



Allen-Bradley 1794-IE8 FLEX I-O Input Analog Modules Instruction Manual

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Original Instructions

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FLEX I/O Input, Output, and Input/Output Analog Modules

Catalog Numbers 1794-IE8, 1794-OE4, and 1794-IE4XOE2, Series B

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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.

Topic	Page
Updated template	throughout
Removed K catalogs	throughout
Updated Environment and Enclosure	3
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ATTENTION: Read this document and the documents listed in the Additional Resources section about installation, configuration and operation of this equipment before you install, configure, operate or maintain this

product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards. Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Environment and Enclosure



ATTENTION: This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN/IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.

This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.

This equipment is supplied as open-type equipment for indoor use. 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 enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5V A or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain more information regarding specific enclosure type ratings that are required to comply with certain product safety certifications. In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for additional installation requirements.
- NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by enclosures.



WARNING: When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



WARNING: If you connect or disconnect wiring while the field side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



ATTENTION: This product is grounded through the DIN rail to chassis ground. Use zinc plated chromate-passivated steel DIN rail to assure proper grounding.

The use of other DIN rail materials (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately. Be sure to ground the DIN rail properly. See the Industrial Automation Wiring and Grounding Guidelines, Rockwell Automation publication 1770-4.1, for more information.

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.

UK and European Hazardous Location Approval

The following analog input/output modules are European Zone 2 approved: 1794-IE8, 1794-OE4, and 1794-IE4XOE2, Series B.

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 (1794 IE8) according to EN IEC 60079-0:2018 and EN IEC 60079-7:2015+A1:2018.
- The type of protection is Ex nA IIC T4 Gc (1794-OE4 and 1794-IE4XOE2) according to EN 60079-0:2009 & EN 60079-15:2010.
- Comply to Standard EN IEC 60079-0:2018 & EN IEC 60079-7:2015+A1:2018 reference certificate number DEMKO 14 ATEX 1342501X and UL22UKEX2378X.
- Comply to Standards: EN 60079-0:2009, EN 60079-15:2010, reference certificate number LCIE 01ATEX6020X.
- 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.

IEC Hazardous Location Approval

The following applies to products marked with IECEx certification (1794-IE8):

- 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 according to IEC 60079-0 and IEC 60079-7.
- Comply to 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.



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.

North American Hazardous Location Approval

The following modules are North American Hazardous Location approved: 1794-IE8, 1794-OE4, and 1794-IE4XOE2, Series B.

The Following Information Applies When Operating This Equipment In Hazardous Locations.

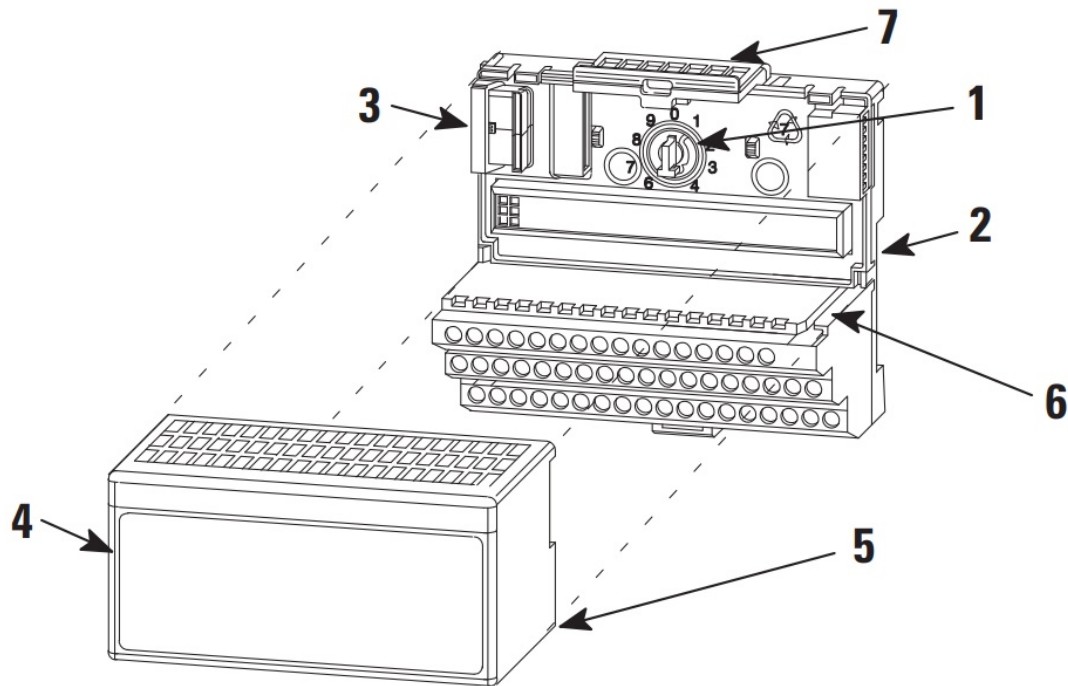
Products marked “CL I, DIV 2, GP A, B, C, D” are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within 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.

