Micro800® PLC Family

Allen-Bradley

Featuring Allen-Bradley® Connected Components
Workbench™ Design and Configuration Software

LISTEN.
THINK.
SOLVE.®

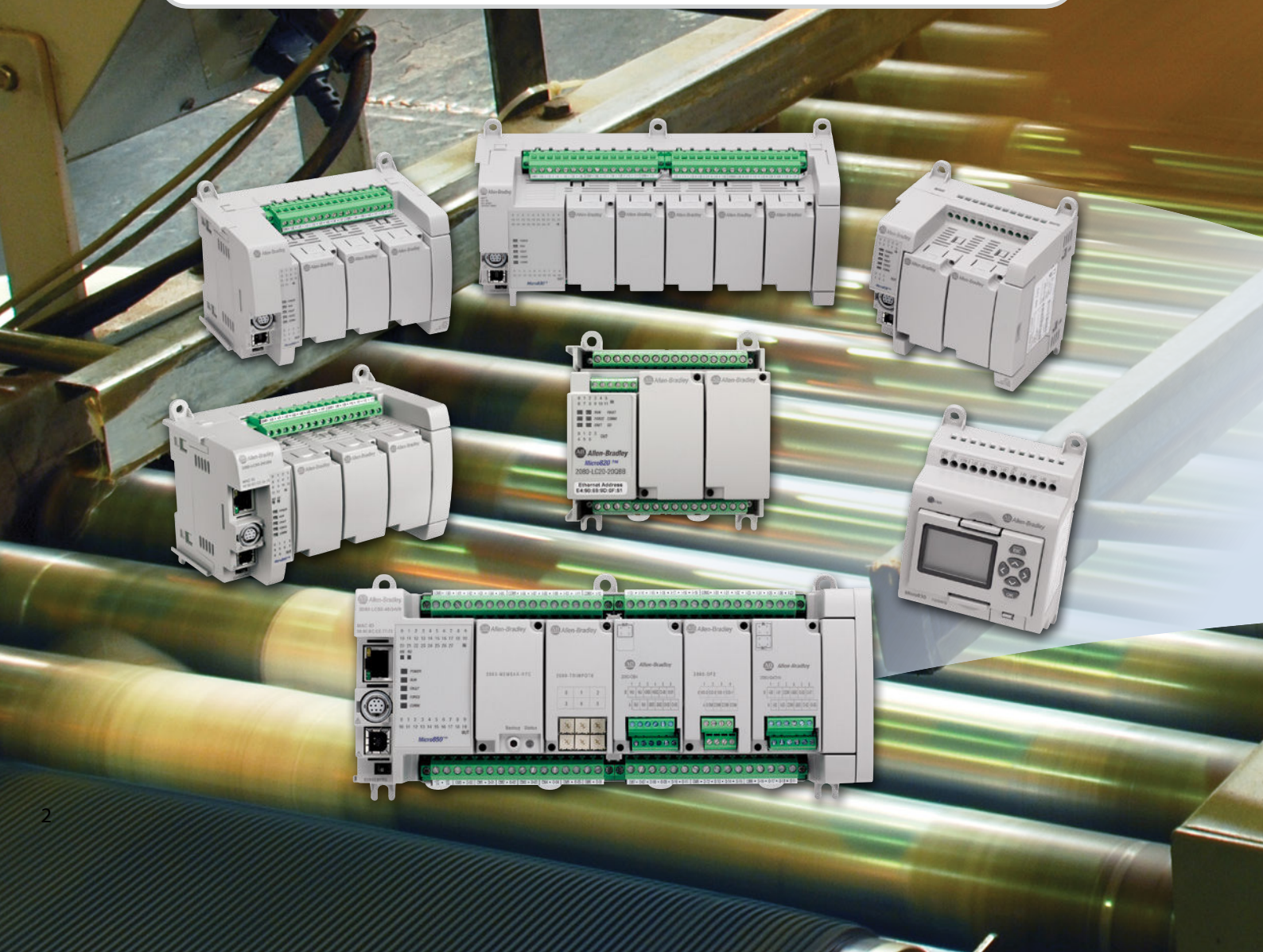
Allen-Bradley • Rockwell Software

Rockwell Automation

Micro800 PLCs and Connected Components Workbench Software

As a machine builder, are you looking to save money on acquisition costs and machine assembly time?

The next generation of micro programmable logic controllers (PLCs) from Rockwell Automation is your answer. The Allen-Bradley Micro800 PLC family, together with the Connected Components Workbench software, sets a new global standard for convenience and ease of use, while providing just enough control capability to match your micro application requirements. With a wide range of network interface devices, finding the right controller to fit your communication needs is easy.



