ISA100 WCI Webinar

Webinar date:
Thursday 31 January 2019 at 3pm (GMT / UTC)

ISA100 Wireless™ helping you to overcome everyday project challenges

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Diederik.mols@Honeywell.com

Audio for the Webinar:

Audio can be heard through your computer speakers. If you have audio issues, you may dial 1 (866) 545-8204.

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Diederik Mols
Chairman of the Board
ISA100 Wireless Compliance Institute

“Today Industrial Wireless is increasingly deployed as an integral part of the Integrated Control and Safety Systems (ICSS)”

Diederik Mols is Chairman of the Governance Board at the ISA100 Wireless Compliance Institute since October 2017. Prior to that he served two years as Vice-Chairman. Diederik also is an active team member of the WCI EMEA Marketing Team. Diederik got involved with Industrial Wireless back in 2009 in a business development role for the EMEA region. Currently Diederik is leading the Industrial Wireless business development efforts at Honeywell Process Solutions in a Global capacity. Diederik started his career as an officer in the Dutch Navy and over the years he gained solid business skills with a number of multi-national organizations in various roles across Engineering, Sales, Marketing and General Management. Diederik holds Degrees from the Royal Dutch Naval Academy and the Delft University of Technology, the Netherlands.
Agenda

1. Typical Project Challenges
2. Introduction Industrial Wireless
3. ISA100 Wireless Industry Standard
4. Wireless Solutions
5. Use Cases
6. Summary
7. Q&A
Typical Project Challenges

• HSE Compliancy
• Improve
  - workforce efficiency
  - productivity
  - asset availability
• Reliable, cyber secure infrastructure
• Fast and cost-effective commissioning
• Tight budgets to execute projects
Agenda

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Introduction to industrial Wireless

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
Just a sensor mesh network versus ISA100 Wireless

Wireless sensor mesh network

Transmission range: 0.5 km

ISA100 Wireless with Field Device Access Points (FDAPs)

Different solution ................. Different performance
ISA100 Wireless with Field Routers

- Business Network
- Process Control Network
- Special Interface Network
- Ethernet Switch
- Wireless Device Managers
- Field Device Access Point (FDAP)
- ISA100 Wireless Field Instruments
- Field Device Access Points
- Remote PLC
- ISA100 Wireless

FDAP as Field Expandable Wireless IO (FEWIO)
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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
## Benefits of ISA100 Wireless Instrumentation

<table>
<thead>
<tr>
<th>Cost Savings</th>
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<tr>
<td>• Up to 90% of installed cost of conventional measurement technology can be for cable conduit and related construction</td>
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<td>• Typically: 1/2 the costs, 1/5 of the time</td>
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<td>• New and scaled applications are now economically feasible</td>
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<tr>
<th>Improved Reliability</th>
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<td>• Wired sensors may be prone to failure in difficult environment</td>
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<td>• Wireless can add redundancy to a wired solution</td>
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<tr>
<th>Improved Visibility</th>
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<td>• Condition monitoring of secondary and remote equipment</td>
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<td>• Process monitoring, fast additional data for trouble shooting</td>
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<th>Improved Control</th>
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<td>• Add wireless to existing processes for more optimal control</td>
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<th>Improved Safety</th>
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<td>• Safety related alarms - end to end SIL2 certifiable</td>
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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
Online resources

- 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

www.isa100wci.org

Linkedin: ISA100 Wireless Interest Group

- Latest news, end-user and expert discussions, insights
- 700+ members and growing; please join and invite your peers to join as well!
- Receiving over 5,000 web views per month
Mind the promotional price draw!

Scan the QR code or go to tinyurl.com/isa100-ipad to join the ISA100 Wireless Compliance Institute mailing list and follow us on LinkedIn to enter the drawing! Good odds!
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ISA100 Wireless enabling solutions

Process Control Network
- Ethernet Switch
- Wireless Device Managers
- Special Interface Network
  - Field Device Access Point (FDAP)

Business Network
- Remote PLC
- FDAP as Field Expandable Wireless IO (FEWIO)

ISA100 Wireless with Field Device Access Points

ISA100 Wireless Field Instruments
Wireless Steam Trap Monitoring

Energy Saving Potential
of up to
3.500 USD per day
= 1.000.000 USD per Year

- Accurate and rapid leak detection
- Accurate diagnostic algorithm
  - Trap performance
  - Steam loss data
- Lower installation costs
- Long-life battery
- Robust construction

Experion Station
Wireless Device Manager
Spirax Sarco STAPS
Armstrong ST6700
Wireless Vibration Monitoring

GE's Bently Nevada Ranger* Pro

Experion

Vibration Analysis
Safety shower monitoring

- We ask a lot of our employees when we ask them to work with hazardous chemicals and products during their workday.
- Need for emergency response?
- In case of an accident every second counts.
- Enhance your current solution with superior emergency response, improved access, and incident reporting.