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.

Installing Your Analog Input/Output Module



The FLEX™ I/O Input, Output and Input/Output Analog module mounts on a 1794 terminal base.



ATTENTION: During mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the module. Debris that falls into the module could cause damage on power up.

1. Rotate the keyswitch (1) on the terminal base (2) clockwise to position 3 (1794-IE8), 4 (1794-OE4) or 5 (1794-IE4XOE2) as required.
2. Make certain the Flexbus connector (3) is pushed all the way to the left to connect with the neighboring terminal base or adapter. You cannot install the module unless the connector is fully extended.
3. Make sure the pins on the bottom of the module are straight so they will align properly with the connector in the terminal base.
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.

Connecting Wiring for the Analog Inputs and Outputs

1. Connect individual input/output wiring to numbered terminals on the 0-15 row (A) for 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, and 1794-TB3TS, or on row (B) for the 1794-TBN as indicated in Table 1, Table 2, and Table 3.

IMPORTANT Use Belden 8761 cable for signal wiring.

2. Connect channel common/return to the associated terminal on row (A) or row (B) for the 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, and 1794-TB3TS, or on row C for the 1794-TBN. For input devices requiring terminal base power, connect the channel power wiring to the associated terminal on row (C).
3. Connect any signal wiring shields to functional ground as near as possible to the module. 1794-TB3T or 1794-TB3TS only: Connect to earth ground terminals C-39...C-46.
4. Connect the +V DC power to terminal 34 on the 34-51 row (C) and -V common/return to terminal 16 on the B row.

(1) Use when transmitter requires terminal base power.