Convenience and Connectivity

- Entire family shares common components and accessories
- Easy programming with embedded USB port
- Ethernet, Serial and DeviceNet™ communications

Just Enough Control

- Wide range of small-size controllers (built-in I/O from 10-48pts)
  - Selected models are expandable with additional plug-in and expansion I/O modules for greater I/O points and functionality
  - Designed for standalone machine applications
- Plug-in modules personalize the Micro800 controller, so you pay only for the capabilities you need

Easy to Install, Program and Maintain

- IEC 61131-3 standard instructions
- User Defined Function Blocks for sharing and reuse of code
- Structured Text, Ladder Diagram and Function Block editors that support symbolic addressing
- Removable terminal blocks for easy installation and maintenance (select form factors)

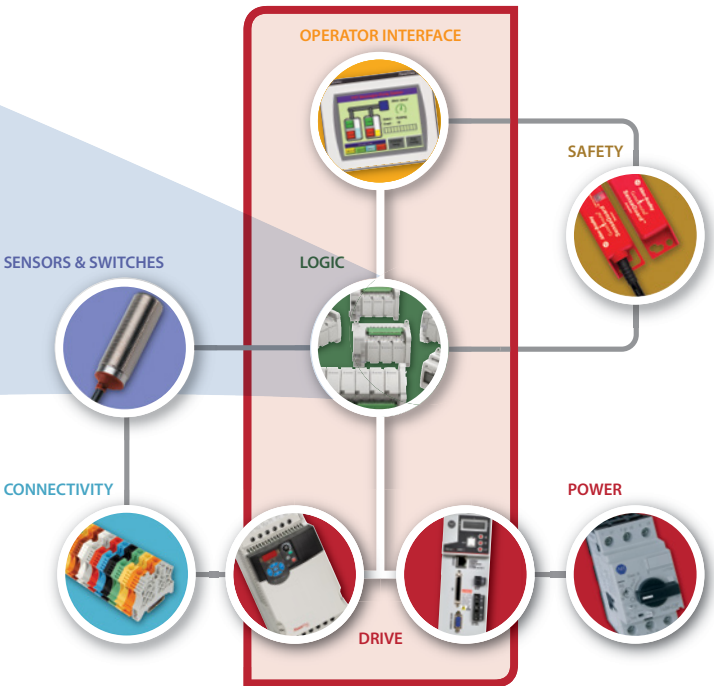
One Software

- Program your controllers, configure your drives, servo drives and safety relays, and design your HMI screens using this software
- A common user experience helps reduce the learning curve through ease of use
- Download the Standard Edition software for free
- Available in Chinese, English, French, German, Italian and Spanish

Part of the Connected Components Bundle

- The Connected Components Accelerator Toolkit allows machine builders to significantly reduce design time and cost; allowing them to concentrate on the intellectual property that produces compelling and differentiating machine features.
- The Connected Components Accelerator Toolkit* includes automation engineering design tools for the entire machine control application development.
  - Bill of Material, CAD, Logic , HMI and Quick Start
- Preferred compatibility within the bundle of components

* For more information on Connected Components Accelerator Toolkit, visit http://www.rockwellautomation.com/components/connected/ccat.html



New

Micro820™ Controller

Micro PLC optimized for smaller standalone machines and remote automation projects

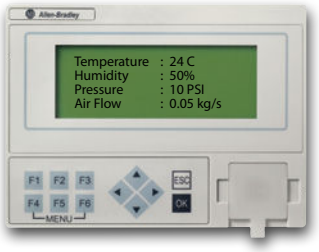
The Micro820 20-pt controller is specifically designed for smaller standalone machines and remote automation projects with embedded Ethernet and Serial ports and a microSD™ slot for data logging and recipe management.

- EtherNet/IP™ for Connected Components Workbench programming, RTU applications and HMI connectivity
- Function as a remote terminal unit (RTU) for SCADA applications with support for Modbus over serial and Ethernet communications
- Embedded support for 4 thermistor temperature inputs can function as a direct digital control (DDC) for building management systems (BMS)
- 5KHz PWM Output for controlling solenoids and valves
- Built-in Real Time Clock (RTC) with no battery required
- microSD™ card slot for program transfer, datalog and recipe management
- Models available with removable terminal blocks for easier wiring and installation
- Supports up to two plug-in modules
- Optional remote 3.5 inch LCD display which connects to controller's embedded RS232 port

