

Product datasheet

Specifications



module TM3 - 8 inputs temperature

TM3TI8T

Main

Range of product	Modicon TM3
Product or component type	Analog input module
Range compatibility	Modicon M221 Modicon M241 Modicon M251 Modicon M262
Analogue input number	8
Analogue input type	thermocouple - 200...1000 °C with thermocouple J thermocouple - 200...1300 °C with thermocouple K thermocouple 0...1760 °C with thermocouple R thermocouple 0...1760 °C with thermocouple S thermocouple 0...1820 °C with thermocouple B thermocouple - 200...400 °C with thermocouple T thermocouple - 200...1300 °C with thermocouple N thermocouple - 200...800 °C with thermocouple E thermocouple 0...2315 °C with thermocouple C NTC 10k thermistor -90...150 °C PTC thermistor 100...10000 Ohm thermocouple - 200...1000 °C

Complementary

Analogue input resolution	16 bits 15 bits + sign
Input impedance	≥ 1 MOhm thermocouple ≥ 1 MOhm temperature probe ≥ 1 MOhm thermistor
LSB value	0.1 °C thermocouple 0.1 °C with NTC probe 1 Ohm with PTC/NTC probe
Conversion time	100 ms + 100 ms per channel + 1 controller cycle time
Sampling duration	100 ms
Absolute accuracy error	+/- 0.2 % of full scale at 25 °C for thermocouple C 0...2315 °C +/- 6 °C at 25 °C for thermocouple R, S 0...200 °C +/- 0.2 % of full scale at 25 °C for thermocouple R, S 200...1760 °C +/- 0.2 % of full scale at 25 °C for thermocouple B 300...1820 °C +/- 0.4 % of full scale at 25 °C for thermocouple K - 200...0 °C +/- 0.2 % of full scale at 25 °C for thermocouple K 0...1300 °C +/- 0.4 % of full scale at 25 °C for thermocouple J - 200...0 °C +/- 0.2 % of full scale at 25 °C for thermocouple J 0...1000 °C +/- 0.4 % of full scale at 25 °C for thermocouple E - 200...0 °C +/- 0.2 % of full scale at 25 °C for thermocouple E 0...800 °C +/- 0.4 % of full scale at 25 °C for thermocouple T - 200...0 °C +/- 0.2 % of full scale at 25 °C for thermocouple T 0...400 °C +/- 0.4 % of full scale at 25 °C for thermocouple N - 200...0 °C +/- 0.2 % of full scale at 25 °C for thermocouple N 0...1300 °C
Temperature drift	+/- 0.01 %FS/°C
Repeat accuracy	+/-0.5 %FS

Non-linearity	+/- 0.2 %FS
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 circuit
Current consumption	30 mA at 24 V DC via external supply 45 mA at 5 V DC via bus connector 40 mA at 5 V DC via bus connector
Local signalling	1 LED (green) for PWR
Electrical connection	10 x 1.5 mm ² removable screw terminal block with pitch 3.81 mm adjustment for inputs and supply 10 x 1.5 mm ² removable screw terminal block with pitch 3.81 mm adjustment for inputs
Insulation	Between input and supply at 1500 V AC Between input and internal logic at 500 V AC
Marking	CE
Surge withstand	1 kV power supply common mode conforming to EN/IEC 61000-4-5 0.5 kV power supply differential mode conforming to EN/IEC 61000-4-5 1 kV input common mode 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
Net weight	0.11 kg

Environment

Standards	EN/IEC 61010-2-201 EN/IEC 61131-2
Resistance to electrostatic discharge	8 kV in air conforming to EN/IEC 61000-4-2 4 kV on contact conforming to EN/IEC 61000-4-2
Resistance to electromagnetic fields	10 V/m 80 MHz...1 GHz conforming to EN/IEC 61000-4-3 3 V/m 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 1 V/m 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 0.15...80 MHz conforming to 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) 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 on DIN rail 3 gn at 8.4...150 Hz on DIN rail

Shock resistance	15 gn for 11 ms
------------------	-----------------

Packing Units

Unit Type of Package 1	PCE
------------------------	-----

Number of Units in Package 1	1
------------------------------	---

Package 1 Height	7.516 cm
------------------	----------

Package 1 Width	10.685 cm
-----------------	-----------

Package 1 Length	12.739 cm
------------------	-----------

Package 1 Weight	210.0 g
------------------	---------

Unit Type of Package 2	S02
------------------------	-----

Number of Units in Package 2	9
------------------------------	---

Package 2 Height	15.0 cm
------------------	---------

Package 2 Width	30.0 cm
-----------------	---------

Package 2 Length	40.0 cm
------------------	---------

Package 2 Weight	2.391 kg
------------------	----------

Offer Sustainability

Sustainable offer status	Green Premium product
--------------------------	-----------------------

