

Micro800 Programmable Controllers

Micro810 Controller Catalog Numbers 2080-LC10-12AWA, 2080-LC10-12QWB, 2080-LC10-12DWD, 2080-LC10-12QBB

Micro820 Controller Catalog Numbers 2080-LC20-20AWB, 2080-LC20-20AWBR, 2080-LC20-20QWB, 2080-LC20-20QWBR, 2080-LC20-20QBB, 2080-LC20-20QBBR

Micro830 Controller Catalog Numbers 2080-LC30-10QWB, 2080-LC30-10QVB, 2080-LC30-16AWB, 2080-LC30-16QWB, 2080-LC30-16QVB, 2080-LC30-24QWB, 2080-LC30-24QVB, 2080-LC30-24QBB, 2080-LC30-48AWB, 2080-LC30-48QWB, 2080-LC30-48QVB, 2080-LC30-48QBB

Micro850 Controller Catalog Numbers 2080-LC50-24AWB, 2080-L50E-24AWB, 2080-LC50-24QWB, 2080-L50E-24QWB, 2080-LC50-24QVB, 2080-L50E-24QVB, 2080-LC50-24QBB, 2080-L50E-24QBB, 2080-LC50-48AWB, 2080-L50E-48AWB, 2080-LC50-48QWB, 2080-L50E-48QWB, 2080-LC50-48QWBK, 2080-L50E-48QWBK, 2080-LC50-48QVB, 2080-L50E-48QVB, 2080-LC50-48QBB, 2080-L50E-48QBB

Micro870 Controller Catalog Numbers 2080-LC70-24AWB, 2080-L70E-24AWB, 2080-LC70-24QWB, 2080-L70E-24QWB, 2080-LC70-24QWBK, 2080-L70E-24QWBK, 2080-L70E-24QWBN, 2080-LC70-24QBB, 2080-L70E-24QBB, 2080-LC70-24QBBK, 2080-L70E-24QBBK, 2080-L70E-24QBBN

Expansion I/O Modules Catalog Numbers 2085-IQ16, 2085-IQ16K, 2085-IQ32T, 2085-OV16, 2085-OB16, 2085-IA8, 2085-IM8, 2085-OA8, 2085-OW8, 2085-OW16, 2085-OW16K, 2085-IF4, 2085-IF8, 2085-IF8K, 2085-OF4, 2085-OF4K, 2085-IRT4, 2085-EP24VDC, 2085-ECR

Plug-in Modules Catalog Numbers 2080-IQ4, 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-OW4I, 2080-IF2, 2080-IF2K, 2080-IF4, 2080-OF2, 2080-RTD2, 2080-TC2, 2080-MEMBAK-RTC, 2080-MEMBAK-RTC2, 2080-TRIMPOT6, 2080-MOT-HSC, 2080-DNET20, 2080-SERIALISOL

Accessories Catalog Numbers 2080-LCD, 2080-USBADAPTER, 2080-REMLCD, 2080-PS120-240VAC, 2080-PSAC-12W, 2080-SD-2GB

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

| Topic | Page |
|--|------|
| Added information on support for Kinetix 5100 and PowerFlex 520-series drives for Micro850 (2080-L50E) and Micro870 (2080-L70E) controllers with firmware revision 21.011 or later | 3 |
| Added Ethernet nodes column in Micro850 catalogs inputs/outputs table | 17 |
| Added Ethernet nodes column in Micro870 catalogs inputs/outputs table | 20 |
| Updated Micro810 controller low current relay chart | 24 |

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.

Micro800 Controller Overview



Micro800™ controllers are designed for low-cost, standalone machines. These 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 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.

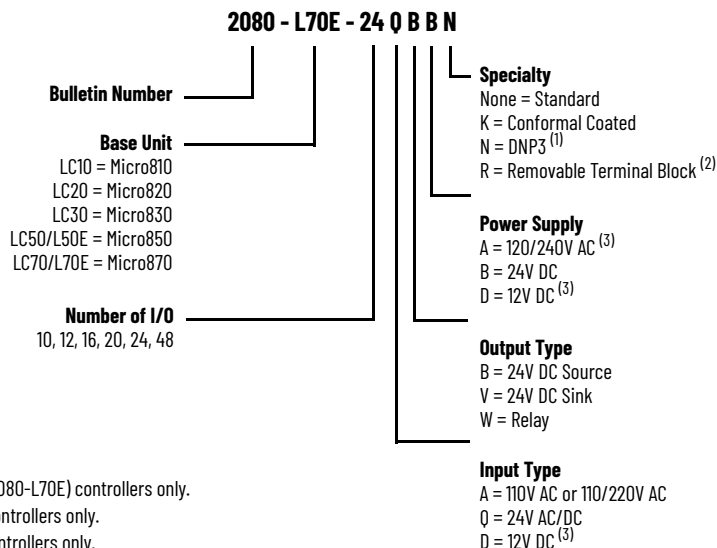
Micro850® expandable controllers are designed for applications that require more digital and analog I/O or higher performance analog I/O. They can support up to four expansion I/O modules. Micro850 controllers include additional communication connection options through an embedded 10/100 Base-T Ethernet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

Micro870® controllers offer 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 programs 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.

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 technical data 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 29 and 41) | | |
| 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 29) | | |
| Types of accessories or plug-ins supported | LCD display with backup memory module USB adapter | Most plug-in modules (see page 41 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 the individual Micro800 controller sections for more information.
 (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 (±1.8 °F) CJC for TC: ±1.2 °C (±2.16 °F) | Analog Input: 14-bit input, ±0.1% Analog Output: 12-bit output, 0.133%, current, 0.425% voltage TC: ±0.5...±3.0 °C (±0.9...±5.4 °F) RTD: ±0.2...±0.6 °C (±0.36...±1.08 °F) | |
| 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.

Micro800 Controllers

Micro800 Controller Family

| Controller | Bulletin Number | Description | Page |
|------------|------------------------|--|------|
| Micro810 | 2080-LC10 | Micro810 12-point programmable controllers | 6 |
| Micro820 | 2080-LC20 | Micro820 20-point programmable controllers | 9 |
| Micro830 | 2080-LC30 | Micro830 10-point, 16-point, 24-point, and 48-point programmable controllers | 13 |
| Micro850 | 2080-LC50 2080-L50E | Micro850 24-point and 48-point programmable controllers | 17 |
| Micro870 | 2080-LC70 2080-L70E | Micro870 24-point programmable controllers | 20 |

Environmental specifications and certifications for Micro800 controllers are provided on page [27](#).

Micro810 Controllers

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 that require a programmable timer and lighting control. Programming can also be done through a program download via USB programming port, using Connected Components Workbench™ software.

Number and Types of Inputs/Outputs for Micro810 Catalogs

| Catalogs | Inputs | | | | Outputs | | | Analog Out 0...10V DC | Analog In 0...10V (shared with DC In) | PTO/PWM Support | Embedded HSC Support (1) |
|-----------------|---------|-----------------|-----------------|--------|---------|------------------|----------------|--------------------------|--|--------------------|--------------------------------|
| | 120V AC | 120/240 V AC | 24V DC/ V AC | 12V DC | Relay | 24V DC Source | 24V DC Sink | | | | |
| 2080-LC10-12AWA | - | 8 | - | - | 4 | - | - | - | - | - | - |
| 2080-LC10-12QWB | - | - | 8 | - | 4 | - | - | - | 4 | - | - |
| 2080-LC10-12DWD | - | - | - | 8 | 4 | - | - | - | 4 | - | - |
| 2080-LC10-12QBB | - | - | 8 | - | - | 4 | - | - | 4 | - | - |

(1) Maximum number of embedded HSC supported.

General Specifications - Micro810 Controllers

| Attribute | 2080-LC10-12AWA | 2080-LC10-12QWB | 2080-LC10-12DWD | 2080-LC10-12QBB |
|--|---|--|-----------------|---|
| Number of I/O | 8 inputs (4 digital, 4 analog/digital, configurable) 4 outputs | | | |
| Supply voltage range | 85...263V DC | 20.4...26.4V DC | 10.8...13.2V DC | 11.4...26.4V DC |
| Supply frequency range (AC supply) | 47...63 Hz | - | | |
| Voltage range | 100...240V AC, 50/60 Hz | 24V DC Class 2 | 12V DC Class 2 | 12/24V DC Class 2 |
| Power consumption, max | 5V A | 3 W | | |
| I/O rating, input | 120...240V AC | 24V DC, 8 mA | 12V DC, 8 mA | 24V DC, 8 mA |
| I/O rating, output | Relay O0 and O1: 8 A @ 240V AC, B300, R300, General Use Relay O2 and O3: 4 A @ 240V AC, C300, R150, General Use | | | 24V DC, 1 A, 25 °C (77 °F) 24V DC, 0.5 A, 55 °C (131 °F) |
| Fuse, type | Rated 250V 3.15 A-RADIAL | | | |
| AC input filter setting ⁽¹⁾ | 16 ms for all embedded inputs | | | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC, I/O to Aux and Network, Inputs to Outputs. | 250V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, Inputs to Aux and Network, DC Outputs to Aux and Network, Inputs to Outputs. | | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. |

General Specifications - Micro810 Controllers (Continued)

| Attribute | 2080-LC10-12AWA | 2080-LC10-12QWB | 2080-LC10-12DWD | 2080-LC10-12QBB |
|-----------------------------|---|-------------------------------|------------------------------|---------------------------------------|
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) insulation max |
| | Solid | 0.32 mm ² (22 AWG) | 2.1 mm ² (14 AWG) | |
| | Stranded | 0.32 mm ² (22 AWG) | 1.3 mm ² (16 AWG) | |
| Wiring category | 2 - on signal ports 2 - on power ports | | | |
| Wire type | Use copper conductors only | | | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | |
| Terminal screw torque | 1.085 N•m (8 lb•in) | | | |
| Dimensions (HxWxD) | 91 x 75 x 59 mm (3.58 x 2.95 x 2.32 in.) | | | |
| Shipping weight, approx. | 0.203 kg (0.448 lb) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T5 | | | |

(1) In Connected Components Workbench software, go to the Embedded I/O configuration window to reconfigure the filter setting for each input group.

Non-isolated AC Input Specifications - AWA

| Attribute | Value |
|--------------------------|-------------|
| On-state voltage, min | 79V AC |
| On-state voltage, nom | 120/240V AC |
| On-state voltage, max | 265V AC |
| Off-state voltage, max | 40V AC |
| Off-state current, max | 0.095 mA |
| Operating frequency | 47...63 Hz |
| Operating frequency, nom | 50/60 Hz |
| Input impedance | 423.7 kΩ |

Isolated AC Input Specifications - QWB, QBB, DWD

| Attribute | Inputs 0...3 |
|--------------------------|----------------------|
| On-state voltage, nom | 12/24V AC @ 50/60 Hz |
| Off-state voltage, min | 4V AC @ 50/60 Hz |
| Operating frequency, nom | 50/60 Hz |

DC Input Specifications - QWB, QBB, DWD

| Attribute | Non-isolated, Shared with Analog Input (Inputs 4...7) | Isolated (Inputs 0...3) |
|-------------------------|---|--------------------------------------|
| Voltage category | 24V DC sink/source | |
| On-state voltage, min | 9.8V DC | |
| On-state voltage, nom | 12/24V DC | |
| On-state voltage, max | 28.8V DC | |
| Off-state voltage, max | 5V DC | |
| Off-state current, max | 0.5 mA | 1.5 mA |
| On-state current, min | 0.75 mA @ 10.8V DC 1.0 mA @ 15V DC | 1.8 mA @ 10.8V DC 2.7 mA @ 15V DC |
| On-state current, nom | 2.1 mA @ 24V DC | 6 mA @ 24V DC |
| On-state current, max | 2.7 mA @ 28.8V DC | 7.5 mA @ 28.8V DC |
| Nominal impedance | 14.1 kΩ (non-isolated) | 3.74 kΩ (isolated) |
| IEC input compatibility | Type 1 | Type 3 |

Analog Input Specifications – QWB, QBB, DWD

| Attribute | Inputs 4...7 |
|------------------------|--|
| Input type | DC voltage |
| Input voltage range | 0...10V DC |
| Input voltage, max | 26.4V DC |
| Value of LSB | 10 mV |
| Input resolution | 10-bit |
| Input data count range | 0...1023 |
| Smoothing | None, smoothing |
| Overall accuracy | 5% of full-scale (2% with calibration) 25...55 °C (77...131 °F) |
| Noise rejection | 50/60 Hz |
| Common mode rejection | 40 dB, DC to 60 Hz with smoothing filter |
| Nominal impedance | 14.1 kΩ (non-isolated) |

DC Output Specifications – QBB

| Attribute | Value |
|------------------------------|--|
| User supply voltage, min | 10V DC |
| User supply voltage, max | 26.4V DC |
| On-state voltage drop | 1V @ max load current 2.5V @ max surge current |
| Current ratings (each point) | 0.5 A @ 55 °C (131 °F), max 1.0 A @ 30 °C (86 °F), max 1.0 mA, min |
| Surge current, peak | 4.0 mA |
| Surge current, max duration | 10 ms |
| Controller current | 3 A |
| Turn-on time, max | 0.1 ms |
| Turn-off time, max | 1.0 ms |

Relay Output Specifications – AWA, QWB, DWD

| Attribute | Value |
|----------------------------|--|
| Output rating | Relay O0 and O1: 8 A @ 240V AC, B300, R300, General Use Relay O2 and O3: 4 A @ 240V AC, C300, R150, General Use |
| Voltage, min | 5V AC/DC |
| Voltage, max | 250V AC, 30V DC @ rated current. See Micro810 Controller High Current Relay Chart on page 23 and Micro800 Controller Low Current Relay Chart on page 24 . |
| Turn-on time | 15 ms |
| Turn-off time | 5 ms |
| Mechanical | 10,000,000 cycles |
| Electrical with rated load | 50,000 cycles |

Embedded RTC

| Attribute | Value |
|-----------------------|---|
| Resolution READ_RTC() | 1 sec |
| Accuracy | ±12 sec/month @ 25 °C (77 °F) ±160 sec/month @ 0...55 °C (32...131 °F) |
| Power off | Supercap – 5 days @ 40 °C (104 °F) or lower Supercap life – 5 years @ 40 °C (104 °F), 14.5 years @ 25 °C (77 °F) |

Micro820 Controllers

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.

Number and Types of Inputs/Outputs for Micro820 Catalogs

| Catalogs | Inputs | | | | Outputs | | | Analog Out 0...10V DC | Analog In 0...10V (shared with DC In) | PTO/PWM Support | Embedded HSC Support ⁽¹⁾ |
|------------------|---------|-----------------|-----------------|--------|---------|------------------|----------------|--------------------------|--|--------------------|---|
| | 120V AC | 120/240 V AC | 24V DC/ V AC | 12V 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 (PWM) | - |
| 2080-LC20-20QBRR | - | - | 12 | - | - | 7 | - | 1 | 4 | 1 (PWM) | - |

(1) Maximum number of embedded HSC supported.