Micro800 Remote LCD Display

Simple HMI to Micro820 controller

- With 4 or 8 lines of ASCII text and tactile keypad, it can be used as a simple HMI
- Embedded USB port for program upload/ download and debugging to controller
- System menu is available in multiple languages for direct viewing and editing of control variables
- Controller's Ethernet address can be easily set from the menu
- Supports front panel mounting as well as DIN rail mounting next to the controller



LCD Display	
Communications	
Embedded Serial Port	RS232 (connects to Controller's Embedded RS232 port)
Embedded USB Port	Controller programming port (USB to Serial pass-through)
Environmentals	
Temperature Range (LCD Display)	0°…50°C
Dimensions (HxWxD, mm)	97 x 130 x 36
Catalog Number 2080-REMLCD	

Micro810® Controller

Smart Relay Micro PLC

The Micro810 controller functions as a smart relay with high current relay outputs, in addition to the programming capabilities of a micro PLC.

- 12-pt form factor provides:
  - 8A outputs eliminates the need for external relays
  - DC models allow 4 inputs to function as four 0-10V analog inputs
  - Program download via USB programming port (adapter required)
  - Optional 1.5 inch local LCD for monitoring/ modifying application data. It also functions as a backup memory module.
  - Configure and run core smart relay function blocks without a PC (LCD required)
  - Built-in Real Time Clock for applications such as Lighting Control and Alarming
- Shares the same instruction set within Micro800 family, including advanced features such as PID and floating point data types which are not commonly found in a smart relay

Micro830® Controller

Flexible Micro PLC with Simple Motion

The Micro830 controller is designed with flexibility to address a wide range of standalone machine control applications with support for up to 5 plug-in modules.

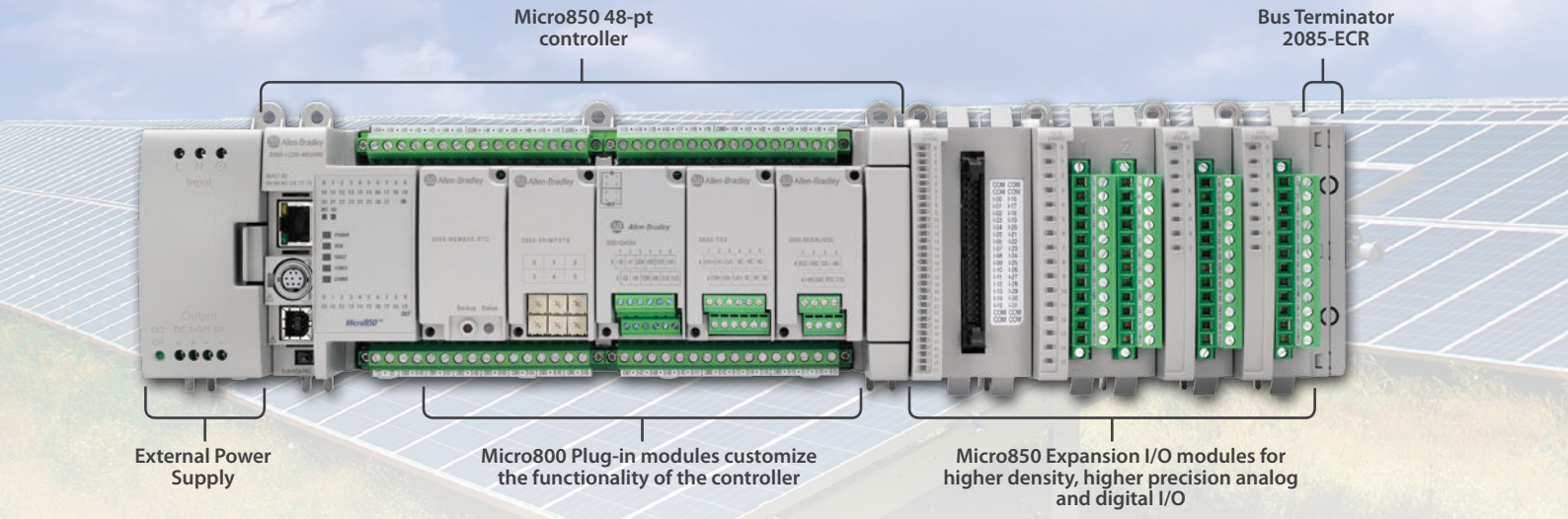
- Different controller types sharing same form factor and accessories
  - Form factor based on number of I/O points embedded in the base: 10, 16, 24, or 48
  - Up to a maximum of 88 digital I/O (with 48-pt model)
  - Up to a maximum of 20 analog inputs (with 48-pt model)
- Includes built-in support for up to 3 axes of motion on 24V DC output models
  - Up to three 100KHz Pulse Train Outputs (PTO) for low cost wiring to steppers and servo drives
  - Up to six 100KHz High-Speed Counter inputs (HSC)
  - Single axis moves supported via Motion Function Blocks
  - Basic motion instructions include Home, Stop, MoveRelative, MoveAbsolute, MoveVelocity
  - TouchProbe instruction for registering exact position of an axis based upon an asynchronous event
- Embedded Communications
  - USB port for program download
  - Non-isolated serial port (RS232/485) for communications to HMI, bar code readers, modems

