



# Installation Instructions

## FLEX I/O Digital DC Input/Output Modules



1794-OB8EPXT, 1794-IB16XT, 1794-OB16PXT,


1794-IB10XOB6XT (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 [SGL-1.1](#) available from your local Rockwell Automation sales office or online at <http://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. 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.

<b>WARNING</b> 	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.
<b>IMPORTANT</b>	Identifies information that is critical for successful application and understanding of the product.
<b>ATTENTION</b> 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you: <ul style="list-style-type: none"> <li>• identify a hazard</li> <li>• avoid a hazard</li> <li>• recognize the consequence</li> </ul>

<b>ATTENTION</b> 	<h3>Environment and Enclosure</h3> <p>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 (6562 ft) without derating.</p> <p>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.</p> <p>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 non-metallic. 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.</p> <p>In addition to this publication, see:</p> <ul style="list-style-type: none"> <li>• Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, Allen-Bradley publication <a href="#">1770-4.1</a>.</li> <li>• NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.</li> </ul>
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**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 (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately.

**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.

**ATTENTION**  Personnel responsible for the application of safety-related Programmable Electronic Systems (PES) shall be aware of the safety requirements in the application of the system and shall be trained in using the system.

**ATTENTION**  Do not remove or replace a Terminal Base unit while power is applied. Interruption of the backplane can result in unintentional operation or machine motion.

**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**  To comply with the CE Low Voltage Directive (LVD), all connections to this equipment must be powered from a source compliant with the following:  
Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

### European Hazardous Location Approval

The following output modules are European Zone 2 approved: 1794-OB8EPXT, 1794-IB16XT, 1794-OB16PXT, 1794-IB10XOB6XT

### 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 and 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.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15 and EN 60079-0.

**WARNING**

Observe the following additional Zone 2 certification requirements.

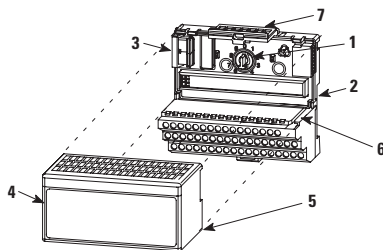
- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment must be installed in an enclosure providing at least IP54 protection when applied in Zone 2 environments.
- This equipment shall be used within its specified ratings defined by Allen-Bradley.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Zone 2 environments.
- Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.

### North American Hazardous Location Approval

The following output modules are North American Hazardous Location approved: 1794-OB8EPXT, 1794-IB16XT, 1794-OB16PXT, 1794-IB10XOB6XT.

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.
<b>WARNING</b>	<b>AVERTISSEMENT</b>
<b>EXPLOSION HAZARD</b>	<b>RISQUE D'EXPLOSION</b>
<ul style="list-style-type: none"> <li>• Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.</li> <li>• 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.</li> <li>• Substitution of components may impair suitability for Class I, Division 2.</li> <li>• If this product contains batteries, they must only be changed in an area known to be nonhazardous.</li> </ul>	<ul style="list-style-type: none"> <li>• Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.</li> <li>• 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.</li> <li>• La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.</li> <li>• S'assurer que l'environnement est classé non dangereux avant de changer les piles.</li> </ul>

### Installing Your Digital Output Module

**ATTENTION**

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

The module mounts on a 1794 terminal base.

1. Rotate the keyswitch (1) on the terminal base (2) clockwise to position 2 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.
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-OB8EPXT, 1794-OB16PXT and 1794-IB10XOB6XT

1. Connect individual output wiring to numbered terminals on the 0...15 row as indicated in the accompanying table (1794-OB16P - terminals 0...15, 1794-OB8EPXT- even numbered terminals 0...14).
2. Connect the associated -V output common to the corresponding terminal on the 16-33 row (B) for each output as indicated in the accompanying table. (Commons are internally connected together.)  
For 1794-OB8EPXT, connect associated output common to odd-numbered terminals on row A or associated terminals on row B.
3. For -IB10XOB6XT, 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. (The +V power terminals of row (C) are internally connected together.)
4. For -IB10XOB6XT, 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.)
5. Connect +V DC power to terminal 34 on the 34...51 row (C).
6. Connect -V DC common to terminal 16 on the 16...33 row (B).
7. 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.
8. If continuing -V 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.

