



Micro800 Programmable Controller Family

Bulletin 2080, 2085



Allen-Bradley

by ROCKWELL AUTOMATION

Selection Guide

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

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What’s New

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes. Translated versions are not always available for each revision.

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Micro800 Controller Overview



Micro800™ controllers are designed for low-cost, standalone machines. These economical small-size programmable logic controllers (PLCs) are available in different form factors based on the number of I/O points that are embedded in the base, with a range of features that are intended to address different requirements. The Micro800 family shares programming environment, accessories, and plug-ins that allow machine builders to personalize the controller for specific capabilities.

Micro810® controllers function as a smart relay with high current relay outputs with the programming capabilities of a micro PLC. The Micro810 controllers come in a 12-point form factor.

Micro820® controllers are specifically designed for smaller standalone machines and remote automation projects. They have embedded Ethernet and serial ports and a microSD™ card slot for data logging and recipe management. These controllers come as 20-point form factors that can accommodate up to two plug-in modules. They also support the Micro800 Remote LCD (2080-REMLCD) module for easier configuration of such settings as IP address and functions as a simple IP65 text display.

Micro830® controllers are designed for standalone machine control applications. They have flexible communications and I/O capabilities with up to five plug-in modules. They are available in 10-point, 16-point, 24-point, or 48-point form factors.

Micro850® expandable controllers are designed for applications that require more digital and analog I/O or higher performance analog I/O. They can support up to four expansion I/O modules. Micro850 controllers include additional communication connection options through an embedded 10/100 Base-T Ethernet port. 2080-L50E-xxx controllers also support additional DF1 protocol modes.

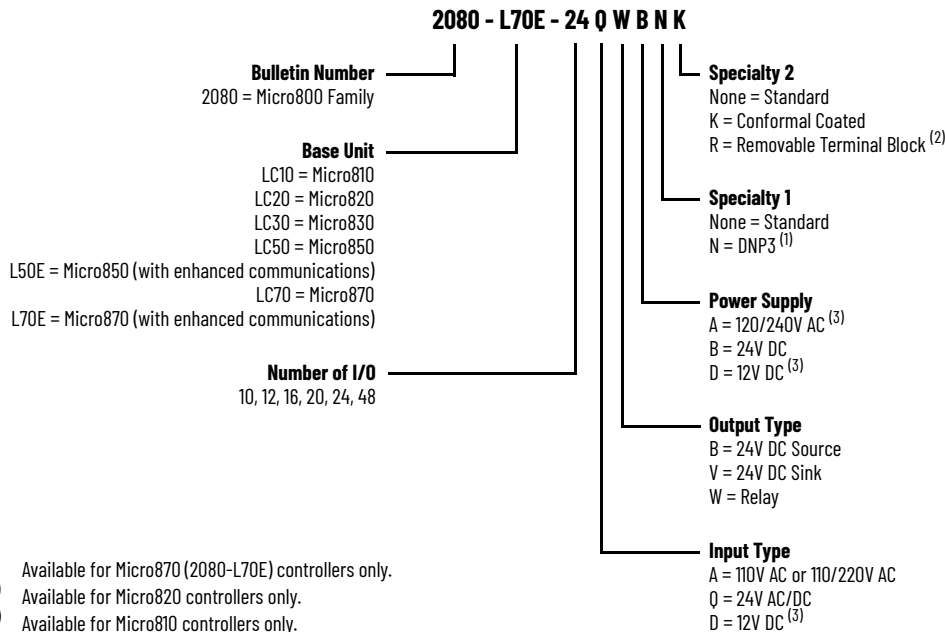
Micro870® controllers offer machine builders and end users a higher level of scalability, flexibility, and customization. Designed for large standalone machine applications, the Micro870 controller comes with large memory capacity to enable more modular program and use of user-defined function blocks. 2080-L70E-xxx controllers also support additional DF1 protocol modes and DNP3 protocol is supported in 2080-L70E-xxxN controllers.

Several Micro830, Micro850, and Micro870 controllers support basic positioning through embedded pulse train outputs (PTO). These controllers also allow you to configure up to six high-speed counters (HSC), and choose from nine HSC operation modes. HSC is supported on all Micro830, Micro850, and Micro870 controller catalogs (except 2080-LCx-xxAWB and 2080-LxxE-xxAWB). PTO is only supported on Micro830, Micro850, and Micro870 controller catalog numbers that end in BB or VB.

With firmware revision 21.011 or later, Micro850 (2080-L50E) and Micro870 (2080-L70E) controllers support Kinetix® 5100 and PowerFlex® 520-series drives that are connected using a Class 1 EtherNet/IP™ connection with predefined instructions and tags, and generic profile tags for all other EtherNet/IP devices.

This selection guide serves to help you identify the right controller, plug-ins, expansion I/O, and accessories, based on your requirements.

Micro800 Catalog Number Details



(1) Available for Micro870 (2080-L70E) controllers only.
 (2) Available for Micro820 controllers only.
 (3) Available for Micro810 controllers only.

Micro800 Controller Comparison

Feature Comparison

Attribute	Micro810	Micro820	Micro830				Micro850		Micro870
	12-point	20-point	10-point	16-point	24-point	48-point	24-point	48-point	24-point
Communication ports, embedded	USB 2.0 (with USB adapter)	10/100 Base-T Ethernet port (RJ45) RS-232/RS-485 non-isolated combo serial	USB 2.0 (non-isolated) RS-232/RS-485 non-isolated combo serial				USB 2.0 (non-isolated) RS-232/RS-485 non-isolated combo serial 10/100 Base-T Ethernet port (RJ45)		
Embedded digital I/O points ⁽¹⁾	12	19	10	16	24	48	24	48	24
Base analog I/O channels	Four 24V DC digital inputs are shared as 0...10V analog inputs (DC input models only)	One 0...10V analog output Four 24V DC digital inputs can be configured as 0...10V analog inputs (DC input models only) and via plug-in modules	Via plug-in modules				Via expansion I/O and plug-in modules (see page 13 and 14)		
Number of plug-in modules	0	2	2	2	3	5	3	5	3
Maximum digital I/O ⁽²⁾	12	35	26	32	48	88	132	192	304
Expansion I/O supported	—	—	—				All expansion I/O modules (see page 13)		
Types of accessories or plug-ins supported	LCD display with backup memory module USB adapter	Most plug-in modules (see page 14 for selection and exceptions)							
Power supply	Embedded 120/240V AC and 12/24V DC options	Base unit has embedded 24V DC power supply, optional external 120/240V AC power supply available							
Basic instruction speed	2.5µs per basic instruction	0.30 µs per basic instruction							
Minimum scan/cycle time ⁽³⁾	<0.25 ms	<4 ms	<0.25 ms						
Software	Connected Components Workbench ⁽⁴⁾								