Terminal Base Wiring for the 1794-IE8

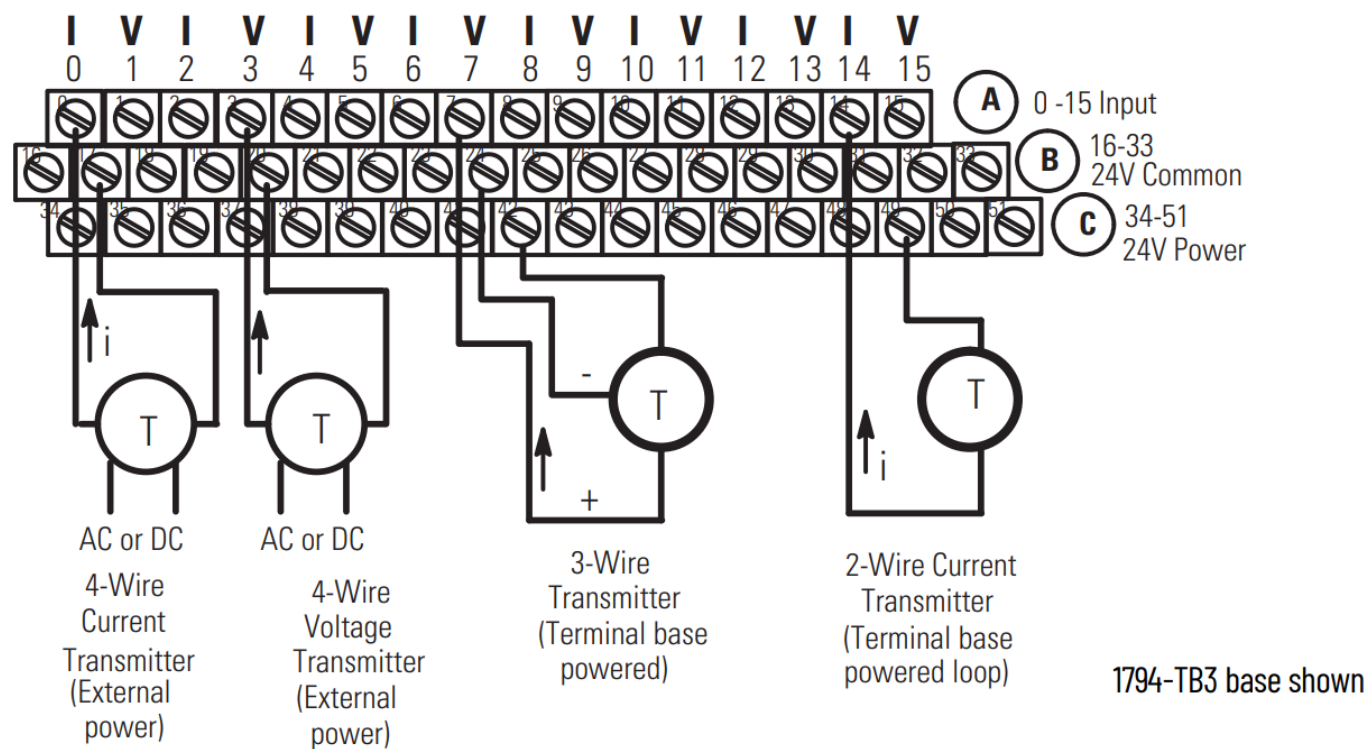


Table 2 – Wiring Connections for the 1794-OE4 Output Modules

Channel	Signal Type	Label Marking	1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-111315		1794-TBN
			Output Terminal ⁽¹⁾	Shield (1794-TB3 T, 1794-113315)	Output Terminal ⁽²⁾
Output 0	Current	10	A-0	C 39	B-0
	Current	10 Ret	A-1		C-1
	Voltage	VO	A-2	C 40	B-2
	Voltage	VO Ret	A-3		C-3
Output 1	Current	11	A-4	C 41	B-4
	Current	11 Ret	A-5		C-5
	Voltage	V1	A-6	C 42	B-6
	Voltage	V1 Ret	A-7		C-7
Output 2	Current	12	A-8	C 43	B-8
	Current	12 Ret	A-9		C-9
	Voltage	V2	A-10	C 44	B-10
	Voltage	V2 Ret	A-11		C-11
Output 3	Current	13	A-12	C 45	B-12
	Current	13 Ret	A-13		C-13
	Voltage	V3	A-14	C 46	B-14
	Voltage	V3 Ret	A-15		C-15
-V DC Common	1794-TB3 and 1794-TB3S – Terminals 16...33 are internally connected in the terminal base unit. 1794-TB3T and 1794-TB3TS – Terminals 16, 17, 19, 21, 23, 25, 27, 29, 31, and 33 are internally connected in the terminal base unit. 1794-TB2 – Terminals 16 and 33 are internally connected in the terminal base unit				
+V DC Power	1794-TB3 and 1794-TB3S – Terminals 34...51 are internally connected in the terminal base unit. 1794-TB3T and 1794-TB3TS – Terminals 34, 35, 50, and 51 are internally connected in the terminal base unit. 1794-TB2 – Terminals 34 and 51 are internally connected in the terminal base unit.				
Chassis ground (Shield)	1794-TB3T, 1794-TB3TS – Terminals 39...46 are internally connected to chassis ground.				

- 1, 3, 5, 7, 9, 11, 13, and 15 are internally connected in the module to 24V DC common.
- 1, 3, 5, 7, 9, 11, 13, and 15 are internally connected in the module to 24V DC common.

