

Connected Components



Simpler, Faster, Cost-Effective Machine Building
on Micro Controller Platform



**CONNECTED
COMPONENTS**

**MICRO
CONTROLLER
PLATFORM**

LISTEN.
THINK.
SOLVE.

Allen-Bradley • Rockwell Software

**Rockwell
Automation**

Overview

For a competitive world, the Connected Components portfolio provides a Micro Controller based solution for your machine requirements, all at a competitive price without sacrificing the quality and performance of your machine.

The core components supporting the solution are micro controllers, drives, operator interface, safety, motion, and software.

Why Connected Components?

- Optimized for cost effective and customized solutions

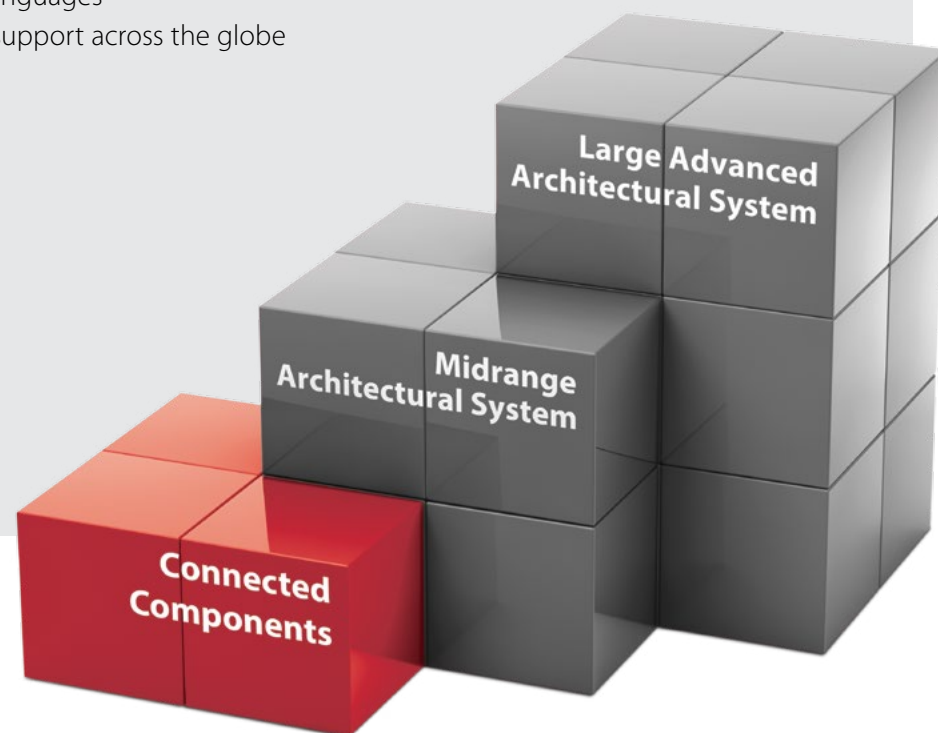
- Micro800® plug-in and expansion I/O modules offer flexibility to customize your controller to exactly what you need
- PanelView™ 800 terminals with landscape and portrait modes save space
- PowerFlex® Compact AC drives optimize panel space and application versatility

- Single software and availability of design tools for application development

- Connected Components Workbench™ software for all your configuration, programming, and visualization
- Controller variables can be directly referenced by HMI tags, resulting in time-saving benefits
- Connected Components Accelerator Toolkit reduces machine design and development time by making it easier to implement common control tasks

- Ship your machine anywhere in the world

- Products comply with the latest global standards
- Software available in many languages
- Rockwell Automation offers support across the globe



Connected Components Range Of Products

Micro800® Programmable Logic Controllers (PLCs)

Each controller is optimized for cost and performance for specific applications with customization and flexibility in mind.

The Allen-Bradley® Micro800 PLC family, together with the Connected Components Workbench™ software, sets a new global standard for ease of use, while providing enough control capability to match your application requirements. With a wide range of network protocols, finding the right controller to fit your communication needs is easy. TouchProbe provides a cost effective method for achieving exact position registration.

With greater flexibility in mind, Micro800 plug-in and expansion I/O modules extend the functionality of embedded I/O without increasing the footprint of your controller.

