magazine. Other panelists included Chip McDaniel of Automation Direct and Greg Hale of InTech magazine
- ISA EXPO show floor tour, guided by Bob Vavra of Plant Engineering magazine

Watch for more information about iAU2M8.09 or YAPFEST 2009 at **www.isa.org**.

***The Life and Times of an Automation Professional—An Illustrated Guide*, by Ted Williams, Stan Weiner, and Greg McMillan**

Pressure points the way

By Donald Gillum

Measurement is the first requisite of any control scheme.

Lord Kelvin summarized the significance of measurement science: "If you can measure that of which you speak and can express it by a number, you must know something of the subject. But, if you can not measure it, your knowledge is meager and unsatisfactory measurement is the basis of all knowledge."

If you cannot measure, you cannot control.

Pressure is a fundamental measurement from which one can infer other variables.

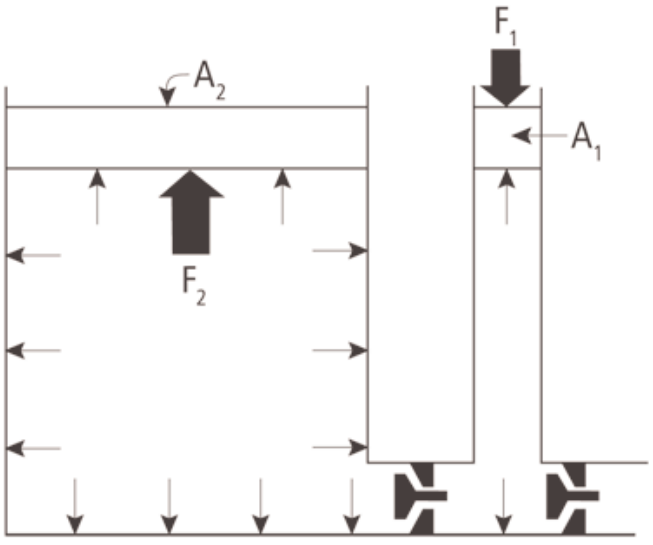
Pressure values rank with those of voltage and temperature in defining the energy (primarily potential) or state of matter. Temperature is the potential for doing thermodynamic work, voltage is the potential for doing electrical work, and pressure is the potential for doing fluidic work.

The importance of pressure measurement manifests itself by the need for transmitting signals powering equipment, inferring fluid flow in pipes, and using filled thermal systems in some temperature applications. We can infer liquid levels in tanks and other vessels from pressure quantities.

Pressure is best to understand using Pascal's law, which describes the behavior of fluids at rest. According to this law, pressure is proportional to force and inversely related to the area over which the force is applied.

In this discussion, the term "fluid" refers to both liquids and gases. Both occupy the container in which they reside; however, a liquid, if it does not completely fill the container, will present a free liquid surface, whereas a gas always fills the volume of its container.

Hydraulic press



When a gas is in a container, molecules of the gas strike the container walls. This collision results in a force exerted against the surface area of the container.

Pressure is equal to the force applied to an object (here, the walls of the container) divided by the area that is perpendicular to the force. The relationship between pressure, force, and area is this expression.

$P = F/A$

… where P is pressure, F is force, and A is area. In other words, pressure is equal to force per unit area.

For a liquid at rest, the pressure exerted by the fluid at any point will be perpendicular to the boundary point.

In addition, whenever an external pressure applies to any confined fluid at rest, the pressure increases at every point in the fluid by the amount of the external pressure.

The practical consequences of Pascal's law are apparent in hydraulic presses and jacks, hydraulic brakes, and pressure instruments used for measurement and calibration.

To understand the significance of Pascal's law, consider the hydraulic press shown here.

A force applied to the small area of piston 1 distributes equally throughout the system and applies to the large area of piston 2.

Small forces exerted on the small piston can cause large forces on the large piston.

The following relationship exists in the hydraulic device because the pressure at every point is equal:

$P_1 = P_2$

Combining the two previous equations leads to the following relationships:

$P_1 = F_1/A_1$
$P_2 = F_2/A_2$
$F_1/A_1 = F_2/A_2$
$F_2 = (A_2/A_1)\, F_1$

ABOUT THE AUTHOR
Donald Gillum (don.gillum@tstc.edu) is a Life Senior of ISA and a P.E. in Control System Engineering. He worked many years in petrochemical plants and is a master instructor at Texas State Teachers College. This article is from his book *Industrial pressure, level and density measurement,* ISA Press, 1995.

