



FLEX I/O Digital Input/Output Modules Cat. No. 1794-IB10XOB6, 1794-IB16XOB16P

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.

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

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. Attention symbols 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.

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.

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



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.

European Hazardous Location Approval

The following module is European Zone 2 approved: 1794-IB10XOB6.

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 LCIÉ (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.

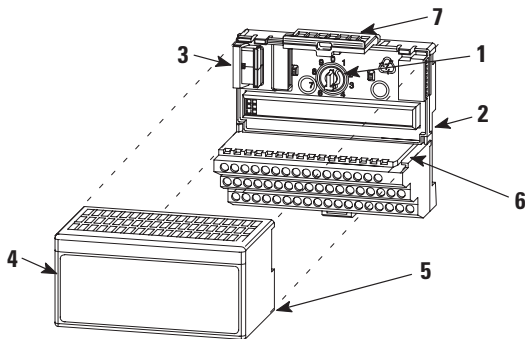
- This equipment is not resistant to sunlight or other sources of UV radiation.
- The secondary of a current transformer shall not be open-circuited when applied in Class I, Zone 2 environments.
- Equipment of lesser Enclosure Type Rating must be installed in an enclosure providing at least IP54 protection 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

North American Hazardous Location Approval

The following modules are North American Hazardous Location approved: 1794-IB10XOB6 and 1794-IB16XOB16P.

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>
<p>WARNING</p>  <p>EXPLOSION HAZARD</p> <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. 	<p>AVERTISSEMENT</p>  <p>RISQUE D'EXPLOSION</p> <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.

Installing Your Digital Input/Output Module



The 1794-IB10XOB6 module mounts on a 1794-TB3 or -TB3S terminal base. The 1794-IB16XOB16P module mounts on a 1794-TB32 or -TB32S 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.

- Rotate the keyswitch (1) on the terminal base (2) clockwise to position 2 as required for this type of module.
- 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.**
- 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.

- Position the module (4) with its alignment bar (5) aligned with the groove (6) on the terminal base.
- 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-IB10XOB6

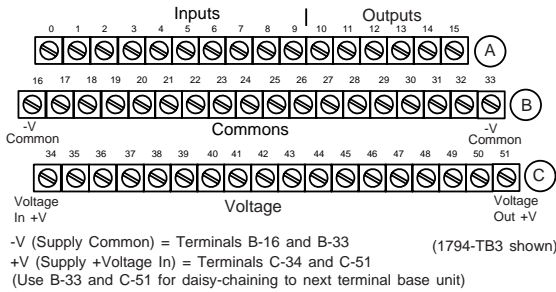
- Connect individual input and output wiring to numbered terminals on the 0-15 row (A) as indicated in the table below.
- Connect the associated +V dc power lead of the input device to the corresponding terminal on the 34-51 row (C) for each input as indicated in the table below. (The +V power terminals of row (C) are internally connected together.)
- Connect the associated input device common (3-wire devices only) and output device common to the corresponding terminals on the 16-33 row (B) for each input and output as indicated in the table below. (Commons are internally connected together.)
- Connect +V dc power to terminal 34 on the 34-51 row (C).
- Connect dc common to terminal 16 on the 16-33 row (B).
- If daisy chaining power to the next terminal base, connect a jumper from terminal 51 (+V dc) on this base unit to terminal 34 on the next base unit.
- If continuing dc common to the next base unit, connect a jumper from terminal 33 (common) on this base unit to terminal 16 on the next base unit.

Wiring Connections for the 1794-IB10XOB6

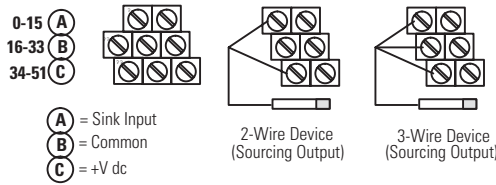
Input ¹	Signal	Return	Supply
Sink Input			
Input 0	A-0	B-17	C-35
Input 1	A-1	B-18	C-36
Input 2	A-2	B-19	C-37
Input 3	A-3	B-20	C-38
Input 4	A-4	B-21	C-39
Input 5	A-5	B-22	C-40
Input 6	A-6	B-23	C-41
Input 7	A-7	B-24	C-42
Input 8	A-8	B-25	C-43
Input 9	A-9	B-26	C-44
Source Output			
Output 0	A-10	B-27	
Output 1	A-11	B-28	
Output 2	A-12	B-29	
Output 3	A-13	B-30	
Output 4	A-14	B-31	
Output 5	A-15	B-32	
+V dc	C-34 thru C-51 (internally connected together)		
Common	B-16 thru B-33 (internally connected together)		

¹ Two wire input devices use signal and supply terminals. Three wire devices use signal, return and supply terminals.