### Connecting Wiring for the 1794-IB16XT

1. Connect individual input wiring to numbered terminals on the 0...15 row (A) as indicated in the accompanying table.
2. 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 accompanying table. (The +V power terminals of row (C) are internally connected together.)
3. Connect the associated input common (3-wire devices only) to the corresponding terminal on the 16...33 row. (B) for each input as indicated in the accompanying table. (Commons are internally connected together.)
4. Connect +V DC power to terminal 34 on the 34...51 row (C).
5. Connect DC common to terminal 16 on the 16...33 row (B).
6. 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.
7. 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-OB16PXT (use with 1794-TB2, -TB3, or -TB3S Terminal Base Units)**

Output	Output Terminal	Common Terminal
Output 0	A-0	B-17
Output 1	A-1	B-18
Output 2	A-2	B-19
Output 3	A-3	B-20
Output 4	A-4	B-21
Output 5	A-5	B-22
Output 6	A-6	B-23
Output 7	A-7	B-24
Output 8	A-8	B-25
Output 9	A-9	B-26
Output 10	A-10	B-27
Output 11	A-11	B-28
Output 12	A-12	B-29
Output 13	A-13	B-30
Output 14	A-14	B-31
Output 15	A-15	B-32
+V dc	C-34 thru C-51 (C-34 and C-51 for 1794-TB2)	
Common	B-16 thru B-33	

**Wiring Connections for the 1794-OB8EPXT**

Output	1794-TB2, -TB3, TB3S		1794-TBN	
	Output Terminal	Common Terminal <sup>(1)</sup>	Output Terminal	Common Terminal <sup>(2)</sup>
Output 0	A-0	A-1/B-17	B-0	C-1
Output 1	A-2	A-3/B-18	B-2	C-3
Output 2	A-4	A-5/B-19	B-4	C-5
Output 3	A-6	A-7/B-20	B-6	C-7
Output 4	A-8	A-9/B-21	B-8	C-9
Output 5	A-10	A-11/B-22	B-10	C-11
Output 6	A-12	A-13/B-23	B-12	C-13
Output 7	A-14	A-15/B-24	B-14	C-15
+V dc	C-34 thru C-51 (C-34 and C-51 for 1794-TB2, -TBN)			
Common	B-16 thru B-33 (B-16 and B-33 for 1794-TBN)			

- <sup>(1)</sup> 1794-TB2, -TB3, -TB3S - A-1, A-3, A-5, A-7, A-9, A-11, A-13 and A-15 are connected together inside the module to 24V DC common.
- <sup>(2)</sup> 1794-TBN - C-1, C-3, C-5, C-7, C-9, C-11, C-13 and C-15 are connected together inside the module to 24V DC common.

**Wiring Connections for 1794-IB16XT (use with 1794-TB3 or -TB3S Terminal Base Units)**

Input	Input Terminal	Voltage Terminal	Common Terminal <sup>(1)</sup>
Input 0	A-0	C-35	B-17
Input 1	A-1	C-36	B-18
Input 2	A-2	C-37	B-19
Input 3	A-3	C-38	B-20
Input 4	A-4	C-39	B-21
Input 5	A-5	C-40	B-22
Input 6	A-6	C-41	B-23
Input 7	A-7	C-42	B-24
Input 8	A-8	C-43	B-25
Input 9	A-9	C-44	B-26
Input 10	A-10	C-45	B-27
Input 11	A-11	C-46	B-28
Input 12	A-12	C-47	B-29
Input 13	A-13	C-48	B-30
Input 14	A-14	C-49	B-31
Input 15	A-15	C-50	B-32
+V dc	C-34 thru C-51		
Common	B-16 thru B-33		

