EMERSON EXCHANGE 2025

# ACCELERATING INNOVATION

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# NextGen Sensor Connectivity: Shaping the Future of IIoT Monitoring with Emerson Synchros™

*Session ID: 1-1879*

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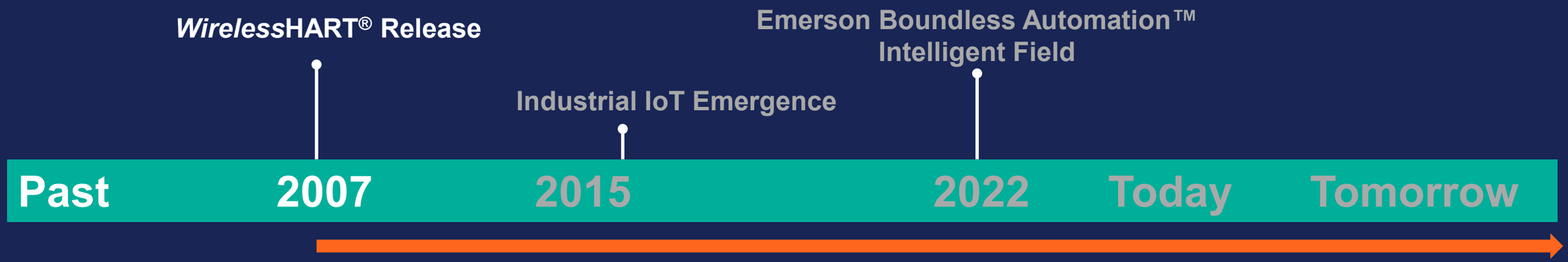
Global Product Manager – Temperature / Emerson

# Agenda

| | |
|---|---|
| RYAN LINDSEY | Evolution of Wireless Monitoring |
| RYAN LINDSEY | Emerson Synchros IIoT Platform Introduction |
| RYAN LINDSEY | Synchros IIoT Platform Vision |
| ADAM EDISON | Synchros Temperature Monitor Introduction |
| ADAM EDISON | Synchros Temperature Applications |
| RYAN & ADAM | Questions |

# Evolution of Wireless Monitoring




## NEED FOR WIRELESS PROCESS MONITORING

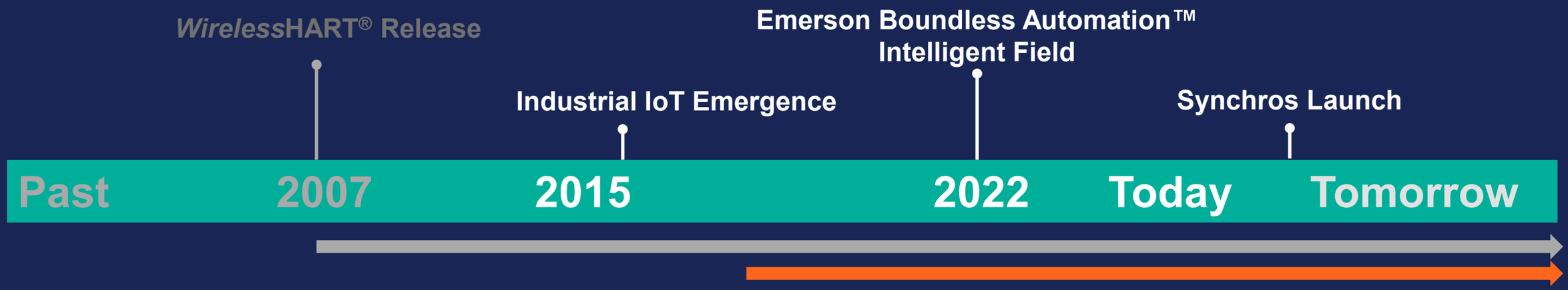
- Traditional process monitoring points were done manually
- Critical monitoring points were costly to install and maintain
- Need to improve flexibility scalability of wired networks, adding or relocating devices were expensive to rewire
- Wired instrumentation required extensive time to commission
- Proprietary wireless systems were expensive to maintain

