The International Society of Automation: Delivering Unparalleled, Standards-Based Technical Resources to the Industrial Automation Community

www.isa.org
The International Society of Automation (ISA)—Your Connection to the Automation Profession

The International Society of Automation is a nonprofit professional association that sets the standard for those who apply engineering and technology to improve the management, safety, and cybersecurity of modern automation and control systems used across industry and critical infrastructure. We serve both process manufacturing industries, like chemicals, food and beverage, oil and gas, and pharmaceuticals; and discrete manufacturing industries, like automotive and aerospace.

Founded in 1945, ISA develops widely used global standards; certifies industry professionals; provides education and training; publishes books and technical articles; hosts conferences and exhibits; and provides networking and career development programs for its 40,000 members and 400,000 customers around the world.

How does ISA bring value?
For engineers, technicians, and management engaged in industrial automation, ISA is the trusted provider of standards-based foundational technical resources, driving the advancement of individual careers and the overall profession.

ISA brings the right people together to create the technologies of the future and share best practices with the next generation of automation professionals.

ISA’s Brand Family
ISA owns Automation.com, a leading online publisher of automation-related content, and is the founding sponsor of The Automation Federation (www.automationfederation.org), an association of non-profit organizations serving as “The Voice of Automation.

Through a wholly owned subsidiary, ISA bridges the gap between standards and their implementation with the ISA Security Compliance Institute (www.isasecure.org) and the ISA Wireless Compliance Institute (www.isa100wci.org).

Learn more about ISA’s brand family at brandfamily.isa.org.
ISA’s Core Competencies—At a Glance

**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®). ISA also provides three certificate programs related to the ANSI/ISA84 safety instrumented systems (SIS) standard and five ISA/IEC 62443 Cybersecurity Certificates.

**Conferences and Exhibits**
ISA hosts numerous annual events worldwide that provide quality education, the latest automation developments, and real-world scenarios, with presentations delivered by experts, peers, and industry leaders. ISA’s technical Division Symposia include the ISA Analysis Division Symposium; the ISA Food and Pharmaceutical Division Symposium; the ISA International Instrumentation Symposium; the ISA Leak Detection and Repair—Fugitive Emissions Symposium; the ISA Power Industries Division Symposium; the ISA Process Control and Safety Symposium; and the ISA Water/Wastewater and Automatic Controls Symposium.

**Membership**
ISA offers individuals the opportunity to join the Society and gain access to dozens of valuable benefits, including discounts on training, conferences, and professional development resources; free viewing of ISA standards; subscriptions to *InTech* magazine and other technical publications; free online catalog of technical web seminars; and much more. ISA’s 140 geographical Sections, located throughout the world, connect members with technology, expert advice, and world-class programming at the local level, while ISA’s technical Divisions feature opportunities to network and learn from industry leaders.

**Standards**
ISA is recognized globally for the development of consensus industry standards for automation technologies and applications in key areas such as security, safety, batch control, enterprise integration, wireless communications, traditional instrumentation, measurement, and control; and has produced more than 150 standards documents. 4,000+ automation professionals, on 140 committees/subcommittees, have been involved in the development of ISA standards.

**Publishing**
ISA is the authoritative publisher of technical resources covering the automation profession. Written and reviewed by experts, these publications help keep automation professionals fully informed about the latest technical developments, applications, trends, and standards.

“The professional associations and networks I develop at ISA are invaluable, and play an important role in my career growth to the executive level in the automation industry. I can honestly say that ISA has made a difference in my life and career.”

—Prabhu Soundarrajan, Director of ISA’s Chemical and Petroleum Industries Division (ChemPID)
Many different industries rely on standards to streamline processes and improve safety, efficiency, and profitability. Standards don’t just make life easier, they make it safer…and they enhance companies’ profitability while reducing or eliminating users’ frustrations.

More than 4,000 experts work across 140 committees and subgroups in developing ISA standards. They’re working on standards in areas as vital as increasing cybersecurity for industrial operations and critical infrastructure, to integrating control systems with key information across the manufacturing enterprise.

