

## Micro800 Plug-in Modules



Plug-in modules enhance the functionality of a base unit controller. With these modules, you can:

- Extend the functionality of embedded I/O without increasing the footprint of your controller.
- Improve performance by adding additional processing power or capabilities.
- Add additional communication functionality.

Micro800 controllers support the following plug-in modules:

### Micro800 Plug-in Modules

Module	Type	Description
2080-IQ4	Digital	4-point, 12/24V DC Sink/Source input
2080-IQ4OB4	Digital	8-point, Combo, 12/24V DC Sink/Source input 12/24V DC Source output
2080-IQ4OV4	Digital	8-point, Combo, 12/24V DC Sink/Source input 12/24V DC Sink output
2080-OB4	Digital	4-point, 12/24V DC Source output
2080-OV4	Digital	4-point, 12/24V DC Sink output
2080-OW4I	Digital	4-point, AC/DC Relay output
2080-IF2	Analog	2-channel, Non-isolated unipolar voltage/current analog input
2080-IF4	Analog	4-channel, Non-isolated unipolar voltage/current analog input

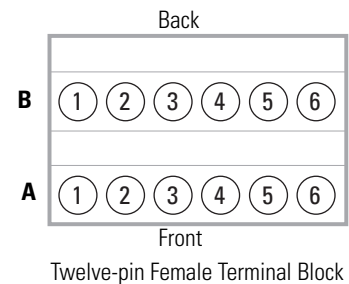
1. Position the plug-in module with the terminal block facing the front of the controller as shown.
2. Snap the module into the module bay.
3. Using a screwdriver, tighten the 10...12 mm (0.39...0.47 in.) M3 self tapping screw to torque specifications.  
See [Specifications on page 61](#) for torque specifications.

**IMPORTANT** Analog I/O performance depends on the application. For better noise immunity, cable length should ideally be less than 3 m because the plug-ins are non-isolated. For longer cable length requirements, use the 2085 expansion I/O modules instead.

## Wiring

The following plug-in modules have 12-pin female terminal blocks:

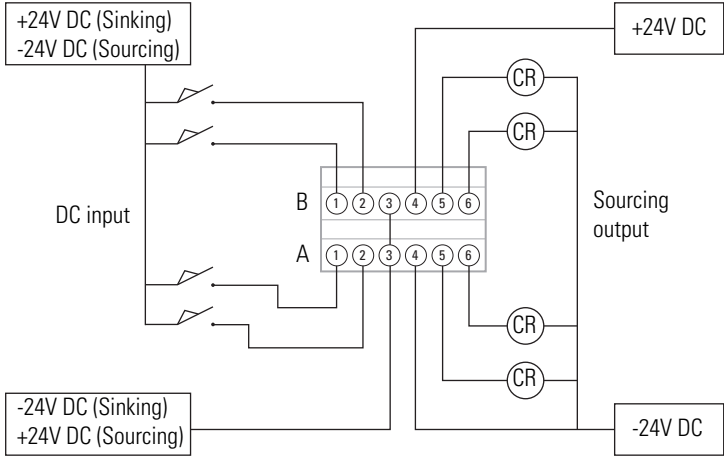
- 2080-IQ4,
- 2080-IQ4OB4, 2080-IQ4OV4
- 2080-OB4, 2080-OV4, 2080-OW4I
- 2080-IF2, 2080-IF4
- 2080-TC2, 2080-RTD2



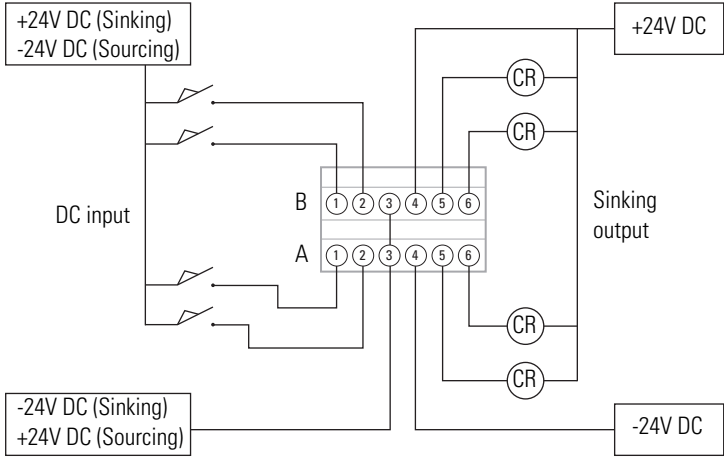
### Pin Designations for 12-Pin Female Terminal Block Modules

Pin	2080-IQ4	2080-IQ4OB4, 2080-IQ4OV4	2080-OB4, 2080-OV4	2080-OW4I	2080-IF2	2080-IF4	2080-TC2	2080-RTD2
<b>A1</b>	I-02	I-02	Not used	COM3	COM	COM	CH0+	CH0+
<b>A2</b>	I-03	I-03	Not used	O-3	Not used	VI-2	CH0-	CH0-
<b>A3</b>	COM	COM	-24V DC	Not used	Not used	CI-2	CJC+	CH0L (Sense)
<b>A4</b>	COM	-24V DC	-24V DC	Not used	COM	COM	Not used	Not used
<b>A5</b>	Not used	O-02	O-02	Not used	Not used	VI-3	Not used	Not used
<b>A6</b>	Not used	O-03	O-03	Not used	Not used	CI-3	Not used	Not used
<b>B1</b>	I-00	I-00	Not used	COM0	VI-0	VI-0	CH1+	CH1+
<b>B2</b>	I-01	I-01	Not used	O-0	CI-0	CI-0	CH1-	CH1-
<b>B3</b>	COM	COM	+24V DC	COM1	COM	COM	CJC-	CH1L (Sense)
<b>B4</b>	COM	+24V DC	+24V DC	O-1	VI-1	VI-1	Not used	Not used
<b>B5</b>	Not used	O-00	O-00	COM2	CI-1	CI-1	Not used	Not used
<b>B6</b>	Not used	O-01	O-01	O-2	COM	COM	TH	Not used