# Wireless Process Measurement

## PROCESS MONITORING (Trad. Wireless)

| | |
|---|---|
| ***Industry*** | Cross Process Industries |
| ***Typical Persona*** | I&E, Process, and Controls Engineer |
| ***Intended Use*** | High Accuracy & Critical Process Monitoring and Control |
| ***Communication*** | *WirelessH*ART®, ISA100 |
| ***Typical Update Rate*** | Seconds to Minutes |
| ***Approvals*** | Intrinsically Safe (I.S.) |
| ***Price*** | $$$ |

# Evolution of Wireless Monitoring

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## NEED FOR WIRELESS IIoT MONITORING

- Cost effective solution for asset and condition monitoring
- More data allows for predictive maintenance, reducing downtime and preventing unplanned shutdowns

## COMPLEXITY WITH IIoT MONITORING

- Variety of wireless connectivity options
- Various IIoT vendors that meet part of your need
- IT and OT challenges & data silos
- Fleet Management

# Expanding Wireless into IIoT

| | PROCESS MONITORING (Trad. Wireless) | INDUSTRIAL INTERNET OF THINGS (IIoT) |
|---|---|---|
| ***Industry*** | Cross Process Industries | Cross Process Industries |
| ***Typical Persona*** | I&E, Process, and Controls Engineer | Reliability / Rotating Equipment Engineering, Utilities, Maintenance |
| ***Intended Use*** | High Accuracy & Critical Process Monitoring and Control | Asset & Reliability Monitoring; Temporary Monitoring |
| ***Communication*** | *Wireless*HART®, ISA100 | *Wireless*HART®, Cellular, LoRaWAN® +More |
| ***Update Rate*** | Seconds to Minutes | Minutes to Hours |
| ***Approvals*** | Intrinsically Safe (I.S.) | Hazardous Rated |
| ***Price*** | $$$ | $ |


# Emerson Synchros™ IIoT Platform Introduction

**Synchros is an Industrial Internet-of-Things (IIoT) platform designed for asset and condition monitoring**
- Boundless Automation™ with Intelligent Field devices

**Future-ready connectivity for smarter operations**
- Meet IT needs by diversifying connectivity offering

**Synchros comprises between a variety of wireless communication technologies and a vast array of sensors**
- Meet reliability & operations needs for more monitoring points

**User-friendly design with minimal tools required for installation**
- Customer in mind for quick and easy installation

**Cost-effective platform**
- Bring in more data points to monitor critical assets

# Emerson Synchros IIoT Platform


## COMMUNICATIONS

*Wireless*HART

LoRaWAN
(FUTURE)

Cellular
(FUTURE)

