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Control Performance Analytics (CPA)

Plant optimization through automated controller analysis in the glass industry

The challenge

The complexity of industrial process applications is continually increasing. At the same time, the demands placed on production targets are increasing in terms of process reliability, flexibility, product quality, energy consumption and emissions. Professional handling of this situation requires additional transparency in order to identify potential and starting points for optimal adjustment of the process parameters.

In the glass industry, the control quality is decisive for achieving production targets. The individual control loop is the original core of the production process, especially in the hot area of glass production. However, studies show that half of all control loops are not operated satisfactorily. This may be due to less than optimal parameters, controls in manual mode, oscillating behavior of the controlled systems or mechanical problems with the control valves.

A measurement and control engineer in large plants is today responsible for hundreds of control loops. The evaluation of the control quality in the process steps, such as the mixture composition, melting, shaping or cooling, in connection with the associated alarms requires both time and a high degree of experience. Identifying improvement potential and optimizing control loops are not one-off tasks; changes in production processes and wear and tear mean that these challenges remains constant.

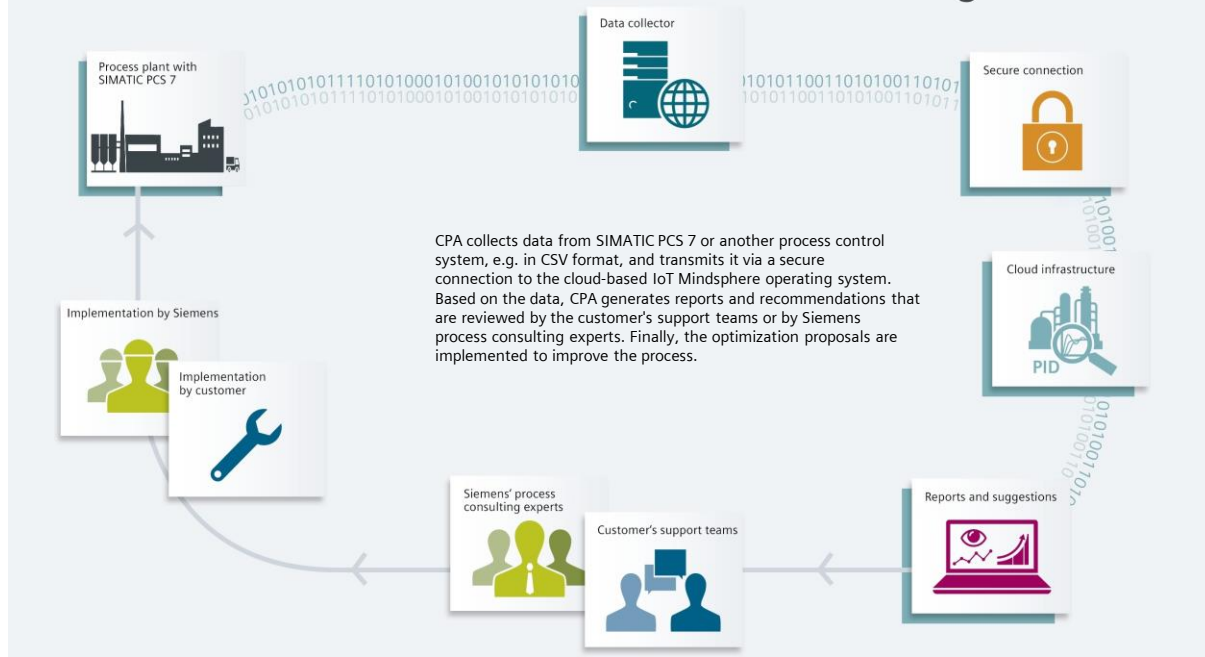
The solution

CPA is a cloud-based managed service that increases the transparency of process data and optimizes control loops. By collecting and analyzing information on the plant level, the customer gains full control over the data. The identification of the control loop states is based on an automatic KPI calculation (Key Performance Indicators), which enables detection of setpoint jumps, steady state problems and even static and sliding friction in control valves. CPA enables automatic calculation of new parameter sets to tune control loops without affecting plant operation.

Advantages of optimized control loops

- Better product quality due to less variation of process variables
- Maximized device run times due to reduced actuator variability
- More stable setpoints increase throughput by bringing it closer to the plant limits
- Resource savings thanks to improved setpoint jumps (e.g. energy, raw materials, etc.)
- Fewer manual interventions in the control loops, which means optimized control such as Advanced Process Control can be superimposed.
- Fewer alarms and fewer operator actions reduce operator workload

Functional architecture of CPA as a cloud-based managed service



Plant-wide transparency
with hierarchical plant overview, from the company level up to individual controller details for Siemens SIMATIC PCS 7 and other process control systems.

Automatic status recognition and KPI calculations
such as alarm behavior, service factor, accuracy in the steady state, setpoint tracking and static friction calculations for various applications control states.

Improved plant performance
and identifying optimization potential as a result of an automatic correlation of process data with possible problem sources.

Cost advantages
due to long-term process optimization and flexible concept of the Managed Service - payment only when the application is used.

Faster setup
and an intuitive user interface enable the user to use the tool without extensive training.

Open, cloud-based IoT operating system
CPA is part of our Asset and Process Performance Suite for industrial applications and advanced analysis.

Available product portfolio

Portfolio	Article number
Application Access Base	9AS1112-0AA01-0AA0
Control Performance Analytics	9AS1112-1AA01-1AA0
Control Performance Optimization	9AS1111-1AA01-0AA0
Installation and consulting service	On request

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