To find out more, visit

www.rockwellautomation.com/go/micro800



Micro810® Controller

Smart Relay Micro PLC



Micro820™ Controller

MicroPLC optimized for smaller standalone machines and remote automation projects



Micro830® Controller

Flexible Micro PLC with Simple Motion



Micro850® Controller

Expandable Micro PLC with Ethernet



PanelView™ 800 Graphic Terminals

Optimized for compatibility with Micro800 controllers, these graphic terminals offer built-in Ethernet and serial communication ports to support a variety of protocols.

The PanelView 800 family from Rockwell Automation provides a compact space-saving design with high-speed processor and high-resolution touch screen display with 65K colors. Preferred integration with

Allen-Bradley micro controllers offers you an ideal control and visualization solution for a wide variety of applications.

PanelView 800 offers the fundamental features that you need in a full line of displays in 4 inch, 7 inch, and 10 inch sizes. Fast and easy installation with quick lever clips.

To find out more, visit www.rockwellautomation.com/go/lit/pv800



PowerFlex® Compact AC Drives

Designed for ease of use, this general-purpose class of drives provides a compact package to optimize panel space and application versatility.

PowerFlex® Compact-class AC drives deliver a simple and cost-effective solution for standalone machine level control applications or simple system integration. Designed for ease of use, this general-purpose class of drives provides a compact package to optimize panel space and application versatility.

To find out more, visit <http://ab.rockwellautomation.com/Drives/Compact>



Kinetix® 3 Component Servo Drives

The Kinetix 3 drives are ideally suited for low-axis count machines. This drive offers models with output power as low as 50 Watts, allowing you to tailor the axes in your machine to the actual power requirement, which will minimize system size and cost.

Kinetix 3 Component Servo Drives apply the appropriate level of control to a low-power application without the complexity of traditional servo solutions. When you incorporate this drive into a Connected Components solution, the Connected Components Accelerator Toolkit may reduce design and commission time, in addition to providing CAD drawings, electrical layouts, and sample code.

To find out more, visit www.rockwellautomation.com/global/go/kinetix3servodrive



Guardmaster® 440C-CR30 Software Configurable Safety Relay

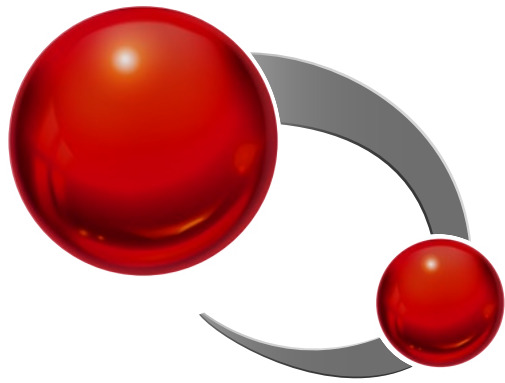
This relay is ideal for applications requiring as many as ten dual-channel safety circuits and controlling as many as five output zones.

The Guardmaster® 440C-CR30 Software Configurable Safety Relay is flexible, cost-effective, and easy to use. You can configure this relay by selecting certified safety function blocks to rapidly build your applications. This relay is completely integrated with Allen-Bradley Logix controllers and can be configured using Studio 5000 Logix Designer® software or Connected Components Workbench software.

To find out more, visit www.rockwellautomation.com/global/go/guardmaster440c-cr30



Connected Components Workbench Software



Making It Easier to Configure, Program, and Visualize

Connected Components Workbench Software helps simplify standalone machine development by programming all your products with one software.

Standard edition available as a free web download or free DVD and includes free technical support.

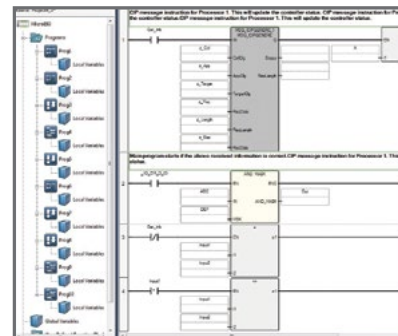
Developer edition offers additional features for an enhanced user experience.

