

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

1794-TB32

32-POINT SCREW-TERMINAL BASE

Used with the applicable FLEX I/O configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: FLEX I/O 32-point Screw-terminal Base; applicable manufacturer document pages 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 16

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

FLEX I/O Terminal Base Units

Catalog Numbers 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB32, 1794-TB32S, 1794-TB32SK, 1794-TB32K, 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3T, 1794-TB3TS, 1794-TBN, 1794-TBNK, 1794-TBNF, 1794-TB3SK, 1794-TB3GSK, 1794-TB3TK, 1794-TB3TSK

Catalog numbers with the suffix 'K' are conformally coated to meet noxious gas requirements of ISA/ANSI-71.040 1985 Class G3 Environment.

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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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North American Hazardous Location Approval

The following terminal bases are Hazardous Location approved: 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB32, 1794-TB32S, 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3T, 1794-TB3TS, 1794-TBN, 1794-TBNK, 1794-TBNF, 1794-TB3SK, 1794-TB3GSK, 1794-TB3TK, and 1794-TB3TSK

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.

UK and European Hazardous Location Approval

The following adapters are European Zone 2 approved: 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3T, 1794-TB3TS, 1794-TBN, 1794-TBNK, 1794-TB3SK, 1794-TB3GSK, 1794-TB3TK, and 1794-TB3TSK

The following applies to products marked 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 or Ex ec IIC T6 Gc according to EN IEC 60079-0:2018, EXPLOSIVE ATMOSPHERES – PART 0: EQUIPMENT – GENERAL REQUIREMENTS, Issue Date 07/2018 and EN IEC 60079-7:2015+A1:2018, Explosive atmospheres. Equipment protection by increased safety "e".
- Comply with Standard EN IEC 60079-0:2018, EXPLOSIVE ATMOSPHERES – PART 0: EQUIPMENT – GENERAL REQUIREMENTS, Issue Date 07/2018, EN IEC 60079-7:2015+A1:2018 Explosive atmospheres. Equipment protection by increased safety "e", 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.
- May have catalog numbers followed by a "K" to indicate a conformal coating option.

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 or Ex ec IIC T6 Gc 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.
- May have catalog numbers followed by a "K" to indicate a conformal coating option.

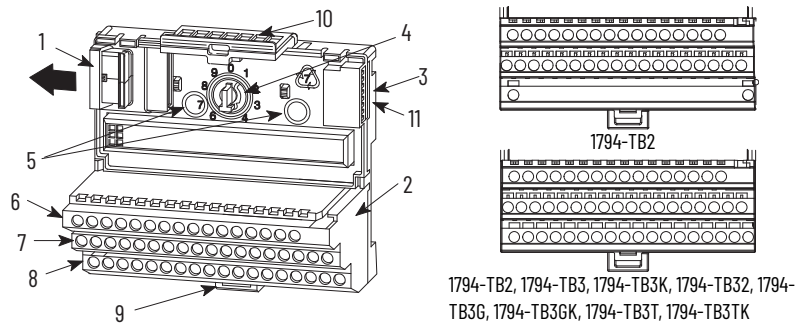
**WARNING: Special Conditions for Safe Use**

- 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.
- This equipment must be used only with UKEX/ATEX/IECEx certified Rockwell Automation backplanes.
- 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.
- Earthing is accomplished through mounting of modules on rail.
- Modules 1794-TB2, 1794-TB2K, 1794-TBN, 1794-TBNK, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3SK, 1794-TB3T, 1794-TB3TK, 1794-TB3TS, and 1794-TB3TSK must be used at or below 60V AC or 75V DC.

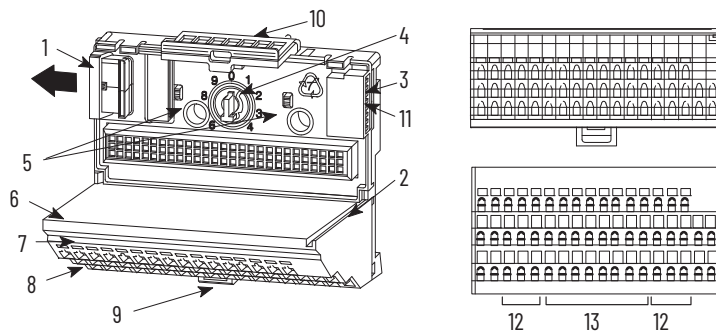
Terminal Base Overview

FLEX™ I/O terminal bases are a required part of the FLEX I/O family. Which terminal base you need depends on the specific FLEX I/O module requirements. See [Table 1](#) for terminal base unit descriptions.

