

TM3TM3G

module TM3 - 2 temperature inputs and 1 analog output spring



Main

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|---------------------------|--|
| Range of product | Modicon TM3 |
| Product or component type | Input/output analog module |
| Range compatibility | Modicon M221 Modicon M241 Modicon M251 |
| Analogue input number | 2 |
| Analogue input type | Current, analogue input range: 4...20 mA Current, analogue input range: 0...20 mA Voltage, analogue input range: 0...10 V Voltage, analogue input range: - 10...10 V Thermocouple, analogue input range: - 200...1000 °C with thermocouple J Thermocouple, analogue input range: - 200...1300 °C with thermocouple K Thermocouple, analogue input range: 0...1760 °C with thermocouple R Thermocouple, analogue input range: 0...1760 °C with thermocouple S Thermocouple, analogue input range: 0...1820 °C with thermocouple B Thermocouple, analogue input range: - 200...400 °C with thermocouple T Thermocouple, analogue input range: - 200...1300 °C with thermocouple N Thermocouple, analogue input range: - 200...800 °C with thermocouple E Thermocouple, analogue input range: 0...2315 °C with thermocouple C Ni 100/Ni 1000 temperature probe, analogue input range: - 60...180 °C Pt 100 temperature probe, analogue input range: - 200...850 °C Pt 1000 temperature probe, analogue input range: - 200...600 °C |
| Analogue output number | 1 |
| Analogue output type | 4...20 mA current 0...20 mA current 0...10 V voltage - 10...10 V voltage |

Complementary

| | |
|---------------------------------|--|
| Analogue input resolution | 15 bits + sign 16 bits |
| Permissible continuous overload | 13 V voltage 40 mA current |
| Input impedance | >= 1 MOhm thermocouple >= 1 MOhm voltage <= 50 Ohm current >= 1 MOhm temperature probe |
| Analogue output resolution | 12 bits |
| LSB value | 0.1 °C thermocouple 0.15 mV, analogue input: 0...10 V voltage 0.30 mV, analogue input: - 10...10 V voltage 0.30 µA, analogue input: 0...20 mA current 0.244 µA, analogue input: 4...20 mA current 0.1 °C temperature probe 2.44 mV, analogue output: 0...10 V voltage 4.88 mV, analogue output: - 10...10 V voltage 4.88 µA, analogue output: 0...20 mA current 3.91 µA, analogue output: 4...20 mA current |

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| Load type | Resistive |
| Load impedance ohmic | 1 kOhm voltage 300 Ohm current |
| Stabilisation time | 1 ms |
| Conversion time | 100 ms + 100 ms per channel + 1 controller cycle time for analogue input thermocouple 100 ms + 100 ms per channel + 1 controller cycle time for analogue input temperature probe 10 ms + 10 ms per channel + 1 controller cycle time for analogue input voltage/current |
| Sampling duration | 10 ms for analogue input voltage/current 100 ms for analogue input voltage/current 100 ms for analogue input thermocouple 100 ms for analogue input temperature probe |
| Absolute accuracy error | +/- 0.1 % of full scale at 25 °C for analogue input voltage/current +/- 0.1 % of full scale at 25 °C for analogue output voltage/current +/- 0.1 % of full scale at 25 °C for Pt 100/Pt 1000, Ni 100/ Ni 1000 temperature probe +/- 6 °C at 25 °C for thermocouple R, S 0...200 °C +/- 0.4 % of full scale at 25 °C for thermocouple K - 200...0 °C +/- 0.4 % of full scale at 25 °C for thermocouple J - 200...0 °C +/- 0.4 % of full scale at 25 °C for thermocouple E - 200...0 °C +/- 0.4 % of full scale at 25 °C for thermocouple T - 200...0 °C +/- 0.4 % of full scale at 25 °C for thermocouple N - 200...0 °C +/- 0.1 % of full scale at 25 °C for thermocouple C 0...2315 °C +/- 0.1 % of full scale at 25 °C for thermocouple R, S 200...1760 °C +/- 0.1 % of full scale at 25 °C for thermocouple B 300...1820 °C +/- 0.1 % of full scale at 25 °C for thermocouple K 0...1300 °C +/- 0.1 % of full scale at 25 °C for thermocouple J 0...1000 °C +/- 0.1 % of full scale at 25 °C for thermocouple E 0...800 °C +/- 0.1 % of full scale at 25 °C for thermocouple T 0...400 °C +/- 0.1 % of full scale at 25 °C for thermocouple N 0...1300 °C |
| Temperature drift | +/- 0.006 %FS/°C |
| Repeat accuracy | +/-0.5 %FS for input +/- 0.4 %FS for output |
| Non-linearity | +/- 0.01 %FS analog output +/- 0.1 %FS analog input |
| Output ripple | 20 mV |
| Cross talk | <= 1 LSB |
| [Us] rated supply voltage | 24 V DC |
| Supply voltage limits | 20.4...28.8 V |
| Type of cable | Twisted shielded pairs cable 30 m for input/output circuit |
| Current consumption | 55 mA at 24 V DC (no load) via external supply 55 mA at 5 V DC (no load) via bus connector 60 mA at 5 V DC (full load) via bus connector 80 mA at 24 V DC (full load) via external supply |
| Local signalling | 1 LED green for PWR |
| Electrical connection | 11 x 2.5 mm ² removable spring terminal block with pitch 5.08 mm adjustment for inputs, outputs and supply |
| Insulation | 500 V AC between output and internal logic 500 V AC between input and internal logic 1500 V AC between input and supply 1500 V AC between output and supply |
| Marking | CE |
| Surge withstand | 1 kV for power supply with common mode protection conforming to EN/IEC 61000-4-5 0.5 kV for power supply with differential mode protection conforming to EN/IEC 61000-4-5 1 kV for I/O with common mode protection conforming to EN/IEC 61000-4-5 0.5 kV for I/O with differential mode protection conforming to EN/IEC 61000-4-5 |
| Mounting support | Top hat type TH35-15 rail conforming to IEC 60715 Top hat type TH35-7.5 rail conforming to IEC 60715 Plate or panel with fixing kit |
| Height | 90 mm |
| Depth | 70 mm |
| Width | 23.6 mm |
| Product weight | 0.1 kg |

