



FLEX I/O ac Digital Input Modules

Cat. Nos. 1794-IA8, -IA8K, IA8I, -IA16

(Modules with a K in the last position of the catalog number are conformally coated to meet noxious gas requirements of ISA/ANSI-71.040 1985 Class G3 Environment.)

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.ab.com/manuals/gi>) 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.

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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
- recognize the consequence

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 the Allen-Bradley publication 1770-4.1 ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

WARNING When 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 FLEX I/O 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 (e.g. aluminum, plastic, etc.) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding.



ATTENTION **Preventing 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.
- If available, use a static-safe workstation.

North American Hazardous Location Approval

The following input modules are North American Hazardous Location approved: 1794-IA8, -IA8K, -IA8I and 1794-IA16.

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	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.

European Hazardous Location Approval

The following module is European Zone 2 approved: 1794-IA8K.

European Zone 2 Certification (The following applies when the product bears the EEx Marking)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

The LCIE (Laboratoire Central des Industries Electriques) certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive. The examination and test results are recorded in confidential report No. 28 682 010.

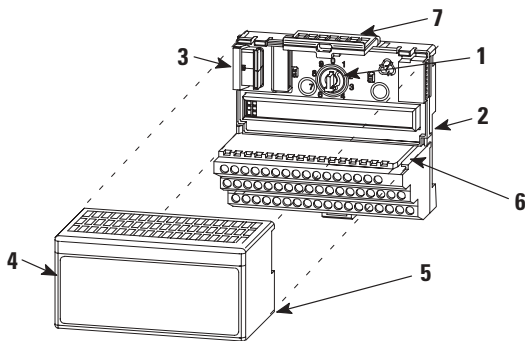
Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50021.

IMPORTANT

Observe the following additional Zone 2 certification requirements.

- This equipment is not resistant to sunlight or other sources of UV radiation.
- The secondary of a current transformer shall not be open-circuited when applied in Class I, Zone 2 environments.
- Equipment of lesser Enclosure Type Rating must be installed in an enclosure providing at least IP54 protection when applied in Class I, Zone 2 environments.
- This equipment shall be used within its specified ratings defined by Allen-Bradley.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Class I, Zone 2 environments

Installing Your ac Digital Input Module



The module mounts on a 1794 terminal base.

ATTENTION

During mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) 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 8 as required for this type of module.
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.

WARNING

If you remove or insert the module while the 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.

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.

Connecting Wiring for the 1794-IA8 and -IA8K

1. **For 1794-TB2, -TB3, or -TB3S** - Connect individual input wiring to even numbered terminals on the 0-15 row (A) as indicated in the table below.
For 1794-TBN - Connect individual input wiring to numbered terminals on the 16-33 row (B) as indicated in the table below.

2. **For 1794-TB2** - Connect the associated 120V ac power lead (L1) of the input device to the corresponding odd numbered terminals on the 0-15 row A for each input as indicated in the table below. (The odd numbered terminals on row A are internally connected to 120V ac L1.)

For 1794-TB3, or -TB3S - Connect the associated 120V ac power lead (L1) of the input device to the corresponding odd numbered terminals on the 34-51 row (C) or to the corresponding terminal on row (C) for each input as indicated in the table below. (The odd numbered terminals on row (A) and the terminals of row (C) are internally connected to 120V ac power L1.)

For 1794-TBN - Connect the associated 120V ac power lead (L1) of the input device to the corresponding odd numbered terminal on the 34-51 row (C) for each input as indicated in the table below. (The 120V ac power terminals of row (C) are internally connected together.)

3. Connect 120V ac power (L1) to terminal 34 on the 34-51 row (C).
4. Connect 120V ac common (L2) to terminal 16 on the 16-33 row (B).
5. If daisy chaining power to the next terminal base, connect a jumper from terminal 51 (+120V ac L1) on this base unit to terminal 34 on the next base unit
6. If continuing ac common to the next base unit, connect a jumper from terminal 33 (120V common L2) on this base unit to terminal 16 on the next base unit.

