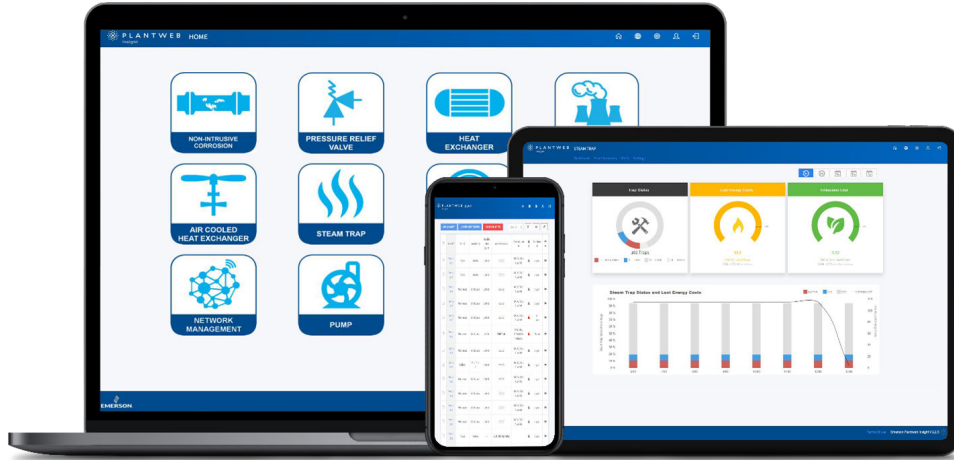# Emerson Plantweb™ Insight

Non-Intrusive Corrosion Monitoring Application

- Visualization and analytics software platform providing strategic interpretation and monitoring of plant assets

- Relevant-time actionable information and insights about abnormal situations, asset status, asset health, energy costs, emissions loss, etc.

- Seamless system integration, simple installation, and minimal configuration or set-up are not dependent on the host system or historian.

- Prepackaged analytics based on decades of process and industry experience

- Human-centered design and a user-tested interface for consistent and intuitive navigation

ROSEMOUNT™

EMERSON™

Features and benefits

Gain real-time insights into abnormal situations

- Suite of asset monitoring applications identifying abnormal situations and failures using data analytics and models.

- Learn about issues before they impact the bottom line with alerting and failure identification.

- The intuitive and easy-to-read views highlight high-priority, actionable information.

Lightweight, secure, and reliable software package allows seamless integration into current infrastructure

- Easily deployed via a virtual machine.

- Access the interface anytime from a multitude of web browsers.

- Human-centered design considerations allow for quick and intuitive start-up and configuration.

- Integrate with existing wireless ecosystem to expand capabilities and leverage current investment.

- Not dependent on DCS, host system, or historian.
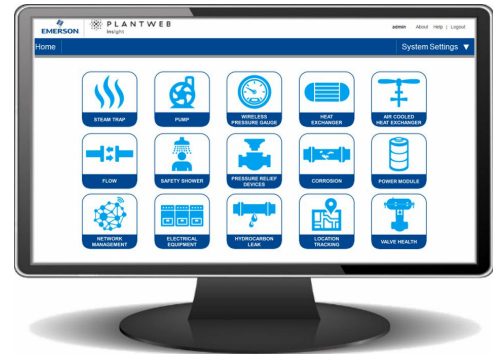
Contents

Monitor one asset or thousands with a fully scalable software package and numerous applications

- Applications are based on key assets such as steam traps, pumps, heat exchangers, pressure relief valves, and many more.
- Start small or monitor all your assets in one spot.
- Integration with other business systems such as data historians.
- Deploy in small, large, or enterprise-wide operations.

User interface

Every application in the Plantweb Insight suite has a similar look and feel for a consistent user experience. The main views can be broken into three layers.

Dashboard

The dashboard page is an umbrella overview of the asset class being monitored. This page will provide an aggregated view of the entire asset class and the most important insights. These insights will vary from application to application, with examples including asset status, asset health, energy costs, emissions loss, critical alerts, etc. A brief trending of these key insights is also provided for historical tracking and trending.