ISA is accredited by the American National Standards Institute (ANSI) to develop standards following open participation rules that ensure the views of all participants are considered in a balance of interests including users, suppliers, integrators, regulators/government, and others. Most ISA standards are published as American National Standards, and many are submitted through ANSI to become international standards through the International Electrotechnical Commission (IEC) based in Geneva. ISA has published more than 150 standards and technical reports, with some of the best known including:

- **Management of Alarm Systems for the Process Industries (ISA-18/IEC 62682)**
- **Functional Safety: Safety Instrumented Systems for the Process Industry Sector (ISA-84/IEC 61511)**
- **Batch Control Systems (ISA-88/IEC 61512)**
- **Enterprise-Control System Integration (ISA-95/IEC 62264)**
- **Cybersecurity for Industrial Automation and Control Systems (ISA-99/IEC 62443)**
- **Wireless Systems for Automation (ISA-100/IEC 62734)**
- **Instrumentation Symbols and Identification (ISA-5)**
- **Human Machine Interfaces for Process Automation Systems (ISA-100)**
- **Intelligent Device Management (ISA-108)**

ISA Standards

When a standard is adopted into industry, businesses have a need to prove their conformance to that standard or to verify that their vendor procurement truly does align with the intent of that standard. Sometimes they need to prove it because the government has regulated compliance, but other times, they want to make sure they’re following the standard because it helps them to improve performance, lower maintenance costs, reduce downtime, enhance operability, and save money. Plus, if a business is using that technology as part of a product that another company will buy, they want to prove that they’re buying equipment that conforms to the latest and greatest standards.

ISA’s brand family includes two compliance institutes:

- **The ISA Security Compliance Institute**
  For owner/operators of industrial automation and control systems, ISA Secure® standards-based conformity assessments certify development practices and security characteristics for commercial-off-the-shelf products and systems, reducing risk and contributing to safe and secure assets and operations.

- **The ISA100 Wireless Compliance Institute**
  For owner/operators utilizing monitoring, control, and safety applications, the ISA100 Wireless Compliance Institute promotes the adoption of ISA100 wireless technology and conducts standards-based conformity assessments to certify wireless product interoperability and reliability, reducing cost and enhancing performance.

How can you take advantage of ISA’s industry-leading standards?

- Purchase individual standards at [www.isa.org/standards](http://www.isa.org/standards) and browse ISA’s training courses and books to find resources that will help you apply them to your operations.
- Purchase network licenses for your company to use ISA standards through IHS ([www.ihs.com/products/isa-standards.html](http://www.ihs.com/products/isa-standards.html))—a convenient, online access option ideal for companies who need access for more than five employees.

KEY POINTS

- Standards streamline processes and improve safety, efficiency, and profitability
- ISA’s most popular standards are focused on alarm management, safety, batch control, enterprise integration, cybersecurity, wireless, instrumentation, HMI, and intelligent device management
- ISA’s brand family includes institutes that deliver conformity assessments based on ISA’s standards
ISA certification provides an objective, third-party assessment and confirmation of a person’s skills. ISA currently offers two certification programs, Certified Automation Professional® (CAP®) and Certified Control Systems Technician® (CCST®), and two certificate programs, the ISA84 Safety Instrumented Systems Certificate Program and the ISA/IEC 62443 Cybersecurity Certificate Program.

ISA’s certification and certificate programs:
- Improve ROI by impacting mission critical decisions
- Promote safety and improve productivity
- Provide 3rd party endorsement of knowledge, experience, and understanding of the automation body of knowledge
- Establish professional credentials for engineers and technicians
- Prepare employees for additional job responsibilities

ISA also offers certificate programs covering safety and cybersecurity.

## ISA Certified Automation Professional® (CAP®) Program

Working in process automation and manufacturing automation industries around the globe, CAPs are responsible for the direction, definition, design, development/application, deployment, documentation, and support of systems, software, and equipment used in control systems, manufacturing information systems, systems integration, and operational consulting. CAPs are an elite group of automation professionals that have proven they possess an extensive knowledge of automation and controls. CAPs have documented evidence that they possess the expertise and qualifications to excel in their fields.

### Why should companies hire and promote CAPs?

**Proven Experience**

“If you pass the CAP exam, you have a good, broad background in the automation industry.”

—Paul Galeski, CAP, President, MAVERICK Technologies

**Commitment to Safety**

“You can almost say—I think I can say—that you cannot pass the CAP exam unless you have a strong understanding of safety instrumented systems—and safety, of course.”

—Vernon Trevathan, CAP, Consultant, Monsanto (Retired)

**Commitment to Continued Education**

“With the CAP’s requirement for continuing education, or professional development hours, I’ve got to stay up on the new technologies.”

—Greg Lehmann, CAP, Control Systems Specialist, Washington Division of URS Corporation

**Confidence**

“It gives you an edge. You know that you are among the best engineers in the world.”

