LISTEN.
THINK.
SOLVE.®

Micro800® PLC Family

Peter Kacz

Commercial Engineer for SC and IA

PUBLIC

Allen-Bradley · Rockwell Software

Rockwell Automation

Agenda

Micro800 Family Overview

Value Proposition Of Micro800 System

Applications For Micro800

Overview Of Resources

Micro800 Controller Family
Using Connected Components Workbench™

Nano PLC | **Micro PLC**

Performance/Features

Each controller is cost and performance optimized for specific applications

24-132pts

10-88pts

20-36pts

12pts

Micro810
Programmable relay replacer and timer
8A relay outputs, Analog inputs

Micro820
For smaller standalone machines and remote automation

EtherNet/IP™

Embedded Analog I/O

Micro830
For standalone machines with motion

PLCopen motion control

Micro850
For standalone machines with motion and more I/O and Ethernet connectivity.

EtherNet/IP™

PLCopen motion control

Local I/O

Micro810® Anatomy
Smart Relay Micro PLC, 12pts

8 Inputs
12/24V Sink/Source,
120/240VAC

4-ch 0-10V
10-bit analog input
(shared with DC inputs)

Embedded 12/24/120/240V
power supply models

USB
(removable adapter)

LCD Display with
Memory Backup function
(removable)

4 Outputs 5/8A High current relays,
24 VDC Source Transistor models

DIN Rail or Panel Mount

Allen-Bradley

Micro810

[Language]
→ENGLISH
简体中文
FRANCAIS
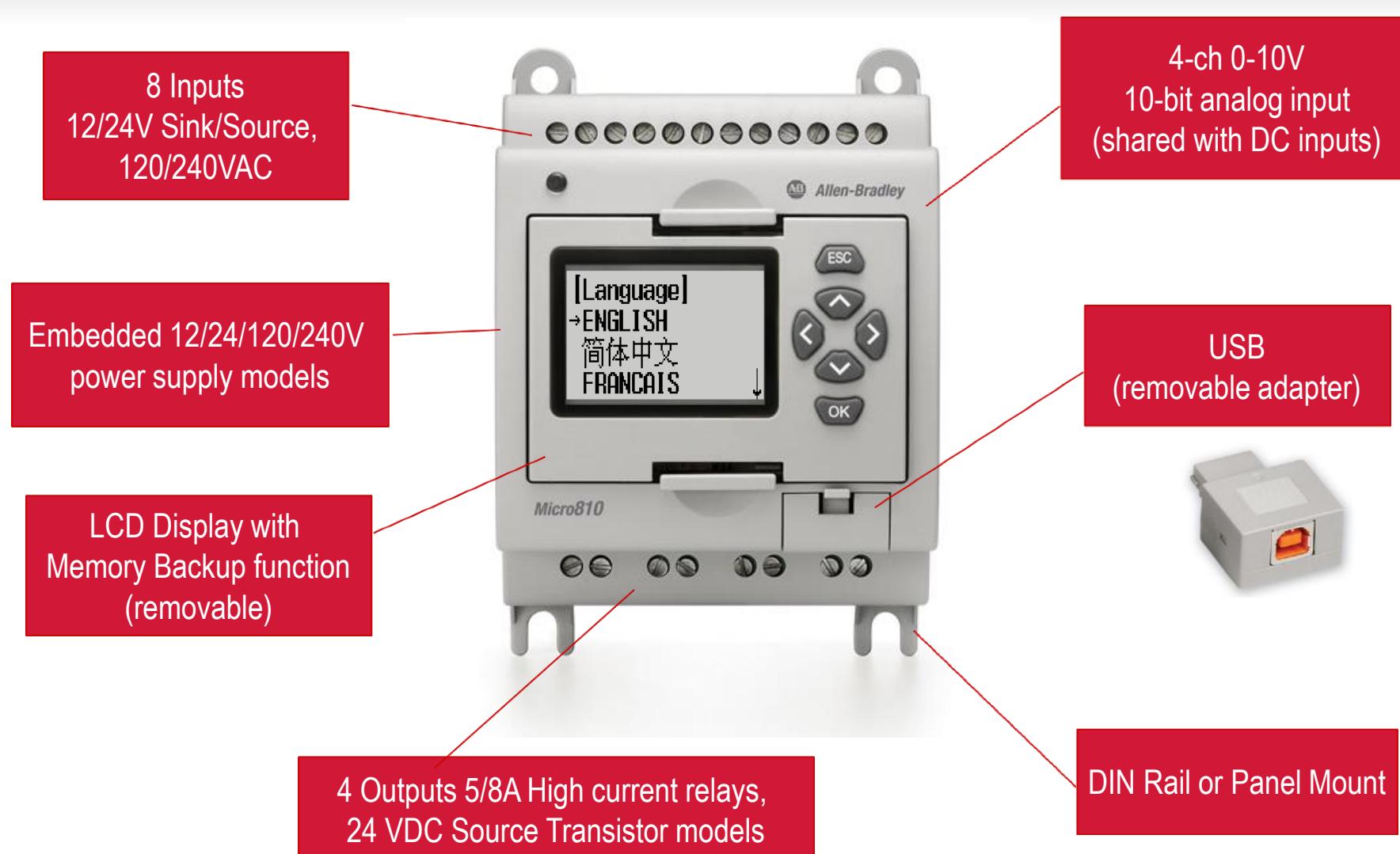
Micro810 Controller

