

# Micro870 24-point Programmable Controllers

Catalog Numbers 2080-LC70-24QWB, 2080-LC70-24QWBK, 2080-LC70-24QBB, 2080-LC70-24QBBK

Catalog numbers with the suffix 'K' are conformal coated and their specifications are the same as non-conformal coated catalogs.

<http://rockwellautomation.com/literature>

|   |  |
|---|--|
| <b>FR</b> Cette publication est disponible en français sous forme électronique (fichier PDF). Pour la télécharger, rendez-vous sur la page Internet indiquée ci-dessus. | <b>PT</b> Esta publicação está disponível em português como PDF. Vá ao endereço web que aparece acima para encontrar e fazer download da publicação. |
| <b>IT</b> Questa pubblicazione è disponibile in Italiano in formato PDF. Per scaricarla collegarsi al sito Web indicato sopra.  | <b>ZH</b> 本出版物备有中文PDF格式文件，可从上面的网址找到并下载本出版物。  |
| <b>DE</b> Diese Publikation ist als PDF auf Deutsch verfügbar. Gehen Sie auf die oben genannte Web-Adresse, um nach der Publikation zu suchen und sie herunterzuladen.  | <b>ZC</b> 本出版物備有中文PDF檔，可由上列網址下載。   |
| <b>ES</b> Esta publicación está disponible en español como PDF. Diríjase a la dirección web indicada arriba para buscar y descarga esta publicación.                    | <b>KO</b> 큰 간행물은 한글판 PDF 파일로 준비되어 있습니다. 위에 있는 웹사이트에 가서서 간행물을 다운로드 하십시오.  |

## Table of Contents

| Topic                      | Page |
|----------------------------|------|
| Important User Information | 2    |
| Additional Resources       | 6    |
| Overview                   | 7    |
| Controller Description     | 8    |
| Status Indicators          | 8    |
| Mount the Module           | 8    |
| Wire the Controller        | 12   |
| Specifications             | 14   |

## Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://rockwellautomation.com/literature>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc., is prohibited.

Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

|   |  |
|---|--|
|  | <p><b>WARNING:</b> Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.</p>                                |
|  | <p><b>ATTENTION:</b> Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.</p> |
|  | <p><b>SHOCK HAZARD:</b> Labels may be on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.</p>  |
|  | <p><b>BURN HAZARD:</b> Labels may be on or inside the equipment (for example, drive or motor) to alert people that surfaces may reach dangerous temperatures.</p>  |
| <p><b>IMPORTANT</b></p>   | <p><b>IMPORTANT:</b> Identifies information that is critical for successful application and understanding of the product.</p>  |

---

## Environment and Enclosure

---



**ATTENTION:** This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating. This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be difficulties with electromagnetic compatibility in residential and other environments due to conducted and radiated disturbances.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, Rockwell Automation publication [1770-4.1](#), for additional installation requirements.
- NEMA Standard 250 and IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

---

## Preventing Electrostatic Discharge

---





**ATTENTION:** This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
  - Wear an approved grounding wriststrap.
  - Do not touch connectors or pins on component boards.
  - Do not touch circuit components inside the equipment.
  - Use a static-safe workstation, if available.
  - Store the equipment in appropriate static-safe packaging when not in use.
-

## North American Hazardous Location Approval

The following modules are North American Hazardous Location approved:  
2080-LC70-24QWB, 2080-LC70-24QWBK, 2080-LC70-24QBB, 2080-LC70-24QBBK

| <b>The following information applies when operating this equipment in hazardous locations:</b>  | <b>Informations sur l'utilisation de cet équipement en environnements dangereux:</b>   |
|---|--|
| <p>Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>  | <p>Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>  |
| <div style="display: flex; align-items: center;">  <div> <p><b>WARNING: EXPLOSION HAZARD</b></p> <ul style="list-style-type: none"> <li>• Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.</li> <li>• Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.</li> <li>• Substitution of any component may impair suitability for Class I, Division 2.</li> <li>• If this product contains batteries, they must only be changed in an area known to be nonhazardous.</li> </ul> </div> </div> | <div style="display: flex; align-items: center;">  <div> <p><b>AVERTISSEMENT: RISQUE D'EXPLOSION</b></p> <ul style="list-style-type: none"> <li>• Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.</li> <li>• Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit.</li> <li>• La substitution de tout composant peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.</li> <li>• S'assurer que l'environnement est classé non dangereux avant de changer les piles.</li> </ul> </div> </div> |

