ISA100 WIRELESS COMPLIANCE INSTITUTE™

ISA100 WCI Webinar

Webinar date: 26 September 2019.
The presentation will begin at 13:04 Berlin Time (UTC+2)

PMV Wireless

Presenters:

PMV

Anders Lundgren
alundgren@flowserve.com

Agenda

1. About the speakers

2. Introduction Industrial Wireless

3. ISA100 Wireless Industry Standard

4. PMV Wireless

5. PMV Wireless valve positioner
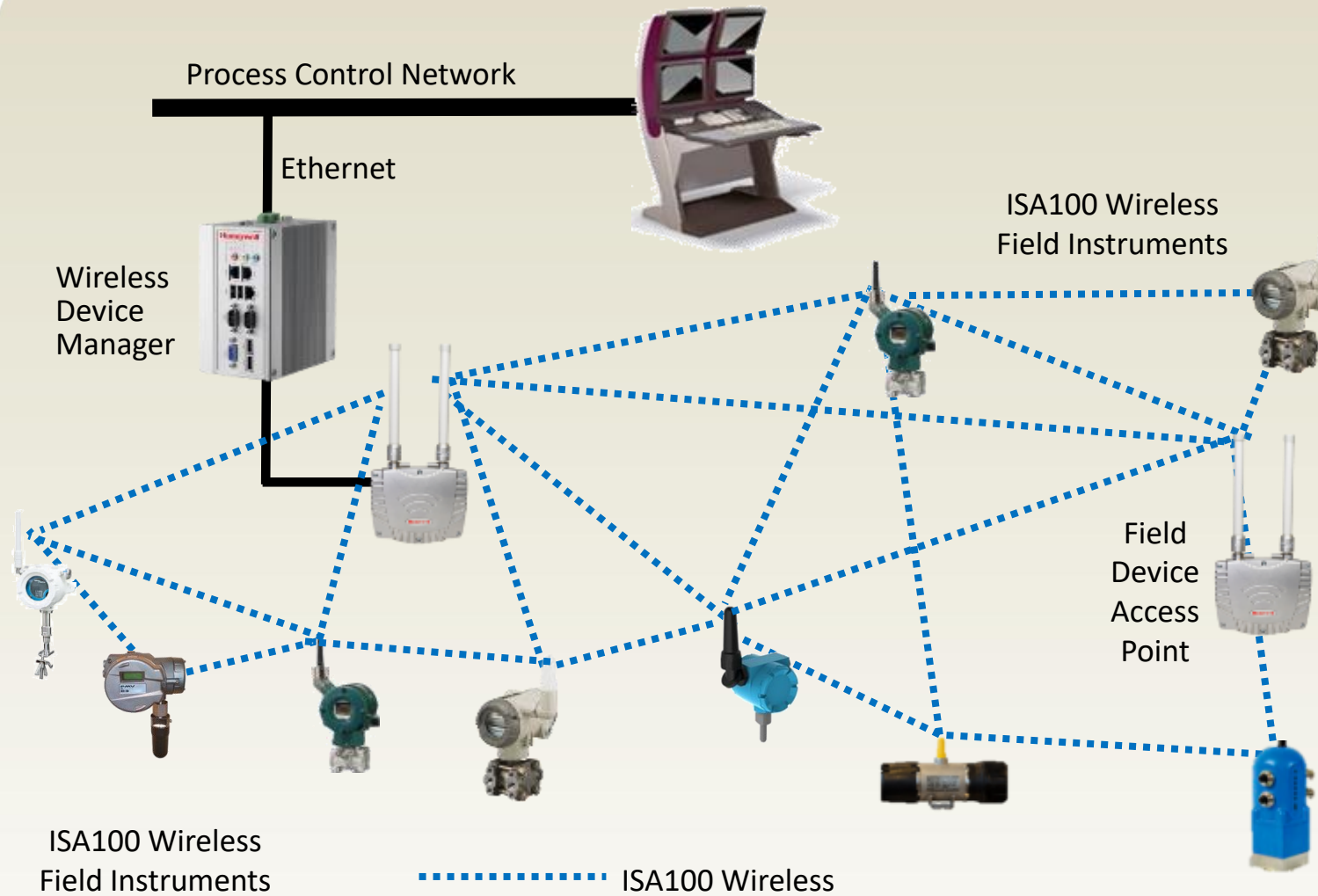
6. PMV Switchbox

7. Summary

8. Q&A

About the speaker

Anders Lundgren is developer at PMV in Stockholm, Sweden.