- The Micro810 controller has the price of a smart relay but with the programming capabilities of a micro PLC. As part of the Micro800 PLC family, the Micro810 controller shares programming environment as Micro820, Micro830 and Micro850

- Embedded smart relay function blocks configured from 1.5 in. LCD and keypad
    - No software or program download required
    - Use in relay applications, which require a small amount of logic (up to 4 function blocks), applications include programmable timer and lighting control
    - Function blocks include Delay OFF/ON Timer, Time of Day, Time of Week, Time of Year, Counter

- High current (8A) relay outputs replaces the need for external relays
- Up to four configurable analog input channels
- Program download via USB programming port (adapter required)
- Optional 1.5 in. LCD Display can be inserted onto front of controller and removed under power
    - Used to configure controller and to monitor I/O status
    - Contains memory backup function
    - Run/program mode switching
    - LCD password

- LCD instruction allows LCD Display and keypad to be used as simple 4-line text display with 6 buttons available as inputs

Micro820™ Anatomy

For Smaller Standalone Machines and Remote Automation Projects, 20pts
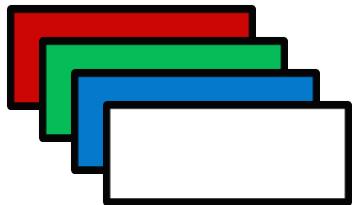
4-color backlight

ASCII Text

RS232/485 Serial port (RS-232 to Remote LCD)

Built in RTC

4 Analog Inputs 1 Analog Output (0-10V)

Up to 4 10K Thermistor inputs

IP65

UP TO 32 ASCII CHARACTERS / LINE
UP TO 8 ROWS
MONITOR PROGRAM VARIABLES
KEYPAD FOR DATA ENTRY

2 Plug-ins for Expansion

microSD™ for Backup, Datalog/Recipe
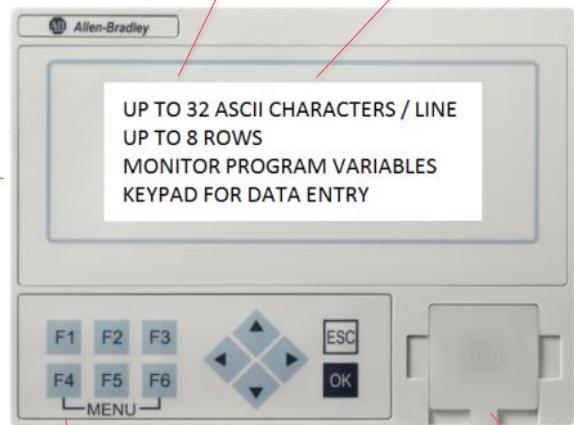
Built-in controller system menu (set IP address)

USB for program download to controller

Ethernet

5 KHz PWM (no PTO motion)

EtherNet/IP™
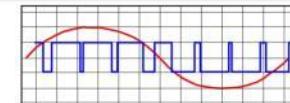
Micro820 Controller, 20 pt

- The Micro820 20-pt controller is designed for simpler standalone machines and remote automation application

- Function as a remote terminal unit (RTU) for SCADA applications with support for CIP and Modbus over serial and Ethernet communications

- Embedded support for 4 thermistor temperature inputs can function as a direct digital control (DDC) for the building management systems (BMS)

- Embedded 4 channel analog input and 1 channel analog output for speed or torque control

- EtherNet/IP™ for Connected Components Workbench programming, RTU applications and HMI connectivity

- 5 kHz PWM Output for controlling solenoids and valves

- Built-in Real Time Clock (RTC) with no battery required

- microSD™ slot for program transfer, data log and recipe management. The supported formats are FAT 32/16 with maximum card size at 32 GB. The microSD card class speed that is supported are Class 6 and 10 SDSC and SDHC.

- Models available with removable terminal blocks for easier wiring and installation

- Supports up to two plug-in modules

- Optional remote 3.5 in. LCD display that connects to controller's embedded RS-232

Remote LCD Display

- The Allen-Bradley Micro800 Remote LCD Display connects to the embedded RS-232 port and works as an essential accessory for the Micro820 controller
- Used as a simple HMI with 4 or 8 lines of ASCII text
- A tactile keypad with 6 programmable function keys
- System menu is available in multiple languages for direct viewing and editing of controller variables
- Ethernet address of the controller can be easily set from the menu
- Configurable start-up screen
- 4 backlight colors available, can be programmed for alarm function
- Rated IP65, it is suitable for front panel mounting. It also supports DIN rail mounting next to the controller
- USB port for program download to controller

Micro830® Anatomy
Flexible Micro PLC with Simple Motion, 10/16/24/48pts

Embedded 24 VDC Power Supply

12/24V sink/source, 120VAC input models

High Speed Inputs (DC inputs)