**COMMON INTERFACE**

## SENSING

***Temperature, Pressure, Wall Thickness***
***Adapters (Modbus®/HART®) + MORE***

### ENVIRONMENTALLY RUGGED

- NEMA 4X & IP66/67

### CONSISTENT USER EXPERIENCE

### BACKWARDS COMPATIBLE

- Future communication and sensor technologies

### POWER MODULE INCLUDED

- Hazardous field replaceable

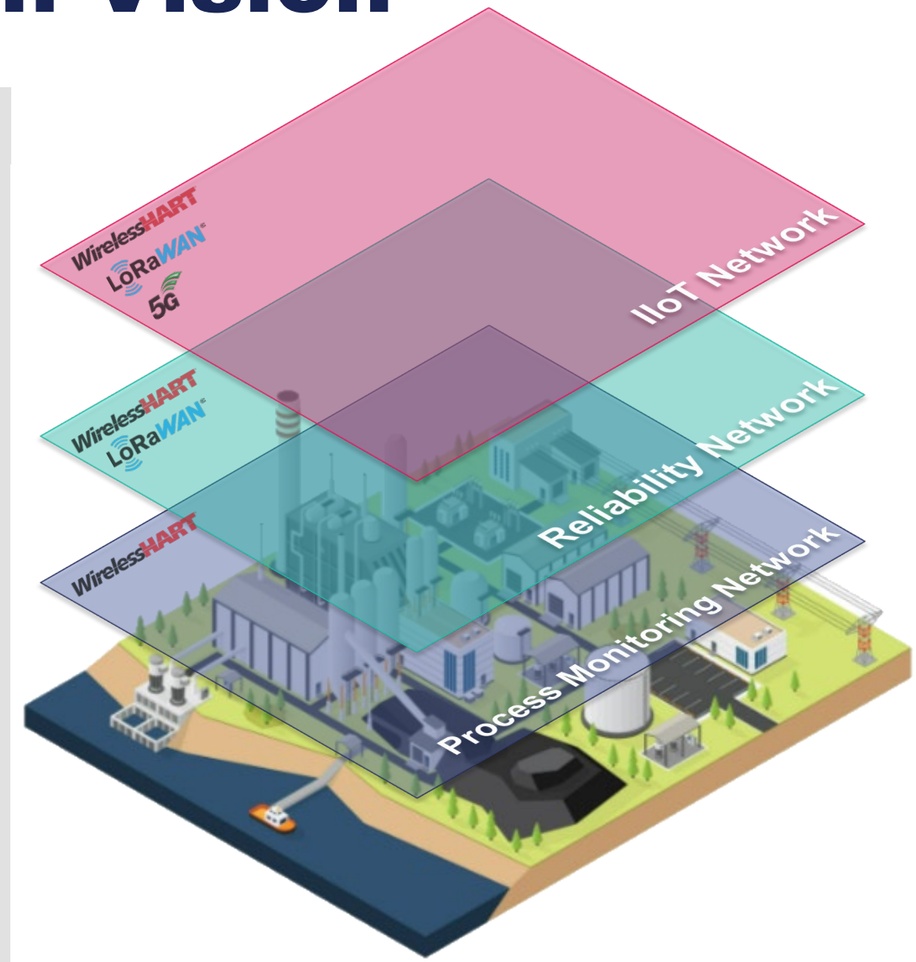
### HAZARDOUS RATED

### QUICK AND EASY PROVISIONING

# Emerson Synchros IIoT Platform Vision

## CONNECTIVITY PROGRESSION

| | PHASE 1 | FUTURE | FUTURE |
|---|---|---|---|
| ***Wireless Technology*** | WirelessHART | LoRaWAN® | 5G NB-IoT LTE-M |
| ***Technology Fit*** | Secure, reliable communication designed for industrial environments | Long range, low power communication designed to support IoT applications | Seamless integration with existing cellular networks to enable long range, wide-area connectivity with high bandwidth |
| ***Applications*** | Advanced Reliability & Integrity Monitoring | Basic Reliability & Integrity Monitoring | Stationary & Mobile Asset Monitoring |
| ***Networking*** | **PROCESS MONITORING, RELIABILITY NETWORK, IIoT NETWORK** | **RELIABILITY NETWORK, IIoT NETWORK** | **IIoT NETWORK** |
| ***DCS Integration*** | ✓ | ⚠ | ✗ |
| ***Infrastructure*** | WirelessHART Gateway | LoRaWAN Gateway | Cellular Tower |
| ***Update Rate*** | > 1 Minute Update | > 5 Minute Update | > 1 Hour |




**WHEN?** *When is the data required by the responder to act?*

**WHAT?** *What should the data presentation be?*

**WHERE?** *Where are the responder and asset? What is the environment?*

# Emerson Synchros IIoT Platform *Wireless*HART

## PHASE 1

| | | Rosemount Synchros Temperature Monitor | Rosemount Synchros *Wireless*HART Repeater |
|---|---|---|---|
| ***Wireless Technology*** | WirelessHART |  |  |
| ***Update Rate*** | 1 minute to 24 hours | | |
| ***Battery Life*** | 10 years @ 5 minute | | |
| ***Hazardous Approvals*** | Class I Div 1, Zone 0 | | |
| ***Range*** | 590 ft / 180 m (Line of Sight) | | |
| ***Provisioning Method*** | HART Terminals (DD / DTM / FDI) | | |
| ***Temperature Range*** | -40°C to 85°C | | |

*Specifications subject to change and change on sensor type*





### *Wireless*HART Connectivity Phase 1

Product Launch **October 2025**

Launching two new devices!

