APPLIED MATERIALS®

PharmaMV Real Time System
Monitor, Control and Optimize your process

Advanced Control for the Pharmaceutical Sector

BLOCK EDIT

BLOCK VIEWER

SIGNAL EDIT

SIGNAL VIEWER

EVENT CONFIG

EVENT VIEWER

ALARM SPECIFICATION

ALARM VIEWER

KPI CONFIGURATION

KPI VIEWER

PROCESS MONITORING

SIGNAL WATCHER

DATA QUALITY INSPECTION

PROGRAMMING

INTERFACES

DATABASE INTEGRATION

MESSAGE LOG

TEMPLATES

COMMENTS

SIPAT

VISUALISATION

gPROMS

ACHIEVING EXCELLENCE WITH ONE INTEGRATED PLATFORM

PharmaMV Real Time is a fully-featured platform for executing Advanced Process Control strategies in industrial manufacturing. Its intuitive interface and workflows guide the user through communication with industrial automation systems, PAT integration and Web enabled displays. PharmaMV provides all the latest advanced control technologies for deployment within the process industries.

PROCESS DATA INTEGRITY MONITORING

Combining a comprehensive suite of modelling tools and a simplified user interface, **PharmaMV Real Time** enables users to quickly develop soft sensors. Both linear and non-linear models are available, with model path masking, sensitivity analysis and cross validation metrics. Using our gPROMS integration module now creates a route for high fidelity mechanistic models to run in parallel with empirical models, offering hybrid soft sensors using the advantages of both techniques.

PROCESS MONITORING

Deploy real-time monitoring engines for improving the detection, identification and diagnosis of faults within complex processes. Each monitor can be fully evaluated by streaming historical process data to ensure high robustness and provide effective and meaningful alarms.

PROCESS CONTROL

Provides a user-friendly environment to deploy a variety of frequently-used industrial control algorithms. With engines ranging from PID to Batch and Continuous Multivariable Model Predictive Control, the user has access to the latest technology in the field.

PROCESS OPTIMIZATION

After improved control comes optimization. Using configurable templates for model, constraint and cost function configuration, the user can quickly evaluate the optimizer's mode of operation for both continuous and batch processes.

PLATFORM FEATURES

REAL TIME COMMUNICATIONS

Interfaces to all commercial PLCs via OPC DA client and server, Web Client & Server architecture, IIOT MQTT; Real time data integrity monitor automatically identifies outliers, faults and out of range signals. Web-enabled remote displays for desktop and mobile devices. Connector for storage of Data and KPIs in Microsoft SQL or Oracle databases.

PROCESS MODELS

Mechanistic (via gPROMS) and empirical steady state and dynamic models for soft sensors, monitoring, control and optimization executed open (Advisory Mode) or closed loop. Continuous and batch models, parametric and nonparametric formats. All model parameters, predictions, and performance metrics are available via an intuitive user interface.

PROCESS MONITORING

Access SPC, MVSPC Real Time Shewhart, EWMA and CUSUM charts with Western Electric Rules, Automated Outlier detection and alarming. Full suite of templates for multivariate process monitors using Principal Component Analysis, Partial Least Squares and Extended Partial Least Squares methods. Univariate SPC Alarm Thresholds, Multivariable Alarm Thresholds, Operating Zone Classification, Fault Detection, MVSPC Plots – SPE & T2, Threshold Filtering, Fault Identification, Multi-Model Operating Modes, Fault Fingerprints, Fault Diagnosis, Contribution Plots.

CONTROL ENGINEERING

PID Controller with selectable structures. State of Art Linear and nonlinear Model Predictive Control, for both continuous and batch processes. Adaptive control system for all model formats. Stiction compensator. Tools include Robustness Analysis, automatic management of lost signals, uncertainty and model switching for multi product systems. Integrated performance metrics and de-tuning functionality.

OPTIMIZATION

Steady State and Incremental Linear, Quadratic, Sequential Quadratic Programming (LP / QP / SQP), Real-time Optimization Engines with prioritized relaxation for industrial applications, Batch Endpoint Optimization using unique PLS design.

ALARM & EVENT MANAGEMENT

Configurable Events and Alarms are stored in an SQL database, can initiate emails, trigger reports and provide a real time record of an incident.


INDUSTRIALLY TESTED TOOLS FOR ENGINEERS

More than ever, process engineers are asked to improve and increase production and quality from existing assets. To do this, they need the skills and tools to evaluate ideas and opportunities to demonstrate tangible benefits in short timeframes.

The **PharmaMV Real Time** Platform incorporates a wide range of leading-edge APC techniques, providing a powerful, configurable platform independent of the existing automation platform. The platform is available in a modular form, offering a staged approach to deploying APC solutions.

- Enable experimental design on pilot plants with automatic DoEs.
- Deploy soft sensors to back-up analytical devices or create new measurements from surrogates. Use pre-configured facilities to incorporate Quality measurements for the Lab.
- Execute real time Monitors, Model Predictive Controllers and Optimizers from configurable GUIs to provide a complete customized solution for your process.
- Provides the software functionality for 21 CFR Part 11 compliant systems.
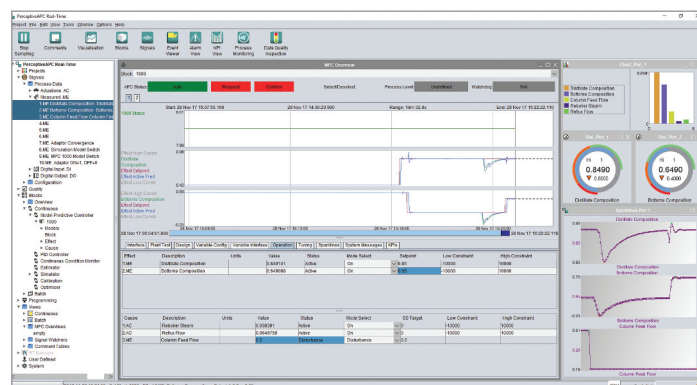
- Create solutions to run in the laboratory, pilot plant and commercial manufacturing scale.
- Operates with an open architecture, sharing all the internal information with other industrial software products via standard interfaces.
- An integrated Python interpreter and editor is provided. Application specific logic can be developed with access to the Real Time platform via a flexible Python module. Python script is executed in a dedicated and secured thread to ensure application integrity.
- Comprehensive technology User Guide and Support Portal for remote assistance.