The 3-dimensional Multivariable Predictive Controller™ (3dMPC) software suite is a process optimization package which enables production engineers and management to achieve consistently optimum conditions throughout the production line. The controller operates through existing instrumentation and control equipment. No major investment or interruption of production is required. At an attractive price, the 3dMPC™ package will quickly benefit any process plant.

**Features**

The 3dMPC™ controller is at the leading edge of MPC technology. It incorporates many new developments including:

- **3 Dimensional Design Freedom.** The setpoint, feedback and feed-forward parts of the controller can each be designed independently. This gives tremendous application design flexibility and leads to very robust process handling from more accurate controller commands.

- **Performance Variable Methodology.** This technology enables the controller to sense changes in process conditions that cannot be measured directly and to initiate counteractions long before the variations could be detected by normal MPC technology. No additional complex and expensive “soft sensor” technology is required.

- **On Demand Adaptation.** This feature permits automatic adaptation of the controller to suit changed process conditions while still maintaining overall control of production.

**What it means to you**

The 3dMPC™ controller provides constant predictions of process conditions and appropriate corrections resulting in minimum deviation from optimum conditions. Benefits include:

- Improved product quality – closer to specification targets and greater consistency.
- Reduced raw material consumption.
- Reduced energy consumption.
- Increased production.
**The 3dMPC™ Controller Cycle**

**Step 1: Configure controller.**
Configuration defines what signals in the OCS/DCS will be used as Manipulated, Controlled, Performance and Disturbance variables.

**Step 2: Collect process model data.**
3dMPC™ has functions to generate signals for process identification and to log the data. This integrated functionality provides the user with new means to efficiently do experiments for process identification with ease.

**Step 3: Build process models.**
The controller includes modeling tools to do advanced parameter identification and to build state-space process models. Elaborate analysis functions and advanced graphical user interfaces are included to further strengthen the ease of use.

**Step 4: Tune process models.**
The 3dMPC™ tuning analysis tool is used to evaluate and tune the behavior of the controller. Special analysis functions are included for robustness considerations.

**Step 5: Put controller on-line.**
The on-line components of 3dMPC™ consist of the controller object and advanced graphical interfaces for easy user interaction.

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3dMPC™ is unique in that it provides three degrees of freedom for dynamic optimizing control. The controller can be configured to automatically have different dynamic responses to changes in:

- setpoints
- measurable disturbances
- process dynamics and internal process conditions

Thus, 3dMPC™ can compensate for disturbances and production changes more effectively than traditional advanced control, resulting in improved process performance.

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**3dMPC™ includes on-line components for control and operator interaction and off-line components for controller configuration, modeling, tuning, and analysis.**

The on-line controller object exchanges data with the control system using an OPC interface. For highly nonlinear processes, the controller uses the On Demand Adaptation feature when the full model and design scheduling do not fully reflect process conditions. The controller can also function as a full simulator system for testing, training, and “what if” analysis.

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**Partners in Productivity**

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