Terminal Base Wiring for the 1794-OE4

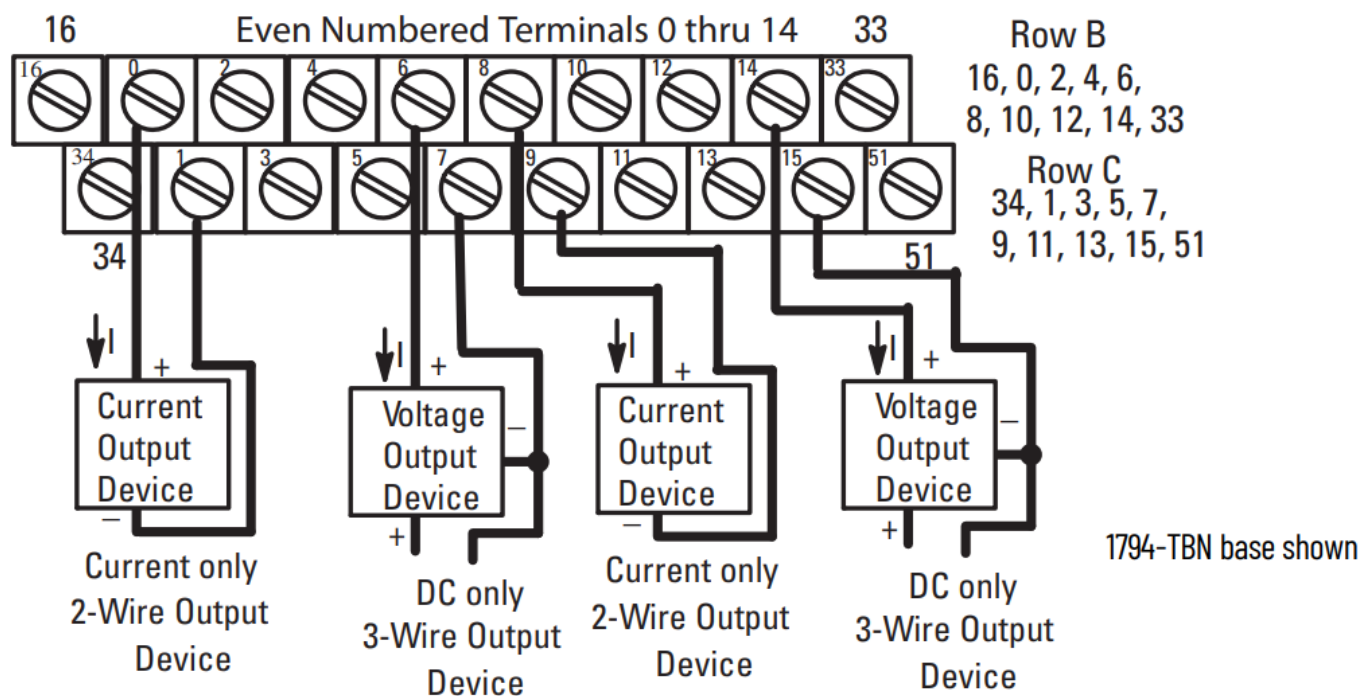
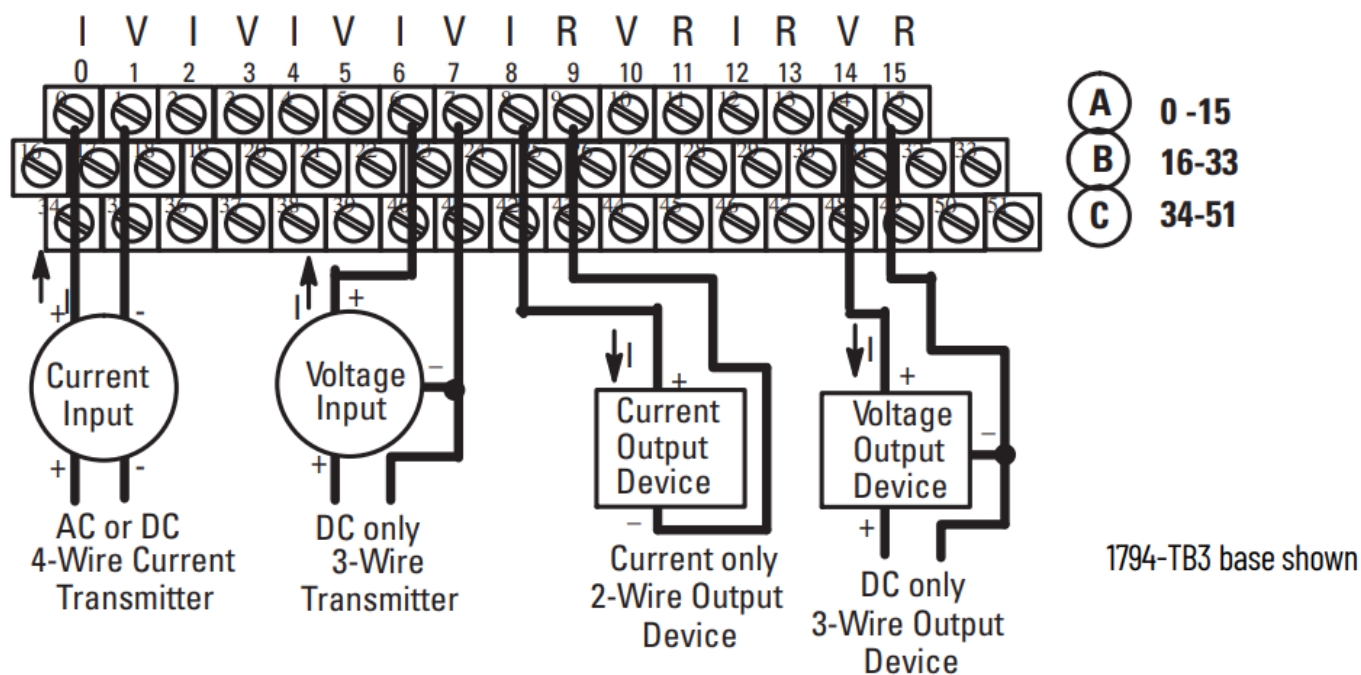