To find out more, visit
<http://www.rockwellautomation.com/go/lit/ccws>

Minimize Start-up Time with Connected Components Workbench Software

Easy to Configure

- Common, simple configuration helps reduce development time
- Wizards to guide through the configuration of PowerFlex Drives
- Connectivity to select devices via plug & play USB communication
- Configure safety relays using built-in function blocks instead of wiring (Guardmaster 440C-CR30)



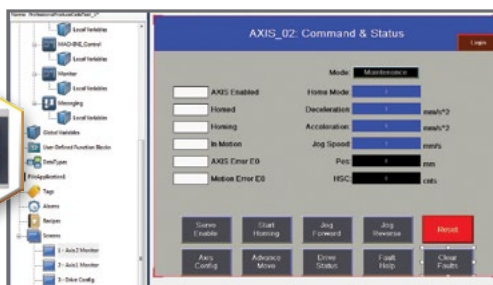
Easy to Program

- Program Micro800 using Ladder Diagram, Function Block, Structured Text editors that support symbolic addressing
- Extensive use of Microsoft and IEC 61131-3 PLC programming standards
- Standard PLCopen motion instructions to simplify Pulse Train Output axis programming
- Value add through sample code from Rockwell Automation and partners via user defined function blocks



Easy to Visualize

- PanelView 800 application development is integrated with Micro800 controller in Connected Components Workbench software
- Micro800 variable names can be directly referenced by HMI tags which result in less complexity and time-saving benefits
- Configure predefined HMI templates to your needs (Download from Connected Components Accelerated Toolkit)



Connected Components Accelerator Toolkit

Connected Components Accelerator Toolkit (CCAT) helps reduce the design overhead so you can concentrate on making your machine the best in the market.

Using the CCAT is easy as 1, 2, 3

1. Select your system's components
2. Use CCAT Generate function to automatically produce the projects' BOM, CAD, documentation, logic and HMI screens
3. Add the custom intellectual property that makes your machine special

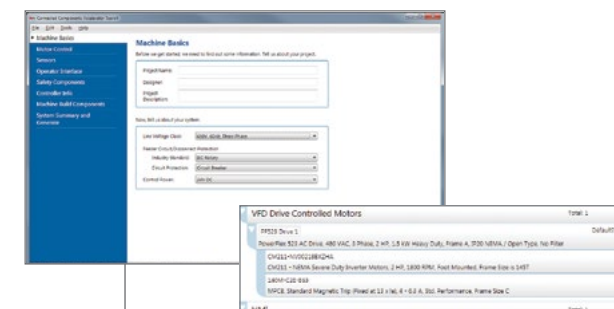
Supporting starters to servo drives, alarm handling to pump control, the CCAT includes the products and applications your machine needs.

Watch the introductory video to see how CCAT can save 50% to 75% of the engineering time on your next machine design!

To find out more and download the free tool, visit
www.rockwellautomation.com/global/go/CCAT

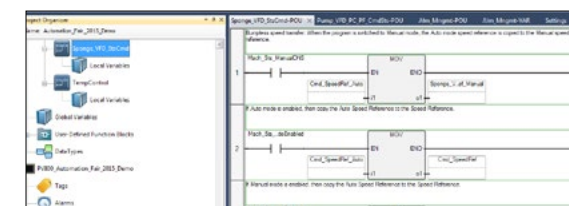


Reduce Design Time with Connected Components Accelerator Toolkit



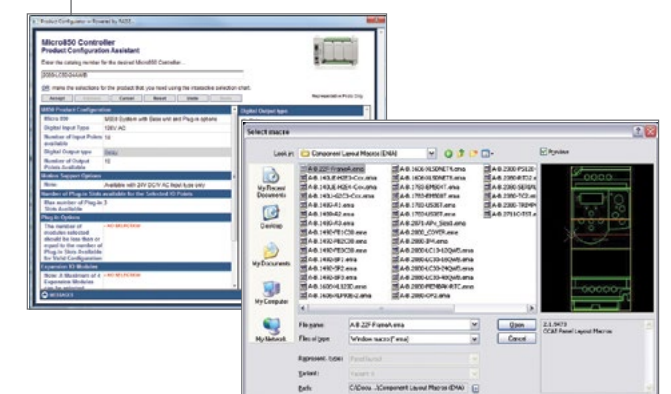
Easy to Design

- Clear menu structure aids in product selection for your system
- By using customized names in the generated design files, they are significantly easier to use, resulting in a much shorter learning curve and design time requirement
- Automatically generates customized BOM, CAD set, controller program and HMI screens for your machine



Easy to Customize

- Quickly modify devices or add more devices to your bill of material
- Tailor your complete system layout and wiring drawing set
- Customize your logic and HMI screens



Easy to Use

- Best practice-based programs given to help with your overall machine control
- Drop-down menus for product selection

