Analog I/O Module Summary

Catalog Number	Inputs	Outputs	Terminal Base Unit	Module Type
1794-IE8	8	—	1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK	Selectable, non-isolated inputs
1794-IE8XT				Selectable, non-isolated inputs, Extended temperatures
1794-IE8H			1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK	Single-ended, non-isolated, HART-enabled inputs
1794-IE12	12			Single-ended inputs
1794-IF4I	4	—	1794-TBN, 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBNK, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK	Single-ended, isolated inputs
1794-IF4IXT				Single-ended inputs, Isolated, Extended temperatures
1794-IF8IH	8	—	1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK	Single-ended, isolated, HART-enabled inputs
1794-IR8			1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBKD, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK	Non-isolated relay inputs
1794-IRT8			1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK	Non-isolated RTD/Thermocouple inputs
1794-IRT8XT				Non-isolated RTD/Thermocouple inputs, Extended temperatures
1794-IT8			1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK[3]	Non-isolated, Thermocouple, Millivolt inputs
1794-IE4XOE2	4	2		Single-ended, non-isolated I/O
1794-IE4XOE2XT				Single-ended, non-isolated I/O, Extended temperatures
1794-IE8XOE4	8	4	1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK	Single-ended, non-isolated I/O
1794-IF2XOF2I	2	2	1794-TBN, 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBNK, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK	
1794-IF2XOF2IXT				Single-ended, non-isolated I/O, Extended temperatures
1794-OE4	—	4		Selectable, non-isolated outputs
1794-OE4XT				Selectable, non-isolated outputs, Extended temperatures
1794-OE8H[1]		8	1794-TB3G, 1794-TB3GS, 1794-TB3GK, 1794-TB3GSK	Single-ended, non-isolated, HART-enabled outputs
1794-OE12[2]		12		Single-ended, non-isolated outputs
1794-OF4I		4	1794-TBN, 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBNK, 1794-TB3K, 1794-TB3SK, 1794-TB3TK, 1794-TB3TSK	Source isolated outputs
1794-OF4IXT				Source isolated outputs, Extended temperatures
1794-OF8IH		8	1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK	Single-ended, isolated, HART-enabled outputs

(1) Do not exceed length of 30 m (100 ft) for signal cabling.

(2) Not supported by 1747-SN or 1747-BSN for use on RIO with SLC controllers.

(3) 1794-TB2, 1794-TB3, 1794-TB3S for mV inputs only.

2 Input/2 Output Isolated Combination Module

Specification	1794-IF2XOF2I, 1794-IF2XOF2IXT
Normal mode rejection ratio	-3 dB @ 12 Hz (300 Hz conversion rate) -80.0 dB @ 50 Hz (300 Hz conversion rate) -3 dB at 6 Hz (150 Hz conversion rate) -80 dB at 60 Hz (150 Hz conversion rate)
Accuracy(1)	Current input or output: 0.1% Full Scale @ 25 °C Voltage input or output: 0.1% Full Scale @ 25 °C
Accuracy drift with temperature	Current input: 0.0038% Full Scale/°C Voltage input: 0.0028% Full Scale /°C Current output: 0.0025% Full Scale /°C Voltage output: 0.0012% Full Scale /°C
Input impedance	Current input: <100 Ω Voltage input: >1 MΩ(3)
Voltage input, overload, max	30V, single channel, continuous
Output resolution	15 bit + sign 0.656 μA/cnt 0.320 mV/cnt
Output conversion type	Digital-to-analog converter
Output conversion rate	2.5/5.0 ms
Current load on voltage output, max	3 mA
Resistive load on current output	0…750 Ω
Dimensions (HxWxD), approx	**1794-IF2XOF2I:** 46 x 94 x 53 mm (1.8 x 3.7 x 2.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed **1794-IF2XOF2IXT:** 46 x 94 x 75 mm (1.8 x 3.7 x 2.9 in.) 94 x 94 x 91 mm (3.7 x 3.7 x 3.6 in.) installed
Temperature, operating	**1794-IF2XOF2I:** 0…55 °C (32…131 °F) **1794-IF2XOF2IXT:** -20…70 °C (-4…185 °F)

(1) Includes offset, gain, non-linearity and repeatability error terms.

(2) Can be calibrated in field when necessary.

(3) If 24V DC is removed from the module, input resistance = 10 KΩ.

