



Just optimise

A bit more efficiency and sustainability required!

Simply exploit the full potential of your production plant.

The Advanced Process Control solutions (APC) offered by eposC take advantage of the process know-how of your production team, mapped in mathematical models. Every minute single APC controllers are busy dealing with large amounts of process data and optimising the process specifications. Teamed as an APC solution, they ensure compliance with your production guidelines – combining the required quality standard with maximum productivity and minimum production costs.

The APC solution from eposC and your operators thus join forces to boost production output on a sustainable basis. 24 hours a day, 7 days a week, regardless of any fluctuations of market demands or raw

materials (quantity, quality, delivery times) or manufacturing prerequisites (raw materials and process conditions).

Optimum production settings at all times: that's what sustainability and efficiency means. Careful use of resources, lower energy consumption and a reduction in environmental pollution levels: APC solutions are an investment in the future.

But sustainability also includes economic efficiency and competitiveness of the production facility. **Guaranteed savings** with **payback times of less than 12 months** will boost the earnings capacity of existing plant, so safeguarding the future of the production site – and jobs.

Discovering new experiences means saying goodbye to what you know!

How to get the most out of your plant.

From a stable operating point to stable quality – you have to act anticipatory and keep the quality on course if you are to get the most out of your plant. And that is something the eMPC can help you with: The eMPC (or enhanced Model Predictive Controller) is at the heart of every APC solution.

To make sure that the eMPC gets on the right track, process behaviour is mapped in a mathematical model developed from regressive process data. The cause and effect of process variables and product quality levels are described as in a process roadmap.

The principle is similar to a global positioning system: the operator defines his strategy (the shortest/fastest/cheapest route) and specifies his priorities in terms of production volumes, quality and production

costs using a simple, flexible procedure. This lays down the strategy to be followed by the team of eMPCs. The global system will then operate according to the process roadmap, coping with any obstacles such as variations in raw material quality, process conditions and any other interference.

The eMPC can quickly approach the required target values, avoiding any deviation and reducing fluctuations in product quality. This is made possible by continuous variation of the operating points of the single process stages. If the result is controllable after every production stage, it is far easier to match production to the quality requirements, so avoiding „overfulfilment“. This saves additional costs and results in improved production earnings!

Working together for success!

Achieving more in a team.

You can buy a new pump but finding a solution calls for teamwork. We offer solutions and fine-tune our APC technology to your requirements and objectives with the help of your experienced production team at the plant.

Our multidisciplinary team of technicians specialises in the **analysis, modelling and automation** of production processes. Analysing and understanding processes, mapping with models and automation using specially developed APC tools: that is our core competence. What you will contribute as the plant operator is your knowledge of the process in question, the key details of day-to-day operation.

We are successful as a team. And partly because we supply a **process management solution** and are not just selling a piece of new automation technology!

Projects carried out in various business sectors have shown that our team/methods are especially effective in the following scenarios:

- ▶ Fast, efficient mapping of processes in real mathematical models. Irrespective of whether theoretical process models already exist.
- ▶ Stable and efficient solutions which can cope with standard operation with all types of grades and operating points involving the normal malfunctions.
- ▶ Optimisation of individual production processes, extending as far as end-to-end solutions.
- ▶ New challenges which can only be mastered with know-how and motivation – but not without enjoyment.

Put your trust in eposC tools!

Different APC functions that follow one goal with teamwork.

Process analysis – Regressive process models and their transparent, dynamic visualisation form the basis for discussions with our process experts. The potential for optimisation they identify then serves as a process roadmap for the subsequent APC-Tools:



eMPC – enhanced Model Predictive Control. eMPC acts like a GPS system, using process models as a roadmap, controlling the target values under the current raw material and process conditions. Flexible weighting is used for the strategy. Operation of the controller is predictive, continuously adapting to the latest target values measured.



eBWC – With the band width controller it is possible to use buffer facilities and ensure uniform output to the subsequent process. This filters out any fluctuations and interference from previous processes, so resulting in stable process conditions.



ePO – enhanced Process Optimizer. Whether in an individual process stage or a lengthy production process, the ePO will monitor the relationship between process settings and production costs. It is responsible for coordinating the production specifications for each process stage and calculating the most cost-efficient strategy for the required product qualities and production volumes.