Optional AC Power Supply (isolated) attaches to left side of controller

Two to Five Plug-in Slots

Support up to 3 axes of motion with PTO

RS232/485 Serial Port (non-isolated)

High Speed Outputs (DC outputs)

USB

DIN Rail or Panel Mount

Run/Program Switch

12/24V sink/source, relay output models

Micro830 Controller

- Designed for standalone machine control applications
- Highly flexible and customizable - "Pay for only what you need"
    - Supports up to 5 plug-in slots
    - Plug-ins customize base unit with additional digital and analog I/O, communication modules and application-specific modules.
    - Expandable up to 88 digital I/O, 20 Analog I/O, 6 Serial ports
- Form factor that is based on number of I/O points that are embedded in the base: 10, 16, 24, or 48
    - Entire family shares plug-ins and accessories.
    - Removable terminal blocks available on 24 pt and 48 pt models for easier wiring
- Embedded Communications
    - USB programming
    - Non-isolated serial port (RS232/485) for communications to HMI
    - CIP, Modbus RTU (Master/Slave), ASCII.
- Embedded motion capabilities with up to 3 axes of motion on Transistor Output models provide
    - High speed (100usec) interrupts - supported on DC input models, and allows as many as six 100 kHz High-Speed Counter inputs (HSC) with PLS support.
    - Up to three 100 KHz Pulse Train Outputs (PTO)
    - Single axis moves supported via Motion Instructions
    - Touch Probe is for registering the exact position of an axis that is based on an asynchronous event. It is embedded in controller hardware and so is more accurate than interrupts alone.


10pt, 16pt

24pt

48pt

Micro850® Anatomy
Micro PLC with Ethernet and Expansion I/O

Embedded 24 VDC Power Supply

High-Speed Inputs and Outputs
(DC inputs/outputs)

Support up to 3 axes of motion
with PTO

Up to 4 Expansion I/O modules

Ethernet

Bus Terminator
2085-ECR

RS232/485
Serial Port
(non-isolated)

USB

Support a maximum
Of 132 I/O points

12/24V sink/source,
relay output models

Up to Five
Plug-in Slots

Removable terminal blocks on both
controller and expansion I/O

Run/Program
Switch

Optional AC Power Supply (isolated)
attaches to left side of controller

DIN Rail or
Panel Mount

Micro850 Controller

- Designed for larger standalone machine applications that require Ethernet connectivity and higher density, higher precision analog and digital I/O as compared to Micro830 controller

- Equipped with same form factor, plug-in support, instruction/data size and motion capabilities as Micro830 24-pt and 48-pt controllers

- All capabilities of Micro830 plus additional capabilities:
    - Embedded Ethernet port then supports EtherNet/IP and Modbus TCP/IP
    - Support up to four 2085 Expansion I/O modules. Expandable up to 132 digital I/O

- The 2085 Expansion I/O module snaps firmly to the right side of Micro850 controller to form a solid block. This feature creates ease of installing of Micro850 and Expansion I/O onto the panel

2085 Expansion I/O for Micro850

- Single (26 mm) and double wide (46 mm) form factors minimize panel space. On average 20% narrower than 1762 I/O
- Attaches to the right side of controller and locks securely into place – robust and easy to mount
- Digital I/O, Analog I/O, TC/RTD modules

Attaches to right side of controller and locks Securely into place – robust and easy to mount

