

Specifications

Specifications	1794-IT8	1794-IR8																																	
Number of Inputs	8 channels																																		
Module Location	Cat. No. 1794-TB2, -TB3, -TB3S, -TB3T and -TB3TS Terminal Base Units																																		
Nominal Input Ranges	-76.5 to +76.5mV	1 to 433 ohms																																	
Supported Thermocouple Types (1794-IT8 only)	<table border="1"> <thead> <tr> <th>Type</th> <th>Range °C</th> <th>Range °F</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>300 to 1800°C</td> <td>(572 to 3272°F)</td> </tr> <tr> <td>C</td> <td>0 to 2315°C</td> <td>(32 to 4199°F)</td> </tr> <tr> <td>E</td> <td>-270 to 1000°C</td> <td>(-454 to 1832°F)</td> </tr> <tr> <td>J</td> <td>-210 to 1200°C</td> <td>(-346 to 2192°F)</td> </tr> <tr> <td>K</td> <td>-270 to 1372°C</td> <td>(-454 to 2502°F)</td> </tr> <tr> <td>TXX/XX(L)</td> <td>-200 to 800°C</td> <td>(-328 to 1472°F)</td> </tr> <tr> <td>N</td> <td>-270 to 1300°C</td> <td>(-454 to 2372°F)</td> </tr> <tr> <td>R</td> <td>-50 to 1768°C</td> <td>(-58 to 3214°F)</td> </tr> <tr> <td>S</td> <td>-50 to 1768°C</td> <td>(-58 to 3214°F)</td> </tr> <tr> <td>T</td> <td>-270 to 400°C</td> <td>(-454 to 752°F)</td> </tr> </tbody> </table>	Type	Range °C	Range °F	B	300 to 1800°C	(572 to 3272°F)	C	0 to 2315°C	(32 to 4199°F)	E	-270 to 1000°C	(-454 to 1832°F)	J	-210 to 1200°C	(-346 to 2192°F)	K	-270 to 1372°C	(-454 to 2502°F)	TXX/XX(L)	-200 to 800°C	(-328 to 1472°F)	N	-270 to 1300°C	(-454 to 2372°F)	R	-50 to 1768°C	(-58 to 3214°F)	S	-50 to 1768°C	(-58 to 3214°F)	T	-270 to 400°C	(-454 to 752°F)	
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Supported RTDs (1794-IR8 only)	Resistance 100Ω Pt α = 0.00385 Euro (-200 to +870°C) 100Ω Pt α = 0.003916 U.S. (-200 to +630°C) 200Ω Pt α = 0.00385 Euro (-200 to +400°C) 500Ω Pt α = 0.00385 Euro (-200 to +630°C) 100Ω Nickel α = 0.00618 (-60 to +250°C) 120Ω Nickel α = 0.00672 (-60 to +250°C) 200Ω Nickel α = 0.00618 (-60 to +250°C) 500Ω Nickel α = 0.00618 (-60 to +250°C) 10Ω Copper α = 0.00427 (-200 to +260°C)																																		
RTD Excitation Current		718.36µA																																	
Resolution	16 bits (2.384µV typical)	16 bits across 435 ohms																																	
Accuracy	Refer to "Calculating the Accuracy" section in Appendix A of the user manual (1794-UM007)	Without calibration, at low humidity: Normal mode: 0.05% full scale (max) Enh. mode: 0.01% full scale (typical)																																	
Common Mode Rejection	-115db @ 60Hz; -100db @ 50Hz	-120db @ 60Hz; -100db @ 50Hz with A/D filter cutoff @ 10Hz																																	
Common Mode Input Range	+10V maximum	0V between channels (common return)																																	
Isolation Voltage	Tested at 850V dc for 1s from inputs and user power to logic side																																		
Data Format	16-bit 2's complement or offset binary (unipolar)																																		
Normal Mode Noise Rejection	-60db @ 60Hz	-60db @ 60Hz for A/D filter cutoff @ 10Hz																																	
Input Offset Drift w/Temperature	±6mV/°C maximum	1.5 milliohm/°C maximum																																	
Gain Drift w/Temp.	10ppm/°C maximum	Normal mode: 20ppm/°C max. Enhanced mode: 10ppm/°C max.																																	
Channel Bandwidth	0-2.62Hz (-3db)																																		
Settling time to 100% of final value	Available at system throughput rate																																		
System Throughput	325ms (1 channel scanned), programmable to 28ms 2.6s (8 channels scanned), programmable to 224ms	Normal mode - 325ms (1 channel scanned), programmable to 28ms 2.6s (8 channels scanned), programmable to 224ms Enhanced mode - programmable from 56 to 650ms/channel - 650ms (1 channel scanned), 2.925s (8 channels scanned)																																	
Open TC/RTD Circuit Detection	Out of range reading (upscale)																																		
Open TC/RTD Detection Time	Available at system throughput rate																																		
Overvoltage Capability	35V dc, 25V ac continuous at 25°C																																		
Overall Drift with Temperature	50ppm/°C of span (maximum)																																		
Cold Junction Compensation	Range: 0 to 70°C A-B catalog number 1794-CJC2																																		
Channel to channel isolation	±10V	0V																																	
Indicators	1 red/green power status indicator																																		
Flexbus Current	20mA																																		
Power Dissipation	3.0W maximum @ 31.2V dc																																		
Thermal Dissipation	Maximum 10.2 BTU/hr @ 31.2V dc																																		
Keyswitch Position	3																																		