**WARNING:**

- If you connect or disconnect the serial cable with power applied to this module or the serial device on the other end of the cable, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
- If you connect or disconnect the Ethernet communications cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
- When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.
- The local programming terminal port is intended for temporary use only and must not be connected or disconnected unless the area is assured to be nonhazardous.
- The USB port is intended for temporary local programming purposes only and not intended for permanent connection. If you connect or disconnect the USB cable with power applied to this module or any device on the USB network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.  
The USB port is a nonincendive field wiring connection for Class I, Division2 Groups A, B, C and D.
- Exposure to some chemicals may degrade the sealing properties of materials used in the Relays. It is recommended that the User periodically inspect these devices for any degradation of properties and replace the module if degradation is found.
- If you insert or remove the plug-in module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.  
Refer to the Wiring Diagram for each plug-in module for additional details regarding removal or insertion under power
- When you connect or disconnect the Removable Terminal Block (RTB) with field side power applied, an electrical arc can occur. This could cause an explosion in hazardous location installations.  
Be sure that power is removed or the area is nonhazardous before proceeding.
- When you change switch settings while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.  
Be sure that power is removed or the area is nonhazardous before proceeding.



**WARNING:**

- The USB and serial cables are not to exceed 3.0 m (9.84 ft).
- Do not wire more than 2 conductors on any single terminal.
- Do not remove the Removable Terminal Block (RTB) until power is removed.



**ATTENTION:**

- To comply with the CE Low Voltage Directive (LVD), this equipment must be powered from a source compliant with the following: Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).
- To comply with UL restrictions, this equipment must be powered from a Class 2 or Limited Voltage Limited Current Source (LVLC).
- For Class I Division 2 applications, use only Class I Division 2 listed or recognized accessories and modules approved for use within the Micro800 platform.



**ATTENTION:**

- Electrostatic discharge can damage semiconductor devices inside the module. Do not touch the connector pins or other sensitive areas.
- Do not remove the protective debris strips until after the controller and all other equipment in the panel near the module are mounted and wired. Remove strips before operating the controller. Failure to remove strips before operating can cause overheating.
- Be careful when stripping wires. Wire fragments that fall into the controller could cause damage. Once wiring is complete, make sure the controller is free of all metal fragments.

## Additional Resources

| Resource  | Description   |
|---|---|
| Micro830, Micro850, and Micro870 Programmable Controllers User Manual, publication <a href="#">2080-UM002</a>                     | A more detailed description of how to install and use your Micro830, Micro850, and Micro870 programmable controllers. |
| Micro870 Programmable Controllers 24V DC Expansion Power Supply Installation Instructions, publication <a href="#">2085-IN008</a> | Information on wiring and installing the 24V DC expansion power supply.   |
| Micro800 Plug-in Modules User Manual, publication <a href="#">2080-UM004</a>  | Installation, wiring descriptions, and specifications for the Micro800 plug-in modules.                               |
| Micro850 Expansion I/O Modules User Manual, publication <a href="#">2080-UM003</a>  | Installation, wiring descriptions, and specifications for the Micro850 expansion I/O modules.                         |
| Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>                                       | More information on proper wiring and grounding techniques.   |

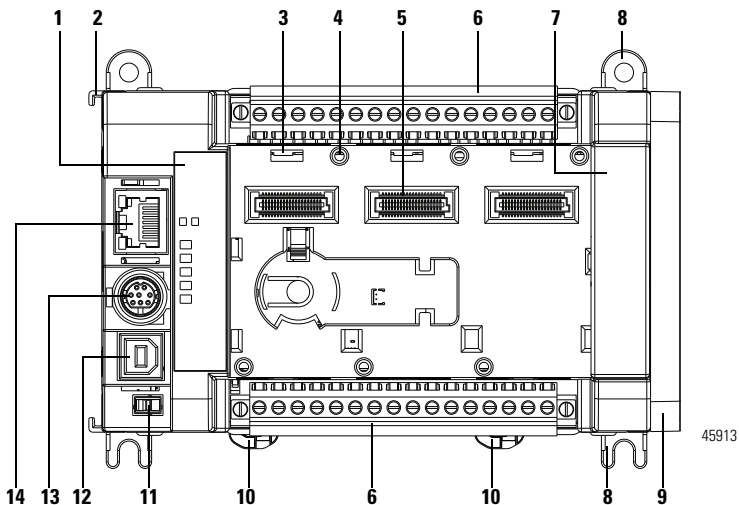
If you would like a manual, you can:

- download a free electronic version from the Internet:  
<http://rockwellautomation.com/literature>
- purchase a printed manual by contacting your local Allen-Bradley distributor or Rockwell Automation representative

## Overview

The Micro870™ 24-point controller is an expandable brick style controller with embedded inputs and outputs. It can support up to three plug-in modules and up to eight Micro800® expansion I/O. It supports any 24V DC output power supply that meets the minimum specifications for the Micro870 controller. For systems with more than four Micro800 expansion I/O, an expansion power module 2085-EP24VDC is required.

### Controller Overview

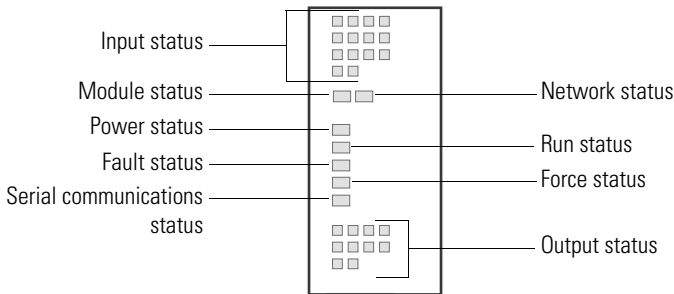


### Controller Description

|   | Description                         |    | Description  |
|---|-------------------------------------|----|--|
| 1 | Status indicators                   | 8  | Mounting screw hole / mounting foot                                      |
| 2 | Optional power supply slot          | 9  | Expansion I/O slot cover <sup>(1)</sup>                                  |
| 3 | Plug-in latch                       | 10 | DIN rail mounting latch  |
| 4 | Plug-in screw hole                  | 11 | Mode switch  |
| 5 | 40 pin high speed plug-in connector | 12 | Type B connector USB port  |
| 6 | Removable I/O terminal block        | 13 | RS232/RS485 non-isolated combo serial port                               |
| 7 | Right-side cover                    | 14 | RJ-45 Ethernet connector (with embedded green and yellow LED indicators) |

<sup>(1)</sup> For use when the controller does not have an expansion I/O module attached to it.

### Status Indicators



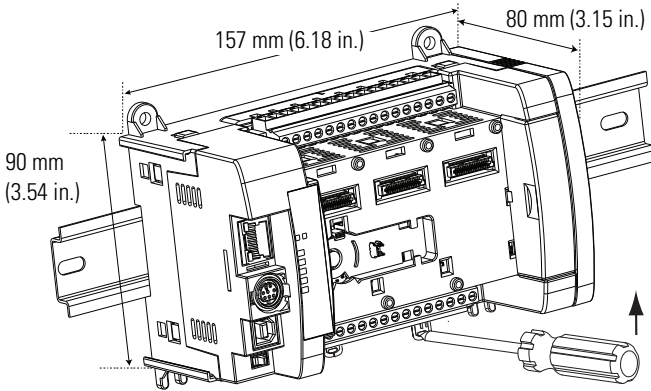
45910

## Mount the Module

Most applications require installation in an industrial enclosure to reduce the effects of electrical interference and environmental exposure. Locate your controller as far as possible from power lines, load lines, and other sources of electrical noise such as hard-contact switches, relays, and AC motor drives. For more information on proper grounding guidelines, see the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).



## Mounting Dimensions and DIN Rail Mounting



Mounting dimensions do not include mounting feet or DIN rail latches.

## Module Spacing

Maintain spacing from objects such as enclosure walls, wireways, and adjacent equipment. Allow 50.8 mm (2.0 in.) of space on all sides for adequate ventilation. If optional accessories/modules are attached such as the power supply 2080-PS120-240VAC or expansion I/O modules, make sure that there is 50.8 mm (2 in.) of space on all sides after attaching the optional parts.

## DIN Rail Mounting

The module can be mounted using the following DIN rails: 35 x 7.5 mm x 1 mm (EN 50 022 - 35 x 7.5).

**TIP** For environments with greater vibration and shock concerns, use the panel mounting method, instead of DIN rail mounting.

Before mounting the module on a DIN rail, use a flat-blade screwdriver in the DIN rail latch and pry it downwards until it is in the unlatched position.

