

Table 13 - RTD Offset Select - Write Word 2

Bit	01	00	RTD Offset Select Bits - Channel 0
Bit	03	02	RTD Offset Select Bits - Channel 1
Bit	05	04	RTD Offset Select Bits - Channel 2
Bit	07	06	RTD Offset Select Bits - Channel 3
Bit	09	08	RTD Offset Select Bits - Channel 4
Bit	11	10	RTD Offset Select Bits - Channel 5
Bit	13	12	RTD Offset Select Bits - Channel 6
Bit	15	14	RTD Offset Select Bits - Channel 7
	0	0	Use channel loop compensation value stored during calibration procedure for 2-wire RTD (default = 0 Ω) - 15 Ω max (Note: Functional up to RTD = 484 Ω max with total lead resistance = 15 Ω.)
	0	1	5 Ω (total lead resistance)
	1	0	10 Ω (total lead resistance)
	1	1	15 Ω (total lead resistance)

Specifications

Specifications - 24V DC Analog Module, Cat. No. 1794-IRT8, 1794-IRT8XT

Attribute	Value																														
Number of inputs	8 channels (2 groups of 4)																														
Module location	Cat. No. 1794-TB3G, 1794-TB3GS, 1794-TB3GK terminal base units																														
Nominal input voltage ranges	-40...+100 mV DC for thermocouples 0...325 mV for RTDs																														
	mV (default)																														
Supported thermocouple types	<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...1800 °C</td> <td>(572...3272 °F)</td> </tr> <tr> <td>E</td> <td>-270...+1000 °C</td> <td>(-454...+1832 °F)</td> </tr> <tr> <td>J</td> <td>-210...+1200 °C</td> <td>(-346...+2192 °F)</td> </tr> <tr> <td>K</td> <td>-270...+1372 °C</td> <td>(-454...+2502 °F)</td> </tr> <tr> <td>TXK/XK(L)</td> <td>-200...+800 °C</td> <td>(-328...+1472 °F)</td> </tr> <tr> <td>N</td> <td>-270...+1300 °C</td> <td>(-454...+2372 °F)</td> </tr> <tr> <td>R</td> <td>-50...+1768 °C</td> <td>(-58...+3214 °F)</td> </tr> <tr> <td>S</td> <td>-50...+1768 °C</td> <td>(-58...+3214 °F)</td> </tr> <tr> <td>T</td> <td>-270...+400 °C</td> <td>(-454...+752 °F)</td> </tr> </tbody> </table>	Type	Range °C	(Range °F)	B	300...1800 °C	(572...3272 °F)	E	-270...+1000 °C	(-454...+1832 °F)	J	-210...+1200 °C	(-346...+2192 °F)	K	-270...+1372 °C	(-454...+2502 °F)	TXK/XK(L)	-200...+800 °C	(-328...+1472 °F)	N	-270...+1300 °C	(-454...+2372 °F)	R	-50...+1768 °C	(-58...+3214 °F)	S	-50...+1768 °C	(-58...+3214 °F)	T	-270...+400 °C	(-454...+752 °F)
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Supported RTD types	Resistance 100 Ω Pt α = 0.00385 Euro -200...+870 °C (-328...+1598 °F) 200 Ω Pt α = 0.00385 Euro -200...+400 °C (-328...+752 °F) 100 Ω Pt α = 0.003916 U.S. -200...+630 °C (-328...+1166 °F) 100 Ω Pt α = 0.003916 U.S. -200...+400 °C (-328...+752 °F) 100 Ω Nickel -60...+250 °C (-76...+482 °F) 200 Ω Nickel -60...+200 °C (-76...+362 °F) 120 Ω Nickel -80...+320 °C (-112...+608 °F) 10 Ω Copper -200...+260 °C (-328...+470 °F)																														
Resolution	14 bits																														
Accuracy vs. filter cutoff	0.05% of full range in millivolt mode with filtering selected Hardware only = 0.10% of full range in millivolt mode																														
Data format	°C (implied decimal point XXX.X) °F (implied decimal point XXX.X) °K (implied decimal point XXX.X) -32767...+32767 0...65535 0...5000 (ohms mode) (implied decimal point XXX.X) -4000...+10000 (millivolt mode) (implied decimal point XXX.XX)																														
Common mode rejection	-80 dB @ 5V peak-to-peak, 50...60 Hz																														
Common mode input range	±15V min																														