1794-TB3 and -TB3S Terminal Base Wiring for the 1794-IB10XOB6



2 and 3-Wire Input Wiring for 1794-IB10XOB6



Connecting Wiring for the 1794-IB16XOB16P

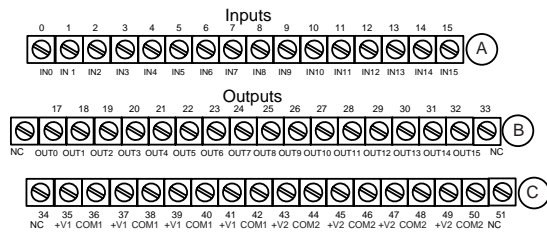
1. Connect individual input wiring (IN0 to IN15) to numbered terminals on the 0-15 row (A) as indicated in the table below.
2. Connect the associated power to the +V1 terminal (35, 37, 39 or 41) on the 34-51 row (C) as indicated in the table below.
3. Connect the associated common (-V1) for IN0 to IN15 to COM1 (terminal 36, 38, 40 or 42) on the 34-51 row (C).
4. Connect individual output wiring (OUT0 to OUT15) to terminals 17 thru 32 on the 16-33 row (B) as indicated in the table below. (Note: Do not connect to terminals 16 or 33.)
5. Connect the associated power to the +V2 terminal (43, 45, 47 or 49) on the 34-51 row (C) as indicated in the table below.
6. Connect the associated common (-V2) for OUT0 to OUT15 to COM2 (terminal 44, 46, 48 or 50) on the 34-51 row (C).
7. If continuing input wiring to the next terminal base unit, connect a jumper from terminal 41 (+V1) to the power terminal on the next base unit; connect a jumper from terminal 42 (COM1) to the common terminal on the next base unit.
8. If continuing output wiring to the next terminal base unit, connect a jumper from terminal 49 (+V2) to the power terminal on the next base unit; connect a jumper from terminal 50 (COM2) to the common terminal on the next base unit.

Wiring for 1794-IB16XOB16P (use with 1794-TB32 or -TB32S terminal base unit)

Input	Signal	Return	Supply ¹
Input 0	A-0	V1 Return connected to terminals 36, 38, 40 and 42	+V1 connected to terminals 35, 37, 39 and 41
Input 1	A-1		
Input 2	A-2		
Input 3	A-3		
Input 4	A-4		
Input 5	A-5		
Input 6	A-6		
Input 7	A-7		
Input 8	A-8		
Input 9	A-9		
Input 10	A-10		
Input 11	A-11		
Input 12	A-12		
Input 13	A-13		
Input 14	A-14		
Input 15	A-15		
Output 0	B-17	V2 Return connected to terminals 44, 46, 48 and 50	+V2 connected to terminals 43, 45, 47 and 49
Output 1	B-18		
Output 2	B-19		
Output 3	B-20		
Output 4	B-21		
Output 5	B-22		
Output 6	B-23		
Output 7	B-24		
Output 8	B-25		
Output 9	B-26		
Output 10	B-27		
Output 11	B-28		
Output 12	B-29		
Output 13	B-30		
Output 14	B-31		
Output 15	B-32		
+V1 dc power	Power terminals 35, 37, 39 and 41		
Com1 dc Return	Common terminals 36, 38, 40 and 42		
+V2 dc power	Power terminals 43, 45, 47 and 49		
Com2 dc Return	Common terminals 44, 46, 48 and 50		

¹2-wire input devices use signal and supply terminals; 3-wire devices use signal, return and supply terminals

1794-TB32 Terminal Base Wiring for the 1794-IB16XOB16P



+V1 = Terminals 35, 37, 39 and 41
 +V2 = Terminals 43, 45, 47 and 49
 COM1 = Terminals 36, 38, 40 and 42
 COM2 = Terminals 44, 46, 48 and 50
 NC = No connections (terminals 16, 33, 34 and 51)
 (1794-TB32 shown)

