Discover the true potential of your process

perceptiveAPC
DEVELOPMENT

PROCESS INSIGHT and INTELLIGENCE

- DATA IMPORT
- DATA PRE-PROCESSING
- VISUALISATION
- STATISTICAL ANALYSIS
- MODELLING FACILITIES
- PROCESS MONITORING
- PROCESS CONTROL
- OPTIMISATION
- DATA QUALITY INSPECTION
- ALARM & EVENT CONFIGURATION
- REPORT GENERATOR

PERCEPTIVE ENGINEERING LTD

YOUR JOURNEY, FROM DATA TO KNOWLEDGE TO ACTION

PerceptiveAPC Development is a fully-featured platform for deriving insight and value from your process data. Its intuitive interface guides the user from preliminary data mining, pre-processing and analysis through to monitoring, control and process optimisation.

PROCESS ANALYSIS

- Import, align, and clean multiple data sources, to develop a clear understanding of what your process is doing
- Quickly identify outliers, correlations and statistical normality using industry standard uni- and multivariate methods
- Identify and classify regions of abnormal behaviour
- Develop the empirical models you need to better understand the problems you need to solve in Process & Product Development

PROCESS MODELLING

Combining a comprehensive suite of empirical modelling tools and a simplified user interface, *PerceptiveAPC Development* platform enables users to quickly start making sense of their data. Both linear and non-linear models are available, with state of art model identification algorithms.

Models are validated using standard performance measures, sensitivity analysis and cross validation metrics. When applicable, models may be interchanged between process monitoring, control and optimization within the same environment, to quickly develop the optimum improvement strategy.

PROCESS MONITORING

Design and evaluate process monitoring models for improving the detection, identification and diagnosis of faults within complex processes. Each monitor can be fully evaluated by streaming historical process data into the engine, to ensure high robustness and provide effective and meaningful alarms.

PROCESS CONTROL

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

PROCESS OPTIMISATION

After improved control comes optimisation. Using configurable templates for model, constraint and cost function entry, the user can quickly determine the optimal mode of operation for both continuous and batch processes.

PERCEPTIVEAPC FEATURES

DATA ANALYSIS

CSV data import, Copy and Paste import, Data Spreadsheet view, Flexible Trending, Bad Data Plots, Bad Data Replacement, Outlier Detection, Filtering, Smoothing, Averaging, Spline Fitting, Wide range of Mathematical Operators, Scatter Plots, Parallel Coordinate Visualisation, Auto and Cross-Correlation Analysis.

SPC, MULTIVARIATE SPC & MODELLING

Shewhart Charts, EWMA and CUSUM charts, Process Capability Charts, Distribution and Scatter Plots, Correlation Matrix, Spectral Plots, Automated Outlier Detection, Classification Techniques, Gaussian Clustering, K-Means Clustering, Principal Component Analysis, Partial Least Squares and Extended Partial Least Squares, Standard multi-way PCA/PLS technology for batch processes, Concatenated batch analysis PCA/PLS technology, Time-series PLS/RLS modelling (FIR/ARX), PLS-based end-point prediction, Non-linear Artificial Neural Networks (Radial Basis Function).

PROCESS MONITORING

Single variable 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 Tuning Analysis (Ziegler Nichols, Cohen & Coon, Lambda), Controller Design & Evaluation, Robustness Analysis), Model Based Control (Linear and Non Linear Model Predictive Control, SISO, MIMO).

OPTIMISATION

Optimisation Matrix Configuration, Linear, Quadratic, Sequential Quadratic Programming (LP / QP / SQP), Real-time Optimisation Engines, Batch Endpoint Optimisation.

PERCEPTIVEAPC PROVIDES THE RIGHT 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 opportunities and demonstrate tangible benefits in short timeframes.

PerceptiveAPC Development incorporates a wide range of data management, statistical and model-based techniques, providing a powerful toolset in the delivery of continuous process improvement:

- Investigate, quantify and evaluate improvement scenarios

- Determine, assess and prototype a model-based solution, ready for approval

- A logical, intuitive workflow, designed to help you quickly understand what your process is telling you

This is why *PerceptiveAPC* Development is being used by leading improvement teams worldwide, in pursuit of process excellence.
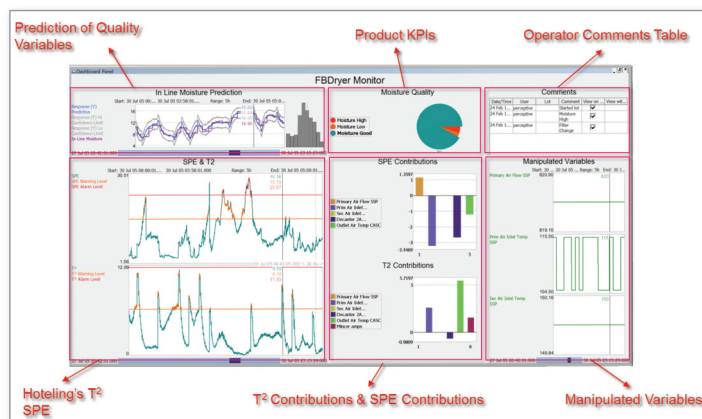
CLOSING THE LOOP

PerceptiveAPC Development is the first step towards optimising your process. Models and strategies developed offline – for improved diagnostics or control – can be easily deployed in real-time through the PerceptiveAPC suite. This industry-leading software provides powerful tools and capability, to transform opportunities into real, sustainable benefits.

TRAINING

As a company, we place great emphasis on training to make sure our clients are familiar and comfortable with the technology we offer, to let them fully exploit the opportunities identified by *PerceptiveAPC Development*. Full details of our training offers can be found on our website.