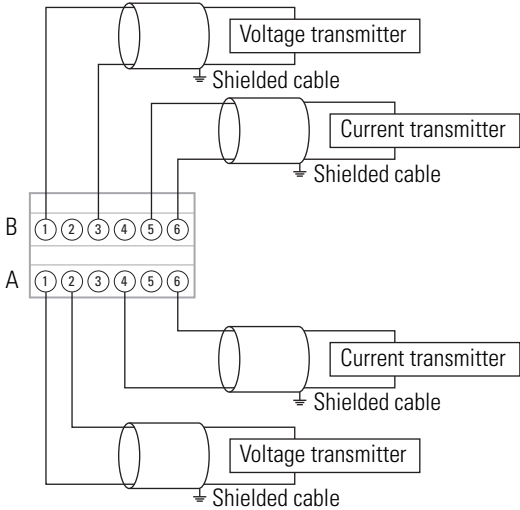
**Example Wiring for 2080-IQ40B4**



**Example Wiring for 2080-IQ40V4**



**Example Wiring for 2080-IF4**



## Specifications

### Digital Plug-in Modules

#### General Specifications – 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-IQ4

Attribute	Value
Mounting torque	0.2 Nm (1.48 lb-in.)
Status indicators	For input or output modules – 4 yellow For combination modules – 8 yellow
Terminal base screw torque	0.22...0.25 Nm (1.95...2.21 lb-in.) using a 2.5 mm (0.10 in.) flat-blade screwdriver
Enclosure type rating	None (open-style)
Isolation voltage	<b>For input modules</b> 50V (continuous), Basic Insulation Type, Inputs to Backplane Type tested for 60 s @ 720 V DC, Inputs to Backplane <b>For combination or output modules</b> 50V (continuous), Basic Insulation Type, Inputs to Outputs, I/Os to Backplane Type tested for 60 s @ 720 V DC, I/Os to Backplane
Wire size	1.3... 0.2 mm <sup>2</sup> (16...24 AWG) solid or stranded copper wire rated @ 90 °C (194 °F), or greater, insulation max
Wire category	2 – on signal ports 2 – on power ports
North American temp code	T4

#### Input Specifications – 2080-IQ4, 2080-IQ4OV4, 2080-IQ4OB4

Attribute	Value
DC on-state voltage, min	9.0V DC
DC on-state voltage, max	30V DC
DC on-state current, min	2.0 mA @ 9V DC
DC on-state current, nom	3.0 mA @ 24V DC
DC on-state current, max	5.0 mA
DC off-state voltage, max	5V DC
DC off-state current, max	1.5 mA
IEC input compatibility	Type 3
Input impedance	0...3V, >4 K $\Omega$ 3...12V, 3.5 K $\Omega$ min 12...30V, >4 K $\Omega$ <10 K $\Omega$
Input filter time ON to OFF	8...10 ms AC/DC
AC on-state voltage, min	10.25V AC (rms)
AC on-state voltage, max	30V AC (rms)

**Input Specifications – 2080-IQ4, 2080-IQ4OV4, 2080-IQ4OB4**

Attribute	Value
AC on-state current, min	2.0 mA @ 9V AC (rms)
AC on-state current, max	5.0 mA
AC off-state voltage	3.5V AC (rms)

**Output Specifications – 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4**

Attribute	Value
Power supply voltage	10.8V DC, min 30V DC, max
On-state voltage	10V DC, min 24V DC, nom 30V DC, max
On-state current	5.0 mA @ 10V DC, min 0.5 A max, steady state 2 A surge, 2 s min
Off-state leakage current, max	10 µA

**Environmental Specifications – 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-IQ4**

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): 25 g
Shock, non-operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 25 g
Emissions	CISPR 11: Group 1, Class A
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...2000 MHz 10 V/M with 200 Hz 50% Pulse 100%AM @ 900 MHz 10 V/M with 200 Hz 50% Pulse 100%AM @1890 MHz 10 V/M with 1 kHz sine-wave 80%AM from 2000...2700 MHz

**Environmental Specifications – 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-IQ4**

Attribute	Value
EFT/B immunity	±2 kV @ 5 kHz on signal ports
Surge transient immunity	±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports
Conducted RF immunity	10V rms with 1 kHz sine-wave 80%AM from 150 kHz...80 MHz

**Certifications – 2080-OB4, 2080-OV4, 2080-IQ4OB4, 2080-IQ4OV4, 2080-IQ4**

Certification (when product is marked) <sup>(1)</sup>	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)
RCM	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
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation

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

**General Specifications – 2080-OW4I Digital Relay Output Plug-in Module**

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 <sup>2</sup> (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 @ 1480 V AC Outputs to Outputs, Outputs to Backplane
Insulation stripping length	5 mm
Wiring category	2 – on signal ports 2 – on power ports
Wire type	Copper