Micro850® Controller

Expandable Micro PLC with Ethernet

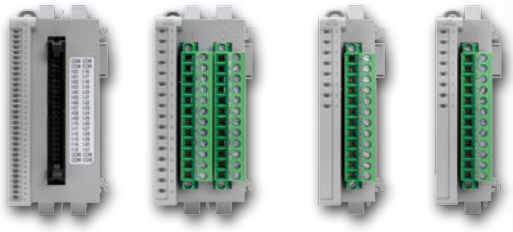
The Micro850 controller is equipped with the same form factor, plug-in support, instruction/data size and motion capabilities as the 24-pt and 48-pt Micro830 controllers.

- Designed for larger standalone machine applications that require more I/O or higher performance analog I/O than supported by Micro830
- Embedded Ethernet port for higher performance connectivity compared to serial port
- EtherNet/IP™ for Connected Components Workbench programming and HMI connectivity
- Function as a remote terminal unit (RTU) for SCADA applications with support for Modbus over serial and Ethernet communications
- Support up to four Micro850 Expansion I/O modules
- Up to a maximum of 132 I/O points (with 48-pt model)



Micro850 Expansion I/O Modules

- The Micro850 Expansion I/O module snaps firmly to the right side of controller with removable terminal blocks for ease of installation, maintenance and wiring
- High density digital and analog I/Os to reduce space consumption
- Isolated and higher resolution analog, RTD, and TC (than plug-in modules) for more accuracy



Micro850 Expansion I/O Modules Specifications

Expansion I/O Modules

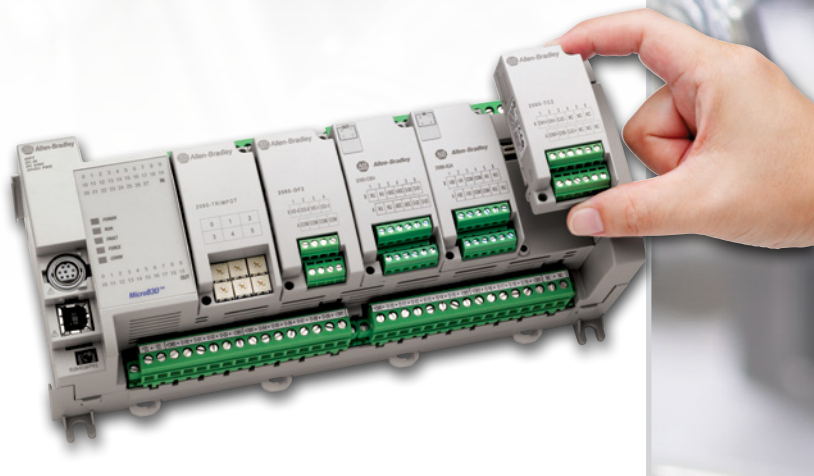
Category	Catalog Number	Description
Digital I/O	2085-IQ16	16-pt Digital Input, 12/24VDC, Sink/Source
	2085-IQ32T	32-pt Digital Input, 12/24VDC, Sink/Source
	2085-OV16	16-pt Digital Output, 12/24VDC, Sink
	2085-OB16	16-pt Digital Output, 12/24VDC, Source
	2085-OW8	8-pt Relay output, 2A
	2085-OW16	16-pt Relay output, 2A
	2085-IA8	8-pt 120 VAC input
	2085-IM8	8-pt 240 VAC input
	2085-OA8	8-pt 120/240 VAC output
Analog I/O	2085-IF4	4-ch Analog Input, 0 ~ 20mA, -10V ~ +10V, isolated, 14-bit
	2085-IF8	8-ch Analog Input, 0 ~ 20mA, -10V ~ +10V, isolated, 14-bit
	2085-OF4	4-ch Analog Output, 0 ~ 20mA, -10V ~ +10V, isolated, 12-bit
Specialty	2085-IRT4	4-ch RTD and TC , isolated, ±0.5 °C
Bus Terminator	2085-ECR	End Cap Terminator