Specifications - 24V DC Analog Module, Cat. No. 1794-IRT8, 1794-IRT8XT (Continued)

Isolation voltage (continuous voltage withstand rating)	50V (continuous), Basic Insulation Type Type tested at 1365V AC for 60 s, between field side and system No isolation between individual channels
System throughput (8 channels scanned) - Add 0.5 ms if filtering is selected	Typical module timing is shown here. 7.4 ms - millivolt 8.0 ms - Ω - 2-wire RTD 10.0 ms - Ω - 3-wire RTD 10.4 ms - Ω - 4-wire RTD 8.0 ms - 2-wire RTD (°F) 10.4 ms - 4-wire RTD (°F) 8.8 ms - 2-wire RTD (°C), (°K) 10.8 ms - 4-wire RTD (°C), (°K) 9.8 ms - 3-wire RTD (°F) 10.0 ms - 3-wire RTD (°C), (°K) 9.0 ms - Thermocouples (°F) 9.4 ms - Thermocouples (°C), (°K)
Open circuit protection	RTD mode - Open input - Module defaults to max value TC mode - Open input - Module defaults to min value To simulate wire-off detection in series A TC mode when using a series B module, attach a jumper from terminal 39 to terminal 48 on the 1794-TB3G, 1794-TB3GS, or 1794-TB3GK terminal base unit so that an open input will default to max value.
Open input detection time	Immediate detection (max 2 scans)
Overvoltage capability	15V DC continuous at 25 °C
Overall drift with temperature	50 ppm/°C of span (max)
Cold junction compensation range	-20...+100 °C
Cold junction compensator	A-B catalog number 1794-CJC2
Indicators	1 green power status indicator 8 red open input indicators
Flexbus	5V DC, 40 mA
Power dissipation	3.0 W max @ 31.2V DC
Thermal dissipation	Max 10.2 BTU/hr @ 31.2V DC
Keyswitch position	3

General Specifications

Attribute	Value
External DC power supply voltage Voltage range	24V DC nom 19.2...31.2V DC (includes 5% AC ripple)
Supply current	95 mA @ 24V DC
Dimensions (with module installed in base) H x W x D approx.	94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.)
IECEX temp code	T4
North American temp code	T4A
UKEX/ATEX temp code	T4
Enclosure type rating	None (open-style)
Wire size	Determined by installed terminal base
Signal conductors Thermocouple Millivolt Wire type	Use appropriate shielded thermocouple wire ⁽¹⁾ Belden 8761 Shielded on signal ports
Wiring category ⁽²⁾	2 - on signal ports 3 - on power ports
Terminal screw torque for cage-clamp terminal base	Determined by installed terminal base

(1) Refer to the thermocouple manufacturer for proper thermocouple extension.

(2) Use this category information for planning conductor routing as described in the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

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): -20...+55 °C (-4...+131 °F) - 1794-IRT8 -20...+70 °C (-4...+158 °F) - 1794-IRT8XT
Temperature, surrounding air, max	55 °C (131 °F) - 1794-IRT8 70 °C (158 °F) - 1794-IRT8XT
Temperature, non- operating	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40...+85 °C (-40...+185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz
Shock Operating Nonoperating	IEC60068-2-27 (Test Ea, Unpackaged shock): 30 g 50 g
Emissions	IEC 61000-6-4
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV at 5 kHz on power ports ±2 kV at 5 kHz on shielded signal ports
Surge transient immunity	IEC 61000-4-5: ±2 kV line-earth(CM) on shielded signal ports
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz on shielded signal ports

Certifications

Attribute (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: EN IEC 60079-0; General Requirements EN IEC 60079-7; Explosive Atmospheres, Protection "e" II 3 G Ex ec IIC T4 Gc DEMKO 14 ATEX 1342501X UL22UKEX2378X
TUV	TÜV Certified for Functional Safety: up to and including SIL 2
IECEX	IECEX System, compliant with: IEC 60079-0; General Requirements IEC 60079-7; Explosive Atmospheres, Protection "e" Ex ec IIC T4 Gc IECEX UL 14.0066X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3