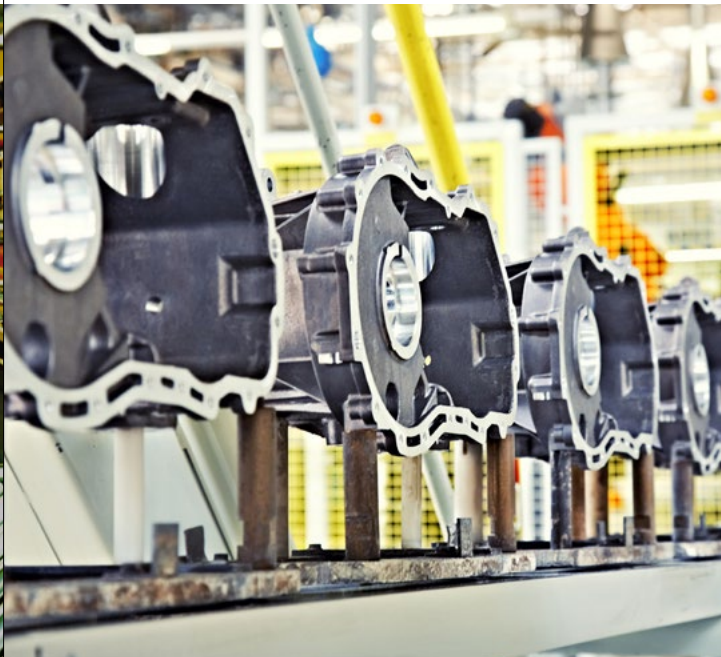
Key Applications with
Connected Components Solution



Packaging



Material
Handling



Manufacturing &
Assembly



Converting, Print,
Web



Process
Skid



Energy

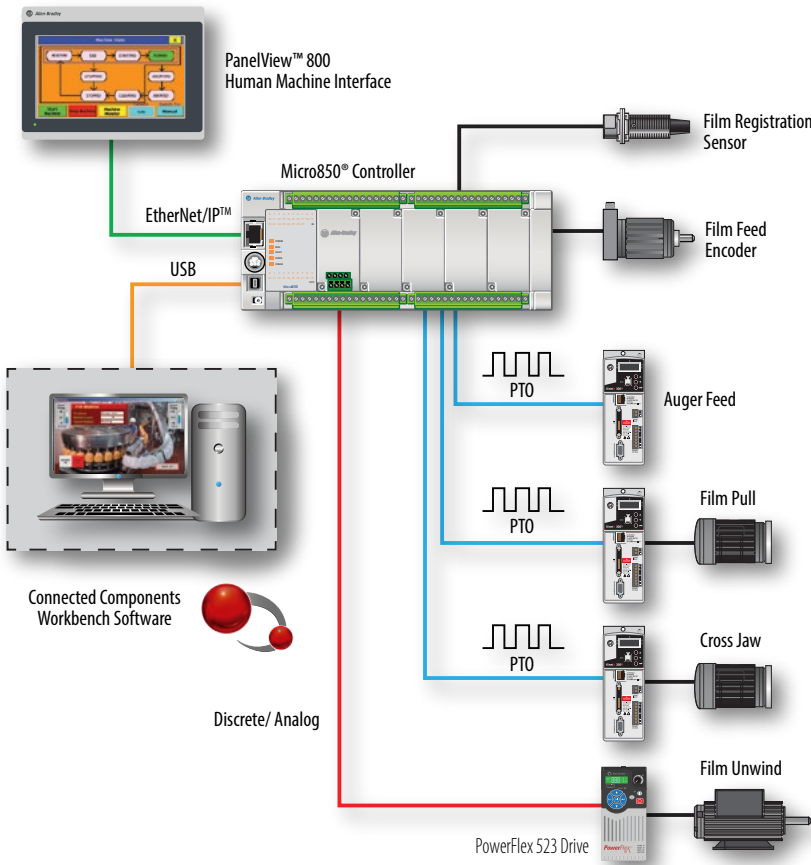
End users want equipment delivered quickly and at a reasonable price. They rely on their Machine and Equipment Builders (OEMs) to deliver high-performing, flexible machines that offer machine to machine communication to easily integrate into a facility while offering the business agility to react to changing market demands. To respond, OEMs must evaluate strategic ways to reduce costs and time to market while innovating to stay ahead of the competition.