Asset summary

The asset summary page is a tabular view of all assets being monitored. This view provides a similar perspective as the dashboard but on an asset-by-asset basis. This page is fully sortable, searchable, and filterable for quick prioritization and identification. The asset summary page can also be exported via CSV or Excel® for reporting.

Asset details

The asset details page provides specific asset details. These details include location, process, application, asset, and device details for each individual asset. It also provides calculated insights such as relevant-time status, health, energy, emissions, additional information, and a brief asset history. A notes section allows users to add notes and flag assets for follow-up.

Plantweb Insight for Non-Intrusive Corrosion Monitoring

The Plantweb Insight for Non-Intrusive Corrosion application gives customers superior understanding of the condition of their assets, allowing better predictive maintenance, and optimization of the plant. Rosemount Wireless Permasense corrosion data is delivered securely to the end users' desk through the Plantweb Insight platform, offering real time advanced analytics to assess the impact of profitability-driven process changes. This allows informed decision making to counter the ever changing demands of the modern process industry.

Figure 1: Non-Intrusive Corrosion Monitoring
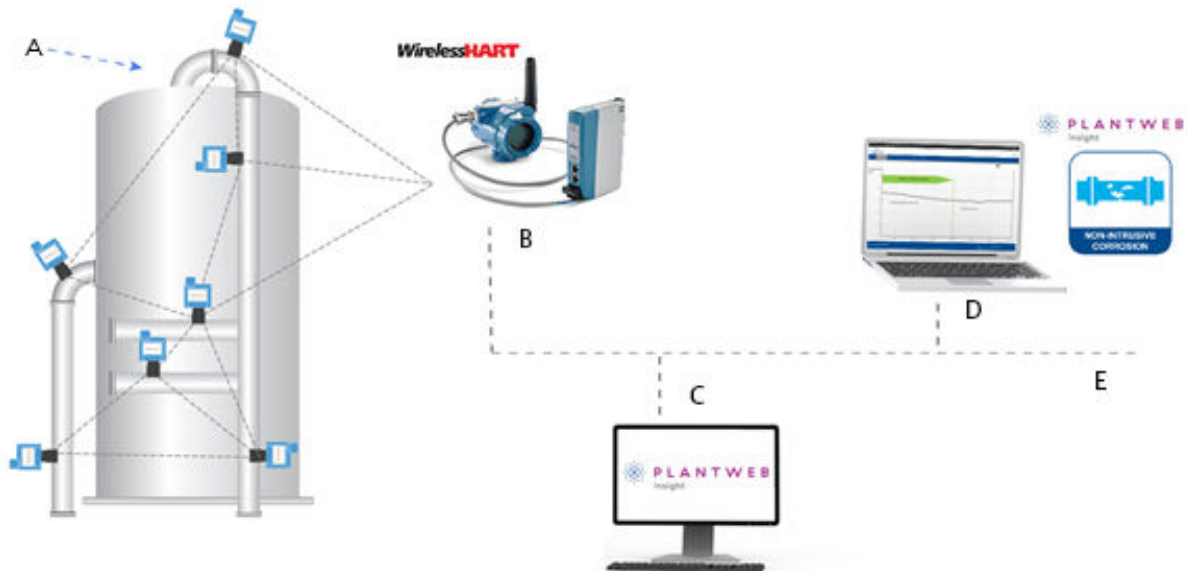
A. *Sensors*
B. *Example location: Control room*
C. *Server*
D. *User's office*
E. *Network*

Dashboard

- Select your monitoring period from one month to one year

- Monitor the overall wall loss rate of your sensors at a glance

- Understand the risk to your assets with an analysis of the remaining wall thickness to planned retirement

- Identify system maintenance tasks from the data quality overview

Measurement points

- Organize your Rosemount Wireless Permasense sensors into a logical address structure for quick group analysis.