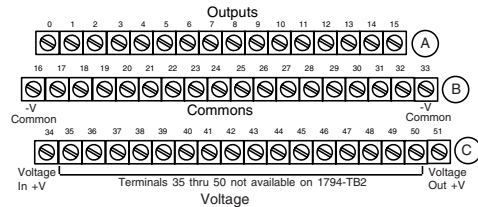
<sup>(1)</sup> 3-wire devices use input, supply and common; 2-wire devices use input and supply

**Wiring Connections for the 1794-IB10XOB6XT**

Input <sup>(1)</sup>	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)		

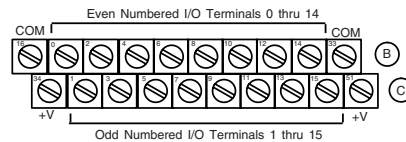
<sup>(1)</sup> Two wire input devices use signal and supply terminals. Three wire devices use signal, return and supply terminals.

**1794-TB2, -TB3 and -TB3S Terminal Base Wiring for 1794-OB8EPXT and 1794-OB16PXT**



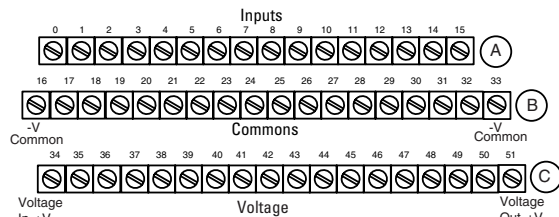
Connect -V (Supply Common) to terminal B-16 (1794-TB3 shown)  
 Connect +V (Supply +Voltage) to terminal C-34  
 (Use B-33 and C-51 for daisy-chaining to next terminal base unit.)  
 Total current draw through the terminal base is limited to 10A. Separate power connections to each terminal base may be necessary.

**1794-TBN Terminal Base Wiring for the 1794-OB8EPXT**



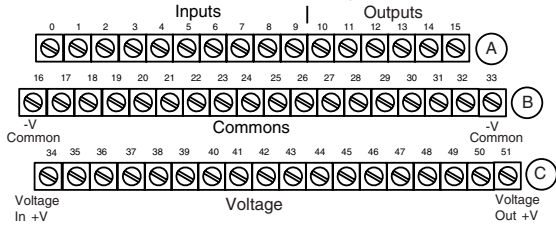
Connect -V (Supply Common) to terminal B-16  
 Connect +V (Supply +Voltage) to terminal C-34  
 (Use B-33 and C-51 for daisy-chaining to next terminal base unit.)  
 Total current draw through the terminal base is limited to 10A. Separate power connections to each terminal base may be necessary.

**1794-TB3 and -TB3S Terminal Base Wiring for 1794-IB16XT**



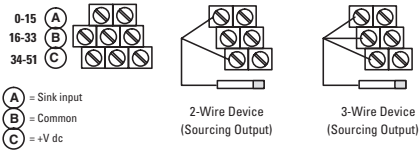
Connect V common to terminals B-16 (1794-TB3 shown)  
 Connect +V to terminal C-34  
 Use B-33 and C-51 to daisy-chaining to the next terminal base unit

**1794-TB3 and -TB3S Terminal Base Wiring for the 1794-IB10XOB6XT**



-V (Supply Common) = Terminals B-16 and B-33 (1794-TB3 shown)  
 +V (Supply +Voltage In) = Terminals C-34 and C-51  
 (Use B-33 and C-51 for daisy-chaining to next terminal base unit)

**2 and 3-Wire Input Wiring for 1794-IB16XT, -IB10XOB6XT**



**Configuring Your Module**

You configure your output/input module by setting bits in the configuration word.