—Hamad Balhareth, CAP, Engineer III, Saudi Aramco

Learn more about the requirements, body of knowledge, and application process for the CAP® program visit [www.isa.org/CAP](http://www.isa.org/CAP) today!

### Topics and Areas of Study Covered in the CAP® Exam

**CAP Performance Domains and Test Specifications**

<table>
<thead>
<tr>
<th></th>
<th>% of Test</th>
<th>Number of Items on Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Feasibility Study</td>
<td>11%</td>
<td>19</td>
</tr>
<tr>
<td>II. Definition</td>
<td>12%</td>
<td>21</td>
</tr>
<tr>
<td>III. System Design</td>
<td>20%</td>
<td>35</td>
</tr>
<tr>
<td>IV. Development</td>
<td>19%</td>
<td>33</td>
</tr>
<tr>
<td>V. Deployment</td>
<td>16%</td>
<td>28</td>
</tr>
<tr>
<td>VI. Operation and Maintenance</td>
<td>22%</td>
<td>39</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>100%</td>
<td>175</td>
</tr>
</tbody>
</table>

**CAP Test Specifications by Technical Topic Category**

<table>
<thead>
<tr>
<th></th>
<th>% of Test</th>
<th>Number of Items on Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Basic Continuous Control</td>
<td>14%</td>
<td>24</td>
</tr>
<tr>
<td>II. Basic Discrete, Sequencing, and Manufacturing Control</td>
<td>13%</td>
<td>23</td>
</tr>
<tr>
<td>III. Advanced Control</td>
<td>9%</td>
<td>16</td>
</tr>
<tr>
<td>IV. Reliability, Safety and Electrical</td>
<td>13%</td>
<td>23</td>
</tr>
<tr>
<td>V. Integration and Software</td>
<td>21%</td>
<td>37</td>
</tr>
<tr>
<td>VI. Deployment and Maintenance</td>
<td>16%</td>
<td>28</td>
</tr>
<tr>
<td>VII. Work Structure</td>
<td>14%</td>
<td>24</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>100%</td>
<td>175</td>
</tr>
</tbody>
</table>
What's the Difference between Certificate Programs and Certification Programs?

- Certificate programs are typically associated with mastery of specific course content and may or may not require work experience. Certificates typically require attendance at one or more courses; and any exams are based just on the material in that course.
- Certification programs are based on a job analysis that identifies specific knowledge, skills, and attributes to perform a specific job and require that successful candidates demonstrate identified knowledge, skills, and attributes beyond any educational program. Once obtained, certifications are usually renewed to last throughout the individual’s career. While review courses and other study materials are often available, certifications do not require attendance at any course.

Companies that Support the ISA CCST® Program

Air Products & Chemicals Inc.
Alyeska Pipeline Service Co.
Ashland Chemical
BASF Corp.
Bay-Tec Engineering
BP Oil
Bechtel Construction Company
Boehringer-Ingelheim—Roxanne Lab
Cargill
Chevron
Chiron Corporation
Coates Electrical & Instrumentation
Colorado Springs Utilities
Columbia Gas Transmission
Coors Brewing
CrossPoint Engineering Corp.
Cytec Industries
Dist. of Columbia Water & Sewer Authority
Dupont
Eli Lilly
Emerson Process Management
FMC Corp.
General Electric
G and F Services, PLLC.
Honeywell
Jacobs Engineering
Kellogg, Brown, and Root
Las Vegas Valley Water District
MAVERICK Technologies
Meade Electric
Merck
Michigan Consolidated Gas Co.
Noramco
Oklahoma Gas & Electric
Pfizer
Prime Controls
Process Control Services, Inc.
Raytheon
Rohm & Haas
Siemens-Westinghouse
Solutia
Southern Company
Tesoro Hawaii
Total Petrochemical
Tropicana Products Inc.
Valero Port Arthur
Xcel Energy
ISA84 Safety Instrumented Systems Certificate Programs

Process safety incidents are largely referred to as “high consequence, low frequency events,” but dozens of spills, leaks, fires, and explosions continue to occur worldwide each month, ranging from near-misses to catastrophic events with life-changing implications for people, property, and companies involved. Following the latest industry best practices in your plant is only a starting point to prevent incidents—companies must align employee training, operational standards, and management approaches to truly enhance their safety profiles.

