



FLEX I/O Input, Output and Input/Output Analog Modules

1794-IE12, 1794-OE12, and 1794-IE8XOE4 Series A

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://www.literature.rockwellautomation.com>) 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.

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

WARNING



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.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

ATTENTION



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.

SHOCK HAZARD



Labels may be located on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.

BURN HAZARD



Labels may be located on or inside the equipment (for example, drive or motor) to alert people that surfaces may be dangerous temperatures.

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ATTENTION**Environment and Enclosure**

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

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 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.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1, for additional installation requirements pertaining to this equipment.

WARNING

If you insert or remove the 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.

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.

ATTENTION

This product is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail materials (such as aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding.

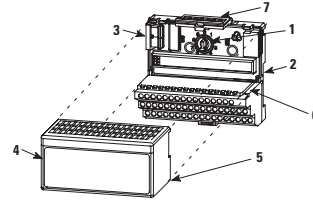
ATTENTION**Prevent Electrostatic Discharge**

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 information applies when operating this equipment in hazardous locations:		Informations sur l'utilisation de cet équipement en environnements dangereux :	
<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>	
WARNING	EXPLOSION HAZARD	AVERTISSEMENT	RISQUE D'EXPLOSION
	<ul style="list-style-type: none"> • 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 components 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. 		<ul style="list-style-type: none"> • 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 composants 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.

Install Your Analog Input/Output Module

These modules mount on a 1794-TB3G or 1794-TB3GS terminal base.

ATTENTION

During mounting of all devices, be sure that all debris (such as metal chips, and wire strands) is kept from falling into the module. Debris that falls into the module could cause damage on power up.

1. Rotate the keyswitch (1) on the terminal base (2) clockwise to position 3 (1794-IE12), 4 (1794-OE12), or 5 (1794-IE8XOE4) as required.
2. Make certain the flexbus connector (3) is pushed all the way to the left to connect with the neighboring terminal base/adaptor.
You cannot install the module unless the connector is fully extended.
3. Make sure the pins on the bottom of the module are straight so they will align properly with the connector in the terminal base.
4. Position the module (4) with its alignment bar (5) aligned with the groove (6) on the terminal base.
5. Press firmly and evenly to seat the module in the terminal base unit. The module is seated when the latching mechanism (7) is locked into the module.

Connect Wiring for the 1794-TB3G and 1794-TB3GS Terminal Bases

ATTENTION To reduce susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 10 m (33 ft) for dc power or analog I/O cabling.

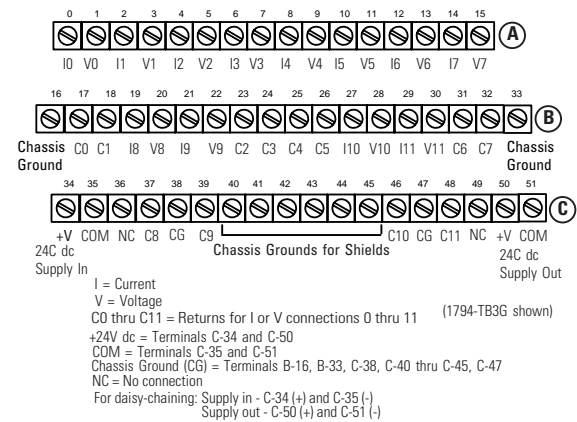


ATTENTION Do not daisy-chain power or ground from this terminal base unit to any ac or dc digital module terminal base units.



Connect wiring as shown in the following figure.

Terminal Base Wiring for the 1794-IE12/A Analog Input Module



ATTENTION Do not exceed a length of 10 m (33 ft) for signal cabling.



ATTENTION Connect only one current or voltage signal per channel. Do not connect both current and voltage on one channel.



ATTENTION Use shielded cable for better noise immunity and easier connection to ground. Connect shield to designated ground points on the terminal base unit. Ground at the terminal base unit only.



Wire Connections for the 1794-IE12/A Analog Input Module

Channel	Signal Type	Label Marking	1794-TB3G or 1794-TB3GS	
			Input	Common Terminal
Input 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Input 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Input 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Input 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Input 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Input 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Input 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Input 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Input 8	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Input 9	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Input 10	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Input 11	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	1794-TB3G and 1794-TB3GS - Terminals C-35 and C-51 are internally connected in the terminal base unit.			
+V dc Power	1794-TB3G and 1794-TB3GS - Terminals C-34 and C-50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	1794-TB3G and 1794-TB3GS - Terminals B-16, B-33, C-38, C-40 through C-45, and C-47 are internally connected to chassis ground.			