Table 3 – Wiring Connections for the 1794-IE4XOE2 4-Input 2-Output Analog Module

Channel	Signal Type	Label Marking	1794-TB2, 1794-TB3, 1794-TB3S' 1794-TB3T, 1794-TB3TS	1794-TB3, 1794-TB3S	1794-TB2, 1794-TB3' 1794-TB3S	1794-TB3T, 1794-TB3TS					
			Input/Output Terminal(1)	Power Terminal(2)	Common Terminal		Shield				
Input 0	Current	10	A-0	C-35	B-17	B-17	C 39				
	Voltage	VO	A-1	C-36	B-18	B-17					
Input 1	Current	11	A-2	C-37	B-19	B-19	C 40				
	Voltage	V1	A-3	C-38	B-20	B-19					
Input 2	Current	12	A-4	C-39	B-21	B-21	C 41				
	Voltage	V2	A-5	C-40	B-22	B-21					
Input 3	Current	13	A-6	C-41	B-23	B-23	C 42				
	Voltage	V3	A-7	C-42	B-24	B-23					
Output 0	Current	10	A-8					C-43			
	Current	RET	A-9								
	Voltage	VO	A-10								
	Voltage	RET	A-11					C-44			
Output 1	Current	11	A-12						C-45		
	Current	RET	A-13								
	Voltage	V1	A-14								
	Voltage	RET	A-15						C-46		
-V DC Common	1794-TB2, 1794-TB3, and 1794-TB3S – Terminals 16...33 are internally connected in the terminal base unit. 1794-TB3T and 1794-TB3TS – Terminals 16, 17, 1R 21, 23, 25, 27, 29, 31, and 33 are internally connected in the terminal base unit.										
+V DC Power	1794-TB3 and 1794-TB3S – Terminals 34...51 are internally connected in the terminal base unit. 1794-TB3T and 1794-TB3TS – Terminals 34, 35, 50, and 51 are internally connected in the terminal base unit. 1794-TB2 – Terminals 34 and 51 are internally connected in the terminal base unit.										
Chassis ground (Shield)	1794-TB3T and 1794-TB3TS – Terminals 39...46 are internally connected to chassis ground.										

1. A-9, 11, 13 and 15 are internally connected in the module to 24V DC common.
2. Use when transmitter requires terminal base power.