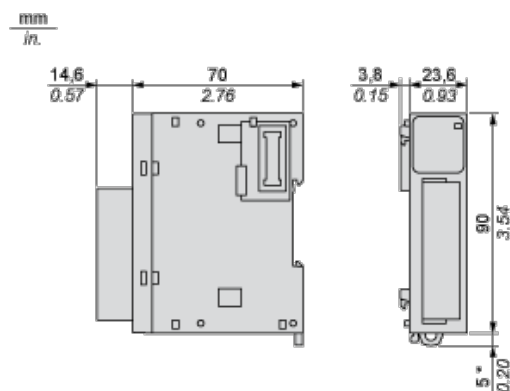
Environment

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|---------------------------------------|--|
| standards | EN/IEC 61131-2 EN/IEC 61010-2-201 |
| resistance to electrostatic discharge | 4 kV on contact conforming to EN/IEC 61000-4-2 8 kV in air conforming to EN/IEC 61000-4-2 |
| resistance to electromagnetic fields | 10 V/m at 80 MHz...1 GHz conforming to EN/IEC 61000-4-3 3 V/m at 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 1 V/m at 2 GHz...3 GHz conforming to EN/IEC 61000-4-3 |
| resistance to magnetic fields | 30 A/m conforming to EN/IEC 61000-4-8 |
| resistance to fast transients | 1 kV I/O conforming to EN/IEC 61000-4-4 |
| resistance to conducted disturbances | 10 V at 0.15...80 MHz conforming to EN/IEC 61000-4-6 3 V at spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) conforming to Marine specification (LR, ABS, DNV, GL) |
| electromagnetic emission | Radiated emissions, test level: 40 dB μ V/m QP class A (10 m at 30...230 MHz) conforming to EN/IEC 55011 Radiated emissions, test level: 47 dB μ V/m QP class A (10 m at 230...1000 MHz) conforming to EN/IEC 55011 |
| immunity to microbreaks | 10 ms |
| ambient air temperature for operation | -10...55 °C (horizontal installation) -10...35 °C (vertical installation) |
| ambient air temperature for storage | -25...70 °C |
| relative humidity | 10...95 % without condensation in operation 10...95 % without condensation in storage |
| IP degree of protection | IP20 |
| pollution degree | 2 |
| operating altitude | 0...2000 m |
| storage altitude | 0...3000 m |
| vibration resistance | 3.5 mm at 5...8.4 Hz with DIN rail mounting support 3 gn at 8.4...150 Hz with DIN rail mounting support |
| shock resistance | 15 gn during 11 ms |

