



**ISA100 WCI Webinar 2020 Nov 11**

# ISA100 Wireless System Certification

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# Agenda

1. About the speaker
2. Summary of the ISA100 Wireless Industry Standard
3. Certification Portfolio
4. ISA100 Wireless Certifications
5. System Certification
6. Support and Resources
7. Q&A



# About the Speaker



Andre Ristaino

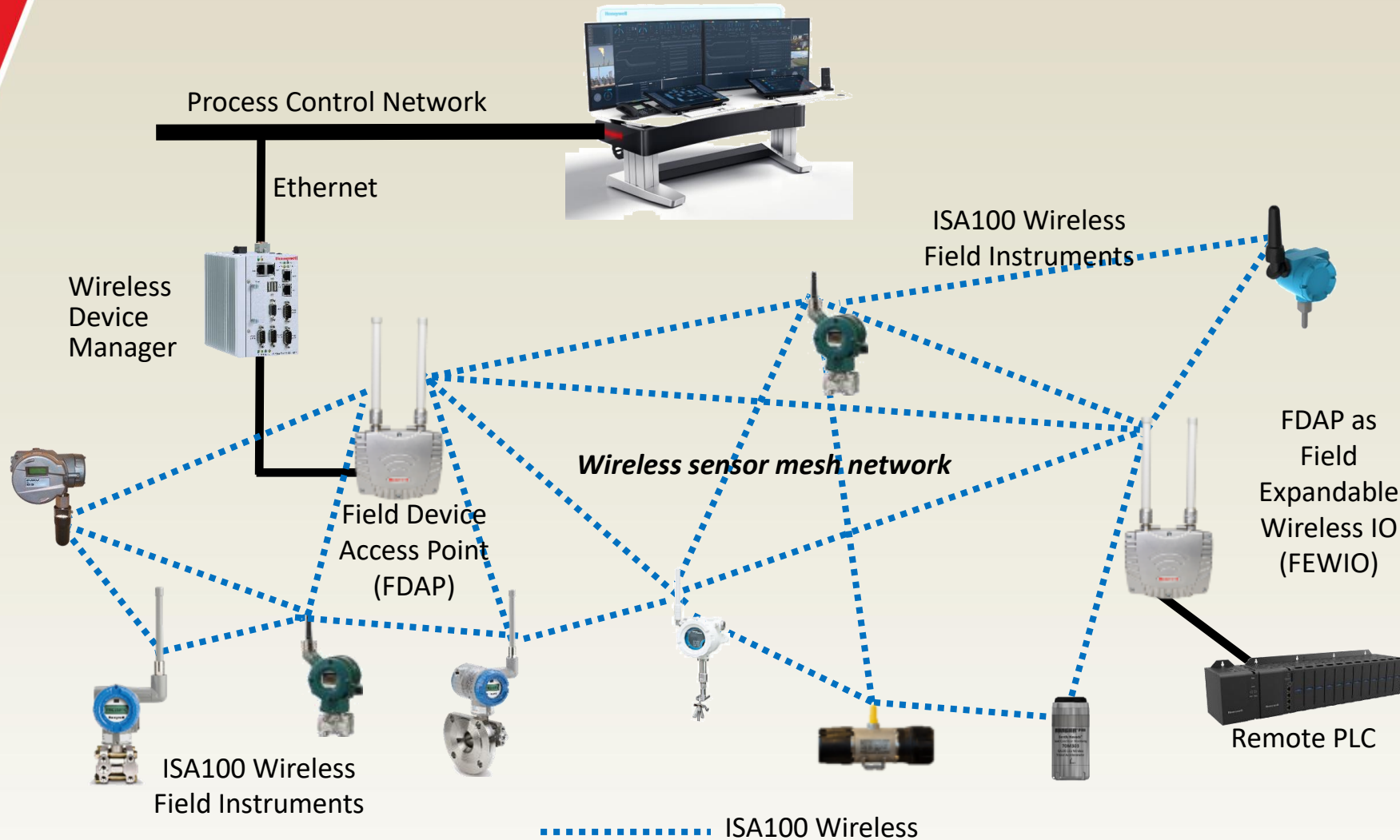
ISA Managing Director, Global Consortia and Alliances

Mr. Ristaino is the ISA Managing Director of Global Consortia and Alliances. He provides staff leadership for ISA's conformance certification programs and, global consortia and alliances. Programs include ISA100 WCI, ISASecure, LOGIIC and, ISAGCA.

