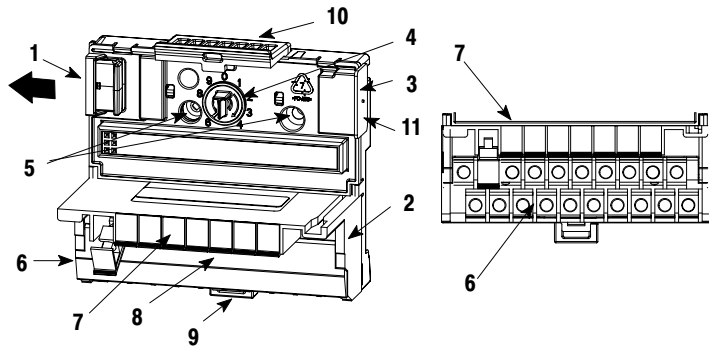




# Installation Instructions

## FLEX I/O Fused Terminal Base (Cat. No. 1794-TBNF)



### Component Identification

1	Female flexbus connector
2	Terminal base unit (1794-TBNF)
3	Male flexbus connector
4	Keyswitch - Set to the position required for the installed module
5	Mounting holes for panel mounting
6	Terminal strips for input/output and power/common connections
7	Fuses, (eight 5X20mm)
8	Terminal strip cover
9	Locking tab
10	Module locking latch
11	Cover plug for male flexbus connector

### Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Allen–Bradley be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen–Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen–Bradley publication SGI–1.1, Safety Guidelines for Application, Installation, and Maintenance of Solid–State Control (available from your local Allen–Bradley office), describes some important differences between solid–state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard.

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**ATTENTION**



Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

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**IMPORTANT**

Identifies information that is critical for successful application and understanding of the product.

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**ATTENTION****Environment and Enclosure**

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 without derating.

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.

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 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.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1, (“Industrial Automation Wiring and Grounding Guidelines”), for additional installation requirements pertaining to this equipment.

**ATTENTION**

FLEX I/O is grounded through the DIN rail to chassis ground. Use zinc plated, yellow chromated steel DIN rail to assure proper grounding. Using other DIN rail materials (e.g. aluminum, plastic, etc.) which can corrode, oxidize or are poor conductors can result in improper or intermittent platform grounding.

**ATTENTION****Preventing 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.
  - If available, use a static-safe workstation.
  - When not in use, keep modules in appropriate static-safe packaging.
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**ATTENTION**

Remove field-side power before removing or inserting a module into the base. This module is designed so you can **remove and insert it under backplane power**. When you remove or insert a module with field-side power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's field devices causing unintended machine motion
- causing an explosion in a hazardous environment

Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

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**Mounting on a DIN Rail****ATTENTION**

Do not remove or replace a terminal base unit when power is applied. Interruption of the flexbus can result in unintended operation or machine motion.

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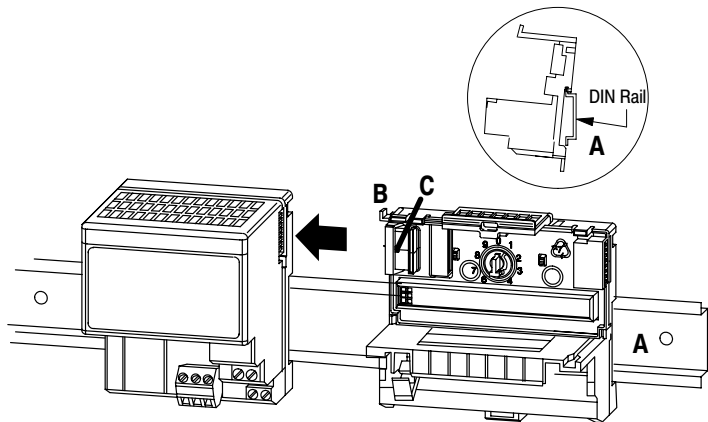
1. Remove the cover plug (if used) in the male connector of the unit to which you are connecting this terminal base unit.
2. Check to make sure that the 16 pins in the male connector on the adjacent device are straight and in line so that the mating female connector on this terminal base unit will mate correctly.
3. Make certain that the female flexbus connector **C** is **fully retracted** into the base unit.

**ATTENTION**

Make certain the female connector **C** is fully retracted into the base unit. Failure to do so can damage the pins in the mating connector when the base unit is rotated into place.



