

Rockwell Automation Process Solution

Predictive Quality - Soft Sensor® Application

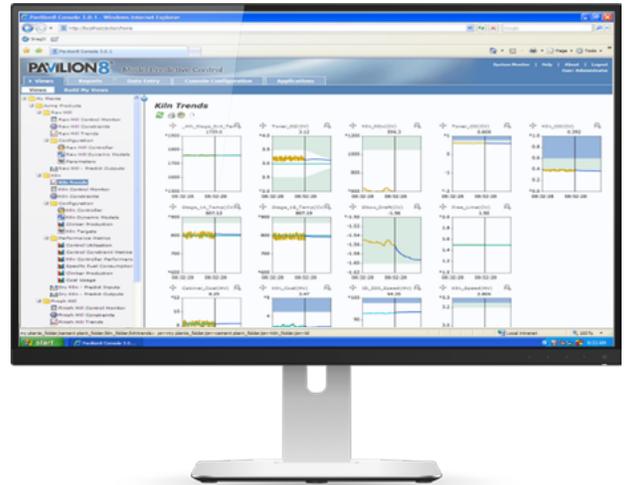
Predict and improve the quality of products during production

Benefits

- Minute-by-minute feedback for better response time to changing process conditions
- Reduce variability through predictive measurements of key quality characteristics
- Easy integration to control systems for tighter process performance
- Reduce off-spec production and raw material waste
- Reduce lab sampling costs

Rockwell Software solutions

Our solutions leverage 100+ years of Rockwell Automation innovation, experience and global support. Industry best practices are incorporated into every application, which is built upon a composite application framework that leverages a Service Oriented Architecture (SOA). This scalable solution, when combined with library-based content, offers personalization options that promote faster user adoption and time-to-value.



The challenges

Many processes do not have the necessary instrumentation to help achieve consistent, high quality production. In addition, laboratory analysis is not always available with the immediacy required to better control the process. Whether it's due to insufficient lab capacity or the expense of testing, many production processes are forced to wait hours or even days between lab samples. Meanwhile, the production process may have unknowingly moved out of specification.

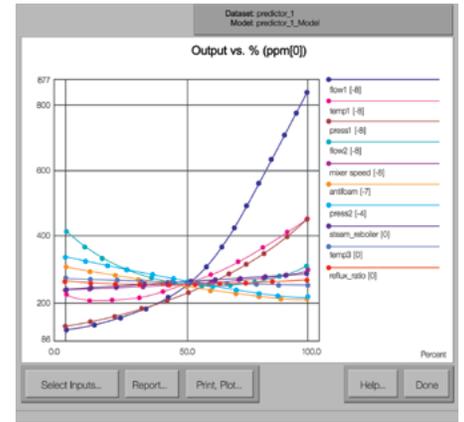
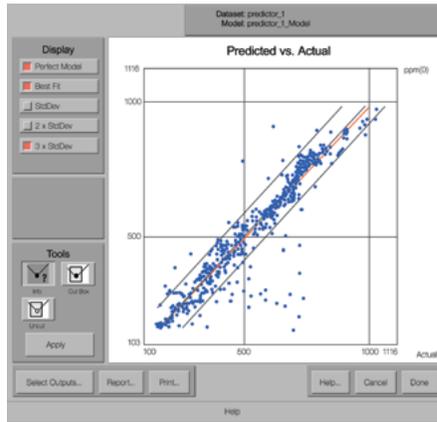
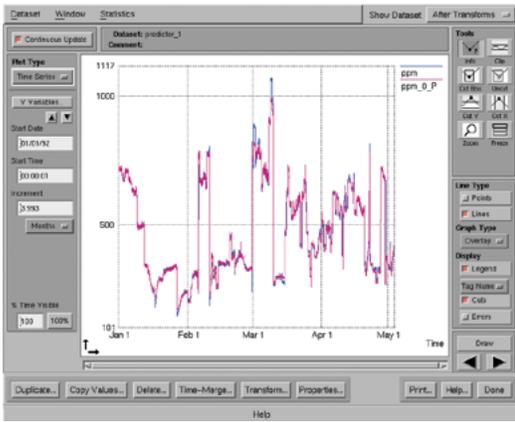
Unfortunately, adding instruments can be costly and increasing laboratory tests may not be possible due to budgetary constraints or lack of capacity. Regardless of these challenges, having the ability to better understand the quality of a product being produced during the process is invaluable. Without this immediate feedback, manufacturers will see increased raw material usage from hours of off-spec production and a significant impact on profitability.

Rockwell Automation recognizes these challenges and offers a Predictive Quality - Soft Sensor Application focused on delivering real-time predictive quality measurements and feedback for better process management and control.

PlantPAX
Process Automation System

RA Rockwell
Automation





Soft Sensors provide minute-by-minute estimates of critical production factors that affect quality

Predictive Quality – Soft Sensor Application

FactoryTalk® Analytics™ Pavilion8® software creates online predictive models that utilize instruments and laboratory analyses for real-time estimates of process and product conditions. These software models are used to build inferential sensors, which provide the feedback and predictive process information needed for uninterrupted, quality production.

Model-based predictions

Leveraging historical plant data that identifies correlations in most processes, Soft Sensor models provide timely virtual measurements of key characteristics. In most cases, existing plant instrumentation will provide the data needed to build a prediction model of key product characteristics. These on-line models provide minute-by-minute estimates of critical production factors for operator use and can be tied to control technologies for process feedback.

This technology provides the tools and techniques to model critical linear and non-linear processes with high fidelity.

Model-based predictions of key characteristics identify quality deviations in real-time to help prevent waste or rework, thereby enabling substantial savings over the life of the application. Soft Sensors supplement traditional

laboratory measurements by reducing the time to process-impacting results from hours to minutes.

On-line applications

Soft Sensors automatically predict quality parameters in real-time and provide backup for or act as an alternative to analyzers for mission-critical control systems. When used in on-line mode, raw material usage and off-spec product can be significantly reduced and higher quality products can be delivered. With a minimal installation investment, Soft Sensors can quickly produce savings on raw materials, disposal costs, product rework and lost revenues due to off-spec product.

Soft Sensors can also be integrated with advanced control applications such as FactoryTalk Analytics Pavilion8 Model Predictive Control (MPC) for a complete control and optimization solution.

Off-line applications

Soft Sensor modeling tools can also be used off-line to better understand process behavior. Historical process data can be extracted, cleaned and modeled to gain better insight into key process variables that affect quality, consistency and efficiency. These tools can also be used to simulate future outcomes and the potential costs and risks of options through sophisticated “what if” capability.

Connect with us.    

rockwellautomation.com

expanding human possibility®

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Publication RSAPHZ-AP005D-EN-P – February 2024 | Supersedes Publication RSAPHZ-AP005B-EN-P – March 2012

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