1. Hook the top of the DIN rail mounting area of the controller onto the DIN rail, and then press the bottom until the controller snaps onto the DIN rail.
2. Push the DIN rail latch back into the latched position. Use DIN rail end anchors (Allen-Bradley part number 1492-EA35 or 1492-EAHJ35) for vibration or shock environments.

To remove your controller from the DIN rail, pry the DIN rail latch downwards until it is in the unlatched position.

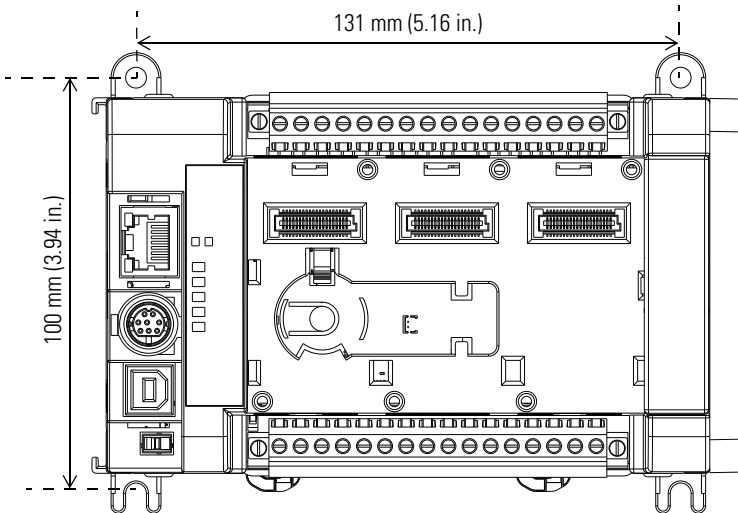
## Panel Mounting

The preferred mounting method is to use four M4 (#8) screws per module. Hole spacing tolerance:  $\pm 0.4$  mm (0.016 in.).

Follow these steps to install your controller using mounting screws.

1. Place the controller against the panel where you are mounting it. Make sure the controller is spaced properly.
2. Mark drilling holes through the mounting screw holes and mounting feet then remove the controller.
3. Drill the holes at the markings, then replace the controller and mount it. Leave the protective debris strip in place until you have finished wiring any other devices.

## Panel Mounting Dimensions



45913

## Use Surge Suppressors

Because of the potentially high current surges that occur when switching inductive load devices, such as motor starters and solenoids, we recommend the use of some type of surge suppression to protect and extend the operating life of the controllers output contacts. Switching inductive loads without surge suppression can *significantly* reduce the life expectancy of relay contacts. By adding a suppression device directly across the coil of an inductive device, you prolong the life of the output or relay contacts. You also reduce the effects of voltage transients and electrical noise from radiating into adjacent systems.

Refer to the Micro830<sup>®</sup>, Micro850<sup>®</sup>, and Micro870 Programmable Controllers User Manual, publication [2080-UM002](#), for suitable surge suppression methods and recommended surge suppressors.

## Expansion I/O, Expansion Power Supply, and Plug-in Module Installation

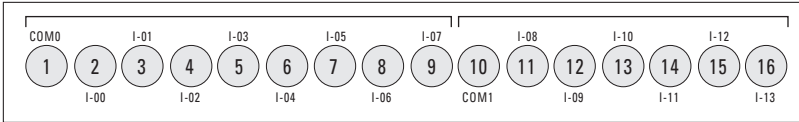
To attach expansion I/O, expansion power supply, and plug-in modules to your Micro870 controller, see the installation manual and/or wiring diagrams specific to your plug-ins, expansion I/O, and expansion power supply.

Installation Instructions are available in the Literature Library, <http://rockwellautomation.com/literature>.

