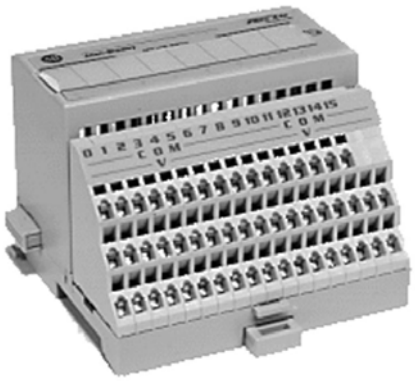
Allen-Bradley

1794 FLEX I/O Terminal Base Units

Standard FLEX I/O Catalog Numbers 1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB32, 1794-TB3G, 1794-TB3GK, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3SK, 1794-TB32S, 1794-TB3GS, 1794-TB3GSK, 1794-TB3TS, 1794-TB3TSK, 1794-TBN, 1794-TBNF, 1794-TBNK, 1794-TBKD, 1794-TB37DS, 1794-TB62DS

The letter K in the last position of the catalog number, before the series designation, indicates a conformal coated versions of standard modules and can be used with extended temperature modules (modules ending in -XT).

FLEX I/O Accessories Catalog Numbers 1794-CE1, 1794-CE3, 1794-NM1, 1794-LBL, 1794-N2, 1794-CJC2



Each FLEX I/O™ module requires a terminal base unit that snaps onto the DIN rail to the right of the I/O adapter. The terminal bases provide terminal connection points for I/O wiring and plug together to form the backplane. They are available with cage, screw or spring - clamp terminations.

Each FLEX I/O module has optional accessories available depending on the I/O module, field system set-up and requirements.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.rockwellautomation.com/products/certification/	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley® distributor or Rockwell Automation sales representative.

Available Terminal Base Units and Accessories

Types of Terminal Base and Accessories

Type	Description
Terminal Base	Standard terminal base units which consist of different available temination types such as cage-clamp, spring-clamp and screw-clamp.
D-Shell Terminal Base	D-shell termination for both digital and analog modules, available with 37-pin or 62-pin.
Accessories	Accessories consist of panel kit, label kit, dummy filler module, cold junction compensation kit and extender cables.

Catalog Numbers

Module Type	Catalog Numbers	Page
Terminal Base Units	1794-TB2 1794-TB3 1794-TB3K 1794-TB32 1794-TB3G 1794-TB3GK 1794-TB3T 1794-TB3TK 1794-TB3S 1794-TB3SK 1794-TB32S 1794-TB3GS 1794-TB3GSK 1794-TB3TS 1794-TB3TSK 1794-TBKD 1794-TBN 1794-TBNK 1794-TBNF	3
D-Shell Terminal Base	1794-TB37DS 1794-TB62DS	6
Accessories	1794-CE1 1794-CE3 1794-NM1 1794-LBL 1794-N2 1794-CJC2	7

1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB32, 1794-TB3G, 1794-TB3GK, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3SK, 1794-TB32S, 1794-TB3GS, 1794-TB3GSK, 1794-TB3TS, 1794-TB3TSK, 1794-TBN, 1794-TBNF, 1794-TBNK, 1794-TBKD, 1794-TB37DS, 1794-TB62DS

FLEX I/O Terminal Base Units

Technical Specifications

Catalog	Termination type	Connections	Used in applications	Current capacity, max	Wiring category	Purpose
1794-TB2	Cage clamp	16 I/O; 18 common terminals; 2 +V terminals	Up to 125V AC/DC	10 A	2	A generic 2-wire version of the 1794-TB3.
1794-TB3 1794-TB3K(1)		16 I/O; 18 common terminals; 18 +V terminals			2,3 or 4	Primarily intended for use with input modules when using 3-wire input proximity switches – can also be used with output modules.
1794-TB3S 1794-TB3SK	Spring clamp					A spring clamp version of the 1794-TB3 – provides faster, simpler wire installation.
1794-TB32	Cage clamp	32 I/O; 8 common terminals; 8 +V terminals	Up to 31.2V DC			A 32-point version of the 1794-TB3 to be used with 32-point digital modules and the 1794-IB16D module.
1794-TB32S	Spring clamp					A spring clamp version of the 1794-TB32.
1794-TB3G 1794-TB3GK	Grounded screw clamp	36 I/O; 2 common terminals; 2 +V terminals; 10 chassis ground terminals				A screw clamp terminal base unit with individual grounding used with certain analog modules.
1794-TB3GS 1794-TB3GSK	Grounded spring clamp					A spring clamp version of the 1794-TB3G.
1794-TB3T 1794-TB3TK	Cage clamp, temperature	16 I/O; 10 common terminals; 4 +V terminals; 8 chassis ground terminals; 2 sets (6 terminals)of CJC for temperature modules	Up to 125V AC/DC			A cage clamp terminal base to be used with the 1794-IT8. It also provides chassis ground connections for 1794-IR8 (RTD module) and analog modules.
1794-TB3TS 1794-TB3TSK	Spring clamp, temperature					A spring clamp version of the 1794-TB3T.
1794-TBKD	Cage clamp, knife disconnect	16 I/O; 18 common terminals; 2 +V terminals	Up to 132V AC			A cage clamp terminal base with 16 knife disconnects.
1794-TBN 1794-TBNK	Screw clamp, NEMA-style	16 I/O; 2 common terminals; 2 +V terminals	250V AC/DC			A NEMA-style screw clamp terminal base for larger gauge wires with a cover for I/O wiring.
1794-TBNF(2)	Screw clamp, fused NEMA-style					Provides eight 5 x 20 mm fused, screw terminals with a cover for I/O wiring.