In the late 1980s, the International Society of Automation (ISA) recognized the need for an improved approach in handling process sector functional safety issues and established the ISA84 standards committee. ISA84 brought process safety experts together to develop industry standards and best practices, including the first edition of ISA84, released in 1996, entitled Application of Safety Instrumented Systems for the Process Industries. Later, the committee released ANSI/ISA-84.00.01-2004 Parts 1-3 (IEC 61511 Mod), Functional Safety: Safety Instrumented Systems for the Process Industry Sector. This three-part series of consensus-developed standards gives requirements for the specification, design, installation, operation, and maintenance of a safety instrumented system, so that it can be confidently entrusted to place and/or maintain a process in a safe state. Through its working groups, ISA84 has also developed several key technical reports to provide guidance on the implementation and use of the three-part series of standards.

ISA Safety Certificates

ISA offers three safety certificates, each including specialized training on ISA84 and an exam that is offered through the worldwide network of Prometric testing centers. Those who register for the training course and the certificate program and pass the exam will be issued an ISA certificate specifying that they have successfully completed that certificate program.

Certificate 1: ISA84 SIS Fundamentals Specialist
This certificate requires the completion of the four-day instructor-led ISA training course Safety Instrumented Systems—Design, Analysis, and Justification (EC50) with an exam (or the online, instructor-assisted version of the course, EC50E, with an exam.) This certificate is a prerequisite for Certificates 2 and 3.

Certificate 2: ISA84 SIL Selection Specialist
This certificate requires the completion of the two-day instructor-led ISA training course Advanced Safety Integrity Level (SIL) Selection (EC52) with an exam.

Certificate 3: ISA84 SIL Verification Specialist
This certificate requires the completion of the two-day instructor-led ISA training course Advanced Design and SIL Verification (EC54) with an exam.

Earn all three certificates and become an ISA84 SIS Expert
Individuals who achieve Certificates 1, 2, and 3 are designated as ISA84 Safety Instrumented Systems (SIS) Experts.

ISA Global Collaborations Lead Cybersecurity Initiatives

ISA is recognized and depended on worldwide to lead industry’s response to control systems cybersecurity vulnerabilities.

• Upon request from the US federal government, ISA and its umbrella association, the Automation Federation, helped to prepare the US Cybersecurity Framework and helped to implement the provisions of the US Cybersecurity Enhancement Act of 2014. Representatives from the White House, NIST, FBI, Automation Federation, and ISA conducted a series of workshops throughout the United States with executives across industry sectors
• ISA has forged strong partnerships with government and academic entities through these efforts, including the US Department of Homeland Security, US Department of Commerce/NIST, US Department of Energy, US Department of Labor, the National Association of Manufacturers, and the National Rural Water Association
• Also upon request, ISA’s umbrella organization, the Automation Federation, is the host organization for the LOGIIC (Linking Oil and Gas Industry to Improve Cybersecurity) Program. The LOGIIC program is an ongoing collaboration of supermajor oil and natural gas companies and the US Department of Homeland Security, Science and Technology Directorate. LOGIIC undertakes collaborative research and development projects to improve the level of cybersecurity in critical systems of interest to the oil and natural gas sector.
ISA is the developer and applications-focused thought leader behind the world’s only consensus-based industrial cybersecurity standard, ISA/IEC 62443. The ISA/IEC 62443 standards define requirements and procedures for implementing electronically secure automation and control systems and security practices, and assessing electronic security performance. The cybersecurity standards, and the resulting training, certification, and certificate programs, cover the complete lifecycle of cybersecurity protection. Developed by a cross-section of international cybersecurity subject-matter experts from industry, government, and academia, the evolving standards represent a comprehensive approach to cybersecurity, bridging the gap between operations technology and information technology.

ISA/IEC 62443 Cybersecurity Certificate Programs


ISA/IEC 62443 designations and certificates will be awarded to individuals who meet the following program requirements:

Certificate 1:
ISA/IEC 62443 Cybersecurity Fundamentals Specialist
This certificate requires completion of the two-day, classroom training course Using the ISA/IEC 62443 Standards to Secure Your Control Systems (IC32) or its online equivalent (IC32E), along with an electronic exam. Certificate 1 is a prerequisite for all other certificates.

Certificate 2:
ISA/IEC 62443 Cybersecurity Risk Assessment Specialist
This certificate requires completion of the three-day, classroom training course Assessing the Cybersecurity of New or Existing IACS Systems (IC33), along with an electronic exam.