Terminal Base Wiring for the 1794-IE4XOE2



Input Map (Read) – 1794-IE8

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 0	S	Analog input value for Channel 0														
Word 1	S	Analog input value for Channel 1														
Word 2	S	Analog input value for Channel 2														
Word 3	S	Analog input value for Channel 3														
Word 4	S	Analog input value for Channel 4														
Word 5	S	Analog input value for Channel 5														
Word 6	S	Analog input value for Channel 6														
Word 7	S	Analog input value for Channel 7														
Word 8	PU	Not used – set to zero							U7	U6	U5	U4	U3	U2	U1	U0

Where:

PU = Power up inconfigured

S = Sign bit in 2's complement

U = Underrange for specified channel

Output Map (Write) – 1794-IE8

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 3	C7	C6	C5	C4	C3	C2	C1	CO	F7	F6	F5	F4	F3	F2	F1	FO

Where:

C = Configure select bit F = Full range bit

Input Map (Read) – 1794-IE4XOE2

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 0	S	Analog input value for Channel 0														
Word 1	S	Analog input value for Channel 1														
Word 2	S	Analog input value for Channel 2														
Word 3	S	Analog input value for Channel 3														
Word 4	PU	Not used – set to zero									W1	W0	U3	U2	UI	UO

Where:

PU = Power up inconfigured

S = Sign bit in 2's complement

W1 and W0 = Diagnostic bits for current output. Wire off current loop status for output channels 0 and 1.

U = Underrange for specified channel

Output Map (Write) – 1794-IE4XOE2

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 0	S	Analog output data – Channel 0														
Word 1	S	Analog output data – Channel 1														
Word 2	Not used – set to 0														111	MO
Word 3	0	0	C5	C4	C3	C2	CI	CO	0	0	F5	F4	F3	F2	FI	FO
Words 4 and 5	Not used – set to 0															
Word 6		Safe state value for Channel 0														
Word 7		Safe state value for Channel 1														

Where:

PU = Power up inconfigured

CF = In configuration mode

DN = Calibration accepted

U = Underrange for specified channel

P0 and P1 = Outputs holding in response to Q0 and Q1

FP = Field power off

BD = Bad calibration

W1 and W0 = Wire off current loop status for output channels 0 and 1

V = Overrange for specified channel

Range Selection Bits – 1794-IE8 and 1794-IE4XOE2

1794-1 E8	In Ch. 0		In Ch. 1		In Ch. 2		In Ch. 3		In Ch. 4		In Ch. 5		In Ch. 6		In Ch. 7	
1794- 1 E4X0E2	In Ch. 0		In Ch.1		In Ch. 2		In Ch. 3		Out Ch. 0		Out Ch. 1					
	FO	CO	FI	CI	F2	C2	F3	C3	F4	C4	F5	C5	F6	C6	F7	C7
Dec. Bit s	0	8	1	9	2	10	3	11	4	12	5	13	6	14	7	15
0...10V DC/0... 20 mA	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
4...20 mA	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
-10. +1 0V DC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Off(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Where: C = Configure Select bit F = Full range																

1. When configured to Off, individual input channels will return 0000H; Output channels will drive 0V/0 mA.

Input Map (Read) – 1794-OE4

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 0	PU	Not used – set to 0											W3	W2	W1	WO
Where: PU = Power up bit W...W3 = Wire off current loop status for output channels																

Output Map (Write) – 1794-OE4

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct.	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Word 0	S	Output Data Channel 0														
Word 1	S	Output Data Channel 1														
Word 2	S	Output Data Channel 2														
Word 3	S	Output Data Channel 3														
Word 4		Not used – set to 0											M3	M2	M1	MO
Word 5	Not used – set to 0				C3	C2	CI	CO	Not used – set to 0				F3	F2	FI	FO
Word 6 ...9	Not used – set to 0															
Word 10	S	Safe state value for Channel 0														
Word 11	S	Safe state value for Channel 1														
Word 12	S	Safe state value for Channel 2														
Word 13	S	Safe state value for Channel 3														
Where: S = Sign bit in 7s complement M = Multiplex control bit C = Configure select bit F = Full range bit																