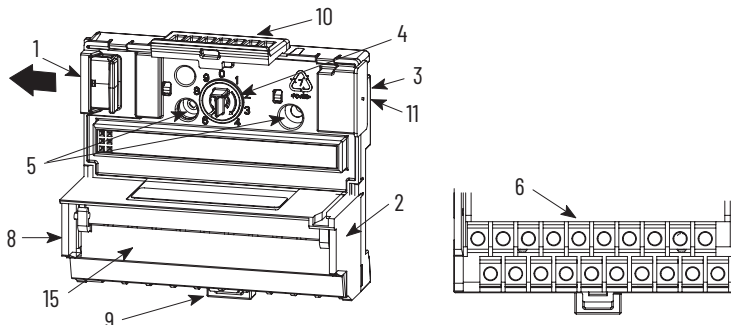
FLEX I/O Cage-clamp Terminal Base Units – 1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB32, 1794-TB3G, 1794-TB3GK, 1794-TB3T, 1794-TB3TK



FLEX I/O Spring-clamp Terminal Base Units – 1794-TB3S, 1794-TB3SK, 1794-TB32S, 1794-TB3GS, 1794-TB3GSK, 1794-TB3TS, 1794-TB3TSK



FLEX I/O Terminal Base Units – 1794-TBN, 1794-TBNK



FLEX I/O Fused Terminal Base Units - 1794-TBNF, 1794-TBNFK

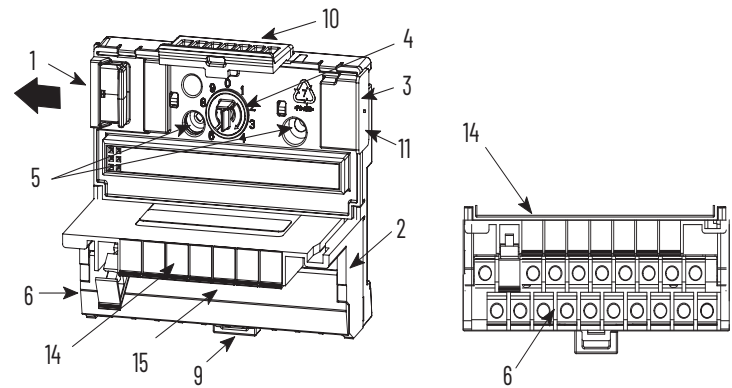


Table 1 - Terminal Base Unit Description

	Description
1	Female Flexbus connector
2	Terminal base unit
3	Male Flexbus connector
4	Keyswitch - Set to the position required for the installed module
5	Mounting holes for panel mounting
6, 7, & 8	Input/output terminal strips for connecting inputs/output wiring, commons, power connections, customer power supplies, and chassis grounds
9	Locking tab
10	Module locking latch
11	Cover plug for male Flexbus connector
12	Cold junction compensation terminals - 1794-TB3T, 1794-TB3TS, 1794-TB3TK, 1794-TB3TSK only
13	Chassis ground terminations - 1794-TB3T, 1794-TB3TS, 1794-TB3TK, 1794-TB3TSK, 1794-TB3G, 1794-TB3GS, 1794-TB3GSK only
14	Fuses - Eight 5 x 20 mm - 1794-TBNF only
15	Terminal strip cover - 1794-TBN, 1794-TBNK, 1794-TBNF only

Mount the Terminal Base Unit on a DIN Rail

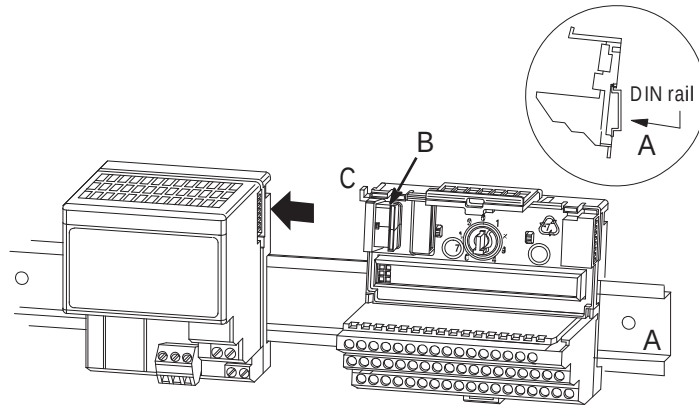


ATTENTION: During mounting of all devices, be sure that all debris (such as metal chips or wire strands) are kept from falling into the module. Debris that falls into the module could cause damage upon application of power.

