Wiring Diagrams

Micro800 Digital Relay Output Plug-in Module

Catalog Number 2080-OW4I

http://www.rockwellautomation.com/literature/	
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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, V2, V1, V0 (or equivalent) 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, 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 enclosures.

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.

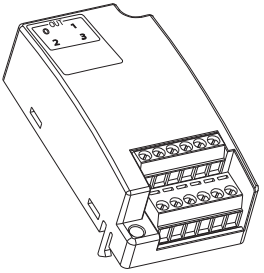
North American Hazardous Location Approval

The following modules are North American Hazardous Location approved:
2080-OW4I

The following information applies when operating this equipment in hazardous locations:	**Informations sur l'utilisation de cet équipement en environnements dangereux:**
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.	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.
WARNING: **EXPLOSION HAZARD** • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • 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. • Substitution of any component may impair suitability for Class I, Division 2. • If this product contains batteries, they must only be changed in an area known to be nonhazardous.	**AVERTISSEMENT:** **RISQUE D'EXPLOSION** • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • 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. • La substitution de tout composant peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

Parts List

Your package contains one Micro800™ 4 Channel Digital Relay Output plug-in module, two module fastening screws, and these pinout guide wiring instructions.



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You can choose to wire the plug-in before inserting it onto the controller, or wire it once the module is secured in place.

ATTENTION: This plug-in module is intended for use with Micro800 Family of Programmable Controllers.

ATTENTION: 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.

ATTENTION: Do not wire more than 2 conductors on any single terminal.

ATTENTION: If you insert or remove the module while the controller 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.

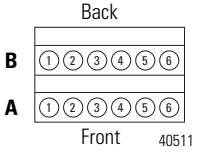
ATTENTION: Do not insert or remove the plug-in module while power is applied, otherwise, permanent damage to equipment may occur.

WARNING: 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.

Wire the Module

Follow the pinout diagram to wire your plug-in module.

12-Pin Female Terminal Block



(View into terminal block)

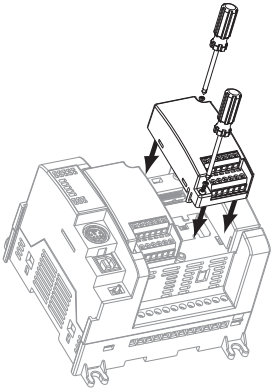
Pin A1 COM3	Pin B1 COM0
Pin A2 O-3	Pin B2 O-0
Pin A3 Not used	Pin B3 COM1
Pin A4 Not used	Pin B4 O-1
Pin A5 Not used	Pin B5 COM2
Pin A6 Not used	Pin B6 O-2

WARNING: Exposure to some chemicals may degrade the sealing properties of materials used in the following devices:
Relay K1 through K4, Epoxy.
It is recommended that the User periodically inspect these devices for any degradation of properties and replace the module if degradation is found.

ATTENTION: To protect the output contacts and to reduce electrical noise, you must use surge suppressors when switching inductive load devices. For more information on surge suppressors, refer to the Micro830 Programmable Controllers User Manual, publication 2080-UM002.

Insert Module into Controller

Follow the instructions to insert and secure the plug-in module to the controller.



WARNING: If you connect or disconnect wiring while the field-side 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: If you connect or disconnect wiring while the field-side 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.

1. Position the plug-in module with the terminal block facing the front of the controller as shown.
2. Snap the module into the module bay.
3. Using a screwdriver, tighten the 10…12 mm (0.39…0.47 in.) M3 self tapping screw to torque specifications.

Specifications

General Specifications

Attribute	Value
Mounting torque	0.2 Nm (1.48 lb-in.)
Status indicators	4 yellow
Terminal base screw torque, max	0.19 Nm (1.7 lb-in.) using a 2.5 mm [0.10 in.] flat-blade screwdriver
Wire size	0.05…1.31 mm^2 (30…16 AWG) solid copper wire rated @ 90 °C (194 °F) insulation max
Enclosure type rating	None (open-style)
Isolation voltage	240V (continuous), Reinforce Insulation Type, between Output Channels and Output channels to Backplane Type tested for 60 s at 1480 VAC Outputs to Outputs, Outputs to Backplane
Insulation stripping length	5 mm
Wiring category	2 – on signal ports 2 – on power ports
Wire type	Copper
North American temp code	T4
Inrush current	<120 mA @ 3.3V <120 mA @ 24V
Backplane power	3.3 VDC, 38 mA
Output current, resistive	2 A @ 5…30V DC 0.5 A @ 48V DC 0.22 A @ 125V 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 0.5 A steady state @ 48V DC 0.22 A steady state @ 125V 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	250 VA for 125V AC resistive loads 480 VA for 240V AC resistive loads 60 VA for 30V DC resistive loads 24 VA for 48V DC resistive loads 27.5 VA for 125V DC resistive loads

General Specifications

Attribute	Value
Output power, inductive break, max	180 VA for 125V AC inductive loads 180 VA for 240V AC inductive loads 28 VA for 28.8V DC inductive loads 28 VA for 48V DC inductive loads 28 VA for 125V DC inductive loads
Relay contact, (0.35 power factor)	

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

Pilot duty rating	C300, R150
Minimum load, per point	10 mA
Initial contact resistance of relay, max	30 mΩ
Output delay time, max	10 ms ON or OFF

Environmental Specifications

Attribute	Value
Temperature, operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (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, non-operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating 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): 10 g
Shock, non-operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): DIN rail mounting: 25 g Panel mounting: 35 g
ESD immunity	IEC 61000-4-2: 6 kV contact 8 kV air
Radiated RF immunity	IEC 61000-4-3 10 V/M with 1 kHz sine-wave 80%AM from 80…2000 MHz 10 V/M with 200 Hz sine-wave 50% Pulse 100%AM @ 900 MHz 10 V/M with 200 Hz sine-wave 50% Pulse 100%AM @1890 MHz 10 V/M with 1 kHz sine-wave 80%AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV at 5 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

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 2004/108/EC 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 2006/95/EC LVD, compliant with:EN 61131-2; Programmable Controllers (Clause 11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) See the Product Certification link at http://www.ab.com for Declarations 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://www.rockwellautomation.com/support/, 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://www.rockwellautomation.com/support/.

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 or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

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 to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at http://www.rockwellautomation.com/literature/.

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