(1) See [Number and Types of Inputs/Outputs for Micro800 Catalogs on page 6](#).
 (2) For Micro820 and Micro830 controllers, the number of maximum digital I/O assumes 8-point digital I/O plug-ins (for example, 2080-IQ40B4) are used on all available plug-in slots. For Micro850 and Micro870 controllers, the maximum number of digital I/O supported includes the base, plug-ins, and expansion I/O.
 (3) Includes reading and writing I/O, program execution, and communications overhead.
 (4) 2080-LxxE controllers are supported from version 20 onwards.

Micro800 Controllers Programming Comparison (with Connected Components Workbench software)

Attribute	Micro810 12-point	Micro820 20-point	Micro830 10/16-point	Micro830 24-point	Micro830 48-point	Micro850 24-point	Micro850 48-point	Micro870 24-point
Program steps ⁽¹⁾	2 K	10 K	4 K	10 K	10 K	10 K	10 K	20 K
Data bytes	2 KB	20 KB	8 KB	20 KB	20 KB	20 KB	20 KB	40 KB
IEC 61131-3 languages	Ladder diagram, function block diagram, structured text							
User-defined function blocks	Yes							
Floating point	32-bit and 64-bit							
PID Loop Control	Yes (number limited only by memory)							

(1) Estimated Program and Data size are “typical” – program steps and variables are created dynamically. 1 Program Step = 12 data bytes. The number of bytes per instruction can vary greatly from program to program and from programming language to programming language.

Micro800 Controllers Communication Options

Controller	USB Programming Port	Embedded Serial Port, Serial Port Plug-in				Embedded Ethernet		
		CIP Serial/DF1 ⁽¹⁾	Modbus RTU	ASCII/Binary	DNP3	EtherNet/IP	Modbus TCP	DNP3
Micro810	Yes (with adapter)	No						
Micro820	Yes (with 2080-REMLCD)	Yes	Master/Slave	Yes	No	Yes	Yes	No
Micro830	Yes	Yes	Master/Slave	Yes	No	No	No	No
Micro850	Yes	Yes	Master/Slave	Yes	No	Yes	Yes	No
Micro870	Yes	Yes	Master/Slave	Yes	Yes ⁽²⁾	Yes	Yes	Yes ⁽²⁾

(1) 2080-LxxE controllers support CIP™ Serial/DF1 Full-Duplex, Half-Duplex, and Radio Modem. All other controllers (except Micro810) support CIP Serial/DF1 Full-Duplex only.

(2) Applies to 2080-L70E-xxxN controllers only.

Micro800 Controllers Analog I/O and TC/RTD Comparison

Attribute	Micro810	Micro820	Micro830 (with plug-ins)	Micro850 (with expansion I/O)	Micro870 (with expansion I/O)
Performance level	Low		Medium	High	
Isolation to controller (increased noise immunity)	None			Yes	
Resolution and nominal accuracy	Analog Input: 10-bit, 5% (2% with calibration)		Analog I/O: 12-bit, 1% TC/RTD: ±1 °C CJC for TC: ±1.2 °C	Analog Input: 14-bit input, ±0.1% Analog Output: 12-bit output, 0.133%, current, 0.425% voltage TC: ±0.5...±3.0 °C RTD: ±0.2...±0.6 °C	
Input update rate and filtering	Update rate only dependent on program scan, limited filtering		200 ms/ch, 50/60 Hz filtering	8 ms all channels with or without 50/60 Hz filtering	
Recommended maximum shielded cable length ⁽¹⁾	10 m			100 m	

(1) These numbers are guidelines only. Maximum cable length is dependent on the application and other factors such as cable type, installation, required accuracy, sensor, and so on.

