

# TM3TM3

Input/output analog module, Modicon TM3, 2 or temperature inputs, 1 output (screw) 24 VDC



## Main

Range of Product	Modicon TM3
Product or Component Type	Input/output analog module
Range Compatibility	Modicon M221 Modicon M241 Modicon M251 Modicon M262
Analogue input number	2
Analogue input type	Current 4...20 mA Current 0...20 mA Voltage 0...10 V Voltage - 10...10 V Thermocouple - 200...1000 °C thermocouple J Thermocouple - 200...1300 °C thermocouple K Thermocouple 0...1760 °C thermocouple R Thermocouple 0...1760 °C thermocouple S Thermocouple 0...1820 °C thermocouple B Thermocouple - 200...400 °C thermocouple T Thermocouple - 200...1300 °C thermocouple N Thermocouple - 200...800 °C thermocouple E Thermocouple 0...2315 °C thermocouple C Ni 100/Ni 1000 temperature probe - 60...180 °C Pt 100 temperature probe - 200...850 °C Pt 1000 temperature probe - 200...600 °C
Analogue output number	1
Analogue output type	Current 4...20 mA Current 0...20 mA Voltage 0...10 V Voltage - 10...10 V

## Complementary

Analogue input resolution	16 bits 15 bits + sign
Permissible continuous overload	13 V voltage 40 mA current
Input impedance	<= 50 Ohm current >= 1 MOhm voltage >= 1 MOhm thermocouple >= 1 MOhm temperature probe
Analogue output resolution	12 bits
LSB value	0.15 mV 0...10 V voltage 0.30 mV - 10...10 V voltage 0.30 µA 0...20 mA current 0.244 µA 4...20 mA current 0.1 °C temperature probe 0.1 °C thermocouple 2.44 mV 0...10 V voltage 4.88 mV - 10...10 V voltage 4.88 µA 0...20 mA current 3.91 µA 4...20 mA current
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 thermocouple 100 ms + 100 ms per channel + 1 controller cycle time temperature probe 10 ms + 10 ms per channel + 1 controller cycle time voltage/current

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Sampling duration	10 Ms voltage/current 100 Ms voltage/current 100 Ms thermocouple 100 ms temperature probe
Absolute accuracy error	+/- 6 °C 77 °F (25 °C) thermocouple R, S 0...200 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple K - 200...0 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple J - 200...0 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple E - 200...0 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple T - 200...0 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple N - 200...0 °C +/- 0.1 % of full scale 77 °F (25 °C) voltage/current +/- 0.1 % of full scale 77 °F (25 °C) thermocouple C 0...2315 °C +/- 0.1 % of full scale 77 °F (25 °C) Pt 100/Pt 1000, Ni 100/ Ni 1000 +/- 0.1 % of full scale 77 °F (25 °C) thermocouple R, S 200...1760 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple B 300...1820 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple K 0...1300 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple J 0...1000 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple E 0...800 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple T 0...400 °C +/- 0.1 % of full scale 77 °F (25 °C) thermocouple N 0...1300 °C +/- 0.1 % of full scale 77 °F (25 °C) voltage/current
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 <98.43 ft (30 m) input/output
Current consumption	55 mA 24 V DC via external supply no load 55 mA 5 V DC via bus connector no load 60 mA 5 V DC via bus connector full load 80 mA 24 V DC via external supply full load
Local signalling	For PWR 1 LED (green)
Electrical connection	11 x 2.5 mm <sup>2</sup> removable screw terminal block pitch 5.08 mm for inputs, outputs and supply
Insulation	Between input and supply 1500 V AC Between input and internal logic 500 V AC Between output and supply 1500 V AC Between output and internal logic 500 V AC
Marking	CE
Surge withstand	1 KV power supply common mode EN/IEC 61000-4-5 0.5 KV power supply differential mode EN/IEC 61000-4-5 1 KV I/O common mode EN/IEC 61000-4-5 0.5 kV I/O differential mode EN/IEC 61000-4-5
Mounting support	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail 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)
Net Weight	0.25 lb(US) (0.115 kg)

## Environment

Standards	EN/IEC 61010-2-201 EN/IEC 61131-2
Resistance to electrostatic discharge	8 KV in air EN/IEC 61000-4-2 4 kV on contact EN/IEC 61000-4-2
Resistance to electromagnetic fields	9.14 V/m (10 V/m) 80 MHz...1 GHz EN/IEC 61000-4-3 2.74 V/m (3 V/m) 1.4 GHz...2 GHz EN/IEC 61000-4-3 0.91 V/m (1 V/m) 2 GHz...3 GHz EN/IEC 61000-4-3
Resistance to magnetic fields	98.43 A/m (30 A/m) EN/IEC 61000-4-8
Resistance to fast transients	1 kV EN/IEC 61000-4-4 I/O)
Resistance to conducted disturbances	10 V 0.15...80 MHz EN/IEC 61000-4-6 3 V spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) Marine specification (LR, ABS, DNV, GL)

Electromagnetic emission	Radiated emissions 40 dB $\mu$ V/m QP class A 10 m)30...230 MHz EN/IEC 55011 Radiated emissions 47 dB $\mu$ V/m QP class A 10 m)230...1000 MHz EN/IEC 55011
Immunity to microbreaks	10 ms
Ambient Air Temperature for Operation	14...131 °F (-10...55 °C) horizontal installation 14...95 °F (-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	0.00...9842.52 ft (0...3000 m)
Vibration resistance	3.5 mm 5...8.4 Hz DIN rail 3 gn 8.4...150 Hz DIN rail
Shock resistance	15 gn 11 ms

