

Table 13 - RTD Offset Select - Write Word 2

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|-----|----|----|--|
| 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 the 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 Modules 1794-IRT8, 1794-IRT8XT

| Attribute | Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|-------------------|----------|------------|---|---------------|-----------------|---|-----------------|-------------------|---|-----------------|-------------------|---|-----------------|-------------------|-----------|----------------|-------------------|---|-----------------|-------------------|---|----------------|------------------|---|----------------|------------------|---|----------------|------------------|
| Number of inputs | 8 channels (2 groups of 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Module location | 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) |
| Type | Range °C | (Range °F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 300...1800 °C | (572...3272 °F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| TXK/XK(L) | -200...+800 °C | (-328...+1472 °F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| S | -50...+1768 °C | (-58...+3214 °F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | -270...+400 °C | (-454...+752 °F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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, min | ±15V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Specifications - 24V DC Analog Modules 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...48 on the 1794-TB3G, 1794-TB3GS, or 1794-TB3GK terminal base unit so that an open input defaults to max value. |
| Open input detection time | Immediate detection (max 2 scans) |
| Overvoltage capability | 15V DC continuous at 25 °C |
| Overall drift with temperature, max | 50 ppm/°C of span |
| Cold junction compensation range | -20...+100 °C |
| Cold junction compensator | 1794-CJC2 |
| Indicators | 1 green power status indicator 8 red open input indicators |
| Flexbus | 5V DC, 40 mA |
| Power dissipation, max | 3.0 W @ 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 | 24V DC nom |
| Voltage range | 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 the installed terminal base |
| Signal conductors | |
| Thermocouple | Use an appropriate shielded thermocouple wire ⁽¹⁾ |
| Millivolt | Belden 8761 |
| Wire type | 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) See 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 | 1794-IRT8 | 1794-IRT8XT |
|------------------------------------|---|---|
| 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) | 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...+70 °C (-4...+158 °F) |
| Temperature, surrounding air, max | 55 °C (131 °F) | 70 °C (158 °F) |
| Temperature, nonoperating | 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 | |