Panel and DIN rail mounting – No extra parts required

Channel to route wiring to top and/or bottom – Tie wrap hooks to secure wires

Easy to view LEDs

Removable terminal blocks for easier wiring – Robustly secured to module with screws – 14AWG wire support
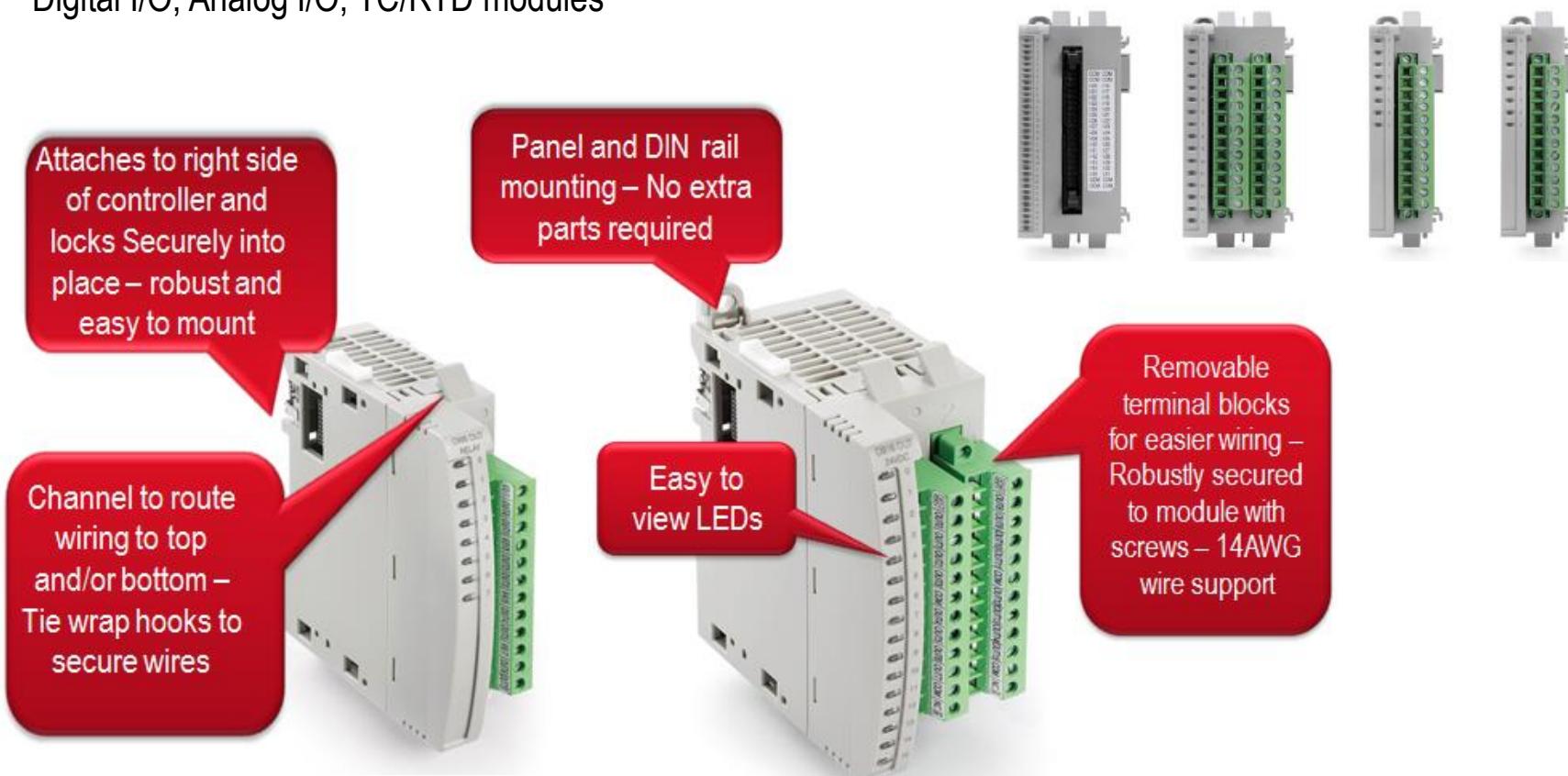
Micro800 Plug-In Modules

- **Change the "Personality" of the Base Unit Controller with Plug-In Modules**
  - Extends the functionality of the controller without increasing the panel space
  - Allows highly customizable hardware configurations
  - Wide range of Plug-ins available for **Micro820, Micro830** and **Micro850** controllers

Plug-in Types

- **Analog input/output** (2-channel / 4-channel, non-isolated)
  - Up to 20 Analog inputs

- **Digital I/O**
  - Double the amount of digital I/O without increasing footprint of controller

- **Resistance Temperature Detector/Thermocouple** (2-channel, non-isolated)
  - Makes temperature control possible when used with PID with auto tuning

- **Trim Potentiometer** (6-channel, analog input)
  - Low-cost method of adding six analog presets for speed, position and temperature control
  - Allows simple tuning or adjustment of system without PC

- **Serial Port RS232/485** (isolated)
  - Address even the most intensive serial communications tasks with CIP, Modbus RTU and ASCII protocol support
  - Up to five additional serial ports

- ***Backup Memory with High Accuracy Real-Time Clock**
  - Can be used to clone/update Micro800 application code.
  - Adds precision real-time clock function without needing to calibrate or update

- **DeviceNet Scanner**
  - Enhances Micro800 communication capabilities up to 20 nodes of PowerFlex® AC drives or CompactBlock™ LDX I/O
  - Reduces wiring and installation costs for larger standalone machines that have distributed drives and I/O

- **Motion High-Speed Counter**
  - Supports Touch Probe Input in hardware for exact registration of axis
  - Provides position verification for servo feedback and encoder feedback modes

- **Application-specific Plug-ins from Encompass Partners**

*Backup Memory with High Accuracy Real-Time Clock plug-in is not supported on Micro820 controller.

DeviceNet™ Scanner Plug-in

- **DeviceNet Scanner Plug-in**
  - Simplified DeviceNet setup – "Easy as 123"
  - All configuration uses Connected Components Workbench - <u>No other software required</u>
- For controlling up to 20nodes
- Compatible with all DeviceNet media
- Reduces installation costs

1	• **Physical Network** • Wire Network and Set Node Addresses
2	• **Software Configuration in Connected Components Workbench** • Add one RA pre-configured UDFB to configure one device
3	• **Auto Creation of Scan List** • Enable auto scan for nodes 1-20 (UDFB in R6, CCW in R8) • No Network configuration needed
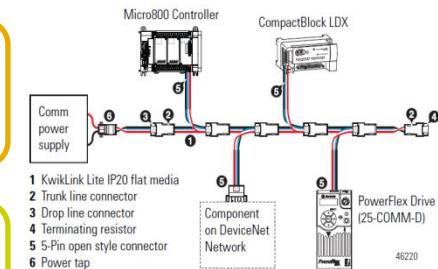
Comparison between Expansion I/O Versus Plug-ins