General Specifications - Micro820 Controllers

| Attribute | 2080-LC20-20AWB, 2080-LC20-20AWBR | 2080-LC20-20QWB, 2080-LC20-20QWBR | 2080-LC20-20QBB, 2080-LC20-20QBRR |
|--|---|---|--------------------------------------|
| Number of I/O | 20 (12 inputs, 8 outputs) | | |
| Dimension (HxWxD) | 90 x 104 x 75 mm (3.54 x 4.09 x 2.95 in.) | | |
| Shipping weight, approx. | 0.38 kg (0.83 lb) | | |
| Wire size | For Fixed Terminal Blocks: | | |
| | | Min | Max |
| | Solid | 0.14 mm ² (26 AWG) | 2.5 mm ² (14 AWG) |
| | Stranded | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) |
| | Rated @ 90 °C (194 °F) insulation max | | |
| | For Removable Terminal Blocks: | | |
| | | Min | Max |
| | Solid and Stranded | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) |
| | Rated @ 90 °C (194 °F) insulation max | | |
| | For RS-232/RS-485 Serial Port: | | |
| | Min | Max | |
| Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| Stranded | 0.14 mm ² (26 AWG) | 1.0 mm ² (18 AWG) | |
| Rated @ 90 °C (194 °F) insulation max | | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports 2 - on communication ports | | |
| Wire type | Use copper conductors or shielded cables | | |
| Terminal screw torque | For removable and fixed terminal blocks: 0.5...0.6 N•m (4.4...5.3 lb•in) using a 0.6 x 3.5 mm screwdriver. Note: Use a handheld screwdriver to hold down the screws at the side. For RS-232/RS-485 serial port: 0.22...0.25 N•m (1.95...2.21 lb•in) using 0.4 x 2.5 x 80 mm 2-component grip with non-slip grip screwdriver. | | |
| Input circuit type | 120V AC - for inputs 4...11 only | 24V DC sink/source (standard) | |
| Output circuit type | Relay | 24V DC source (standard and high-speed) | |
| Power input | 24V DC | | |
| Power consumption, max | 5.62 W - without plug-in modules 8.5 W - with plug-in modules | | |
| Power dissipation, max | 6 W | | |
| Power supply voltage range | 20.4...26.4 V DC, Class 2 | | |
| Auxiliary power supply output for thermistor | 10V | | |
| I/O rating, input | 120V AC 16 mA | 24V DC, 8.8 mA | |

General Specifications - Micro820 Controllers (Continued)

| Attribute | 2080-LC20-20AWB, 2080-LC20-20AWBR | 2080-LC20-20QWB, 2080-LC20-20QWBR | 2080-LC20-20QBB, 2080-LC20-20QBRR |
|-----------------------------|--|---|--|
| I/O rating, output | 2 A, 240V AC 2 A, 24V DC | | 24V DC, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. 150V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 1950V DC Input to Aux and Network. | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. 50V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 720V DC, Inputs to Aux and Network, 3250V DC Outputs to Aux and Network, Inputs to Outputs. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. |
| Pilot duty rating | C300, R150 | | — |
| Insulation-stripping length | 7 mm for removable and fixed terminal blocks 5 mm for RS-232/RS-485 serial port | | |
| Enclosure type rating | None (open-style) | | |
| North American temp code | T4 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Analog Input Specifications - I-00...I-03

| Attribute | Value |
|-------------------------------------|--|
| Number of inputs | 4 |
| Type | Voltage (single-ended) |
| Data range | 0...4095 |
| Input voltage range | 0...10V DC |
| Maximum input | 26.4V DC |
| Input impedance | 14.14 kΩ |
| Resolution | 12-bit, 2.44 mV/count |
| Smoothing | None |
| Input time constant, typical | 1.44 ms |
| Input filter | 2.3 kHz |
| Isolation | None |
| Accuracy (25...55 °C) (77...131 °F) | 5% of full-scale (2% with calibration) |

AC Input Specifications - I-04...I-11 for AWB(R)

| Attribute | Value |
|---------------------------------|------------------|
| Number of inputs | 8 |
| On-state voltage, min | 79V AC |
| On-state voltage, nom | 120V AC |
| On-state voltage, max | 125V AC |
| On-state current, min | 5 mA |
| On-state current, max | 16 mA |
| Input frequency, min | 47 Hz |
| Input frequency, nom | 50/60 Hz |
| Input frequency, max | 63 Hz |
| Off-state voltage, max | 20V AC |
| Off-state current, max | 2.5 mA |
| Inrush current, max | 250 mA @ 125V AC |
| Inrush decay time constant, max | 22 ms |

Analog Output Specifications

| Attribute | Value |
|--|------------------------------|
| Output count range | 0...4008 |
| Output type | Voltage |
| Output voltage range | 0...10V |
| Voltage output maximum load, resistive | >1000 Ω |
| Accuracy | 2% of full-scale for voltage |
| Resolution | 12-bit, 2.495 mV/count |
| Output update rate (with no output capacitance), max | 20 ms |
| Channel-to-bus isolation | None |
| Channel-to-channel isolation | None |

DC Input Filter Specifications – I-04...I-11 for QWB(R), QBB(R)

| Nominal Filter Setting (ms) Inputs 4 and Higher | Minimum ON Delay (ms) | Maximum ON Delay (ms) | Minimum OFF Delay (ms) | Maximum OFF Delay (ms) |
|---|-----------------------|-----------------------|------------------------|------------------------|
| 0 | 0 | 0.1 | 0 | 0.1 |
| 8 | 5 | 8 | 5 | 8 |
| 16 | 10 | 16 | 10 | 16 |
| 32 | 20 | 32 | 20 | 32 |

DC Input Specifications

| Attribute | Non-isolated, Shared with Analog Input (Inputs 00...03) | Isolated (Inputs 04...11) 2080-LC20-20QWB(R), 2080-LC20-20QBB(R) Only |
|-------------------------|---|--|
| Voltage category | 24V DC sink | 24V DC sink/source |
| On-state voltage, nom | 12/24V DC | 24V DC |
| On-state voltage range | 9.8...26.4V DC | 10...26.4V DC @ 65 °C (149 °F) 10...30V DC @ 30 °C (86 °F) |
| Off-state voltage, max | 5V DC | |
| Off-state current, max | 0.5 mA | 1.5 mA |
| On-state current, min | 0.75 mA @ 10.8V DC 1.0 mA @ 15V DC | 1.8 mA @ 10.8V DC 2.7 mA @ 15V DC |
| On-state current, nom | 2.1 mA @ 24V DC | 8.5 mA @ 24V DC |
| On-state current, max | 2.6 mA @ 26.4V | 12.0 mA @ 30V DC |
| Nominal impedance | 14.1 k Ω (non-isolated) | 3.74 k Ω (isolated) |
| IEC input compatibility | Type 1 | Type 3 |

DC Output Specifications – QBB(R)

| Attribute | Standard Outputs (0-00...0-05) | High-speed Output (0-06) ⁽¹⁾ |
|---------------------------|--|---|
| User supply voltage, min | 10V DC | |
| User supply voltage, max | 26.4V DC | |
| Load current, min | 10 mA | |
| On-state voltage drop | 1V @ max load current 2.5V @ max surge current | 1.5V @ max load current |
| Current ratings per point | 0.3 A @ 65 °C (149 °F), max 1.0 A @ 30 °C (86 °F), max 1.0 mA, max leakage | 100 mA (high-speed operation) 1.0 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) 1.0 mA, max leakage |

DC Output Specifications - QBB(R) (Continued)

| Attribute | Standard Outputs (0-00...0-05) | High-speed Output (0-06) ⁽¹⁾ |
|---|--|---|
| Surge current per point Peak current Surge duration, max Rate of repetition @ 30 °C (86 °F), max Rate of repetition @ 65 °C (149 °F), max | 4.0 A 10 ms once each second once every two seconds | |
| Controller current, max | 3 A | — |
| Turn-on time, max | 0.1 ms | 0.2 μs |
| Turn-off time, max | 1.0 ms | 2.5 μs |
| Response time, max | 10 ms | |
| Frequency rate | — | 2% |

(1) High-speed output operation is greater than 5 kHz.

Relay Output Specifications - 0-00...0-06 for QWB(R), QAWB(R)

| Attribute | Value |
|---------------|---|
| Voltage, min | 5V AC/DC |
| Voltage, max | 250V AC |
| Turn-on time | 10 ms |
| Turn-off time | 10 ms |
| Life | 10,000,000 cycles (mechanical) 100,000 cycles (electrical with UL test load) |

Relay Contact Ratings

| Maximum Volts | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|--------|--------------------|--------------|---------|
| | Make | Break | | Make | Break |
| 120V AC | 15 A | 1.5 A | 2 A | 1800V A | 1800V A |
| 240V AC | 7.5 A | 0.75 A | | | |
| 24V DC | 1 A | | 1 A | 28V A | |
| 125V DC | 0.22 A | | | | |

Auxiliary Power Supply for Thermistor Applications

| Attribute | Value |
|-------------------------|--------|
| Output voltage, min | 9.5V |
| Output voltage, typical | 10.04V |
| Output voltage, max | 10.5V |
| Output current, typical | 10 mA |
| Output current, max | 20 mA |

Embedded RTC

| Attribute | Value |
|------------------------|--|
| Resolution | 1 sec |
| Accuracy, typical | ±60 sec/month @ 25 °C (77 °F) |
| Supercap life, typical | 5 years @ 40 °C (104 °F), 14.5 years @ 25 °C (77 °F) |

Micro830 Controllers

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.

Number and Types of Inputs/Outputs for Micro830 Catalogs

| Catalogs | Inputs | | | | Outputs | | | Analog Out 0...10V DC | Analog In 0...10V (shared with DC In) | PTO/PWM Support ⁽¹⁾ | Embedded HSC Support ⁽²⁾ |
|-----------------|---------|-----------------|-----------------|--------|---------|------------------|----------------|--------------------------|--|-----------------------------------|---|
| | 120V AC | 120/240 V AC | 24V DC/ V AC | 12V DC | Relay | 24V DC Source | 24V DC Sink | | | | |
| 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 |

(1) You need firmware revision 6.011 or later to use PWM output.

(2) Maximum number of embedded HSC supported.

General Specifications - Micro830 10-point Controllers

| Attribute | 2080-LC30-10QWB | 2080-LC30-10QVB | | |
|--------------------------------|---|--|---------------------------------------|------------------------------|
| Number of I/O | 10 (6 inputs, 4 outputs) | | | |
| Dimensions (HxWxD) | 90 x 100 x 80 mm (3.54 x 3.94 x 3.15 in.) | | | |
| Shipping weight, approx. | 0.302 kg (0.666 lb) | | | |
| Wire size | | | Rated @ 90 °C (194 °F) insulation max | |
| | | Min | | Max |
| | Solid | 0.14 mm ² (26 AWG) | | 2.5 mm ² (14 AWG) |
| | Stranded | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports | | | |
| Wire type | Use copper conductors only | | | |
| Terminal screw torque | 0.6 N•m (4.4 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Input circuit type | 12/24V sink/source (standard) 24V sink/source (high-speed) | | | |
| Output circuit type | Relay | 24V DC sink transistor (standard and high-speed) | | |
| Power consumption, max | 5 W - without plug-in modules 7.88 W - with plug-in modules | | | |
| Power supply voltage range | 20.4...26.4V DC Class 2 | | | |
| I/O rating, input | 24V DC, 8.8 mA | | | |
| I/O rating, output | 2 A, 240V AC, general use | 2 A, 24V DC, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Outputs to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, Inputs to Aux and Network, 3250V DC Outputs to Aux and Network, Inputs to Outputs. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | | |
| Pilot duty rating | C300, R150 | - | | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [I770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

General Specifications – Micro830 16-point Controllers

| Attribute | 2080-LC30-16AWB | 2080-LC30-16QWB | 2080-LC30-16QVB |
|--------------------------------|---|---|--|
| Number of I/O | 16 (10 inputs, 6 outputs) | | |
| Dimensions (HxWxD) | 90 x 100 x 80 mm (3.54 x 3.94 x 3.15 in.) | | |
| Shipping weight, approx. | 0.302 kg (0.666 lb) | | |
| Wire size | | Min | Max |
| | Solid | 0.14 mm ² (26 AWG) | 2.5 mm ² (14 AWG) |
| | Stranded | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) |
| | Rated @ 90 °C (194 °F) insulation max | | |
| Wiring category ⁽¹⁾ | 2 – on signal ports 2 – on power ports | | |
| Wire type | Use copper conductors only | | |
| Terminal screw torque | 0.6 N•m (4.4 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | |
| Input circuit type | 120V AC | 12/24V sink/source (standard) 24V sink/source (high-speed) | |
| Output circuit type | Relay | | 12/24V DC sink transistor (standard and high-speed) |
| Power consumption, max | 5 W – without plug-in modules 7.88 W – with plug-in modules | | |
| Power supply voltage range | 20.4...26.4V DC Class 2 | | |
| I/O rating, input | 120V AC, 16 mA | 24V DC, 8.8 mA | |
| I/O rating, output | 2 A, 240V AC, general use | | 24V DC, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Outputs to Aux and Network, Inputs to Outputs. 2080-LC30-16AWB: Type tested for 60 s @ 3250V DC I/O to Aux and Network, Inputs to Outputs. 2080-LC30-16QWB: Type tested for 60 s @ 720V DC, Inputs to Aux and Network, 3250V DC Outputs to Aux and Network, Inputs to Outputs. | | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. |
| Pilot duty rating | C300, R150 | | – |
| Insulation-stripping length | 7 mm (0.28 in.) | | |
| Enclosure type rating | None (open-style) | | |
| North American temp code | T4 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

General Specifications – Micro830 24-point Controllers

| Attribute | 2080-LC30-24QWB | 2080-LC30-24QVB | 2080-LC30-24QBB |
|--------------------------------|---|---------------------------------------|---|
| Number of I/O | 24 (14 inputs, 10 outputs) | | |
| Dimensions (HxWxD) | 90 x 150 x 80 mm (3.54 x 5.91 x 3.15 in.) | | |
| Shipping weight, approx. | 0.423 kg (0.933 lb) | | |
| Wire size | | Min | Max |
| | Solid and Stranded | 0.14 mm ² (26 AWG) | 2.5 mm ² (14 AWG) |
| | | Rated @ 90 °C (194 °F) insulation max | |
| Wiring category ⁽¹⁾ | 2 – on signal ports 2 – on power ports | | |
| Wire type | Use copper conductors only | | |
| Terminal screw torque | 0.6 N•m (4.4 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | |
| Input circuit type | 12/24V sink/source (standard) 24V DC sink/source (standard and high-speed) | | |
| Output circuit type | Relay | 24V DC sink (standard and high-speed) | 24V DC source (standard and high-speed) |
| Power consumption, max | 8 W – without plug-in modules 12.32 W – with plug-in modules | | |
| Power supply voltage range | 20.4...26.4V DC Class 2 | | |
| I/O rating, input | 24V DC, 8.8 mA | | |

General Specifications - Micro830 24-point Controllers (Continued)

| Attribute | 2080-LC30-24QWB | 2080-LC30-24QVB | 2080-LC30-24QBB |
|-----------------------------|---|--|-----------------|
| I/O rating, output | 2 A, 240V AC, general use | 24V DC, Class 2, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, Class 2, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Outputs to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, Inputs to Aux and Network, 3250V DC Outputs to Aux and Network, Inputs to Outputs. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | |
| Pilot duty rating | C300, R150 | — | |
| Insulation-stripping length | 7 mm (0.28 in.) | | |
| Enclosure type rating | None (open-style) | | |
| North American temp code | T4 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

General Specifications - Micro830 48-point Controllers

| Attribute | 2080-LC30-48AWB | 2080-LC30-48QWB | 2080-LC30-48QVB | 2080-LC30-48QBB |
|--------------------------------|---|---|--|---------------------------------------|
| Number of I/O | 48 (28 inputs, 20 outputs) | | | |
| Dimensions (HxWxD) | 90 x 230 x 80 mm (3.54 x 9.06 x 3.15 in.) | | | |
| Shipping weight, approx. | 0.725 kg (1.60 lb) | | | |
| Wire size | | Min | Max | |
| | Solid and Stranded | 0.14 mm ² (26 AWG) | 2.5 mm ² (14 AWG) | Rated @ 90 °C (194 °F) insulation max |
| Wiring category ⁽¹⁾ | 2 – on signal ports 2 – on power ports | | | |
| Wire type | Use copper conductors only | | | |
| Terminal screw torque | 0.6 N•m (4.4 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Input circuit type | 120V AC | 24V DC sink/source (standard and high-speed) | | |
| Output circuit type | Relay | 24V DC sink (standard and high-speed) | 24V DC source (standard and high-speed) | |
| Power consumption, max | 11 W – without plug-in modules 18.2 W – with plug-in modules | | | |
| Power supply voltage range | 20.4...26.4V DC Class 2 | | | |
| I/O rating, input | 120V AC, 16 mA | 24V DC, 8.8 mA | | |
| I/O rating, output | 2 A, 240V AC, general use | 24V DC, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Outputs to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC I/O to Aux and Network, Inputs to Outputs. | 250V (continuous), Reinforced Insulation Type, Outputs to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, Inputs to Aux and Network, 3250V DC Outputs to Aux and Network, Inputs to Outputs. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | |
| Pilot duty rating | C300, R150 | — | | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Input Specifications – Micro830 Controllers

| Attribute | AWB | | QWB, QVB, QBB | |
|--|---|--|--|---|
| | 120V AC Input | | High-speed DC Input | Standard DC Input |
| Input group to backplane isolation | Verified by one of the following dielectric tests: • 1400V DC for 2 s • 132V working voltage (IEC Class 2 reinforced insulation) | | Verified by one of the following dielectric tests: • 1414V DC for 2 s • 75V DC working voltage (IEC Class 2 reinforced insulation) | |
| Voltage category | T10V AC | | 24V sink/source | |
| On-state voltage range | 79...132V AC 47...63 Hz | | 16.8...26.4V DC @ 65 °C (149 °F) 16.8...30.0V DC @ 30 °C (86 °F) | 10...26.4V DC @ 65 °C (149 °F) 10...30.0V DC @ 30 °C (86 °F) |
| On-state voltage, nom | 120V AC | | 24V DC | |
| Off-state voltage, max | 20V AC | | 5V DC | |
| Off-state current, max | 1.5 mA | | | |
| On-state current, min | 5 mA @ 79V AC | | 5.0 mA @ 16.8V DC | 1.8 mA @ 10V DC |
| On-state current, nom | 12 mA @ 120V AC | | 8.8 mA @ 24V DC 7.66 mA @ 24V DC – 16QVB, 16QWB only | 8.5 mA @ 24V DC 6.15 mA @ 24V DC – 16QVB, 16QWB only |
| On-state current, max | 16 mA @ 132V AC | | 12.0 mA @ 30V DC | |
| Inrush current, max | 250 mA @ 120V AC | | – | |
| Nominal impedance | 12 kΩ @ 50 Hz 10 kΩ @ 60 Hz | | 3 kΩ | 3.74 kΩ |
| IEC input compatibility | Type 3 | | | |
| Turn-on time, max (without filtering) | 1 ms – 16QVB, 16QWB only | | 3.2 μs – 16QVB, 16QWB only | 33 μs...0.1 ms – 16QVB, 16QWB only |
| Turn-off time, max (without filtering) | 8 ms – 16QVB, 16QWB only | | 0.6 μs – 16QVB, 16QWB only | 22 μs...0.02 ms – 16QVB, 16QWB only |
| AC input filter setting | 8 ms for all embedded inputs In Connected Components Workbench software, go to the Embedded I/O configuration window to reconfigure the filter setting for each input group. | | | |

Isolated AC Input Specifications – Micro830 Controllers

| Attribute | QWB, QVB, QBB |
|--------------------------|----------------------|
| On-state voltage, nom | 12/24V AC @ 50/60 Hz |
| Off-state voltage, min | 4V AC @ 50/60 Hz |
| Operating frequency, nom | 50/60 Hz |

Output Specifications – Micro830 Controllers

| Attribute | AWB, QWB | | QVB, QBB | |
|------------------------------|--|--|---|--|
| | Relay Output | | High-speed Output | Standard Output |
| Output voltage, min | 5V DC, 5V AC | | 10.8V DC | 10V DC |
| Output voltage, max | 125V DC, 265V AC | | 26.4V DC | |
| Load current, min | 10 mA | | | |
| Load current, max | 2.0 A | | 100 mA (high-speed operation) 1.0 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) | 1.0 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) |
| Surge current, per point | See Relay Contacts Ratings – Micro830 Controllers on page 17 | | 4.0 A every 1 s @ 30 °C (86 °F); every 2 s @ 65 °C (149 °F) ⁽¹⁾ | |
| Current, per common, max | 5 A | | 2 A – 10QVB only | 4 A – 10QVB only |
| Current, per controller, max | 1440V A – 10QWB only | | 2 A – 10QVB only | 4 A – 10QVB only |
| Turn-on time, max | 10 ms | | 2.5 μs | 0.1 ms |
| Turn-off time, max | 10 ms | | 2.5 μs | 1.0 ms |

(1) Applies for general-purpose operation only. Does not apply for high-speed operation.