Configuring Your Module

You configure your module by setting bits in the configuration word (word 3)

1794-IB10XOB6

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	Not used						19	18	17	16	15	14	13	12	11	10
Write 2	Not used									0	0	0	0	0	0	0
Write 3	Not used						FT			Not used						

Where:
 I = Input
 O = Output
 FT = Input Filter Time for input channels

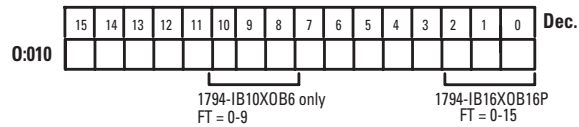
1794-IB16XOB16P

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	I	I	I	I	I	I	I	I	I	I
Write 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Write 3	Not used												Input Filter FT 0-15			

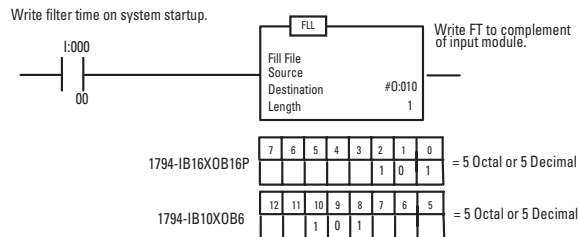
Where:
 I = Input
 O = Output
 FT = Input Filter Time for all 16 inputs (0-15)

Setting the Input Filter Time

To set the input filter time, set the associated bits in the output image (complementary word) for the module.



For example, to increase the off-to-on filter time to 8ms for all inputs at address rack 1, module group 0, in configuration word 3, set bits as shown below.



Filter times are shown in the following table.

Input Filter Time

Bits ¹			Description	
02	01	00	Filter Time for Inputs	Off to On/On to Off
10	09	08		
0	0	0	Filter Time 0	0.25ms
0	0	1	Filter Time 1	0.5ms
0	1	0	Filter Time 2	1.0ms
0	1	1	Filter Time 3	2.0ms
1	0	0	Filter Time 4	4.0ms
1	0	1	Filter Time 5	8.0ms
1	1	0	Filter Time 6	16.0ms
1	1	1	Filter Time 7	32.0ms

¹ Use bits 00, 01 and 02 for 1794-IB16XOB16P; use bits 08, 09 and 10 for 1794-IB10XOB6

Specifications

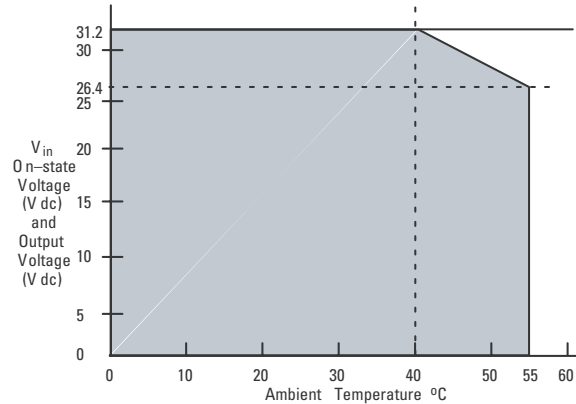
Specifications	1794-IB10XOB6	1794-IB16XOB16P
Input		
Number of Inputs	10, nonisolated, sinking	16, nonisolated, sinking
On-state Voltage	10V dc minimum 24V dc nominal 31.2V dc maximum	
On-state Current	2.0mA minimum 8.0mA nominal at 24V dc 11.0mA maximum	2.0mA minimum 8.8mA nominal at 24V dc 12.1mA maximum
Off-state Voltage	5.0V dc maximum	
Off-state Current	1.5mA minimum	
Input Impedance	4.8K ohms	2.5K ohms
Indicators (field side indication, customer device driven)	10 yellow status indicators	16 yellow status indicators
Output		
Number of Outputs	6, nonisolated, sourcing	16, (1 group of 16) nonisolated, sourcing
On-state Voltage Range	10V dc minimum 24V dc nominal 31.2V dc maximum	
Output Current Rating	2A per output 10A per module maximum	0.5A per output 8A per module maximum
Off-state Voltage	31.2V maximum	
On-state Current	1.0mA minimum per channel 2.0A maximum per channel 10A maximum per module	1.0mA minimum per channel 0.5A maximum per channel 8A maximum per module
Surge Current	4.0A for 50ms, repeatable every 2s	1.5A for 50ms, repeatable every 2s
Off-state Leakage	0.5mA maximum	
On-state Voltage Drop	1V dc @ 2A, 0.5V dc @ 1A maximum	0.5V dc @ 1A maximum
Output Signal Delay ¹	Off to on - 0.5ms maximum On to Off - 1.0ms maximum	
Indicators (field side indication, logic driven)	6 yellow status indicators	16 yellow status indicators
Isolation Voltage	Tested at 2121V dc for 1s between user and system No isolation between individual channels	Input to backplane; Output to backplane; Input channels to output channels - - 1250V ac (rms) isolation Tested at 2121V dc for 1s between user and system No isolation between individual channels
Flexbus Current	35mA	80mA
Power Dissipation	6.0W maximum @ 31.2V dc	7.0W maximum @ 31.2V dc
Thermal Dissipation	Maximum 20.3 BTU/hr @ 31.2V dc	Maximum 23.9 BTU/hr @ 31.2V dc
External dc power Supply voltage Voltage Range	24V dc nominal 10 to 31.2V dc (includes 5% ac ripple)	
Output Supply Current	15mA @ 19.2V dc; 19mA @ 24V dc 8mA @ 10V dc; 25mA @ 31.2V dc	
Fusing	Module outputs are not fused. Fusing is recommended. If fusing is desired, you must supply external fusing. Use SAN-O M04-3A or Littelfuse 235-003 fuses.	Outputs are electronically protected