Number and Types of Inputs/Outputs

Number and Types of Inputs/Outputs for Micro800 Catalogs

Controller Family	Catalogs	Inputs				Outputs			Analog Out 0...10V DC	Analog In 0...10V (shared with DC In)	PTO/PWM Support ⁽¹⁾	Embedded HSC Support ⁽²⁾	Ethernet Nodes ⁽³⁾
		120V AC	120/240 V AC	24V DC/ V AC	12V DC	Relay	24V DC Source	24V DC Sink					
Micro810	2080-LC10-12AWA	-	8	-	-	4	-	-	-	-	-	-	-
	2080-LC10-12QWB	-	-	8	-	4	-	-	-	4	-	-	-
	2080-LC10-12DWD	-	-	-	8	4	-	-	-	4	-	-	-
	2080-LC10-12QBB	-	-	8	-	-	4	-	-	4	-	-	-
Micro820	2080-LC20-20AWB	8	-	4	-	7	-	-	1	4	-	-	-
	2080-LC20-20AWBR	8	-	4	-	7	-	-	1	4	-	-	-
	2080-LC20-20QWB	-	-	12	-	7	-	-	1	4	-	-	-
	2080-LC20-20QWBR	-	-	12	-	7	-	-	1	4	-	-	-
	2080-LC20-20QBB	-	-	12	-	-	7	-	1	4	1(PWM)	-	-
	2080-LC20-20QBBR	-	-	12	-	-	7	-	1	4	1(PWM)	-	-
Micro830	2080-LC30-10QWB	-	-	6	-	4	-	-	-	-	-	2	-
	2080-LC30-10QVB	-	-	6	-	-	-	4	-	-	1(PTO/PWM)	2	-
	2080-LC30-16AWB	10	-	-	-	6	-	-	-	-	-	-	-
	2080-LC30-16QWB	-	-	10	-	6	-	-	-	-	-	2	-
	2080-LC30-16QVB	-	-	10	-	-	-	6	-	-	1(PTO/PWM)	2	-
	2080-LC30-24QWB	-	-	14	-	10	-	-	-	-	-	4	-
	2080-LC30-24QVB	-	-	14	-	-	-	10	-	-	2(PTO/PWM)	4	-
	2080-LC30-24QBB	-	-	14	-	-	10	-	-	-	2(PTO/PWM)	4	-
	2080-LC30-48AWB	28	-	-	-	20	-	-	-	-	-	-	-
	2080-LC30-48QWB	-	-	28	-	20	-	-	-	-	-	6	-
	2080-LC30-48QVB	-	-	28	-	-	-	20	-	-	3(PTO/PWM)	6	-
	2080-LC30-48QBB	-	-	28	-	-	20	-	-	-	3(PTO/PWM)	6	-
Micro850 ⁽³⁾	2080-LC50-24AWB	14	-	-	-	10	-	-	-	-	-	-	0
	2080-L50E-24AWB	14	-	-	-	10	-	-	-	-	-	-	8
	2080-LC50-24QWB	-	-	14	-	10	-	-	-	-	-	4	0
	2080-L50E-24QWB	-	-	14	-	10	-	-	-	-	-	4	8
	2080-LC50-24QVB	-	-	14	-	-	-	10	-	-	2(PTO/PWM)	4	0
	2080-L50E-24QVB	-	-	14	-	-	-	10	-	-	2(PTO/PWM)	4	8
	2080-LC50-24QBB	-	-	14	-	-	10	-	-	-	2(PTO/PWM)	4	0
	2080-L50E-24QBB	-	-	14	-	-	10	-	-	-	2(PTO/PWM)	4	8
	2080-LC50-48AWB	28	-	-	-	20	-	-	-	-	-	-	0
	2080-L50E-48AWB	28	-	-	-	20	-	-	-	-	-	-	8
	2080-LC50-48QWB	-	-	28	-	20	-	-	-	-	-	6	0
	2080-L50E-48QWB	-	-	28	-	20	-	-	-	-	-	6	8
	2080-LC50-48QWBK	-	-	28	-	20	-	-	-	-	-	6	0
	2080-L50E-48QWBK	-	-	28	-	20	-	-	-	-	-	6	8
	2080-LC50-48QVB	-	-	28	-	-	-	20	-	-	3(PTO/PWM)	6	0
	2080-L50E-48QVB	-	-	28	-	-	-	20	-	-	3(PTO/PWM)	6	8
	2080-LC50-48QBB	-	-	28	-	-	20	-	-	-	3(PTO/PWM)	6	0
	2080-L50E-48QBB	-	-	28	-	-	20	-	-	-	3(PTO/PWM)	6	8

Number and Types of Inputs/Outputs for Micro800 Catalogs (Continued)

Controller Family	Catalogs	Inputs				Outputs			Analog Out 0...10V DC	Analog In 0...10V (shared with DC In)	PTO/PWM Support ⁽¹⁾	Embedded HSC Support ⁽²⁾	Ethernet Nodes ⁽³⁾
		120V AC	120/240 V AC	24V DC/ V AC	12V DC	Relay	24V DC Source	24V DC Sink					
Micro870 ⁽³⁾	2080-LC70-24AWB	14	-	-	-	10	-	-	-	-	-	-	0
	2080-L70E-24AWB	14	-	-	-	10	-	-	-	-	-	-	8
	2080-LC70-24QWB	-	-	14	-	10	-	-	-	-	-	4	0
	2080-L70E-24QWB	-	-	14	-	10	-	-	-	-	-	4	8
	2080-LC70-24QWBK	-	-	14	-	10	-	-	-	-	-	4	0
	2080-L70E-24QWBK	-	-	14	-	10	-	-	-	-	-	4	8
	2080-L70E-24QWBN	-	-	14	-	10	-	-	-	-	-	4	8
	2080-L70E-24QWBK	-	-	14	-	10	-	-	-	-	-	4	8
	2080-LC70-24QBB	-	-	14	-	-	10	-	-	-	2 (PTO/PWM)	4	0
	2080-L70E-24QBB	-	-	14	-	-	10	-	-	-	2 (PTO/PWM)	4	8
	2080-LC70-24QBBK	-	-	14	-	-	10	-	-	-	2 (PTO/PWM)	4	0
	2080-L70E-24QBBK	-	-	14	-	-	10	-	-	-	2 (PTO/PWM)	4	8
	2080-L70E-24QBBN	-	-	14	-	-	10	-	-	-	2 (PTO/PWM)	4	8

(1) For Micro830 and Micro850 controllers, you need firmware revision 6.011 or later to use PWM output.
 (2) Maximum number of embedded HSC supported.
 (3) For Micro850 (2080-L50E) and Micro870 (2080-L70E) controllers with firmware revision 21.011 or later.

Connected Components Workbench Software

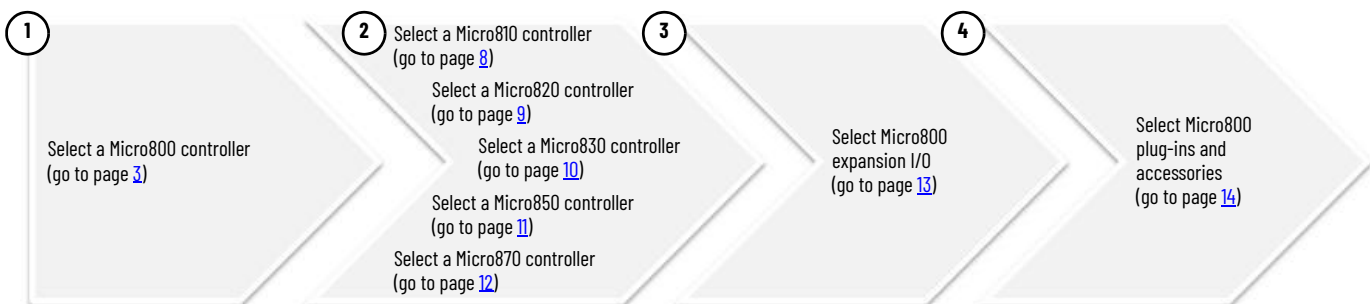
Connected Components Workbench software is the programming and configuration environment for the Micro800 controllers and our Connected Components products offering. It simplifies setup and usage, enabling applications ranging from simple smart relay up to standalone machine control. Visit the website for the most up-to-date product information, downloads, and tools at rok.auto/ccw.

