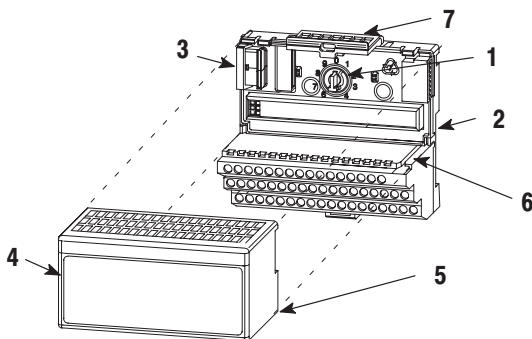




Installation Instructions

24V dc FLEX I/O Electronically Fused 8 Output Module

(Cat. No. 1794-OB8EP)



English

Module Installation

This module mounts on a 1794 terminal base unit.

1. Rotate keyswitch (1) on terminal base unit (2) clockwise to position 2 as required for this type of module.
2. Make certain the flexbus connector (3) is pushed all the way to the left to connect with the neighboring terminal base/adaptor. **You cannot install the module unless the connector is fully extended.**
3. Make sure that the pins on the bottom of the module are straight so they will align properly with the connector in the terminal base unit.
4. Position the module (4) with its alignment bar (5) aligned with the groove (6) 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 (7) is locked into the module.



ATTENTION: Remove field-side power before removing or inserting this module. 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.

European Union Directive Compliance

If this product has the CE mark it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) and the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC – Generic Emission Standard, Part 2 – Industrial Environment
- EN 50082-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 – Equipment Requirements and Tests.

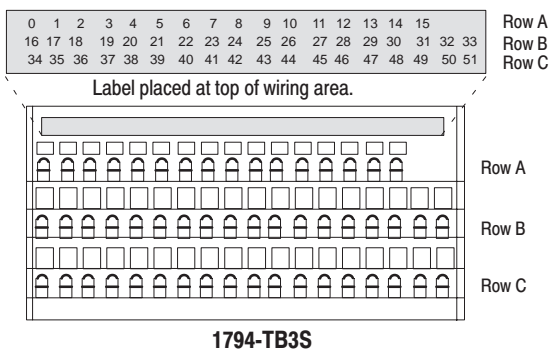
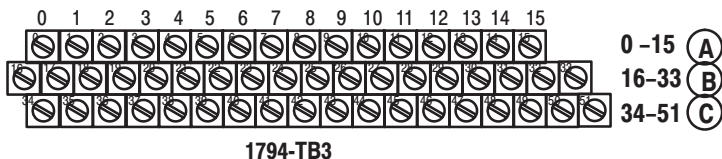
For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the following Allen-Bradley publications:

- Industrial Automation Wiring and Grounding Guidelines For Noise Immunity, publication 1770-4.1
- Automation Systems Catalog, publication B111

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

Wiring to a 1794-TB3 or -TB3S Terminal Base Unit

1. Connect individual output wiring (customer loads) to even-numbered terminals 0 through 14 on the **0 to 15** row (A).
2. Connect the associated return to the corresponding terminal on the 16–33 row (B) or to the odd-numbered terminals on the **0–15** row (A) as indicated in the wiring table below. (Returns are internally connected together.)
3. Connect +24V dc power to terminal 34 on the **34–51** row (C).
4. If continuing power to the next terminal base unit, connect a jumper from terminal 51 (+24V dc) on this base unit to terminal 34 on the next base unit.
5. Connect 24V dc return to terminal 16 on the **16–33** row (B).
6. If continuing 24V return to the next terminal base unit, connect a jumper from terminal 33 (return) on this base unit to terminal 16 on the next base unit.