Relay Contacts Ratings – Micro830 Controllers

| Maximum Volts | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|--------|--------------------|--------------|--------|
| | Make | Break | | Make | Break |
| 120V AC | 15 A | 1.5 A | 2.0 A | 1800V A | 180V A |
| 240V AC | 7.5 A | 0.75 A | | | |
| 24V DC | 1.0 A | | 1.0 A | 28V A | |
| 125V DC | 0.22 A | | | | |

Micro850 Controllers

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.

Number and Types of Inputs/Outputs for Micro850 Catalogs

| 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 | | | | | |
| 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 |

(1) You need firmware revision 6.011 or later to use PWM output.

(2) Maximum number of embedded HSC supported.

(3) For Micro850 (2080-L50E) controllers with firmware revision 21.011 or later.

General Specifications – Micro850 24-point Controllers

| Attribute | 2080-LC50-24AWB, 2080-L50E-24AWB | 2080-LC50-24QWB, 2080-L50E-24QWB | 2080-LC50-24QVB, 2080-L50E-24QVB | 2080-LC50-24QBB, 2080-L50E-24QBB |
|--------------------------------|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Number of I/O | 24 (14 inputs, 10 outputs) | | | |
| Dimensions (HxWxD) | 90 x 158 x 80 mm (3.54 x 6.22 x 3.15 in.) | | | |
| Shipping weight, approx. | 0.423 kg (0.933 lb) | | | |
| Wire size | Min | | Max | |
| | Solid and Stranded | | 0.14 mm ² (26 AWG) | 2.5 mm ² (14 AWG) |
| Wiring category ⁽¹⁾ | 2 – on signal ports 2 – on power ports 2 – on communication ports | | | |
| Wire type | Use copper conductors only | | | |
| Terminal screw torque | 0.4...0.5 N•m (3.5...4.4 lb•in) using a 0.6 x 3.5 mm screwdriver. Note: Use a handheld screwdriver to hold down the screws at the side. | | | |

General Specifications - Micro850 24-point Controllers (Continued)

| Attribute | 2080-LC50-24AWB, 2080-L50E-24AWB | 2080-LC50-24QWB, 2080-L50E-24QWB | 2080-LC50-24QVB, 2080-L50E-24QVB | 2080-LC50-24QBB, 2080-L50E-24QBB |
|-----------------------------|--|---|---|--|
| Input circuit type | 120V AC | 12/24V sink/source (standard) 24V sink/source (high-speed) | | |
| Output circuit type | Relay | | 24V DC sink (standard and high-speed) | 24V DC source (standard and high-speed) |
| Power consumption, max | 8 W - without plug-in modules and expansion I/O modules 28 W - with plug-in modules and expansion I/O modules | | | |
| Power supply voltage range | 21.4...26.4V DC Class 2 | | | |
| I/O rating, input | 120V AC 16 mA | 24V, 8.8 mA | | |
| I/O rating, output | 2 A, 240V AC, 2 A, 24V DC | | 24V DC, Class 2, 1A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, Class 2, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 150V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 1950V DC Input to Aux and Network. | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 50V (continuous), Reinforced Insulation Type, Input to Aux and Network Type tested for 60 s @ 720V DC, Inputs to Aux and Network. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | |
| Pilot duty rating | C300, R150 | | - | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

General Specifications - Micro850 48-point Controllers

| Attribute | 2080-LC50-48AWB, 2080-L50E-48AWB | 2080-LC50-48QWB, 2080-LC50-48QWBK, 2080-L50E-48QWB, 2080-L50E-48QWBK, | 2080-LC50-48QVB, 2080-L50E-48QVB | 2080-LC50-48QBB, 2080-L50E-48QBB |
|--------------------------------|--|--|---|--|
| Number of I/O | 48 (28 inputs, 20 outputs) | | | |
| Dimensions (HxWxD) | 90 x 238 x 80 mm (3.54 x 9.37 x 3.15 in.) | | | |
| Shipping weight, approx. | 0.725 kg (1.60 lb) | | | |
| Wire size | Min | | Max | |
| | Solid and Stranded | | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports 2 - on communication ports | | | |
| Wire type | Use copper conductors only | | | |
| Terminal screw torque | 0.4...0.5 N•m (3.5...4.4 lb•in) using a 0.6 x 3.5 mm screwdriver. Use a handheld screwdriver to hold down the screws at the side. | | | |
| Input circuit type | 120V AC | 24V DC sink/source (standard and high-speed) | | |
| Output circuit type | Relay | | 24V DC sink (standard and high-speed) | 24V DC source (standard and high-speed) |
| Power consumption, max | 11 W - without plug-in modules and expansion I/O modules 33 W - with plug-in modules and expansion I/O modules | | | |
| Power supply voltage range | 21.4...26.4V DC Class 2 | | | |
| I/O rating, input | 120V AC, 16 mA | 24V DC, 8.8 mA | | |
| I/O rating, output | 2 A, 240V AC 2 A, 24V DC | | 24V DC, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | |

General Specifications - Micro850 48-point Controllers (Continued)

| Attribute | 2080-LC50-48AWB, 2080-L50E-48AWB | 2080-LC50-48QWB, 2080-LC50-48QWBK, 2080-L50E-48QWB, 2080-L50E-48QWBK, | 2080-LC50-48QVB, 2080-L50E-48QVB | 2080-LC50-48QBB, 2080-L50E-48QBB |
|-----------------------------|--|---|---|-------------------------------------|
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 150V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 1950V DC Input to Aux and Network. | 250V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 50V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 720V DC, Inputs to Aux and Network. | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | |
| Pilot duty rating | C300, R150 | | — | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Input Specifications - Micro850 Controllers

| Attribute | AWB | QWB(K), QVB, QBB | |
|------------------------------------|---|--|---|
| | 120V AC Input | High-speed DC Input | Standard DC Input |
| Input group to backplane isolation | Verified by one of the following dielectric tests: - 48AWB only <ul style="list-style-type: none"> • 1950V DC for 2 s • 150V DC working voltage (IEC Class 2 reinforced insulation) | Verified by one of the following dielectric tests: <ul style="list-style-type: none"> • 720V DC for 2 s • 50V DC working voltage (IEC Class 2 reinforced insulation) | |
| Voltage category | 110V AC | 24V sink/source | |
| Input frequency, min | 47 Hz | — | |
| Input frequency, nom | 50/60 Hz | — | |
| Input frequency, max | 63 Hz | — | |
| On-state voltage range | 79...132V AC 47...63 Hz 132V, 60 Hz max - 48AWB only | 16.8...26.4V DC @ 65 °C (149 °F) 16.8...30.0V DC @ 30 °C (86 °F) | 10...26.4V DC @ 65 °C (149 °F) 10...30.0V DC @ 30 °C (86 °F) |
| On-state voltage, nom | 120V AC | 24V DC | |
| Off-state voltage, max | 20V AC | 5V DC | |
| Off-state current, max | 1.5 mA 2.5 mA @ 120V AC - 24AWB only | | |
| On-state current, min | 5 mA @ 79V AC | 5.0 mA @ 16.8V DC | 1.8 mA @ 10V DC |
| On-state current, nom | 12 mA @ 120V AC | 8.8 mA @ 24V DC 7.66 mA @ 24V DC - 16QVB, 16QWB only | 8.5 mA @ 24V DC 6.15 mA @ 24V DC - 16QVB, 16QWB only |
| On-state current, max | 16 mA @ 132V AC | 12.0 mA @ 30V DC | |
| Inrush current, max | 250 mA @ 120V AC | — | |
| Inrush delay time constant, max | 22 ms - 24AWB only | — | |
| Nominal impedance | 12 kΩ @ 50 Hz - 48AWB only 10 kΩ @ 60 Hz - 48AWB only | 3 kΩ | 3.74 kΩ |
| IEC input compatibility | Type 3 | | |

Isolated AC Input Specifications - Micro850 Controllers

| Attribute | QWB(K), QVB, QBB |
|--------------------------|----------------------|
| On-state voltage, nom | 12/24V AC @ 50/60 Hz |
| Off-state voltage, min | 4V AC @ 50/60 Hz |
| Operating frequency, nom | 50/60 Hz |

Output Specifications – Micro850 Controllers

| Attribute | AWB, QWB(K) | | QVB, QBB | |
|--------------------------|--|--|---|--|
| | Relay Output | | High-speed Output | Standard Output |
| Output voltage, min | 5V DC, 5V AC | | 10.8V DC | 10V DC |
| Output voltage, max | 125V DC, 265V AC | | 26.4V DC | |
| Load current, min | 10 mA | | | |
| Load current, max | 2.0 A | | 100 mA (high-speed operation) 1.0 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) | 1.0 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) |
| Surge current, per point | See Relay Contacts Ratings - Micro850 Controllers on page 20 | | 4.0 A every 1 s @ 30 °C (86 °F); every 2 s @ 65 °C (149 °F) ⁽¹⁾ | |
| Current, per common, max | 5 A | | – | |
| Turn-on time, max | 10 ms | | 2.5 μs | 0.1 ms |
| Turn-off time, max | 10 ms | | 2.5 μs | 1.0 ms |

(1) Applies for general-purpose operation only. Does not apply for high-speed operation.

Relay Contacts Ratings - Micro850 Controllers

| Maximum Volts | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|--------|--------------------|--------------|--------|
| | Make | Break | | Make | Break |
| 120V AC | 15 A | 1.5 A | 2.0 A | 1800V A | 180V A |
| 240V AC | 7.5 A | 0.75 A | | | |
| 24V DC | 1.0 A | | 1.0 A | 28V A | |
| 125V DC | 0.22 A | | | | |

Micro870 Controllers

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.

Number and Types of Inputs/Outputs for Micro870 Catalogs

| Catalogs | Inputs | | | | Outputs | | | Analog Out 0...10V DC | Analog In 0...10V (shared with DC In) | PTO/PWM Support | Embedded HSC Support ⁽¹⁾ | Ethernet Nodes ⁽²⁾ |
|------------------|---------|--------------|--------------|--------|---------|---------------|-------------|-----------------------|---------------------------------------|-----------------|-------------------------------------|-------------------------------|
| | 120V AC | 120/240 V AC | 24V DC/ V AC | 12V DC | Relay | 24V DC Source | 24V DC Sink | | | | | |
| 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-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) Maximum number of embedded HSC supported.

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

General Specifications – Micro870 Controllers

| Attribute | 2080-LC70-24AWB 2080-L70E-24AWB | 2080-LC70-24QWB, 2080-LC70-24QWBK, 2080-L70E-24QWB, 2080-L70E-24QWBK | 2080-L70E-24QWBN | 2080-LC70-24QBB, 2080-LC70-24QBBK, 2080-L70E-24QBB, 2080-L70E-24QBBK | 2080-L70E-24QBBN |
|------------------------------------|--|--|------------------------------|--|--------------------|
| | Number of I/O | 24 (14 inputs, 10 outputs) | | | |
| Dimensions (HxWxD) | 90 x 157 x 80 mm (3.54 x 6.22 x 3.15 in.) | | | | |
| Shipping weight, approx. | 0.47 kg (1.04 lb) | | | | |
| Wire size | | Min | Max | | |
| | Solid and Stranded | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) | Rated @ 90 °C (194 °F) insulation max | |
| Wiring category ^{(1) (2)} | 2 – on signal ports 2 – on power ports 2 – on communication ports | | | | |
| Wire type | Use copper conductors only | | | | |
| Insulation-stripping length | 7 mm (0.28 in.) | | | | |
| Terminal screw torque | 0.4...0.5 N•m (3.5...4.4 lb•in) using a 0.6 x 3.5 mm screwdriver. Use a handheld screwdriver to hold down the screws at the side. | | | | |
| Input circuit type | 12/24V sink/source (standard) 24V sink/source (high-speed) | | | | |
| Output circuit type | Relay | | | 24V DC source (standard and high-speed) | |
| Power consumption, max | 8 W – without plug-in modules and expansion I/O modules 28 W – with plug-in modules and expansion I/O modules | | | | |
| Power supply voltage range | 21.4...26.4V DC Class 2, or Limited Voltage Limited Current Source (LVLC) | | | | |
| I/O rating, input | 120V AC, 16 mA | 24V, 8.8 mA 24V AC, 50/60 Hz, 8.8 mA | | | |
| I/O rating, output | 2 A, 240V AC, 50/60 Hz, General Use 5 A, 24V AC, 50/60 Hz, Resistance | | | 24V DC, Class 2, 1 A per point (Surrounding air temperature 30 °C (86 °F)) 24V DC, Class 2, 0.3 A per point (Surrounding air temperature 65 °C (149 °F)) | |
| Isolation voltage | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 150V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 1950V DC, Inputs to Aux and Network. | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs. 50V (continuous), Reinforced Insulation Type, Input to Aux and Network. Type tested for 60 s @ 720V DC, Inputs to Aux and Network. | | 50V (continuous), Reinforced Insulation Type, I/O to Aux and Network, Inputs to Outputs. Type tested for 60 s @ 720V DC, I/O to Aux and Network, Inputs to Outputs. | |
| DNP3 support | – | – | Yes. SAV2 and SAV5 | – | Yes. SAV2 and SAV5 |
| Pilot duty rating | C300, R150 | | | | – |
| Enclosure type rating | None (open-style) | | | | |
| North American temp code | T4 | | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Input Specifications – Micro870 Controllers

| Attribute | AWB | QWB(K), QWBN, QBB(K), QBBN | | |
|------------------------------------|------------------|--|---|-------------------|
| | 120V AC Input | High-speed DC Input | | Standard DC Input |
| Input group to backplane isolation | – | Verified by one of the following dielectric tests: <ul style="list-style-type: none"> • 720V DC for 2 s • 50V DC working voltage (IEC Class 2 reinforced insulation) | | |
| Voltage category | – | 24V sink/source 24V AC, 50/60 Hz | | |
| On-state voltage range | 79...132V AC | 16.8...26.4V DC @ 65 °C (149 °F) 16.8...30.0V DC @ 30 °C (86 °F) | 10...26.4V DC @ 65 °C (149 °F) 10...30.0V DC @ 30 °C (86 °F) | |
| Off-state voltage, max | 20V AC | 5V DC | | |
| Off-state current, max | 2.5 mA @ 120V AC | 1.5 mA | | |
| On-state current, min | 5 mA | 5.0 mA @ 16.8V DC | | 1.8 mA @ 10V DC |
| On-state current, nom | – | 7.6 mA @ 24V DC | | 6.15 mA @ 24V DC |

Input Specifications – Micro870 Controllers (Continued)

| Attribute | AWB | QWB(K), QWBN, QBB(K), QBBN | |
|---------------------------------|--------------------|----------------------------|-------------------|
| | 120V AC Input | High-speed DC Input | Standard DC Input |
| On-state current, max | 16 mA | 12.0 mA @ 30V DC | |
| Input frequency, min | 47 Hz | — | |
| Input frequency, nom | 50/60 Hz | — | |
| Input frequency, max | 63 Hz | — | |
| Inrush current, max | 250 mA @ 120V AC | — | |
| Inrush delay time constant, max | 22 ms – 24AWB only | — | |
| Nominal impedance | — | 3 kΩ | 3.74 kΩ |
| IEC input compatibility | Type 3 | | |

Output Specifications – Micro870 Controllers

| Attribute | AWB, QWB(K), QWBN | QBB(K), QBBN | |
|-------------------------------|--|---|--|
| | Relay Output | High-speed Output | Standard Output |
| Output voltage, min | 5V DC, 5V AC | 10.8V DC | 10V DC |
| Output voltage, max | 125V DC, 265V AC | 26.4V DC | 26.4V DC |
| Load current, min | 10 mA | | |
| Load current, continuous, max | 2 A | 100 mA (high-speed operation) 1 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) | 1 A @ 30 °C (86 °F) 0.3 A @ 65 °C (149 °F) (standard operation) |
| Surge current, per point | See Relay Contacts Ratings - Micro870 Controllers on page 22 | 4 A for 10 ms every 1 s @ 30 °C (86 °F); every 2 s @ 65 °C (149 °F) ⁽¹⁾ | |
| Current, per common, max | 5 A | — | |
| Turn-on time, max | 10 ms | 2.5 μs | 0.1 ms |
| Turn-off time, max | 10 ms | 2.5 μs | 1 ms |

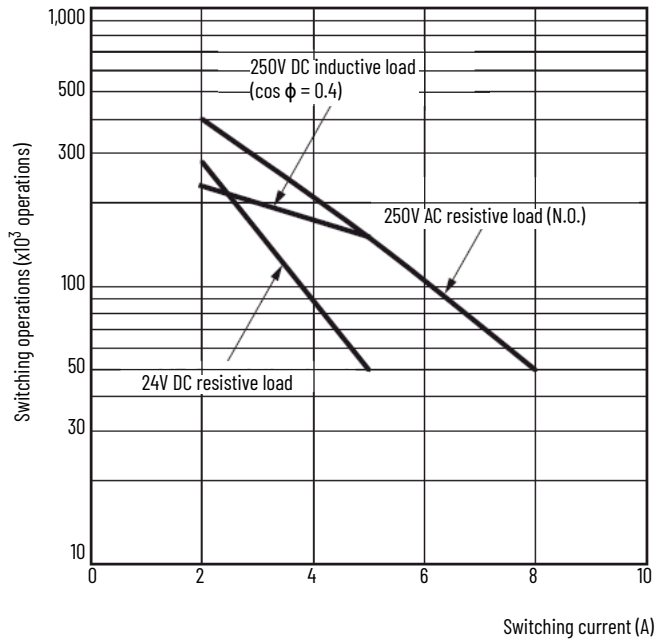
(1) Applies for general-purpose operation only. Does not apply for high-speed operation.