Wire Connections for the 1794-OE12/A Analog Output Module

Channel	Signal Type	Label Marking	1794-TB3G or 1794-TB3GS	
			Output	Common Terminal
Output 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Output 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Output 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Output 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Output 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Output 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Output 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Output 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Output 8	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Output 9	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Output 10	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Output 11	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	1794-TB3G and 1794-TB3GS - Terminals C-35 and C-51 are internally connected in the terminal base unit.			
+V dc Power	1794-TB3G and 1794-TB3GS - Terminals C-34 and C-50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	1794-TB3G and 1794-TB3GS - Terminals B-16, B-33, C-38, C-40 through C- 45, and C-47 are internally connected to chassis ground.			

Wire Connections for the 1794-IE8XOE4/A Analog 8 Input/4 Output Module

Channel	Signal Type	Label Marking	1794-TB3G or 1794-TB3GS	
			Input/Output	Common Terminal
Input 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Input 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Input 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Input 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Input 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Input 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Input 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Input 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Output 0	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Output 1	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Output 2	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Output 3	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	1794-TB3G and 1794-TB3GS - Terminals C-35 and C-51 are internally connected in the terminal base unit.			
+V dc Power	1794-TB3G and 1794-TB3GS - Terminals C-34 and C-50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	1794-TB3G and 1794-TB3GS - Terminals B-16, B-33, C-38, C-40 through C- 45, and C-47 are internally connected to chassis ground.			

Data Table - 1794-IE12

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct.	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Read Words																
0 - Input 0	Signed 2's Complement data Value of Channel 0															
1 - Input 1	Signed 2's Complement data Value of Channel 1															
2 - Input 2	Signed 2's Complement data Value of Channel 2															
3 - Input 3	Signed 2's Complement data Value of Channel 3															
4 - Input 4	Signed 2's Complement data Value of Channel 4															
5 - Input 5	Signed 2's Complement data Value of Channel 5															
6 - Input 6	Signed 2's Complement data Value of Channel 6															
7 - Input 7	Signed 2's Complement data Value of Channel 7															
8 - Input 8	Signed 2's Complement data Value of Channel 8															
9 - Input 9	Signed 2's Complement data Value of Channel 9															
10 - Input 10	Signed 2's Complement data Value of Channel 10															
11 - Input 11	Signed 2's Complement data Value of Channel 11															
12 - Status	PU	FP	GF	NU	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0
Write Words																
0 - Reserved	EN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - Configuration	QS	0	0	0	CAB	C89	C67	C45	C23	C01						

Where :
 PU = Power up bit
 FP = Field power fault
 GF = General fault
 NU = Not used
 Rx = Out of range (x = associated channel)
 EN = Enable
 QS = Quick step bit - allows input filter to be reduced during rapid signal changes.
 Cxx = Configuration

Range Selection Bits (for 1794-IE12, 1794-OE12, and 1794-IE8XOE4)

Range	Out of Range	Range Setting	Cxx ¹ Channel Configuration
-10...+10V dc	< -10.0V or > 10.0V	Set bits for each channel pair 00 = off 01 = 0...20 mA 10 = 4...20 mA 11 = ±10V	C01 for channels 0 and 1 C23 for channels 2 and 3 C45 for channels 4 and 5 C67 for channels 6 and 7 C89 for channels 8 and 9 CAB for channels 10 and 11
4-20 mA	< 4.0mA or > 20.0mA		
0...20 mA	< 0.0 mA or > 20.0 mA		

¹ xx = associated channel pair

Safe State Selection Bits (for 1794-OE12 and 1794-IE8XOE4)

When EN = 0, these bits designate the source of the safe state data for all outputs in the module.

S1/S0 Safe State Select Source		Safe State Mode	Safe State Output Behavior
S1	S0		
0	0	Safe State value is in the output words	Outputs will use Safe State value
0	1	Reserved (Safe State value is in the output words)	Reserved (Outputs will use Safe State value)
1	0	Clear/Reset the outputs, based on range selected	±10V range - Output set to 0V 4...20 mA range - Output set to 4 mA 0...20 mA range - Output set to 0 mA
1	1	Hold output at its present level	Outputs will Hold Last State