- Discover detailed visualizations which enable large data sets to be analyzed quickly and effectively.

- Metal loss heatmaps, created through combined rolling rates, highlight sudden rapid metal loss and slower sustained metal loss.

- Multi-graph view provides a quick and easy overview of multiple sensors on your assets.

- Table view of all corrosion devices installed, the current status of the sensors, short and long-term corrosion rates, remaining wall thickness to retirement

Intuitive graph tools

- View detailed temperature and material compensated wall thickness and time plots.

- Draw box corrosion rate tool allows event driven analysis of custom data periods.

- Utilize the retirement planning feature to maximise fixed asset lifespans and avoid unplanned downtime as well as improve your replacement part planning.

- Patented Adaptive Cross Correlation (AXC) signal processing enables increased confidence in short term corrosion periods and best-in-class micron corrosion rate accuracy.

Integration

- Seamlessly integrate with the entire Plantweb Ecosystem, enabling measurable performance improvements in the areas of production, reliability, safety and energy management.

- Utilize embedded OPC UA and Modbus data export to correlate your corrosion data with other plant data and maximise revenue from process optimization.

- Gain a better understanding into the health of your Rosemount Wireless Permasense system through the network and power module management apps to facilitate easier diagnostics and maintenance of equipment.

Plantweb Insight Benefits

- Easily integrate with external systems using embedded industry standard data export protocols allowing root cause analysis of corrosion events against process changes, and informing on predictive maintenance required.

- Augments existing Interface Systems by providing flexible and immediate data access for Corrosion and Integrity Engineers and management outside of control room environment

- Provides actionable data in the form of an informative dashboard

- Access to real time data anytime, from anywhere

- Helps increase safety at your facility by reducing time spent in hazardous areas and eliminates need for site work (e.g. scaffolding)