Connected Components Workbench Software Editions

Attribute	Standard	Developer
Delivery	Free	Paid
Packaging options	Download from the Product Compatibility and Downloads Center (PCDC)	Visit the Software Subscription Portal to purchase an annual subscription to the Developer Edition, which is bundled with support
LD, FBD, and ST editors	Yes	Yes
User-defined function blocks and functions	Yes	Yes
User-defined structure	-	Yes
Product activation	-	Yes
Registration for updates and notices	Optional	Optional
Micro800 simulator	Demo (10 mins in run mode)	Yes
Variable trend	Yes	Yes
Spy lists	-	Yes
Archive manager	-	Yes

Select a Micro800 System

Choose a Micro800 Controller



Select a Micro810 Controller



As the smallest of the Micro800 family, the Micro810 controller is available in a 12-point version, with two 8 A and two 4 A outputs that eliminate the need for external relays. The Micro810 controller features embedded smart relay function blocks that can be configured from a 1.5" LCD and keypad. The function blocks include Delay OFF/ON Timer, Time of Day, Time of Week, and Time of Year for applications requiring a programmable timer and lighting control. Programming can also be done through a program download via USB programming port, using Connected Components Workbench software.

Micro810 Controllers - Number and Types of Inputs and Outputs

Catalog Number	Power	Inputs			Outputs		Analog In 0...10V (shared with DC In)
		120V AC	120/240 V AC	12...24V DC/ V AC	Relay	24V DC Source	
2080-LC10-12AWA	120...240V AC	-	8	-	4	-	-
2080-LC10-12QWB	24V DC	-	-	8	4	-	4
2080-LC10-12DWD	12V DC	-	-	8	4	-	4
2080-LC10-12QBB	12...24V DC	-	-	8	-	4	4

For technical specifications, see the Micro800 Programmable Controllers Technical Data, publication [2080-TD001](#).

For more information, see the Micro810 Programmable Controllers User Manual, publication [2080-UM001](#).

Select a Micro820 Controller



As one of the smaller controllers in the Micro800 family, the Micro820 controller comes as a 20-point form factor, with six catalogs available for selection. The Micro820 controller is designed for smaller standalone machines and remote automation projects.

It has the following features:

- Two plug-in module slots
- microSD card slot for project backup and restore, data logging, and recipe
- Embedded 10/100 Base-T Ethernet port (RJ45)
- Support for Remote LCD module (2080-REMLCD) for configuration
- Embedded non-isolated RS-232/RS-485 combo serial port
- Modbus RTU protocol (serial port)
- Modbus TCP support
- EtherNet/IP support
- CIP Serial support

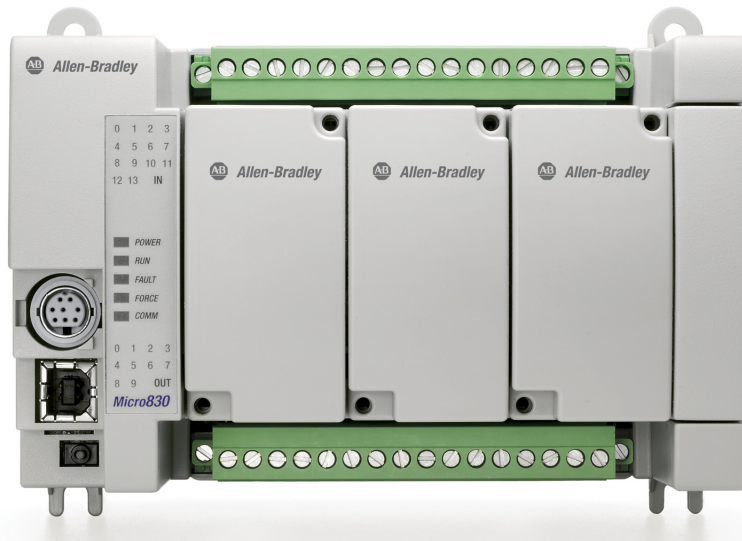
Micro820 Controllers - Number and Types of Inputs and Outputs

Catalog Number	Inputs			Outputs			Analog Out 0...10V DC	Analog In 0...10V (shared with DC In)	PWM Support
	120V AC	120/240 V AC	24V DC	Relay	24V DC Source	24V DC Sink			
2080-LC20-20AWB	8	-	4	7	-	-	1	4	-
2080-LC20-20AWBR	8	-	4	7	-	-	1	4	-
2080-LC20-20QWB	-	-	12	7	-	-	1	4	-
2080-LC20-20QWBR	-	-	12	7	-	-	1	4	-
2080-LC20-20QBB	-	-	12	-	7	-	1	4	1
2080-LC20-20QBRR	-	-	12	-	7	-	1	4	1

For technical specifications, see the Micro800 Programmable Controllers Technical Data, publication [2080-TD001](#).

For more information, see the Micro820 Programmable Controllers User Manual, publication [2080-UM005](#).

Select a Micro830 Controller



The Micro830 controller allows integration of as many as five plug-in modules. The plug-in modules enable machine builders to personalize the controllers to increase functionality. Most models offer removable terminal blocks and simplified communication via serial port.

The controllers include:

- Up to six embedded High-Speed Counter inputs (HSC)^(a)
- 100 kHz speed HSC available on 24V DC models
- Up to three embedded Pulse Train Outputs (PTO) for basic positioning^(b)
- High-speed input interrupts
- Modbus RTU protocol (serial port)
- CIP Serial to allow tighter integration with PanelView™ Component
- Embedded USB programming and serial port (RS-232/RS-485)
- Plug-in slots to customize according to needs

Micro830 Controllers - Number and Types of Inputs and Outputs

Catalog Number	Number of Points	Inputs		Outputs			PTO/PWM Support	HSC Support ⁽¹⁾
		120V AC	24V DC/V AC	Relay	24V DC Source	24V DC Sink		
2080-LC30-10QWB	10	-	6	4	-	-	-	2
2080-LC30-10QVB		-	6	-	-	4	1	2
2080-LC30-16AWB	16	10	-	6	-	-	-	-
2080-LC30-16QWB		-	10	6	-	-	-	2
2080-LC30-16QVB		-	10	-	-	6	1	2
2080-LC30-24QWB	24	-	14	10	-	-	-	4
2080-LC30-24QVB		-	14	-	-	10	2	4
2080-LC30-24QBB		-	14	-	10	-	2	4
2080-LC30-48AWB		48	28	-	20	-	-	-
2080-LC30-48QWB	-		28	20	-	-	-	6
2080-LC30-48QVB	-		28	-	-	20	3	6
2080-LC30-48QBB	-		28	-	20	-	3	6

(1) Maximum number of HSC supported.