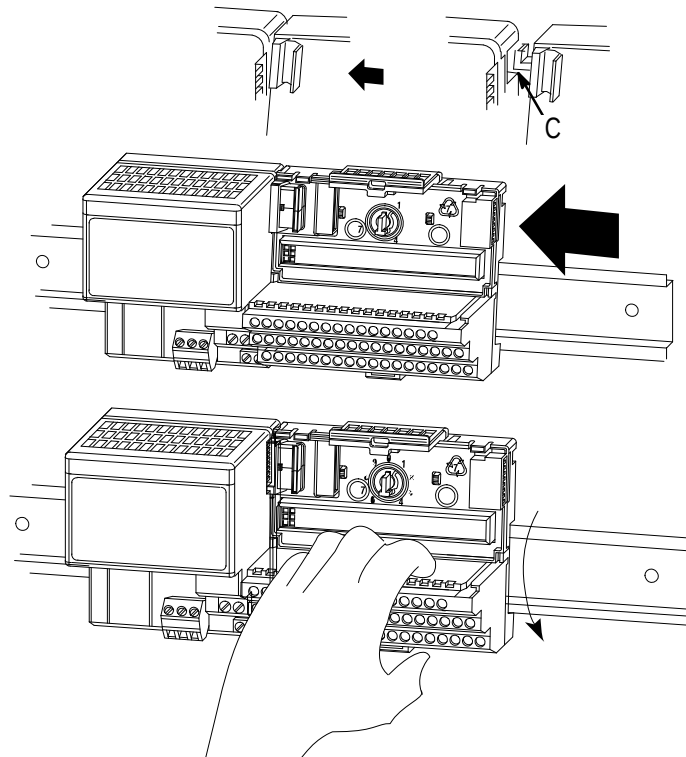
1. Remove the cover plug (if used) in the male connector of the unit to which you are connecting this terminal base unit.
2. Check to make sure that the 16 pins in the male connector on the adjacent device are straight and in line so that the mating female connector on this terminal base unit will mate correctly.
3. Make sure that the female connector **(B)** is **fully retracted**.
4. Position the terminal base unit on the 35 x 7.5 mm DIN rail (A) (Allen-Bradley® catalog number 199-DR1) at a slight angle and hook it over the top of the DIN rail.



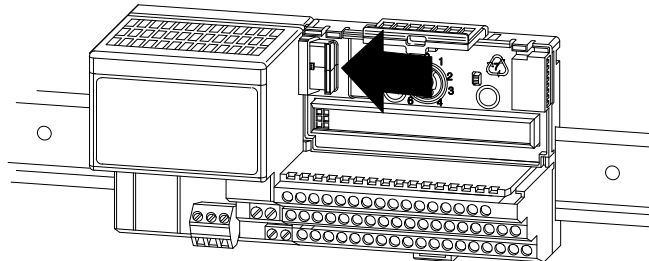
ATTENTION: Do not force the terminal base into the adjacent base/adaptor. Forcing the units together can bend or break the hook and allow the units to separate and break communication over the backplane.



5. Make sure the hook (C) on the terminal base slides under the edge of the adapter and the Flexbus connector is fully retracted. Slide the terminal base over, tight against the adapter.
6. Rotate the terminal base onto the DIN rail with the top of the rail hooked under the lip on the rear of the terminal base. **Make sure that the female Flexbus connector does not strike any of the pins in the mating connector.**
7. Press down on the terminal base to lock it on the DIN rail. If the terminal base does not lock into place, use a screwdriver or similar device to open the locking tab, press down on the base, and release the locking lever to lock the base in place.