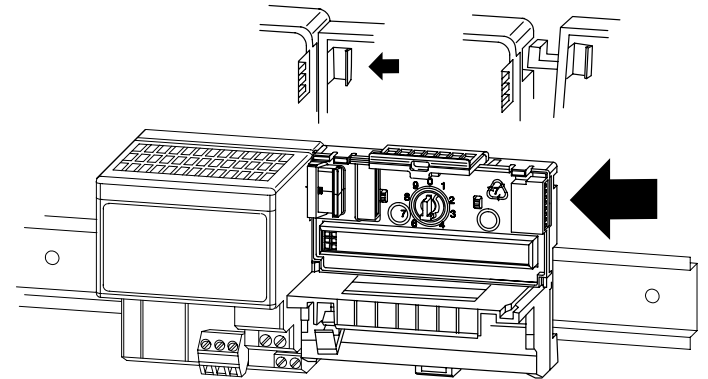
4. Position the terminal base on the 35 x 7.5mm DIN rail **A** (A-B pt. no. 199-DR1).



Position terminal base at a slight angle and hooked over the top of the DIN rail A.

30250-M

5. Slide the terminal base over tight against the adapter.



Slide the terminal base unit over tight against the adapter. Make sure that the hook on the terminal base unit slides under the edge of the adapter and the flexbus connector is fully retracted.

30251-M

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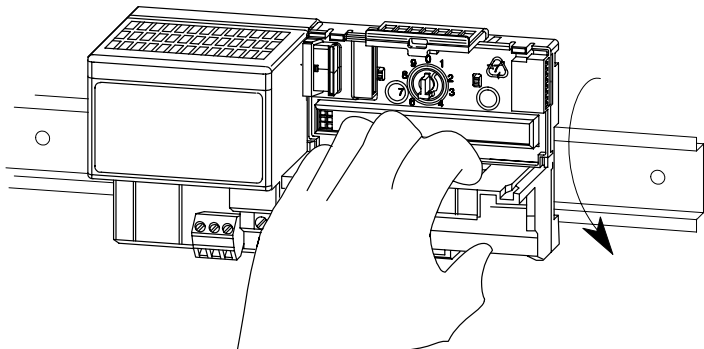
**ATTENTION**



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

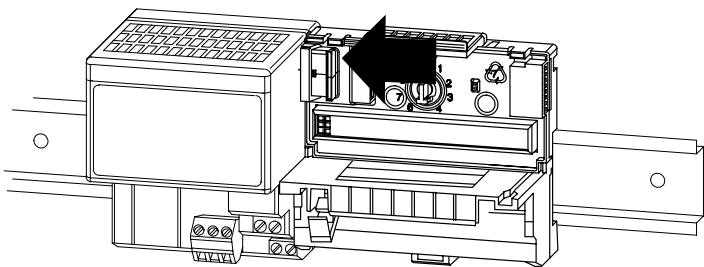
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6. Rotate the terminal base onto the DIN rail with the top of the rail hooked under the lip on the rear of the terminal base. **Use caution to make sure that the female flexbus connector does not strike any of the pins in the mating male connector.**



Press down on the terminal base unit to lock the terminal base 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 terminal base until flush with the DIN rail and release the locking tab to lock the base in place. 30252-M

7. Gently push the flexbus connector into the side of the adapter.



Gently push the flexbus connector into the side of the adapter to complete the backplane connection. 30253-M

8. For specific wiring information, refer to the installation instructions for the module you are installing in this terminal base unit.
9. Repeat the above steps to install the next terminal base.

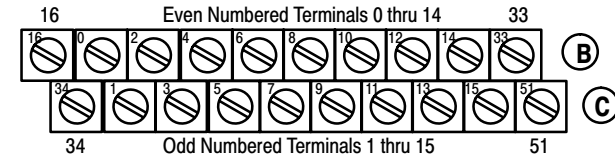
## Wiring

**ATTENTION**

Total current draw through the terminal base unit is limited to 10A. Separate power connections may be necessary.



1. Snap open terminal strip cover.
2. Connect input or output wiring to even numbered terminals 0 through 14 on the (B) row, and odd numbered terminals 1 through 15 on the (C) row. For specific wiring information, refer to the installation instructions for the module you are installing in this terminal base unit.