Features	Plug-In	Expansion I/O
Terminal Block	Non-removable	Removable Terminal Block
Input Isolation	Non-isolated analog inputs	Isolated analog inputs
Analog resolution and accuracy	12-bit resolution for Analog I/O 1% accuracy for Analog I/O 1degC accuracy for TC/RTD	14-bit resolution for Inputs 12-bit resolution for Output 0.1% accuracy for Analog I/O 0.5degC accuracy for TC/RTD
Filter times	Fixed 50/60Hz filter	Configurable filter times
I/O density	2 pts to 8 pts	4 pts to 32 pts
Footprint	No increase in controller footprint	Width of controller increases with Expansion I/O
Different variety of modules	Isolated Serial port, Trimpot, Memory Back-up, RTC, DeviceNet, HSC, Digital I/O, Analog I/O, Encompass Partner's Products	Digital and Analog I/O modules only

Customer gets better I/O performance for Expansion I/O

PUBLIC

Micro800 Optional Power Supply

- Output is regulated 1.6A@24VDC for Micro800 controllers
    - Typically used with smaller systems when Customer does not have their own existing 24 VDC power supply or
    - Used to provide isolated 24 VDC power for noisy environments
- Typically used with Micro820, Micro830 and Micro850 controllers:
    - Micro820/830/850 do not have integrated AC to DC power supply
- Catalog number
    - 2080-PS120-240VAC

Power supply can be attached optionally to left side of controller base unit – all wiring is external

Agenda

Micro800 Family Overview

Value Proposition Of Micro800 System

Applications For Micro800

Overview Of Resources

Why Micro800 and Connected Components Workbench Software?

- Micro800 and Connected Components Workbench (CCW) offers:

  - **Cost Effective** solution

    - Reduces total cost of machine

  - **Easy to implement** solutions

    - Easy to configure, Easy to program, Easy to visualize

   - Reduces machine development time, improves time to market

Flexibility, Scalability and Reuse with Micro800

- Plug-in concept offers high **flexibility** to customize your controller to your application need
  - Up to 5 slots – multiple serial ports made possible.
  - No competitors can match the wide variety of plug-in modules that are offered in Micro800 system.
  - Special application plug-ins from Rockwell Automation Encompass Partners.
  - Save space.

- Highly **scalable**. For more I/Os, there are 2085 Expansion I/O modules and Compact Block LDX on DeviceNet
  - Up to 132 digital I/O with 2085 Expansion I/O
  - Additional 320 I/O with Compact Block LDX on DeviceNet

- Controller Change supports **reuse** of project that is developed on one controller to the other

Micro800 Controllers Offer a Wide Variety of Connectivity Options

- Offers a wide variety of communication options for device connectivity to meet your application needs.
- **Plug and play USB port** makes it easy to connect CCW Programming software to Micro800 controller. Improves efficiency during machine development and commissioning phase.
- **CIP Pass-through** saves time and effort while configuring your system and collecting data
- Supports **CIP Symbolic** and EtherNet/IP. It is ideal for communication to Logix products.
- DeviceNet scanner for distributed I/O
- Supports Modbus and ASCII protocols for connectivity to third-party devices
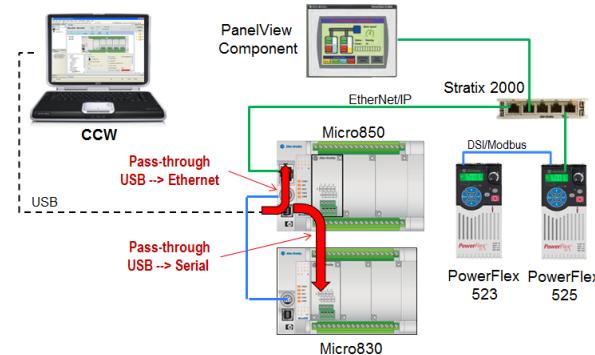
EtherNet/IP

DeviceNet

| Micro800 controller	USB programing port	Serial Port			Ethernet		DeviceNet (via Plug-in)
		CIP Serial (Client/ Server)	Modbus RTU (Master/ Slave)	ASCII/ Binary	EtherNet/IP (Client/server)	Modbus TCP (Client/ Server)	DeviceNet scanner
Micro810	Yes[1]	No	No	No	No	No	No
Micro820	Yes[2]	Yes	Yes	Yes	Yes	Yes	Yes
Micro830	Yes	Yes	Yes	Yes	No	No	Yes
Micro850	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: 1: via USB adaptor (2080-USBADAPTER)   2: via Remote LCD (2080-REMLCD)

Micro800 Component Motion
# Easy to Program, Cost Effective Solution

- Touch probe is a low-cost method to achieve **accurate position registration**

- HSC-Motion Plug-in supports pulse frequencies up to 250 kHz, for **accurate position feedback** from encoders and servo drives

