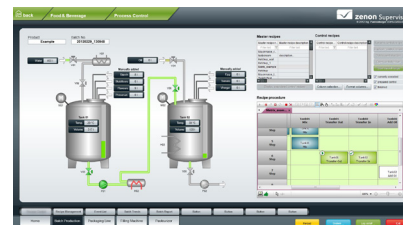


Batch Control

Batch-oriented production with zenon

The Batch Control Module enables zenon to act as the perfect solution for batch-oriented production processes. An intelligent structure and seamless integration in zenon facilitates quick implementation and efficient validation. Outstanding usability and hardware independence enables flexibility, and provides a cost effective solution.



STANDARD-COMPLIANT

ISA-88 compliant: Batch Control in zenon observes the strict division between process control in the batch recipe engine, and the execution of control functions in the equipment. Adhering to the strict models and procedures in the ISA-88 standard.

FDA 21 CFR Part 11: Batch Control in zenon and its comprehensive reporting capabilities offers full FDA CFR 21 Part 11 compliance, right out of the box.

HARDWARE INDEPENDENT

Batch Control in zenon can run in a PC or server environment, thus providing standalone or integrated solutions. Independency allows for the connection of different PLC equipment and devices. Memory and CPU-intensive applications therefore run on the PC, allowing equipment PLCs to execute control efficiently and reliably.

GRAPHICAL INTERFACE FOR SIMPLE HANDLING

Batch Control offers two distinctive graphical interfaces for operation of the Batch Control Module in the Service Engine. The Matrix Editor is used for simple sequential execution of phases and operations in recipes; and the PFC Editor is used for more complex process recipes. The editors are both intuitive and very easy to use, aimed at people without direct automation experience.

- ▶ Create recipes
- ▶ Validate and release recipes
- ▶ Start recipes
- ▶ Monitor execution
- ▶ Read back executed recipes

The operator can see at first glance the current status of a recipe and the phases within. Batch Control in zenon offers previously unmatched usability in batch production.

CONTINUOUS IMPROVEMENT PROCESS

Due to the separation of batch recipe execution and equipment operation (according to ISA-88) the control level can stay untouched when changes to the recipe are made. This is a crucial advantage in validated environments. Process experts can easily optimize available recipes, independent of the automation used.

INTEGRATION IN ZENON

The Batch Control Module is fully integrated in zenon. All other modules, features and variables can be used seamlessly in conjunction with Batch Control. Batch Control in zenon can therefore easily make use of the following functionalities:

- ▶ Existing user administration and Active Directory
- ▶ Audit-Trail and Alarm (CEL & AML)
- ▶ Message Control
- ▶ Historian and reporting
- ▶ Communication with ERP systems

DOCUMENTATION AND REPORTING

Reporting functionalities in zenon enable comprehensive and regulation compliant documentation. Data from the processes are recorded in several ways, utilizing the Audit-Trail, Alarm management, and Historians, to provide compliant and automated batch reports. In addition to fulfilling the regulation documentation needs, zenon reports allow other analyses to be performed, for example continuous improvement, efficiency, and quality monitoring.

FAST FACTS

- ▶ ISA-88 compliant
- ▶ FDA 21 CFR Part 11
- ▶ Fully integrated in zenon
- ▶ Hardware independent
- ▶ Network capable
- ▶ Graphical interface for high usability and simple operation

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Network	<ul style="list-style-type: none">▶ Batch Control in zenon is completely network capable▶ Web client capable
Operator control modes	Automatic, semi-automatic and manual
Control connections	<ul style="list-style-type: none">▶ Operate equipment with different PLCs▶ Flexible integration of other equipment
Scalability	<ul style="list-style-type: none">▶ Operate several batch-based production facilities in parallel▶ Integrate other equipment parts (e.g. packaging)▶ Flexible implementation in new and existing equipment (according to ISA-88 separation of recipe execution and equipment operation) <p>No restrictions regarding:</p> <ul style="list-style-type: none">▶ Size of recipes▶ Number of recipes▶ Number of simultaneously running recipes
Basic functions (according to ISA-88)	<ul style="list-style-type: none">▶ Running▶ Pausing/Paused▶ Complete▶ Stopping/Stopped▶ Holding/Held▶ Resume▶ Restarting▶ Aborting/Aborted
Graphical Editors in the zenon Service Engine	<p>Matrix Editor:</p> <ul style="list-style-type: none">▶ Use of all basic functions▶ Simultaneous sequences <p>PFC (Procedure Function Chart) Editor:</p> <ul style="list-style-type: none">▶ Use of all basic functions▶ Simultaneous sequences▶ Sequence selection▶ Jumping, loops▶ Unit allocation▶ Transitions
Test mode	Testing of recipes and validation of recipes for: <ul style="list-style-type: none">▶ Valid engineering parameters▶ Correct functional sequence
Manual operation	<ul style="list-style-type: none">▶ Skip active condition▶ Escape phase