Vibration Condition Monitoring with ISA100 Wireless™

Presenter:

Bently Nevada
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Condition Monitoring and Wireless

Wireless
- Simple to deploy
- Fast to expand
- Cost effective
- Periodic measurements
- See, hear, smell
- Periodic measurements
- Higher point counts
- Fastest sampling rates
- Protection capable
- More sensor types

Portable
- Periodic measurements
- Small initial investment

Wired
- Higher point counts
- Fastest sampling rates
- Protection capable
- More sensor types

Data Frequency
- Portable: Good
- Wireless: Better
- Wired: Best

Installation & Deployment
- Portable: Better
- Wireless: Best
- Wired: Good

Sampling Rates
- Portable: Good
- Wireless: Better
- Wired: Best

Protection
- Portable: n/a
- Wireless: n/a
- Wired: Best

Investment $
- Portable: £
- Wireless: £
- Wired: £
Wireless areas to consider

- **Range** – distance between sensor & gateway
- **Protocol** – Proprietary or open
- **Data Bandwidth & Frequency** – Simple/rich data & how often
- **Power Source** – Battery life, availability, ease of maintenance
- **Security** – Encryption methodology
Ranger Pro

✓ Productivity ... more assets under surveillance
✓ Reliability ... more frequent asset information
✓ Safety ... hazardous or difficult to access areas
✓ Security ... 128bit AES
✓ Cost ... low installation and deployment costs

- ATEX Zone 0, CSA Class 1 Div1
- ISA100 Protocol
- User Friendly
- More assets under measurement
- Triaxial vibration + temperature
Ranger Pro Specifications

- ATEX/IECEx Zone 0 [ia I/IIC T4] Class 1 Div 1
- Truly wireless: sensors embedded in package
- All in one - Velocity (5-1kHz), Acceleration (5-10kHz) + Temperature
- Trended values + waveforms/spectrums
- Full System 1 connectivity
- Auto forming, self healing ISA100 Wireless Network Protocol
- Replaceable lithium-thionyl chloride battery
- IP67 hermetically sealed electronics
- Temperature: -40°C to +85°C
- Range: 150 meters (line of sight), 100 meters typical industrial environment
- Security: 128-bit AES encryption
- Modbus output to DCS or Plant Historian trended values
- GCI interface trended values & waveforms to System 1
- Battery life: up to 5 years (depending upon data frequency/type configuration)

Standard battery size ... Bently provided Or locally available for end user procurement

Radio E-module
ISA100

3.5” (89 mm)

1.6” (41 mm)

Triax or single embedded vibration sensors

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• Full System 1 connectivity
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Ranger Pro Network Deployment Setups

Best (1 hop) | Better | Ok

1 hop setup

Device Manager
Gateway
RangerPro Sensors/Repeaters
Condition Monitoring
DCS
Field Access Point
## Typical applications

Move from reactive maintenance to predictive maintenance

<table>
<thead>
<tr>
<th>Machine Type</th>
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<tbody>
<tr>
<td>Agitators</td>
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</tr>
<tr>
<td>Air compressors</td>
<td>✓</td>
</tr>
<tr>
<td>Ball mills</td>
<td>✓</td>
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<tr>
<td>Blowers</td>
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<tr>
<td>Centrifuges</td>
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<tr>
<td>Cooling tower fans and pumps</td>
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<td>ID, FD fans</td>
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<tr>
<td>Pumps</td>
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<tr>
<td>Mixers</td>
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<tr>
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<td>Screw compressors</td>
<td>✓</td>
</tr>
<tr>
<td>Small motors</td>
<td>✓</td>
</tr>
<tr>
<td>Small recips</td>
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Typical Site
Questions?

www.isa100wci.org

ISA100 Wireless Interest Group

690+ members and growing; please join and invite your peers to join as well!

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Ranger Pro
Bently Nevada
For Your Attention!