Leverage *Wireless*HART enhancements:

- 781S antenna range – **up to 1,300 ft**
- 781S with remote antenna range – **up to 1.5 Miles**
- Gateway device capacity – **up to 1000 devices per gateway**

**Integration ready** to Emerson's Plantweb Insight™ Applications

# Synchros Platform Vision for Sensors

## Continuous evolving portfolio

AT LAUNCH

*Pictures are for concepts only for reference*

### ROSEMOUNT™

Temperature

WiHART Repeater

Acoustic

Discrete

Pressure

Wall Thickness

### FISHER™

Wireless Adapter

### AMS

Vibration Monitor

### MICRO MOTION™

Modbus Adapter

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# Rosemount™ Synchros™ Temperature Monitor

# Expanding Your Temperature Measurement Potential

Asset Monitoring and Reliability

Surface or Environmental Temperature


All-in-one Device

Simple and Cost-Effective

**Rosemount Synchros Temperature Monitor**

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*Best Suited For:*

- Asset Monitoring
- Trend Monitoring
- Machinery Health
- Plant Efficiency

# Flexibility to Meet Your Application Needs

## Product Specifications


*Surface Measurement*


*Ambient Measurement*

### Hazardous Approvals

- NA Class I Div I
- ATEX/IECEx Zone 0

### Mounting Options

- Hose Clamps
- Bracket
- Magnetic (Future)

### Temperature Range

- -40 to 110 ºC
- -40 to 230 ºF

### Power Module

- Field Replaceable
- Shipped with Unit

### Reference Accuracy

- Surface: +/- 1.5 ºC (2.7 ºF)
- Ambient:+/- 1 ºC (1.8 ºF)

### Sensor Type

- Type T Thermocouple

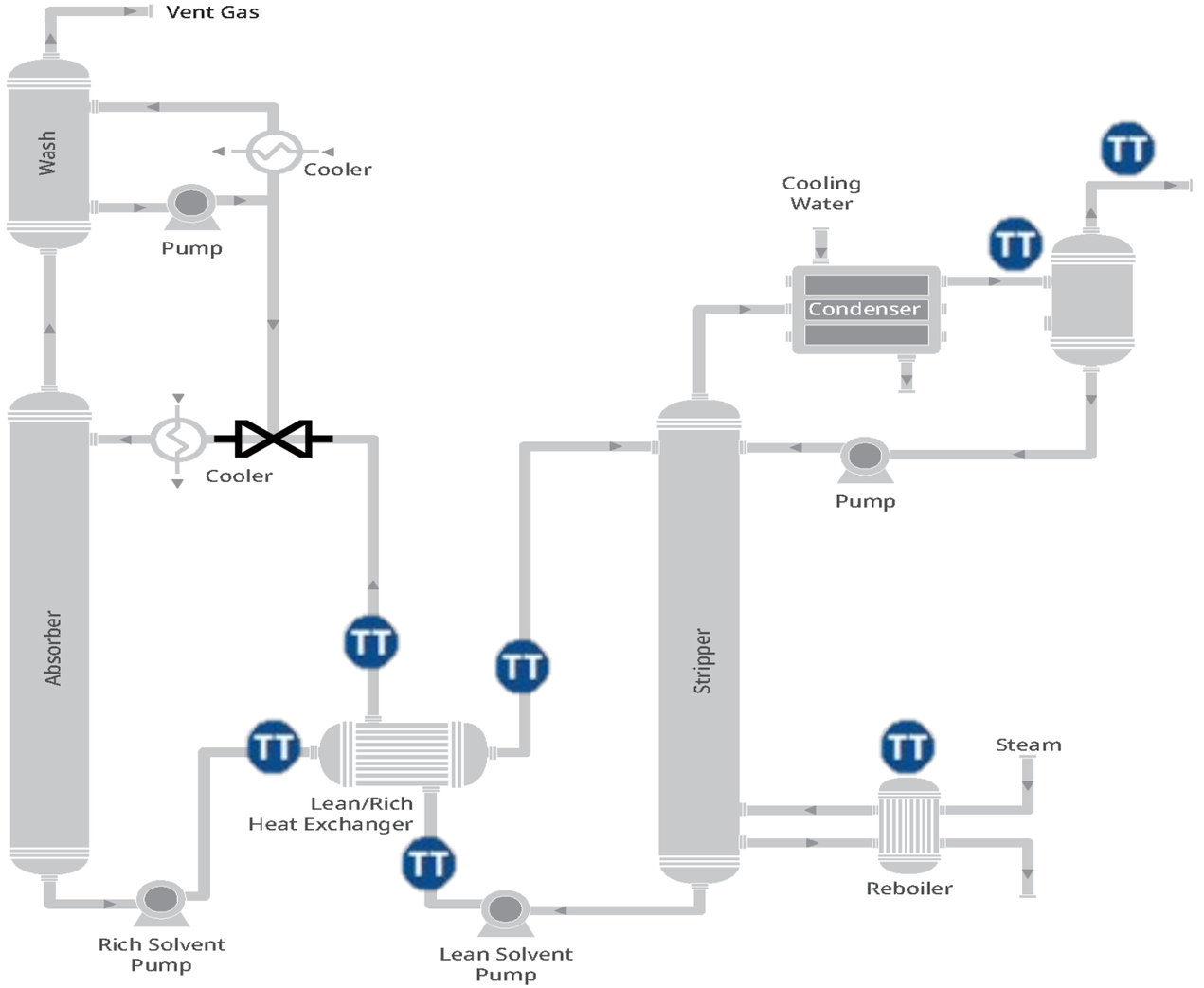
# Today: Process control and monitoring measurements performed by transmitters. Manual methods used for reliability