FLEX I/O Analog Output Modules

Analog Output Comparison

Catalog Number	Output Signal Range	External DC Supply Current, Nom	Power Dissipation, Max	Thermal Dissipation, Max
1794-OE4(1)	4…20 mA 0…20 mA ±10V 0…10V	70 mA @ 24V DC(2)	4.5 W @ 31.2V DC	15.3 BTU/hr @ 31.2V DC
1794-OE4XT		180 mA @ 10.5V DC		13.6 BTU/hr @ 31.2V DC
1794-OE8H	4…20 mA (user configurable) 0…20 mA (user configurable)	255 mA @ 24V DC	6.1 W	20.8 BTU/hr
1794-OE12	0 mA output until module is configured 4…20 mA (user configurable) 0…20 mA (user configurable)	320 mA @ 24V DC; 720 mA @ 10.0V DC	40 W @ 31.2V DC; 4.3 W @ 24V DC; 10.0 W @ 10.0V DC	14.7 BTU/hr @ 24V DC

Analog Output Comparison

Catalog Number	Output Signal Range	External DC Supply Current, Nom	Power Dissipation, Max	Thermal Dissipation, Max
1794-OF4I	4…20 mA 0…20 mA ±10V 0…10V ±5V 0…5V	210 mA @ 24V DC	4.7 W @ 31.2V DC	16 BTU/hr @ 31.2V DC
1794-OF8IH	4…20 mA (user configurable) 0…20 mA (user configurable)	450 mA @ 24V DC	5.0 W @ 31.2V DC	6.8 BTU/hr @ 31.2V DC
1794-IE8XOE4(1)	4…20 mA 0…20 mA ±10V 0…10V	140 mA @ 24V DC; 280 mA @ 10.0V DC	3.0 W @ 31.2V DC; 2.3 W @ 24V DC; 2.0 W @ 10.0V DC	10.3 BTU/hr @ 31.2V DC
1794-IE4XOE2(1)	4…20 mA 0…20 mA ±10V 0…10V	70 mA @ 24V DC	4.0 W @ 31.2V DC	13.6 BTU/hr @ 31.2V DC
1794-IF2XOF2I(1)	4…20 mA 0…20 mA ±10V 0…10V ±5V 0…5V	150 mA @ 24V DC	3.3 W @ 31.2V DC	11 BTU/hr @ 31.2V DC

(1) Each module's channel is individually selectable or as a group of four.

(2) Not including outputs.

1794-OE4 and 1794-OE4XT Analog 4 Output Module

The 1794-OE4 module has 4 output, non-isolated, individually-configurable channels. Outputs are capable of driving the field devices that require a voltage of ±10V or a current of 0... 20 mA.

Analog 4 Input Modules

Specification	1794-OE4	1794-OE4XT
Output resolution	12 bit + sign 2.56 mV/cnt 5.13 μA/cnt	12 bits + sign 0.156 mV/cnt 0.320 μA/cnt
Data format	16 bits, 2's complement, left-justified	
Output conversion type	Pulse width modulation	
Output conversion rate	1.024 ms all channels	Outputs: PWM
Step response to 63% of FS, output	Voltage output: 24 ms	
Current load on voltage output, max	3 mA	
Output current, resistive load	15…750 Ω	
Accuracy	Current input: 0.425% Full Scale @ 25 °C (77 °F) Voltage input: 0.133% Full Scale @ 25 °C (77 °F)(1)	

Analog 4 Input Modules

Specification	1794-OE4	1794-OE4XT
Accuracy drift w/temp	Current input: 0.0069% Full Scale /°C Voltage input: 0.0045% Full Scale/°C	
Calibration	None required	
Isolation voltage	50 (continuous), I/O to system Type tested at 850V DC for 1 s, I/O to system Type tested at 850V DC for 60 s (for 1794-OE4XT only) No isolation between individual channels	
Power dissipation, max	4.5 W @ 31.2V DC	
Thermal dissipation, max	15.3 BTU/hr @ 31.2V DC	13.6 BTU/hr @ 31.2V DC
Wire size	0.34... 2.5 mm^2 (22...12 AWG) solid or stranded shielded copper wire rated at 75 °C (167 °F) or greater 1.2 mm (3/64 in.) insulation max	
Wire category	2 – on signal ports 2 – on power ports(2)	2 - on signal ports
Dimensions (HxWxD), approx	46 x 94 x 53 mm (1.8 x 3.7 x 3.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed	
Temperature, operating	0…55 °C (32…131 °F)	-20…70 °C (-4…185 °F)

(1) Includes offset, gain, non-linearity, and repeatability error terms

(2) Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

1794-OE8H HART Enabled Analog 8 Output Module

The 1794-OE8H is a HART enabled analog output module that works with HART enabled field devices that use current in the 0 to 20 mA range. Use with 2 wire devices. This module provides wire-off detection on a per-channel basis.

This module can be used on ControlNet, EtherNet/IP or PROFIBUS DP networks. One HART field device per channel.

HART Enabled Analog 8 Output Module

Specification	1794-OE8H
Output resolution	13 bit
Data format	Configurable
Output conversion type	—
Output conversion rate	10 ms for all channels
Step response to 99% of FS, output	13 ms to 99% of FS 115 ms during HART communication
Current load on voltage output, max	0…22 mA @ > 15V
Output current, resistive load	0…680 Ω @ 22 mA 0…770 Ω @ 20 mA
Accuracy	0.1% Full Scale @ 20 °C (68 °F)
Accuracy drift with temperature	0.010% Full Scale @ 20 °C (68 °F)