Relay Contacts Ratings – Micro870 Controllers

| Maximum Volts | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|--------|--------------------|--------------|--------|
| | Make | Break | | Make | Break |
| 120V AC | 15 A | 1.5 A | 2.0 A | 1800V A | 180V A |
| 240V AC | 7.5 A | 0.75 A | | | |
| 24V DC | 1.0 A | | 1.0 A | 28V A | |
| 125V DC | 0.22 A | | 0.22 A | | |

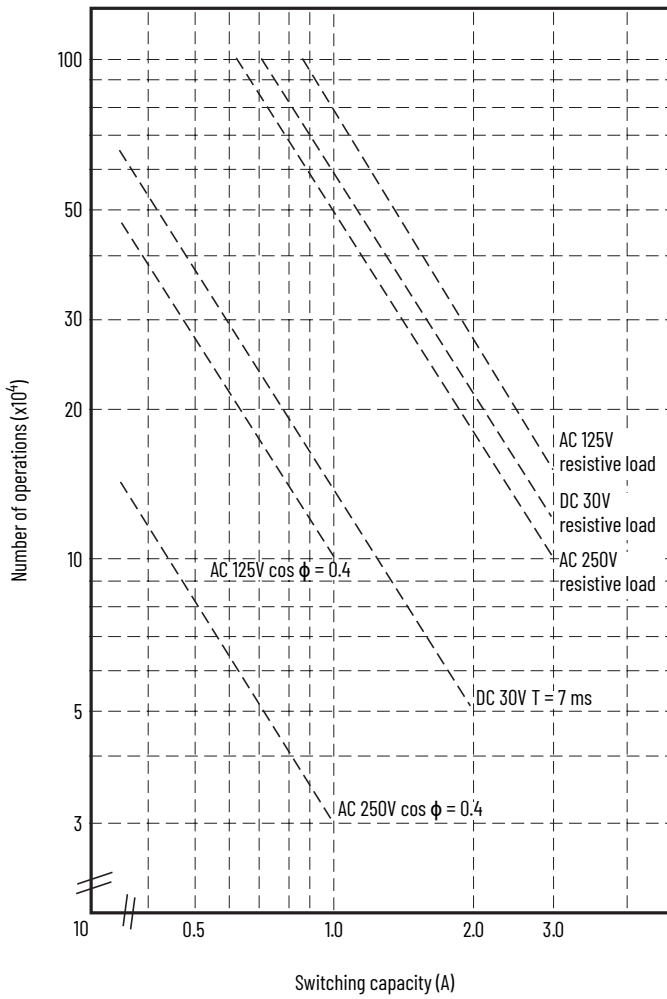
Micro800 Controller Relay Charts

Micro810 Controller High Current Relay Chart



| Maximum Volts | IEC 947 | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|---------|-------|--------------------|--------------|---------|
| | | Make | Break | | Make | Break |
| 120V AC | AC-15 | 30 A | 3 A | 8 A | 3600V A | 3600V A |
| 240V AC | | 15 A | 1.5 A | | | |
| 125V DC | DC-13 | 0.22 A | | 1 A | 28V A | |
| 250V DC | | 0.11 A | | | | |
| 24V DC | | 1.2 A | | 5 A | | |

Micro810 Controller Low Current Relay Chart



| Maximum Volts | IEC 947 | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|---------|--------|--------------------|--------------|---------|
| | | Make | Break | | Make | Break |
| 120V AC | AC-15 | 15 A | 1.5 A | 4 A | 1800V A | 1800V A |
| 240V AC | | 7.5 A | 0.75 A | | | |
| 125V DC | DC-13 | 0.22 A | | 1 A | 28V A | |
| 24V DC | | 1.2 A | | 4 A | | |

PTO/PWM Output Duty Cycle Error

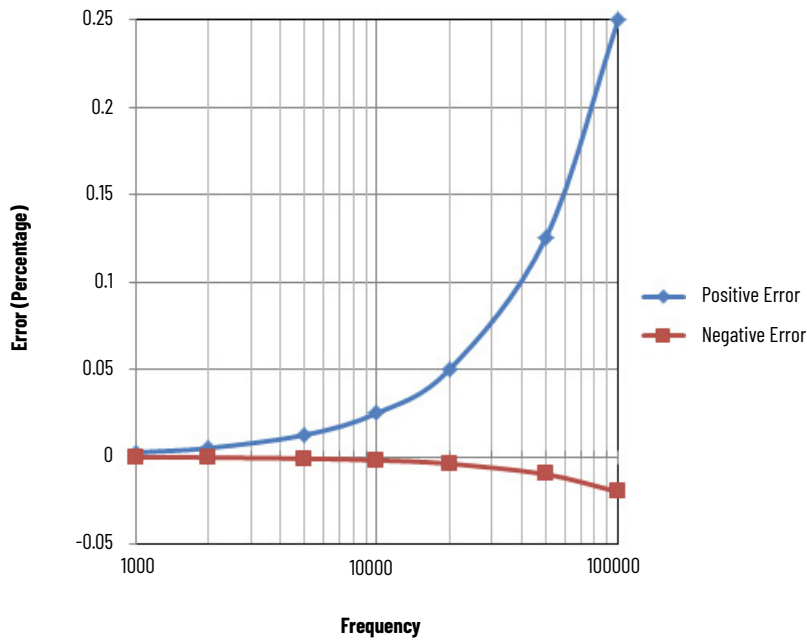
Turn-on/off time for the PTO/PWM output port is 0.2 μs and 2.5 μs max, respectively. Duty cycle error is:

Positive error = 2.5 μs * F

Negative error = -0.2 μs * F

To get the duty cycle error at a certain frequency, for example, frequency is set to 20 kHz, and duty cycle is set to 30% in Connected Components Workbench software, then the actual duty cycle is 30% (+5/-0.4%).

The following plot shows duty cycle error vs. frequency.



PTO/PWM Typical Readings

PTO/PWM Typical Readings

| Frequency (kHz) | %Duty Cycle | Expected Duty Cycle | | Typical Duty Cycle (1.27 kΩ load) |
|-----------------|-------------|---------------------|-----------|-----------------------------------|
| | | Minimum % | Maximum % | %Duty Cycle |
| 5 | 5% | 4.90% | 6.25% | 5.48% |
| 5 | 10% | 9.90% | 11.25% | 10.5% |
| 5 | 20% | 19.90% | 21.25% | 20.5% |
| 5 | 40% | 39.90% | 41.25% | 40.5% |
| 5 | 55% | 54.90% | 56.25% | 55.5% |
| 5 | 65% | 64.90% | 66.25% | 65.5% |
| 5 | 75% | 74.90% | 76.25% | 75.5% |
| 5 | 95% | 94.90% | 96.25% | 95.5% |
| 10 | 5% | 4.80% | 7.50% | 5.9% |
| 10 | 10% | 9.80% | 12.50% | 11.0% |
| 10 | 20% | 19.80% | 22.50% | 21.0% |
| 10 | 40% | 39.80% | 42.50% | 40.9% |
| 10 | 55% | 54.80% | 57.50% | 55.9% |
| 10 | 65% | 64.80% | 67.50% | 65.9% |
| 10 | 85% | 84.80% | 87.50% | 85.9% |
| 10 | 95% | 94.80% | 97.50% | 95.9% |
| 25 | 5% | 4.50% | 11.25% | 7.25% |
| 25 | 10% | 9.50% | 16.25% | 12.3% |
| 25 | 20% | 19.50% | 26.25% | 22.4% |
| 25 | 40% | 39.50% | 46.25% | 42.3% |
| 25 | 55% | 54.50% | 61.25% | 57.3% |
| 25 | 65% | 64.50% | 71.25% | 67.3% |
| 25 | 85% | 84.50% | 91.25% | 87.3% |
| 25 | 95% | 94.50% | 100.00% | 97.0% |
| 50 | 5% | 4.00% | 17.50% | 9.7% |
| 50 | 10% | 9.00% | 22.50% | 14.8% |

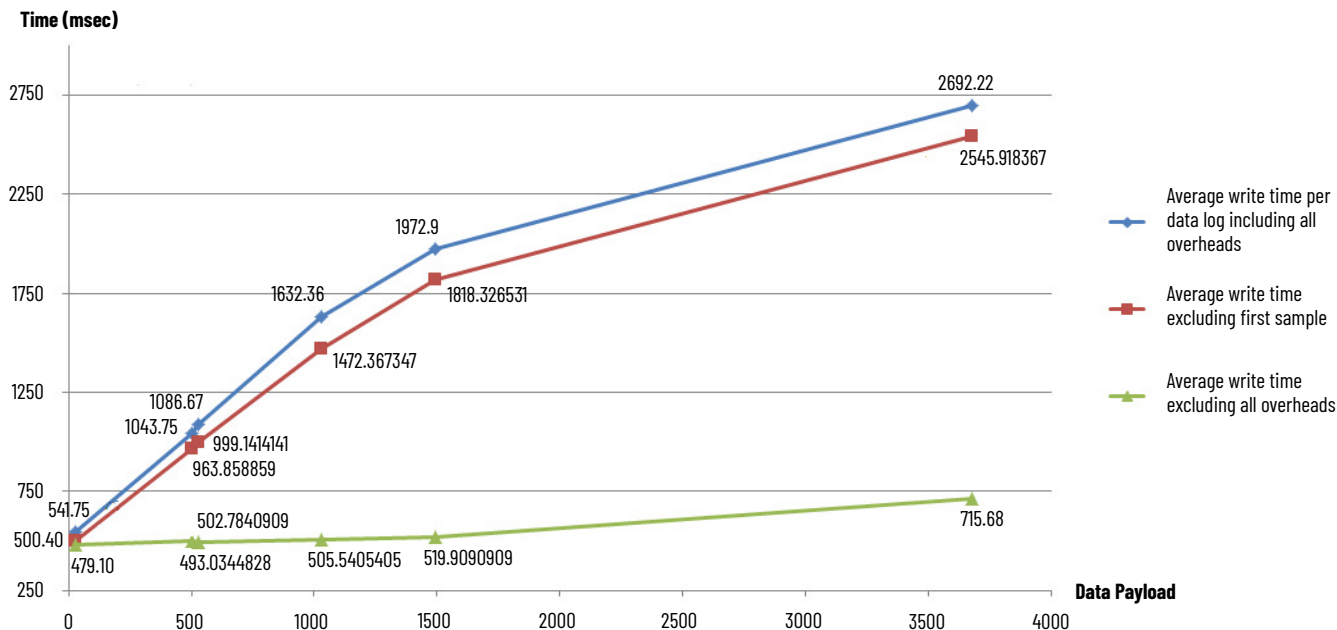
PTO/PWM Typical Readings (Continued)

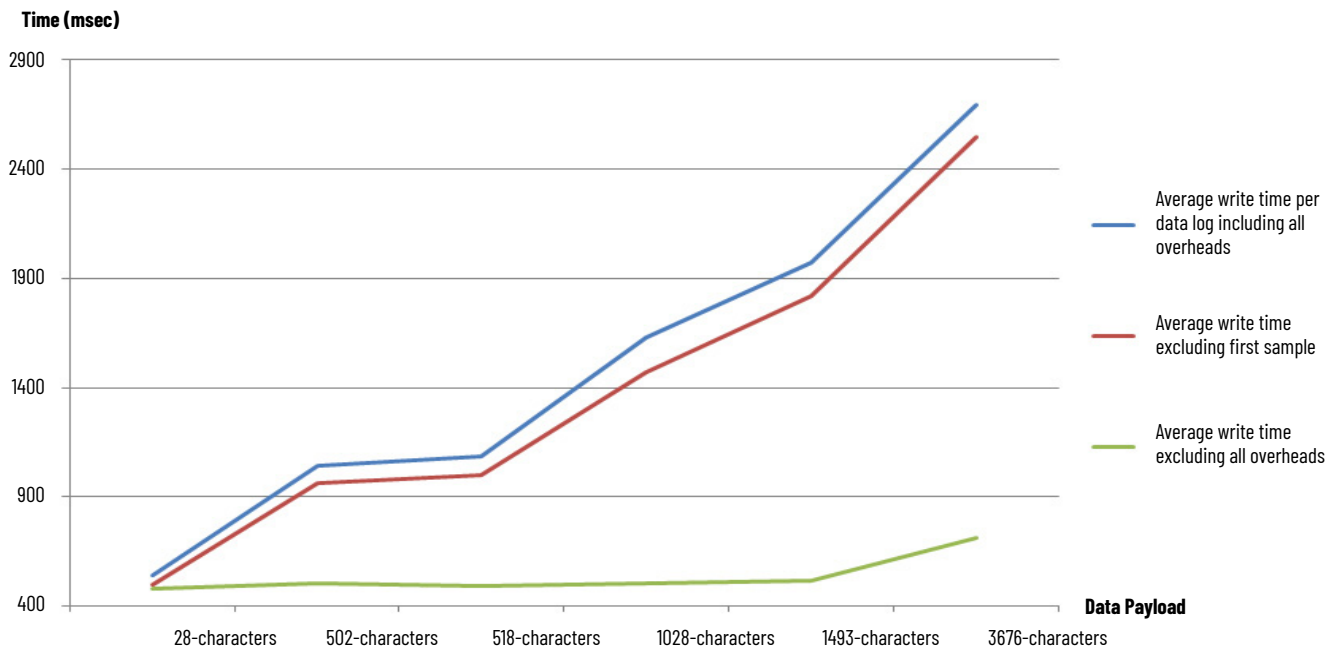
| Frequency (kHz) | %Duty Cycle | Expected Duty Cycle | | Typical Duty Cycle (1.27 kΩ load) |
|-----------------|-------------|---------------------|-----------|-----------------------------------|
| | | Minimum % | Maximum % | %Duty Cycle |
| 50 | 20% | 19.00% | 32.50% | 24.7% |
| 50 | 40% | 39.00% | 52.50% | 44.7% |
| 50 | 55% | 54.00% | 67.50% | 59.6% |
| 50 | 65% | 64.00% | 77.50% | 69.6% |
| 50 | 85% | 84.00% | 97.50% | 89.5% |
| 50 | 95% | 94.00% | 100.00% | 98.1% |
| 100 | 5% | 3.00% | 30.00% | 14.7% |
| 100 | 10% | 8.00% | 35.00% | 19.5% |
| 100 | 20% | 18.00% | 45.00% | 29.6% |
| 100 | 40% | 38.00% | 65.00% | 49.3% |
| 100 | 55% | 53.00% | 80.00% | 64.0% |
| 100 | 65% | 63.00% | 90.00% | 73.8% |
| 100 | 85% | 83.00% | 100.00% | 92.4% |
| 100 | 95% | 93.00% | 100.00% | 98.0% |

Data Log Performance

Data Log - Data Payload vs. Performance Time

| Parameter | Number of Characters | | | | | |
|--|----------------------|------------|------------|------------|------------|------------|
| | 28 | 502 | 518 | 1028 | 1493 | 3676 |
| Average write time per data log file including all overheads | 541.75 ms | 1043.75 ms | 1086.67 ms | 1632.36 ms | 1972.9 ms | 2696.22 ms |
| Average write time excluding first sample | 500.40 ms | 963.86 ms | 999.14 ms | 1472.37 ms | 1818.33 ms | 2545.92 ms |
| Average write time excluding all overheads | 479.10 ms | 493.03 ms | 502.78 ms | 505.54 ms | 519.91 ms | 715.68 ms |





Environmental Specifications

Environmental Specifications – Micro800 Controllers

| Attribute | Value |
|-----------------------------------|--|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): For Micro810 controllers: 0...55 °C (32...131 °F) For Micro820, Micro830, Micro850, Micro870 controllers: -20...+65 °C (-4...+149 °F) |
| Temperature, surrounding air, max | For Micro810 controllers: 55 °C (131 °F) For Micro820, Micro830, Micro850, Micro870 controllers: 65 °C (149 °F) |
| Temperature, storage | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): For Micro810 controllers: 30 g For Micro820, Micro830, Micro850, Micro870 controllers: 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): For Micro810 controllers: 30 g - DIN rail mount 30 g - Panel mount For Micro820, Micro830, Micro850, Micro870 controllers: 25 g - DIN rail mount 45 g - Panel mount |
| Emissions | IEC 61000-6-4 |
| ESD immunity | IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges |

Environmental Specifications – Micro800 Controllers (Continued)

| Attribute | Value |
|--------------------------|--|
| Radiated RF immunity | IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz |
| EFT/B immunity | IEC 61000-4-4: ±2 kV @ 5 kHz on power ports ±2 kV @ 5 kHz on signal ports For Micro820, Micro850, Micro870 controllers only: ±1 kV @ 5 kHz on communication ports |
| Surge transient immunity | IEC 61000-4-5: For Micro810 controllers: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on shielded ports For Micro820, Micro850, Micro870 controllers: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±1 kV line-earth(CM) on communication ports For Micro830 controllers: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports |
| Conducted RF immunity | IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |
| Voltage variation | For Micro810 controllers only: IEC 61000-4-11: 60% dip for 5 and 50 periods on AC supply ports 30% dip for 0.5 period @ 0° and 180° on AC supply ports 100% dip for 0.5 period @ 0° and 180° on AC supply ports ±10% fluctuations for 15 min on AC supply ports > 95% interruptions for 250 periods on AC supply ports |

Certifications

Certifications – Micro800 Controllers

| Certification (when product is marked) (1) | Value |
|--|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470. |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC (2) | Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437 Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2016 No. 1101 – Electrical Equipment (Safety) Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |
| EtherNet/IP | For Micro820, Micro850, Micro870 controllers only: ODVA conformance tested to EtherNet/IP specifications. |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

(2) Not applicable to Micro850 (2080-L50E) and Micro870 (2080-L70E) catalogs.