Wiring Connections for the 1794-IA8 and -IA8K

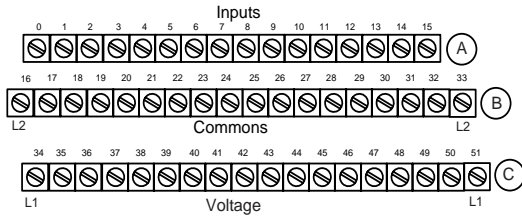
Input	1794-TB2, -TB3, -TB3S		1794-TBN	
	Input Terminal	120V ac Supply	Input Terminal	120V ac Supply
Input 0	A-0	A-1 ¹ /C-35	B-0	C-1 ²
Input 1	A-2	A-3 ¹ /C-36	B-2	C-3 ²
Input 2	A-4	A-5 ¹ /C-37	B-4	C-5 ²
Input 3	A-6	A-7 ¹ /C-38	B-6	C-7 ²
Input 4	A-8	A-9 ¹ /C-39	B-8	C-9 ²
Input 5	A-10	A-11 ¹ /C-40	B-10	C-11 ²
Input 6	A-12	A-13 ¹ /C-41	B-12	C-13 ²
Input 7	A-14	A-15 ¹ /C-42	B-14	C-15 ²

A = Input terminals (Even numbered terminals 0 thru 14)
 B = Common terminals
 C = Power terminals (C-34 and C-51 on -TB2; C-34 thru C-51 on -TB3 and -TB3S)

B = Even numbered Input terminals 0-14, ac common terminals 16 and 33
 C = Power terminals C-34 and C-51, and odd numbered input terminals 1 thru 15

1 A-1, 3, 5, 7, 9, 11, 13 and 15 on the 1794-TB2, -TB3 and -TB3S are internally connected in the module to 120V ac L1.
 2 C-1, 3, 5, 7, 9, 11, 13 and 15 on the 1794-TBN are internally connected in the module to 120V ac L1.

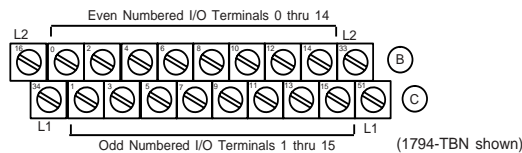
1794-TB2, -TB3 and -TB3S Terminal Base Wiring for 1794-IA8, IA8K and -IA16



(1794-TB3 shown)

- Connect 120V ac L1 power to terminal C-34
 Connect 120V ac common L2 to terminal B-16
 Use B-33 and C-51 for daisy chaining to the next terminal base unit
 (Terminals C-35 thru C-50 not available on the 1794-TB2.)

1794-TBN Terminal Base Wiring for 1794-IA8, IA8K and -IA16



(1794-TBN shown)

- L1 = 120V ac - Connect to terminal C-34
 L2 = 120V ac common - Connect to terminal B-16
 Use B-33 and C-51 for daisy chaining to the next terminal base unit

Connecting Wiring for the 1794-IA16

- For 1794-TB3, or -TB3S - Connect individual input wiring to numbered terminals on the 0-15 row (A) as indicated in the table below.
 For 1794-TBN - Connect individual input wiring to even numbered terminals on the 16-33 row (B), and to the odd numbered terminals on the 34-51 row (C) as indicated in the table below.
- For 1794-TB3, or -TB3S - Connect the associated 120V ac power lead (L1) of the input device to the corresponding terminals on the 34-51 row (C) for each input as indicated in the table below. (The 120V power terminals of row (C) are internally connected together.)
 For 1794-TBN - An external terminal strip is needed to distribute 120V ac power (L1) to each device.
- Connect 120V ac power (L1) to terminal 34 on the 34-51 row (C).
- Connect 120V ac common (L2) to terminal 16 on the 16-33 row (B).
- If daisy chaining power to the next terminal base, connect a jumper from terminal 51 (+120V ac L1) on this base unit to terminal 34 on the next base unit.
- If continuing ac common to the next base unit, connect a jumper from terminal 33 (120V common L2) on this base unit to terminal 16 on the next base unit.