Rockwell Automation offers standardized, scalable control, and information solutions allowing OEMs to quickly scale their equipment designs to meet changing requirements. These innovative automation systems packaged with design tools, can help OEMs lower the cost to design, develop, and deliver their machine. The Connected Components solution is specifically designed to help you meet today's requirements through a range of application based control solutions.

Packaging

Typical Architecture Diagram for Entry Level Intermittent Machine

Connected Components - proven optimal configuration. Cost effective solutions. Reduced panel engineering enables a shorter time for wiring and thus improves machine assembly time. Availability of plug-in modules at the controller allow for expanded machine features and functions.



Packaging Speed	<80 Packs Per Minute
Network	Modbus / Pulse Train Output
Controller	Micro800® Family
Variable Frequency Drive	PowerFlex® 523
Servo Drive	Kinetix® 3 / Kinetix® 300
Motion	Up to 3 axes

Common Programming Software Connected Components Workbench™ software for Micro800 controller, PowerFlex (AC Drives), and PanelView™ 800 HMI.

Advanced Motion Control supports up to three motion axes using 'Pulse Train Output'

Versatility of Interfaces up to six high speed counter inputs and up to three 'Pulse Train Output' over embedded digital I/O. Up to five plug-ins and up to four expansion I/O modules.

High Flexibility plug-in and expansion modules allow you to optimize your machine cost by choosing performance and functionality specific to your machine needs.

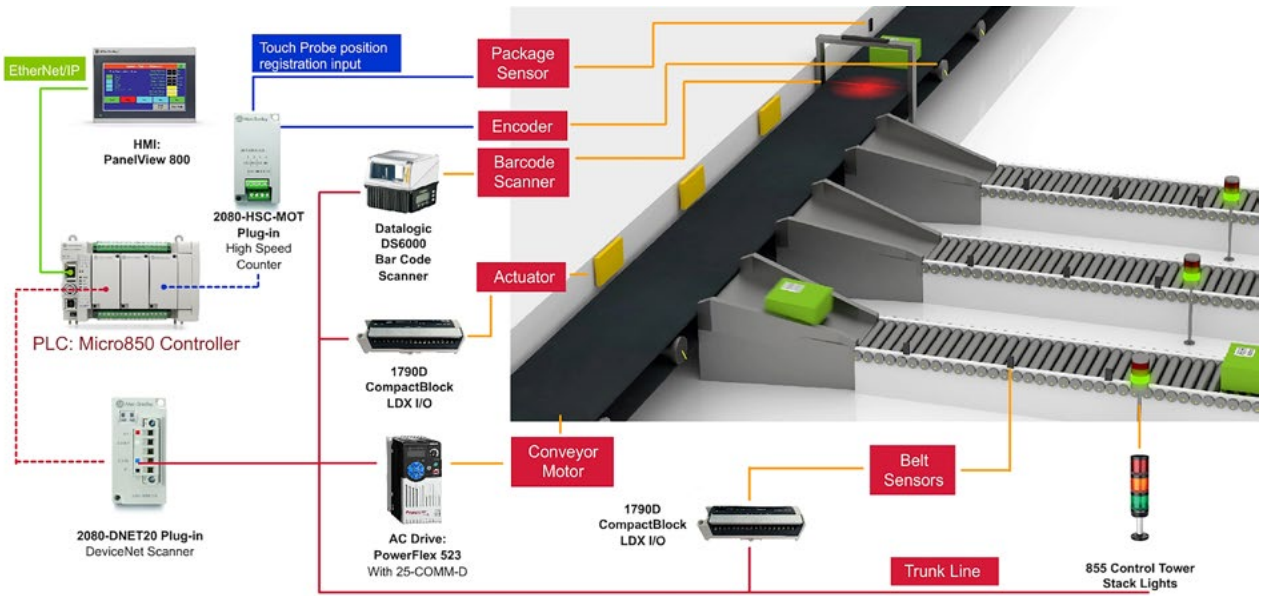
Touch Probe Function able to capture accurate registration position at high speeds with built-in hardware.

Material Handling

Typical Architecture Diagram for Material Handling Unit

Conveyors and conveying systems are key components in many material handling processes. Responsible for moving bulk goods or unit loads throughout a manufacturing or distribution facility, conveyors have a significant impact on efficiently managing product flow and supply chain demands.

