MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

1794-IB16

SIXTEEN CHANNEL DIGITAL INPUT MODULE

Used with the applicable FLEX I/O 1794 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Rockwell1794-IN093I-EN-P,03/2024;1794-IB16 column,pp.10 to 11

Installation Instructions

Original Instructions

Allen-Bradley
by ROCKWELL AUTOMATION

FLEX I/O Digital Input Modules

Catalog Numbers 1794-IB8, 1794-IB16, 1794-IB32, 1794-IB32K

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

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Rockwell Automation

Environment and Enclosure

ATTENTION: This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN/IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.
This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.

This equipment is supplied as open-type equipment for indoor use. 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 or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain more information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for more installation requirements.
- NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by enclosures.

Prevent Electrostatic Discharge

ATTENTION: 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.

UK and European Hazardous Location Approval

The following modules are UK and European Zone 2 approved: 1794-IB8, 1794-IB16

The following applies to products marked Ⓔx II 3 G:

- Are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Schedule 1 of UKEX and Annex II of EU Directive 2014/34/EU. See the UKEx and EU Declaration of Conformity at rok.auto/certifications for details.
- The type of protection is Ex ec IIC T4 Gc (**1794-IB16**) and Ex ec IIC T3 Gc (**1794-IB8**) according to EN IEC 60079-0:2018 and EN IEC 60079-7:2015+A1:2018.
- Comply with Standards EN IEC 60079-0:2018 & EN IEC 60079-7:2015+A1:2018 reference certificate number DEMKO 14 ATEX 1342501X and UL22UKEX2378X.
- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to UKEX regulation 2016 No. 1107 and ATEX directive 2014/34/EU.

IEC Hazardous Location Approval

The following applies to products with IECEx certification:

- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification to IEC 60079-0.
- The type of protection is Ex ec IIC T4 Gc (**1794-IB16**) and Ex ec IIC T3 Gc (**1794-IB8**) according to IEC 60079-0 and IEC 60079-7.
- Comply with Standards IEC 60079-0, Explosive atmospheres Part 0: Equipment - General requirements, Edition 7, Revision Date 2017, IEC 60079-7, 5.1 Edition revision date 2017, Explosive atmospheres - Part 7: Equipment protection by increased safety "e", reference IECEx certificate number IECEx UL 14.0066X.

WARNING: Special Conditions for Safe Use

- This equipment shall be mounted in an UKEX/ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (in accordance with EN/IEC 60079-0) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments. The enclosure must be accessible only by the use of a tool.
- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.
- The instructions in the user manual shall be observed.
- This equipment must be used only with UKEX/ATEX/IECEx certified Rockwell Automation backplanes.
- Earthing is accomplished through mounting of modules on rail.

WARNING: 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.

WARNING: When you insert or remove the module while backplane power is on, an electric 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. Repeated electric arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

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.
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 –** • 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.	**AVERTISSEMENT:** **Risque d'Explosion –** • 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.

ATTENTION:
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Read this document and the documents listed in the Additional Resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to the requirements of all applicable codes, laws, and standards.
- Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with the applicable code of practice.
- In case of malfunction or damage, no attempts at repair should be made. The module should be returned to the manufacturer for repair. Do not dismantle the module.
- This equipment is certified for use only within the surrounding air temperature range of -20...+55 °C (-4...+131 °F) (**1794-IB8 and 1794-IB16**) or 0...55 °C (32...131 °F) (**1794-IB32, 1794-IB32K**). The equipment must not be used outside of this range.
- Use only a soft dry anti-static cloth to wipe down equipment. Do not use any cleaning agents.

ATTENTION: This product is grounded through the DIN rail to chassis ground. Use zinc-plated chromate-passivated 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 the mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately. Be sure to ground the DIN rail properly. See the Industrial Automation Wiring and Grounding Guidelines, Rockwell Automation publication 1770-4.1, for more information.

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.

ATTENTION: : If you connect or disconnect wiring while the field-side power is on, an electric 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.