General Specifications

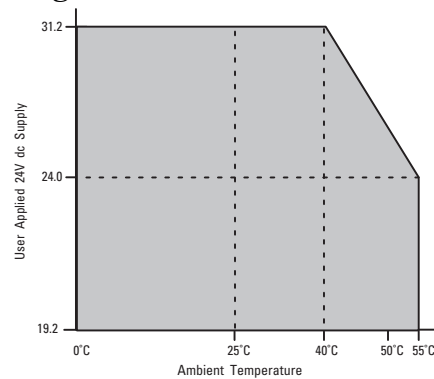
External dc Power Supply Voltage Range	24V dc nominal 19.2 to 31.2V dc (includes 5% ac ripple) 19.2 to 31.2V dc for ambient temperatures ≤ 40°C 24V dc maximum for ambient temperatures = 55°C
Supply Current	See derating curve 150mA @ 24V dc
Dimensions (with module installed)	31.8H x 3.7W x 2.1D inches 45.7H x 9.4W x 53.3D mm

Environmental Conditions

Operating Temperature	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 to 55°C (32 to 131°F)	
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40 to 85°C (-40 to 185°F)	
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing	
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz	
Shock	IEC60068-2-27 (Test Ea, Unpackaged shock): Operating 30g Non-operating 50g	
Emissions	CISPR 11: Group 1, Class A (with appropriate enclosure)	
ESD Immunity	IEC 61000-4-2: 4kV contact discharges 8kV air discharges	
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz	
EFT/B Immunity	IEC 61000-4-4: ±2kV at 5kHz on signal ports	
Surge Transient Immunity	IEC 61000-4-5: ±2kV line-earth(CM) on shielded ports	
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 30MHz	
Enclosure Type Rating	None (open-style)	
Signal Conductors Thermocouple	Thermocouple - Use appropriate shielded thermocouple wire ¹ Belden 8761	2-wire - Belden 9501 3-wire, less than 100ft with normal humidity - Belden 9533 3-wire, greater than 100ft or normal humidity (>55°C for > 8 hrs) - Belden 83503
Millivolt Category ²	2	
Power Conductors Wire Size	12AWG (4mm ²) stranded copper wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum	
Category ²	2	
Certifications (when product is marked) ³	UL UL Listed Industrial Control Equipment c-UL-US UL Listed Industrial Control Equipment, certified for US and Canada (1794-IT8) c-UL-US UL listed for Class 1, Division 2, Groups A, B, C and D Hazardous locations, certified for US and Canada (1794-IT8) CSA CSA certified Process Control Equipment CSA CSA certified for Class 1, Division 2, Groups A, B, C and D Hazardous locations EEx³ European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n" (Zone 2) CE³ European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity C-Tick³ Australian Radiocommunications Act compliant with AS/NZS CISPR 11, Industrial Emissions	

1 Refer to thermocouple manufacturer for proper thermocouple extension.
 2 You use this category information for planning conductor routing as described in Allen-Bradley publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.
 3 For the latest up-to-date information, see the Product Certification link at www.ab.com for Declarations of Conformity, Certificates and other certification details. For notification of any additional release notes, refer to www.ab.com/manuals/.

Derating Curve



Safe operating area

The area within the curve represents the safe operating range for the module under various conditions of user supplied 24V dc supply voltages and ambient temperatures.