

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

(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 M Ω ⁽³⁾
Voltage input, overload, max	30V, single channel, continuous
Output resolution	15 bit + sign 0.656 μ A/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 K Ω .**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 $\pm$ 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 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)

HART Enabled Analog 8 Output Module

Specification	1794-OE8H
Calibration	—
Isolation voltage	50V (continuous), Basic Insulation Type No isolation between individual channels
Power dissipation, max	6.1 W
Thermal dissipation, max	20.8 BTU/hr
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 ⁽¹⁾
Dimensions (HxWxD), approx	46 x 94 x 75 mm (1.8 x 3.7 x 2.95 in.) 94 x 94 x 91 mm (3.7 x 3.7 x 3.6 in.) installed

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

1794-OE12 Analog 12 Output Module

1794-OE12 module is a High Density analog output module, capable of providing current in the range of 0...20mA or voltage in the range of $\pm 10V$, depending on the user configuration. Out of Range status bit exists for each channel.

Analog 12 Output Module

Specification	1794-OE12
Output resolution	320 μV /cnt 0.641 μA /cnt
Data format	Configurable
Output conversion type	Digital to analog converter
Output conversion rate	Outputs: DAC
Step response to 63% of FS, output	~70% 1st convert 96% 2nd convert 100% 3rd convert
Current load on voltage output, max	3 mA
Output current, resistive load	0...750 Ω over full power supply range
Accuracy	Current Output: 0.1% Full Scale at 25 °C Voltage Output: 0.1% Full Scale at 25 °C
Accuracy drift w/temp	Current Output: 0.004% Full Scale/°C Voltage Output: 0.004% Full Scale/°C
Calibration	None required
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 850V DC for 60 s, between field side and system No isolation between individual channels