Compatibility

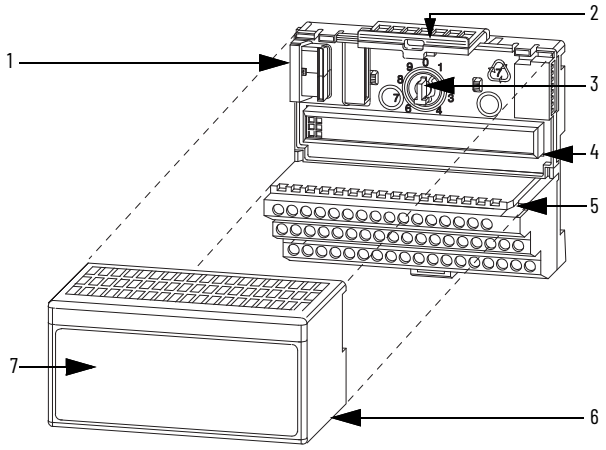
The following communication adapters are required to ensure compatibility with the 1794-IB32 and 1794-IB32K:

Remote I/O	1794-ASB Series E or later 1794-ASB2 Series D or later
ControlNet®	1794-ACN15 Series C, firmware revision 4.1 or later 1794-ACNR15 Series C, firmware revision 4.1 or later
DeviceNet®	1794-ADN Series B, firmware revision 2.4 or later for out-of-box compatibility
EtherNet/IP™	1794-AENT Series A, firmware revision 2.4 or later
PROFIBUS	1794-APBDPV1 Series B of the GSD file You can download the GSD file at rok.auto/pcdc
ControlLogix® Family	Studio 5000 Logix Designer® application(1) version 20 or later

(1) The Studio 5000 Logix Designer application is the rebranding of RSLogix 5000® software and will continue to be the product to program Logix 5000® controllers for discrete, process, batch, motion, safety, and drive-based solutions.

Overview

The FLEX™ I/O Digital Input module mounts on a 1794 terminal base.



	Description		Description
1	Flexbus connector	5	Groove
2	Latching mechanism	6	Alignment bar
3	Keyswitch	7	Module
4	Terminal base		

Install Your Module

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

1. Rotate the keyswitch (3) on the terminal base (4) clockwise to position 2 as required for this type of module.
2. Make sure the Flexbus connector (1) is pushed all the way to the left to connect with the neighboring terminal base or adapter. **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 align properly with the connector in the terminal base.
4. Position the module (7) with its alignment bar (6) aligned with the groove (5) 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 (2) is locked into the module.

Wire Your Module

Connect Wiring for 1794-IB8 and 1794-IB16

1. Connect individual input wiring to the numbered terminals on the 0…15 row (A) as indicated in Table 1.
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 Table 1. 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 Table 1. 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 terminal base, connect a jumper from terminal 33 (common) on this base unit to terminal 16 on the next base unit.

Figure 1 - Connect Wiring for 1794-TB3 and 1794-TB3S

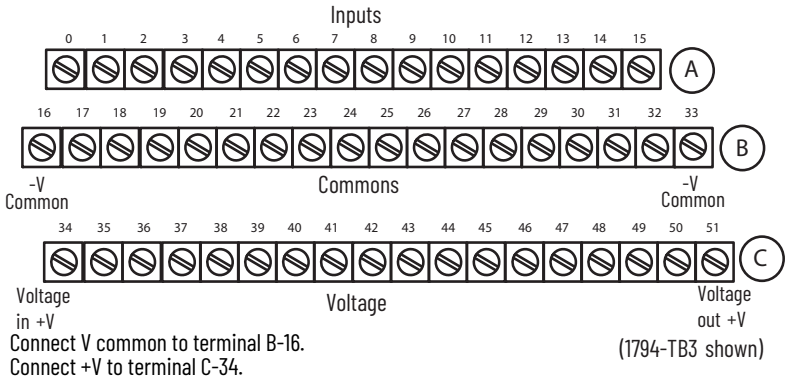
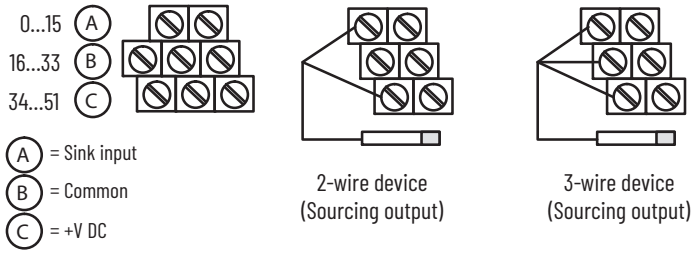


Table 1 - Wiring Connections for the 1794-IB8 and 1794-IB16 Modules
(Use with a 1794-TB3 or 1794-TB3S Terminal Base)

Input[1]	Input Terminal	Voltage Terminal	Common Terminal[2]
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...C-51		
Common	B-16...B-33		

(1) **1794-IB8** – Inputs 0...7; **1794-IB16** – Inputs 0...15
(2) 3-wire devices use signal, supply, and common. 2-wire devices use signal and supply.

