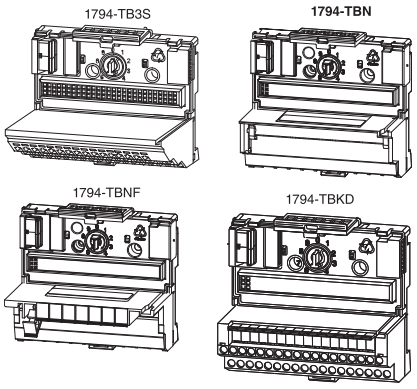
Select a FLEX I/O Terminal Base Unit

Step 3 – Select:

the appropriate terminal base unit for your module and system



Each FLEX I/O module requires a terminal base unit that snaps onto the DIN rail to the right of the I/O adapter. The terminal bases provide terminal connection points for the I/O wiring and plug together to form the backplane. They are available with screw, clamp, or spring terminations.

Common Terminal Base Characteristics

Current Capacity, max	Wire Size	Dimensions (HxWxD)
10	0.34…2.1 mm^2 (22…14 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max	94 x 94 x 69 mm 3.7 x 3.7 x 2.7 in. **1794-TB37DS and 1794-TB62DS*** (1) 127 x 94 x 69 mm 5.0 x 3.7 x 2.7 in

(1) Measured with expansion module installed.

The following table is a comparison of general specifications for each FLEX I/O terminal base unit. For compatibility with FLEX I/O modules, see Table Digital I/O Module Summary on page 16.

General Specification Comparison

Catalog(1)	Termination Type	Connections	Used in Applications	Current Capacity, max	Wiring Category	Purpose
1794-TB2	Cage clamp	16 I/O; 18 common; 2 +V	Up to 132V AC/156V DC	10	2	A generic 2-wire version of the 1794-TB3.
1794-TB3, 1794-TB3K(2)		16 I/O; 18 common; 18 +V			Module dependent	Primarily intended for use with input modules when using 3-wire input proximity switches – can also be used with output modules.
1794-TB3S, 1794-TB3SK	Spring clamp					A spring clamp version of the 1794-TB3 – provides faster, simpler wire installation.
1794-TB32	Cage clamp	32 I/O; 8 common; 8 +V	Up to 31.2V DC			A 32-point version of the 1794-TB3 to be used with 32-point digital modules and the 1794-IB16D module.
1794-TB32S	Spring clamp					A spring clamp version of the 1794-TB32.
1794-TB3G, 1794-TB3GK(2)	Grounded screw clamp	36 I/O; 2 common; 2 +V; 10 chassis ground				A screw clamp terminal base unit with individual grounding used with certain analog modules.
1794-TB3GS, 1794-TB3GSK(2)	Grounded spring clamp				2	A spring clamp version of the 1794-TB3G.

General Specification Comparison

Catalog[1]	Termination Type	Connections	Used in Applications	Current Capacity, max	Wiring Category	Purpose
1794-TB3T	Cage clamp, temperature	16 I/O; 10 common; 4 +V; 8 chassis ground; 2 sets of CJC for temperature modules	Up to 132V AC/156V DC	10	Module dependent	A cage clamp terminal base to be used with the 1794-IT8 or 1794-IRT8 module (when used in thermocouple mode) – also provides chassis ground connections for the 1794-IR8 and analog modules.
1794-TB3TS, 1794-TB3TSK[2]	Spring clamp, temperature	16 I/O; 10 common; 4 +V; 8 chassis ground; 2 sets of CJC for temperature modules	Up to 132V AC/156V DC	10	2	A spring clamp version of the 1794-TB3T.
1794-TBKD	Cage clamp, knife disconnect	16 I/O; 18 common; 2 +V	—		Module dependent	A cage clamp terminal base with 16 knife disconnects.
1794-TBKDS						A spring clamp version of the 1794-TBKD.
1794-TBN, 1794-TBNK[2]	Screw clamp, NEMA-style	16 I/O; 2 common; 2 +V	264V AC/DC			A NEMA-style screw clamp terminal base for larger gauge wires with a cover for I/O wiring.
1794-TBNF	Screw clamp, fused NEMA-style					Provides eight 5 x 20 mm fused, screw terminals with a cover for I/O wiring – shipped with fuses for the 1794-OA8 module; can be used to fuse the 1794-OM8 and 1794-OW8 modules with a replacement fuse.[3]
1794-TB37DS	D-shell	37 Pin; digital and analog	—		Module dependent	A 37-pin D-shell termination for both digital and analog modules.
1794-TB62DS		62 Point;				A 62-pin D-shell termination for both digital and analog modules.
1794-TB62DSG	Grounded D-shell	62 Point; chassis ground				A grounded version of the 1794-TB62DS – for use with analog modules.
1794-TB62DST	D-shell	16 I/O; 18 common; 2 +V; 2 sets of CJC for temperature modules				A 62-pin D-shell termination to be used with the 1794-IT8 or 1794-IRT8 module (when used in thermocouple mode) – also provides chassis ground connections for analog modules.