8. Gently push the Flexbus connector into the side of the adapter to complete the backplane connection.



9. See the installation instructions for specific wiring information for the module you are installing in this terminal base. To install the next terminal base, repeat the preceding steps.

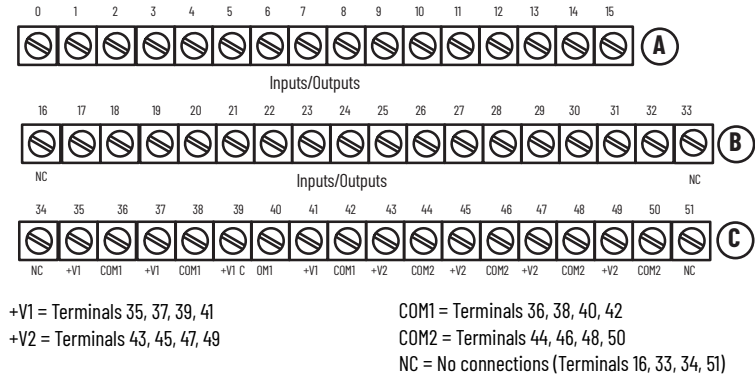


ATTENTION: When using FLEX I/O modules in a high-vibration installation, especially when mounting the DIN rail vertically, use DIN rail locks (Allen-Bradley catalog number 1492-EA35) to prevent accidental separation of the terminal block units.

Wire Connections

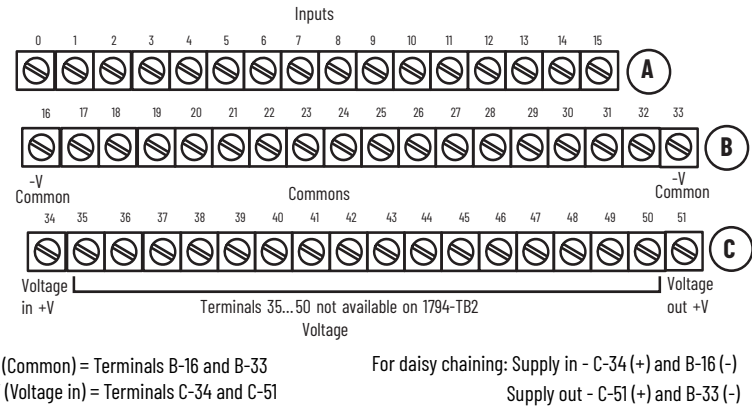
Wire Connections for 1794-TB32, 1794-TB32K, 1794-TB32S, 1794-TB32SK Terminal Bases

1794-TB32 shown



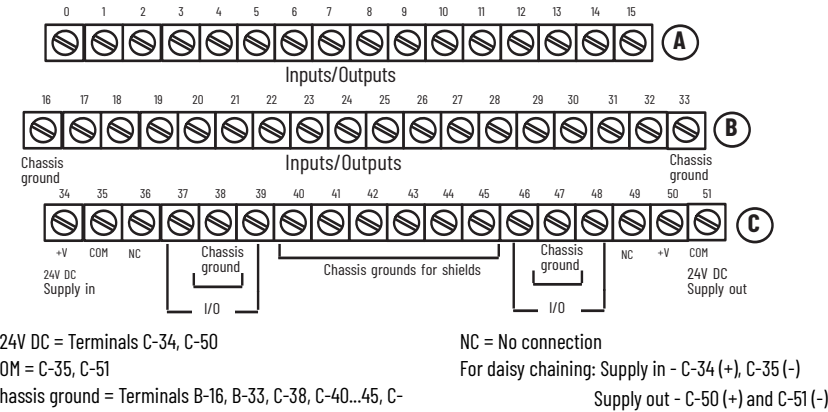
Wire Connections for 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3S Terminal Bases

1794-TB3 shown



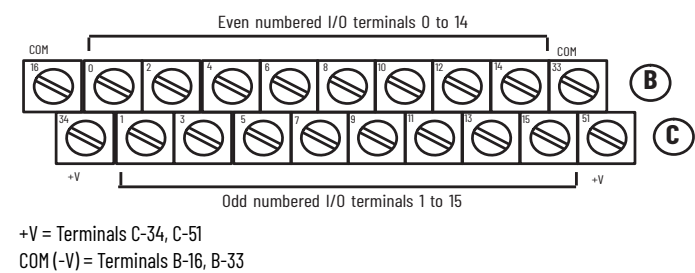
Wire Connections for 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3GSK Terminal Bases