Prior to ISA, Mr. Ristaino held positions at NEMA, Renaissance Worldwide, and Deloitte & Touche Consulting's Advanced Manufacturing Technology Group where he was a recognized leader in system lifecycle methodologies. Industries served include state and local government, utilities, USAF-LC, discrete manufacturing, and pharmaceutical and FDA-regulated manufacturing sites.

Mr. Ristaino earned a BS in Business Management from the University of Maryland, College Park and an MS in Computer Systems Applications from the American University in Washington DC with a focus on expert systems and artificial intelligence. Mr. Ristaino holds an APICS CPIM certification.

# Overview of Industrial Wireless Systems



## Applications examples

- Machine health monitoring
- Basic process control
- Monitoring of well heads
- Remote process monitoring
- Leak detection monitoring
- Diagnosis of field devices
- Condition monitoring of equipment
- Environmental monitoring
- Tank level monitoring
- Gas detection
- Fuel tank gauging
- Steam trap monitoring
- Open loop control
- Stranded data capture
- And more

# Benefits of ISA100 Wireless Instrumentation


Cost Savings	<ul style="list-style-type: none"><li>• Up to 90% of installed costs of conventional measurement technology can be for cable conduit and related construction</li><li>• Typically: 1/2 the costs, 1/5 of the time</li><li>• New and scaled applications are now economically feasible</li></ul>
Improved Reliability	<ul style="list-style-type: none"><li>• Wired sensors may be prone to failure in harsh environments</li><li>• Wireless can add redundancy to a wired solution</li></ul>
Improved Visibility	<ul style="list-style-type: none"><li>• Condition monitoring of secondary and remote equipment</li><li>• Process monitoring, fast additional data for trouble shooting</li></ul>
Improved Control	<ul style="list-style-type: none"><li>• Add wireless to existing processes for more optimal control</li></ul>
Improved Safety	<ul style="list-style-type: none"><li>• Safety related alarms - end to end SIL2 certifiable</li></ul>

# ISA100 Wireless Fast Facts

- International standard IEC 62734 since 2014
- Complies with ETSI EN 300 320 v1.8.1 (LBT)
- End-User Driven Standard - meeting all current and future industrial needs
- Sensor routing or field routers for best performance – Freedom of choice
- Broad Multi-Vendor Portfolio of ISA100 Wireless Devices
- ISA100 Wireless enables SIL-2 Certification
- Ensured Interoperability - best-in-class solutions from best-in-class suppliers
- Readily available ISA100 Wireless Modules and Stacks
- Enable fast-track development and go to market using the ISA100 RDK

# ISA100 Wireless Product Portfolio

Infrastructure

- 


**Independent Gateway**

  - Honeywell, Yokogawa
- 


**Access Point (AP)**

  - Honeywell, Yokogawa
- 

**Integrated Gateway/AP**

  - Honeywell, Yokogawa, CDS, Nexcom
- 

**GW/AP + Recorder**

  - Yokogawa
- 

**Adapter (HART, etc.)**

  - Honeywell, Yokogawa

Measurement & Control

- 

**Temperature**

  - Honeywell, Yokogawa
- 

**Pressure / Flow**

  - Honeywell, Yokogawa
- 

**Level**

  - Honeywell, Yokogawa
- 

**DI/DO, AI**

  - Honeywell, Yokogawa
- 

**Valve Position**

  - Eltav, Flowserve, Honeywell

HSE + Life cycle

- 

**Corrosion**

  - RCS , Honeywell
- 

**Steam Trap**

  - Spirax Sarco, TLV, Armstrong, Bitherm
- 

**Vibration**

  - GE's Bently Nevada, Divigraph
- 

**Gas**

  - GasSecure, Scott Safety, New Cosmos, Riken Keiki
- 

**pH**

  - Honeywell, Yokogawa

# Why Certify for Multi-vendor interoperability?

**Commoditize** communication technology so users and integrators can freely select **multi-vendor** solutions based on:

- Supplier's qualifications and attributes
- Best product and application
- Rapid point solution deployments
- Technical support for deployment and configuration
- Best total cost of ownership
- Not limited to a single supplier's proprietary technology