TT

**Temperature Transmitter**

Today

Tomorrow

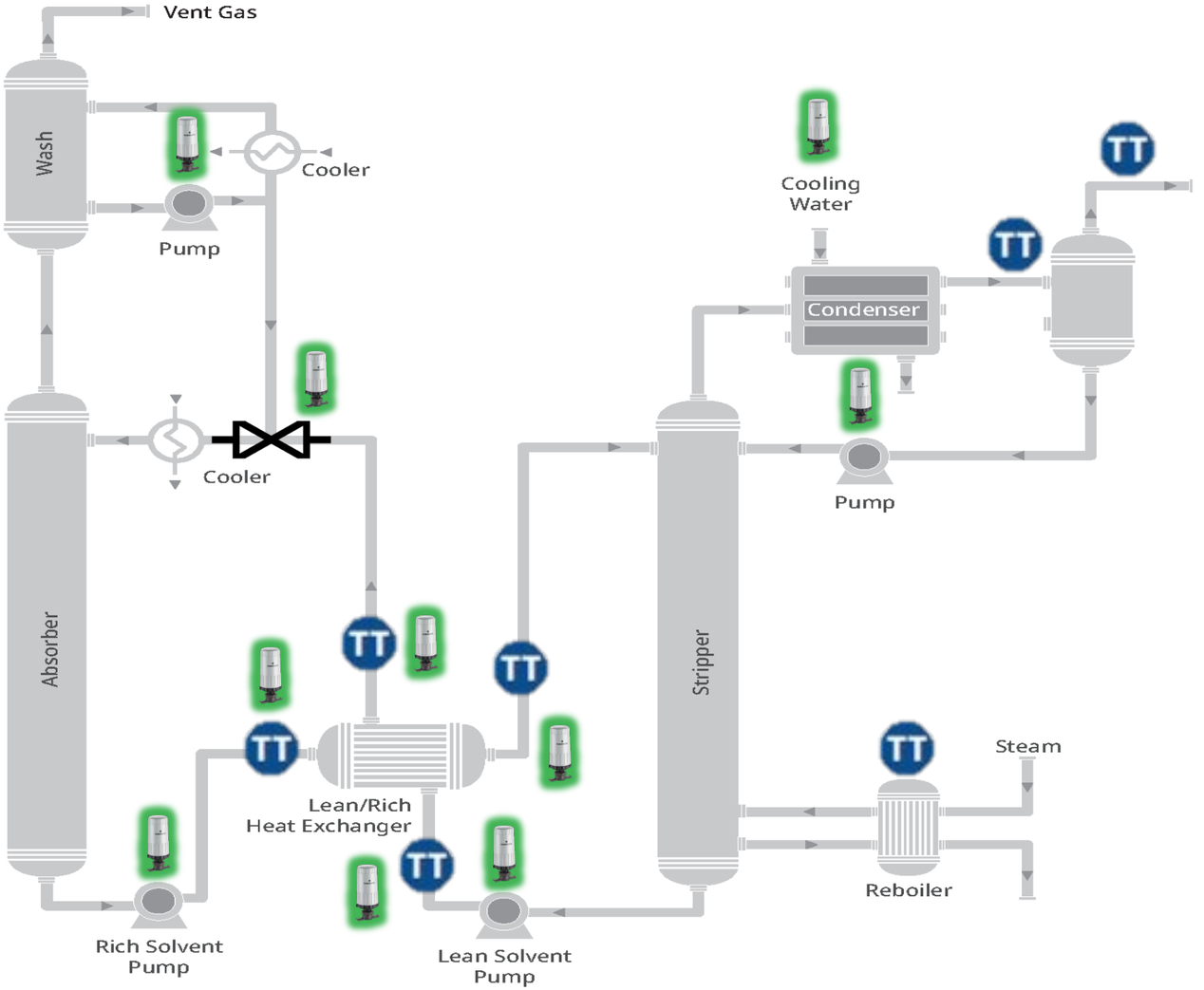


# Tomorrow: Synchros enables more insights into assets that support critical processes

TT

**Temperature Transmitter**

**Synchros Temperature Monitor**




Today Tomorrow

# The Rosemount Synchros Temperature Monitor can be used in numerous applications spanning several industries

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Cold chain

Piping Temperature Gradient

Compressor Cylinders

Storage Tanks

**Rotating Equipment**

Utilities Return

Distribution Lines

**Enclosure/Heat Trace**

**Compressor Valves**

Wellhead

Conveyor

Gas Line

Heat Exchangers

Steam Line Drainage

Pump Monitoring

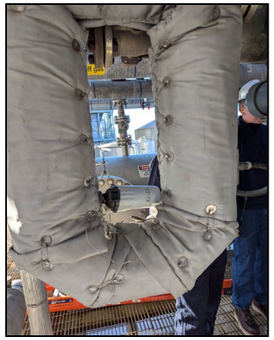
**Chemical Lines**

Exhaust Gas

Oil Supply

# Proven Applications

## 1 Chemical Plant Distribution Line and Storage Monitoring



- Detect early signs of crystallization and unwanted chemical reactions of process chemicals i.e., Urea
- Distribution lines and storage tanks can be monitored with the surface temperature device

## 2 Reciprocating Compressor Valve Covers Monitoring

- Identify failing reciprocating compressor valves by monitoring valve cover temperature