REACH Regulation	REACH Declaration
------------------	-----------------------------------

EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
-------------------	---

Toxic heavy metal free	Yes
------------------------	-----

Mercury free	Yes
--------------	-----

China RoHS Regulation	China RoHS declaration
-----------------------	--

RoHS exemption information	Yes
----------------------------	---------------------

Environmental Disclosure	Product Environmental Profile
--------------------------	---

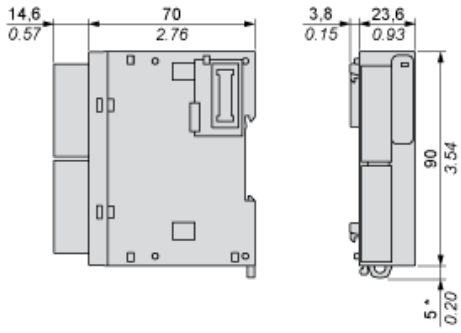
Circularity Profile	End of Life Information
---------------------	---

WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
------	---

PVC free	Yes
----------	-----

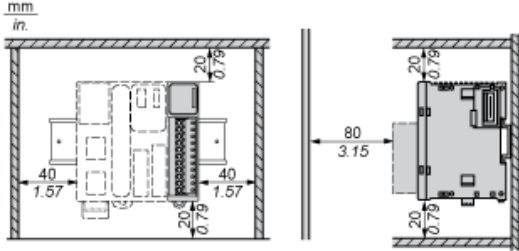
Dimensions

mm
in.

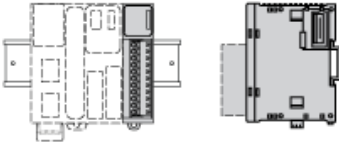


(*) 8.5 mm/0.33 in when the clamp is pulled out.

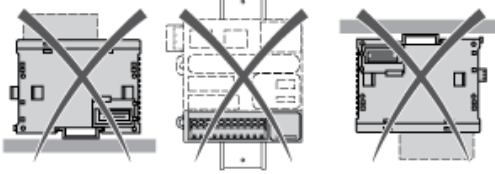
Spacing Requirements



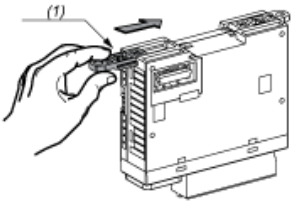
Mounting on a Rail



Incorrect Mounting

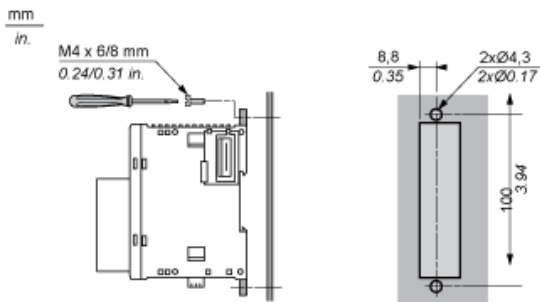


Mounting on a Panel Surface



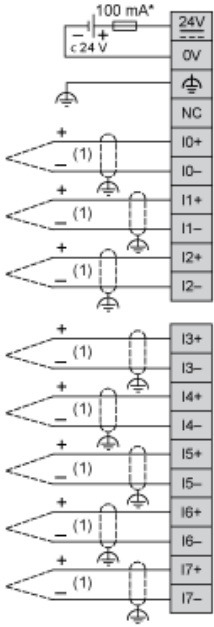
(1) Install a mounting strip

Mounting Hole Layout



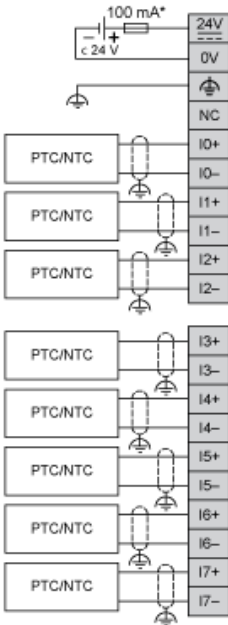
Analogue Input Module

Wiring Diagram (Thermocouple Input Type)



- (*) Type T fuse
- (1) Thermocouple

Wiring Diagram (Temperature Probe Input Type)



- (*) Type T fuse

Recommended replacement(s)