(1) The letter K in the last position of the catalog number, before the series designation, indicates a conformal coated versions of standard modules and can be used with extended temperature modules (modules ending in -XT)

(2) Contains eight 5 x 20 mm fuses (one for each even-numbered terminal – 0…14 on row B). Shipped with 1.6 A, 250V AC Slow Blow fuse suitable for the 1794-OA8 AC output module and 1794-OW8 module with a replacement fuse. Refer to individual installation instructions for fusing recommendations for other modules.

General Specifications

Attribute	Value
Terminal screw torque	1794-TB3TK, 1794-TB3G, 1794-TB3GK, 1794-TB2, 1794-TB32, 1794-TB3, 1794-TB3K, 1794-TB3T: 0.56...0.79 Nm (5...7 lb-in) 1794-TBKD: 0.3...0.6 Nm (2.6...5.3 lb-in) 1794-TBN, 1794-TBNF, 1794-TBNK: 1.4 Nm (12 lb-in)
Supply voltage range	FLEXBUS: 5V DC, 640 mA I/O Terminals: 2 A max 1794-TB3SK, 1794-TB3TK,1794-TB2, 1794-TB3, 1794-TB3K, 1794 -TB3S, 1794-TB3T, 1794-TB3TS: V/COM Terminals: 125V DC/AC, 50/60 Hz, 10 A 1794-TB3GSK, 1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB32, 1794-TB32S: V/COM Terminals: 31.2V DC/AC, 50/60 Hz, 10 A 1794-TBN, 1794-TBNF, 1794-TBNK: V/COM Terminals: 250V DC/AC, 50/60 Hz, 10 A 1794-TBKD only: Terminal Block: 120V AC, 50/60 Hz, 10 A Disconnecting Switch: 3 A, 20 mΩ ATTENTION A disconnecting switch does not shut off the current. Make or break a circuit only under no-load conditions.
Isolation voltage	1794-TBN, 1794-TBNF, 1794-TBNK: Capable of 250V (continuous) maximum, Basic Insulation Type, Field Wiring Terminals to FLEXBUS, or the lesser of the installed module. 1794-TB3SK, 1794-TB3TK, 1794-TB3T, 1794-TB3TSK, 1794-TB2, 1794-TB3, 1794-TB3K, 1794 -TB3S, 1794-TB3TS: Capable of 125V (continuous) maximum, Basic Insulation Type, Field Wiring Terminals to FLEXBUS, or the lesser of the installed module 1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK, 1794-TB32, 1794 -TB32S: Capable of 50V (continuous) maximum, Basic Insulation Type, Field Wiring Terminals to FLEXBUS, or the lesser of the installed module. Tested at 2121V DC/60s, Field Wiring Terminals to FLEXBUS. 1794-TBKD: 220V DC/s, Field Wiring Terminals to Functional Ground.
Wire size	1794-TB3SK, 1794-TB3GSK, 1794-TB3TSK, 1794-TB3GK, 1794-TB3GS, 1794-TB32S, 1794-TB3,1794-TB3K, 1794-TB3S, 1794-TB3TS, 1794-TBN, 1794-TBNF, 1794 -TBNK: 0.34... 3.3 mm^2 (22…12 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max. Strip Length: 5…6 mm (0.20...0.24 in.) 1794-TBKD: 0.34…2.1 mm^2 (22...14 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max 1794-TB3TK, 1794-TB3G, 1794-TB2, 1794-TB32: 0.21... 1.3 mm^2 (24…16 AWG) stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max
North American temp code	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3SK, 1794-TB3TS, 1794-TB3TSK, 1794-TBN, 1794-TBNK, 1794-TB32, 1794-TB32S: T4A 1794-TB2: T6
IEC temp code	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3SK, 1794-TB3TS, 1794-TB3TSK, 1794-TBN, 1794-TBNK: T4 1794-TB2: T6
Dimensions, HxWxD (with module installed in terminal base)	94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.)
Publication, installation instructions	1794-IN092

Environmental[1]

Attribute	Value
Temperature, operating	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3SK, 1794-TB3TS, 1794-TB3TSK, 1794-TB32, 1794-TB32S, 1794-TBN, 1794-TBNK: 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) 1794-TBKD, 1794-TB37DS, 1794-TB62DS: 0…55 °C (32…131 °F) 1794-TBNF, 1794-TB2: -20…55 °C (-4…131 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F) 1794-TBKD only: -20…85 °C (-4…185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz
Shock, operating	All catalogs except 1794-TBKD: IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Shock, nonoperating	All catalogs except 1794-TBKD: IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g

(1) EMC specifications determined by the installed modules.

