

TM3TM3

module TM3 - 2 temperature inputs and 1 analog output



Product availability: Stock - Normally stocked in distribution facility



Main

Range of product	Modicon TM3
Product or component type	Input/output analog module
Range compatibility	Modicon M221 Modicon M251 Modicon M241
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

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Complementary

Analogue input resolution	15 bits + sign 16 bits
Permissible continuous overload	13 V voltage 40 mA current
Input impedance	<= 50 Ohm current >= 1 MOhm temperature probe >= 1 MOhm thermocouple >= 1 MOhm voltage
Analogue output resolution	12 bits
LSB value	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 0.1 °C thermocouple
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 77 °F (25 °C) for analogue input voltage/current +/- 0.1 % of full scale at 77 °F (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 input +/- 0.4 %FS 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 PWR
Electrical connection	11 x 2.5 mm ² removable screw 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	3.54 in (90 mm)
Depth	2.76 in (70 mm)
Width	0.93 in (23.6 mm)
Product weight	0.25 lb(US) (0.115 kg)


Environment

Standards	EN/IEC 61010-2-201 EN/IEC 61131-2
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	9.14 V/yd (10 V/m) at 80 MHz...1 GHz conforming to EN/IEC 61000-4-3 2.74 V/yd (3 V/m) at 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 0.91 V/yd (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	14...131 °F (-10...55 °C) (horizontal installation) -10...35 °C (vertical installation)
Ambient air temperature for storage	-13...158 °F (-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..6561.68 ft (0...2000 m)
Storage altitude	0...9842.52 ft (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

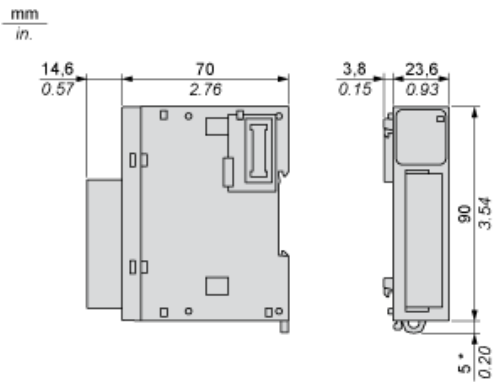
Ordering and shipping details

Category	22533 - M2XX PLC & ACCESSORIES
Discount Schedule	MSX
GTIN	00785901981954
Nbr. of units in pkg.	1
Package weight(Lbs)	0.47000000000000003
Returnability	Y
Country of origin	JP

Offer Sustainability

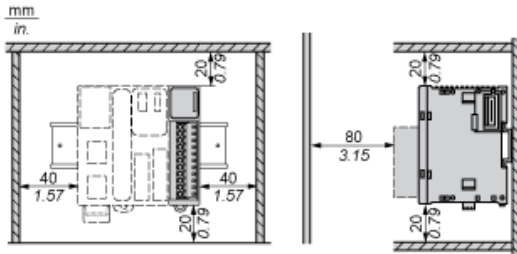
Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1415 - Schneider Electric declaration of conformity  Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available
California proposition 65	WARNING: This product can expose you to chemicals including:
----- Substance 1	Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm.
----- More information	For more information go to www.p65warnings.ca.gov

Dimensions

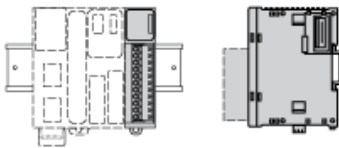


(*) 8.5 mm/0.33 in when the clamp is pulled out.

Spacing Requirements



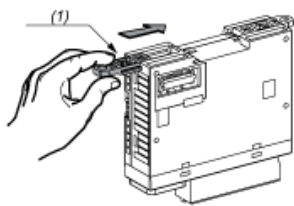
Mounting on a Rail



Incorrect Mounting

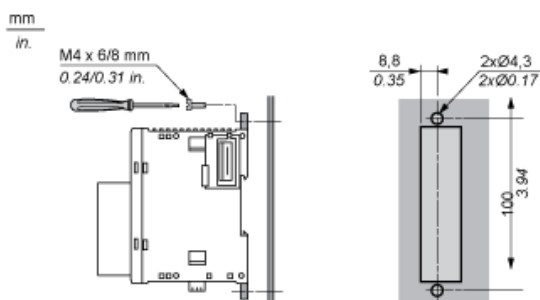


Mounting on a Panel Surface



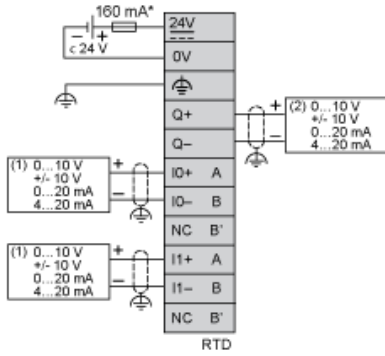
- (1) Install a mounting strip

Mounting Hole Layout



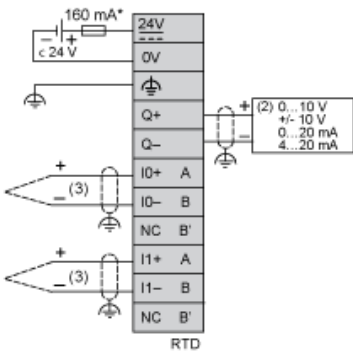
Analogue Mixed I/O Module

Wiring Diagram (Current/Voltage type)



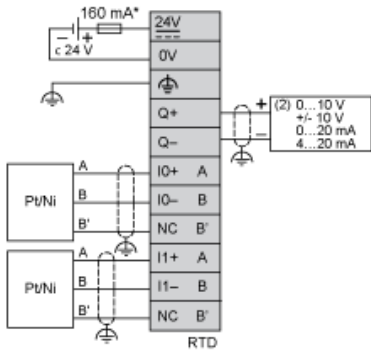
- (*) Type T fuse
- (1) Current/Voltage analog output device
- (2) Current/Voltage analog input device

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

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