Terminal Base Wiring for 1794-IA16

Input Channel	Input Terminal 1794-TB3, -TB3S	Input Terminal 1794-TBN	120V ac Supply (L1) ¹
Input 0	A-0	B-0	C-35
Input 1	A-1	C-1	C-36
Input 2	A-2	B-2	C-37
Input 3	A-3	C-3	C-38
Input 4	A-4	B-4	C-39
Input 5	A-5	C-5	C-40
Input 6	A-6	B-6	C-41
Input 7	A-7	C-7	C-42
Input 8	A-8	B-8	C-43
Input 9	A-9	C-9	C-44
Input 10	A-10	B-10	C-45
Input 11	A-11	C-11	C-46
Input 12	A-12	B-12	C-47
Input 13	A-13	C-13	C-48
Input 14	A-14	B-14	C-49
Input 15	A-15	C-15	C-50
120V ac L1	Power terminals C-34 thru C-51 (C-34 and C-51 on -TBN) are internally connected together. Connect 120V ac L1 to C-34		
120V ac L2	Common terminals B-16 thru B-33 (B-16 and B-33 for -TBN) are internally connected together. Connect 120V ac common L2 to terminal B-16		

¹When using the 1794-TBN, an external terminal strip is needed to connect the 120V ac power connections.

Connecting Wiring for the 1794-IA8I

- For 1794-TB2, -TB3, or -TB3S - Connect individual input wiring to even numbered terminals on the 0-15 row (A) as indicated in the table below.
 For 1794-TBN - Connect individual input wiring to even numbered terminals 0-14 on the 16-33 row (B) as indicated in the table below.
- For 1794-TB2, -TB3, or -TB3S - Connect the associated 120V ac common (L2) of the isolated supply to the corresponding odd numbered terminals on the 0-15 row A for each input as indicated in the table below.
 For 1794-TBN - Connect the associated 120V ac common lead (L2) of the isolated supply to the corresponding odd numbered terminal 1-15 on the 34-51 row (C) as indicated in the table below.

IMPORTANT

Individual isolated 120V ac L1 power leads must be run externally to each of the input devices.

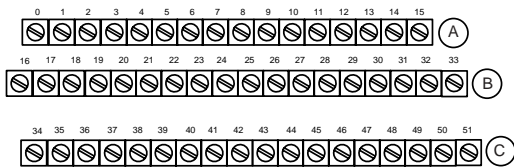
Wiring Connections for the 1794-IA8I

Input	1794-TB2, -TB3, -TB3S		1794-TBN	
	Input Terminal	120V ac L2 Common	Input Terminal	120V ac L2 Common
Input 0	A-0	A-1	B-0	C-1
Input 1	A-2	A-3	B-2	C-3
Input 2	A-4	A-5	B-4	C-5
Input 3	A-6	A-7	B-6	C-7
Input 4	A-8	A-9	B-8	C-9
Input 5	A-10	A-11	B-10	C-11
Input 6	A-12	A-13	B-12	C-13
Input 7	A-14	A-15	B-14	C-15

A = Even numbered terminals 0 thru 14 for customer connections; corresponding odd numbered 120V ac common L2 terminals 1 thru 15 for customer connections from isolated power supply.

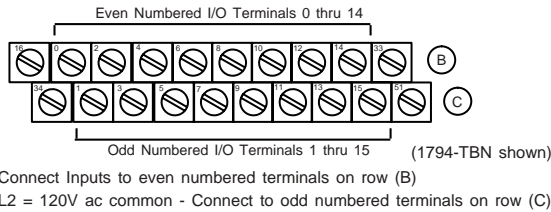
B = Even numbered terminals 0 thru 14 for customer connections; C = Odd numbered 120V ac common L2 terminals 1 thru 15 for customer connections from isolated power supply.

