SOLUTION SHEET

Octave Tempo Control Loop Performance

Provides control loop performance by monitoring, analyzing and identifying control loops with the greatest opportunity for process improvement



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

Challenge

Process-intensive facilities typically have 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.

Solution

Octave Tempo Control Loop Performance (formerly PAS ControlWizard) monitors control loops to diagnose and expose potential issues allowing them to be corrected before adverse effects occur at a facility. It uses a comprehensive approach and non-intrusive techniques to identify poorly performing control loops on any control system, enabling:

- Improving process vigilance
- Identifying potential hardware issues with sensors, valves and controllers
- Diagnosing the root cause of problems
- Ranking and prioritizing the impact on process operations
- Automating documentation and reporting of control loop performance problems
- Eliminating problems for improved process safety and profitability

Tempo Control Loop Performance monitors and analyzes control loops, identifying those with the greatest opportunity for improvement. Using advanced statistical and signal processing methods, it converts process data into actionable information, helping ensure profitability and ongoing regulatory compliance. More than 70 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.

Performance metrics

Tempo Control Loop Performance 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:** Provides 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 tree map structure.

Comprehensive operations risk management

Tempo Control Loop Performance is part of Octave Tempo Control System Effectiveness (formerly PAS PlantState Integrity) which provides a single platform to deliver unique insights into process safety risk. The solution uses a single data capture layer to monitor the performance of control loops, operational limits and Independent Protection Layers (IPL). By combining these metrics into a single pane of glass along with exception-based reporting, Tempo Control System Effectiveness provides actionable insights to ensure companies operate their facilities effectively while improving safety and environmental performance.

To learn more about Tempo Control Loop Performance or Tempo Control System Effectiveness, please visit octave.com.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

©2026 Octave Intelligence plc and/or affiliates. All rights reserved.