1794-TB3G shown



Wire Connections for 1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3GSK Terminal Bases

1794-TBN shown



Specifications

General Specifications

Attribute	Value
Terminal screw torque	For 1794-TB3TK, 1794-TB3G, 1794-TB3GK, 1794-TB2, 1794-TB2K, 1794-TB32, 1794-TB32K, 1794-TB3, 1794-TB3K, 1794-TB3T: 0.56...0.79 N•m (5...7 lb•in) For 1794-TBN, 1794-TBNF, 1794-TBNK: 1.4 N•m (12 lb•in)
Supply voltage range, max	For 1794-TB3SK, 1794-TB3TK, 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3TK, 1794-TB3TS: Flexbus: 5V DC, 640 mA I/O Terminals: 2 A max V/COM Terminals: 125V DC/AC, 50/60 Hz, 10 A For 1794-TB3GSK, 1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB32, 1794-TB32K, 1794-TB32S, 1794-TB32SK: V/COM Terminals: 31.2V DC/AC, 50/60 Hz, 10 A For 1794-TBN, 1794-TBNF, 1794-TBNK: V/COM Terminals: 250V DC/AC, 50/60 Hz, 10 A For 1794-TB2, 1794-TB2K, 1794-TBN, 1794-TBNK, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3SK, 1794-TB3T, 1794-TB3TK, 1794-TB3TS, 1794-TB3TSK: (UKEX/ATEX/IECEX) V/COM Terminals: 60V AC, 50/60 Hz For 1794-TB2, 1794-TB2K, 1794-TBN, 1794-TBNK, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3SK, 1794-TB3T, 1794-TB3TK, 1794-TB3TS, 1794-TB3TSK: (UKEX/ATEX/IECEX) V/COM Terminals: 75V DC  ATTENTION: A disconnecting switch does not shut off the current. Make or break a circuit only under no-load conditions.
Isolation voltage	For 1794-TBN, 1794-TBNF, 1794-TBNK: Capable of 250V (continuous) max, Basic Insulation Type, Field Wiring Terminals to Flexbus, or the lesser of the installed module. For 1794-TB3SK, 1794-TB3TK, 1794-TB3TK, 1794-TB3TSK, 1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3TS: Capable of 125V (continuous) max, Basic Insulation Type, Field Wiring Terminals to Flexbus, or the lesser of the installed module. For 1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK, 1794-TB32, 1794-TB32K, 1794-TB32S, 1794-TB32SK: Capable of 50V (continuous) max, Basic Insulation Type, Field Wiring Terminals to Flexbus, or the lesser of the installed module. 2500V DC/s, Field Wiring Terminals to Flexbus.
Voltage rating	See Working Voltage and Isolation Voltage Ratings on page 12 for nominal values.
Enclosure type rating	None (open-style)
Wire size	For 1794-TB3SK, 1794-TB3GSK, 1794-TB3TSK, 1794-TB3GK, 1794-TB3GS, 1794-TB32S, 1794-TB32SK, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3TS, 1794-TBN, 1794-TBNF, 1794-TBNK: 0.34...3.3 mm² (22...12 AWG) solid or stranded copper wire rated at 105 °C (221 °F) or greater, 1.2 mm (3/64 in.) insulation max Strip Length: 5...6 mm (0.20...0.24 in.) For 1794-TB3TK, 1794-TB3G, 1794-TB2, 1794-TB2K, 1794-TB32, 1794-TB32K: 0.21...1.3 mm² (24...16 AWG) stranded copper wire rated at 105 °C (221 °F) or greater, 1.2 mm (3/64 in.) insulation max
Wiring category ⁽¹⁾	Established by the installed module
North American temp code	For 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 For 1794-TB2, 1794-TB2K: T6

General Specifications (Continued)

Attribute	Value
UKEX/ATEX temp code	For 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 For 1794-TB2, 1794-TB2K: T6
IECEx temp code	For 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 For 1794-TB2, 1794-TB2K: T6
Dimensions, approx (H x W x D)	94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) (with module installed in terminal base)

(1) Use this Conductor Category information for planning conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