Figure 2 - 2-wire and 3-wire Input Wiring for the 1794-IB8 and 1794-IB16 Modules

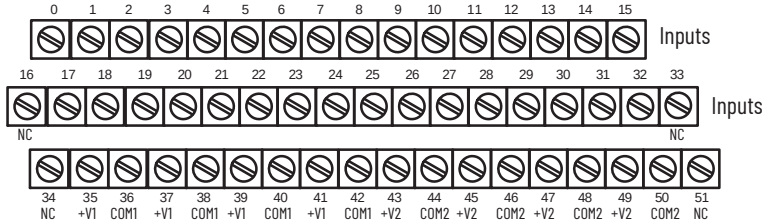


Connect Wiring for 1794-IB32 and 1794-IB32K

WARNING: When used in a Class I Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.

1. Connect individual input wiring (Input 0…15) to numbered terminals on the 0…15 row (A) as indicated in Table 2.
2. Connect the associated power to the +V1 terminal (35, 37, 39, or 41) on the 34…51 row (C) as indicated in Table 2.
3. Connect the associated common for Input 0…15 to COM1 (terminal 36, 38, 40, or 42) on the 34…51 row (C) as indicated in Table 2.
4. Connect individual input wiring (Input 16…31) to numbered terminals on the 16…33 row (B) as indicated in Table 2. **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 Table 2.
6. Connect the associated common for Input 16…31 to COM2 (terminal 44, 46, 48, or 50) on the 34…51 row (C).
7. If continuing input wiring power for Input 0…15 to the next terminal base, connect a jumper from terminal 41 (+V1) on this base unit to the power terminal on the next base unit. See the installation instructions for the specific terminal base.
8. If continuing input wiring common for Input 0…15 to the next terminal base, connect a jumper from terminal 42 (COM1) on this base unit to the common terminal on the next base unit.
9. If continuing input wiring power for Input 16…31 to the next terminal base, connect a jumper from terminal 49 (+V2) on this base unit to the power terminal on the next base unit. See the installation instructions for the specific terminal base.
10. If continuing input wiring common Input 16…31 to the next terminal base, connect a jumper from terminal 50 (COM2) on this base unit to the common terminal on the next base unit.

Figure 3 - Connect Wiring for 1794-TB32 and 1794-TB32S



+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)

Table 2 - Wiring Connections for the 1794-IB32 and 1794-IB32K Modules
(Use with a 1794-TB32 or 1794-TB32S Terminal Base)

Input[1]	Signal	Input	Signal
Input 0	A-0	Input 16	B-17
Input 1	A-1	Input 17	B-18
Input 2	A-2	Input 18	B-19
Input 3	A-3	Input 19	B-20
Input 4	A-4	Input 20	B-21
Input 5	A-5	Input 21	B-22
Input 6	A-6	Input 22	B-23
Input 7	A-7	Input 23	B-24
Input 8	A-8	Input 24	B-25
Input 9	A-9	Input 25	B-26
Input 10	A-10	Input 26	B-27
Input 11	A-11	Input 27	B-28
Input 12	A-12	Input 28	B-29
Input 13	A-13	Input 29	B-30
Input 14	A-14	Input 30	B-31
Input 15	A-15	Input 31	B-32
+V1 DC power (input 0…15)	Power terminals 35, 37, 39, and 41 for Input 0…15. +V1 connected to terminals 35, 37, 39, and 41.		

Table 2 - Wiring Connections for the 1794-IB32 and 1794-IB32K Modules (Continued)
(Use with a 1794-TB32 or 1794-TB32S Terminal Base)

Input[1]	Signal	Input	Signal
COM1 DC Return (input 0...15)	Common terminals 36, 38, 40, and 42 for Input 0...15. V1 Return connected to terminals 36, 38, 40, and 42.		
+V2 DC power (input 16...31)	Power terminals 43, 45, 47, and 49 for Input 16...31. +V2 connected to terminals 43, 45, 47, and 49.		
COM2 DC Return (input 16...31)	Common terminals 44, 46, 48, and 50 for Input 16...31. V2 Return connected to terminals 44, 46, 48, and 50.		

(1) 3-wire devices use signal, return, and supply. 2-wire devices use signal and supply.

Configure Your Module

Configure your input module by setting bits in the configuration word (write word).

Table 3 - Image Table Memory Map for 1794-IB8

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								I7	I6	I5	I4	I3	I2	I1	I0
Write 1	Not used													Input Filter 0...7		
Where:	I = Input															

Table 4 - Image Table Memory Map for 1794-IB16

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	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							Input Filter 12...15			Input Filter 0...11		
Where:	I = Input C = Counter value for input 15 CF = Counter fast – where 1 = fast input (raw data), 0 standard input filtered data CR = Counter reset Note: C, CR, and CF not available when used with any series 1794-ASB or 1794-ASB2 remote I/O adapters.															