- **Easy motion programming.** Simple to use axis configurations screens; Axis Monitor shows important information about the status of axes; commonly used PLCopen instruction reduces learning curve
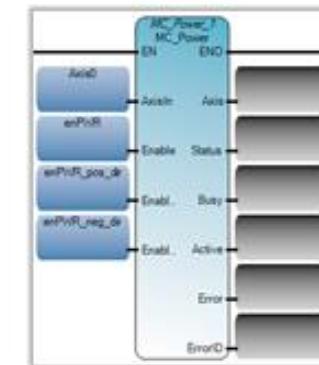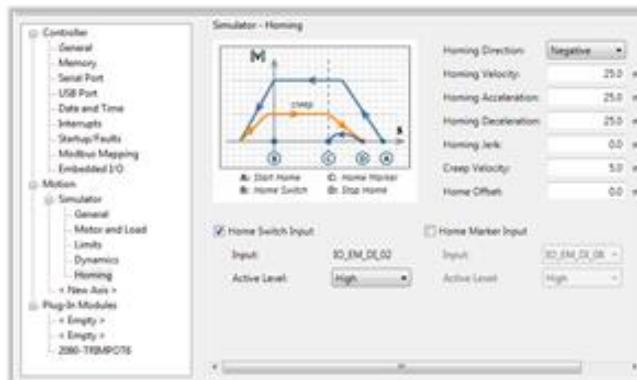
Password for Security and IP Protection

- Improves security and intellectual property protection for Micro800

  - Supports creation of strong passwords

  - Controller enforces whether access is granted to controller

  - Supports display of protection status and user name to determine current user

  - Password is encrypted in all communications with CCW

  - No backdoor password (If password is lost, need to update controller!)

- Password protection for UDFB in CCW Developer edition.
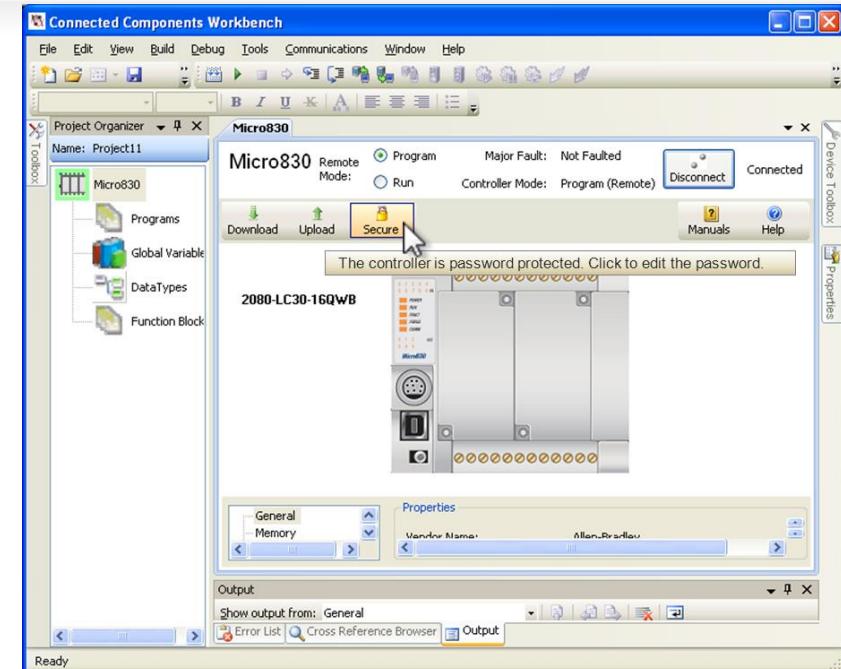
CCAT, Application Starter Kit and UDFB Reduces Machine Development Time

- Connected Component Accelerator Toolkit (**CCAT**) reduces the machine design, development and commissioning time of OEM by 50%.

- **Machine Application Starter Kit** provides white paper, sample code, BOM and wiring diagram of typical Micro800 applications. Reduces machine conversion time.

- User Defined Function Block **(UDFB)** that are available at sample code library allows code reuse and reduces development time.

- Improves design productivity, time to market.

HMI
CAD | Logic
Documentation | BOM
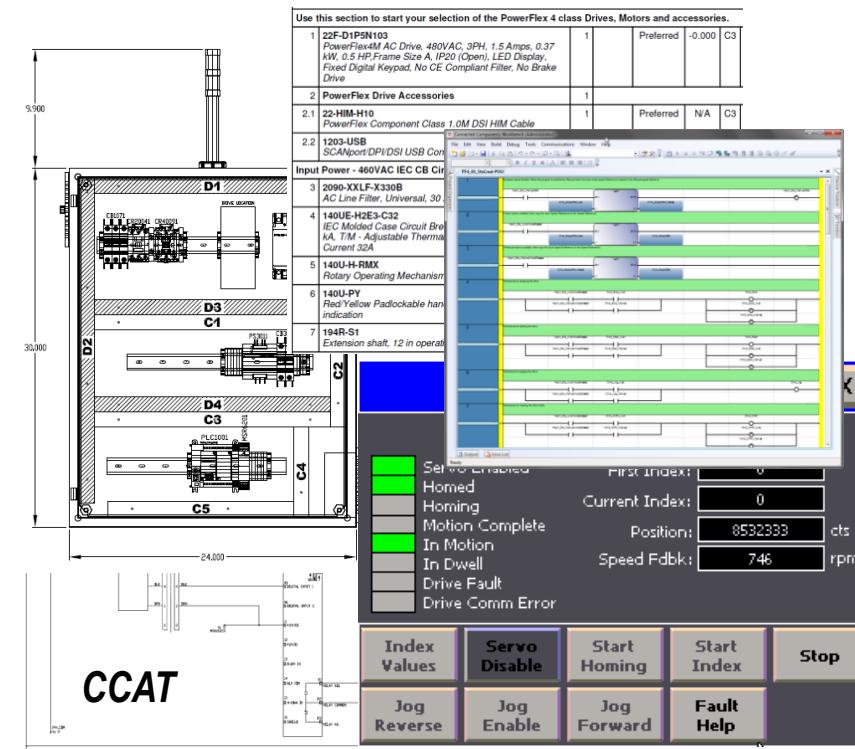
CCAT