Certificate 3:
ISA/IEC 62443 Cybersecurity Design Specialist
This certificate requires the completion of the three-day, classroom training course IACS Cybersecurity Design & Implementation (IC34), along with an electronic exam.

Certificate 4:
ISA/IEC 62443 Cybersecurity Maintenance Specialist
This certificate requires the completion of the three-day, classroom training course IACS Cybersecurity Operations & Maintenance (IC37), along with an electronic exam.

ISA/IEC 62443 Cybersecurity Expert
Individuals who achieve all Certificates (1 through 4) are designated as ISA99/IEC 62443 Cybersecurity Experts.

In late 2013, the US Department of Labor granted a North Carolina consortium of colleges a $23 million grant under the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grants program to develop curriculum, educational degrees, certifications, and career pathways for students in Mission Critical Operations. ISA was contracted to develop a Certified Mission Critical Professional (CMCP) certification program, providing an objective, third-party assessment and confirmation of the knowledge, skills and abilities needed for workers in the Mission Critical Operations field.

ISA was selected to deliver hands-on, standards-based industrial control systems cybersecurity training courses at the National Guard Cyber Shield Exercise, held at Camp Atterbury, Indiana, 17-30 April 2016. More than 900 soldiers, airmen, Marines, sailors, and civilians representing 47 states and territories participated in training and testing activities to assess their skills in responding to cyber-incidents on the National Guard computer network. Participants, which include representatives from Army National Guard, Air National Guard and Army Reserve soldiers, Marines, sailors, and civilians from state government agencies, federal agencies, industry partners, and academia, focused on training cyber teams on network defense, forensic analysis, reporting and mitigation, and incident response through interagency partnerships and collaboration.

Learn more about these certificate programs, eligibility criteria, renewal, and upcoming courses: www.isa.org/ISA99Certificate
Education and Training

ISA offers flexible, dynamic, and relevant training designed to fit in to your fast-paced professional schedule. We’re a worldwide leader in vendor-neutral, standards-based, expert-taught education and training programs for automation professionals, from seasoned veterans to industry newcomers.

Choose your training, and customize your delivery:
• Instructor-led, classroom courses
• Online, instructor-assisted training courses
• Online courses
• Live and recorded webinars
• On-site instructor-led courses and certification exams at your location
• Innovative boot camp courses on critical topics
• Hands-on portable laboratories

ISA’s courses are known and respected worldwide for their unbiased, practical approach to technology application. Students and employers can choose from courses that focus on these important topics:
• Cybersecurity
• Safety
• Communications
• Plant Maintenance
• Control Systems
• Instrumentation
• Exam preparation for certification, CSE licensure, and more

ISA also offers several boot camps, featuring condensed learning, access to ISA’s industry experts (our instructors), hands-on lab exercises, and more. Perfect for an incoming class of new hires or a set of seasoned veterans looking to expand their skills, our boot camps deliver convenience and value.

• ISA Technician Training Boot Camp (TTBCC)—designed for technicians with instrument maintenance responsibilities, instrument supervisors, and maintenance and reliability engineers and managers
• Tactics for Advanced Troubleshooting Boot Camp (TATC)—designed for instrument technicians, maintenance and reliability engineers, process control engineers, automation engineers, and supervisors needing general knowledge of troubleshooting techniques
• ISA Process Automation Boot Camp for Non-Maintenance Personnel (PABC)—designed for operations personnel, automation engineers, process control engineers, equipment sales staff, and managers overseeing operations or maintenance
• Extreme Instrumentality: Electrical to Instrumentation Cross Training Boot Camp (XTBC)—designed for electricians assigned to instrument maintenance, technicians with electrical skills cross training into the instrument discipline, supervisors who need to audit and evaluate a cross training program for their employees, individuals with fewer than four years of instrument knowledge

For more information on ISA’s course offerings visit: www.isa.org/training

Hands-on training using authentic equipment is a signature of ISA technical training
ISA Onsite Training Brings the Experts to You

Through our onsite training services, ISA can bring our industry-leading instructors, proven training materials, and indispensable hands-on training devices directly to you. As part of an integrated solution, ISA offers training courses specific to the skill level of your employees. Courses are designed along a skill path to provide exactly what is needed to fill your company’s knowledge gap. We can work with you to form a long-term strategy or meet a particular learning objective. Our training is convenient, cost effective, and flexible—to help you improve your productivity and efficiency and avoid unscheduled downtime.