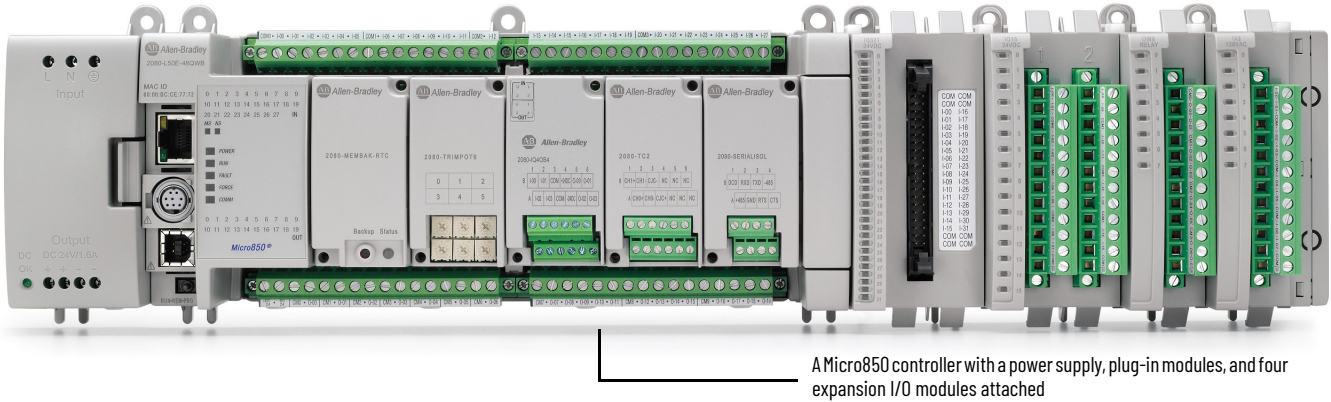
For technical specifications, see the Micro800 Programmable Controllers Technical Data, publication [2080-TD001](#).

For more information, see the Micro830, Micro850, and Micro870 Programmable Controllers User Manual, publication [2080-UM002](#).

(a) Embedded HSC is supported on all Micro830 catalog numbers, except on 2080-LC30-xxAWB.

(b) PTO is supported on Micro830 catalog numbers that ends in BB or VB only.

Select a Micro850 Controller



A Micro850 controller with a power supply, plug-in modules, and four expansion I/O modules attached

Micro850 controllers are suitable for applications that require more digital and analog I/O or higher performance analog I/O. These controllers can support up to four expansion I/O and come in 24-point and 48-point form factors with an embedded Ethernet port.

Micro850 controllers include:

- Expansion I/O support
- Up to six embedded High-Speed Counter inputs (HSC) ^(a)
- 100 kHz speed HSC available on 24V DC models
- Up to three embedded Pulse Train Outputs (PTO) ^(b) for basic positioning
- High-speed input interrupts
- Modbus RTU protocol (serial port)
- Modbus/TCP support
- EtherNet/IP support
- CIP Serial support
- Embedded USB programming and serial port (RS-232/RS-485)
- Embedded 10/100 Base-T Ethernet port (RJ45)
- Plug-in slots to customize according to needs

Micro850 Controllers - Number and Types of Inputs and Outputs

Catalog Number	Number of Points	Inputs		Outputs			PTO/PWM Support	HSC Support ⁽¹⁾	Ethernet Nodes ⁽²⁾
		120V AC	24V DC/V AC	Relay	24V DC Source	24V DC Sink			
2080-LC50-24AWB	24	14	-	10	-	-	-	-	0
2080-L50E-24AWB		14	-	10	-	-	-	-	8
2080-LC50-24QWB		-	14	10	-	-	-	4	0
2080-L50E-24QWB		-	14	10	-	-	-	4	8
2080-LC50-24QVB		-	14	-	-	10	2	4	0
2080-L50E-24QVB		-	14	-	-	10	2	4	8
2080-LC50-24QBB		-	14	-	-	10	2	4	0
2080-L50E-24QBB		-	14	-	-	10	2	4	8

(a) Embedded HSC is supported on all Micro850 catalog numbers, except on 2080-LC50-xxAWB and 2080-L50E-xxAWB.

(b) PTO is supported on Micro850 catalog numbers that ends in BB or VB.

Micro850 Controllers - Number and Types of Inputs and Outputs (Continued)

Catalog Number	Number of Points	Inputs		Outputs			PTO/PWM Support	HSC Support (1)	Ethernet Nodes (2)	
		120V AC	24V DC/V AC	Relay	24V DC Source	24V DC Sink				
2080-LC50-48AWB	48	28	-	20	-	-	-	-	0	
2080-L50E-48AWB		28	-	20	-	-	-	-	8	
2080-LC50-48QWB		-	28	20	-	-	-	6	0	
2080-L50E-48QWB		-	28	20	-	-	-	6	8	
2080-LC50-48QWBK		-	28	20	-	-	-	6	0	
2080-L50E-48QWBK		-	28	20	-	-	-	6	8	
2080-LC50-48QVB		-	28	-	-	-	20	3	6	0
2080-L50E-48QVB		-	28	-	-	-	20	3	6	8
2080-LC50-48QBB		-	28	-	-	20	-	3	6	0
2080-L50E-48QBB		-	28	-	-	20	-	3	6	8

(1) Maximum number of HSC supported.
 (2) For Micro850 (2080-L50E) controllers with firmware revision 21.011 or later.

For technical specifications, see the Micro800 Programmable Controllers Technical Data, publication [2080-TD001](#).

For more information, see the Micro830, Micro850, and Micro870 Programmable Controllers User Manual, publication [2080-UM002](#).

Select a Micro870 Controller



A Micro870 controller with plug-in modules, eight expansion I/O modules, and an expansion I/O power supply attached

Micro870 controllers are designed for large standalone machine applications and come with great memory capacity to enable more modular program and user-defined function blocks. These controllers are capable of communicating on various networks and with devices through EtherNet/IP, Serial, and USB ports.