Micro800 Expansion I/O Modules

Micro850 and Micro870 controllers support a range of discrete and analog expansion I/O modules to extend the functionality of the controllers.

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.

Discrete Expansion I/O Modules

Micro800 discrete expansion I/O modules are input/output modules that provide On/Off detection and actuation. Discrete input modules interface to sensing devices and detect whether they are On or Off. These modules convert AC or DC On/Off signals from user devices to appropriate logic level for use within the processor. Output modules may be used to drive various output devices. Typical output devices that are compatible with the outputs include motor starters, solenoids, and indicators.

Discrete Expansion I/O Modules

| I/O Type | Catalog Number | Description | Page |
|----------------|--------------------------|---|------|
| DC input | 2085-IQ16, 2085-IQ16K | 16-point 24V DC sink/source input module | 29 |
| | 2085-IQ32T | 32-point 24V DC sink/source input module | |
| DC output | 2085-OV16 | 16-point 12/24V DC sink transistor output module | 30 |
| | 2085-OB16 | 16-point 12/24V DC source transistor output module | |
| AC input | 2085-IA8 | 8-point 120V AC input module | 31 |
| | 2085-IM8 | 8-point 240V AC input module | |
| AC output | 2085-OA8 | 8-point 120/240V AC triac output module | 32 |
| Relay output | 2085-OW8 | 8-point AC/DC relay output module | 33 |
| | 2085-OW16, 2085-OW16K | 16-point AC/DC relay output module | |
| Power supply | 2085-EP24VDC | Expansion I/O power supply for Micro870 controllers | 39 |
| Bus terminator | 2085-ECR | Terminate the end of the serial communication bus | 40 |

Environmental specifications and certifications for Micro800 expansion I/O modules are provided on page [37](#).

Specifications - Discrete DC Input Expansion I/O Modules ⁽¹⁾

| Attribute | 2085-IQ16, 2085-IQ16K | 2085-IQ32T | | |
|--------------------------------|--|-------------------------------|------------------------------|--|
| Number of inputs | 16 sink/source | 32 sink/source | | |
| Dimensions (HxWxD) | 44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.) | | | |
| Shipping weight, approx. | 260 g (9.17 oz) | | | |
| Bus current draw, max | 170 mA @ 5V DC | 190 mA @ 5V DC | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽²⁾ | 2 - on signal ports | | | |
| Terminal screw torque, max | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽³⁾ | | | |
| Input circuit type | 24V AC/DC sink/source or 24V AC 50/60 Hz | | | |
| Power dissipation, total | 4.5 W | 7 W | | |
| Power supply | 24V DC | | | |
| Status indicators | Channel status - 16 yellow | Channel status - 32 yellow | | |
| Isolation voltage | 50V (continuous), Reinforced Insulation Type, channel to channel Type tested @ 715V DC for 60 s | | | |
| Insulation-stripping length | 10 mm | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4A | T4 | | |

Specifications - Discrete DC Input Expansion I/O Modules ⁽¹⁾ (Continued)

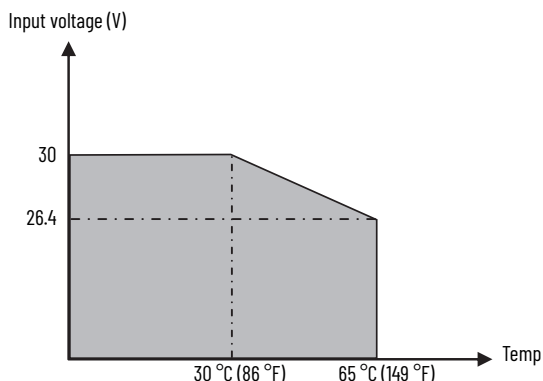
| Attribute | 2085-IQ16, 2085-IQ16K | 2085-IQ32T |
|-------------------------|--|-----------------|
| Operating voltage range | 10...30V DC, Class 2 21.6...26.4V AC, 50/60 Hz, Class 2 See Derating Curve for 2085-IQ16 on page 30 and Derating Curve for 2085-IQ32T on page 30 | |
| Off-state voltage, max | 5V DC | |
| Off-state current, max | 1.5 mA | 1.2 mA |
| On-state current, min | 1.8 mA @ 10V DC | |
| On-state current, nom | 6.0 mA @ 24V DC | 5.2 mA @ 24V DC |
| On-state current, max | 8.0 mA @ 30V DC | 7.0 mA @ 30V DC |
| Input impedance, max | 3.9 kΩ | 4.6 kΩ |
| IEC input compatibility | Type 3 | Type 1 |

(1) Meets IEC Type 1 24V DC Input Specifications.

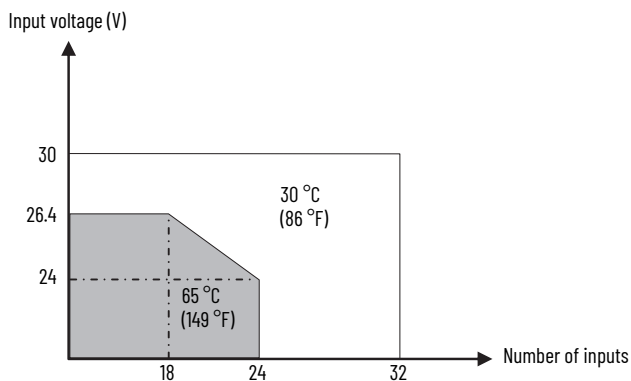
(2) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(3) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Derating Curve for 2085-IQ16



Derating Curve for 2085-IQ32T



Specifications - Discrete DC Output Expansion I/O Modules

| Attribute | 2085-OV16 | 2085-OB16 |
|--------------------------|---|-------------|
| Number of outputs | 16 sinking | 16 sourcing |
| Operating voltage range | 10...30V DC | |
| On-state voltage, min | 10V DC | |
| On-state voltage, nom | 24V DC | |
| On-state voltage, max | 30V DC | |
| On-state current, max | 0.5 A @ 30V DC, per output 8 A, per module | |
| Dimensions (HxWxD) | 44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.) | |
| Shipping weight, approx. | 220 g (7.76 oz) | |
| Bus current draw, max | 200 mA @ 5V DC | |

Specifications - Discrete DC Output Expansion I/O Modules (Continued)

| Attribute | 2085-0V16 | | 2085-0B16 | |
|--------------------------------|---|-------------------------------|------------------------------|--|
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽¹⁾ | 2 - on signal ports | | | |
| Insulation-stripping length | 10 mm (0.39 in.) | | | |
| Terminal screw torque, max | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Output circuit type | 24V DC sink | | 24V DC source | |
| Power dissipation, total | 5 W | | | |
| Power supply | 24V DC, Class 2 | | | |
| Status indicators | Channel status - 16 yellow | | | |
| Isolation voltage | 50V (continuous), Reinforced Insulation Type, channel to system Type tested @ 720V AC for 60 s | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Specifications - Discrete AC Input Expansion I/O Modules

| Attribute | 2085-IA8 | | 2085-IM8 | |
|---|--|-------------------------------|------------------------------|--|
| Number of inputs | 8 | | | |
| Voltage category | 120V AC | | 240V AC | |
| Operating voltage range | 74...120V AC | | 159...240V AC | |
| Off-state voltage, max | 20V AC | | 40V AC | |
| Off-state current, max | 2.5 mA | | | |
| On-state current, min | 5.0 mA @ 74V AC | | 4.0 mA @ 159V AC | |
| On-state current, max | 12.5 mA @ 120V AC | | 7.0 mA @ 240V AC | |
| Input impedance, max | 22.2 kΩ | | | |
| Inrush current, max | 450 mA | | | |
| Input filter time Off to On On to Off | ≤20 ms | | | |
| IEC type compliance | Type 3 | | | |
| Dimensions (HxWxD) | 28 x 90 x 87 mm (1.10 x 3.54 x 3.42 in.) | | | |
| Shipping weight, approx. | 140 g (4.93 oz) | | | |
| Bus current draw, max | 5V DC, 150 mA | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Insulation-stripping length | 10 mm (0.39 in.) | | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports | | | |
| Wire type | Copper | | | |
| Terminal screw torque, max | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Power supply | 120V AC | | 240V AC | |
| Power dissipation, total | 2.36 W | | 2.34 W | |
| Enclosure type rating | None (open-style) | | | |

Specifications - Discrete AC Input Expansion I/O Modules (Continued)

| Attribute | 2085-IA8 | 2085-IM8 |
|--------------------------|---|---|
| Status indicators | Channel status - 8 yellow | |
| Isolation voltage | 150V (continuous), Reinforced Insulation Type, channel to system Type tested @ 1950V DC for 60 s | 240V (continuous), Reinforced Insulation Type, channel to system Type tested @ 3250V DC for 60 s |
| North American temp code | T4 | |

- (1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.
- (2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Specifications - Discrete AC Output Expansion I/O Module

| Attribute | 2085-OA8 | | | |
|---|---|-------------------------------|------------------------------|--|
| Number of outputs | 8 | | | |
| Voltage category | 120V/230V AC | | | |
| Operating voltage range | 120...240V AC | | | |
| Output voltage, min | 85V AC | | | |
| Output voltage, max | 240V AC | | | |
| Off-state current, max | 2.5 mA | | | |
| On-state current, min | 10 mA per output | | | |
| On-state current, max | 0.5 A per output | | | |
| On-state current, per module, max | 4 A | | | |
| Off-state voltage drop, max | 1.5V AC @ 0.5 A 2.5V AC @ 10 mA | | | |
| Fusing | Not protected. A suitable rating fuse is recommended to protect outputs. | | | |
| Output signal delay Off to On On to Off | 9.3 ms for 60 Hz, 11 ms for 50 Hz 9.3 ms for 60 Hz, 11 ms for 50 Hz | | | |
| Surge current, max | 5 A | | | |
| Dimensions (HxWxD) | 28 x 90 x 87 mm (1.10 x 3.54 x 3.42 in.) | | | |
| Shipping weight, approx. | 140 g (4.93 oz) | | | |
| Bus current draw, max | 5V DC, 180 mA | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Insulation-stripping length | 10 mm (0.39 in.) | | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports | | | |
| Wire type | Copper | | | |
| Terminal screw torque, max | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Input/output circuit type | 120/240V AC output | | | |
| Power supply | 120/240V AC | | | |
| Power dissipation, total | 5.19 W | | | |
| Enclosure type rating | None (open-style) | | | |
| Status indicators | Channel status - 8 yellow | | | |
| Isolation voltage | 240V (continuous), Reinforced Insulation Type, channel to system Type tested @ 3250V DC for 60 s | | | |
| North American temp code | T4 | | | |

- (1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.
- (2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

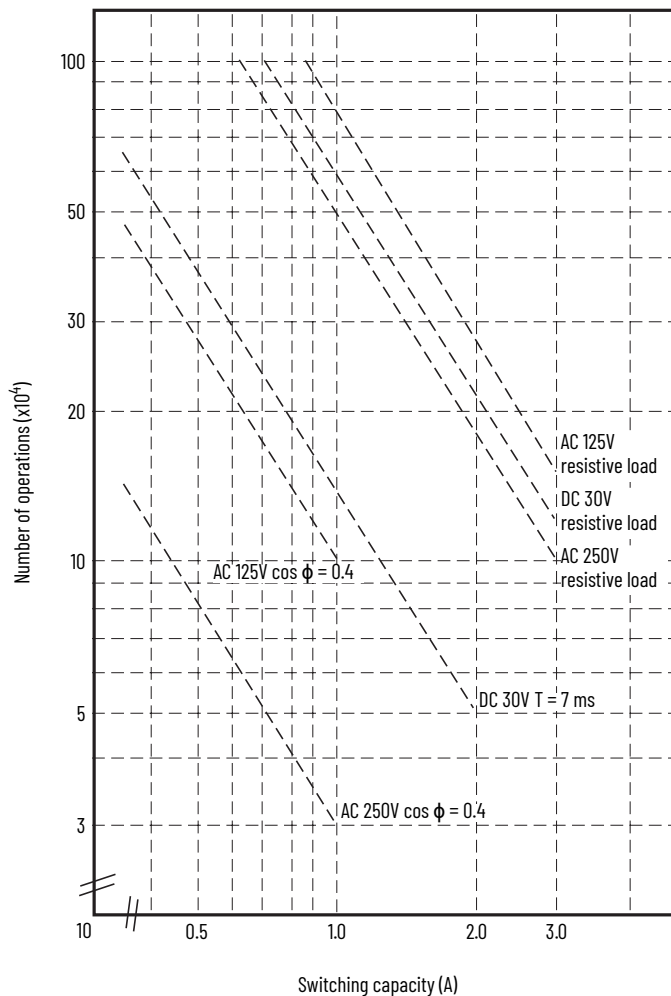
Specifications – Discrete Relay Output Expansion I/O Modules

| Attribute | 2085-0W8 | 2085-0W16, 2085-0W16K | | | | |
|--------------------------------------|---|--|------------------------------|--|---------------------|--------------|
| Number of outputs | 8 relay | 16 relay | | | | |
| Dimensions (HxWxD) | 28 x 90 x 87 mm (1.10 x 3.54 x 3.42 in.) | 44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.) | | | | |
| Shipping weight, approx. | 140 g (4.93 oz) | 300 g (10.58 oz) | | | | |
| Wire size | | Min | Max | | | |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max | | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | | | |
| Insulation strip length | 10 mm (0.39 in.) | | | | | |
| Wiring category ⁽¹⁾ | 2 – on signal ports | | | | | |
| Wire type | Copper | | | | | |
| Terminal screw torque, max | 0.5...0.6 NN•m (4.4...5.3 lb•in) ⁽²⁾ | | | | | |
| Bus current draw, max | 5V DC, 120 mA 24V DC, 50 mA | 5V DC, 160 mA 24V DC, 100 mA | | | | |
| Load current, max | 2 A | | | | | |
| Power dissipation, total | 2.72 W | | 5.14 W | | | |
| Relay contact (0.35 power factor) | Maximum Volts | Amperes | | Amperes | Volt-Amperes | |
| | | Make | Break | Continuous | Make | Break |
| | 120V AC | 15 A | 1.5 A | 2.0 A | 1800V A | 180V A |
| | 240V AC | 7.5 A | 0.75 A | | 28V A | |
| | 24V DC | 1.0 A | | 1.0 A | | |
| 125V DC | 0.22 A | | | | | |
| Minimum load, per point | 10 mA per point | | | | | |
| Off-state leakage, max | 1.5 mA | | | | | |
| Status indicators | Channel status - 8 yellow | | | Channel status - 16 yellow | | |
| Isolation voltage | 240V (continuous), Reinforced Insulation Type, channel to system Type tested @ 3250V DC for 60 s | | | | | |
| Pilot duty rating | C300, R150 | | | | | |
| Enclosure type rating | None (open-style) | | | | | |
| North American temp code | T4 | | | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Relay Life Chart for 2085-0W8, 2085-0W16, and 2085-0W16K



Analog Expansion I/O Modules

Analog expansion I/O modules are interface modules that convert analog signals to digital values for inputs and convert digital values to analog signals for outputs. Controllers can then use these signals for control purposes.