Our internationally recognized training solutions will enable your organization to:

• Minimize the impact of the knowledge gap between new hires and seasoned workers
• Increase productivity of your most valuable asset—your employees
• Implement a cost-effective program for rapid knowledge and skills development for new employees
• Minimize system downtime by providing your employees with familiarity of fundamental theories—the “whys” and “hows”—behind what they do
• Reduce dependence on outside vendors
• Increase cross-training activities to enhance and diversify the skills of your workforce
• Establish measurable, common skill levels for employees
• Provide certification documentation
• Implement a pay-for-skills program or defined career path development program
• Establish well-defined promotion and hiring criteria

Planning an onsite strategy
ISA Onsite Training is offered two ways—as part of an integrated, planned approach utilizing a Needs Assessment tool or as individual courses offered at convenient locations where there is need for specialized training.

Needs Assessment Process
What does success look like to you? The first and most important step in our Needs Assessment process is to learn about your company’s goals. Knowing your business needs helps us concentrate on your specific job requirements and responsibilities.

• Knowledge Assessment Survey and Analysis
  We’ll deploy an assessment that includes 100-125 multiple choice questions that relate directly to identified knowledge requirements.
• Task Performance Assessment Survey and Analysis
  We’ll coordinate the completion of a self-assessment for each employee of his or her ability to complete specific tasks related to his or her job.
• Onsite face-to-face interviews
  An ISA Subject Matter Expert will conduct comprehensive interviews with each employee and his or her direct supervisor to clarify and enhance the information already collected and better understand tasks specific to your site.
• Final product: Training Needs Report
  ISA will deliver a comprehensive report that includes an overall group assessment, individual reports for each employee, and a prescribed learning path.

Consult With Our Learning Experts to Find the Training Solutions You Need

Heidi Cooke
Sr. Learning Consultant
hcooke@isa.org
919-990-9405

Andy Hayworth
Learning Consultant
ahayworth@isa.org
919-990-9255

Matthew Rothkopf
Sr. Learning Consultant
mrothkopf@isa.org
919-990-9403
Publishing

ISA Books

Written and reviewed by experts in their fields, ISA’s authoritative and thorough technical books focus on real world application of technologies and methodologies with the necessary theory for a complete understanding of the subject.

ISA’s books cover dozens of technical topics, including safety, cybersecurity, instrumentation, process control, wireless technology, and much more. Our top 10 best-selling books include:

- Safety Instrumented Systems Verification: Practical Probabilistic Calculations
- The Condensed Handbook of Measurement and Control, Third Edition (with CD)
- Calibration: A Technician’s Guide
- Measurement and Control Basics, Fifth Edition (with CD)
- Fundamentals of Industrial Control, Second Edition (with CD)
- SCADA: Supervisory Control and Data Acquisition, Fourth Edition

ISA offers books in electronic and print formats, and your company can purchase libraries of books based on topic area or expertise level. You can even customize the cover of a favorite book to hand out to clients or employees.

To learn more about all of ISA’s renowned titles, visit www.isa.org/books

ISA Transactions

ISA Transactions is a journal of advances and state-of-the-art in the science and engineering of measurement and automation, of value to leading-edge industrial practitioners and applied researchers. The topics of measurement include: sensors, perception systems, analyzers, signal processing, filtering, data compression, data rectification, fault detection, inferential measurement, soft sensors, hardware interfacing, etc.; and any of the techniques that support them. The topics of automation include: statistical and deterministic strategies for discrete event and continuous process control, modelling and simulation, event triggers, scheduling and sequencing, system reliability, quality, maintenance, management, loss prevention, etc.; and any equipment, techniques and best practices that support them.

ISA Transactions is a bi-monthly publication available in both print and online versions. Learn more about how to subscribe or submit papers here: www.isa.org/publishing

Technical Papers

ISA also offers more than 5,500 technical papers covering topics in effectively every area of automation. Thousands of contributions from experts from around the world, typically presented at ISA’s conferences and symposia, keep you informed and ready to solve today’s problems. ISA Members access all of ISA’s technical papers at no charge.

You can learn more about technical papers at www.isa.org/publishing
InTech magazine

Available in print and digital formats, InTech magazine provides the most thought-provoking and authoritative coverage of automation technologies, applications, and strategies to enhance automation professionals’ on-the-job success. As the leading magazine for automation professionals for over 50 years, InTech leverages the vast knowledge, industry proven technical skills, and in-depth experience of thousands of subject-matter experts.