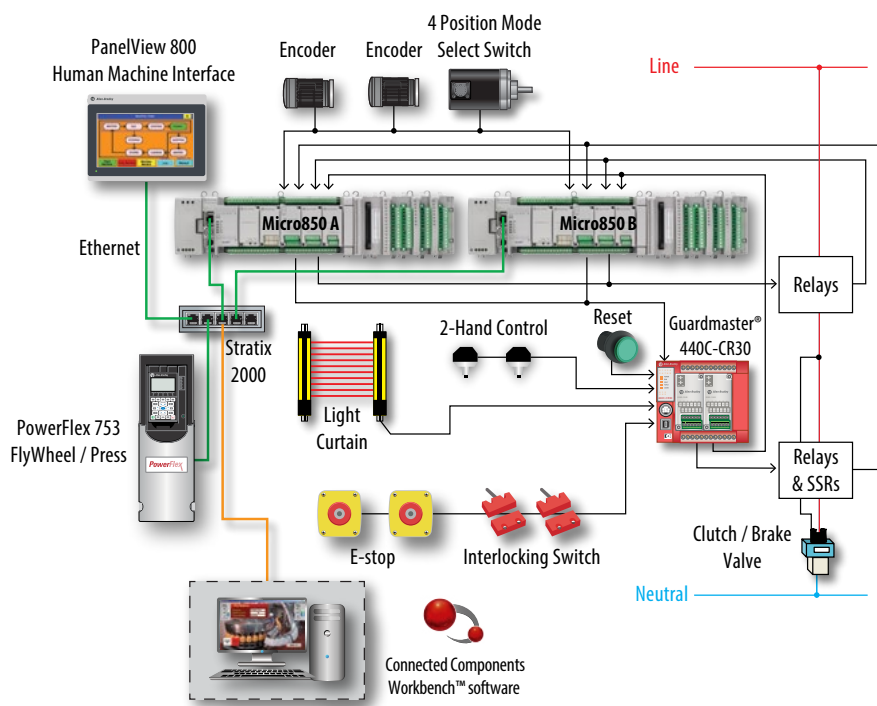
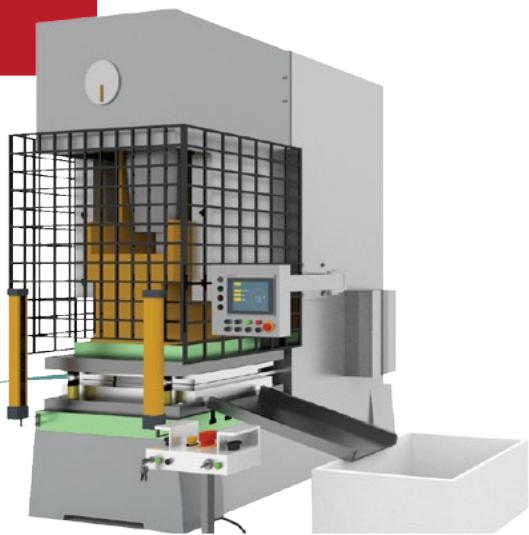
For end users concerned with improving production and reducing maintenance, incremental gains in conveyor performance, reliability, and efficiency can lead to significant cost reductions. In addition, increased modularity and flexibility mean easier reconfiguration to meet changing demands and new product introductions.



Manufacturing and Assembly

Typical Architecture Diagram for Stamping Press Application

- Scaled solutions to match press functionality needs.
- Leverage Connected Component solutions for simple press solutions using one common configuration software with broad portfolio of safety components in the industry.
- Software configurable safety relay with SIL 3/PLE certification.
- Controller plug-in modules offer cost-effective expansion of machine features and functions.



Component Safety Solution	
Network	EtherNet/IP, Modbus RTU
Controller	Dual Micro850 controllers
Variable Frequency Drive	PowerFlex 753 for fly wheel
Safety Devices	Guardmaster® 440C-CR30 and Guardmaster® GuardShield
Motion	Dual encoder feedback from flywheel

Common Programming

Software Connected Components Workbench™ software for Micro800® controller, PowerFlex AC drives, PanelView 800 HMI, and Guardmaster® 440C-CR30 safety relay.

Safety Functions and I/O provided by Guardmaster® 440C-CR30.

Heavy duty performance and high torque at low frequencies for fly wheel with PowerFlex 753 drive.