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Output Channel	1794-TB3, -TB3S	
	Output Terminal	Common Terminal ¹
0	A-0	A-1 ¹ /B-17
1	A-2	A-3 ¹ /B-19
2	A-4	A-5 ¹ /B-21
3	A-6	A-7 ¹ /B-23
4	A-8	A-9 ¹ /B-25
5	A-10	A-11 ¹ /B-27
6	A-12	A-13 ¹ /B-29
7	A-14	A-15 ¹ /B-31

A = output terminals

B = common terminals

C = Power terminals (C-34 thru 51 for 1794-TB3)

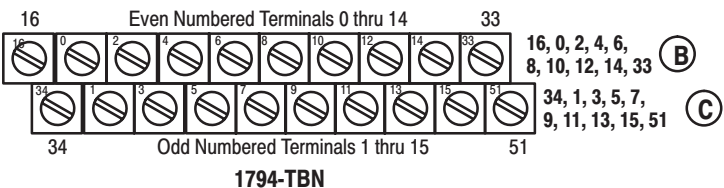
¹ A-1, 3, 5, 7, 9, 11, 13 and 15 are connected together inside the module to 24V dc common.



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

Wiring to a 1794-TBN Terminal Base Unit

1. Connect individual output wiring (customer loads) to even numbered terminals (0 thru 14) on row (B).
2. Connect customer load returns to odd numbered terminals (1 thru 15) on row (C) as indicated in the table below.
3. Connect 24V dc return to terminal 16 on row (B).
4. If continuing the dc return bus to the next terminal base unit, connect a jumper from terminal 33 on this base unit to terminal 16 on the next base unit.
5. Connect +24V dc power to terminal 34 on row (C).
6. If continuing dc power to the next terminal base unit, connect a jumper from terminal 51 (+24V dc) to terminal 34 on the next base unit.

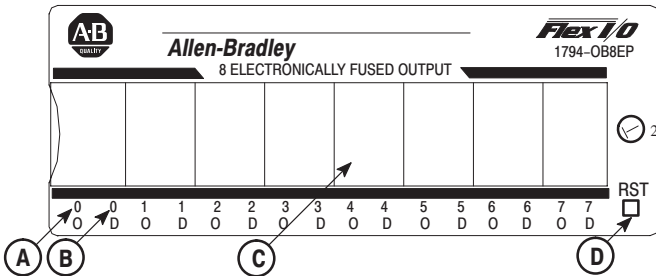


1794-TBN

Output Terminal	Common Terminal
B-0	C-1
B-2	C-3
B-4	C-5
B-6	C-7
B-8	C-9
B-10	C-11
B-12	C-13
B-14	C-15

B = even numbered output terminals 0 thru 14, dc common terminals 16 and 33
 C = Power Terminals C-34 and C-51, and odd numbered output common terminals 1 thru 15

Indicators



A = Status Indicators (O) – yellow – show status of individual outputs.

B = Diagnostic indicators (D) – red – when lit, indicates fault

C = Insertable label for writing input designations

D = Reset button – press to reset fault

Resetting a Module Fault

Faults can be reset 3 ways:

- press the fault reset button
- toggle the output reset bit (write word 1, bit 08)
- cycle backplane power

The reset function resets all output fault bits simultaneously. Non-faulted outputs remain unaffected during the reset

Using the Fault Reset Button

When you press the manual reset button:

- the fault indicator for the faulted output turns off for about 1.2s (the faulted output will not attempt to turn on during this delay)
- after the 1.2s delay, the faulted output attempts to turn on
- if the external condition causing the fault is corrected, the output will remain on, the fault indicator is off, and the status indicator is on

Image Table Mapping

Decimal Bits																
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
IW	F7	F6	F5	F4	F3	F2	F1	F0	Reserved (see note)							
OW	Not used							FR	O7	O6	O5	O4	O3	O2	O1	O0
OW2	Reserved															

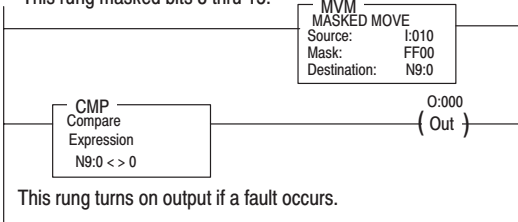
Where: IW = input word
 OW = output word
 F = overload fault bits - 1 = fault present; 0 = no fault
 O□ = output data (O0 corresponds to output 0, O1 corresponds to output 2, etc.)
 FR = fault reset bit - 1 = reset output; 0 = no change.