Micro870 controllers include:

- Expansion I/O support
- Up to six embedded High-Speed Counter inputs (HSC) (a)
- 100 kHz speed HSC available on 24V DC models
- Up to three embedded Pulse Train Outputs (PTO) (b) for basic positioning
- High-speed input interrupts
- Modbus RTU protocol (serial port)
- Modbus/TCP support
- EtherNet/IP support
- CIP Serial support
- DNP3 support

(a) Embedded HSC is supported on all Micro870 controller catalog numbers, except on 2080-LC70-24AWB and 2080-L70E-24AWB.
 (b) PTO is supported on Micro870 controller catalog numbers that ends in BB.

- Embedded USB programming and serial port (RS-232/RS-485)
- Embedded 10/100 Base-T Ethernet port (RJ45)
- Plug-in slots to customize according to needs

Micro870 Controllers - Number and Types of Inputs and Outputs

Catalog Number	Inputs		Outputs			PTO/PWM Support	HSC Support (1)	Ethernet Nodes(2)
	120V AC	24V DC/V AC	Relay	24V Sink	24V Source			
2080-LC70-24AWB	14	-	10	-	-	-	-	0
2080-L70E-24AWB	14	-	10	-	-	-	-	8
2080-LC70-24QWB	-	14	10	-	-	-	4	0
2080-L70E-24QWB	-	14	10	-	-	-	4	8
2080-LC70-24QWBK	-	14	10	-	-	-	4	0
2080-L70E-24QWBK	-	14	10	-	-	-	4	8
2080-L70E-24QWBN	-	14	10	-	-	-	4	8
2080-L70E-24QWBK	-	14	10	-	-	-	4	8
2080-LC70-24QBB	-	14	-	-	10	2	4	0
2080-L70E-24QBB	-	14	-	-	10	2	4	8
2080-LC70-24QBBK	-	14	-	-	10	2	4	0
2080-L70E-24QBBK	-	14	-	-	10	2	4	8
2080-L70E-24QBBN	-	14	-	-	10	2	4	8

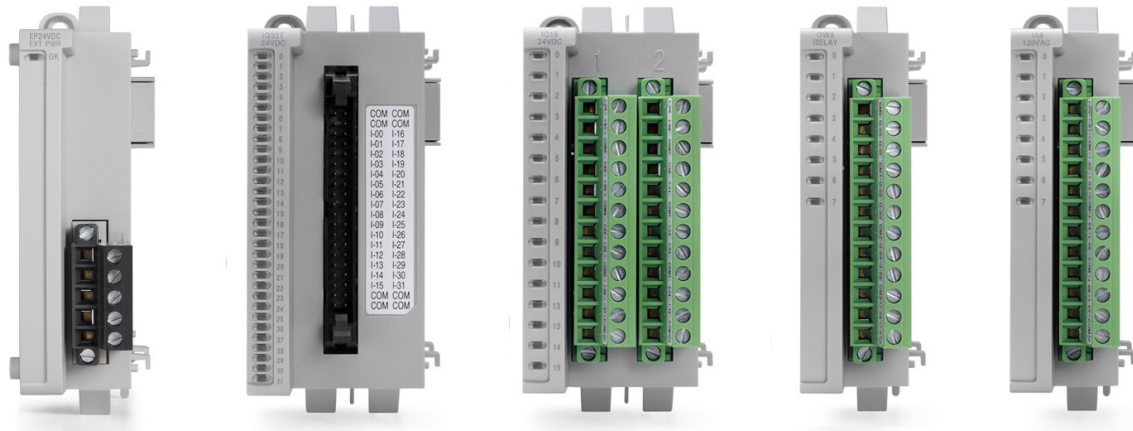
(1) Maximum number of HSC supported.

(2) For Micro870 (2080-L70E) controllers with firmware revision 21.011 or later.

For technical specifications, see the Micro800 Programmable Controllers Technical Data, publication [2080-TD001](#).

For more information, see the Micro830, Micro850, and Micro870 Programmable Controllers User Manual, publication [2080-UM002](#).

Select a Micro800 Expansion I/O Module



The Micro800 expansion I/O modules provide superior functionality in a small-sized low-cost package. Various digital and analog modules complement and extend the capabilities of Micro850 and Micro870 controllers by maximizing the flexibility of I/O count and type.

Micro800 expansion I/O modules include high density discrete and analog I/O modules, including a high accuracy RTD and Thermocouple module.

There are available solid-state output modules that are recommended to reduce switching noise and for applications, which require more switching cycles than relays. Triac outputs are available for AC loads. Sink and source transistor outputs are available for DC loads.

The Micro800 platform also supports expansion I/O modules from the Rockwell Automation PartnerNetwork™ program. For a list of supported products, use the Technology Partner Locator tool at locator.rockwellautomation.com/Technology and search for "Micro800 System" under Platform.

Micro800 Expansion I/O Modules

Catalog Number	Type	Description
2085-IA8	Discrete	8-point, 120V AC input
2085-IM8	Discrete	8-point, 240V AC input
2085-OA8	Discrete	8-point, 120/240V AC triac output
2085-IQ16	Discrete	16-point, 12/24V DC sink/source input
2085-IQ32T	Discrete	32-point, 12/24V DC sink/source input
2085-OV16	Discrete	16-point, 12/24V DC sink transistor output
2085-OB16	Discrete	16-point, 12/24V DC source transistor output
2085-OW8	Discrete	8-point, AC/DC relay output
2085-OW16	Discrete	16-point, AC/DC relay output
2085-IF4	Analog	4-channel, 14-bit isolated ⁽¹⁾ voltage/current input
2085-IF8	Analog	8-channel, 14-bit isolated ⁽¹⁾ voltage/current input
2085-OF4	Analog	4-channel, 12-bit isolated ⁽¹⁾ voltage/current output
2085-IRT4	Specialty	4-channel, 16-bit RTD and TC isolated ⁽¹⁾ input module
2085-EP24VDC ⁽²⁾	Power Supply	Supplies power for up to four expansion I/O modules
2085-ECR ⁽³⁾	Terminator	Bus terminator