Data Table - 1794-OE12

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct.	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Read Words																
0 - Status	P	FP	GF	NU	W	W	W	W	W	W	W	W	W	W	W	W
	U				11	10	9	8	7	6	5	4	3	2	1	0
Write Words																
0 - Reserved	E	S	S	W	0	0	0	0	0	0	0	0	0	0	0	0
	N	1	0	R												
1 - Output 0	Signed 2's Complement data Value of Channel 0															
2 - Output 1	Signed 2's Complement data Value of Channel 1															
3 - Output 2	Signed 2's Complement data Value of Channel 2															
4 - Output 3	Signed 2's Complement data Value of Channel 3															
5 - Output 4	Signed 2's Complement data Value of Channel 4															
6 - Output 5	Signed 2's Complement data Value of Channel 5															
7 - Output 6	Signed 2's Complement data Value of Channel 6															
8 - Output 7	Signed 2's Complement data Value of Channel 7															
9 - Output 8	Signed 2's Complement data Value of Channel 8															
10 - Output 9	Signed 2's Complement data Value of Channel 9															
11 - Output 10	Signed 2's Complement data Value of Channel 10															
12 - Output 11	Signed 2's Complement data Value of Channel 11															
13 - Configuration	0	0	0	0	CAB	C89	C67	C45	C23	C01						

Where:
 PU = Power up bit
 FP = Field power fault
 GF = General fault
 NU = Not used
 Wx = Wire off (x = associated channel)
 EN = Enable outputs
 S1/S0 = Safe state source - When EN = 0, these bits indicate source of safe state output.
 WR = Wire-off reset
 Cxx = Configuration

Data Table - 1794-IE8XOE4

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct.	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Read Words																
0 - Input 0	Signed 2's Complement data Value of Channel 0															
1 - Input 1	Signed 2's Complement data Value of Channel 1															
2 - Input 2	Signed 2's Complement data Value of Channel 2															
3 - Input 3	Signed 2's Complement data Value of Channel 3															
4 - Input 4	Signed 2's Complement data Value of Channel 4															
5 - Input 5	Signed 2's Complement data Value of Channel 5															
6 - Input 6	Signed 2's Complement data Value of Channel 6															
7 - Input 7	Signed 2's Complement data Value of Channel 7															
8 - Status	PU	FP	GF	NU	W	W	W	W	W	W	W	W	W	W	W	W
					3	2	1	0	7	6	5	4	3	2	1	0
Write Words																
0 - Reserved	EN	S	S	W	0	0	0	0	0	0	0	0	0	0	0	0
		1	0	R												
1 - Output 0	Signed 2's Complement data Value of Channel 0															
2 - Output 1	Signed 2's Complement data Value of Channel 1															
3 - Output 2	Signed 2's Complement data Value of Channel 2															
4 - Output 3	Signed 2's Complement data Value of Channel 3															
5 - Configuration	QS	0	0	0	CAB	C89	C67	C45	C23	C01						

Where:
 PU = Power up bit
 FP = Field power fault
 GF = General fault
 NU = Not used
 Wx = Wire off (x = associated channel)
 Rx = Out of range (x = associated channel)
 EN = Enable outputs
 S1/S0 = Safe state source - When EN = 0, these bits indicate source of safe state output.
 WR = Wire-off reset
 QS = Quick step bit - allows input filter to be reduced during rapid signal changes.
 Cxx = Channel Configuration (xx = associated channel pair)

Specifications

Input Specifications	
Number of Inputs	1794-IE12 - 12 single-ended, nonisolated from channel to channel 1794-IE8XOE4 - 8 single-ended, nonisolated from channel to channel
Resolution	Voltage 16 bit 2's complement Current 320 µV/cnt 0.641 µA/cnt
Data Format	16 bit 2's complement
Conversion Type	successive approximation
Conversion Rate	8.0 ms all channels
Input Current Terminal	4...20 mA (user configurable) 0...20 mA (user configurable)
Input Voltage Terminal	±10V (user configurable)
Normal Mode Rejection Ratio	Voltage/Current Terminal -3 dB @ 0.05 Hz; -20 dB/decade -52 dB @ 50 Hz; -54 dB @ 60 Hz Voltage/Current Terminal with Quick Step -3 dB @ 1.5 Hz; -20 dB/decade -29 dB @ 50 Hz; -31 dB @ 60 Hz
Step Response to 63%	Voltage/Current Terminal 1.3 s Voltage/Current Terminal with Quick Step 0.09 s
Input Impedance	Voltage Terminal Greater than 1 megohm Current Terminal Less than 100 ohms ⁽¹⁾
Absolute Accuracy ⁽²⁾	Voltage 0.1% Full Scale @ 25 °C Current 0.1% Full Scale @ 25 °C
Accuracy Drift with Temperature	Voltage Terminal 0.004% Full Scale/°C Current Terminal 0.004% Full Scale/°C
Max Overload	30V continuous or 32 mA continuous, one channel at a time.