1794-TB2, -TB3, or -TB3S Terminal Base Wiring for the 1794-IA8I



Connect Inputs to even numbered terminals on row (A) (1794-TB3 shown)
 Connect 120V ac common L2 to odd numbered terminals on row (A)

1794-TBN Terminal Base Wiring for 1794-IA8I



Configuring Your ac Input Module

Image Table Memory Map for the 1794-IA8, -IA8K and -IA8I

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									17	16	15	14	13	12	11	10
Write	Not used - set to 0												Filter Time FT 0-7			

Where I = Input
 FT = Input filter time.

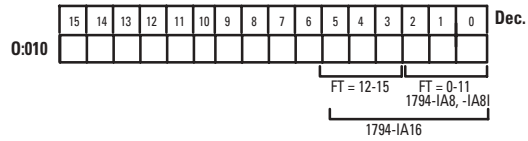
Image Table Memory Map for the 1794-IA16

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 1	I	I	I	I	I	I	19	18	17	16	15	14	13	12	11	10
Write 3	Not used - set to 0										Input Filter FT 12-15			Input Filter FT 0-11		

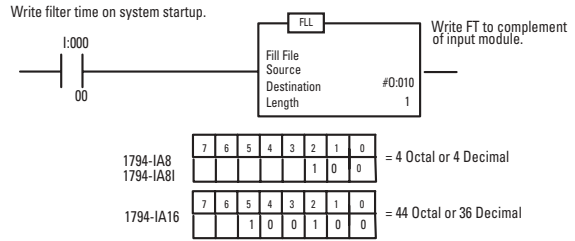
Where I = Input
 FT = Input filter time

Setting the Input Filter Time

You can increase the input filter time (FT) for channels 00-07 (1794-IA8, -IA8K, -IA8I) and channels 00-15 (1794-IA16) by setting the corresponding bits in the **output image table** (complementary word) for the module.



For example, to increase the off-to-on filter time to 12ms for all inputs at address rack 1, module group 0, set bits and program as shown below.



To increase the filter time, set the bits according to the table below.

Input Filter Time

Bits			Description	Selected Filter Time	Maximum Filter Time 1794-IA8, -IA8K (ms)	Maximum Filter Time 1794-IA8I (ms)	Maximum Filter Time 1794-IA16 (ms)			
02	01	00	Filter Time - inputs 00-11	Off to On	On to Off	Off to On	On to Off			
05	04	03	Filter Time - inputs 12-15							
0	0	0	Filter Time 0 (Default)	256µs	8.4	26.4	8.4	26.4	7.5	26.5
0	0	1	Filter Time 1	512µs	8.6	26.6	8.6	26.6	8	27
0	1	0	Filter Time 2	1ms	9	27	9	27	9	28
0	1	1	Filter Time 3	2ms	10	28	10	28	10	29
1	0	0	Filter Time 4	4ms	12	30	12	30	12	31
1	0	1	Filter Time 5	8ms	16	34	16	34	16	35
1	1	0	Filter Time 6	16ms	24	42	24	42	24.5	44
1	1	1	Filter Time 7	32ms	40	58	40	58	42	60.5

Specifications

Specifications	1794-IA8, 1794-IA8K	1794-IA8I
Number of Inputs	8, (1 group of 8), nonisolated	8 isolated
Module Location	Cat. No. 1794-TB2, -TB3, -TB3S and -TBN Terminal Base Units	
On-state Voltage	65V ac minimum 120V ac nominal 132V ac maximum	
On-state Current ¹	7.1mA minimum	
Off-state Voltage	43V ac maximum	
Off-state Current	2.9mA minimum	
Input Impedance	10.6K ohms nominal	
Nominal Input Current	12mA @ 120V ac, 60Hz	
Isolation Voltage	Tested at 2150V dc for 1s between user and system No isolation between individual channels	Tested at 2150V dc for 1s between user and system and between individual channels
Input Filter Time	Refer to Input Filter Time table	
Flexbus Current	30mA @5V dc	
Power Dissipation	4.5W maximum @ 132V ac	
Thermal Dissipation	Maximum 15.3 BTU/hr @ 132V ac	