**Configuration**

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

<b>1794-OB8EPXT</b>																	
Read	F7	F6	F5	F4	F3	F2	F1	F0	Reserved (see note)								
Write	Not used								FR	07	06	05	04	03	02	01	00

<b>1794-OB16PXT</b>																
Read	Not used															
Write	O15	O14	O13	O12	O11	O10	O9	O8	O7	O6	O5	O4	O3	O2	O1	O0
Write 1794-OB 32P only	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

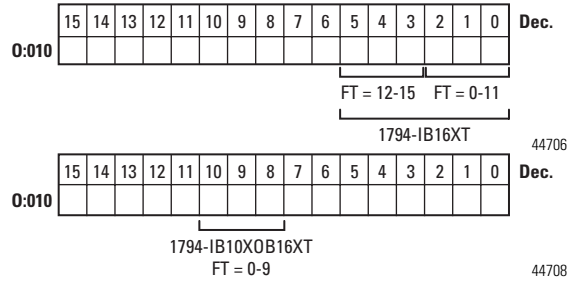
<b>1794-IB16XT</b>																
Read 1	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Read 2	C = Counter Input value of input 15															
Write 1	Not used		CF	CR	Not used						Input Filter 12-15			Input Filter 0-11		

<b>1794-IB10XOB6XT</b>																
Read 1	Not used						I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Write 2	Not used						O5	O4	O3	O2	O1	O0				
Write 3	Not used						FT			Not used						

Where: 0 = Output - 00 corresponds to output 0, 01 corresponds to output 1  
 F = Overload fault bits - 1 = fault present; 0 = no fault  
 FR = Fault reset bit - 1 = reset output; 0 = no change  
 I = Input  
 C = Counter value for input 15  
 CR = Counter reset  
 CF = Counter fast - where 1 = fast input (raw data), 0 = standard input filtered data  
 FT = Input Filter Time for input channels  
 1794-OB16PXT uses outputs 0-3  
 NOTE: C, CR and CF not available when used with any series 1794-ASB or 1794-ASB2 remote I/O adapter modules.  
 NOTE: The unused lower byte in read word 1 floats during operation. Do not use this byte for fault status.  
 See Programming below.

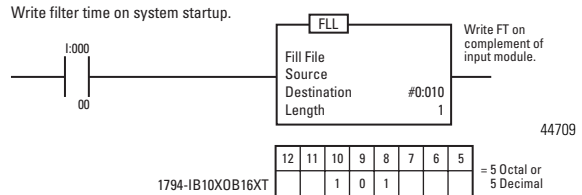
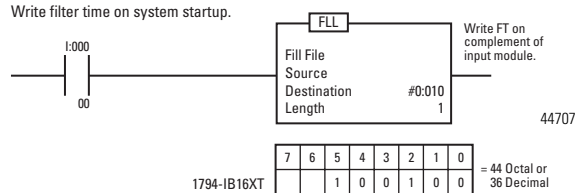
**Setting the Input Filter Time (1794-IB16XT, -IB10XOB6XT)**

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



As an example for 1794-IB16XT, to increase the off-to-on filter time to 4 ms for all inputs at address rack 1, module group 0, set bits and program as shown below.

For 1794-IB10XOB6XT, increase the off-to-on filter time to 8 ms for all inputs at address rack 1, module group 0, in configuration word 3, by setting bits as shown below.



Refer to the Input Filter time chart below for other bit settings.

**Input Filter Time (1794-IB16XT)**

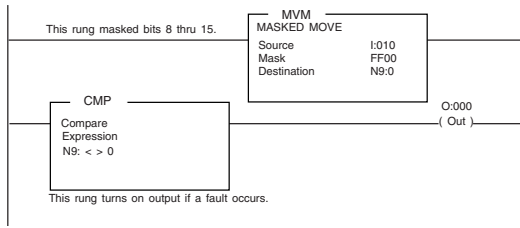
Bits	Description - Filter Time	Filter Time
<b>02 01 00</b>	<b>Inputs 0 thru 11</b>	<b>1794-IB16XT</b>
0 0 0	Filter time 0 (default)	0.25 ms
0 0 1	Filter time 1	0.5 ms
0 1 0	Filter time 2	1 ms
0 1 1	Filter time 3	2 ms
1 0 0	Filter time 4	4 ms
1 0 1	Filter time 5	8 ms
1 1 0	Filter time 6	16 ms
1 1 1	Filter time 7	32 ms