# Certification Benefits to Users

**Reduced costs, time, and risk** in the selection and deployment of wireless products and systems.

- **Validated interoperable performance ‘out of the box’**
- **Instant recognition** of product’s wireless capabilities
- **Single forum** for voicing product needs
- **Technical support** for deployment and configuration
- **Application profile development** to meet your wireless needs
- **Time and cost savings** for validation and verification
- **Simplifies specification process** for system integrators and EPC firms



# Certification Benefits to Suppliers

A product compliance framework for **faster time to market** and **lower development costs**



- **Ensure interoperability** with all other ISA100 products and systems
- **Receive technical support** for product development and deployment
- Substantiate clear **claims of compliance** to the ISA100 Standard
- **Define new application profiles** for increased marketability of products
- **Participate in shared vision** for wireless communication for execution



# Testing and Certification - Two Types of Testing

## Certification Testing


- ✓ One product at a time
- ✓ Conducted by WCI staff
- ✓ Structured and repeatable test
- ✓ Clear pass/fail criteria
  
- ✓ Focus: Certification of specific product
- ✓ Timing: Product introduction and updates

## Interoperability Workshops / Testing

- ✓ Mix and match products
- ✓ Conducted by vendors
- ✓ Unstructured and structured tests, confidential results
- ✓ Confirm that certification testing is properly covering technical specifications
- ✓ Users invited to observe and learn
  
- ✓ Focus: Learning, Relationship Building
- ✓ Timing: Every 12-18 months

*The two approaches, together, ensure interoperability.*

# ISA100 Wireless Certification Offerings

Certification	Purpose
ISA100 Wireless Stack	Certifies that the behavior of ISA100 Wireless communication modules conform to the published ISA100 WCI implementation specification. Ensures interoperability of devices and systems that use the certified stack if implemented correctly.
ISA100 Wireless Device Certification	Certifies that a device (instrument) behavior conforms to the ISA100 WCI implementation specification. Ensures interoperability with all certified ISA100 Wireless System Managers.
 ISA100 Wireless System Certification- NEW	Certifies that any certified ISA100 Wireless device will operate properly in the ISA100 Wireless system (network).

# An Evolving Marketplace – What Has Changed

## Market situation 2010-2018


- Systems of limited scale
  - Scalable to ~100 devices
- Mostly Non-critical applications
  - Condition monitoring
  - Condition monitoring with some process monitoring & alerting



## Market situation 2018-2030

- Large scale deployments
  - Thousands of devices
  - One network covers entire site, single sign-in
  - Tank farms, jetties, offshore platforms, and more
- Mission-critical applications
  - Condition monitoring
  - Process monitoring, alerting, control, SIL-2 safety
  - One system for all of these devices and applications

# Why System Certifications, Why Now?

	2010-2018	2018-2030
<b>Scale</b>	10-100 devices One primary application Constrained location	Thousands of devices Multiple applications Site-wide, single sign-in
<b>Applications</b>	Condition & Process Monitoring Safety Related Alerts	Condition & Process Monitoring SIL-2 Safety Control
<b>Innovations</b>	Protocols & Devices	Integration & Systems
<b>Certifications</b>	 Protocols (Stacks/comm module) Devices	Protocols (Stacks/comm module) Devices <b>Systems NEW in 2020</b>

Latest trend is cybersecurity certification



ISA Secure®

IEC 62443 CONFORMANCE  
CERTIFICATION

# Cost and Availability of System Certification

- ISA100 Wireless System certification is available now
- Testing fee is charged on a time and materials basis
  - While functionally of available systems may be conformant to ISA100 Wireless implementation specifications, system manager designs are somewhat different from supplier to supplier making it difficult to fully standardize the test process.
- Registration fee is \$6,000
- No system test tool is available to the public like with stacks and devices. System certification is administered as a service.

Who to contact for system testing:

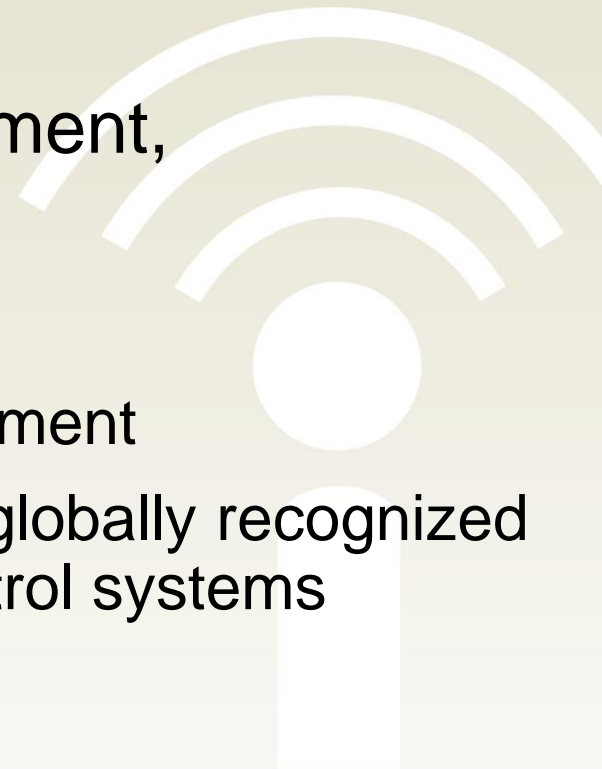
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# Cybersecurity is an Imperative

Global Governments and Regulatory Authorities are Drafting Cybersecurity Requirements – EU, USA, other regions.

- Reference standards in regulatory language are converging on the ISA/IEC 62443 cybersecurity standards
- Cybersecurity must be considered in product development, procurement/deployment and, operations.
- Recommendations
  - Use ISA/IEC 62443 as the basis for secure product development
  - Certify products and systems – ISASecure, IECCE are two globally recognized cybersecurity certification programs for automation and control systems





# Support for ISA100 Wireless Adoption

## WCI ISA100 Wireless Rapid Development Kit

- Everything you need to develop an ISA100 Wireless (IEC 62734) connected field instrument
- Develop ISA100 Wireless (IEC 62734) compliant and certifiable field instruments with minimal effort using application layer code provided
- Includes reference hardware design for ISA100 Wireless (IEC 62734) field instrument implementation
- Certified WISA modules run ISA100 Wireless communication stack
- User friendly SPiN development board includes OLED display and a large variety of sensors



<https://centerotech.com/product/wci-isa100-rapid-development-kit/>

# Online Resources

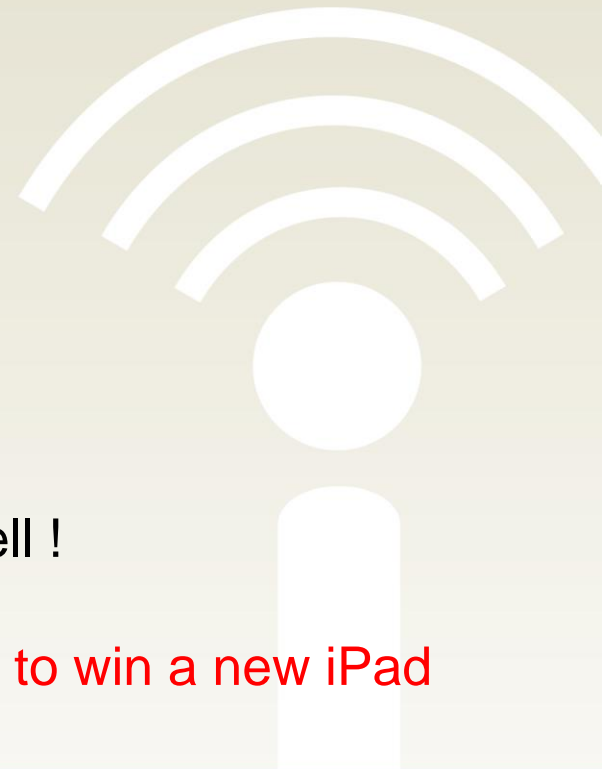


[www.isa100wci.org](http://www.isa100wci.org)

- Learning Center with White Papers
- Articles, End-user stories, Forum
- Receiving over 20,000 web views per month
- Full list of certified/registered ISA100 Wireless devices
- And more useful content for you and your business

**LinkedIn** [ISA100 Wireless Interest Group](#)

- Latest news, end-user and expert discussions, insights
- 800 members and growing; please join and invite your peers to join as well !
- Receiving over 5,000 web views per month
- **Limited Time Offer: Join the group and you will be entered in a prize draw to win a new iPad**



# ISA100 Wireless Interest Group

## Limited Time Promotion



Scan the QR code and join the ISA100 Wireless LinkedIn group. If you join during our limited time offer, you will be entered in a prize draw to win a new iPad!



# Questions and Answers

## Michael Brazda

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[ISA100 Wireless Interest Group](#) 

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