**(B)** = 16, 0, 2, 4, 6, 8, 10, 12, 14, 33

1794-TBNF

**(C)** = 34, 1, 3, 5, 7, 9, 11, 13, 15, 51

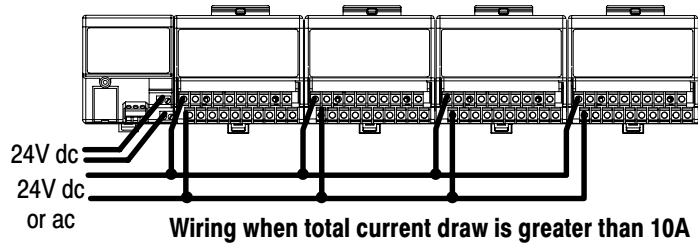
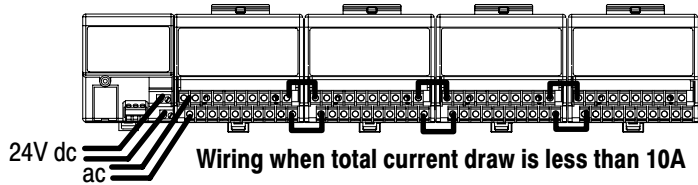
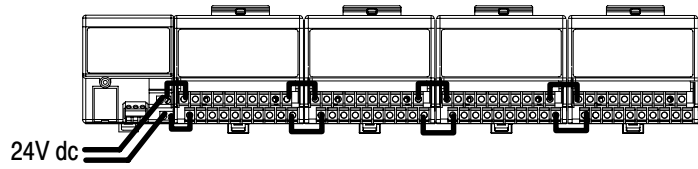
3. Connect supply power to terminal 34 on row (C).
4. Connect supply common/return to terminal 16 on row (B).
5. If continuing supply voltage to the next terminal base, connect terminal C-51 to terminal C-34 on the next terminal base unit.
6. If continuing supply common/return to the next terminal base, connect terminal B-33 to terminal B-16 on the next terminal base unit.

**ATTENTION**

Only even-numbered terminals 0 through 14 (row B) are fused.