- OPEX savings by reducing costly manual operations

- Seamlessly integrates with your existing wireless infrastructure, allowing you to expand the capabilities of your current system
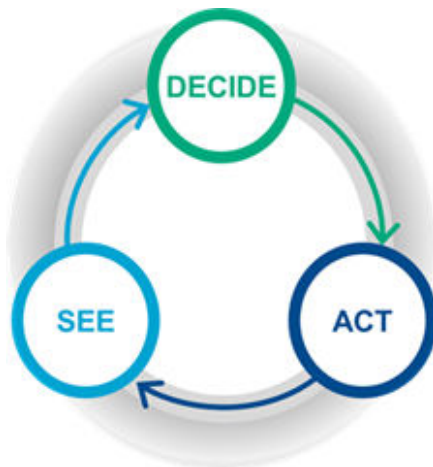
See real time data regarding your asset health
Decide what is the necessary course of action
Act to perform this change
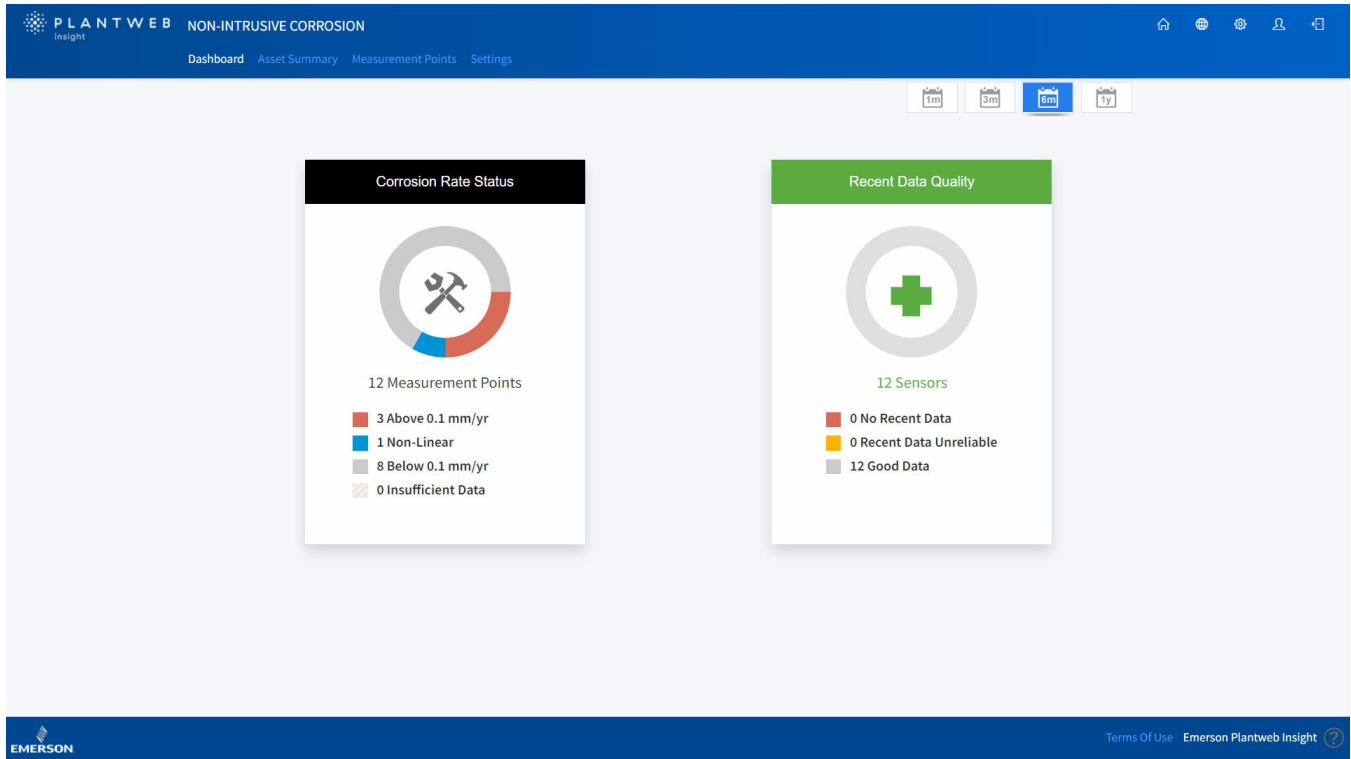
Features

- Continuous corrosion rate monitoring of pipelines and other fixed equipment
- Provides corrosion rate trends using patented Adaptive Cross Correlation (AXC) processing
  - AXC is a patented signal processing technique that effectively overcomes thickness trend anomalies caused by waveform distortion induced by back wall geometry by using historical trend analysis to improve peak detection. This results in more stable UT measurements, even when dealing with internal pipe roughness.
  - With our AXC technology, corrosion events can be detected in just a few days, providing faster and more accurate trending against process changes. This allows for effective root cause analysis, making it an essential tool for any corrosion monitoring system.
  - Owing to its rapid detection capability, AXC technology is especially useful for processes that involve frequent and quick changes.
- Provides relevant corrosion sensor status
- Pre-built analytics based on industry vetted feedback
- Custom dataset grouping, and easy filtering to a range of views:
  - Table, Metal Loss Heatmap, Multiple Graph, Graph, Waveform

Calculated insights

- Corrosion rate trends
  - 1, 3, 6, and 12 month trends
- Metal change indicator (PSI)
  - Permasense Shape Indicator (PSI) works by comparing multiple backwall reflections over time to establish changes in surface morphology. This allows detection of early signs of corrosion activity, even before an observable wall loss trend has developed.
  - PSI serves as an early warning system, giving you time to take preventive measures before corrosion causes significant damage to your equipment.
- Metal loss heatmap

- Thickness to retirement
- Data quality

Related products

- Emerson 1410S Wireless Gateway with 781S Smart Antenna
- Rosemount Wireless Permasense WT210 Transmitter
- Rosemount Wireless Permasense ET210 Transmitter
- Rosemount Wireless Permasense ET310 Transmitter
- Rosemount Wireless Permasense ET310C Transmitter
- Rosemount Wireless Permasense ET410 Transmitter

Communication specifications

Inputs

HART-IP™ client	Plantweb Insight acts as a HART-IP client for polling information from HART-IP sources such as Emerson 1410S Gateways.