Micro850 controllers empower maximum customization and flexibility with plug-in and expansion I/O modules

Micro800 Plug-In Modules

Change the "Personality" of the Base Unit Controller with Space-saving Plug-in Modules

- Extend the functionality of embedded I/O without increasing the footprint of your controller
- Increase communication functionality
- Utilize Encompass™ Product Partners' expertise to add enhanced capabilities with tighter integration to the controller
- Plug-in flexibility applies to Micro820*, Micro830 and Micro850 controllers



Plug-In Types

- **Analog Input/Output (2-channel / 4-channel, non-isolated)**
  - Up to 20 Analog inputs
- **Digital Input/Output**
  - Up to a total of 88 digital I/O points on a 48-pt controller
- **Resistance Temperature Detector/ Thermocouple (2-channel, non-isolated)**
  - Makes temperature control possible when used with PID
- **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.
- **Micro830/850 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

Micro800 Plug-in Modules Specifications

Plug-in Modules

Category	Catalog Number	Description
Digital I/O	2080-IQ4	4-pt Digital Input, 12/24VDC, Sink/Source, Type3
	2080-OB4	4-pt Digital Output, 12/24VDC, Source
	2080-OV4	4-pt Digital Output, 12/24VDC, Sink
	2080-OW4I	4-pt Relay Output, Individually Isolated, 2A
	2080-IQ4OB4	8-pt Combo: 4-pt Digital Input, 12/24VDC, Sink/Source, Type3, and 4-pt Digital Output, 12/24VDC, Source
	2080-IQ4OV4	8-pt Combo: 4-pt Digital Input, 12/24VDC, Sink/Source, Type3, and 4-pt Digital Output, 12/24VDC, Sink
Analog I/O	2080-IF4	4-ch Analog Input, 0-20 mA, 0-10V, non-isolated 12-bit
	2080-IF2	2-ch Analog Input, 0-20 mA, 0-10V, non-isolated 12-bit
	2080-OF2	2-ch Analog Output 0-20 mA, 0-10V, non-isolated 12-bit
Communications	2080-SERIALISOL	RS232/485 isolated serial port
	2080-DNET20	DeviceNet Scanner, 20 Nodes
Specialty	2080-TRIMPOT6	6-ch Trimpot Analog Input
	2080-RTD2	2-ch RTD, non-isolated, ±1.0 °C
	2080-TC2	2-ch TC, non-isolated, ±1.0 °C
	2080-MOT-HSC	High Speed Counter, 250KHz, Differential Line Receiver, 1 Digital Output
Backup Memory	2080-MEMBAK-RTC	Memory Backup and High Accuracy RTC

*Micro820 controller does not support 2080-MEMBAK-RTC plug-in module.

Plug-in Module Development by Encompass Product Partners

Developed by Encompass Product Partners

Function	Catalog Number	For more information
SMS	ILX800-SMSG	www.prosoft-technology.com
Universal Analog Input	2080sc-IF4u	www.spectrumcontrols.com
High Current Current Relay Output	2080sc-OW2IHC	
4 Channel Thermistor Input	2080sc-NTC	
BACNet Communications	2080sc-BACNet 2080sc-BACNet/IP	
Weigh Scale Interface	HI2080-WS	www. hardysolutions.com

Connected Components Workbench Design and Configuration Software

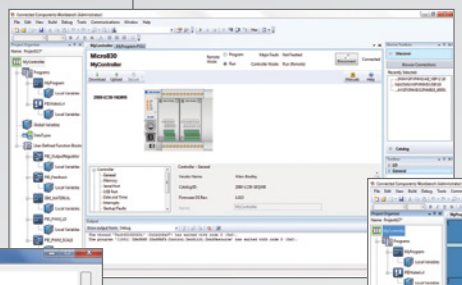
Connected Components Workbench software reduces your initial machine development

Connected Components Workbench is the single software platform supporting not only your Micro800 controllers, but also Allen-Bradley component-class drives, HMI, configurable safety relay, soft starters, and motion products in your small machine.