## Wire the Controller

2080-LC70-24QWB, 2080-LC70-24QWBK

### Input Terminal Block

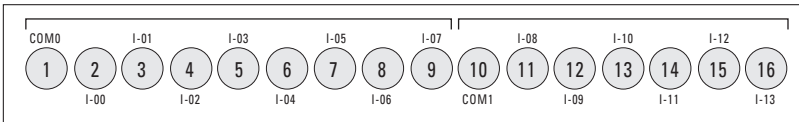


45019

### Output Terminal Block

2080-LC70-24QBB, 2080-LC70-24QBBK

### Input Terminal Block



45020

### Output Terminal Block

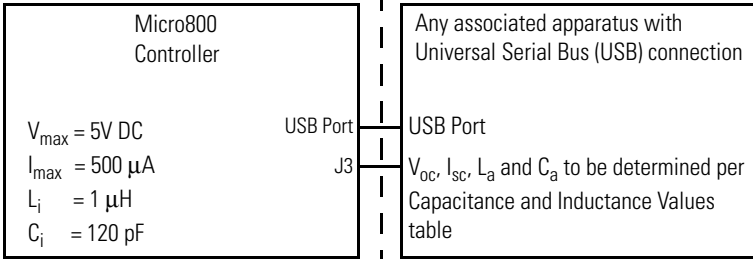


**ATTENTION:** Do not ground the -DC24 terminal of the Micro870 controller. The Micro870 system is grounded either through the DIN Rail or the top right panel mounting screw hole.

**Control Drawing for Class 1 Division 2 Applications**

**Hazardous Location  
Class 1 Division 2,  
Groups A, B, C, and D**

**Non-Hazardous Location**



**Capacitance and Inductance Values**

| <b>Nonincendive Equipment</b> | <b>Associated Apparatus</b>        |
|-------------------------------|------------------------------------|
| $V_{max}$ (or $U_i$ )         | $\geq V_{oc}$ or $V_t$ (or $U_o$ ) |
| $I_{max}$ (or $L_i$ )         | $\geq I_{sc}$ or $I_t$ (or $I_o$ ) |
| $C_i + C_{cable}$             | $\leq C_a$ (or $C_o$ )             |
| $L_i + L_{cable}$             | $\leq L_a$ (or $L_o$ )             |

Capacitance and Inductance of the field wiring from the nonincendive equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in the table above.

Where the cable capacitance and inductance per foot are not known, the following values shall be used:  $C_{cable} = 60\ pF/ft$ ,  $L_{cable} = 0.2\ \mu H/ft$ .

Wiring method must be in accordance with ANSI/NFPA70.

# Specifications

## General Specifications

| Attribute                         | 2080-LC70-24QWB,<br>2080-LC70-24QWBK   | 2080-LC70-24QBB,<br>2080-LC70-24QBBK  |  |  |     |     |  |                       |                                 |                                 |  |
|-----------------------------------|--|---|--|--|-----|-----|--|-----------------------|---------------------------------|---------------------------------|--|
| Number of I/O                     | 24 (14 inputs, 10 outputs)   |   |  |  |     |     |  |                       |                                 |                                 |  |
| Dimensions<br>HxWxD               | 90 x 157 x 80 mm<br>(3.54 x 6.18 x 3.15 in.)   |   |  |  |     |     |  |                       |                                 |                                 |  |
| Shipping<br>weight,<br>approx.    | 0.47 kg (1.04 lb)  |   |  |  |     |     |  |                       |                                 |                                 |  |
| Wire size                         | <table border="1"> <thead> <tr> <th></th> <th>Min</th> <th>Max</th> <th></th> </tr> </thead> <tbody> <tr> <td>Solid and<br/>Stranded</td> <td>0.2 mm<sup>2</sup><br/>(24 AWG)</td> <td>2.5 mm<sup>2</sup><br/>(14 AWG)</td> <td>rated @ 90 °C<br/>(194 °F) insulation max</td> </tr> </tbody> </table> |   |  |  | Min | Max |  | Solid and<br>Stranded | 0.2 mm <sup>2</sup><br>(24 AWG) | 2.5 mm <sup>2</sup><br>(14 AWG) | rated @ 90 °C<br>(194 °F) insulation max |
|                                   | Min  | Max   |  |  |     |     |  |                       |                                 |                                 |  |
| Solid and<br>Stranded             | 0.2 mm <sup>2</sup><br>(24 AWG)  | 2.5 mm <sup>2</sup><br>(14 AWG)   | rated @ 90 °C<br>(194 °F) insulation max |  |     |     |  |                       |                                 |                                 |  |
| Wiring<br>category <sup>(1)</sup> | 2 – on signal ports<br>2 – on power ports<br>2 – on communication ports  |   |  |  |     |     |  |                       |                                 |                                 |  |
| Wire type                         | Use copper conductors only   |   |  |  |     |     |  |                       |                                 |                                 |  |
| Terminal<br>screw torque          | 0.4...0.5 Nm (3.5...4.4 lb-in.) using a 0.6 x 3.5 mm flat-blade screwdriver.<br>Note: Use a handheld screwdriver to hold down the screws at the side.  |   |  |  |     |     |  |                       |                                 |                                 |  |
| Input circuit<br>type             | 12/24V sink/source (standard)<br>24V sink/source (high-speed)  |   |  |  |     |     |  |                       |                                 |                                 |  |
| Output circuit<br>type            | Relay  | 24V DC source (standard and<br>high-speed)  |  |  |     |     |  |                       |                                 |                                 |  |
| Power<br>consumption              | 28 W   |   |  |  |     |     |  |                       |                                 |                                 |  |
| Power supply<br>voltage range     | 21.4...26.4V DC Class 2, or<br>Limited Voltage Limited Current Source (LVLC)   |   |  |  |     |     |  |                       |                                 |                                 |  |
| I/O rating                        | Input 24V, 8.8 mA<br>Output 2 A, 240V AC<br>2A, 24V DC   | Input 24V, 8.8 mA<br>Output –<br>24V DC, Class 2, 1 A per point<br>(Surrounding air temperature 30 °C)<br>24V DC, Class 2, 0.3 A per point<br>(Surrounding air temperature 65 °C) |  |  |     |     |  |                       |                                 |                                 |  |

