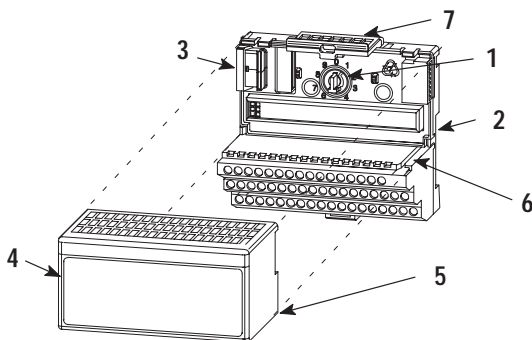




Installation Instructions

FLEX I/O 8 Output Relay Module (Cat. No. 1794-OW8)



English

Module Installation

This module mounts on a 1794 terminal base unit.

1. Rotate keyswitch (1) on terminal base unit (2) clockwise to position 9 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:

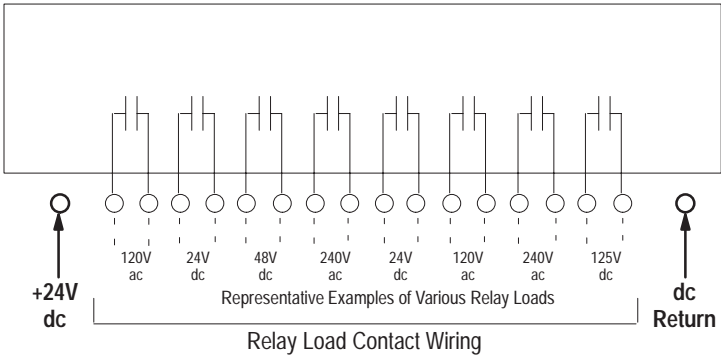
- Industrial Automation Wiring and Grounding Guidelines For Noise Immunity, publication 1770-4.1
- Automation Systems Catalog, publication B111

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



ATTENTION: Do not attempt to increase load current or wattage capability beyond the maximum rating by connecting 2 or more outputs in parallel. The slightest variation in relay switching time may cause one relay to momentarily switch the total load current.

Simplified Schematic of Relay Module



Load power can be obtained from a variety of sources, and can range from +5V dc to 240V ac. Make certain that only 24V dc is applied to the module power terminals on the module terminal base



ATTENTION: Apply only +24V dc power to the power terminals on the terminal base unit. Make certain that **all** relay wiring is properly connected before applying any power to the module.



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-TB2 or -TB3 Terminal Base Unit

1. Connect individual output relay contact (customer load) wiring to numbered terminals on the **0–15** row (**A**) as indicated in the table below. The even numbered terminals are one pole of the relay contacts; the odd numbered terminals are the other pole of the relay contacts.



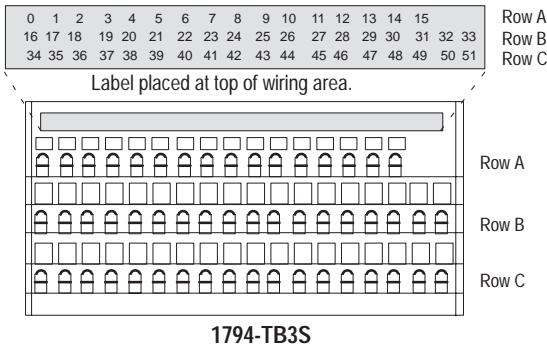
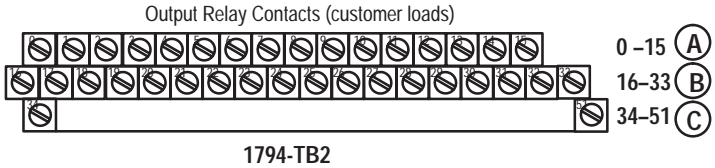
ATTENTION: When using 240V power to a relay, you must connect a snubber across the load. Failure to connect a snubber across the load can result in generation of electromagnetic noise which could disrupt nearby electrical equipment, including your 1794 Flex I/O chassis. Use Allen-Bradley part number 599-KA04 or 1401-NX1.