Certifications

Certifications (when product is marked)[1]	Description
UL	1794-TB2: UL Listed Industrial Control Equipment. See UL File E65584.
c-UL-us	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794 -TB3, 1794-TB3K, 1794-TB3T, 1794-TB3TK, 1794-TB3S, 1794-TB3TS, 1794-TB3SK, 1794-TB3TSK, 1794-TBN, 1794 -TBNK, 1794-TB32, 1794-TB32S: 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. 1794 -TBKD, 1794-TBNF: UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.
CSA	1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3S, 1794-TB3TS, 1794-TB3TK, 1794-TB3SK, 1794-TB3TSK, 1794-TBN, 1794-TBNK, 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3GSK: CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C. 1794-TBNF: CSA Certified Process Control Equipment. See CSA File LR54689C.
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 8, Zone A & B) European Union 2006/95/EC LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

Certifications

Certifications (when product is marked)[1]	Description
Ex	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3S, 1794-TB3TS, 1794-TB3TK, 1794-TB3SK, 1794-TB3TSK, 1794-TBN, 1794-TBNK: European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" EN 60079-0; General Requirements (Zone 2) II 3 G Ex nA IIC T4 Gc 1794-TB2: European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" EN 60079-0; General Requirements (Zone 2) II 3 G Ex nA IIC T6 Gc
TÜV	1794-TB3G, 1794-TB3GS, 1794-TB3GSK, 1794-TB3GK, 1794-TB3, 1794-TB3K, 1794-TB3T, 1794-TB3S, 1794 -TB3TS, 1794-TB3TK, 1794-TB3SK, 1794-TB3TSK, 1794-TBNF: TÜV Certified for Functional Safety: Capable of SIL 2
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

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

1794-TB37DS, 1794TB62DS

FLEX I/O D-Shell Terminal Base Units

Technical Specifications

Catalog	Termination type	Connections	Used in applications	Current capacity, max	Wiring category	Purpose
1794-TB37DS	D-shell	37 pin; digital and analog	Up to 31.2 V DC	10 A	Module dependent	A 37-pin D-shell termination for both digital and analog modules.
1794-TB62DS		62 pin; digital				A 62-pin D-shell termination for both digital and analog modules.

General Specifications

Attribute	Value
Terminal Screw Torque	0.6 Nm (5 lb-in.)
Dimensions, HxWxD (with expansion module installed)	127.0 x 94 x 69 mm (5.0 x 3.7 x 2.7 in.)
Current Capacity	1794-TB62DS: V1 - 8 A max V2 - 6 A max 10 A max per module 5 A per pin 1794-TB37DS: 10 A max per module 5 A per pin
Enclosure type rating	None (open style)
Conductors wire size Category[1]	12AWG (4 mm^2) stranded copper wire rated at 75 °C or higher 3/64 in.(1.2 mm) insulation maximum Established by installed module
Isolation voltage	Established by installed module
Publication, installation instructions	1794-IN107

(1) You use this category information for planning conductor routing as described in Allen-Bradley publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines

Environmental(1)

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): 0…55 °C (32…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 Nonoperating 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	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g

(1) EMC specifications determined by the installed modules.

Certifications

Certifications (when product is marked)(1)	Description
UL	UL Recognized Component Industrial Control Equipment, certified for US and Canada. See UL File E65584
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 8, Zone A & B)
C-Tick	Australian Radiocommunications Act compliant with AS/NZS CISPR 11, Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

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

1794-NM1, 1794-LBL, 1794-N2, 1794-CJC2, 1794-CE1, 1794-CE3

FLEX I/O Accessory Products

Item	Description	Publication
1794-CE1	FLEX I/O 1 ft Extender Cable (0.3 m)to arrange your system in two rows or split your system into horizontal and vertical orientation	1794-IN012
1794-CE3	FLEX I/O 3 ft Extender Cable (0.9 m)to arrange your system in two rows or split your system into horizontal and vertical orientation	1794-IN012
1794-NM1	FLEX I/O Panel Mounting Kit to mount your FLEX I/O system on a panel without a DIN rail.	1794-IN135
1794-LBL	FLEX I/O Label Kit to tailor the label on your FLEX I/O terminal base unit. Kit includes a diecut drawing and label sheet with five labels	-
1794-N2	FLEX Dummy Filler Module - Slot Cover to fill a vacant slot, if desired	-
1794-CJC2	Cold Junction Compensation Kit used as replacements for CJCs supplied with 1794-IT8 and 1794-IRT8	-

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.rockwellautomation.com/literature/) 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 publication 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.

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