## General Specifications

| Attribute                   | 2080-LC70-24QWB,<br>2080-LC70-24QWBK   | 2080-LC70-24QBB,<br>2080-LC70-24QBBK  |
|-----------------------------|--|---|
| Isolation voltage           | 250V (continuous), Reinforced Insulation Type, Output to Aux and Network, Inputs to Outputs.<br>Type tested for 60 s @ 3250V DC Output to Aux and Network, Inputs to Outputs.<br>50V (continuous), Reinforced Insulation Type, Input to Aux and Network<br>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.<br>Type tested for 60 s @ 720 V 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       | Meets IP20   |   |
| North American temp code    | T4   |   |

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

## DC Input Specifications

| Attribute                          | 2080-LC70-24QWB, 2080-LC70-24QWBK, 2080-LC70-24QBB,<br>2080-LC70-24QBBK  |   |
|------------------------------------|--|---|
|                                    | High-Speed DC Input<br>(Inputs 0...7)  | Standard DC Input<br>(Inputs 8 and higher)                  |
| Number of Inputs                   | 8  | 6   |
| Voltage category                   | 24V sink/source<br>24V AC, 50/60 Hz  |   |
| Input group to backplane isolation | Verified by one of the following dielectric tests: 720V DC for 2 s<br>50V DC working voltage (IEC Class 2 reinforced insulation) |   |
| On-state voltage range             | 16.8...26.4V DC @ 65°C (149°F)<br>16.8...30.0V DC @ 30°C (86°F)  | 10...26.4V DC @ 65°C (149°F)<br>10...30.0V DC @ 30°C (86°F) |
| Off-state voltage, max             | 5V DC  |   |
| Off-state current, max             | 1.5 mA   |   |

## DC Input Specifications

| Attribute               | 2080-LC70-24QWB, 2080-LC70-24QWBK, 2080-LC70-24QBB, 2080-LC70-24QBBK    |  |
|-------------------------|---|--|
|                         | High-Speed DC Input (Inputs 0...7)                                      | Standard DC Input (Inputs 8 and higher)                                |
| On-state current        | 5.0 mA @ 16.8V DC, min<br>7.6 mA @ 24V DC, nom<br>12.0 mA @ 30V DC, max | 1.8 mA @ 10V DC, min<br>6.15 mA @ 24V DC, nom<br>12.0 mA @ 30V DC, max |
| Nominal impedance       | 3 kΩ  | 3.74 kΩ  |
| IEC input compatibility | Type 3  |  |

**IMPORTANT** For 24V AC specifications, refer to the Micro830, Micro850, and Micro870 User Manual, publication [2080-UM002](#).