2009 Electronic Testing Windows

Exam Testing Window	Exam Application Postmark Deadline
Window 2: 1 July 2009 – 31 August 2009	Friday, 15 May 2009
Window 3: 1 November 2009 – 31 December 2009	Tuesday, 15 September 2009

Welcome New CCSTs!

Congratulations to our newest group of Certified Control Systems Technicians!

CCST Level I:

Angel Menjivar
Calderon La Geo SA de CV

Antonio Biondo
ABB Inc

Augustus Gomes
Dominion Energy New England

Brad Kyle
Boehringer-Ingelheim Roxane Labs

Brent Steven
Interstates Instrumentation

Brian Gasperino
Explorer Pipeline Co

Brian Thomas
Lyondell Basell

Brian Vitcovich
Kock Nitrogen

Brian Williams
BP Husky Toledo

Chad Melvin
Ergon of West Virginia

Charles Littlejohn
M/R Systems Inc

Charles McDaniel
NuStar Asphalt Refining Co

Charles Worster

Christopher Durrett
Houston Refining LP

Clifford Clark
City Of Henderson

Clifford Davis
Devon Gas Services

Cody Bogert
Prime Controls LP

Craig Stull
BP

Daniel Smith
CNS Yuma Desalting Plant

Darryl Hill
Abbott Laboratories

David Mickelson
Prime Controls LP

David Sanders
BP

David Stein
Cargill Inc

David Van
Schouwen Interstate

Donald Efflandt
Abbott Laboratorie

Dustin Roe
Lee Technologies Service Inc

Edward Jonczak
Ergon of West Virginia

Erin Derrow
White Wave Foods

Eugene Wallace
BP

Francisco Arevalo Martinez
Industrias La Constancia

George Heintzman
GlaxoSmith Kline Biologicals NA

George Pennell
Peace River Manasota Reg Water Supply Auth

Grady McKey
Huntsman Chemical

Jake Elgersma
Interstates Instrumentation

James Sands
Prairie Island Nuclear Generating Plant

Jeffrey Brown
Cargill Inc

Jerry Rhew
Linde Inc

Jesus Mondragon Garcia
Ingenio De Atencingo

John Sansone
Explorer Pipeline Co

Karl Waine
Prime Controls LP

Keith Morris
Dynamix Engineering

Kevin Seifert
Cannon Associates

Kurt Leavitt
Lincoln Paper & Tissue

Linda Schmoll
Self Employed

Mark White
Georgia Power Co

Mark Yacco
Genzyme Corp

Matthew Brim
BP Products North America Inc

Melvin Pavlicek
ABB Inc - Instrumentation

Michael Gerber
LyondellBasell

Paul Seager
Dept of National Defense Canada

Perry Higgins
Huntsman Performance Products

Peter Lyons
Xcel Energy

Randy Nelson
BP Husky

Robert Cowan
Southern Co Ga Power

Robert Knight
BP Toledo

Robert Lee
BL Technology Inc

Roger Wellman
Unilever

Shannon Mobbs
Intel Corp

Stanley Henderson
BP

Steven Leach
Dayton Power & Light

Steven Pumphrey
Tropicana Products

Thomas Mulligan
Genzyme Biosurgery

Veniamin Shukhman
North Jersey Media Group

William Byerly
NuStar Asphalt Refining Co

CCST Level II :

Alexander Armintor
Dynalectric

Clarence Bearce
Lincoln Paper & Tissue

David Robbins
Mainthia Technologies Inc

Henry Hurley
IBEW Local 32

James Sutherland
Lincoln Paper & Tissue

Mark Jaroscak
Mainthia Technologies Inc

Mark Jenner
BASF Whitestone

Megan Arnold
Marin Municipal Water District

Timothy Gragg
T&C Enterprises

Founded in 1945, the International Society of Automation (www.isa.org) 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 the largest conference and exhibition for automation professionals in the Western Hemisphere. ISA is the founding sponsor of The Automation Federation (www.automationfederation.org).

Certification

ISA certification provides an objective, third-party assessment and confirmation of a person's skills, and gives them the opportunity to stand out from the crowd and be recognized. ISA currently offers two certification programs: Certified Automation Professional® (CAP®) and Certified Control Systems Technician® (CCST®).

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