InTech delivers unequaled coverage of the latest technologies, trends, strategies, and solutions in the world of automation. Selections from a recent editorial calendar include articles on topics like:
- Predictive Maintenance
- Internet of Things in Manufacturing
- Industry 4.0 for Process
- Bridging OT and IT
- Cybersecurity
- Process Automation
- Cellular Data Acquisition (maintenance, SCADA, etc.)
- Advanced Process Control
- Process Data Analytics
- Track and Trace Serialization
- Alarm Management
- And much more!

You can access InTech’s award winning content in multiple ways:
- The print magazine, published 6 times per year, is highly valued by today’s automation professionals. InTech print and digital editions are distributed to more than 60,000 core subscribers. Circulation is further increased through sharing and bonus distribution at leading industry events.
- InTech’s online format significantly increases global access to the magazine’s highly informative, authoritative content. Supplemental content published online includes industry news, product highlights, white papers, events, and other resources.
- InTech Plus e-Newsletters, published 12 times per year, are distributed to the global e-newsletter list of 140,000. InTech Plus includes highlighted InTech articles, plus automation basics articles, interactive quizzes, how-to-videos, and more.

Access InTech articles, subscribe to the magazine and e-Newsletter, or learn more about advertising by visiting www.isa.org/intech

ISA’s Brand Family

Automation.com: Unrivalled Digital Expertise

In October 2014, ISA announced the acquisition of Automation.com. For the industrial automation community, Automation.com is the source for real-time digital information, disseminated in easy-to-access formats, arm-ing professionals with the latest news and trends to enhance industry awareness and serve as a catalyst for improvements in automation technology.

Through ISA’s ownership of Automation.com, readers and advertisers can access:
- 150+ e-newsletters distributed to more than 140,000 subscribers each year
- 300+ web articles published per month
- 40+ unique, topic-specific portals hosted
- White paper and video alerts
- Custom webinars
- Online advertising
- Placement in the ISA Directory of Automation, a compilation of the most relevant listings of manufacturers, service companies, and manufacturer representatives
- Job postings on the ISA job board for employers and job seekers

What do readers think of InTech magazine?
- 89% rated InTech’s technical information as “excellent/good”
- 83% rated InTech highly for providing useful information they can use on the job
- 87% rated InTech’s editorial authoritativeness as “excellent/good”
- 87% gave InTech an “excellent/good” rating for objectivity
- 79% gave InTech top scores for thoroughness
- 90% gave InTech top scores for presentation
- 85% gave InTech an “excellent/good” rating for interesting content
ISA’s annual technical division symposia bring together innovations, thought leaders and other automation and control professional around the world to explore and discuss the latest technologies, practices, and trends and gain high-value, peer-reviewed technical content across a wide variety of automation fields and disciplines. Exhibit and sponsorship opportunities are available for all symposia.

**ISA Food and Pharmaceutical Industries Division Symposium**
The Food and Pharmaceutical Industries Division (FPID) Symposium brings together experts, vendors, and end users in a two-day symposium to cover the critical challenges and issues in automation and serialization and how they affecting food and pharmaceutical supply chains.

**ISA Analysis Division Symposium**
This long-running spring symposium, sponsored by the ISA Analysis Division, continues to offer an outstanding forum for the discussion of new and innovative processes and other analytical techniques, developments, and applications. The program includes expert-led training, technical presentations, social functions, and more.

**ISA LDAR-Fugitive Emissions Symposium**
Stay current on the latest news from regulatory officials, hear best-practice leak detection and repair (LDAR) program success stories, and learn about the most recent innovations and advances in air compliance strategies, technologies, and techniques at the ISA LDAR-Fugitive Emissions Symposium. Numerous tutorials and panel sessions allow for extensive face-to-face discussions and interaction with both government representations and industry colleagues.

**ISA Power Industry Division Symposium**
ISA’s Annual Power Industry (POWID) Symposium is dedicated to automation, control systems, and instrumentation in the power generation industry. Attendees will come away with: a greater awareness and understanding of recent innovations in instrumentation, controls and automation technologies; and the know-how to apply security to control systems; improve power plant load demand response and low-load operation; and monitor and diagnose plant equipment and system reliability issues.

**ISA International Instrumentation Symposium**
This symposium is sponsored jointly by the Aerospace Industries, Test Measurement, and Process Measurement and Controls Divisions of ISA. IIS is recognized internationally as the outstanding forum for discussion of new and innovative instrumentation techniques, development, and applications. Attendees will get fully up to date on all the latest technologies, products, and services related to instrumentation—particularly in aerospace, oil and gas, chemical, and manufacturing.