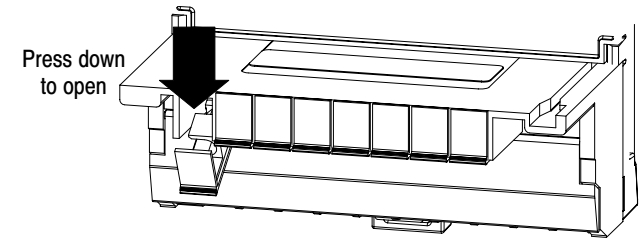




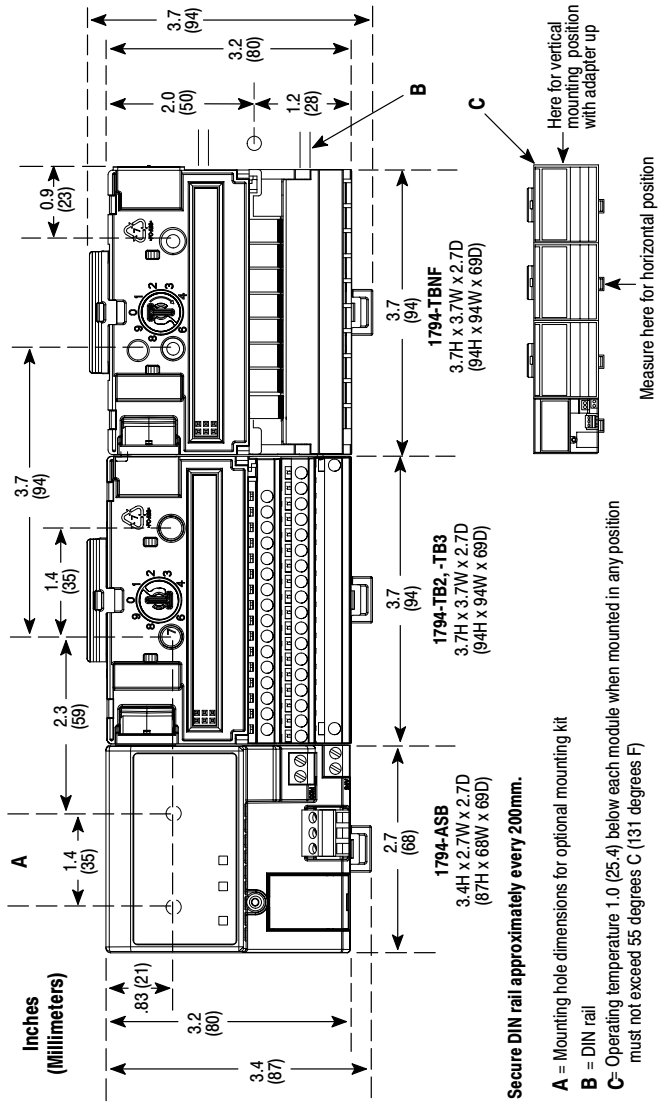
### Installing or Changing a Fuse

This terminal base unit has fuse holders for 5 X 20mm fuses on each of the 8 even-numbered terminals (0 through 14 – row B). To install or change a fuse:

1. Press the fuse holder down toward the terminal strip.



2. If replacing a fuse, remove the fuse from the fuse holder.
3. Insert a known good 5 X 20mm fuse into the fuse holder.
4. Replace the fuse holder by rotating the fuse holder back to vertical until it snaps into the locked position.



**1794-TBNF Specifications**

Number of Terminals	2 rows of 10
Terminal Screw Torque	7-9 inch-pounds
Fusing	8 – 5X20mm fuses (1 for each even-numbered terminal – 0 thru 14 on row B). Shipped with 1.6A, 250V ac Slow Blow fuses suitable for 1794-OA8 ac output module. Refer to individual installation instructions for fusing recommendations for other modules.
Dimensions (with module installed in base) Inches (Millimeters)	3.7H x 3.7W x 2.7D (94H x 94W x 69D)
Current Capacity	10A maximum
Voltage Rating	264V ac maximum
Isolation Voltage	100% tested @ 2500V dc for 1s between user and system. Channel-to-channel isolation determined by inserted module
Environmental Conditions	
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) 32 to 131°F (0 to 55°C)
Storage 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 to 185°F (–40 to 85°C)
Relative Humidity	IEC 60068–2–30 (Test Db, Unpackaged, Nonoperating Damp Heat) 5 to 95%, noncondensing
Shock Operating Nonoperating	IEC 60068–2–27 (Test Ea, Unpackaged Shock) 30g 50g
Vibration	IEC 60068–2–6 (Test Fc, Operating) 5g @ 10–500Hz

**Specifications continued on next page.**

ESD Immunity	IEC 61000-4-2 4kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3 10V/m with 1kHz sine-wave 80% AM from 30MHz to 1000MHz
EFT/B Immunity	IEC 61000-4-4 ±2kV @ 5kHz on signal ports
Surge Transient Immunity	IEC 61000-4-5 ±1kV line-line (DM) and ±2kV line-earth (CM) on signal ports
Conducted RF Immunity	IEC 61000-4-6 10V rms with 1kHz sine wave 80% AM from 150kHz to 80MHz
Emissions	CISPR 11 Group 1, Class A (with appropriate enclosure)
Enclosure Type Rating	None (open-style)
Conductors Wire Size	12 gauge (4mm <sup>2</sup> ) stranded copper wire maximum rated at 75°C or greater 3/64 inch (1.2mm) insulation maximum Established by installed module
Category <sup>1</sup>	
Agency Certification (when product is marked)	<ul style="list-style-type: none"> <li>UL UL Listed Industrial Control Equipment</li> <li>CSA CSA Certified Process Control Equipment</li> <li>CE<sup>2</sup> European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4, Industrial Emissions EN 50082-2, Industrial Immunity EN 61326, Meas./Control/Lab., Industrial Requirements EN 61000-6-2, Industrial Immunity</li> <li>European Union 73/23/EEC LVD Directive, compliant with: EN 61131-2; Programmable Controllers</li> <li>C-Tick<sup>2</sup> Australian Radiocommunications Act, compliant with AS/NZS 2064, Industrial Emissions</li> </ul>

<sup>1</sup> You use this conductor category information for planning conductor routing as described in the system level installation manual.

<sup>2</sup> See the Product Certification link at [www.ab.com](http://www.ab.com) for Declarations of Conformity, Certificates and other certification details








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