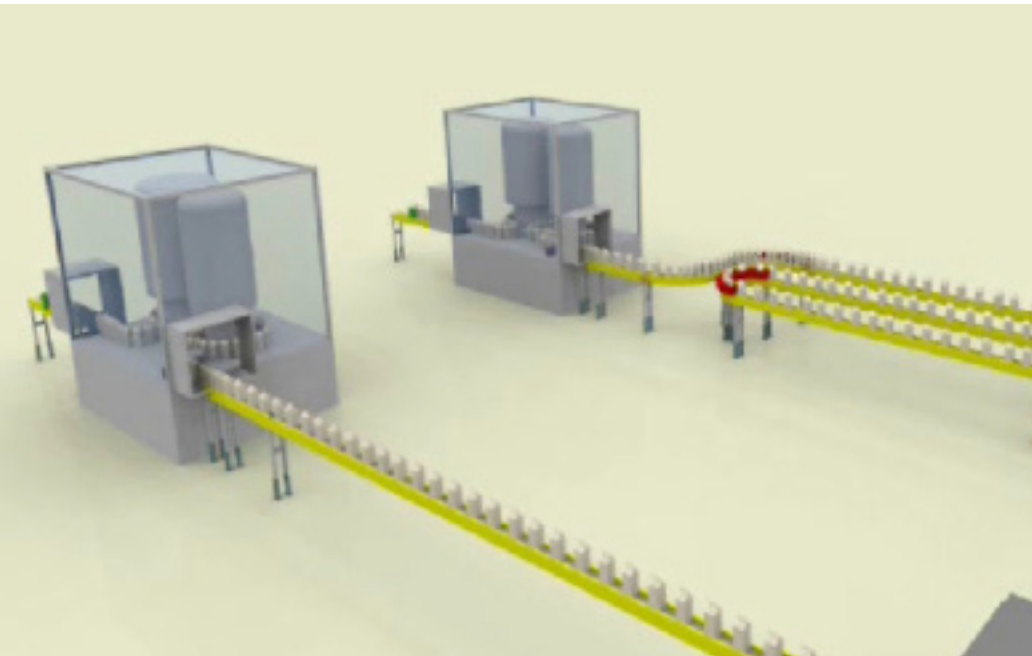


THE EMULATION EQUATION

How to get to market in half the time – even with highly complex installations



You need to increase capacity, so you're adding a new line. Maybe you want to bring outsourcing inside... gear up for a new product launch...or rearrange your geographical footprint to lower distribution costs. Either way, every day without that new line is another day of lost revenue. So what do you do?

Introduction

By using emulation to test your new controls system off site, you can get your new line up and running at capacity in half the time, for half the costs, with half the effort. Here's how one company achieved such results – even with a highly complex installation....

Half the time

Half the costs

Half the effort

Mastering the maze

This company is a global leader in the consumer products industry. At one of their large southeastern plants, they needed to add another input to their system: a line that would lead to a new high-speed palletizer.

On the face of it, the task sounded straightforward – just add a new line. However, the system was anything but simple:

- It involved a maze of conveyors four miles long that would need to be overhauled with 11 new tie-in points.
- Not only were there multiple decision points, but the new solution would need to integrate with some systems that were three years old and others that were almost 30.
- This one new asset would require the addition of four new PLCs, plus modifications to three existing PLCs.

On top of all this, the customer was under pressure to get the line up to capacity as soon as possible. They already had demand for everything they could make, so until the new line could reach capacity, they were missing vital revenue. They needed someone to master this maze of conveyors, and they needed it done yesterday.

Cutting startup time in half. Our engineers tackled the project by designing, programming, and debugging the new controls system off site using E2M and Polytron's unique emulation tools. And the result? Unlike traditional systems that require extensive debugging in the field, our controls programs were already 95% debugged on day one.

This let us start up the new system much faster, dramatically reducing installation time and costs:

- Our onsite time was reduced by 10 weeks.
- This is half the time it would've taken to perform a startup the traditional way.
- Therefore, the company met its capacity need 10 weeks earlier.
- After just three days of startup, the new line was running at 80% of capacity.



A Game Changer

Why is emulation so effective? For one thing, it's not merely simulation. After all, code checkers inside the PLC are just "code checking code." This is completely different. Emulation requires the controls system to operate a computer model of the installed system in real time – just as if it were running the new system on the plant floor. That's how we are able to complete 95% of the debugging and verification process before a single item is installed on site.

Running a computer model of the system is actually more powerful than running the system itself in the field.



Why? Because emulation can address more variables and yield more useful data in a shorter amount of time. It lets the engineer run different scenarios without impacting real production

Imagine wanting to test running a new bottle size, or package format, and finding out how the line will operate – without losing any actual production time on your running line. Or, imagine that you can test your 10-year forecasted production on your finished goods handling system...today! Emulation allows us to do this.

The Options

Traditional Field Testing. Traditional field testing requires that you have a system installed and powered up before you can even begin the process. This means that the controls engineers are waiting for construction before they can check the first line of their code.

Simulation. Some firms have resorted to "code checking code." This is merely more code in the PLC that is used to tell the real code that it is working. This doesn't validate that the PLC code is ready to handle the dynamics and nuances of an operating system – and it doesn't include every possible running scenario. Controls engineers still have to spend a lot of time onsite getting their code working – and your system producing.

Emulation. Emulation – a PLC controlling a model of the real system – is the only way to dynamically check the code beforehand. In our case, we have it debugged up to 95% by the time we go onsite. And the emulation model is then used to train your staff on how to run and maintain the working system.

The Emulation Equation

If you can use emulation to complete 95% of your debugging and verification off site, then you can get to market twice as fast. We call this, "The Emulation Equation." In practice, it means a simple, cost-saving, three-step process:

1. Test everything in-house on our emulation model.
2. Make any necessary adjustments.
3. Conduct a final Factory Acceptance Test with the customer using the emulation model. At this point, 95% of debugging is complete.

After seeing the unprecedented value of The Emulation Equation first hand, this customer now insists that he would "never do another project without it." As the first and only engineering firm to provide emulation solutions for high-speed packaging systems, we'll be ready when he needs us.

"I will never do another project without it"



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EMULATION = Model + PLC + HMI

= Program 95% Debugged before installation

= Startup Time x 1/2

= Time to Market x 1/2