Application Content – Machine Builder Libraries

Reduce Time to Design, Develop and Deliver

Overview

Machine Builder Libraries help design machines faster, delivering specific functionality and best-in-class performance in a modular approach.

Machine Builder Libraries are available in Studio 5000® Application Code Manager as a Rockwell Automation Library.

Studio 5000 Application Code Manager allows the creation and management of your own library objects for reuse on other projects.

The use of Machine Builder Libraries as components of your own libraries facilitates the management of the lifecycle of your application code.

Studio 5000 Application Code Manager:

- Easily create and configure objects using re-usable libraries of code
- Helps improve design consistency, reduce engineering costs and achieve faster commissioning

Machine Builder Libraries are:

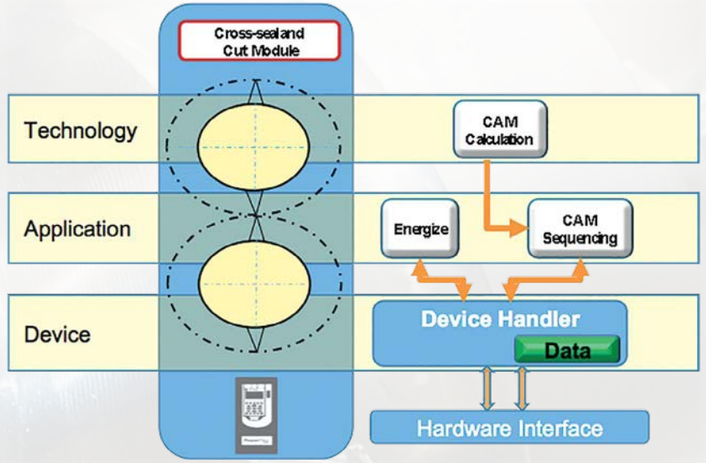
- Life-cycle managed
- Tested and documented
- Best-in-class for performance
- Application-centric
- Flexible, granular and modular
- Easy to integrate

Machine Builder Libraries Granularity

Machine Builder Libraries are designed in a modular way to maximize granularity and flexibility. Machine Builder Libraries utilize standardized interfaces to assure interoperability with each other. They are also made to be embedded into your existing Logix Application and work with your existing code where possible.

Benefit from Machine Builder Libraries Architecture Example

User selects applicable blocks from the library to assist the creation of a specific application module. For example, user needs to build a "Cross-seal and cut" application module.



The composition of a function using smaller and relevant blocks allows the creation of greater variability of functions.

LISTEN. THINK. SOLVE.®

Allen-Bradley • Rockwell Software

Rockwell Automation

Machine Builder Libraries Architecture

Reduce Time to Design, Develop and Deliver

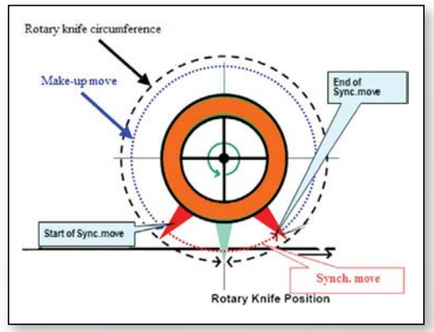
Select library objects from Machine Builder Libraries that helps build the desired application module.

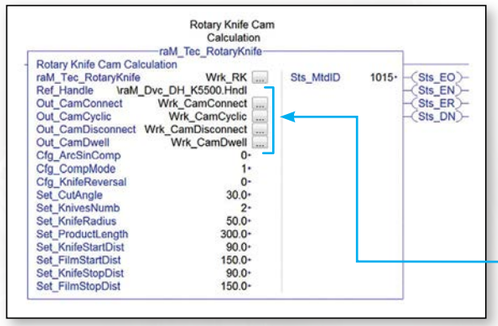
As an example, use Machine Builder Libraries to accelerate the development of a “Cross-seal and cut section” application module.

Technology

Rotary Knife Cam Calculation

- Calculate cam profile
  - Connect (accel)
  - Disconnect (decel)
  - Cyclic (continuous)
- Configure profile
  - Maximum smoothness
  - Minimum peak velocity
- Sync compensation
  - Linear
  - Arcsine

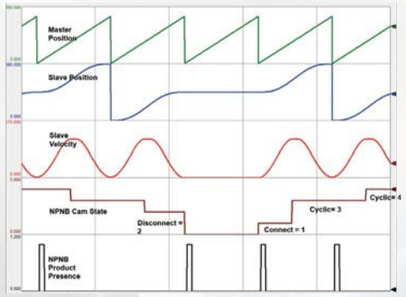


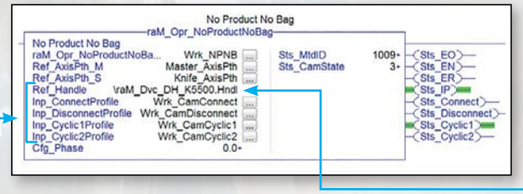


Operation

No Product No Bag

- Cam management
  - Connect when product available
  - Disconnect when product not available
  - Adjust phase
  - Switch from cyclic 1 to cyclic 2

