

Plant optimization by Control Performance Analytics

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In the process industry, control performance is an important lever for teaching production targets. Nevertheless, different studies and our own experiences have shown that more than 50 % of control loops in chemical and pharmaceutical plants are not optimally tuned. This offers a high potential for maximizing process efficiency. Optimization of control performance is a continuous process consisting of three steps: analyzing, optimizing, monitoring. Depending on the number of control loops, these steps are associated with a significant expenditure of time. This is where CPA (Control Performance Analytics) comes into play.

Control Performance Analytics is an online application for optimizing plant control. CPA generates additional transparency, enabling a more efficient optimization. Based on control data, intelligent algorithms select relevant time intervals for the calculation of control performance. The evaluation shows a hierarchical plant overview from management view to single control details. The management view provides a fast overview about the control loops and their optimization potential. If the level of detail is increased, KPIs illustrate the control performance of a control loop in different categories (stationary behavior, oscillation, stiction ...). Further increasing the level of detail, different characteristic numbers for each category, the detailed trend of process value, set point and manipulated value as well as characteristic diagrams (scatter plot, FFT-spectra ...) are shown. This enables a targeted optimization. Due to continuous monitoring and analyzation of the control performance CPA is a fundamental part of a continuous optimization process in process plants. The advantage of CPA is demonstrated in a case study.