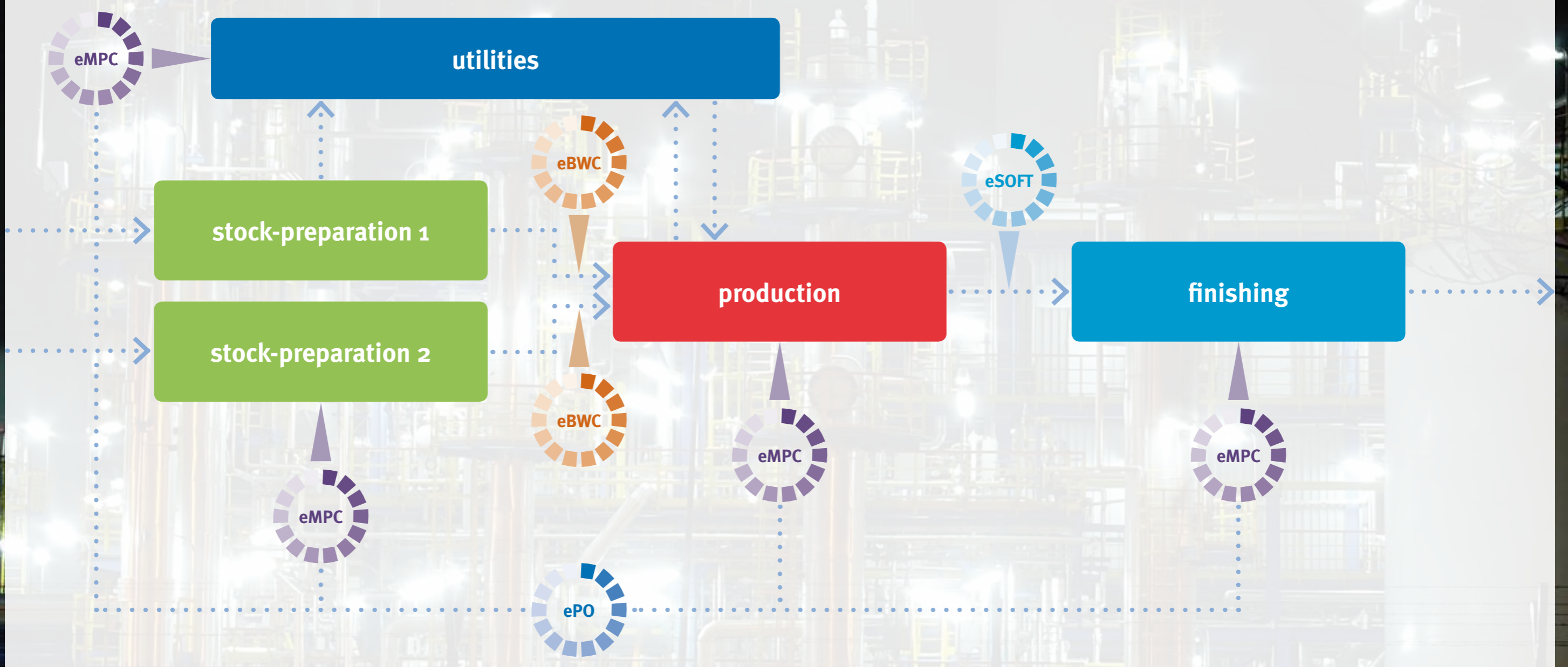


eSoft – The soft sensor uses the input quality and process settings to calculate the target quality and displays this online. A particular advantage when it comes to measured values which cannot be determined at once, involving time-consuming analysis at the laboratory, or when monitoring critical variables or as a substitute for missing online measurements in the event of breakdown.

100% transparency!

Teamwork with eposC tools.