Table 5 - Image Table Memory Map for 1794-IB32 and 1794-IB32K

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	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Read 2	I31	I30	I29	I28	I27	I26	I25	I24	I23	I22	I21	I20	I19	I18	I17	I16
Write 1	Not used					Input Filter FT 0...31			Not used							
Where:	I = Input status FT = Input filter time															

Specifications

Specifications - 1794-IB8

Attribute	Value
Number of inputs	8, current, sinking
On-state voltage, min	10V DC
On-state voltage, nom	24V DC
On-state voltage, max	31.2V DC
On-state current, min	2.0 mA
On-state current, nom	8.0 mA
On-state current, max	12.0 mA
Off-state voltage, max	5.0V DC
Off-state current, max	1.5 mA
Nominal input impedance	4.6 kΩ
Isolation voltage	50V (continuous), Basic Insulation Type Type tested @ 850V DC for 60 s, between field side and system No isolation between individual channels
Flexbus current	20 mA @ 5V DC
Power dissipation, max	3.5 W @ 31.2V DC
Thermal dissipation, max	11.9 BTU/hr @ 31.2V DC

Specifications – 1794-IB16

Attribute	Value
Number of inputs	16, current, sinking
On-state voltage, min	10V DC
On-state voltage, nom	24V DC
On-state voltage, max	31.2V DC
On-state current, min	2.0 mA
On-state current, nom	8.0 mA
On-state current, max	12.0 mA
Off-state voltage, max	5.0V DC
Off-state current, max	1.5 mA
Nominal input impedance	4.6 kΩ
Isolation voltage	50V (continuous), Basic Insulation Type Type tested @ 707V DC for 60 s, between field side and system No isolation between individual channels
Flexbus current	30 mA @ 5V DC
Power dissipation, max	6.1 W @ 31.2V DC
Thermal dissipation, max	20.8 BTU/hr @ 31.2V DC

Specifications – 1794-IB32 and 1794-IB32K

Attribute	Value
Number of inputs	32, current, sinking
On-state voltage, min	19.2V DC
On-state voltage, nom	24V DC
On-state voltage, max	31.2V DC
On-state current, min	2.0 mA
On-state current, nom	4.1 mA
On-state current, max	6.0 mA
Off-state voltage, max	5.0V DC
Off-state current, max	1.5 mA
Nominal input impedance	22.2 kΩ
Isolation voltage	50V (continuous), Basic Insulation Type Type tested @ 2121V DC for 2 s, between field side and system No isolation between individual channels
Flexbus current	25 mA @ 5V DC
Power dissipation, max	6.0 W @ 31.2V DC
Thermal dissipation, max	20.47 BTU/hr @ 31.2V DC

General Specifications

Attribute	1794-IB8	1794-IB16	1794-IB32, 1794-IB32K
Input filter time	See Table 6		
Recommended terminal base unit	1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK, 1794-TBKD, 1794-TB37DS		
Terminal base screw torque	Determined by the installed terminal base		
Keyswitch position	2		
Indicators (field side indication)	8 yellow status indicators	16 yellow status indicators	32 yellow status indicators
External DC power supply voltage, nom	24V DC		
External DC power supply voltage range	10...31.2V DC (includes 5% AC ripple)		19.2...31.2V DC (includes 5% AC ripple)
Wiring category(1) (2)	2 – on signal ports		
Wire size	Determined by the installed terminal base		
Dimensions, approx. (H x W x D) (with module installed)	94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.)		
Weight, approx.	71 g (2.50 oz.)	74 g (2.61 oz.)	79 g (2.79 oz.)
Enclosure type rating	None (open-style)		
North American temp code	T3C	T4A	T3C
IECEx temp code	T3	T4	-
UKEX/ATEX temp code	T3	T4	-

(1) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
(2) Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Environmental Specifications

Attribute	Value
Temperature, operating	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...+55 °C (-4...+131 °F) – **1794-IB8, 1794-IB16** 0...55 °C (32...131 °F) – **1794-IB32, 1794-IB32K**
Temperature, surrounding air, max	55 °C (131 °F)
Temperature, nonoperating	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 Damp Heat): 5...95% noncondensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged shock): 30 g
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged shock): 50 g
Emissions	IEC 61000-6-4
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...6000 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV @ 5 kHz on power ports ±2 kV @ 5 kHz 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