**Input Filter Time (1794-IB10XOB6XT)**

Bits	Description
<b>10 09 08</b>	<b>Filter Time for Inputs</b>
0 0 0	Filter Time 0
0 0 1	Filter Time 1
0 1 0	Filter Time 2
0 1 1	Filter Time 3
1 0 0	Filter Time 4
1 0 1	Filter Time 5
1 1 0	Filter Time 6
1 1 1	Filter Time 7

## Programming the 1794-OB8EPXT

If your program automatically checks for fault bits, bits 8...15 of read word 1 must be masked. This is a sample program for a module at rack address 1, group 0. Add similar rungs to your program.



## Resetting a Fault on the 1794-OB8EPXT

Faults can be reset 3 ways: press the fault reset button on the front of the module; or toggle the output reset bit (write word 1, bit 08); or cycle backplane power.

## Using the Reset Button on the 1794-OB8EPXT

When you press the reset button, the fault indicator for the faulted output turns off for about 1.2 s. After the delay, the faulted output attempts to turn on. If the external condition causing the fault is corrected, the output will remain on, the fault indicator is off, and the status indicator is on.

## Specifications

### Output Modules

Attribute	1794-OB8EPXT	1794-OB16PXT	1794-IB10XOB6XT
Number of outputs	8 (1 group of 8), nonisolated, sourcing	16 nonisolated, sourcing	6 nonisolated, sourcing
Module location	Cat. No. 1794-TB2, -TB3, -TB3S, -TBN	Cat. No. 1794-TB2, -TB3, -TB3S	
On-state current	1.0 mA min. per channel 2.0 A max. per channel	1.0 mA min. per channel 500 mA max. per channel	2.0 mA min. 8.0 mA nom. at 24V DC 11.0 mA max.
On-state voltage range	19.2 V DC min) 24 V DC nom. 31.2 V DC max.	10 V DC min. 24 V DC nom. 31.2 V DC max.	10 V DC min. 24 V DC nom. 31.2 V DC max.
Supply voltage	24V DC nom.		
Voltage range	19.2V DC to 31.2V DC	10V DC to 31.2V DC	10 to 31.2 V DC (includes 5% AC ripple)
Supply current	55mA @ 24V DC	35 mA @ 24V DC	15 mA @ 19.2 V DC 19 mA @ 24 V DC 8 mA @ 10V DC 25 mA @ 31.2V DC
Output current rating	Max. 2.0 A per output, 10.0 A max. per module (for example, 8 outputs @ 1.25 A, 5 outputs @ 2.0 A, or similar combinations totaling 10.0 A or less)	8.0 A (16 outputs @ 0.5A)	2.0 A per output 10.0 A max. per module
Surge current	4.0 A for 10 ms, repeatable every 3 s	1.5 A for 50 ms, repeatable every 2 s	4.0 A for 50 ms, repeatable every 2 s
Off-state leakage	0.5 mA max.		
On-state voltage drop	0.2 V DC max.	0.5 V DC max.	1.0 V DC @2 A, 0.5 V DC@1 A max.
Isolation voltage	50V (continuous), Basic Insulation Type No isolation between individual channels Type tested at 1500V AC for 60 s, between field side and system	50V (continuous), Basic Insulation Type No isolation between individual channels Type tested at 2550V DC for 60 s, between field side and system	50V (continuous), Basic Insulation Type No isolation between individual channels Type tested at 1365V AC for 60 s, between field side and system
Output signal delay	Off to On - 0.5 ms max. On to Off - 1.0 ms max.		
Flexbus current	80 mA	60 mA	35 mA
Power dissipation	5 W maximum @ 31.2 V DC	5.0 W maximum @ 31.2 V DC	6.0 W maximum @ 31.2 V DC