Analog Expansion I/O Modules

| I/O Type | Catalog Number | Description | Page |
|----------|---------------------|--|------|
| Input | 2085-IF4 | 4-channel 14-bit isolated voltage/current input | 34 |
| | 2085-IF8, 2085-IF8K | 8-channel 14-bit isolated voltage/current input | |
| Output | 2085-OF4, 2085-OF4K | 4-channel 12-bit isolated voltage/current output | 35 |

Environmental specifications and certifications for Micro800 expansion I/O modules are provided on page 37.

Specifications - Analog Input Expansion I/O Modules

| Attribute | 2085-IF4 | 2085-IF8, 2085-IF8K |
|------------------|---|---------------------|
| Number of inputs | 4 | 8 |
| Resolution | 14 bits (13 bits plus sign bit) | |
| Voltage | 1.28 mV/cnt unipolar; 1.28 mV/cnt bipolar | |
| Current | 1.28 μA/cnt | |
| Data format | Left justified, 16-bit 2s complement | |
| Conversion type | SAR | |
| Update rate | <2 ms per enabled channel without 50/60 Hz rejection <8 ms for all channel 8 ms with 50/60 Hz rejection | |

Specifications - Analog Input Expansion I/O Modules (Continued)

| Attribute | 2085-IF4 | 2085-IF8, 2085-IF8K | | |
|--|---|--|------------------------------|--|
| Step response time up to 63% | 4...60 ms without 50/60 Hz rejection – depends on number of enabled channels and filter setting 600 ms with 50/60 Hz rejection | | | |
| Input current terminal, user configurable | 4...20 mA (default) 0...20 mA | | | |
| Input voltage terminal, user configurable | ±10V 0...10V | | | |
| Input impedance Voltage terminal Current terminal | >1 MΩ <100 Ω | | | |
| Absolute accuracy | ±0.10% Full Scale @ 25 °C (77 °F) | | | |
| Accuracy drift with temp Voltage terminal Current terminal | 0.00428% Full Scale/°C 0.00407% Full Scale/°C | | | |
| Calibration required | Factory calibrated. No customer calibration supported. | | | |
| Overload, max | 30V continuous or 32 mA continuous, one channel at a time. | | | |
| Channel diagnostics | Over and under range or open circuit condition by bit reporting | | | |
| Dimensions (HxWxD) | 28 x 90 x 87 mm (1.1 x 3.54 x 3.42 in.) | 44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.) | | |
| Shipping weight, approx. | 140 g (4.93 oz) | 270 g (9.52 oz) | | |
| Bus current draw, max | 5V DC, 100 mA 24V DC, 50 mA | 5V DC, 110 mA 24V DC, 50 mA | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽¹⁾ | 2 – on signal ports | | | |
| Wire type | Shielded | | | |
| Terminal screw torque | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Power dissipation, total | 1.7 W | 1.75 W | | |
| Enclosure type rating | None (open-style) | | | |
| Status indicators | 1 green health 4 red error | 1 green health 8 red error | | |
| Isolation voltage | 50V (continuous), Reinforced Insulation Type, channel to system Type tested @ 720V DC for 60 s | | | |
| North American temp code | T4A | T5 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Specifications - Analog Output Expansion I/O Modules

| Attribute | 2085-OF4, 2085-OF4K |
|---|---|
| Number of outputs | 4 |
| Resolution Voltage Current | 12 bits unipolar; 11 bits plus sign bipolar 2.56 mV/cnt unipolar; 5.13 mV/cnt bipolar 5.13 µA/cnt |
| Data format | Left justified, 16-bit 2s complement |
| Step response time up to 63% | 2 ms |
| Conversion rate, max | 2 ms per channel |
| Output current terminal, user configurable | 0 mA output until module is configured 4...20 mA (default) 0...20 mA |
| Output voltage terminal, user configurable | ±10V 0...10V |
| Current load on voltage output, max | 3 mA |
| Absolute accuracy Voltage terminal Current terminal | 0.133% Full Scale @ 25 °C (77 °F) or better 0.425% Full Scale @ 25 °C (77 °F) or better |

Specifications - Analog Output Expansion I/O Modules (Continued)

| Attribute | 2085-OF4, 2085-OF4K | | | |
|--|---|-------------------------------|------------------------------|--|
| Accuracy drift with temp Voltage terminal Current terminal | 0.0045% Full Scale/°C 0.0069% Full Scale/°C | | | |
| Resistive load on mA output | 15...500 Ω @ 24V DC | | | |
| Dimensions (HxWxD) | 28 x 90 x 87 mm (1.1 x 3.54 x 3.42 in.) | | | |
| Shipping weight, approx. | 200 g (7.05 oz) | | | |
| Bus current draw, max | 5V DC, 160 mA 24V DC, 120 mA | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽¹⁾ | 2 – on signal ports | | | |
| Wire type | Shielded | | | |
| Terminal screw torque | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Power dissipation, total | 3.7 W | | | |
| Enclosure type rating | None (open-style) | | | |
| Status indicators | 1 green health | | | |
| Isolation voltage | 50V (continuous), Reinforced Insulation Type, channel to system Type tested @ 720V DC for 60 s | | | |
| North American temp code | T4A | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Specialty Expansion I/O Module

The 2085-IRT4 expansion I/O module allows you to configure a sensor type for each of four input channels that linearizes analog signal into a temperature value.

Specialty Expansion I/O Module

| I/O Type | Catalog Number | Description | Page |
|-------------------|----------------|----------------------------------|------|
| Temperature input | 2085-IRT4 | 4-channel thermocouple/RTD input | 36 |

Environmental specifications and certifications for Micro800 expansion I/O modules are provided on page [37](#).

Specifications - Specialty Expansion I/O Module

| Attribute | 2085-IRT4 | | | |
|--------------------------------|--|-------------------------------|------------------------------|--|
| Number of inputs | 4 | | | |
| Dimensions (HxWxD) | 44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.) | | | |
| Shipping weight, approx. | 220 g (7.76 oz) | | | |
| Bus current draw, max | 5V DC, 160 mA 24V DC, 50 mA | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽¹⁾ | 2 – on signal ports | | | |
| Terminal screw torque | 0.5...0.6 N•m (4.4...5.3 lb•in) ⁽²⁾ | | | |
| Input type, thermocouple | B, C, E, J, K, TXK/XK (L), N, R, S, T | | | |

Specifications - Specialty Expansion I/O Module (Continued)

| Attribute | 2085-IRT4 |
|---|---|
| Input type, RTD | 100 Ω Pt α = 0.00385 Euro 200 Ω Pt α = 0.00385 Euro 100 Ω Pt α = 0.003916 U.S. 200 Ω Pt α = 0.003916 U.S. 100 Ω Nickel 618 200 Ω Nickel 618 120 Ω Nickel 672 10 Ω Copper 427 mV range: 0...100 mV Ohm input: 0...500 Ω |
| Resolution | 16 bits |
| Channel update time, typical | 12...500 ms per enabled channel |
| Input impedance | >10 MΩ |
| Accuracy Thermocouple input RTD input | ±0.5...±3.0 °C (±0.9...±5.4 °F) ±0.2...±0.6 °C (±0.36...±1.08 °F) |
| Power dissipation, total | 2 W |
| Enclosure type rating | None (open-style) |
| Status indicators | 1 green health |
| Isolation voltage | 50V (continuous), Reinforced Insulation Type, channel to system Type tested @ 720V DC for 60 s |
| North American temp code | T4 |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Environmental Specifications

Environmental Specifications - Micro800 Expansion I/O Modules

| Attribute | Value |
|-----------------------------------|--|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+65 °C (-4...+149 °F) |
| Temperature, surrounding air, max | 65 °C (149 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g - DIN rail mount 35 g - Panel Mount |
| Emissions | IEC 61000-6-4 |
| ESD immunity | IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz |
| EFT/B immunity | IEC 61000-4-4: ±2 kV @ 5 kHz on signal ports ±2 kV @ 100 kHz on signal ports |
| Surge transient immunity | IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports |
| Conducted RF immunity | IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |

Certifications

Certifications – Micro800 Expansion I/O Modules

| Certification (when product is marked) ⁽¹⁾ | Value |
|--|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation For 2085-IA8, 2085-IM8, 2085-OA8, 2085-OW8, 2085-OW16, 2085-OW16K only: European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11) |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation For 2085-IA8, 2085-IM8, 2085-OA8, 2085-OW8, 2085-OW16, 2085-OW16K only: Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 29 ramadan 1436 For 2085-IA8, 2085-IM8, 2085-OA8, 2085-OW8, 2085-OW16, 2085-OW16K only: Arrêté ministériel n° 6404-15 du 1 er muharram 1437 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations For 2085-IA8, 2085-IM8, 2085-OA8, 2085-OW8, 2085-OW16, 2085-OW16K only: 2016 No. 1101 – Electrical Equipment (Safety) Regulations |

(1) See the Product Certification link at [rokauto/certifications](https://www.rockwellautomation.com/rokauto/certifications) for Declaration of Conformity, Certificates, and other certification details.

Expansion I/O Power Supply

Use only in a Micro870 system with more than four expansion I/O modules.

Specifications - Expansion I/O Power Supply

| Attribute | 2085-EP24VDC | | | |
|--|--|-------------------------------|------------------------------|--|
| I/O module capacity | 4 modules, each module power limited to 4.2 W | | | |
| Input voltage rating | 21.4...26.4V DC Class 2 or Limited Voltage Limited Current Source (LVLC) | | | |
| Input voltage, nominal | 24V DC Verify that the external 24V power supply has a minimum ride-through time of 10 ms at max load. | | | |
| Power consumption, max | 24 W | | | |
| Inrush current, max | 6 A for 10 ms | | | |
| Bus side power rating, max | 24V DC ($\pm 10\%$) @ 700 mA 5V DC ($\pm 5\%$) @ 900 mA Maximum bus power limited to 16.8 W | | | |
| Input overvoltage protection | Reverse polarity protected | | | |
| Interruption | Output voltage stays within specifications when input drops out for 10 ms @ 24V with max load. More than 10 ms interruption can cause the Micro870 controller to fault. | | | |
| Module location | Between Micro800 expansion I/O modules | | | |
| Limitations | No isolation provided between input power to Bulletin 2085 bus power | | | |
| Indicators | 1 green - 5V system power | | | |
| Dimensions (HxWxD) | 110.0 x 36.2 x 87.0 mm (4.3 x 1.4 x 3.4 in.) | | | |
| Shipping weight, approx. | 0.09 kg (0.02 lb) | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.34 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | 0.20 mm ² (22 AWG) | 2.5 mm ² (14 AWG) | |
| Wiring category ⁽¹⁾ | 1 - on power ports | | | |
| Removable Terminal Block (RTB) screw torque ⁽²⁾ | 0.5...0.6 N•m (4.4...5.3 lb•in) | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

Environmental Specifications - Expansion I/O Power Supply

| Attribute | 2085-EP24VDC |
|-----------------------------------|--|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+65 °C (-4...+149 °F) |
| Temperature, surrounding air, max | 65 °C (149 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g - DIN rail mount 35 g - Panel mount |
| Emissions | IEC 61000-6-4 |

Environmental Specifications – Expansion I/O Power Supply (Continued)

| Attribute | 2085-EP24VDC |
|--------------------------|---|
| ESD immunity | IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz |
| EFT/B immunity | IEC 61000-4-4: ±2 kV @ 5 kHz on power ports |
| Surge transient immunity | IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports |
| Conducted RF immunity | IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |

Certifications – Expansion I/O Power Supply

| Certification (when product is marked) ⁽¹⁾ | 2085-EP24VDC |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

Bus Terminator

The bus terminator, 2085-ECR, serves as an end cap and terminates the end of the serial communication bus. It is required whenever an expansion I/O module is connected to the controller and should be connected to the last expansion I/O module in the system.

Micro800 Plug-in Modules

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

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.

Digital Plug-in Modules

Digital Plug-in Modules

| I/O Type | Catalog Number | Description | Page |
|--------------|----------------|---|------|
| Input | 2080-IQ4 | 4-point 12/24V DC sink/source input module | 41 |
| Output | 2080-OB4 | 4-point 12/24V DC source output module | 42 |
| | 2080-OV4 | 4-point 12/24V DC sink output module | |
| Combination | 2080-IQ4OB4 | 8-point 12/24V DC sink/source input, 12/24V DC source output module | 42 |
| | 2080-IQ4OV4 | 8-point 12/24V DC sink/source input, 12/24V DC sink output module | |
| Relay output | 2080-OW4I | 4-point AC/DC relay output module | 43 |

Environmental specifications and certifications for Micro800 plug-in modules are provided on page [51](#).

Specifications - Digital Input Plug-in Module

| Attributes | 2080-IQ4 | | |
|--------------------------------|---|------------------------------|------------------------------|
| Number of inputs | 4 | | |
| On-state voltage, min | 9V DC 10.25V AC (rms) | | |
| On-state voltage, max | 30V DC 30V AC (rms) | | |
| On-state current, min | 2 mA @ 9V DC 2 mA @ 9V AC (rms) | | |
| On-state current, nom | 3 mA @ 24V DC | | |
| On-state current, max | 5 mA | | |
| Off-state voltage, max | 5V DC 3.5V AC (rms) | | |
| Off-state current, max | 1.5 mA | | |
| IEC compatibility | Type 3 | | |
| Input impedance | 0...3V, >4 K Ω 3...12V, 3.5 K Ω min 12...30V, >4 K Ω <10 K Ω | | |
| Input filter time, ON to OFF | 8...10 ms AC/DC | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | |
| Status indicators | Channel status - 4 yellow | | |
| Terminal base screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | |
| Isolation voltage | 50V (continuous), Basic Insulation Type, Inputs to Backplane Type tested for 60 s @ 720V DC, Inputs to Backplane | | |
| Wire size | | Min | Max |
| | Solid | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) |
| | Stranded | | |
| | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports | | |
| Enclosure type rating | None (open-style) | | |
| North American temp code | T4 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Specifications - Digital Output Plug-in Modules

| Attributes | 2080-0B4 | 2080-0V4 | | |
|--------------------------------|--|------------------------------|------------------------------|--|
| Number of outputs | 4 source | 4 sink | | |
| On-state voltage, min | 10V DC | | | |
| On-state voltage, nom | 24V DC | | | |
| On-state voltage, max | 30V DC | | | |
| On-state current, min | 5.0 mA @ 10V DC | | | |
| On-state current, nom | 3.0 mA @ 24V DC | | | |
| On-state current, max | 0.5 A, steady state 2 A, surge for 2 s, min | | | |
| Power supply voltage, min | 10.8V DC | | | |
| Power supply voltage, max | 30V DC | | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | | |
| Status indicators | Channel status - 4 yellow | | | |
| Terminal base screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Isolation voltage | 50V (continuous), Basic Insulation Type, Inputs to Outputs, I/Os to Backplane Type tested for 60 s @ 720V DC, I/Os to Backplane | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) | |
| | Stranded | | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Specifications - Digital Combination Plug-in Modules

| Attributes | 2080-IQ40B4 | 2080-IQ40V4 |
|------------------------------|--|---|
| Number of I/O | 4 channel inputs/source outputs combination | 4 channel inputs/sink outputs combination |
| On-state voltage, min | 9.0V DC 10.25V AC (rms) | |
| On-state voltage, max | 30V DC 30V AC (rms) | |
| On-state current, min | 2.0 mA @ 9V DC 2.0 mA @ 9V AC (rms) | |
| On-state current, nom | 3.0 mA @ 24V DC | |
| On-state current, max | 5.0 mA | |
| Off-state voltage, max | 5V DC 3.5V AC (rms) | |
| Off-state current, max | 1.5 mA | |
| IEC compatibility | Type 3 | |
| Input impedance | 0...3V, >4 KΩ 3...12V, 3.5 KΩ min 12...30V, >4 KΩ <10 KΩ | |
| Input filter time, ON to OFF | 8...10 ms AC/DC | |
| Power supply voltage, min | 10.8V DC | |
| Power supply voltage, max | 30V DC | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | |
| Status indicators | Channel status - 8 yellow | |
| Terminal base screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | |
| Isolation voltage | 50V (continuous), Basic Insulation Type, Inputs to Outputs, I/Os to Backplane Type tested for 60 s @ 720V DC, I/Os to Backplane | |

Specifications - Digital Combination Plug-in Modules (Continued)

| Attributes | 2080-IQ40B4 | | 2080-IQ40V4 | |
|--------------------------------|---|------------------------------|------------------------------|---|
| | | Min | Max | |
| Wire size | Solid | 0.2 mm ² (24 AWG) | 2.5 mm ² (14 AWG) | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Stranded | | | |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Specifications - Digital Relay Output Plug-in Module

