

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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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 k Ω
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 k Ω
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 k Ω
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

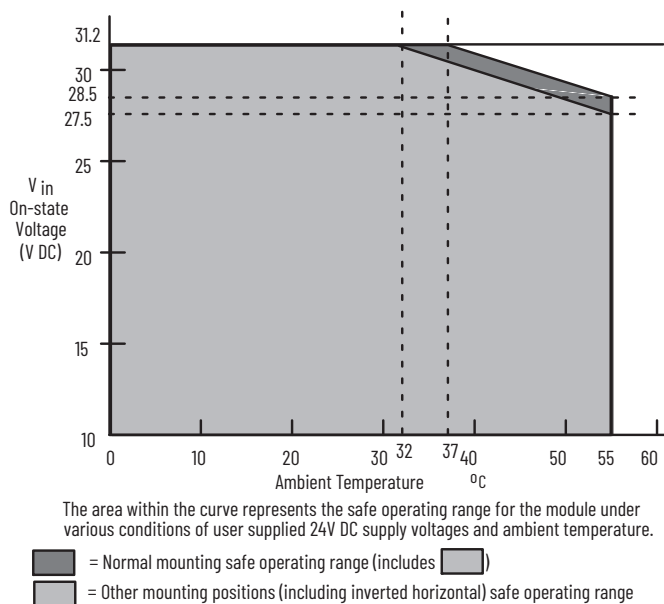
Attribute	Value
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...+55 °C (-4...+131 °F) – 1794-IB8, 1794-IB16 0...55 °C (32...131 °F) – 1794-IB32, 1794-IB32K
Temperature, surrounding air, 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

Certifications

Certifications (when product is marked) ⁽¹⁾	Value
c-UL-us	For 1794-IB8, 1794-IB16 UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A, B, C, D Hazardous Locations, certified for U.S. and Canada. See UL File E194810. For 1794-IB32, 1794-IB32K UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657. UL Listed for Class I, Division 2, Group A, B, C, D Hazardous Locations, certified for US and Canada. See UL File E334470.
UK and CE	UK Statutory Instrument 2016 No. 1091 and European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61131-2; Programmable Controllers EN 61000-6-4; Industrial Emissions UK Statutory Instrument 2012 No. 3032 and European Union 2011/65/EU RoHS, compliant with: EN 63000; Technical documentation
Ex	UK Statutory Instrument 2016 No. 1107 and European Union 2014/34/EU ATEX Directive, compliant with: EN IEC 60079-0; General Requirements EN IEC 60079-7; Explosive Atmospheres, Protection "e" II 3 G Ex ec IIC T4 Gc - 1794-IB16 II 3 G Ex ec IIC T3 Gc - 1794-IB8 DEMKO 14 ATEX 1342501X UL22UKEX2378X
IECEx	IECEx System, compliant with: IEC 60079-0; General Requirements IEC 60079-7; Explosive Atmospheres, Protection "e" Ex ec IIC T4 Gc - 1794-IB16 Ex ec IIC T3 Gc - 1794-IB8 IECEx UL 14.0066X
TÜV	For 1794-IB16 only TÜV Certified for Functional Safety: Up to and including SIL 2
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436
CCC	CNCA-C23-01 强制性产品认证实施规则 防爆电气 CNCA-C23-01 CCC Implementation Rule Explosion-Proof Electrical Products 202012230911829

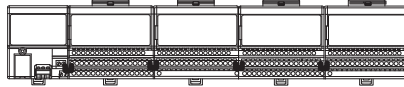
(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Figure 4 - Derating Curve for 1794-IB16



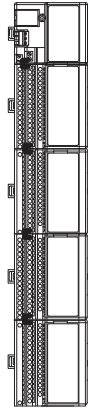
Voltage, Max	Temperature, Max		Voltage, Max	Temperature, Max	
	Normal	Other		Normal	Other
31.2	37	32	29.0	51	45
30.5	41	36	28.5	55	48
30.0	45	39	28.0		51
29.5	48	42	27.5		55

Normal Mounting - Horizontal

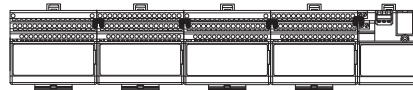


Other Mounting - (including Vertical and Inverted Horizontal Mounting)

Vertical mounting



Inverted horizontal mounting



Additional Resources

For more information on the products that are described in this publication, use these resources. You can view or download publications at rok.auto/literature.

Resource	Description
FLEX I/O and FLEX I/O-XT Selection Guide, publication 1794-SG002	Provides specifications for selecting FLEX I/O and FLEX I/O-XT™ products.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.