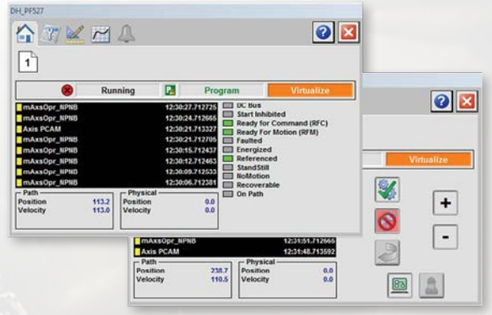


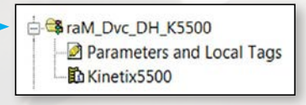


Device

Device Handler

- Kinetix® and Powerflex axes handler
  - Enhanced diagnostics (multiple languages)
  - Manual axis operation
  - Path recovery
  - Axis virtualization = test your code as a virtual machine
  - Standard interface for application code
  - Several methods available

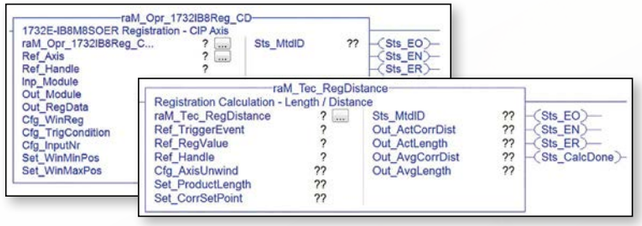


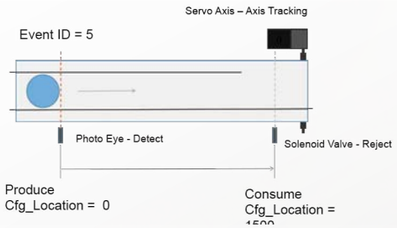


Machine Builder Libraries Portfolio Examples

Registration Instruction

- Arm/re-arm in one instruction
- Hardware registration – drive and 1732 SOE modules
- Software registration – capture position of another axis
- Look for the sensor in a specific position window
- Support for CIP, virtual and consumed axes
- Calculate correction distance, length and averages



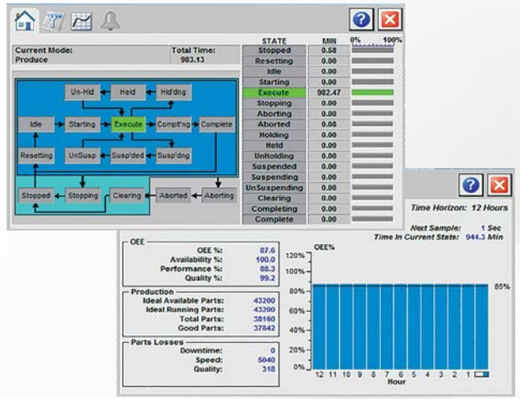


Position Tracking

- Produce an event into a position tracking queue
- Consume an event from a position tracking queue
- Tracking queue consists of ID, position, product presence and user-defined data

Machine Performance Tracking

- RAPID equipment interface Add-On Instructions (AOI) data structure
- View current machine mode and state
- Track cumulative mode/state times
- Track Overall Equipment Effectiveness (OEE) and production data over 1-, 5- and 12-hour time



Benefits of Machine Builder Libraries:

- **Faster design cycles**
  - Use the Device Handler in Virtual Mode and virtualize your complete machine application code
  - No need to wait for hardware availability to test the code
- **Reduced engineering cost**
  - Use Device Handler queue of events to troubleshoot your application code
- **Reduced execution risk**
  - Create and manage your reusable modular code based on application specific, tested and documented libraries
- **Increased machine value**
  - Build a machine event list aggregating events from different devices
- **Managed machine life cycle**
  - Easier hardware upgrade due to device handler standard interface
  - Separation of application code and hardware management
  - Benefit from futures updates of Machine Builder Libraries
  - Easier machine functionalities upgrade by updating Machine Builder Libraries

For More Information

Contact the Machine Builder Libraries team at oemlibraries@ra.rockwell.com.

Now available for download on the Compatibility & Downloads web page at rockwellautomation.com.
Click here to download.

Connect with us.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 9324-PP003B-EN-P – September 2017