Outputs

Modbus® TCP server	Plantweb Insight contains a Modbus TCP server. Functions, registers, and tags are clearly defined within Plantweb Insight. Calculations, statuses, etc., can be sent to Modbus TCP clients.
OPC UA Server	Plantweb Insight contains an OPC UA server. Calculations, status, etc., can be sent to OPC UA clients.
REST API	Plantweb Insight can provide asset and corrosion data via REST API.

Ordering information

Ordering process

1. Build and order your subscription order code.

2. You will receive instruction on where to download your application and framework software if you have not already done so.

3. Upon installation of an application onto the framework, the software will instruct you how to request a license key.

4. A license key will be generated upon request based on your subscription order code.

Note
Subscription duration starts at the time the license key is generated.

License key

Plantweb Insight applications require a valid license key to be used. License keys are delivered upon placing an order for a subscription order code and submitting a locking ID from the software. Plantweb Insight license keys are provided as a file.

Subscription order code

The subscription order code contains the details related to the software subscription used to generate a license key. This code is not your license key to activate your software. Exact subscription order codes will vary; an example of a typical subscription order code is shown in Figure 2.

Figure 2: Subscription code example
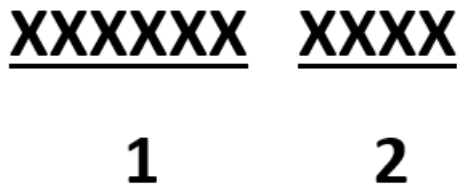
1. Required subscription component (7002NIC base code)

2. Subscription type (subscription duration and maximum number of assets to be monitored)
   - An asset is 10 sensors
   - Trial licenses are limited to the smallest asset capacity (requires new or existing infrastructure)

Sample subscription code	7002NIC C050

Emerson Plantweb Insight Non-Intrusive Corrosion application ordering information

Subscription application

Code	Description
7002NIC	Plantweb Insight Non-intrusive Corrosion Monitoring application

Subscription duration and assets

Code	Description
T001	90-Day trial for up to 50 sensors
A005	1-Year subscription for 50 sensors
A050	1-Year subscription for 51-500 sensors
A100	1-Year subscription for 501-1000 sensors
A999	1-Year subscription for unlimited assets per site (1000+ sensors)
B005	2-Year subscription for 50 sensors
B050	2-Year subscription for 51-500 sensors
B100	2-Year subscription for 501-1000 sensors
B999	2-Year subscription for unlimited assets per site
C005	3-Year subscription for 50 sensors
C050	3-Year subscription for 51-500 sensors
C100	3-Year subscription for 501-1000 sensors
C999	3-Year subscription for unlimited assets per site

Specifications

System requirements

Plantweb Insight is delivered as a fully developed virtual machine (e.g. .ova file) and applications are installed once the virtual machine is deployed.

On-Premise Host system

Virtualization software

■ VMware Workstation Pro™ 15 or higher (requirements can be found here)

OR

■ VMware vSphere® 6.5 or higher (requirements can be found here)

OR

■ Microsoft® Hyper-V Configuration version 8.0 or higher (requirements can be found here)

Hardware requirements (minimum)

■ Processors = 4 dedicated cores[1]

■ Memory = 8 GB RAM

■ Hard drive = 250 GB of free space

Hardware requirements (recommended)

■ Processors = 8 dedicated cores

■ Memory = 16 GB RAM

Cloud environment capability

■ Plantweb Insight has the ability to be installed in the cloud on an Emerson Microsoft Azure instance.

Web client

Browsers (recent versions supported)

■ Google Chrome™

■ Microsoft Edge

■ Mozilla Firefox

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(1) Most PC operating systems (i.e. Windows, Linux, Mac) will use 1-2 cores.

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