Range Selection Bits – 1794-OE4

Channel No.	In Ch. 0		In Chi		In Ch. 2		In Ch. 3	
	FO	CO	FI	CI	F2	C2	F3	C3
Dec. Bits	0	8	1	9	2	10	3	11
0...10V DC/0...20 mA	1	0	1	0	1	0	1	0
4...20 mA	0	1	0	1	0	1	0	1
-10...+10V DC	1	1	1	1	1	1	1	1
Off(1)	0	0	0	0	0	0	0	0
Where: C = Configure select bit F = Full range								

1. When configured to Off, individual output channels will drive 0V/0 mA.

Specifications

Input Specifications

(Attribute	Value
Number of inputs, nonisolated	1794-1E8 – 8 single-ended – 4 single-ended
Resolution Voltage Current	12 bits unipolar; 11 bits plus sign bipolar 2.56mV/cnt unipolar; 5.13mV /cnt bipolar 5.13pA/cnt
Data format	Left justified, 16 bit 2's complement
Conversion type	Successive approximation
Conversion rate	256ps all channels
Input current terminal, user configurable	4...20 mA 0..20 mA
Input voltage terminal, user configurable	+10V0...10V
Normal mode rejection ratio – Voltage terminal Current terminal	3 dB @ 17 Hz; -20 dB/decade -10 dB @ 50 Hz; -11.4 dB @ 60 Hz -3 dB @ 9 Hz; -20 dB/decade -15.3 dB @ 50 Hz; -16.8 dB @ 60Hz
Step response to 63% –	Voltage terminal – 9.4 ms Current terminal – 18.2 ms
Input impedance	Voltage terminal – 100 k Ω Current terminal – 238 Ω
Input resistance voltage	Voltage terminal – 200 k Ω Current terminal – 238 Ω
Absolute accuracy	0.20% full scale @ 25 °C
Accuracy drift with temperature	Voltage terminal – 0.00428% full scale/ °C Current terminal – 0.00407% full scale/ °C
Calibration required	None required
Maximum overload, one channel at a time	30V continuous or 32 mA continuous
Indicators	1 green power indicator

1. Includes offset, gain, nonlinearity, and repeatability error terms.

Output Specifications

Attribute	Value
Number of outputs, nonisolated	1794-0E4 – 4 single-ended, nonisolated 1794-1E4X0E2 – 2 single-ended
Resolution Voltage Current	12 bits plus sign 0.156mV/cnt 0.320 pA/cnt
Data format	Left justified, 16 bit 2's complement
Conversion type	Pulse width modulation
Output current terminal, user configurable	0 mA output until module is configured 4...20 mA 0...20 mA
Output voltage terminal, user configurable	OV output until module is configured -F1OV 0...10V
Step response to 63% – voltage or current terminal	24 ms
Current load on voltage output, max	3 mA
Absolute accuracy(1) Voltage terminal Current terminal	0.133% full scale @ 25 °C 0.425% full scale @ 25 °C
Accuracy drift with temperature Voltage terminal Current terminal	0.0045% full scale/ °C 0.0069% full scale/ °C
Resistive load on mA output	15...7501) @ 24V DC

1. Includes offset, gain, nonlinearity, and repeatability error terms.

General Specifications for 1794-IE8, 1794-OE4, and 1794-IE4XOE2

Module location	1794-1E8 and 1794-1E4X0E2 – 1794-TB2, 1794-TB3, 1794-11335, 1794-TB3T, and 1794-TB3TS terminal base units 1794-0E4 – 1794-182, 1794-T83, 1794-TB3S, 1794-TB3T, 1794-TB3TS, and 1794-TBN terminal base units
Terminal base screw torque	7 lb•in (0.8 N•m) 1794-TBN – 9 113•in (1.0 N•m)
Isolation voltage	Tested at 850V DC for 1 s between user power to system No isolation between individual channels
External DC power supply Voltage range Supply current	24V DC nominal 10.5...31.2V DC (includes 5% AC ripple) 1794-1E8 – 60 mA @ 24V DC 1794-0E4 – 150 mA @ 24V DC 1794-1E4X0E2 -165 mA @ 24V DC
Dimensions, with module installed	31.8 H x 3.7 W x 2.1 D inches 45.7 H x 94 W x 53.3 0 mm
Flexbus current	15 mA
Power dissipation, max	1794-1E8 – 3.0 W @ 31.2V DC 1794-0E4 – 4.5 W @ 31.2V DC 1794-1E4X0E2 – 4.0 W @ 31.2V DC
Thermal dissipation, max	1794-1E8 – 10.2 BTU/hr @ 31.2V dc 1794-0E4 – 13.6 BTU/hr @ 31.2V dc 1794-1E4X0E2 – 15.3 BTU/hr @ 31.2V d
Keyswitch position	1794-1E8 – 3 1794-0E4 – 4 1794-1E4X0E2 – 5
North American temp code	1794-1E4X0E2 – T4A 1794-1E8 – T5 1794-0E4 – T4
UKEX/ATEX temp code	T4
IECEx temp code	1794-1E8 – T4