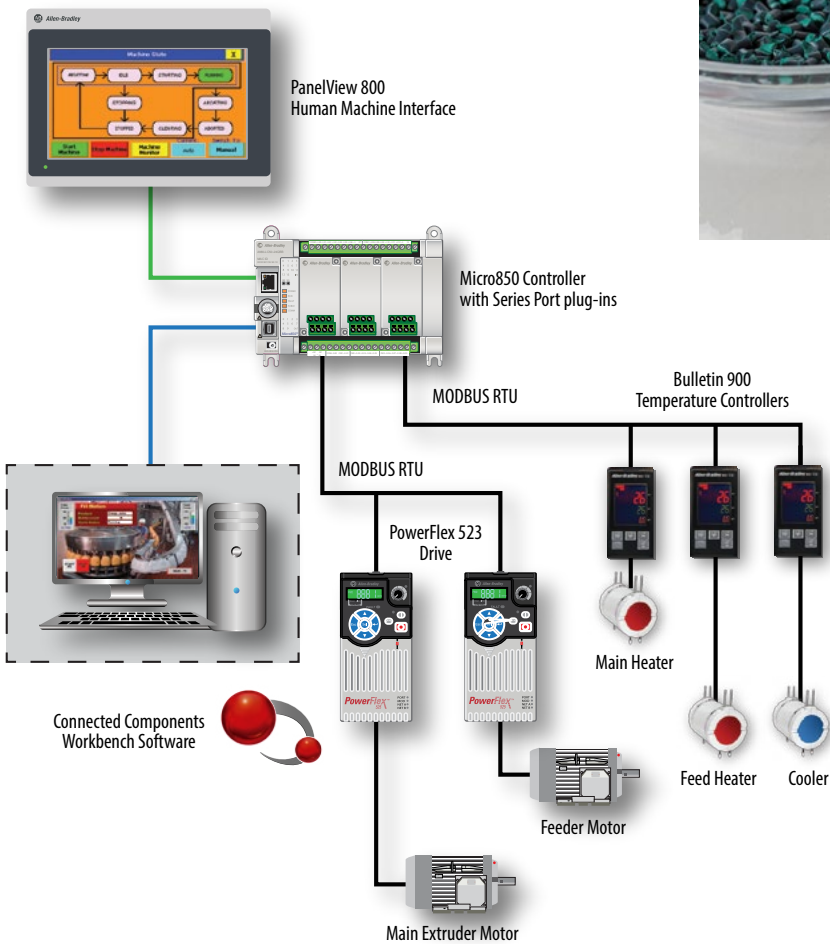
Versatility of controller interfaces up to six high speed counter inputs and up to three 'Pulse Train Output' over embedded digital I/O. Up to five plug-ins and up to four expansion I/O modules also allowed.

Controller expansion I/O and plug-in for Die Protector, Tonnage Monitor, and CAM output.

Converting, Print, Web

Typical Architecture Diagram for Extruder Application

Connected Components are cost-effective solutions with proven optimized configurations. You can reduce panel engineering and decrease wiring and machine assembly time. Plug-in modules are available for the controller to expand machine features and functions.



Common Programming

Software Connected Components Workbench™ software for Micro800 controller, PowerFlex (AC Drives), and PanelView™ 800 HMI.

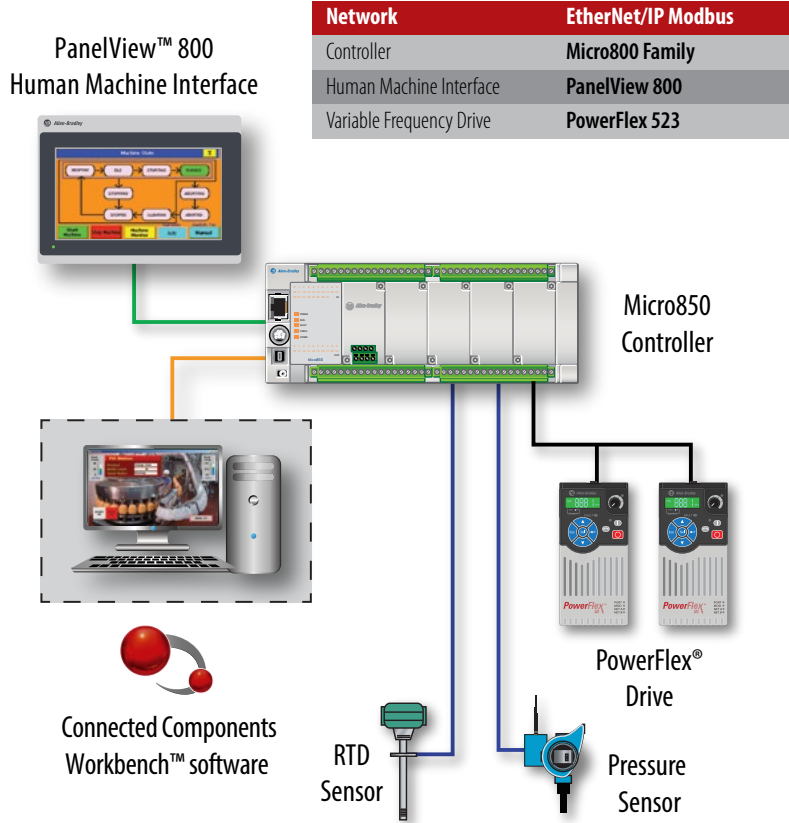
High Flexibility plug-in and expansion modules allow you to optimize your machine cost. Up to five plug-ins and up to four expansion I/O modules are also allowed. Choose the performance and functionality specific to your machine needs.