2. Connect 24V dc return to terminal 16 on the **16–33** row (**B**). (Terminals 16 thru 33 are internally connected together.)
3. Connect +24V dc power to terminal 34 on the **34–51** row (**C**). (Terminals 34 thru 51 are internally connected together.)



ATTENTION: **Apply only** +24V dc power to the power terminals on the terminal base unit. Make certain that **all** relay wiring is properly connected before applying any power to the module.

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. If continuing the dc return to the next terminal base unit, connect a jumper from terminal 33 (24V dc return) on this base unit to terminal 16 on the next base unit.



Wiring to a 1794-TBN or -TBNF Terminal Base Unit

1. Connect individual relay wiring (customer loads) to even numbered terminals (0 thru 14) on row (B) and odd numbered terminals (1 thru 15) on row (C) as indicated in the table below. (Even numbered terminals are 1 pole of the relay contacts; odd numbered terminals are the other pole of the relay contacts.)



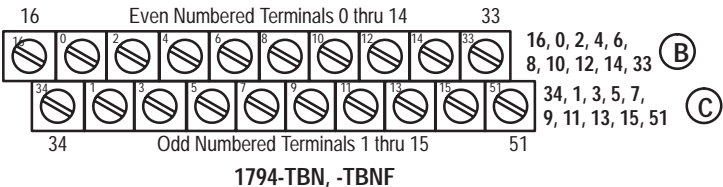
ATTENTION: When using 240V power to a relay, you must connect a snubber across the load. Failure to connect a snubber across the load (relay contacts) can result in generation of electromagnetic noise which could disrupt nearby electrical equipment, including your 1794 Flex I/O chassis. Use Allen-Bradley part number 599-KA04 or 1401-NX1.

2. Connect 24V dc return to terminal 16 on row (B).



ATTENTION: Apply only +24V dc power to the power terminals on the terminal base unit. Make certain that **all** relay wiring is properly connected before applying any power to the module.

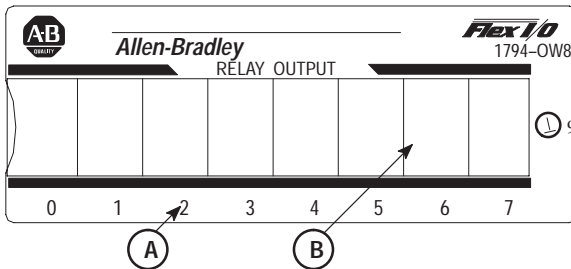
3. If continuing the dc return bus to the next terminal base unit, connect a jumper from terminal 33 on this base unit to terminal 16 on the next base unit.
4. Connect +24V dc power to terminal 34 on row (C).
5. If continuing dc power to the next terminal base unit, connect a jumper from terminal 51 (+24V dc) to terminal 34 on the next base unit.



Output Channel	1794-TB2, -TB3, -TB3S	1794-TBN, -TBNF
	Output Terminal	Output Terminal
0	A-0	B-0
	A-1	C-1
1	A-2	B-2
	A-3	C-3
2	A-4	B-4
	A-5	C-5
3	A-6	B-6
	A-7	C-7
4	A-8	B-8
	A-9	C-9
5	A-10	B-10
	A-11	C-11
6	A-12	B-12
	A-13	C-13
7	A-14	B-14
	A-15	C-15

<p>A = output terminals B = dc return terminals C = power terminals (C-34 and 51 for 1794-TB2; C-34 thru 51 for 1794-TB3, -TB3S)</p>	<p>B = even numbered output terminals 0-14,; dc return terminals B-16 and B-33 C = odd numbered output terminals 1-15; power terminals C-34 and C-51</p>
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Indicators



- A** = Status Indicators – yellow – show status of individual outputs.
 If relay output bit is on, the corresponding output indicator is on.
- B** = Insertable label for writing individual output designations.