Specifications - Cat. No. 1794-IA16

Number of Inputs	16 (1 group of 16), nonisolated
Module Location	Cat. No. 1794-TB3, -TB3S and -TBN Terminal Base Units
On-state Voltage	74V ac minimum 120V ac nominal 132V ac maximum
On-state Current ¹	5.49mA @ 74V ac, 47Hz 12.06mA @ 120V ac, 60Hz 14.81mA @ 132V ac, 63Hz
Off-state Voltage	20V ac maximum
Off-state Current	2.9mA minimum
Nominal Input Impedance	10K ohms
Nominal Input Current	12mA @ 120V ac, 60Hz
Isolation Voltage	Tested at 2150V dc for 1s between user and system No isolation between individual channels
Flexbus Current	20mA
Power Dissipation	6.4W maximum @ 132V ac
Thermal Dissipation	Maximum 21.8 BTU/hr @ 132V ac

General Specifications

Input Filter Time ² Off to On On to Off	Refer to Input Filter Time chart for values.
Terminal Base Screw Torque	7 pound-inches (0.8Nm) 9 pound-inches (1.0Nm) for 1794-TBN
Dimensions (with module installed)	3.7H x 3.7W x 2.7D inches 94H x 94W x 69D mm
Indicators (field side indication, customer device driven)	1794-IA8, -IA8K - 8 yellow status indicators 1794-IA8I - 8 yellow status indicators 1794-IA16 - 16 yellow status indicators
External ac power Supply voltage Voltage range	120V ac nominal 1794-IA8, -IA8K, -IA8I - 85 to 132V ac, 47-63Hz 1794-IA16 - 74 to 132V ac, 47-63Hz
Keyswitch Position	8
Environmental Conditions	
Operating 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): 0 to 55°C (32 to 131°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz
Shock	IEC60068-2-27 (Test Ea, Unpackaged shock): Operating 30g Non-operating 50g
Emissions	CISPR 11: Group 1, Class A (with appropriate enclosure)
ESD Immunity	IEC 61000-4-2: 4kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100% AM at 900Hz
EFT/B Immunity	IEC 61000-4-4: ±2kV at 5kHz on signal ports ±2kV at 5kHz on power ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports ±1kV line-line(DM) and ±2kV line-earth(CM) on power ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Enclosure Type Rating	None (open-style)
Conductors - Wire Size	12-22AWG (2.5mm ² -0.34mm ²) stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum
Category ³	2
Certifications (when product is marked) ⁴	UL UL Listed Industrial Control Equipment CSA CSA certified for Class 1, Division 2, Groups A, B, C and D Hazardous locations EEEx⁵ European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n" (European Zone 2) - (1794-IA8K only) CE⁴ European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity European Union 73/23/EEC LVD Directive, compliant with: EN 61131-2; Programmable Controllers C-Tick⁴ - Australian Radiocommunications Act compliant with AS/NZS CISPR 11, Industrial Emissions

1 Ac inputs compatible with proximity switches with leakage ratings of $I_{leak} < 2.5mA$ and I_{on} minimum = 5mA.
2 Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off filter time is time from the input signal dropping below the valid level to recognition by the module.
3 You use this category information for planning conductor routing as described in Allen-Bradley publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.
4 For the latest up-to-date information, see the Product Certification link at www.ab.com for Declarations of Conformity, Certificates and other certification details. For notification of any additional release notes, refer to www.ab.com/manuals/.

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