Maximum of 6 Serial Ports for communications to temperature controllers, bar code readers, and other devices.

Main Motor	Asynchronous Motor No Encoder
Network	Modbus RTU, EtherNet/IP
Controller	Micro850, Serial Port Plug-ins
Drives	PowerFlex 523 AC Drive
Main Screw	Asynchronous Motor, No Encoder
Temperature Control	Bulletin 900-TC
Temperature Zone	Up to sixteen

Process Skid

Typical Architecture Diagram for Process Skid



Common programming software

Connected Components Workbench™ software for Micro800®, PowerFlex® (AC Drives), PanelView™ 800.

Flexibility

High uses of open communication standards as its backbone to make real-time information available.

Touch Probe Function

Able to capture a more accurate registration position at high speeds with built-in hardware

PID Process Loop

Able to help control physical properties such as Temperature, Pressure, Liquid level & Flow rate.

Recipe Management

Up to 10 recipe sets each containing up to 128 variables per recipe to support manufacturing needs.

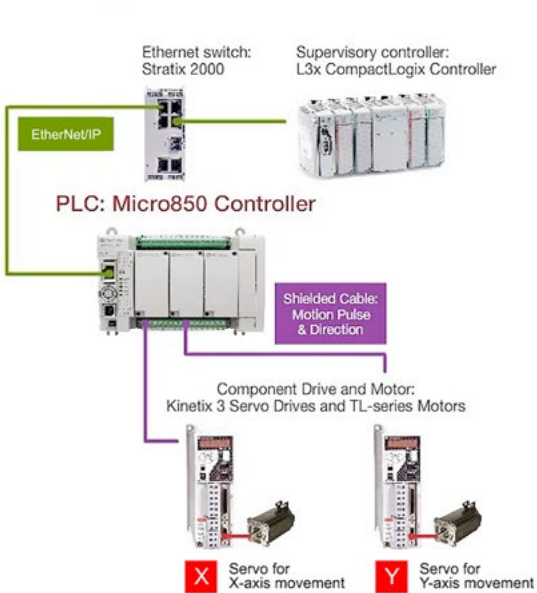
Energy

Typical Architecture Diagram for Solar Tracker



Growing concerns about energy availability have increased consumer and government interest in solar power as a viable alternative to traditional power sources. In fact, large concentrated solar power plants are capable of creating the thermal energy equivalent to conventional fossil fuel power plants.

Due to the high up-front capital investment required for solar energy plants, the levelized cost of electricity (LCOE) is typically higher for solar power than for more traditional forms of power generation like coal and gas. But by working with a trusted automation vendor, solar power developers can begin producing power more quickly, and operate and maintain the site more efficiently, helping to reduce the LCOE and make solar power generation a more cost-effective alternative.



Resources

Resources

Application Videos

<http://www.rockwellautomation.com/global/go/youtube-connected-components>

Micro800 Sample Code Library

<http://www.rockwellautomation.com/go/scmicro800/>

Machine and Equipment Builders (OEM)

<http://www.rockwellautomation.com/global/go/oem>

Machine and Equipment Builders (OEM) Resources

<http://www.rockwellautomation.com/global/go/oem-resources>

To view the interactive brochure version, visit

<http://www.rockwellautomation.com/global/go/connected-components-ebrochure>



For more information on Connected Components, visit:
www.rockwellautomation.com/go/cc

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