Value Proposition for Micro800 Controllers and Connected Components Workbench Software

- Greater flexibility and scalability with Micro800 Plug-in modules

- Micro800 supports a wide variety of network communication options

- USB port for ease of use

- Micro800 component motion:
  Easy to program, cost-effective solution

- Connected Components Workbench software is one software for all essential devices

- Sample application code reduces machine development time

- Password for security and IP protection

EtherNet/IP
DeviceNet
Modbus
ASCII

Micro800 PanelView 800 PanelView Component Guardmaster 440C–CR30 CompactBlock LDX I/O

Kinetix 3 PowerFlex 4-series PowerFlex 520-series PowerFlex 7-series SMC-50 SMC-Flex

HMI
CAD Logic
Documentation BOM

Micro800/CCW offers Cost Effective and Easy to Implement solutions. Helps machine builder to be competitive.

Micro800 Controller Catalog Nomenclature

2080 – LC50 24 Q W B

Bulletin Number
2080 = Micro800 family

Base unit
LC10 = Micro810
LC20 = Micro820
LC30 = Micro830
LC50 = Micro850

Number of digital and analog
I/O combined

Power Supply
$A^{(1)}$ = 120/240V AC
B = 24V DC
$D^{(1)}$ = 12V DC

Output Type
B = 24V DC Source
V = 24V DC Sink
W = Relay

Input Type
A = 110V AC or 110/220V AC
Q = 24V AC/DC
$D^{(1)}$ = 12V DC

(1) Available for Micro810 only.

Agenda

Micro800 Family Overview

Value Proposition Of Micro800 System

Applications For Micro800

Overview Of Resources

Select Micro800 Based on Requirements

| No communication to other devices | Distributed over a wide area/ over long distances | | Distributed over a wide area/ over long distances |

| | No motion/position control required | Motion/position control and more I/O | |

Feature	Micro810	Micro820	Micro830	Micro850
Typical Application	• Lighting control • Heating and cooling • Compressor control • Elevator control	• Air Handling Unit • Remote water pump management • Stretch wrapper • Car Wash system • DDC in building management system	• Adhesive Labeler (up to 200 labels/min) • Car toner • Solar panel positioning • Sleeving machine (up to 400 sleeves/min) • Intermittent Vertical and Horizontal form, fill, and seal (up to 80packs/min) • Material handling	
LCD	Yes (embedded LCD)	Yes (Remote LCD)	-	-
Embedded Analog	Yes (4 AI)	Yes (4AI, 1AO)	-	-
Maximum local digital I/O pts	12	35	88	132
Plug-ins	-	Yes	Yes	Yes
Serial Port	-	Yes	Yes	Yes
Ethernet	-	Yes	-	Yes
Motion and High-Speed I/O	-	-	Yes	Yes
Expansion I/O	-	-	-	Yes

Application Videos on YouTube

- Watch Micro800 videos on YouTube
  - https://www.youtube.com/playlist?list=PL3K_BigUXJ1MHsXuwkSGDkohhnsH3EPi1