(1) Isolation voltage, channel to channel, is determined by the insert module. Use this conductor category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

(2) The letter K in the last position of the catalog number, before the series designation, indicates a conformal coated versions of standard modules and can be used with extended temperature modules (modules ending in -XT).

(3) Contains eight 5 x 20 mm fuses (one for each even-numbered terminal – 0…14 on row B). Shipped with 1.6 A, 250V AC Slow Blow fuse suitable for the 1794-OA8 AC output module. Refer to individual installation instructions for fusing recommendations for other modules. Littlefuse PN23901.6 A-B PN94171304, SAN-O PNSD6-1.6A.

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.

4 Input / 2 Output Analog Combination Modules

Specification	1794-IE4XOE2, 1794-IE4XOE2XT
Dimensions (HxWxD), approx	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
Temperature, operating	**1794-IE4XOE2:** 0…55 °C (32…131 °F) **1794-IE4XOE2XT:** -20…70 °C (-4…185 °F)

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

1794-IF2XOF2I and 1794-IF2XOF2IXT 2 Input/2 Output Isolated Analog Combination Module

The 1794-IF2XOF2I is a combination module with 2 inputs and 2 outputs with isolated, individually-configurable channels. Inputs accept signals from a variety of input sensors (2-, 3-, and 4-wire) in the range of ±10V or ±20 mA. Outputs produce signals in the range of ±10V or 0...20 mA.

The 1794-IF2XOF2IXT is the extended temperature version of the 1794-IF2XOF2I module.

ATTENTION: Only connect either a voltage input or a current input per channel, not both.

2 Input/2 Output Isolated Combination Module

Specification	1794-IF2XOF2I, 1794-IF2XOF2IXT
Calibration	Factory calibration(2)
Input conversion type	Sigma Delta
Input conversion rate	2.5/5.0/7.5 ms all channels
Input resolution	16 bit – unipolar 15 bit + sign – bipolar 0.156 mV/cnt – unipolar 0.313 mV/cnt – bipolar 0.320 µA/cnt – unipolar 0.640 µA/cnt – bipolar
Isolation voltage	120V continuous (when used with 1794-TB3, 1794-TB3S, 1794-TB2, 1794-TB3T, or 1794-TB3TS) 250V continuous (when used with 1794-TBN) Tested at 1500V AC for 60 s and 2550V DC for 1 s, channel to channel, I/O to system
Data format	16 bits, 2's complement 2's complement percent binary offset binary
Step response to 63% of FS, input	Current or voltage input: 1200 Hz conversion rate = 0.6 ms 600 Hz conversion rate = 6.7 ms 300 Hz conversion rate = 13.4 ms 150 Hz conversion rate = 26.7 ms

Analog 12 Output Module

Specification	1794-OE12
Power dissipation, max	4.0 W @ 31.2V DC 4.3 W @ 24V DC 4.0 W @ 10.0V DC
Thermal dissipation, max	14.7 BTU/hr @ 24V 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(1)
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

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

1794-OF4I and 1794-OF4IXT Isolated Analog 4 Output Module

The 1794-OF4I modules provides 4 isolated outputs for 2-, 3-, and 4-wire output devices that use voltage in the range of ±10V or 0...20 mA current.

1794-OF4IXT is the extended temperature version of the 1794-OF4I module.

Isolated Analog 4 Output Module

Specification	1794-OF4I, 1794-OF4IXT
Output resolution	15 bit + sign 0.656 µA/cnt 0.320 mV/cnt
Data format	2's complement 2's complement percent binary offset binary
Output conversion type	Digital to analog converter
Output conversion rate	2.5/5.0 ms
Step response to 63% of FS, output	Current or voltage output: <25 µs
Current load on voltage output, max	3 mA
Output current, resistive load	0…750 Ω
Accuracy	Current input: 0.1% Full Scale @ 25 °C (77 °F) Voltage input: 0.1% Full Scale @ 25 °C (77 °F)(1)
Accuracy drift w/temp	Current input: 0.0025% Full Scale /°C Voltage input: 0.0012% Full Scale/°C
Calibration	Factory calibrated
Isolation voltage	120V (continuous), when used with 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3T, or 1794-TB3TS 250V (continuous), when used with 1794-TBN Type tested at 1500V AC for 60 s, and 2550V DC for 1 s, channel to channel, I/O to system