**ISA Water/Wastewater and Automatic Controls Division Symposium**
Presented by the ISA Water and Wastewater Industries Division, in collaboration with the Florida AWWA Section, the WEF Automation and Info Tech Committee, the Florida Water Environment Association, and the Instrumentation Testing Association, the WWAC Symposium helps professionals in the water and wastewater industries understand how instrumentation, SCADA (supervisory control and data acquisition), and automatic control applications are vital to the treatment and distribution of water; the collection and treatment of wastewater; and the management of stormwater.

**ISA Process Control & Safety Symposium and Exhibition**
As ISA’s largest conference, PCS brings together technical content and expertise from six ISA technical divisions to cover a wide range of interconnected topics in process measurement, control, safety, security, chemical and energy processing, and other essential areas. Engineers, technicians, and plant managers from the oil and gas, refining, chemical, petrochemical, and other process industries will benefit from a world-class technical program, including expert-led educational tracks, engaging keynote presentations and in-depth panel discussions and training courses.

Learn more about ISA’s conferences, including how to attend, how to exhibit, and how to sponsor: [www.isa.org/events](http://www.isa.org/events)
Membership

By becoming an ISA member, you’ll benefit—in technical knowledge, career and skills development, shared experiences and successes, and lasting friendship and belonging—from an association that has represented the needs and interests of automation and control professionals since its inception in 1945.

- Increase your technical knowledge in the field of automation and control
- Develop your skills and hone your expertise
- Share experiences, successes, and lessons learned
- Build lasting friendships and professional connections

ISA membership costs just $120 per year and gives you access to dozens of benefits, including:

- Access tabletop technology exhibits, subject matter experts, networking and leadership opportunities, and local employment opportunities through ISA’s geographic sections
- Free online viewing of over 150 ISA standards, recommended practices and technical reports
- Discounts (20% in most cases) on training, publications, and event registration
- Free, unlimited downloads of technical papers (more than 5,500 of them)
- Free online, pre-recorded web seminars on key topics and trends
- Two free technical division memberships
- Free participation in ISA’s Leadership Development Certificate Program
- Free mentoring program
- Free online networking via ISA’s LISTSERV
- Free access to the ISA member directory
- Free subscriptions to InTech, the premier magazine for automation professionals
- Free online access to ISA Transactions, which covers the latest advances in measurement and automation
- Free online resume posting on InTech website
- Free online access to ISA Insights, ISA’s monthly member newsletter
- A wide range of personal privileges, from discounted auto and group insurance rates to savings on hotel room reservations

For more details on ISA member benefits, visit www.isa.org/memberbenefits

ISA’s Brand Family

Advocating for the Profession:
The Automation Federation Serves as the Voice of Automation

In 2006, ISA founded the Automation Federation (AF), an association of member organizations engaged in manufacturing and process automation activities. For individuals, companies, industries, and government agencies who are beneficiaries of automation, the Automation Federation unifies the voices of stakeholders to advocate the adoption and enhancement of technology, the proliferation of STEM education, and the importance of workforce development to advance the profession for the betterment of humanity.

AF works to advance and develop the profession, educate governments and stakeholders on the importance of critical industry issues, and promote our careers to the next generation.

“Different people join and benefit from ISA membership for many different reasons. Whether you simply wish to learn from others, teach others, participate in standards, or serve in leadership roles, you have nothing to lose and everything to gain. I wouldn’t be who I am, known as I am, doing what I am, and have as many career opportunities as I have, if it weren’t for my involvement in ISA. I owe my career to ISA.”

—Paul Gruhn, P.E., ISA Fellow
The International Society of Automation (www.isa.org) is a nonprofit professional association that sets the standard for those who apply engineering and technology to improve the management, safety, and cybersecurity of modern automation and control systems used across industry and critical infrastructure. Founded in 1945, ISA develops widely used global standards; certifies industry professionals; provides education and training; publishes books and technical articles; hosts conferences and exhibits; and provides networking and career development programs for its 40,000 members and 400,000 customers around the world.

ISA owns Automation.com, a leading online publisher of automation-related content, and is the founding sponsor of The Automation Federation (www.automationfederation.org), an association of non-profit organizations serving as “The Voice of Automation.” Through a wholly owned subsidiary, ISA bridges the gap between standards and their implementation with the ISA Security Compliance Institute (www.isasecure.org) and the ISA Wireless Compliance Institute (www.isa100wci.org).