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Image Table Memory Map

Word	Memory Map	Dec. Bits (Octal Bits)	Description	Format
Read	Input	00-15 (00-17)	Not used – reserved	
Write	Output	00-07	Relay Output data – 00 corresponds to output 0, 01 corresponds to output 1, etc.	0 = Output off 1 = Output on
		08-15 (10-17)	Not used	

Dec.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
(Octal)	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00
Write	Not used – set to 0								07	06	05	04	03	02	01	00

Where O = Output number

When bit = 0, output is off; when bit =1, output is on

1794-OW8 Output Specifications	
Outputs per Module	1 group of 8 Form A (normally open) electromechanical relays
Module Location	Mounts on 1794-TB2, -TB3, -TB3S, -TBN, and -TBNF Terminal Base Units. When using 1794-TBNF terminal base unit, use 3.0A, 250V ac slow-blow fuses
Output Voltage Range (load dependent)	5–30V dc @ 2.0A resistive 48V dc @ 0.5A resistive 125V dc @ 0.25A resistive 125V ac @ 2.0A resistive 240V ac @ 2.0A resistive
Output Current Rating (at rated power)	Resistive 2A @ 5–30V dc 0.5A @ 48V dc 0.25A @ 125V dc 2A @ 125V ac 2A @ 240V ac Inductive 2.0A steady state @ 5–30V dc, L/R = 7ms 0.5A steady state @ 48V dc, L/R = 7ms 0.25A steady state @ 125V dc, L/R = 7ms 2.0A steady state, 15A make @ 125V ac, PF = cos θ = 0.4 2.0A steady state, 15A make @ 240V ac, PF = cos θ = 0.4
Power Rating (steady state)	250W maximum for 125V ac resistive output 480W maximum for 240V ac resistive output 60W maximum for 30V dc resistive output 24W maximum for 48V dc resistive output 31W maximum for 125V dc resistive output 250VA maximum for 125V ac inductive output 480VA maximum for 240V ac inductive output 60VA maximum for 30V dc inductive output 24VA maximum for 48V dc inductive output 31VA maximum for 125V dc inductive output
Output Signal Delay	Off to On 8ms maximum (time from a valid output on signal to relay energization by the module) On to Off 26ms maximum (time from a valid output off signal to relay deenergization by the module)

Specifications continued on next page

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1794-OW8 Output Specifications	
Initial Contact Resistance	30m Ω
Switching Frequency	1 operation/3s (0.3Hz at rated load) maximum
Operate/Release Time	10ms maximum
Bounce Time	1.2ms (mean)
Minimum Contact Load	100 μ A at 100mV dc
Off State Leakage Current (maximum at 240V ac)	1mA thru snubber circuit
Expected Life of Electrical Contacts	100,000 operations minimum @ rated loads
Flexbus Current	69mA maximum
Power Dissipation	5.5W maximum
Thermal Dissipation	18.8 BTU/hr maximum
Keyswitch Position	9
Isolation Voltage Between any 2 sets of contacts Customer load to logic Customer load to 24V dc supply Customer 24V dc supply to logic	2550V dc for 1 second 2550V dc for 1 second 2550V dc for 1 second 850V dc for 1 second
Fuse recommendations	Fusing of outputs is recommended. Use 3.0A, 250V ac slow-blow fuses. Littelfuse pt. no. 239003

Specifications continued on next page

1794-OW8 Output Specifications

General Specifications

External dc Power		
Supply Voltage		24V dc nominal
Voltage Range		19.2 to 31.2V dc (includes 5% ac ripple)
Supply Current		125mA maximum
Dimensions	Inches (Millimeters)	1.8H x 3.7W x 2.1D (45.7 x 94.0 x 53.3)
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	12 g peak acceleration, 11(±1)ms pulse width
	Non-operating	50 g peak acceleration, 11(±1)ms pulse width
	Vibration	Tested 2 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 1 ¹
Agency Certification (when product or packaging 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 You use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

 **Rockwell** Automation

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