Offer Sustainability

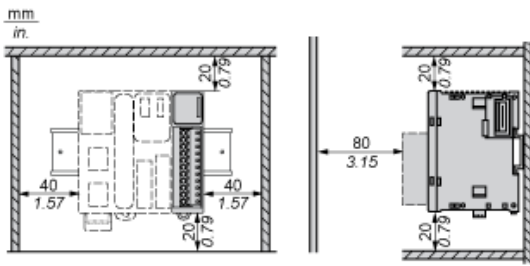
| | |
|----------------------------------|---|
| Sustainable offer status | Green Premium product |
| RoHS (date code: YYWW) | Compliant - since 1415 - Schneider Electric declaration of conformity |
| REACH | Reference not containing SVHC above the threshold |
| Product environmental profile | Available |
| Product end of life instructions | Available |

Dimensions

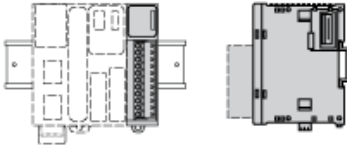


(*) 8.5 mm/0.33 in when the clamp is pulled out.

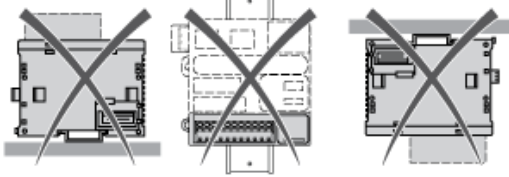
Spacing Requirements



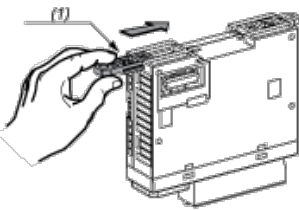
Mounting on a Rail



Incorrect Mounting

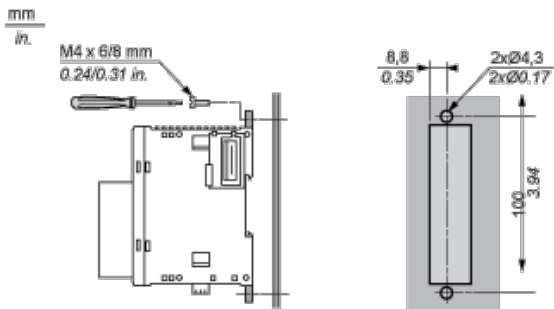


Mounting on a Panel Surface



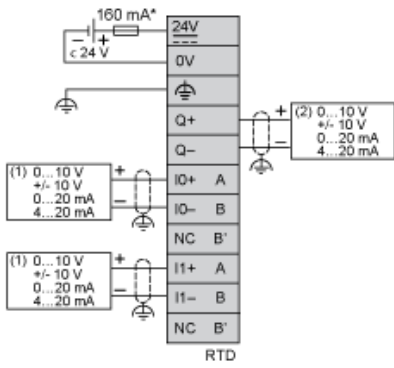
- (1) Install a mounting strip

Mounting Hole Layout



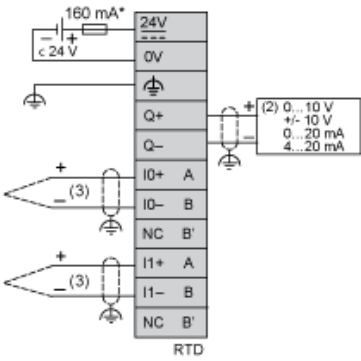
Analogue Mixed I/O Module

Wiring Diagram (Current/Voltage type)



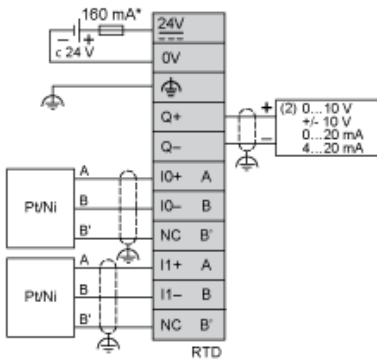
- (*) Type T fuse
- (1) Current/Voltage analog output device
- (2) Current/Voltage analog input device

Wiring Diagram (Thermocouple input type)



- (*) Type T fuse
- (2) Current/Voltage analog input device
- (3) Thermocouple

Wiring Diagram (Temperature probe input type)



- (*) Type T fuse
- (2) Current/Voltage analog input device