

Machine Builder Libraries – Not just for Machine Builders

Kinetix® Quality Team benefits from Machine Builder Libraries

Challenge

- How to avoid extra personnel time continuously monitoring environmental chambers
- How to correlate drive fault information with axis operation log
- How to allow operation of the environmental chambers even if a physical device is faulted (drive or motor or cable) without the presence of a control engineer

Solution

Machine Builder Libraries

Results

- Reduced programming time due to quicker setup and configuration of axes
- Email/text notification when drive fails saves test engineers hours of downtime
- Control engineers can remain remote even when there is an axes failure due to capability of simple command axis virtualization and continue operation of caustic environment testing



Background

Although it is called Machine Builder Libraries, the content is not only for OEMs – it is being leveraged by our own internal engineering teams as well. In our Mequon campus, the Kinetix Quality Team has leveraged content from Machine Builder Libraries in multiple areas of product testing. Some content is an obvious fit – such as the device management objects designed for the Kinetix servo drives which provide rich status and diagnostics as well as expanding the management capabilities of the drives under test. Less obvious is the use of content that expands the capabilities of other Rockwell Automation products such as using ControlLogix® Ethernet I/P™ modules to send email or text messages to engineers and technicians when a test needs attention.

Regardless, if you're building machinery or automation products, all engineers look for any advantage when it comes to reducing the time it takes to complete a project and the Kinetix Quality Team is no exception.

“We are able to move faster with Machine Builder Libraries, which gets us to the next generation of product in a shorter time frame.”

***Jeff Kohner
Manager Quality Assurance***

LISTEN.
THINK.
SOLVE.®

Accelerated Lifecycle Testing

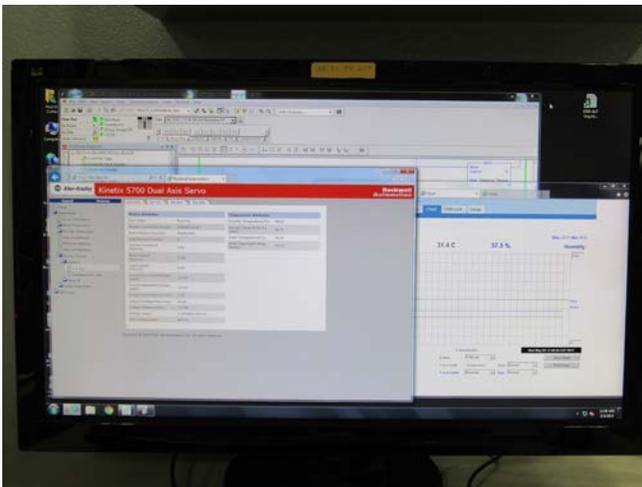
Deep in the engineering labs of our Mequon, WI office, scores of Kinetix drives are subjected to accelerated lifecycle testing which operate drives under “load,” in an environment with ambient temperature and humidity well above those the drives were designed to function in. The drives operate 24 hours a day – for weeks and months at a time.

The environmental chambers cannot be continuously monitored, so it requires engineers to physically make periodic spot checks to determine how the tests are functioning. By leveraging Machine Builder Library content, they are able to receive e-mail notification out of the ControlLogix Ethernet Modules. This provides the engineers almost instant notification that a test has failed. As an added bonus, it allows the engineers to be more productive by removing the requirement of having to perform periodic spot checks.

“The email/text notification not only frees us from having to manually check the test multiple times per day, but it has allowed us to minimize our response time to address test anomalies and ultimately correct the issues faster.”

Paul Corbin
Project Engineer – Quality

Once a test has failed, engineers can respond quickly to begin diagnosing which drive is generating faults in the automated test. Using the CIP Axis Device Handlers and the associated FactoryTalk® View ME faceplates the engineers can quickly identify which drive is suspect, and analyze fault and operations records to determine a root cause – all without writing custom application code or opening design software.



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Caustic Environment Testing

Not all our environmental testing happens in-house. Sometimes the right environment requires a special chemist. Kinetix drives are subjected to operating in these environments until they can operate no longer and are then brought back to Rockwell Automation Labs for detailed component and material analysis. This data helps our engineers continually improve the quality of our products.

When a failure occurs due to the environment, the hardware must be removed from the system shortly after failure so that further environmental damage to the product doesn't influence the lab analysis. While this sounds straight forward, there is a catch – not all chemists double as automation engineers. The choice is simple – either ship an engineer or ship a test that doesn't need one.

Again turning to Machine Builder Library content, the CIP Axis Device Handler objects were used to take advantage of their 'virtualization' capabilities which allowed the unfamiliar operator to simply stop the test and 'virtualize' that axis with the flip of a switch so they can remove the physical hardware from the test and restart the operation.

“Machine Builder Libraries allowed our Quality Team to speed up setup and configuration of the axes, saving hours of programming. After the adoption of the Machine Builder Libraries, the required time of programming, configuration and set up of the axes has decreased by 90%.”

Greg Ziegler
Project Engineer – Quality

Once finished, fault and event information reported by the CIP Axis Device is analyzed to correlate hardware failures to drive faults.

Use of Machine Builder Library content continues to increase the productivity of our test engineers when designing and supporting our product tests. Therefore allowing the team to focus more on solving customer issues and testing our new products.

“It is very important for the Quality team to resolve customer issues at the same time we are testing new products. The use of Machine Builder Library helps to make this balance a reality.”

Jeff Kohner
Manager Quality Assurance