- Process plants have numerous compressors throughout their facilities each with several valves


## 3 Instrument Enclosure Monitoring

- Ensure heat trace is functioning properly throughout instrument enclosures with environmental temperature measurements
- Plastic boxes and insulated instrument enclosures are common throughout process plants

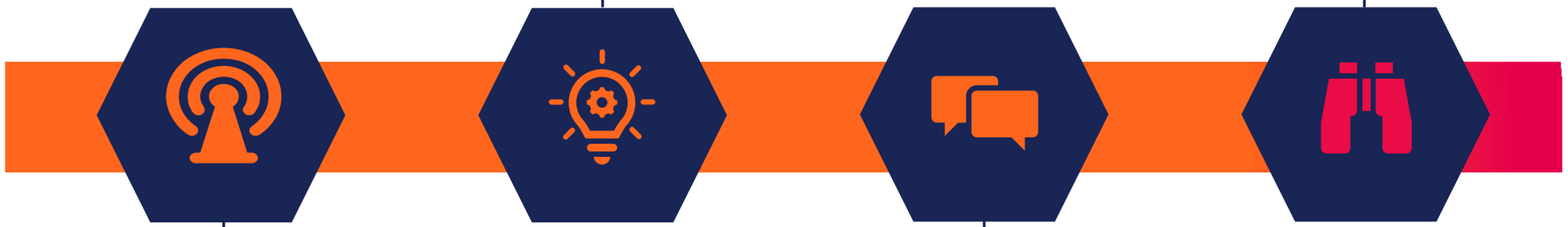
## 4 Rotating Equipment Health Monitoring

- Detect early signs of declining machinery health with surface temperature monitoring
- For use on pumps, conveyors, motors and other rotating equipment throughout a facility

# Call to action

Think about asset monitoring temperature points in your facility

Keep an eye out for Fall 2025 launch



Refresh yourself on your wireless network

Engage with your local sales representative

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## Visit us at the technology exhibits

## Wireless & Connectivity: 335 & Rosemount Temperature: 438

## Find More Information

Emerson.com

## Contacts

Ryan Lindsey & Adam Edison

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