Output Specifications

Number of Outputs	1794-OE12 - 12 single-ended, nonisolated from channel to channel 1794-IE8XOE4 - 4 single-ended, nonisolated from channel to channel
Resolution	16 bit 2's complement 320 µV/cnt 0.641 µV/cnt
Data Format	16 bit 2's complement
Conversion Type	Digital-to-Analog Converter
Output Current Terminal	0 mA output until module is configured 4...20 mA (user configurable) 0...20 mA (user configurable)
Output Voltage Terminal	0V output until module is configured ±10V (user configurable)
Output Response	~70% 1st convert; 96% 2nd convert; 100% 3rd convert
Resistive Load on mA Output	0...750 ohm over full power supply range
Current Load on voltage output	3 mA max
Absolute Accuracy ⁽²⁾	0.1% Full Scale @ 25 °C 0.1% Full Scale @ 25 °C
Accuracy Drift with Temperature	0.004% Full Scale/°C 0.004% Full Scale/°C

General Specifications for 1794-IE12, 1794-OE12, and 1794-IE8XOE4

Calibration Required	None required
Indicators	1 green/red power/status indicator
Module Location	1794-TB3G or 1794-TB3GS Terminal Base Unit
Isolation Voltage (Continuous Voltage Withstand Rating)	50V continuous Tested at 850V dc for 60 s between user power to system No isolation between individual channels
External dc Power Supply Voltage Range	24V dc nominal
Supply Current	10.0...31.2V dc (includes 5% ac ripple) 1794-IE12 - 30 mA @ 24V dc; 45 mA @ 10.0V dc 1794-OE12 - 320 mA @ 24V dc; 720 mA @ 10.0V dc 1794-IE8XOE4 - 140 mA @ 24V dc; 280 mA @ 10.0V dc
Metric Dimensions (With Module Installed in Base)	94.0H x 94.0W x 53.3D mm
Imperial Dimensions (With Module Installed in Base)	3.7H x 3.7W x 2.1D in.
Flexbus Current	80 mA
Power Dissipation	1794-IE12 - 1.2 W @ 31.2V dc; 1.1 W @ 24V dc; 0.9 W @ 10.0V dc 1794-OE12 - 4.0 W @ 31.2V dc; 4.3 W @ 24V dc; 4.0 W @ 10.0V dc 1794-IE8XOE4 - 3.0 W @ 31.2V dc; 2.3 W @ 24V dc; 2.0 W @ 10.0V dc
Thermal Dissipation	1794-IE12 - Max 4.1 BTU/hr @ 31.2V dc 1794-OE12 - Max 14.7 BTU/hr @ 24V dc 1794-IE8XOE4 - Max 10.3 BTU/hr @ 31.2V dc
Keypad Position	1794-IE12 - 3 1794-OE12 - 4 1794-IE8XOE4 - 5

Environmental Conditions	
Operational Temperature	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...60 °C (-4...140 °F)
Storage Temperature	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 Nonoperating Damp Heat): 5...95% noncondensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz
Shock	IEC60068-2-27 (Test Ea, Unpackaged shock): 30 g 50 g
Emissions	CISPR 11 Group 1, Class A (with appropriate enclosure)
ESD Immunity	EC 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 30...2000 MHz 10 V/m with 200 Hz 50% pulse 100% AM at 900 MHz 10 V/m with 200 Hz 50% pulse 100% AM at 1890 MHz 3 V/m with 1 kHz sine-wave 80% AM from 2...2.7 GHz
Conducted RF Immunity	IEC 61000-4-6: 10V rms with with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz
EFT/B Immunity	IEC 61000-4-4: ±2 kV at 5 kHz on power ports ±2 kV at 5 kHz on signal ports
Enclosure Type Rating	None (open-style)
Conductors	Wire Size Category ⁽³⁾
	0.34...2.5mm ² (22...12 AWG) solid or stranded shielded copper wire rated at 75 °C or higher 1.2 mm (3/64 in.) insulation maximum 2 on signal ports 2 on power ports
Certifications (When Product is Marked) ⁽⁴⁾	cULus UL Listed Industrial Control Equipment cULus UL Listed for Class I, Division 2, Groups A, B, C and D Hazardous locations, certified for US and Canada CE European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2; Industrial Immunity EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61326; Meas./Control/Lab., Industrial Requirements C-Tick Australian Radiocommunications Act compliant with AS/NZS CISPR 11; Industrial Emissions (all)

1 If 24V dc is removed from the module, input resistance = 10 K ohms.

2 Includes offset, gain, nonlinearity, and repeatability error terms.

3 You use this category information for planning conductor routing as described in Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1

4 See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates and other certification details.

www.rockwellautomation.com

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