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Introduction to industrial Wireless

Process Control Network

Ethernet

Wireless Device Manager

ISA100 Wireless Field Instruments

Field Device Access Point

ISA100 Wireless Field Instruments

ISA100 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

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ISA100 Wireless Fast Facts

- International standard IEC 62734 since 2014

- Complies with ETSI EN 300 320 v1.8.1 (LBT)

- 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

Cost Savings	• Up to 90% of installed cost of conventional measurement technology can be for cable conduit and related construction. • Typically: 1/5 the time, 1/2 the cost. • New and scaled applications are now economically feasible.
Improved Reliability	• Wired sensors may be prone to failure in difficult environments. • Wireless can add redundancy to a wired solution.
Improved Visibility	• Condition monitoring (equipment) • Process monitoring
Improved Control	• Add wireless to existing processes for more optimal control.
Improved Safety	• Safety related alarms

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, Divigraph

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

pH
- Honeywell, Yokogawa

ISA100 WIRELESS COMPLIANCE INSTITUTE™

Online resources

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

ISA100 Wireless Interest Group

- Latest news, end-user and expert discussions, insights
- 540 members currently and growing (please join!)
- Receiving over 5,000 web views per month

PMV Wireless

Experience In Motion

WL status

- A WL ISA 100 positioner has been developed.
- A WL switchbox is has also been developed.
- Same HW can be used for WL Hart and ISA 100 (according to NIVIS).
- Have checked for a second source of ISA100 radio module (Murata).
- Mainboard processor is upgraded to M16C/65.

The WL switchbox platform

- We are using the small CPU board from the D3.

- The CPU board connects to the radio modem with UART.

- The CPU board consists of the Renesas M16/62 processor, an eeprom, an ADC and a clock crystal.

- The device is powered by 3V batteries (line power is an option).

- Antenna selection is full EX antenna or small router-style antenna (in picture).

The WL D3

- The Wireless D3 uses a combined Profibus DP / ISA100 board.
- The Renesas M16C/63 processor is used.
- It is line powered by 24 Volts.
- The radio modem and the positioner CPU are completely integrated on one board.
- Uses an Eexd antenna (in picture), small antenna available on request.

The software

- Switchbox/positioner CPU SW responding to radio CPU requests.
- Positioner firmware and radio module firmware can be upgraded with standard USB-cables.
- DD is used in Yokogawa Fieldmate to set parameters.
- The Yokogawa Centum control system can be used to do normal process control.

The software

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Ways of communicating

1. Radio module should be provisioned by Freescale USB-dongle.
2. Fieldmate can be used to set basic parameters and read process values.
3. Web browser to wireless gateway to define network of field devices.
4. Control system to do the actual control.

Publish rate

- It is possible to increase this rate to 1 second.
- Works well as update rate in wireless outer loop. The inner loop inside the positioner is much faster of course.

Tests

- Yokogawa Centum integration test passed
- Configurable faultstate behaviour tests passed at PMV
- Yokogawa WCI Device Test Kit protocol full test
- Japanese Radio Type certification acquired from UL Japan

Demos/ Trade shows

- 2011 wireless actuation demo, Hannover Messe
- 2011 Honeywell User Group, Baveno Italy
- 2011 Honeywell User Group, Phoenix USA
- 2011 SPE Offshore Conference & Exhibition, Aberdeen UK
- 2011 Yokogawa roadshow, Qatar
- 2012 wireless control from pressure transmitter, Yokogawa Netherlands
- 2012 ISA100 Wireless Technology Conference, Ulsan/Yeosu South Korea
- 2013 wireless water level closed loop control, Hannover Messe
- 2013 wireless water level Centum closed loop control, Malaysia Yokogawa user conference
- 2013 wireless water level Centum closed loop control, JEMIMA show in Japan
- 2014 Hannover Messe
- 2013-14 in-house demonstrations at Yokogawa to, for example, Mitsubishi Heavy Industries
- 2014 wireless water level PC closed loop control, Valveworld show Dusseldorf
- 2015 wireless PC control demo in ISA100 booth, wireless water level Centum closed loop control in Yokogawa booth, Achema show Frankfurt
- 2017 WCI plugfest Taiwan
- 2019 Flowserve

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For Your Attention!

Questions?

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PMV Automation AB