

Batch Control



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Batch Control in zenon

System flexibility is worth much in regulated environments because we know that once a system is designed and validated it is very difficult and costly to change.

| | Primary Reactor 1 Hopper1_Fill | Primary Reactor 1 Hopper2_Fill | Primary Reactor 1 Temperature | Primary Reactor 1 Pressure | Primary Reactor 1 Agitator | Primary Reactor 1 Timed | Primary Reactor 1 OutputFlow |
|----------------------|-----------------------------------|-----------------------------------|----------------------------------|-------------------------------|-------------------------------|----------------------------|---------------------------------|
| 1 Reactor Fill 1 | Primary Reacto... Hopper1_Fill | | | | | | |
| 2 Agitation | | | | | Primary Reacto... Agitator | | |
| 3 Reactor Fill 2 | | Primary Reacto... Hopper2_Fill | | | | | |
| 4 Set Environment | | | Primary Reacto... Temperature | Primary Reacto... Pressure | | | |
| 5 Timed Reaction | | | | | | Primary Reacto... Timed | |
| 6 Output flow | | | | | | | Primary Reacto... OutputFlow |

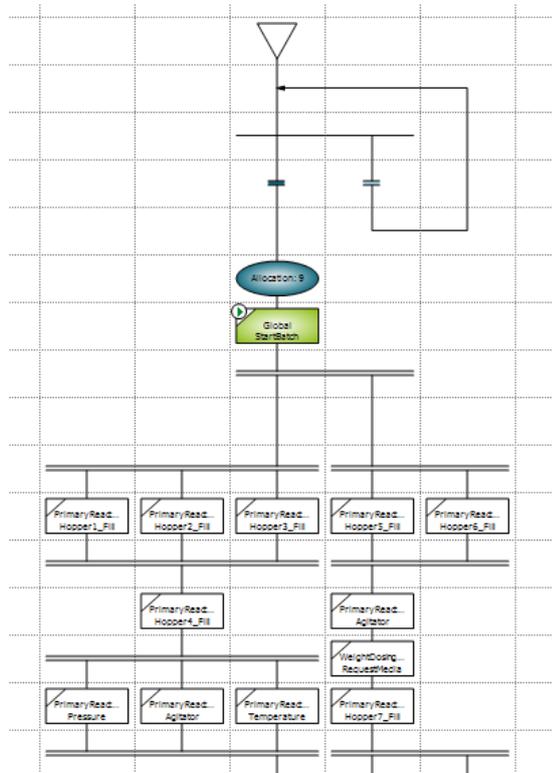
Freedom and flexibility in regulated environments

Batch Control in zenon gives some freedom to dynamically innovate in a regulated industry. The fundamental reason is the separation between equipment control and process control. In controlling a process, the design team is concerned with many entities, including, but not limited to: the physical equipment, its control, the sequencing and flow of the process, and the interactions with other equipment and systems.

With Batch Control, the installed and commissioned machine contains all the knowledge to control the physical environment and equipment, which remains unchanged throughout the lifetime of the machine. The actual process workflow, the command of each equipment group to create the desired process operation and user interaction is managed under the Batch Control engine. This creates a high degree of flexibility in the use of the equipment because it is no longer programmed to produce a specific process outcome. Only the equipment control is coded: the rest, the process control, is created using a batch recipe which utilises the equipment in the specific way each recipe needs.

The same equipment can then be utilised in a completely different format with a change of recipe. In certain installations multiple recipes can be used as a process train to maximise the equipment use, whereby a certain batch could still be being processed whilst another is started. Each recipe is under the validation process, but only the recipe (i.e. the process flow and parameters) needs to be validated and not the entire equipment control. This separation provides significant process optimization benefits and provides flexibility without changes to already validated equipment. The lifetime of equipment can be significantly extended because of this new flexibility to produce different products on the same production line.

Full integration into the zenon product family



The Batch Control in zenon integrates fully into the zenon product family so current projects can be enhanced with Batch Control. The degree of control you give to the batch engine is defined by you, so you can create the most efficient scenario to merge into your control structure. Existing equipment can be complemented and processes improved by using zenon's native drivers to communicate with equipment PLC control systems. Connection in this manner facilitates a higher level of control capabilities and communication with little or no change to the equipment control, so you can then utilize your processes in the most effective and efficient way to produce the latest products.

True process control allows you to think about the fluidity of the process without being concerned with the mechanics of the equipment control. You are free to evolve the processes so you remain at the cutting edge of an ever-changing and dynamic market. You can now create and modify process characteristics focussing all your vision only on the product and its associated demands of quality and productivity.

Removing hurdles between equipment and user interaction

The two philosophies of multi-touch and Batch Control in zenon aim at removing the hurdles between the equipment and the process and the user. They support an efficient philosophy by helping users to maintain all equipment - old and new - concurrent with the demands of productivity, flexibility, and quality, whilst introducing an element of dynamism.

By also leveraging zenon's strengths, Batch Control in zenon and Multi-touch technology create an environment which offers complete equipment and process control, with progressive and direct interfaces; helping users to realize the power and control of both new and existing processes.



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