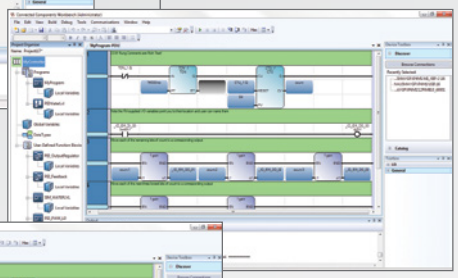
- Based on proven Rockwell Automation and Microsoft Visual Studio technology
- Controller programming, drives configurator, and integration with HMI editor

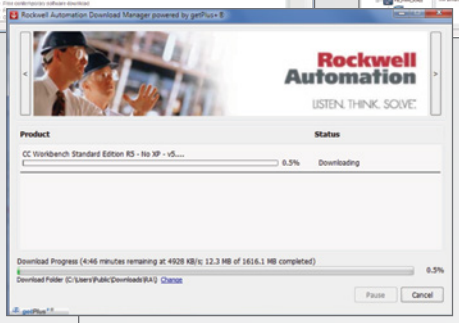
Easy to Acquire and Install
Free IEC 61131-3 standard software download helps minimize time to start machine development

Easy to Configure
Common, easy configuration helps reduce time to commission machine controls

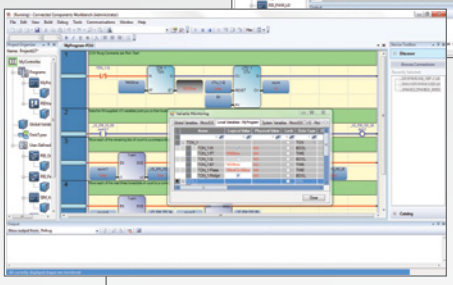


Easy to Program
Choice of programming languages with user defined function block support (ladder diagram, function block diagram, structured text) optimizes how you choose to control your machine





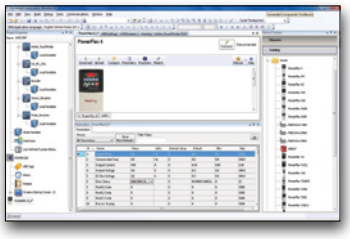
Easy to Update
Free standard software updates and limited free support minimize time consuming maintenance work



Easy to Test / Deploy
Robust debug features help reduce machine commissioning and maintenance times

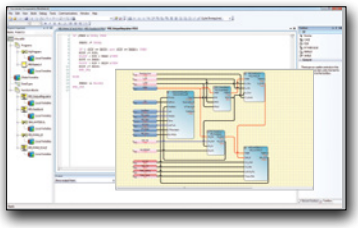
Device Configuration

- Common environment for:
  - Micro800 Controllers
  - PowerFlex 4-Series, 520-Series and 7-Series Drives
  - PanelView™ Component Operator Interface
  - Kinetix® 3 Servo Drives
  - Guardmaster® Configurable Safety Relay 440C-CR30
  - SMC™-50 and SMC Flex Soft Starters
- Simple connectivity to select devices via standard USB communication
- Graphical controller configuration rather than property dialog(s)



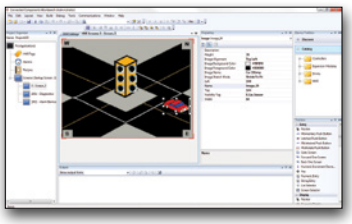
Programming

- Extensive use of Microsoft and IEC-61131 standards
- Value add through sample code from Rockwell Automation and partners via user defined function blocks
- Structured Text, Ladder Diagram and Function Block editors that support symbolic addressing



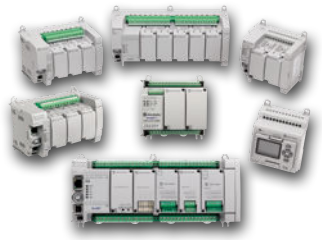
Visualization

- PanelView Component software runs within Connected Components Workbench for better user experience
- Using CIP support, Micro800 variable names can be directly referenced which results in less complexity and time-saving benefits
- Features include unicode language switching, alarm messages and history, and basic recipe capability



Specifications	Connected Components Workbench Software
	Standard
Controllers Supported	All Micro800 controllers
Programming languages	Ladder Diagram, Function Block Diagram, Structured Text
User Defined Function Blocks	Edit and Deploy
Device configuration	Supported
Delivery	Download for FREE or available on DVD (9328-SO001D-EN-C), orderable from Connected Components Workbench web page at: www.ab.com/go/ccws
PC Specifications	**Connected Components Workbench Software**
	Standard
Processor	1.6 GHz CPU minimum, 2.2 GHZ or higher CPU recommended
OS Supported	Windows 7
HD Disk Space required	1.7 GB
RAM	2048 MB minimum, 4096 MB recommended
Optical drives	DVD
Video requirements	1024 x 768 minimum resolution, 1280 x 1024 recommended

Micro800 PLC Family Overview Specifications

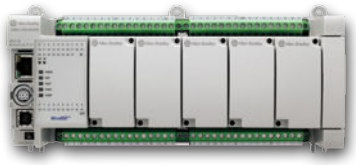
	Bulletin 2080	**Micro810**	**Micro820**
			