Note: The unused lower byte in read word 1 floats during operation. Do not use this byte for fault status. See "Programming" below.

Programming

If your program automatically checks for fault bits, bits 8 through 15 of read word 1 must be masked. This is a sample program for a module at rack address 1, group 0. Add similar rungs to your program.

This rung masked bits 8 thru 15.



Specifications – 8 Output Module Cat. No. 1794-OB8EP

Number of Outputs	8 (1 group of 8), non-isolated, sourcing
Module Location	Cat. No. 1794-TB3, -TB3S, and -TBN Terminal Base
ON-state Voltage Range	19.2V dc minimum 24V dc nominal; 31.2V dc maximum
Output Current Rating	Maximum 2.0A per output 10A maximum per module (e.g. 8 outputs @ 1.25A, 5 outputs @ 2.0A, or similar output/ampere combinations totaling 10A or less)
OFF-state Voltage	31.2V dc maximum
ON-state Current	1.0mA minimum per channel 2.0A maximum per channel
Surge Current	4A for 10ms, repeatable every 3 seconds (see chart)
OFF-state Leakage	0.5mA maximum
ON-state Voltage Drop	0.2V dc maximum
Isolation Voltage (minimum)	100% tested at 850V dc for 1s between user and system No isolation between individual channels
Output Signal Delay ¹ Off to On On to Off	0.1ms maximum 0.1ms maximum
Flexbus Current (maximum)	73mA
Power Dissipation	5.5W maximum @ 31.2V
Thermal Dissipation	18.8 BTU/hr @ 31.2V dc
Indicators (field side indication, logic driven)	8 yellow status indicators; 8 red fault indicators
Keyswitch Position	2

General Specifications

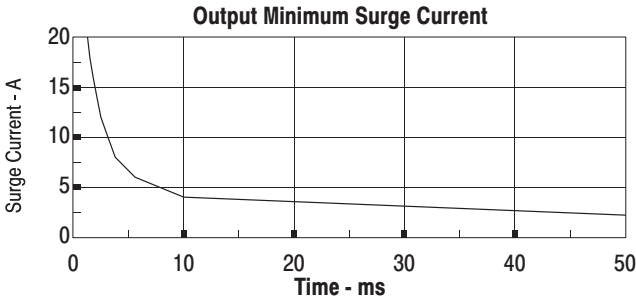
External dc Power Supply Voltage Voltage Range Supply Current	24V dc nominal 19.2 to 31.2V dc (includes 5% ac ripple) 80mA @ 24V dc
Dimensions Inches (Millimeters)	1.8H x 3.7W x 2.1D (45.7 x 94.0 x 53.3)

Specifications continued on next page.

Specifications – 8 Output Module Cat. No. 1794-OB8EP

Environmental Conditions	
Operational Temperature	0 to 55°C (32 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% noncondensing
Shock	Operating 30 g peak acceleration, 11(±1)ms pulse width
Nonoperating	50 g peak acceleration, 11(±1)ms pulse width
Vibration	Tested 5 g @ 10-500Hz per IEC 68-2-6
Conductors Wire Size	12 gauge (4mm ²) stranded maximum
Category	3/64 inch (1.2mm) insulation maximum 2 ²
Agency Certification (when product is marked)	<ul style="list-style-type: none"> • CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

¹ Off/on delay is time from a valid output "on" signal to output energization. On/off delay is time from a valid output "off" signal to output deenergization.
² You use this conductor category information for planning conductor routing as described in the system level installation manual.



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