Environmental Specifications

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, surrounding air, max	55 °C (131 °F)
Temperature, storage	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 ...15 °C (-40...+185 °F)
Relative humidity	IEC 60068-2-30 (Test Ob, unpackaged nonoperating damp heat): 5...95% non-condensing
Vibration	IEC60068-2-6 (Test Fc, operating): 5g @ 10...500Hz
Shock, operating	IEC60068-2-27 (Test Ea, unpackaged shock): 30g
Shock nonoperating	IEC60068-2-27 (Test Ea, unpackaged shock): 50g
Emissions	IEC 61000-6-4
ESD immunity	EC 61000-4-2: 4kV contact discharges 8kV air discharges
Radiated RF immunity	IEC 61000-4-3:10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz
Conducted If immunity	IEC 61000-4-6:
	10V rms with 1 kHz sine-wave 80 MM from 150 kHz...30 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV at 5 kHz on signal ports
Surge transient immunity	IEC 61000-4-5: ±2 kV line-earth (CM) on shielded ports
Enclosure type rating	None
Conductors Wire size Category	22...12AWG (0.34 mm ² ...2.5 mm ²) stranded copper wire rated at 75 °C or higher 3/64 inch (1.2 mm) insulation maximum 2

1. You use this category information for planning conductor routing as described in the Industrial Automation Wiring and Grounding Guidelines, Rockwell Automation publication 1770-4.1.

Certifications

Certifications (when product is marked ► 1)	Value
c-UL-us	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.
UK and CE	UK Statutory Instrument 2016 No. 1091 and European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61131-2; Programmable Controllers EN 61000-6-4; Industrial Emissions UK Statutory Instrument 2012 No. 3032 and European Union 2011/65/EU RoHS, compliant with: EN 63000; Technical documentation
RCM	Australian Radiocommunications Act compliant with: EN 61000-6-4; Industrial Emissions
Ex	UK Statutory Instrument 2016 No. 1107 and European Union 2014/34/EU ATEX Directive, compliant with (1794-1E8): EN IEC 60079-0; General Requirements EN IEC 60079-7; Explosive Atmospheres, Protection He* II 3G Ex ec IIC T4 Gc DEMKO 14 ATEX 1342501X UL22UKEX2378X European Union 2014/34/EU AMC Directive, compliant with (1794-0E4 and 1794-IE4XOE2): EN 60079-0; General Requirements EN 60079-15; Potentially Explosive Atmospheres, Protection 'n' II 3 G Ex nA IIC T4 Gc LCIE O1ATEX6O2OX
IECEX	IECEX System, compliant with (1794-1E8): IEC 60079-0; General Requirements IEC 60079-7; Explosive Atmospheres, Protection "e* Ex ec IIC T4 Gc IECEX UL 14.0066X
Morocco	Arrete ministeriel n° 6404-15 du 29 ramadan 1436
CCC	CNCA-C23-01 3g\$gillrli'Dikiff rhaff11911 MOM, CNCA-C23-01 CCC Implementation Rule Explosion-Proof Electrical Products
KC	Korean Registration of Broadcasting and Communications Equipment compliant with: Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation

1. See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

Notes:

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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Documents / Resources

	<p>Allen-Bradley 1794-IE8 FLEX I-O Input Analog Modules [pdf] Instruction Manual 1794-IE8, 1794-OE4, 1794-IE4XOE2, 1794-IE8 FLEX I-O Input Analog Modules, FLEX I-O Input Analog Modules, Input Analog Modules, Analog Modules</p>
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References

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