

# Steam Asset Management – Wireless Solutions

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# Topics

1. Manually Steam Trap Survey
2. Common Monitoring Applications
3. Key Applications
4. Benefits of ISA 100
5. Use Case Examples

# Manually Survey Steam Traps

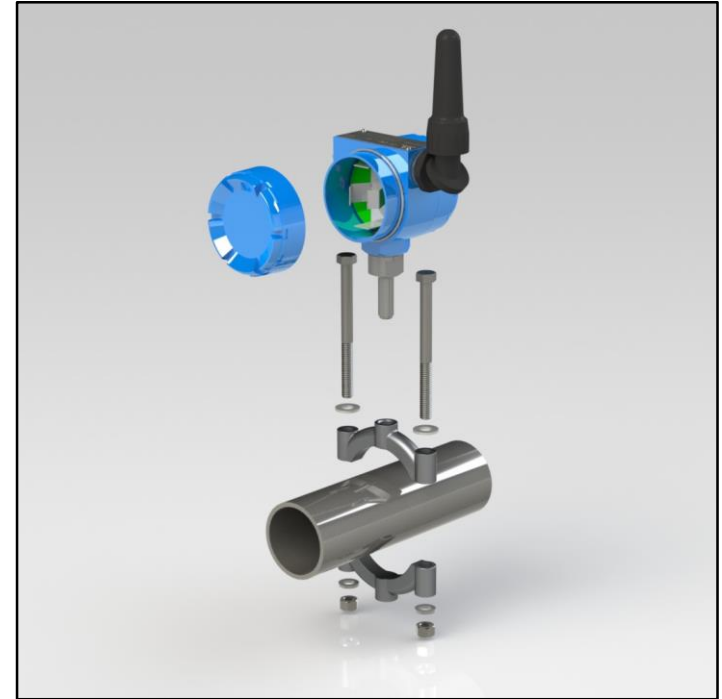
- Point in time event
  - Typically Annual Survey
  - Potential Safety Risk
  - Unknown Losses
- Slow and Time Consuming
  - Manual Data Entry
  - Surveyor visits each trap
- Requires Experience Technician
  - Acoustic
  - Temperature
  - Various inputs

# Common Monitoring Applications

- Critical Applications
  - Steam Turbines
  - Towers
  - Exchangers
- High pressure steam traps
  - Boiler headers/ steam distribution
- Hard to reach steam traps
  - Pipe racks
  - Operating Unit Equipment

# Transmitter

- Non-Intrusive
  - Waveguide Installation
- Monitor any
  - Trap Type
  - Manufacture
  - Pressure
  - Application



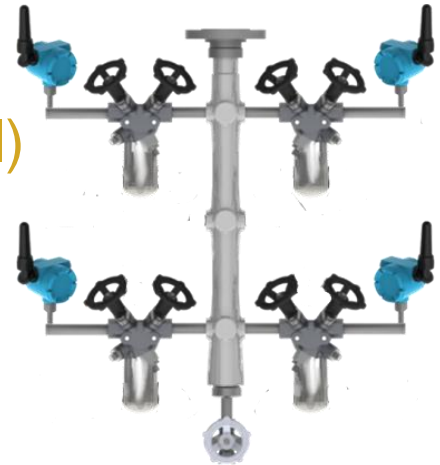
# KEY APPLICATIONS

# High Pressure Steam Turbines

- Why
  - Eliminate
    - Flooding turbine
    - Extensive blade damage
    - Energy loss from high pressure distribution
- Result
  - Decreased maintenance
  - Increased efficiency

# Critical Steam Tracing

- What
  - Sulfur
  - Polymers
  - Viscous Fluids
  - Other Tracing (controlled temperature is critical)
- Why
  - Prevent unit shut down
  - Avoid piping removal/steam out
  - Eliminate fluid solidification





# Process Applications

- What
  - Re-Boilers
  - Shell & Tube Heat Exchangers
  - Steam Heated equipment
- Why
  - Prevent unit shut down
  - Avoid process disruptions
  - Increase process efficiency



# Energy

- What
  - Medium Pressure Steam Traps
  - High Pressure Steam Traps
  - Hard to access steam traps
- Why
  - Reduce cumulative monetary losses
  - Eliminate energy waste
  - Decrease Co2 Emissions

# Benefits of ISA100

- Security
- Integration
- Wireless Coverage
- Scalability
- Installation Time

# CUSTOMER USE CASES

# Turbine Application

- Project Overview
  - Monitored 50 High pressure steam turbines
- Objective
  - Notify of potential turbine issue prior to failure
  - Maintain turbine efficiency
- Results
  - Detected 2 failed closed steam traps
  - Applied corrective actions to avoid blade damage
  - Decreased turbine maintenance (2 reliability issues)
  - Avoided potential process shutdown/extensive outage



# Sulfur Tracing Application

- Project Overview
  - 130 transmitters on steam tracing manifolds
- Objective
  - Continuous operation of sulfur loading station
- Result
  - Detected 17 failed closed steam traps
  - Allowed for immediate bypass of valve
  - Continuous unloading of trucks/train cars
  - Cost mitigation of one event (maintaining loading operations)



# Energy Reduction

- Project Overview
  - 2,600 Medium/High pressure distribution traps
  - Initial failure Rate: 19%
- Objective
  - Reduce Emissions and Steam Usage by 10%
- Result
  - Decreased plant failure rate to 5%
  - Eliminated \$1 Million of Steam loss
  - Decreased CO2 emissions by 40%
  - Put one boiler on standby



# Contact Information

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