Vertical form fill and seal

Stretch wrapper

Adhesive Labeler


Material Handling

Solar Tracker
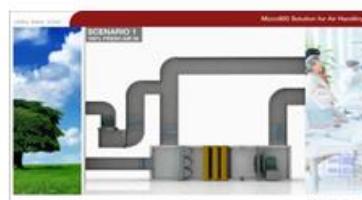
Air Handling Unit

Flying Shear

Water Pump Control
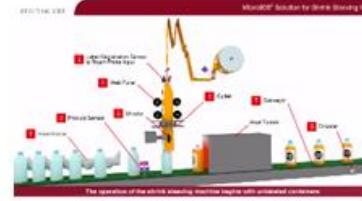
Sleeving Machine

Agenda

Micro800 Family Overview

Value Proposition Of Micro800 System

Applications For Micro800

Overview Of Resources

Resources: Micro800 and Connected Components Workbench Software

Category		File names/hyperlink
Documentation	Micro800 PLC Family Brochure	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/2080-br001_-en-p.pdf
	Micro810 Programmable Logic Controller Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2080-pp001_-en-p.pdf
	Micro820 Programmable Logic Controller Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2080-pp004_-en-p.pdf
	Micro830 Programmable Logic Controller Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2080-pp002_-en-p.pdf
	Micro850 Programmable Logic Controller Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2080-pp003_-en-p.pdf
	Micro800 Programmable Controllers Family Selection Guide	http://literature.rockwellautomation.com/idc/groups/literature/documents/sg/2080-sg001_-en-p.pdf
	Micro810 Programmable Controllers User Manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2080-um001_-en-e.pdf
	Micro830 and Micro850 Programmable Controllers User Manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2080-um002_-en-e.pdf
	Micro800 Product Catalog	http://www.ab.com/en/epub/catalogs/12762/2181376/2416247/10769738/10770676/
	Micro800 Web Page	http://ab.rockwellautomation.com/Programmable-Controllers/Micro800
	Micro800 Virtual Brochure	http://www.ab.com/programmablecontrol/micro/micro800/get/virtualbrochure/
	Micro800 Sample Code	http://www.rockwellautomation.com/go/scmicro800/
Videos (YouTube)	Micro800 Videos	https://www.youtube.com/playlist?list=PL3K_BigUXJ1MHsXuwkSGDkohhnsH3EPi1
Software	Web page	http://www.rockwellautomation.com/rockwellautomation/products-technologies/connected-components/tools/workbench.page?
	Connected Components Workbench R8.00	https://download.rockwellautomation.com/esd/validation.aspx?sdrsid=S19477 (Standard Edition) https://download.rockwellautomation.com/webupdates/enter.aspx (Developer Edition)
	CCW R8 Release notes	http://literature.rockwellautomation.com/idc/groups/literature/documents/rn/cc-rn001_-en-p.pdf

Resources: PanelView 800, PanelView Component, PowerFlex, Kinetix

Category		File names/hyperlink
PanelView 800	Web page	http://ab.rockwellautomation.com/Graphic-Terminals/2711R-PanelView-800-Graphic-Terminals
	Brochure	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/2711r-br001_-en-p.pdf
	User Manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2711r-um001_-en-e.pdf
	Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2711r-pp001_-en-p.pdf
	YouTube	https://www.youtube.com/watch?v=n1OZ8eNpi6U&list=PL3K_BigUXJ1N2J6fjk0V_zCi9YpSM0-SV&index=120
PanelView Component	Web page	http://ab.rockwellautomation.com/Graphic-Terminals/2711C-PanelView-Component-Terminals
	Brochure	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/2711c-br001_-en-p.pdf
	User Manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2711c-um001_-en-p.pdf
	Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2711c-pp001_-en-p.pdf
PowerFlex	Web Page	http://ab.rockwellautomation.com/Drives/Component
	Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/22-pp001_-en-p.pdf
	User manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/22a-um001_-en-e.pdf
Kinetix 3	Web page	http://ab.rockwellautomation.com/Motion-Control/Kinetix-3-Servo-Drive
	Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2071-pp001_-en-p.pdf
	User manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2071-um001_-en-p.pdf
	Selection guide	http://literature.rockwellautomation.com/idc/groups/literature/documents/sg/gmc-sg001_-en-p.pdf
Kinetix 300	Web page	http://ab.rockwellautomation.com/Motion-Control/Kinetix-300-Servo-Drive
	Product Profile	http://literature.rockwellautomation.com/idc/groups/literature/documents/pp/2097-pp001_-en-p.pdf
	User manual	http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2097-um001_-en-p.pdf
	Selection guide	http://literature.rockwellautomation.com/idc/groups/literature/documents/sg/gmc-sg001_-en-p.pdf

Resources – Others

Category		File names/hyperlink
Useful links	Connected Components Accelerator Toolkits	http://www.rockwellautomation.com/components/connected/ccat.html
	CrossWorks	https://j6appsep.rockwellautomation.com/crossworks/
	eCAD Works	http://www.rockwellautomation.com/en/e-tools/drawings.html
	Integrated Architecture Builder	http://www.rockwellautomation.com/en/e-tools/configuration.html
	ProposalWorks	http://www.rockwellautomation.com/en/e-tools/index.html#proposalworks
	Knowledgebase	http://www.rockwellautomation.com/knowledgebase/
Other Literature	**White Papers** OEM - Packaging: Labeling Machine	http://literature.rockwellautomation.com/idc/groups/literature/documents/wp/oem-wp013_-en-p.pdf
	OEM – Packaging: Automation of Intermittent VFFS Machine Using Micro850 Programmable Controller	http://literature.rockwellautomation.com/idc/groups/literature/documents/wp/oem-wp011_-en-p.pdf
	OEM Brochures VFFS on CompactLogix™	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/oem-br044_-en-p.pdf
	Ampoule Filling	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/oem-br046_-en-p.pdf
	Pasteurizer	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/oem-br045_-en-p.pdf
	Mix and Batch	http://literature.rockwellautomation.com/idc/groups/literature/documents/br/oem-br048_-en-p.pdf

LISTEN.
THINK.
SOLVE.®

Questions?

PUBLIC

Connect with us.
www.rockwellautomation.com

Allen-Bradley · Rockwell Software

Rockwell Automation