

Batch Control & Touch technology

Content

Music and automation	3
Smooth process operation	4
zenon with full multi-touch support	5
Batch Control in zenon	6
Freedom and flexibility in regulated environments	6
Full integration into the zenon product family	7
Removing hurdles between equipment and user interaction	7

Music and automation

The emotion and movement a good musician can bring to a piece of music is a gift. Likening a process engineer to a great concert pianist may, at first, seem unlikely. While we recognise that 'analogies prove nothing', in this instance we hope the analogy will provide some clarity and a deeper understanding of what COPA-DATA is working to deliver for our users.

Wherever you are in the automation process, an interpretation is needed between the process engineers 'instrument' - the automation software and process equipment - and the process being controlled. The smooth operation and success of the process is based on the effective interpretation of the control system: from a digital representation into an analogue actuation in the real world.

Similarly, the piano is essentially a digital device, with each key denoting a particular note with no designed deviation. In contrast, the music - as we hear it - is analogue: the drama, passion and harmony are a product of the musician's talent. His or her success is in creating a smooth analogue arrangement from what is essentially a digital instrument. Working with only 88 keys, the performance pivots on the combination, sequence and volume of each note.

Most of us possess some musical talent: we can whistle a tune without practice or training. But taming a piano to accomplish a polished performance is no easy task and requires many years of tuition with constant practice. Those of you who have attempted to learn the piano understand the immense journey you must travel before even approaching a small amount of success. So why does success on the piano only come to the gifted few after so much practice and development?



Smooth process operation

COPA-DATA has always strived to minimize this disparity; to make the interpretation between the analogue process and the digital machine as accurate, effortless, intuitive and fluent as possible. Establishing this harmony allows the designer to focus not on the limits of interpretation but entirely on the process and the desired outcome.

And one technology is undergoing a revolution which really establishes a greater harmony between man and machine.

Touch panels are nothing new in SCADA/HMI control solutions, and some pharmaceutical operational environments dictate their necessity to provide intuitive control applications. But a quiet revolution is happening which is creating a new harmony between the technology and it's users. Our familiarity with the iPod, iPad, iPhone and other SmartPhones means new multi-touch technology has changed the way people use technology. At the user's fingers is an environment of smooth navigation, control and information. No longer are functions hidden in menus or secret key combinations needed to impart information which the user would then have to piece together. Now 'swiping', 'two finger expansion' and 'holding' all deliver the elegance and surprising ease of operation which really introduces a new level of harmony between man and machine.



zenon with full multi-touch support

Once again, zenon is the pioneer in the world of process automation: by implementing into its control applications multi-touch technology to facilitate the creation of elegant and intuitive interfaces which can be applied in industrial applications.



Such interfaces allow the operator, engineer or quality manager to feel and relate with the process or equipment in operation, creating the illusion of being one with the machine so operations can be carried out without the problems of interpretation.

Multi-touch is effective in opening up a system to a user's viewpoint on its activities. Much more information can be directed to a user and the user can act and command in a far more natural way.

From version 7 onwards, zenon is equipped with multi-touch technology native to the product. But the smooth interface to a process doesn't stop there. The new Batch control in zenon is also available with the new release of zenon, working to ensure a natural interface and effective control system, so the process designer has true process vision.

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

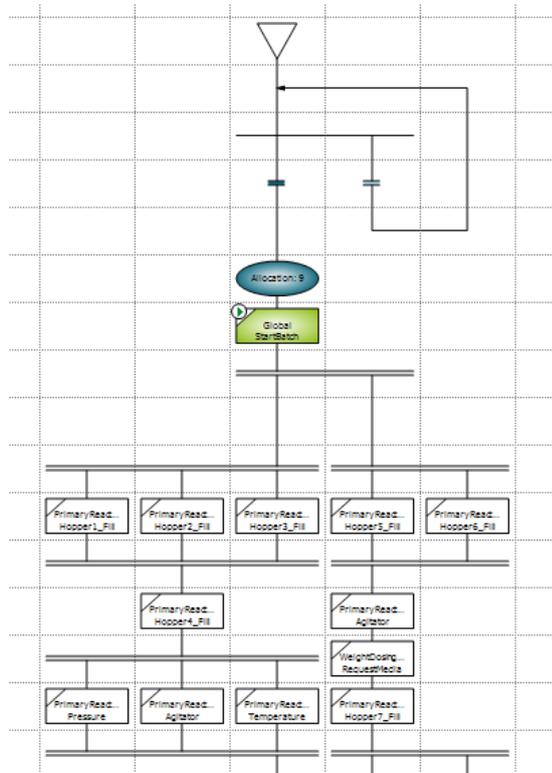
Freedom and flexibility in regulated environments

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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