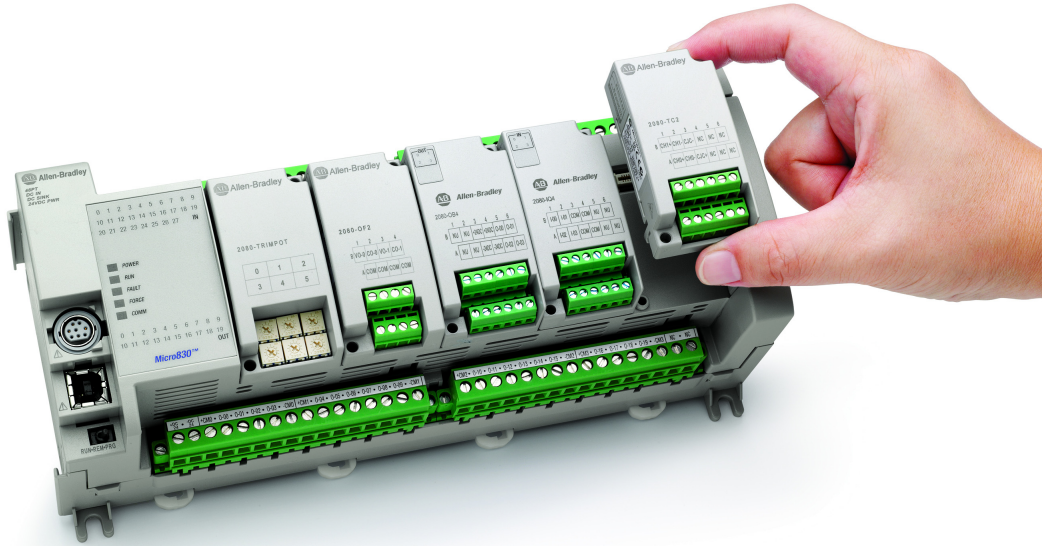
- (1) Refers to isolation from field side wiring to controller, **not** channel-to-channel isolation.
- (2) Use only in a Micro870 system with more than four expansion I/O modules.
- (3) The 2085-ECR bus terminator should always be the last module on the system, if any expansion I/O module is attached to the system.

Select Micro800 Plug-in Modules and Accessories



Micro800 plug-in modules extend the functionality of embedded I/O without increasing the footprint of the controller. They improve performance by adding additional processing power or capabilities and add additional communication functionality. Micro820, Micro830, Micro850, and Micro870 controllers support plug-in modules.

Micro800 accessories consist of a Remote LCD (compatible with Micro820 controllers only), an LCD with keypad (compatible with Micro810 controllers only), a USB adapter (compatible with Micro810 controllers only), and an expansion power supply.



The Micro800 platform also supports plug-in modules from the Rockwell Automation PartnerNetwork program. For a list of supported products, use the Technology Partner Locator tool at locator.rockwellautomation.com/Technology and search for "Micro800 System" under Platform.

Micro800 Plug-in Modules and Accessories - Features and Compatibility

Catalog Number	Supported by			Features
	Micro810	Micro820	Micro830, Micro850, Micro870	
Digital I/O modules (Input, Output, Combination, and Relay)				
2080-IQ4	No	Yes	Yes	<ul style="list-style-type: none"> • Four channel inputs/outputs or combination modules • Configurable as voltage and current inputs • Sink or source output • Four channel relay outputs
2080-OB4, 2080-OV4				
2080-IQ4OB4, 2080-IQ4OV4				
2080-DW4I				
Analog I/O modules (Input and Output)				
2080-IF2, 2080-IF2K, 2080-IF4	No	Yes	Yes	Non-isolated unipolar analog input/output <ul style="list-style-type: none"> • Adds up to 20 embedded analog I/O with 12-bit resolution (with 48-point controllers) • Two channels for 2080-IF2, 2080-OF2 • Four channels for 2080-IF4
2080-OF2				
Specialty I/O modules				
2080-RTD2	No	Yes	Yes	Two non-isolated channels for temperature control, when used with PID
2080-TC2	No	Yes	Yes	
2080-MEMBAK-RTC, 2080-MEMBAK-RTC2	No	No	Yes ⁽¹⁾	<ul style="list-style-type: none"> • Memory module to backup project data and application code • High accuracy real-time clock
2080-TRIMPOT6	No	Yes	Yes	6-channel trim potentiometer analog input <ul style="list-style-type: none"> • Adds six analog presets for speed, position, and temperature control
2080-MOT-HSC	No	Yes	Yes	High-speed counter <ul style="list-style-type: none"> • Up to a minimum of 250 kHz differential line driver for improved noise immunity and additional dedicated I/O • One Quadrature (ABZ) differential inputs alternately configurable for pulse internal, pulse with external direction, A-up and B-down input configurations, and quadrature mode • User-configurable minimum and maximum values, preset, and Z operation
Communication modules				
2080-DNET20	No	Yes	Yes	DeviceNet [®] scanner - scan devices such as CompactBlock™ LDX I/O, PowerFlex drives, overloads, and sensors
2080-SERIALISOL	No	Yes	Yes	RS-232/RS-485 isolated serial port <ul style="list-style-type: none"> • Adds additional serial communications with Modbus RTU and ASCII protocols • Isolated for increased noise immunity
Accessories				
2080-LCD	Yes	No	No	1.5" LCD and keypad <ul style="list-style-type: none"> • Backup module for Micro810 controllers • Configure smart relay function blocks
2080-USBADAPTER	Yes	No	No	Micro810 USB adapter for programming access
2080-REMLCD	No	Yes	No	Remote LCD <ul style="list-style-type: none"> • Operator interface for configuring settings such as IP address on Micro820 controllers • With RS-232 and USB ports
2080-SD-2GB	No	Yes	No	2 GB microSD card for project backup and restore, data log, and recipe functions
External power supply				
2080-PSAC-12W	Yes	Yes	No	Optional controller power supply
2080-PS120-240VAC	No	No	Yes	

(1) 2080-MEMBAK-RTC is not supported on Micro850 (2080-L50E) and Micro870 (2080-LC70 and 2080-L70E) controllers.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at rok.auto/literature.