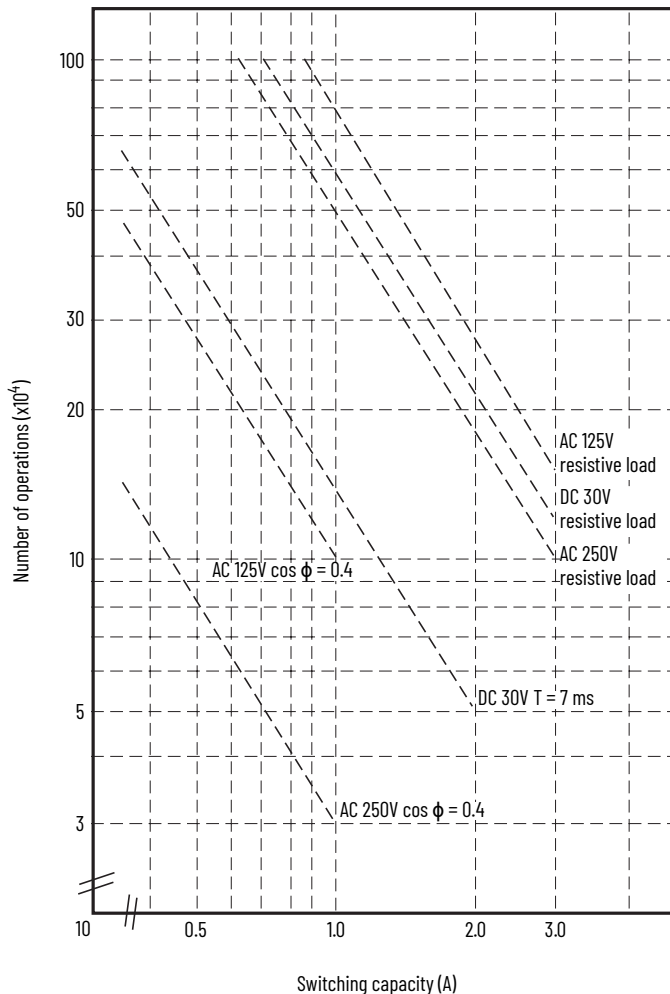
| Attribute | 2080-0W4I | | | |
|--|--|-------------------------------|-------------------------------|---|
| Number of outputs | 4-channel relay | | | |
| Inrush current | <120 mA @ 3.3V <120 mA @ 24V | | | |
| Backplane power | 3.3V DC, 38 mA | | | |
| Output current, resistive | 2 A @ 5...30V DC 2 A @ 125V AC 2 A @ 240V AC | | | |
| Output current, inductive | 1.0 A steady state @ 5...28V DC 0.93 A steady state @ 30V DC 2.0 A steady state, 15 A make @ 125V AC, PF - cos θ = 0.4 2.0 A steady state, 7.5 A make @ 240V AC, PF - cos θ = 0.4 | | | |
| Output power, resistive, max | 250VA for 125V AC resistive loads 480VA for 240V AC resistive loads 60VA for 30V DC resistive loads | | | |
| Output power, inductive break, max | 180VA for 125V AC inductive loads 180VA for 240V AC inductive loads 28VA for 28.8V DC inductive loads | | | |
| Minimum load, per point | 10 mA | | | |
| Initial contact resistance of relay, max | 30 mΩ | | | |
| Output delay time, max Off to On On to Off | 10 ms | | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | | |
| Status indicators | Channel status - 8 yellow | | | |
| Terminal base screw torque, max | 0.19 N•m (1.7 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Wire size | | Min | Max | |
| | Solid | 0.05 mm ² (30 AWG) | 1.31 mm ² (16 AWG) | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| Wiring category ⁽¹⁾ | 2 - on signal ports 2 - on power ports | | | |
| Wire type | Copper | | | |
| Insulation-stripping length | 5 mm | | | |
| Pilot duty rating | C300, R150 | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Relay Contacts Ratings (0.35 power factor) - 2080-0W4I

| Maximum Volts | Amperes | | Amperes Continuous | Volt-Amperes | |
|---------------|---------|--------|--------------------|--------------|--------|
| | Make | Break | | Make | Break |
| 120V AC | 15 A | 1.5 A | 2.0 A | 1800V A | 180V A |
| 240V AC | 7.5 A | 0.75 A | | | |
| 24V DC | 1.0 A | | 1.0 A | 28V A | |
| 125V DC | 0.22 A | | | | |

Relay Life Chart for 2080-0W4I



Analog Plug-in Modules

Analog Plug-in Modules

| I/O Type | Catalog Number | Description | Page |
|----------|---------------------|--|------|
| Input | 2080-IF2, 2080-IF2K | 2-channel non-isolated unipolar voltage/current analog input module | 45 |
| | 2080-IF4 | 4-channel non-isolated unipolar voltage/current analog input module | |
| Output | 2080-OF2 | 2-channel non-isolated unipolar voltage/current analog output module | 45 |

Environmental specifications and certifications for Micro800 plug-in modules are provided on page [51](#).

Specifications - Analog Input Plug-in Modules

| Attribute | 2080-IF2, 2080-IF2K | 2080-IF4 | | |
|---|--|-------------------------------|------------------------------|--|
| Number of inputs | 2 unipolar non-isolated | 4 unipolar non-isolated | | |
| Voltage range | 0...10V DC | | | |
| Current range | 0...20 mA | | | |
| Input impedance Voltage mode Current mode | >100 kΩ 250 Ω | | | |
| Resolution, max | 12 bits unipolar, with software selected option for 50 Hz, 60 Hz, 250 Hz, 500 Hz | | | |
| Data range | 0...65535 | | | |
| Overall accuracy ⁽¹⁾ Voltage terminal Current terminal | ±1% full scale @ 25 °C (77 °F) ±1% full scale @ 25 °C (77 °F) | | | |
| Non-linearity (in percent full scale) | ±0.1% | | | |
| Repeatability ⁽²⁾ | ±0.1% | | | |
| Module error over full temperature range Voltage Current | -20...+65 °C (-4...+149 °F) ±1.5% ±2.0% | | | |
| Input channel configuration | Through configuration software or the user program | | | |
| Field input calibration | Not required | | | |
| Update time | 180 ms per enabled channel | | | |
| Input group to bus isolation | None | | | |
| Channel to channel isolation | None | | | |
| Power consumption | <60 mA @ 3.3V | | | |
| Operating altitude | 2000 m | | | |
| Cable length, max | 10 m | | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| | Stranded | 0.14 mm ² (26 AWG) | 1.0 mm ² (17 AWG) | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Includes offset, gain, non-linearity, and repeatability error terms.

(2) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.

Specifications - Analog Output Plug-in Module

| Attribute | 2080-OF2 |
|--|-------------------------|
| Number of outputs | 2 unipolar non-isolated |
| Voltage range | 0...10V DC |
| Current range | 0...20 mA |
| Resolution, max | 12 bits unipolar |
| Output count range | 0...65535 |
| D/A Conversion Rate (all channels), max | 2.5 ms |
| Step Response to 63% ⁽¹⁾ | 5 ms |
| Current load in voltage output, max | 10 mA |
| Voltage resistive load, min | 1 kΩ |
| Current resistive load | 500 Ω |
| Inductive load (current outputs), max | 0.01 mH |

Specifications - Analog Output Plug-in Module (Continued)

| Attribute | 2080-OF2 | | | |
|---|--|-------------------------------|------------------------------|---|
| Capacitive load (voltage outputs), max | 0.1 μ F | | | |
| Overall accuracy ⁽²⁾ Voltage terminal Current terminal | \pm 1% full scale @ 25 °C (77 °F) \pm 1% full scale @ 25 °C (77 °F) | | | |
| Non-linearity (in percent full scale) | \pm 0.1% | | | |
| Repeatability ⁽³⁾ | \pm 0.1% | | | |
| Output error over full temperature range Voltage Current | -20...+65 °C (-4...+149 °F) \pm 1.5% \pm 2.0% | | | |
| Open and short-circuit protection | Yes | | | |
| Output overvoltage protection | Yes | | | |
| Input group to bus isolation | None | | | |
| Channel to channel isolation | None | | | |
| Power consumption | <60 mA @ 24V | | | |
| Operating altitude | 2000 m | | | |
| Cable length, max | 10 m | | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| | Stranded | 0.14 mm ² (26 AWG) | 1.0 mm ² (17 AWG) | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

(1) Step response is the period of time between when the D/A converter was instructed to go from minimum to full range until the device is at 63% of full range.

(2) Includes offset, gain, non-linearity, and repeatability error terms.

(3) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.

Specialty Plug-in Modules

Specialty Plug-in Modules

| I/O Type | Catalog Number | Description | Page |
|-------------------------------------|------------------|--|------|
| RTD input | 2080-RTD2 | 2-channel non-isolated RTD module | 46 |
| Thermocouple input | 2080-TC2 | 2-channel non-isolated thermocouple module | |
| Memory backup and high accuracy RTC | 2080-MEMBAK-RTC | Memory backup and high accuracy RTC, 1 MB | 47 |
| | 2080-MEMBAK-RTC2 | Memory backup and high accuracy RTC, 4 MB | |
| Trimpot input | 2080-TRIMPOT6 | 6-channel trimpot analog input module | 47 |
| High-speed counter | 2080-MOT-HSC | High-speed counter module | 48 |

Environmental specifications and certifications for Micro800 plug-in modules are provided on page 51.

Specifications - Analog RTD and Thermocouple Input Plug-in Modules

| Attribute | 2080-RTD2 | 2080-TC2 |
|-----------------------------|--|---|
| Number of inputs | 2-channel non-isolated RTD | 2-channel non-isolated Thermocouple |
| Input impedance | >300 K Ω | |
| Common mode rejection ratio | 100 dB @ 50/60Hz | |
| Normal mode rejection ratio | 70 dB @ 50/60 Hz | |
| Resolution | 14-bit | |
| CJC error | - | \pm 1.2 °C @ 25 °C (\pm 2.16 °F @ 77 °F) |
| Accuracy | \pm 1.0 °C @ 25 °C (\pm 1.8 °F @ 77 °F) | |

Specifications - Analog RTD and Thermocouple Input Plug-in Modules (Continued)

| Attribute | 2080-RTD2 | 2080-TC2 | | |
|------------------------------|--|-------------------------------|------------------------------|--|
| RTD types supported | 100 Ω Platinum 385, 200 Ω Platinum 385, 500 Ω Platinum 385, 1000 Ω Platinum 385, 100 Ω Platinum 392, 200 Ω Platinum 392, 500 Ω Platinum 392, 1000 Ω Platinum 392, 10 Ω Copper 427, 120 Ω Nickel 672, 604 Ω Nickel-Iron 518 | — | | |
| Thermocouple types supported | — | J, K, N, T, E, R, S, B | | |
| Open circuit detection time | 8...1212 ms | 8...1515 ms | | |
| Power consumption | 3.3V, 40 mA | | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| | Stranded | 0.14 mm ² (26 AWG) | 1.0 mm ² (17 AWG) | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

Specifications - Memory Backup and High Accuracy RTC Plug-in Modules

| Attribute | 2080-MEMBAK-RTC ⁽¹⁾ | 2080-MEMBAK-RTC2 ⁽²⁾ |
|--------------------------|--|---------------------------------|
| Resolution READ_RTC() | 1 s | |
| Accuracy | ± 5 sec/month @ 25 °C (77 °F) ± 9 sec/month @ -20...+65 °C (-4...+149 °F) | |
| Power off, battery | 3.5 years from date of manufacture @ 25...65 °C (77...149 °F) 2.5 years from date of manufacture @ 0 °C (32 °F) | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | |
| Operating altitude | 2000 m | |
| Enclosure type rating | None (open-style) | |
| North American temp code | T4 | |

(1) 2080-MEMBAK-RTC is not supported on Micro820, Micro850 (2080-L50E only), and Micro870 controllers.

(2) 2080-MEMBAK-RTC2 is not supported on Micro820 controllers.

IMPORTANT Battery life does not include controller ON time. For example, if the controller is ON for 16 hours every day for 365 days, and the module starts being used after 1 year of manufacturing, battery life is 8.5 years (1 year initial time + 2.5 years of Off time out of 7.5 years).

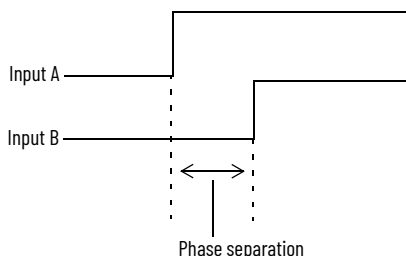
Specifications - Trimpot Analog Input Plug-in Module

| Attribute | 2080-TRIMPOT6 |
|-----------------------------------|------------------------------|
| Number of inputs | 6-channel trimpot |
| Data range | 0...255 |
| Mounting torque | 0.2 N•m (1.48 lb•in) |
| Operating altitude | 2000 m |
| Enclosure type rating | None (open-style) |
| North American temp code | T4 |
| Temperature, operating | -20...+65 °C (-4...+149 °F) |
| Temperature, surrounding air, max | 65 °C (149 °F) |
| Temperature, nonoperating | -40...+85 °C (-40...+185 °F) |

Specifications - High-speed Counter Plug-in Module

| Attribute | 2080-MOT-HSC | | | |
|---------------------------------------|---|-------------------------------|------------------------------|--|
| Number of I/O | 1 quadrature (ABZ) differential input, 16 (1 physical, 15 virtual) outputs | | | |
| Maximum count | 48 bits | | | |
| Input voltage range | 0...30V DC | | | |
| Input on-state voltage range | 2.6...30V DC | | | |
| Input off-state voltage, max | 1.0V DC | | | |
| Input current range | 2.0...9.0 mA | | | |
| Input on-state current, min | 2.0 mA | | | |
| Input off-state leakage current, max | 1.5 mA | | | |
| Input impedance, nom | 3580 Ω | | | |
| Input frequency, max | 250 kHz (50% duty) | | | |
| Pulse width, min | 2 μs | | | |
| Phase separation, min | 500 ns ⁽¹⁾ | | | |
| Output voltage range | 5...30V DC | | | |
| Output on-state current, max | 0.5 A | | | |
| Output on-state current, min | 1 mA | | | |
| Output on-state voltage drop, max | 0.5V DC | | | |
| Output off-state leakage current, max | 0.5 mA | | | |
| Turn-on time, max | 2 ms | | | |
| Turn-off time, max | 2 ms | | | |
| Reverse polarity protection | None | | | |
| Isolation voltage | Input module: 50V (continuous), Basic Insulation Type, Inputs/Outputs to Backplane Type tested for 60 s @ 720V DC, Inputs/Outputs to Backplane | | | |
| Dimensions (HxWxD), approx | 62 x 31.5 x 20 mm (2.44 x 1.24 x 0.79 in.) | | | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Bus current draw | 60 mA @ 3.3V DC | | | |
| Recommended cable | Individually shielded, twisted-pair cable (or the type recommended by the encoder or sensor manufacturer) | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| | Stranded | 0.14 mm ² (26 AWG) | 1.0 mm ² (17 AWG) | |
| Wiring category ⁽²⁾ | 2 - on signal ports | | | |
| Enclosure type rating | None (open-style) | | | |
| North American temp code | T4 | | | |

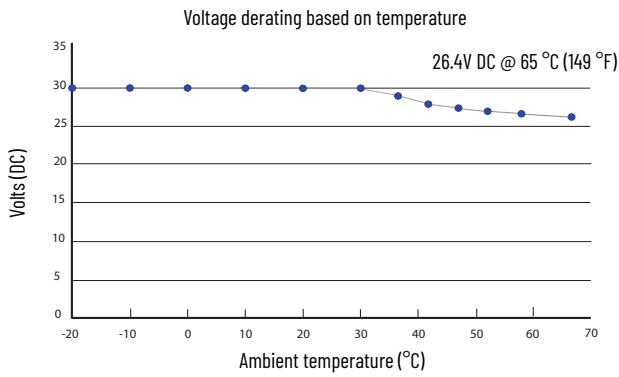
(1) Phase separation is the recognition of phase time of A input and B input.



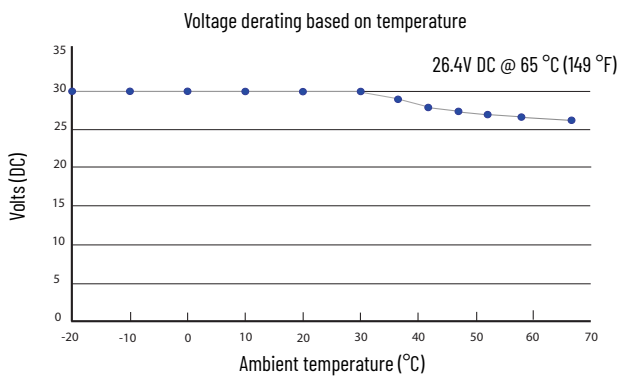
(2) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Temperature Derating for 2080-MOT-HSC

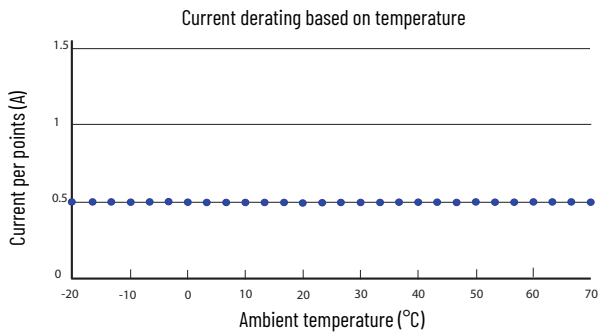
Maximum Input Voltage - 24V DC Operation



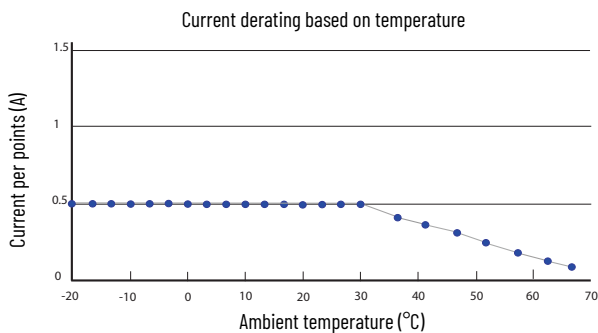
Maximum Output Voltage - 24V DC Operation



Maximum Output Current per Point - 5V DC Operation



Maximum Output Current per Point - 24V DC Operation



Communication Plug-in Modules

Communication Plug-in Modules

| Communication Type | Catalog Number | Description | Page |
|--------------------|-----------------|---|------|
| DeviceNet | 2080-DNET20 | 20-node DeviceNet® scanner module | 50 |
| Serial Port | 2080-SERIALISOL | RS-232/RS-485 isolated serial port module | 50 |

Environmental specifications and certifications for Micro800 plug-in modules are provided on page [51](#).