## Output Specifications

| Attribute                           | 2080-LC70-24QWB, 2080-LC70-24QWBK                     | 2080-LC70-24QBB, 2080-LC70-24QBBK  |   |
|-------------------------------------|---|--|---|
|                                     | Relay Output  | High Speed Output (Outputs 0...1)  | Standard Output (Outputs 2 and higher)              |
| Number of outputs                   | 10  | 2  | 8   |
| 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       | 2.0 A   | 100 mA (high-speed operation)<br>1.0 A @ 30 °C<br>0.3 A @ 65 °C (standard operation) | 1.0 A @ 30 °C<br>0.3 A @ 65 °C (standard operation) |
| Surge current, per point            | See <a href="#">Relay Contacts Ratings on page 17</a> | 4.0 A for 10 ms every 1 s @ 30 °C; every 2 s @ 65 °C <sup>(1)</sup>                  |   |
| Current, per common, max            | 5 A   | –  | –   |
| Turn on time/<br>Turn off time, max | 10 ms   | 2.5 μs   | 0.1 ms<br>1 ms                                      |

<sup>(1)</sup> Applies for general purpose operation only; does not apply for high-speed operation.



## Relay Contacts Ratings

| 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             |              |        |

## Environmental Specifications

| Attribute                         | Value   |
|-----------------------------------|---|
| Temperature, operating            | IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock):<br>-20...65 °C (-4...149 °F)   |
| Temperature, surrounding air, max | 65 °C (149 °F)  |
| Temperature, non-operating        | IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock):<br>-40...85 °C (-40...185 °F)              |
| Relative humidity                 | IEC 60068-2-30 (Test Db, Unpackaged Damp Heat):<br>5...95% non-condensing   |
| Vibration                         | IEC 60068-2-6 (Test Fc, Operating):<br>2 g @ 10...500 Hz  |
| Shock, operating                  | IEC 60068-2-27 (Test Ea, Unpackaged Shock):<br>25 g   |
| Shock, non-operating              | IEC 60068-2-27 (Test Ea, Unpackaged Shock):<br>DIN mount: 25 g<br>PANEL mount: 35 g   |
| Emissions                         | IEC 61000-6-4   |
| ESD immunity                      | IEC 61000-4-2:<br>6 kV contact discharges<br>8 kV air discharges  |
| Radiated RF immunity              | IEC 61000-4-3:<br>10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>10V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz |

## Environmental Specifications

| Attribute                | Value  |
|--------------------------|--|
| EFT/B immunity           | IEC 61000-4-4:<br>±2 kV @ 5 kHz on power ports<br>±2 kV @ 5 kHz on signal ports<br>±1 kV @ 5 kHz on communication ports  |
| Surge transient immunity | IEC 61000-4-5:<br>±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports<br>±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports<br>±1 kV line-earth(CM) on communication ports |
| Conducted RF immunity    | IEC 61000-4-6:<br>10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz  |

## Certifications

| Certification (when product is marked) <sup>(1)</sup> | Value   |
|---|---|
| c-UL-us   | UL Listed Industrial Control Equipment, certified for US and Canada.<br>See UL File E322657.<br><br>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:<br>EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>EN 61000-6-2; Industrial Immunity<br>EN 61000-6-4; Industrial Emissions<br>EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)<br><br>European Union 2014/35/EU LVD, compliant with:<br>EN 61131-2; Programmable Controllers (Clause 11)<br><br>European Union 2011/65/EU RoHS, compliant with:<br>EN 50581; Technical Documentation |
| RCM   | Australian Radiocommunications Act, compliant with:<br>EN 61000-6-4; Industrial Emissions   |
| EtherNet/IP   | ODVA conformance tested to EtherNet/IP specifications   |
| KC  | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>Article 58-2 of Radio Waves Act, Clause 3  |

<sup>(1)</sup> See the Product Certification link at <http://www.rockwellautomation.com/products/certification> for Declaration of Conformity, Certificates, and other certification details.

## **Notes:**

# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

|                       |  |
|-----------------------|--|
| United States         | 1.440.646.3434<br>Monday – Friday, 8 a.m. – 5 p.m. EST   |
| Outside United States | Please contact your local Rockwell Automation representative for any technical support issues. |

## New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

|                       |  |
|-----------------------|--|
| United States         | Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor in order to complete the return process. |
| Outside United States | Please contact your local Rockwell Automation representative for the return procedure.   |

Allen-Bradley, Rockwell Automation, Micro800, Micro830, Micro850, Micro870, and TechConnect are trademarks of Rockwell Automation, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

[www.rockwellautomation.com](http://www.rockwellautomation.com)

### Power, Control and Information Solutions Headquarters

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

Publication 2080-IN012A-EN-P - March 2018

PN-458000

Copyright © 2018 Rockwell Automation, Inc. All rights reserved. Printed in Singapore.