Wirelessly Alert in Near Real time at a Fraction of the Cost
OneWireless Terminal Solution

- Tank level gauging
- Overfill alarming
- Process monitoring
- Floating roof monitoring

+ Gas leak monitoring
+ Safety shower monitoring
+ Vibration monitoring
+ Valve position monitoring
+ Personnel safety monitoring
+ Mobile applications
+ Remote area & perimeter video monitoring

Wireless applications beyond tank gauging
Field Expandable Wireless IO (FEWIO)

- A Field Device Access Point (FDAP) can be converted to a Field Expandable Wireless IO (FEWIO)
- FEWIO collects data over RS485.
- Thanks to the tunneling capabilities of ISA100 Wireless the data is wirelessly transmitted to the control room
- FEWIO supports
  - Modbus RTU
  - RS-485 serial Interface used for connecting to serial interface devices
  - Modbus TCP
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<th>Solution</th>
<th>Results</th>
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<tr>
<td></td>
<td>• Provide an engineered, secured, managed &amp; integrated wireless network into Alcoa Alumina refineries process areas.</td>
<td>• Typical conservative cost saving of $10k per wireless instrument over traditional hardwired installation</td>
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<td>• Supporting ISA100 Wireless instruments and sensors</td>
<td>• Speed of deployment – process data in just one day.</td>
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<td>• Supporting mobile operators using handheld devices</td>
<td>• Mobility of sensors and instruments to be moved around to troubleshoot or perform trials as required</td>
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<td></td>
<td>• Allow for wireless connectivity of mobile PCS/EHM equipment</td>
<td>• Support mobile operators out in the refinery process areas</td>
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<td>• Enabling IIOT and IOT in the future</td>
<td>• Monitor moving equipment now possible with standard devices</td>
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**World's largest bauxite mining and a leading alumina producer**

“Installing to having process data: duration one day”
## Perimeter Monitoring – Time Critical

### LNG Facility in Middle East - Brownfield

| **Challenges**          | • Alarming system for detection of gas leaks without extensive cabling.  
                          | • Meet 3 seconds alarm requirement.  |
|-------------------------|--------------------------------------------------------------------------------|
| **Solution**            | • FDAP based ISA100 Wireless network with XYR6000 Universal Transmitters and solar power panels. |
| **Results**             | • Improved site safety system within budget.  
                          | • 3 seconds alarming requirement met.  
                          | • Compliance to government regulations for HSE. |
Safety shower monitoring and beyond
Global MMM - Brownfield

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| • Customer wanted multiple wireless applications such as sensor measurements, safety shower monitoring, mobility solutions and so on  
• Concerns on multiple network co-existence to support these applications | • Single OneWireless Network to cater to ISA100 and Wi-Fi applications using Cisco Aironet 1552S Access Points | • OneWireless mesh network provided the infrastructure for ease of expanding wireless solutions and applications  
• Consistent delivery and deployment model.  
• Single wireless infrastructure for easy RF management |
Cost-effective Modbus Data Acquisition

Challenges

- Transfer multiple parameters from remote Flow Meters to Experion DCS
- Meet tight project budget
- Execute project in days rather than weeks

Solution

- OneWireless Network
- Field Expandable Wireless IO (FEWIO)
- Existing flow meter with Modbus transmitter connected to FDAP (FEWIO) via RS-485 Serial

Results

- 50% Project Cost Saving relative to traditional wiring
- Project execution completed in 1/5th of the time relative to a traditional wired project
- Increased Speed of Data to the operator – hours to milli-seconds.
- Increased situational awareness

Liquefied Natural Gas (LNG) plant in the Northern Territory of Australia
Reduce project costs, increase blending performance

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<tr>
<td>• Maintenance and obsolescence issues of</td>
<td>• OneWireless Network</td>
<td>• 30% Project Cost Saving relative to traditional wiring</td>
</tr>
<tr>
<td>• Tank gauging equipment and</td>
<td>• 147 Wireless FlexLine Radar &amp; Servo Gauges</td>
<td>• Increased System Reliability</td>
</tr>
<tr>
<td>• Inventory management system</td>
<td>• 137 XYR 6000 Multi-channel transmitters</td>
<td>• Increased Speed of Data to the operator - minutes to seconds</td>
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<tr>
<td>• Tank farm spread over large 7 square miles area</td>
<td>• 60 Floating roof Tuning Fork &amp; Float Switches</td>
<td>• Blending Performance Increased 18% (# of Blends per week)</td>
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<tr>
<td>• Migrate to new system under 48 hour cutover</td>
<td>• Mobile Station enabling operator mobility</td>
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Summary

• **Costs:** Typical conservative cost saving of $10k per wireless instrument over traditional hardwired installation

• **Speed:** Project execution in $1/5^{th}$ of the time relative to traditional wired. Quickest installation time - data in just 1 day

• **Performance:** ISA100 Wireless enables near real time performance

• **Choice:** Large portfolio of ISA100 Wireless devices by multiple vendors

• **Innovation:** Field Expandable Wireless IO (FEWIO) is a new cost-effective method to connect remote PLCs to the DCS

Benefit your projects, deploy ISA100 Wireless!
For Your Attention!
Questions?

www.isa100wci.org

ISA100 Wireless Interest Group  LinkedIn
690+ members and growing; please join and invite your peers to join as well!

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ISA100 Wireless Compliance Institute