Unit I/O	**12pt**		**20pt**
Embedded Communications	USB (with adapter)		Ethernet, RS232/485
Instructions/Data	2Ksteps/ 2Kbytes (up to 400bytes non-volatile)		10Ksteps/ 20Kbytes (up to 400bytes non-volatile)
Plug-in Modules	N/A		2
Expansion I/O Modules	N/A		
Maximum Digital I/O	12		35
Catalog Number	**2080-LC10-12QWB, 2080-LC10-12DWD**		**2080-LC20-20QWB(R)▲**
Digital Input/Output	8/4 (12/24V[1])		12/7 (12/24V[1])
Analog Input/Output	Four of 24V DC digital inputs can be configured as 0-10V analog inputs		1 Analog output (0-10V) Four of 24V DC digital inputs can be configured as 0-10V analog inputs
HSC[3]	N/A		N/A
Catalog Number	**2080-LC10-12QBB**		**2080-LC20-20QBB(R)▲**
Digital Input/Output	8/4 (12/24V[1])		12/7 (12/24V[1])
Analog Input/Output	Four of 24V DC digital inputs can be configured as 0-10V analog inputs		1 Analog output (0-10V) Four of 24V DC digital inputs can be configured as 0-10V analog inputs
Motion Axis[2]/HSC[3]	N/A		N/A
Catalog Number	**N/A**		**N/A**
Digital Input/Output	N/A		N/A
Analog Input/Output	N/A		N/A
Motion Axis[2]/HSC[3]	N/A		N/A
Catalog Number	**2080-LC10-12AWA**		**2080-LC20-20AWB(R)▲**
Digital Input/Output	8/4 (120/240V AC)		8/7 (120V AC)
Analog Input/Output	Four of 24V DC digital inputs can be configured as 0-10V analog inputs		1 Analog output (0-10V) Four of 24V DC digital inputs can be configured as 0-10V analog inputs
Base Unit			
Power Supply*	Embedded 120/240V AC and 12/24V DC		Base Unit has embedded 24V DC Power Supply Optional External 120/240V AC via Cat. No. 2080-PS120-240VAC

1) 12/24V DC and 24V AC supported
2) Each Pulse Train Output Axis is shared with 2 HSC inputs so if max number of PTO is configured then number of HSC is zero
3) 2-wire High Speed Counter shown, divide by 2 to get number of 4-wire HSCs
*) Last letter of controller's catalog number indicates Input Power: A=120/240V AC, B=24V DC, D=12V DC
▲) Removable terminal blocks are present on Micro820 with catalog numbers that end in R. Catalog numbers that do not end in R have fixed terminal blocks.

For other Micro800 controllers, all controllers with 24-pt or 48-pt have removable terminal blocks.