Specifications - DeviceNet Scanner Plug-in Module

| Attribute | 2080-DNET20 | | |
|-----------------------------------|---|-------------------------------|------------------------------|
| Number of nodes, max | 20 nodes for I/O operation | | |
| DeviceNet communication rate, max | 125 Kbps – 420 m (1378 ft) 250 Kbps – 200 m (656 ft) 500 Kbps – 75 m (246 ft) | | |
| DeviceNet current | 24V DC, 300 mA Class 2 | | |
| Network protocol | I/O slave messaging: Poll Command | | |
| Backplane power consumption | 50 mA @ 24V DC | | |
| Power dissipation, max | 1.44 W | | |
| Isolation voltage | 50V (continuous) Type tested for 60 s @ 500V AC between backplane and DeviceNet | | |
| Wire size | | Min | Max |
| | Solid | 0.25 mm ² (24 AWG) | 2.5 mm ² (14 AWG) |
| | Stranded | | |
| | Rated @ 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max | | |
| Wire type | Copper | | |
| Wiring category ⁽¹⁾ | 1 – on power ports 2 – on communication ports | | |
| Status indicators | Module status – red/green Network status – red/green | | |
| Preferred power supply | 1606-XLSDNET4 | | |
| Mounting torque | 0.2 N•m (1.48 lb•in) | | |
| Terminal screw torque | 0.5...0.6 N•m (4.4...5.3 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | |
| Dimensions (HxWxD), approx | 62 x 31.5 x 20 mm (2.44 x 1.24 x 0.78 in.) | | |
| Weight, approx | 35 g (1.23 oz.) | | |
| Enclosure type rating | None (open-style) | | |
| North American temp code | T4 | | |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Specifications - RS-232/RS-485 Isolated Serial Port Plug-in Module

| Attribute | 2080-SERIALISOL | | |
|--------------------------|---|-------------------------------|------------------------------|
| Mounting torque | 0.2 N•m (1.48 lb•in) | | |
| Terminal screw torque | 0.22...0.25 N•m (1.95...2.21 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | |
| Wire size | | Min | Max |
| | Solid | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) |
| | Stranded | | |
| | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max | | |
| Isolation voltage | 500V AC | | |
| Enclosure type rating | None (open-type) | | |
| North American temp code | T4 | | |

Environmental Specifications

Environmental Specifications – Micro800 Plug-in Modules

| Attributes | Value |
|-----------------------------------|---|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+65 °C (-4...+149 °F) |
| Temperature, surrounding air, max | 65 °C (149 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g – DIN rail mount 35 g – Panel mount |
| Emissions | IEC 61000-6-4 |
| ESD immunity | IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3: 10 V/M with 1 kHz sine-wave 80%AM from 80...6000 MHz |
| EFT/B immunity | IEC 61000-4-4: ±2 kV @ 5 kHz on signal ports ±2 kV @ 5 kHz on shielded ports – 2080-RTD2, 2080-TC2 only For 2080-DNET20, 2080-SERIALISOL only: ±4 kV @ 5 kHz on power ports – 2080-DNET20 only ±2 kV @ 5 kHz on communication ports |
| Surge transient immunity | IEC 61000-4-5: For 2080-IQ4, 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-OW4I only: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports For 2080-IF2, 2080-IF2K, 2080-IF4, 2080-OF2, 2080-RTD2, 2080-TC2, 2080-MOT-HSC only: ±2 kV line-earth(CM) on shielded ports For 2080-DNET20, 2080-SERIALISOL only: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports – 2080-DNET20 only ±2 kV line-earth(CM) on communication ports |
| Conducted RF immunity | IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80%AM from 150 kHz...80 MHz |

Certifications

Certifications – Micro800 Plug-in Modules

| Certification (when product is marked) ⁽¹⁾ | Value |
|--|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 1 ^{er} muharram 1437 – 2080-0W4I only Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2016 No. 1101 – Electrical Equipment (Safety) Regulations – 2080-0W4I only 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |
| DeviceNet | ODVA conformance tested to DeviceNet specifications – 2080-DNET20 only |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

Micro800 Accessories

Micro800 Accessories

| Accessory | Catalog Number | Description | Page |
|-----------------------------|---------------------|--|------|
| LCD display | 2080-LCD | 1.5" LCD display and keypad module for Micro810 controllers | 53 |
| USB adapter | 2080-USBADAPTER | USB adapter for Micro810 controllers | 54 |
| Remote LCD display | 2080-REMLCD | Remote LCD display for Micro820 controllers | 54 |
| External power supply | 2080-PS120-240VAC | External AC power supply | 56 |
| | 2080-PSAC-12W | | |
| Memory card | 2080-SD-2GB | 2 GB microSD card for Micro800 controllers | 57 |
| Embedded serial port cables | See selection table | Embedded serial port cables for Micro830, Micro850, and Micro870 controllers | 58 |

LCD Display

For Micro810 controllers only.

General and Environmental Specifications - LCD Display

| Attribute | 2080-LCD |
|-----------------------------------|--|
| North American temp code | T5 |
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+55 °C (-4...+131 °F) |
| Temperature, surrounding air, max | 55 °C (131 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) |

Certifications - LCD Display

| Certification (when product is marked) ⁽¹⁾ | Value |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2011/65/EU RoHS, compliant with: EN 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

USB Adapter

For Micro810 controllers only.

General and Environmental Specifications - USB Adapter

| Attribute | 2080-USBADAPTER |
|-----------------------------------|------------------------------|
| USB cable connector type | USB type A-B male-male |
| North American temp code | T5 |
| Temperature, operating | -20...+55 °C (-4...+131 °F) |
| Temperature, surrounding air, max | 55 °C (131 °F) |
| Temperature, nonoperating | -40...+85 °C (-40...+185 °F) |

Certifications - USB Adapter

| Certification (when product is marked) ⁽¹⁾ | 2080-USBADAPTER |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

Remote LCD Display

For Micro820 controllers only.

Specifications - Remote LCD Display

| Attribute | 2080-REMLCD | | | |
|---------------------------|---|-------------------------------|-------------------------------|--|
| Dimensions (HxWxD) | 97 x 130 x 35.5 mm (3.82 x 5.12 x 1.40 in.) | | | |
| Display type | 192 x 64 pixel monochrome | | | |
| Display size | 48 x 106.5 mm (1.89 x 4.19 in.) | | | |
| Backlight | 25,000 hrs @ 25 °C (77 °F) LED; tricolor backlight (RGB) | | | |
| Operator input | Tactile keys (function keys, arrow keys, ESC, and OK keys) | | | |
| Programming port | USB to serial converter for programming the controller | | | |
| Input supply voltage | 12V/24V DC (±10%) | | | |
| Input supply current, max | 90 mA @ 12V 60 mA @ 24V | | | |
| Power consumption, max | 1.5 W | | | |
| Weight, approx. | 405 g (0.89 lb) - includes packaging weight | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Single-wire gauge | 0.14 mm ² (26 AWG) | 1.5 mm ² (16 AWG) | |
| | Dual-wire gauge | 0.14 mm ² (26 AWG) | 0.75 mm ² (18 AWG) | |
| Wire type | Copper | | | |

Specifications - Remote LCD Display (Continued)

| Attribute | 2080-REMLCD |
|--------------------------------|--|
| Wiring category ⁽¹⁾ | 3 - on power port 3 - on communication port |
| Enclosure type ratings | Meets IP65 (when front panel mounted) |
| North American temp code | T4 |

(1) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications - Remote LCD Display

| Attribute | 2080-REMLCD |
|-----------------------------------|--|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+50 °C (-4...+122 °F) |
| Temperature, surrounding air, max | 50 °C (122 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -30...+80 °C (-22...+176 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 12...500 Hz |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g - DIN rail mount 45 g - Panel mount |
| Emissions | IEC 61000-6-4 |
| ESD immunity | IEC 61000-4-2: 4 kV contact discharges 8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz |

Certifications - Remote LCD Display

| Certification (when product is marked) ⁽¹⁾ | 2080-REMLCD |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 - Electromagnetic Compatibility Regulations 2012 No. 3032 - Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

External Power Supply

Specifications - External Power Supply

| Attribute | 2080-PS120-240VAC | 2080-PSAC-12W | | |
|--|--|--|------------------------------|--|
| Dimensions (HxWxD) | 90 x 45 x 80 mm (3.55 x 1.78 x 3.15 in.) | 90 x 39 x 75 mm (3.54 x 1.54 x 2.95 in.) | | |
| Shipping weight, approx | 0.34 kg (0.75 lb) | 0.2 kg (0.44 lb) | | |
| Supply voltage range ⁽¹⁾ | 100...120V AC, 1 A 200...240V AC, 0.5 A | 100...120V AC, 0.7 A 200...240V AC, 0.4 A | | |
| Supply frequency | 47...63 Hz | | | |
| Supply power | 24V DC, 1.6 A | 24V DC, 0.9 A @ 50 °C (122 °F) 24V DC, 0.5 A @ 65 °C (149 °F) | | |
| Inrush current, max | 24 A @ 132V for 10 ms 40 A @ 263V for 10 ms | 25 A @ 132V for 10 ms 40 A @ 265V for 10 ms | | |
| Line loss ride-through | — | 10...3000 ms @ 88V AC | | |
| Power consumption ⁽²⁾ (Output power) | 38.4 W @ 100V AC 38.4 W @ 240V AC | 21.6 W @ 50 °C (122 °F) 12 W @ 65 °C (149 °F) | | |
| Power dissipation (Input power) | 45.1 W @ 100V AC 44.0 W @ 240V AC | 27 W (115V AC), 26.7 W (230V AC) @ 50 °C (122 °F) 15.4 W (115V AC), 15.2 W (230V AC) @ 65 °C (149 °F) | | |
| Isolation voltage | 250V (continuous), Primary to Secondary: Reinforced Insulation Type. Type tested for 60 s @ 3000V AC primary to secondary and 1500V AC primary to earth ground. | 250V (continuous), Primary to Secondary: Reinforced Insulation Type. Type tested for 60 s @ 2300V AC primary to secondary and 1350V AC primary to earth ground. | | |
| Output ratings, max | 24V DC, 1.6 A, 38.4 W | 24V, 0.9 A, 21.6 W @ 50 °C (122 °F) 24V, 0.5 A, 12 W @ 65 °C (149 °F) | | |
| Enclosure type rating | None (open-style) | | | |
| Wire size | | Min | Max | Rated @ 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| | Solid | 0.32 mm ² (22 AWG) | 2.1 mm ² (14 AWG) | |
| | Stranded | 0.32 mm ² (22 AWG) | 1.3 mm ² (16 AWG) | |
| Wire type | Copper | | | |
| Terminal screw torque | 0.5...0.6 N•m (4.4...5.3 lb•in) using a 2.5 mm (0.10 in.) screwdriver | | | |
| Wiring category ⁽³⁾ | 2 - on power ports | | | |
| Insulation-stripping length | 7 mm (0.28 in.) | 5 mm (0.197 in.) | | |
| North American temp code | T4A | T4 | | |

(1) Any fluctuation in voltage source must be within 85...264V. Do not connect the adapter to a power source that has fluctuations outside of this range.

(2) When setting up a Micro800 system, verify that total power consumption of the controller, plug-in, and expansion I/O does not exceed the output power capacity of the power supply used.

(3) Use this Conductor Category information for planning conductor routing. See publication [1770-4.1](#), Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications - Micro800 External AC Power Supply

| Attribute | 2080-PS120-240VAC | 2080-PSAC-12W |
|-----------------------------------|--|--|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+65 °C (-4...+149 °F) | |
| Temperature, surrounding air, max | 65 °C (149 °F) | |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F) | |
| Relative humidity | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing | |
| Vibration | IEC 60068-2-6 (Test Fc, Operating): 2 g @ 12...500 Hz | |
| Shock, operating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g |
| Shock, nonoperating | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g | IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g - DIN rail mount 45 g - Panel mount |
| Emissions | IEC 61000-6-4 | |

Environmental Specifications – Micro800 External AC Power Supply (Continued)

| Attribute | 2080-PS120-240VAC | 2080-PSAC-12W |
|--------------------------|--|---|
| ESD immunity | IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges | |
| Radiated RF immunity | IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz | |
| EFT/B immunity | IEC 61000-4-4: ±2 kV @ 5 kHz on power ports | |
| Surge transient immunity | IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports | |
| Conducted RF immunity | IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz | |
| Voltage variation | IEC 61000-4-11: 30% dips for 1 period at 0° and 180° on AC supply ports 60% dips for 5 and 50 periods on AC supply ports ±10% fluctuations for 15 min on AC supply ports >95% interruptions for 250 periods on AC supply ports | IEC 61000-4-11: 30% dips for 25 cycles 60% dips for 10 cycles 100% dips for 0.5 and 1 cycle >95% interruptions for 250 cycles |

Certifications – Micro800 External AC Power Supply

| Certification (when product is marked) ⁽¹⁾ | Value |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470 |
| CE | European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical Documentation |
| RCM | Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437 Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations 2016 No. 1101 – Electrical Equipment (Safety) Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

MicroSD Card

The 2080-SD-2GB microSD card provides 2 GB of storage capacity for project backup and restore, data logging, and recipes.

Embedded Serial Port Cables

For Micro830, Micro850, and Micro870 controllers.

Embedded Serial Port Cable Selection Chart

| Connectors | Length | Cat. No. | Connectors | Length | Cat. No. |
|--|----------------|------------------------------|--|------------------|------------------------------|
| 8-pin Mini DIN to 8-pin Mini DIN | 0.5 m (1.5 ft) | 1761-CBL-AM00 ⁽¹⁾ | 8-pin Mini DIN to 9-pin D-shell | 0.5 m (1.5 ft) | 1761-CBL-AP00 ⁽¹⁾ |
| 8-pin Mini DIN to 8-pin Mini DIN | 2 m (6.5 ft) | 1761-CBL-HM02 ⁽¹⁾ | 8-pin Mini DIN to 9-pin D-shell | 2 m (6.5 ft) | 1761-CBL-PM02 ⁽¹⁾ |
| 8-pin Mini DIN to 8-pin Mini DIN (with lock mechanism on both connectors) | 2 m (6.5 ft) | 1761-CBL-AH02 | 8-pin Mini DIN with lock mechanism to 9-pin D-shell | 2 m (6.5 ft) | 1761-CBL-PH02 |
| — | — | — | 8-pin Mini DIN to 6-pin RS-485 terminal block | 30 cm (11.8 in.) | 1763-NC01 series A |

(1) Series C or later for Class I Div 2 applications.

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 Controller Family Selection Guide, publication 2080-SG001 | Provides information to help you select the Micro800 controller, plug-ins, expansion I/O, and accessories, based on your requirements. |
| 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-OV16, 2085-OB16). |
| 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-OW8, 2085-OW16). |
| 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-OA8). |
| 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-OF4). |
| 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. |

Additional Resources (Continued)

| Resource | Description |
|---|---|
| Micro800 Digital Input, Output, and Combination Plug-in Modules Wiring Diagrams, publication 2080-WD01 | 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-OS001 | 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-OS002 | Provides quick start instructions for using CIP GENERIC and CIP Symbolic Messaging. |
| Micro800 Programmable Controllers: Getting Started with PanelView Plus, publication 2080-OS003 | 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-OS005 | Provides quick start instructions for configuring a Micro800 controller on FactoryTalk® Linx Gateway. |
| Kinetix 3 Motion Control Indexing Application Connected Components Accel Toolkit, publication CC-OS025 | Provides quick start instructions for implementing a Kinetix® 3 drive indexing application using Connected Components Workbench software and a Micro800 controller. |
| Motion Control PTO Application Building Block, publication CC-OS033 | Provides quick start instructions for implementing PTO motion control of a Kinetix 3 drive using Connected Components Workbench software and a Micro800 controller. |
| 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. |
| 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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Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752, İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

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AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

UNITED KINGDOM: Rockwell Automation Ltd. Pitfield, Kiln Farm Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800, Fax: (44)(1908) 261-917

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