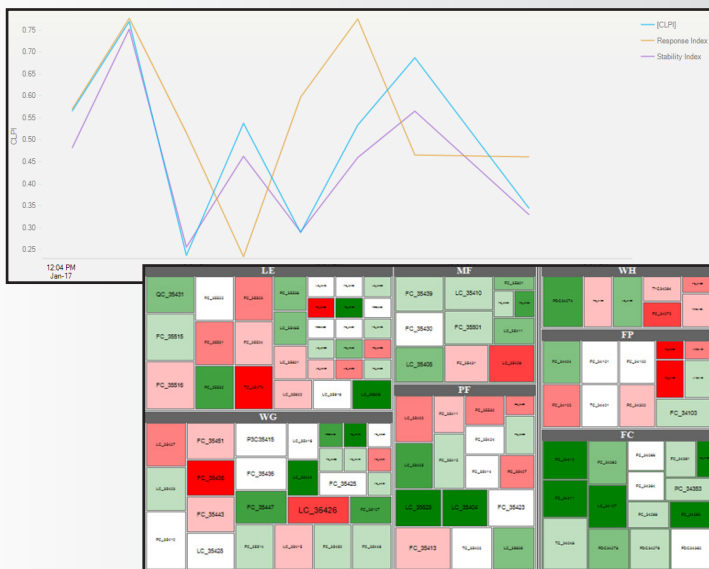


ControlWizard provides control loop performance by monitoring, analyzing and identifying control loops with the highest potential for process improvement.



## The Challenge

A process operating facility typically has hundreds of control loops. Monitoring, assessing, analyzing, and diagnosing these loops for potential issues is a complex process, and is a key part of preventing abnormal conditions from becoming alarm events. Working through this process ultimately prevents loss in profitability.

Over time, mechanical valve performance and changes in process characteristics diminish control loop performance. Continuous monitoring is essential so potential problems can be identified and rectified before adversely affecting plant safety and profitability. Effective and efficient control loop performance monitoring, assessment, and diagnosis of potential issues for large plants requires a methodical approach.

## The PAS Solution

ControlWizard continuously monitors control loops to proactively identify potential issues and rectify them before adverse effects occur at a facility. It utilizes a comprehensive approach and non-intrusive techniques to identify poorly performing control loops on any control system, allowing:

- Continuous process monitoring
- Identifying potential hardware issues with sensors, valves and controllers
- Diagnosing the root cause of problems
- Ranking and prioritizing the impact on process operations
- Documenting and reporting control problems
- Eliminating problems for improved process safety and profitability

ControlWizard continuously monitors and analyzes control loop performance, identifying control loops with the highest potential for improvement. Using advanced statistical and control methods, it converts process data into actionable information, helping ensure profitability and ongoing regulatory compliance. More than 70 statistical analyses are performed, and results are presented using intuitive and meaningful charts and indices with recommendations on how to address the root cause of the identified control problems.

## Key Benefits:

- Continuously monitors, assesses, analyzes, and diagnoses control loop performance
- Identifies potential issues with sensors, valves, and controllers
- Documents and reports control problems
- Eliminates issues hindering process safety and profitability



Oil & Gas Refining  
 Metals & Mining Chemicals  
 Pulp & Paper Power

## About PAS

PAS is the leading global solution provider of ICS cybersecurity, process safety, and asset reliability in the energy, power, and process industries.

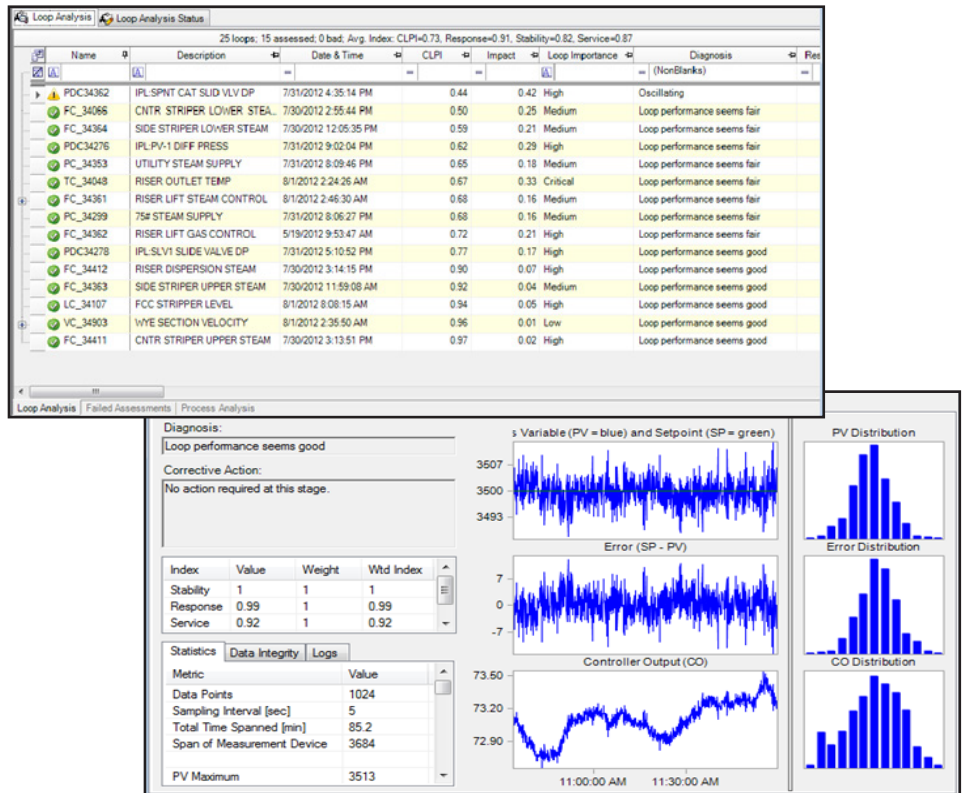
Our comprehensive portfolio includes solutions for industrial control system cybersecurity, automation asset management, and operations management which includes alarm management, IPL assurance, high performance HMI, boundary management and control loop performance management.

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## Performance Metrics

ControlWizard provides a number of performance metrics and statistics for further analysis of control issues:

- Process Statistics: Presents the minimum, maximum, span, mean, median, and standard deviation indications
- Control Valve Metrics: Displays the amount of travel per day, reversals per day, stiction, and hysteresis
- Loop Performance: Indicates the Harris Index and Control Loop Performance Index
- Measuring Device Metrics: Notes sensor noise, static, and spiking
- Loop Service: Shows the percent of time in normal mode, operator changes, alarms generated, controller saturation, tuning, and cycling
- Power Spectrum Analysis: Examines dominant frequencies and significance of oscillation
- Correlation Analysis: Indicates auto-correlation of process variables, and cross-correlation of error and output
- Cycle Analysis: Displays zero-crossing cycle detection, cross-correlation cycle analysis, and cycle frequency analysis
- Time Series Analysis: Notates the ARMA model, impulse response, settling time, and overshoot
- Override Controller: Specialized metrics for peak deviation and time in deviation for override style controllers

Based on these performance metrics, control loops are ranked and bad actors are easily identified. For easy viewing, a summary of the plant's control loops status is displayed in a treemap structure.

For information on how to purchase ControlWizard, please email [sales@pas.com](mailto:sales@pas.com) or contact us.