Micro830

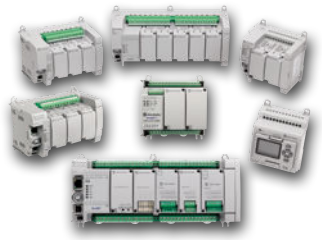
Micro850



10pt	16pt	24pt	48pt	24pt	48pt
USB, RS232/485	USB, RS232/485	USB, RS232/485	USB, RS232/485	USB, Ethernet, RS232/485	USB, Ethernet, RS232/485
4Ksteps/ 8Kbytes	4Ksteps/ 8Kbytes	10Ksteps/ 20Kbytes	10Ksteps/ 20Kbytes	10Ksteps/ 20Kbytes	10Ksteps/ 20Kbytes
2	2	3	5	3	5
N/A				4	
26	32	48	88	132	
2080-LC30-10QWB	**2080-LC30-16QWB**	**2080-LC30-24QWB**	**2080-LC30-48QWB**	**2080-LC50-24QWB**	**2080-LC50-48QWB**
6/4 (12/24V[1])	10/6 (12/24V[1])	14/10 (12/24V[1])	28/20 (12/24V[1])	14/10 (12/24V[1])	28/20 (12/24V[1])
Via Plug-In Modules				Via Plug-In Modules or with Expansion I/O modules	
2 HSC	2 HSC	4 HSC	6 HSC	4 HSC	6 HSC
N/A	**N/A**	**2080-LC30-24QBB**	**2080-LC30-48QBB**	**2080-LC50-24QBB**	**2080-LC50-48QBB**
N/A	N/A	14/10 (12/24V[1])	28/20 (12/24V[1])	14/10 (12/24V[1])	28/20 (12/24V[1])
N/A	N/A	Via Plug-In Modules		Via Plug-In Modules or with Expansion I/O modules	
N/A	N/A	2 PTO/4 HSC	3 PTO/6 HSC	2 PTO/4 HSC	3 PTO/6 HSC
2080-LC30-10QVB	**2080-LC30-16QVB**	**2080-LC30-24QVB**	**2080-LC30-48QVB**	**2080-LC50--24QVB**	**2080-LC50-48QVB**
6/4 (12/24V[1])	10/6 (12/24V[1])	14/10 (12/24V[1])	28/20 (12/24V[1])	14/10 (12/24V[1])	28/20 (12/24V[1])
Via Plug-In Modules				Via Plug-In Modules or with Expansion I/O modules	
1 PTO/2 HSC	1 PTO/2 HSC	2 PTO/4 HSC	3 PTO/6 HSC	2 PTO/4 HSC	3 PTO/6 HSC
N/A	**2080-LC30-16AWB**	**N/A**	**2080-LC30-48AWB**	**2080-LC50-20AWB**	**2080-LC50-48AWB**
N/A	10/6 (120V AC only)	N/A	28/20 (120V AC only)	14/10 (120V AC only)	28/20 (120V AC only)
N/A	Via Plug-In Modules	N/A	Via Plug-In Modules	Via Plug-In Modules or with Expansion I/O modules	
Base Unit					

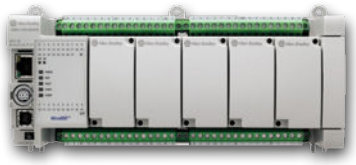
Base Unit has embedded 24V DC Power Supply Optional External 120/240V AC via Cat. No. 2080-PS120-240VAC

Micro800 PLC Family Overview Specifications

	Bulletin 2080	**Micro810**	**Micro820**
			
Unit I/O		**12pt**	**20pt**
[+]Plug-in Modules Support			
Isolated RS232/485		N/A	Yes
2/4-ch Analog Input/Output		N/A	Yes
Digital Input/Output		N/A	Yes
Resistance Temperature Detector/Thermocouple		N/A	Yes
Trim Potentiometer		N/A	Yes
DeviceNet Scanner		N/A	Yes
Motion High Speed Counter		N/A	Yes
Backup Memory with High Accuracy Real-Time Clock		N/A	N/A
Additional Functions			
Embedded Real-Time Clock		Yes	
LCD		Optional 1.5 in. Local (Cat. No. 2080-LCD)	Optional 3.5 in. LCD Display (Cat. No. 2080-REMLCD)
microSD		N/A	Embedded microSD slot for datalog, recipe and data back-up
Programming			
Software		Connected Components Workbench	
IEC 61131-3 Languages		Ladder Diagram, Function Block, Structured Text	
User Defined Function Blocks		Yes	
Motion Instructions		No	
Floating Point Math		32-bit and 64-bit	
PID Loop Control		Yes	
Communications			
Embedded Communication Protocols		N/A	RS232/485 non-isolated, CIP Serial, Modbus RTU and TCP, ASCII, EtherNet/IP
Environmentals			
Certifications		c-UL-us CL1DIV2, CE, C-Tick, KC	
Temperature Range		0°…55°C	-20°…65°C
Dimensions (HxWxD, mm)		90 x 75 x 60	90 x 100 x 80

See online catalog for complete specifications

[+]) For more details, refer to Micro800 Plug-in Modules Specifications on Page 9.

Micro830				Micro850	
					
10pt	16pt	24pt	48pt	24pt	48pt
[+]Plug-in Modules Support					
Yes					
Yes					
Yes					
Yes					
Yes					
Yes					
Yes					
Yes					
Additional Functions					
No					
N/A					
N/A					
Programming					
Connected Components Workbench					
Ladder Diagram, Function Block, Structured Text					
Yes					
Yes					
32-bit and 64-bit					
Yes					
Communications					
RS232/485 non-isolated, CIP Serial, Modbus RTU, ASCII				RS232/485 non-isolated, CIP Serial, Modbus RTU and TCP, ASCII, EtherNet/IP	
Environmentals					
c-UL-us CL1DIV2, CE, C-Tick, KC					
-20°…65°C					
90 x 100 x 80	90 x 100 x 80	90 x 145 x 80	90 x 230 x 80	90 x 145 x 80	90 x 230 x 80

Rockwell Automation offers a breadth of quality Allen-Bradley® components to fit your specific needs.
In order to assist you with your component selection, we offer a variety of configuration and selection tools.

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