## Ordering and shipping details

Category	22533 - M2XX PLC & ACCESSORIES
Discount Schedule	MSX
GTIN	3606480649042
Nbr. of units in pkg.	1
Package weight(Lbs)	7.76 oz (220 g)
Returnability	No
Country of origin	JP

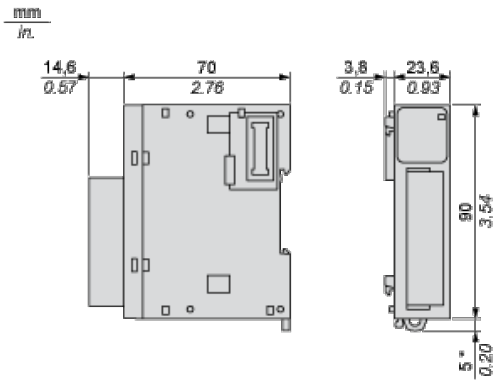
## Packing Units

Unit Type of Package 1	PCE
Package 1 Height	3.00 in (7.611 cm)
Package 1 width	4.21 in (10.688 cm)
Package 1 Length	5.02 in (12.753 cm)
Unit Type of Package 2	S04
Number of Units in Package 2	42
Package 2 Weight	22.97 lb(US) (10.421 kg)
Package 2 Height	11.81 in (30 cm)
Package 2 width	15.75 in (40 cm)
Package 2 Length	23.62 in (60 cm)

## Offer Sustainability

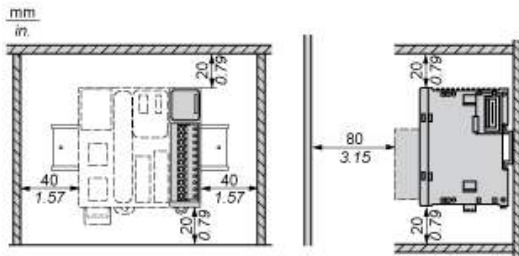
Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	<a href="#">REACH Declaration</a>
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
Toxic heavy metal free	Yes
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China RoHS Declaration</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Circularity Profile	<a href="#">End Of Life Information</a>
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
PVC free	Yes

Dimensions

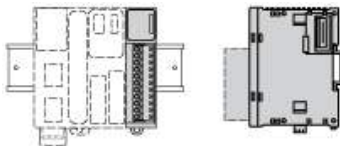


(\*) 8.5 mm/0.33 in when the clamp is pulled out.

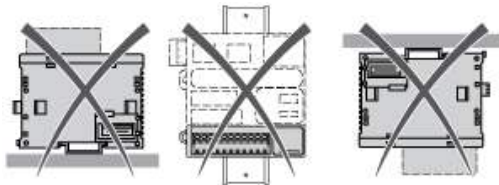
Spacing Requirements



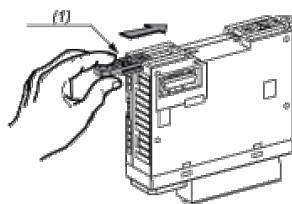
Mounting on a Rail



Incorrect Mounting

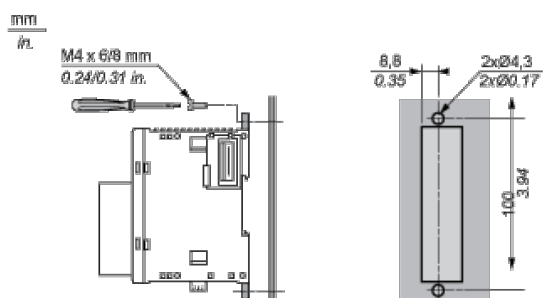


Mounting on a Panel Surface



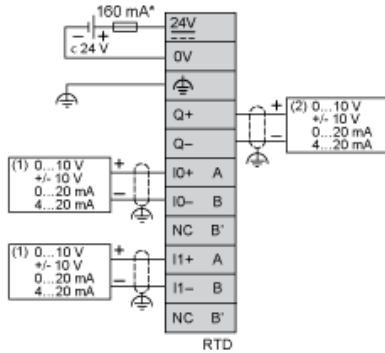
- (1) Install a mounting strip

Mounting Hole Layout



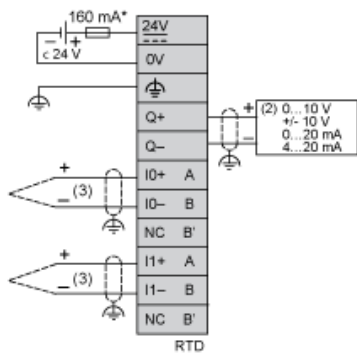
Analogue Mixed I/O Module

Wiring Diagram (Current/Voltage type)



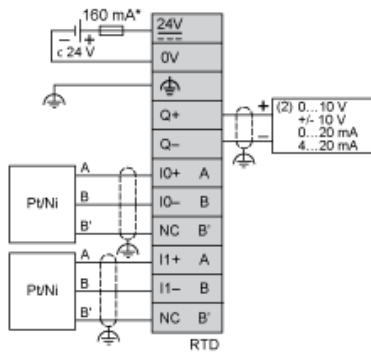
- (\*) Type T fuse
- (1) Current/Voltage analog output device
- (2) Current/Voltage analog input device

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