Additional Resources

Resource	Description
Micro800 Programmable Controllers Technical Data, publication 2080-TD001	Provides detailed specifications for Micro800 controllers, expansion I/O modules, plug-in modules, and accessories.
Micro800 Programmable Controller External AC Power Supply Installation Instructions, publication 2080-IN001	Information on mounting and wiring the optional external power supply.
Micro800 Programmable Controllers Installation Instructions, publication 2080-IN013	Describes how to install and wire your Micro800 programmable controller.
Micro800 16-point and 32-point 12/24V Sink/Source Input Modules Installation Instructions, publication 2085-IN001	Information on mounting and wiring the expansion I/O modules (2085-IQ16, 2085-IQ32T).
Micro800 Bus Terminator Module Installation Instruction, publication 2085-IN002	Information on mounting and wiring the expansion I/O bus terminator (2085-ECR).
Micro800 16-Point Sink and 16-Point Source 12/24V DC Output Modules Installation Instructions, publication 2085-IN003	Information on mounting and wiring the expansion I/O modules (2085-0V16, 2085-0B16).
Micro800 8-Point and 16-Point AC/DC Relay Output Modules Installation Instructions, publication 2085-IN004	Information on mounting and wiring the expansion I/O modules (2085-0W8, 2085-0W16).
Micro800 8-Point Input and 8-Point Output AC Modules Installation Instructions, publication 2085-IN005	Information on mounting and wiring the expansion I/O modules (2085-IA8, 2085-IM8, 2085-0A8).
Micro800 4-channel and 8-channel Analog Voltage/current Input and Output Modules Installation Instructions, publication 2085-IN006	Information on mounting and wiring the expansion I/O modules (2085-IF4, 2085-IF8, 2085-0F4).
Micro800 4-channel Thermocouple/RTD Input Module Installation Instructions, publication 2085-IN007	Information on mounting and wiring the expansion I/O module (2085-IRT4).
Micro870 Programmable Controllers 24V DC Expansion Power Supply Installation Instructions, publication 2085-IN008	Information on mounting and wiring the optional external power supply for expansion I/O modules.
Micro800 RS-232/RS-485 Isolated Serial Port Plug-in Module Wiring Diagrams, publication 2080-WD002	Information on mounting and wiring the Micro800 RS-232/RS-485 Isolated Serial Port Plug-in Module.
Micro800 Non-isolated Unipolar Analog Input Plug-in Module Wiring Diagrams, publication 2080-WD003	Information on mounting and wiring the Micro800 Non-isolated Unipolar Analog Input Plug-in Module.
Micro800 Non-isolated Unipolar Analog Output Plug-in Module Wiring Diagrams, publication 2080-WD004	Information on mounting and wiring the Micro800 Non-isolated Unipolar Analog Output Plug-in Module.
Micro800 Non-isolated RTD Plug-in Module Wiring Diagrams, publication 2080-WD005	Information on mounting and wiring the Micro800 Non-isolated RTD Plug-in Module.
Micro800 Non-isolated Thermocouple Plug-in Module Wiring Diagrams, publication 2080-WD006	Information on mounting and wiring the Micro800 Non-isolated Thermocouple Plug-in Module.
Micro800 Memory Backup and High Accuracy RTC Plug-In Module Wiring Diagrams, publication 2080-WD007	Information on mounting and wiring the Micro800 Memory Backup and High Accuracy RTC Plug-In Module.
Micro800 6-Channel Trimpt Analog Input Plug-In Module Wiring Diagrams, publication 2080-WD008	Information on mounting and wiring the Micro800 6-Channel Trimpt Analog Input Plug-In Module.
Micro800 Digital Relay Output Plug-in Module Wiring Diagrams, publication 2080-WD010	Information on mounting and wiring the Micro800 Digital Relay Output Plug-in Module.
Micro800 Digital Input, Output, and Combination Plug-in Modules Wiring Diagrams, publication 2080-WD011	Information on mounting and wiring the Micro800 Digital Input, Output, and Combination Plug-in Modules.
Micro800 High-Speed Counter Plug-in Module, publication 2080-WD012	Information on mounting and wiring the High-Speed Counter Plug-in module.
Micro800 DeviceNet Plug-in Module, publication 2080-WD013	Information on mounting and wiring the Micro800 DeviceNet Plug-in module.
Micro800 Programmable Controllers: Getting Started with Motion Control Using a Simulated Axis, publication 2080-0S001	Provides quick start instructions for implementing a motion control project in Connected Components Workbench software.
Micro800 Programmable Controllers: Getting Started with CIP Client Messaging, publication 2080-0S002	Provides quick start instructions for using CIP GENERIC and CIP Symbolic Messaging.
Micro800 Programmable Controllers: Getting Started with PanelView Plus, publication 2080-0S003	Provides quick start instructions for using global variables for Micro800 controllers together with PanelView Plus HMI terminals.
Configuring Micro800 Controllers on FactoryTalk Linx Gateway, publication 2080-0S005	Provides quick start instructions for configuring a Micro800 controller on FactoryTalk® Linx Gateway.
Set up Micro800 Controllers for Implicit (Class 1) Comms with POINT I/O Adapters, publication 2080-0S006	Provides quick start instructions on how to set up Micro800 controllers to use Class 1 communications with POINT I/O™ adapters.
Micro810 Programmable Controllers User Manual, publication 2080-UM001	Describes how to install, configure, use, and troubleshoot your Micro810 controller.
Micro820 Programmable Controllers User Manual, publication 2080-UM005	Describes how to install, configure, use, and troubleshoot your Micro820 controller.

Additional Resources (Continued)

Resource	Description
Micro830, Micro850, and Micro870 Programmable Controllers User Manual, publication 2080-UM002	Describes how to install, configure, use, and troubleshoot your Micro830, Micro850, and Micro870 controllers.
Micro800 Expansion I/O Modules User Manual, publication 2080-UM003	Describes how to install, configure, use, and troubleshoot your Micro800 expansion I/O modules.
Micro800 Plug-in Modules User Manual, publication 2080-UM004	Describes how to install, configure, use, and troubleshoot your Micro800 plug-in modules.
Micro800 Programmable Controllers General Instructions, publication 2080-RM001	Information on instruction sets for developing programs for use in Micro800 control systems.
EtherNet/IP Network Devices User Manual, publication ENET-UM006	Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, publication ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, publication SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications .	Provides declarations of conformity, certificates, and other certification details.

Notes:

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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