Thermal dissipation	Max. 17.1 BTU/hr @ 31.2 V DC	Max. 17.0 BTU/hr @ 31.2 V DC	Max. 20.3 BTU/hr @ 31.2 V DC
Indicators (field side indication, logic driven)	8 yellow status indicators 8 red fault indicators	16 yellow status indicators	6 yellow status indicators
Fusing	Outputs are electronically fused	Outputs are electronically protected	Module outputs are not fused. <sup>(1)</sup>

<sup>(1)</sup> Fusing is recommended. If fusing is desired, you must supply external fusing. Use SAN-0 MQ4-3A or Littelfuse 235-003 fuses.

### Input Modules

Attribute	1794-IB10XOB6XT	1794-IB16XT
Number of inputs	10, nonisolated, sinking	16 (1 group of 16), nonisolated, sinking
Module location	Cat. No. 1794-TB2, -TB3, -TB3S	Cat. No. 1794-TB3, -TB3S Terminal Base Unit
On-state current	2.0 mA min. 8.0 mA nom. at 24V DC 11.0 mA max.	2.0 mA min. 3.0 mA nom. at 24V DC 5.0 mA max.
On-state voltage range	10 V DC min. 24 V DC nom. 31.2 V DC max.	
Supply voltage	24V DC nom.	24V DC nom.
Voltage range	10 to 31.2 V DC (includes 5% AC ripple)	10V DC to 31.2V DC
Supply current	15 mA @ 19.2 V DC 19 mA @ 24 V DC 8 mA @ 10V DC 25 mA @ 31.2V DC	4 mA @ 24V DC
Off-state voltage	5.0 V DC max.	
Off-state current	1.5 mA min.	
Input impedance	4.8 K $\Omega$	
Isolation voltage	50V (continuous), Basic Insulation Type No isolation between individual channels Type tested at 1365V AC for 60 s, between field side and system	50V (continuous), Basic Insulation Type No isolation between individual channels Type tested at 850V AC for 60 s, between field side and system
Flexbus current	35 mA	30 mA
Power dissipation	6.0 W maximum @ 31.2 V DC	
Thermal dissipation	Max. 20.3 BTU/hr @ 31.2 V DC	Max 9.2 BTU/hr @ 31.2V DC
Indicators	10 yellow status indicators (Logix side indication, Logic driven)	16 yellow status indicators (field side indication, logic driven)

## General Specifications

Attribute	Value
Terminal base screw torque	Determined by installed terminal base
Input filter time	Refer to Input Filter Time setting tables.
Wire size	Determined by installed terminal base
Wiring Category <sup>(1)</sup>	2 - on signal ports
Dimensions (with module installed)	94H x 94W x 69D mm 3.7H x 3.7W x 2.7D in.
Enclosure type rating	None (open-style)
Keyswitch position	2
Pilot Duty Rating	2A (-OB16PXT, -IB10XOB6XT, -OB8EPXT)
North American temp code	T4A T4 (-OB8EPXT, -IB10XOB6XT)
IEC temp code	T4

<sup>(1)</sup> Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

## Environmental

Attribute	Value
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): -20 ... 70 °C (-4... 158 °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, Unpackaged 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): Operating 30 g Non-operating 50 g
Emissions	CISPR 11: Group 1, Class A (with appropriate enclosure)
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz
EFT/B immunity	IEC 61000-4-4: ±2kV at 5kHz 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 (when product is marked)<sup>(1)</sup>

Attribute	Value
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class 1, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
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 B, Zone A & B)

## Certifications (when product is marked)<sup>(1)</sup>

C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X) EN 60079-0; General Requirements (Zone 2)
TÜV	TÜV Certified for Functional Safety: up to and including SIL 2

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

[www.rockwellautomation.com](http://www.rockwellautomation.com)

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