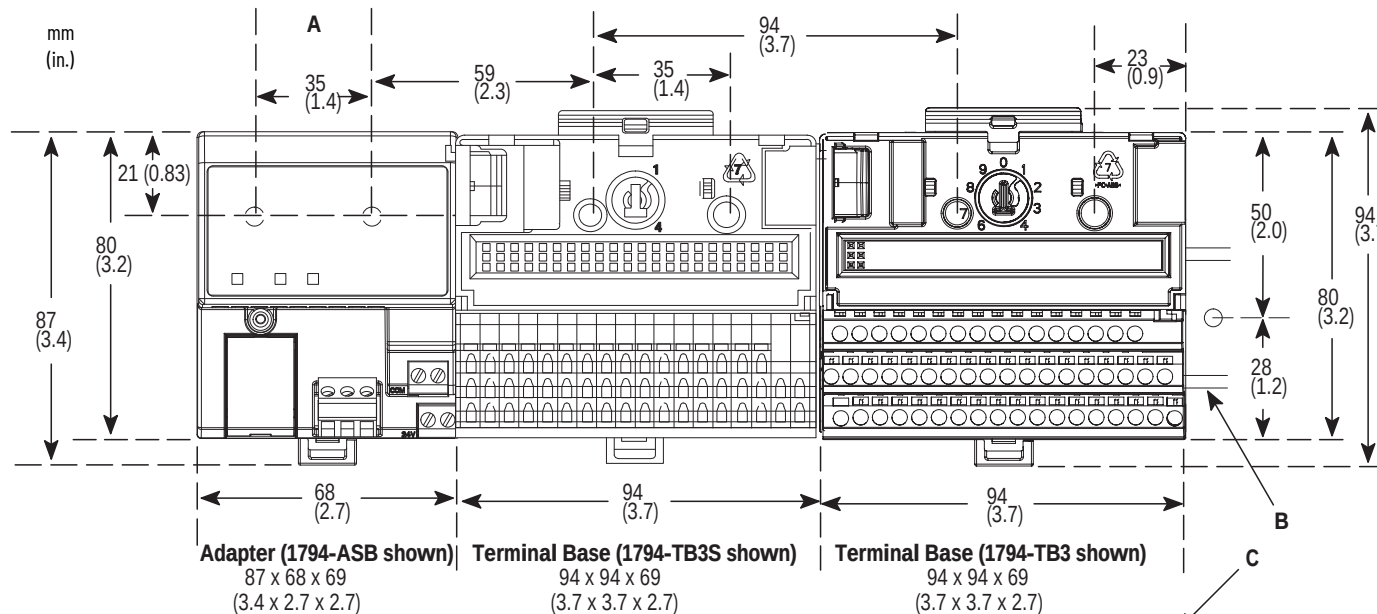
Environmental Specifications

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): For 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-TB32K, 1794-TB32S, 1794-TB32SK, 1794-TBN, 1794-TBNK: -20...+70 °C (-4...+158 °F) For 1794-TBNF, 1794-TBNFK, 1794-TB2, 1794-TB2K: -20...+55 °C (-4...+131 °F)
Nonoperating temperature	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	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz
Operating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Nonoperating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g

Working Voltage and Isolation Voltage Ratings

Terminal Base	24V	120V	230V	Isolation Voltage
1794-TBN, 1794-TBNK, 1794-TBNF	AC/DC	AC/DC	AC/DC	Dependent upon installed module - See the individual installation instructions for your specific module.
1794-TB2, 1794-TB2K, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3SK	AC/DC	AC/DC		
1794-TB3T, 1794-TB3TS, 1794-TB3TK, 1794-TB3TSK	AC/DC	AC/DC		
1794-TB3G, 1794-TB3GK, 1794-TB3GS, 1794-TB3GSK	AC/DC			
1794-TB32, 1794-TB32K, 1794-TB32S, 1794-TB32SK	AC/DC			

Mounting Dimension



Secure DIN rail approximately every 200 mm (7.87 in.).

Maintain at least 25.4 (1.0) air space around your FLEX I/O system installation.

A = Mounting hole dimensions for optional mounting kit

B = DIN rail

C = Operating temperature 25.4 (1.0) below each module when mounted in any position must not exceed 55 °C (131 °F)

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.