Process- and Solutionscheme

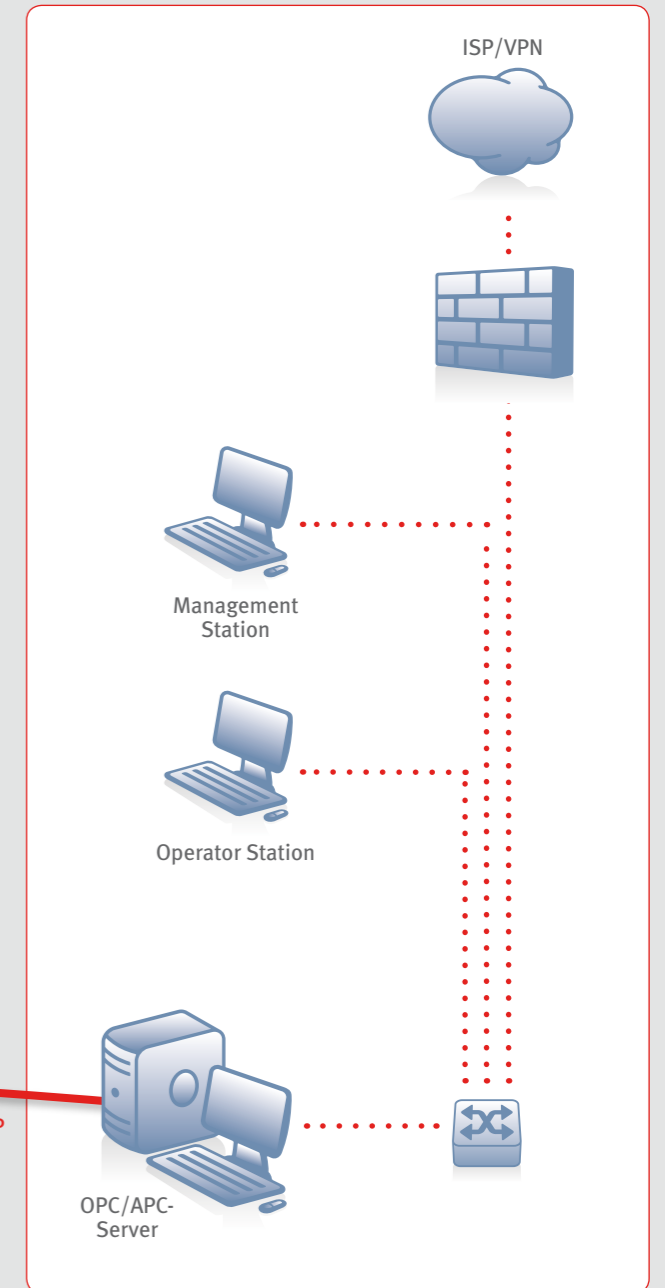
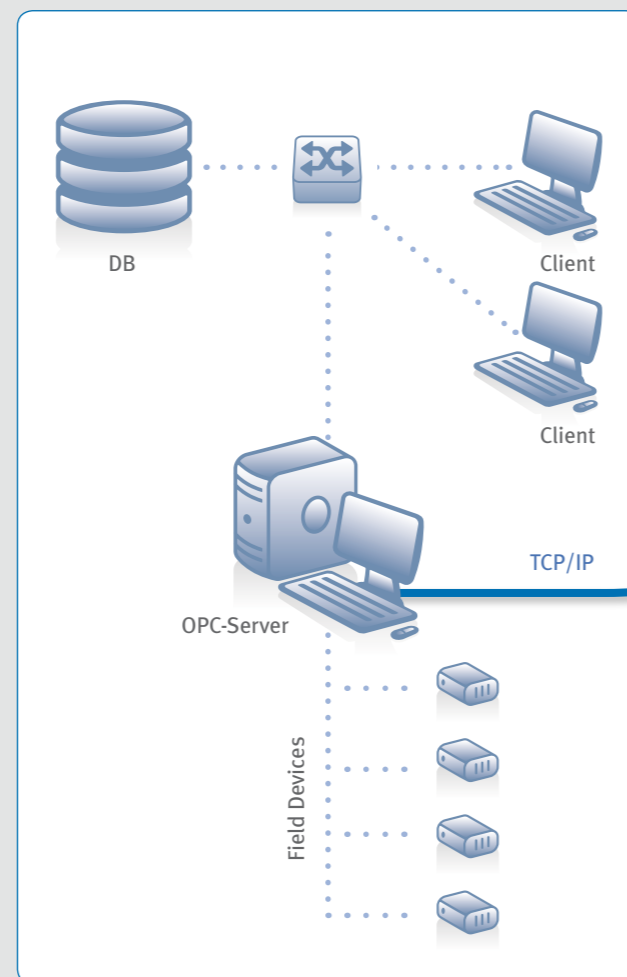


It's easy, just plug and play!

Innovation incorporated in established system software.

The eposC solution is designed for flexible adaptation to your existing infrastructure. When optimising established plants, an industrial interface (e.g. OPC) is normally used for connection to the DCS System. In the case of new installations eposC can also take over complete basic automation to field level. This is possible through incorporation of the eposC APC tools in automationX, the DCS system that has been established for 20 years. All standard functions of a process control system are available here (interfaces, visualisation, data management, etc.). This allows the eposC solution to take over process control and data management from the field device to the ERP/SAP system.

Existing DCS



eposC APC

Just exploit your potential!

eposC technology established in many branches.



Pulp and Paper Industry – For years this branch has faced the challenge of ensuring uniform product quality at high-tech, high speed paper machines out of biogenic substances. In the past it was not possible to manage complex paper and pulp production processes with conventional MPC technology, as already used in the chemical industry. It was only further work on developing eMPC (enhanced Model Predictive Control) technology that allowed eposC to establish APC solutions / references throughout the value-added chain in a matter of years. (Pulp, TMP, deinking, paper production, drying, coating, recovery of chemicals, energy and effluent).



Chemical industry – The first Advanced Process Control solutions were implemented in the chemical industry at the beginning of the 1990s. The stable production conditions existing at large chemical factories allowed APC to be developed in the hardware and software environment of that day and age. This was followed by the eposC method, which is suitable for automating new manufacturing methods, upscaling special applications, processes that have not yet been described with theoretical process models and for production techniques that could not be satisfactorily optimised with the APC tools existing in the 1990s.



Renewable energies – Support is offered to this young business sector with the upscaling and standardisation of new energy generation techniques. Here the focus not only falls on the swift optimisation of first installations, but also on the combination of real data to produce a comprehensive model-based process description, which is then available for the further development and design of additional installations.



Energy and environmental technology – Fast, efficient optimisation is what's required, particularly for the process engineering tasks of environmental technology companies, which do not act as direct service-providers to the market but rather support the core process in their role of utilities. If these processes exceed the permitted tolerances during operation, production will be at risk. Safety and minimum costs are important arguments in this field. For efficient power generation it is essential to master the ever-increasing levels of complexity. A large number of issues are involved here, ranging from the use of different fuels in calorific plant, the optimisation of efficiency with cogeneration to load distribution in power supply networks.

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