General Specifications

Module Location	1794-IB10XOB6 - Cat. No. 1794-TB2, -TB3, -TB3S Terminal Base Unit 1794-IB16XOB16P - 1794-TB3Z, -TB3ZS Terminal Base Unit
Input Filter Time ² Off to On On to Off	0.25ms, 0.5ms, 1ms, 2ms, 4ms, 8ms, 16ms, 32ms 0.25ms, 0.5ms, 1ms, 2ms, 4ms, 8ms, 16ms, 32ms 0.25ms default - Selectable
Terminal Base Screw Torque	7 pound-inches (0.8Nm)
Dimensions (with module installed)	3.7H x 3.7W x 2.7D inches 94H x 94W x 69D mm
Keyswitch Position	2
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
EFT/B Immunity	IEC 61000-4-4: ±2kV at 5kHz on signal ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 30MHz
Enclosure Type Rating	None (open-style)
Conductors Wire Size Category ³	22-12AWG (0.34-2.5mm ²) stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum 2
Certifications (when product is marked) ⁴	UL UL Listed Industrial Control Equipment (1794-IB10XOB6) cULus UL Listed Industrial Control Equipment, certified for US and Canada (1794-IB16XOB16P) cULus UL Listed for Class I, Division 2, Groups A, B, C and D Hazardous locations certified for US and Canada (1794-IB16XOB16P) CSA CSA certified for Class I, Division 2, Groups A, B, C and D Hazardous locations (1794-IB10XOB6 only) EEx⁴ European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n" (Zone Z) - (1794-IB10XOB6 only) CE⁵ 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 (1794-IB10XOB6, 1794-IB16XOB16P) C-Tick⁴ Australian Radiocommunications Act compliant with AS/NZS CISPR 11, Industrial Emissions (1794-IB10XOB6, 1794-IB16XOB16P)

- 1 Output off-to-on or on-to-off delay is the time from the module issuing an output on or off until the output actually turns on or off.
- 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/.

Derating Chart for the 1794-IB16XOB16P



The area within the curve represents the safe operating range for the module under various conditions of user supplied dc supply voltages and ambient temperatures.

☐ = All mounting positions (including normal horizontal, vertical, inverted horizontal) safe operating range

www.rockwellautomation.com

Corporate Headquarters

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

Publication 1794-IN083B-EN-P - November 2004

Supersedes Publication 1794-IN083A-EN-P - December 2002, 1794-IN024C-EN-P - November 2002

PN 957782-96

Copyright © 2004 Rockwell Automation, Inc. All rights reserved. Printed in the U.S.A.