

Schneider Service Manual

TM3TI4

1. Description

Modicon TM3 - 4 analog /

3. Product Information

Modicon TM3 - 4 analog /

temperature inputs (screw) 24Vdc

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 4

Analogue input type current 4...20 mA

current 0...20 mA

voltage 0...10 V

voltage - 10...10 V

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

Ni 100/Ni 1000 temperature probe - 60...180 °C

Pt 100 temperature probe - 200...850 °C

Pt 1000 temperature probe - 200...600 °C

Complementary

Analogue input resolution 16 bits

15 bits + sign

Permissible continuous overload 13 V, analogue input type: voltage

40 mA, analogue input type: current

Input impedance <= 50 Ohm current

>= 1 MOhm voltage

>= 1 MOhm thermocouple

>= 1 MOhm temperature probe

LSB value 2.44 mV 0...10 Vvoltage

4.88 mV - 10...10 Vvoltage

4.88 µA 0...20 mAcurrent

3.91 µA 4...20 mAcurrent

0.1 °Ctemperature probe

0.1 °Cthermocouple

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, analogue input type: voltage/current

100 ms, analogue input type: voltage/current

100 ms, analogue input type: thermocouple

100 ms, analogue input type: temperature probe

Absolute accuracy error +/- 0.2 % of full scale at 25 °C for analogue input voltage/current

+/- 0.2 % of full scale at 25 °C for Pt 100/Pt 1000, Ni 100/ Ni 1000 temperature probe

+/- 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 45 mA at 5 V DC via bus connector

50 mA at 5 V DC via bus connector

35 mA at 24 V DC via external supply

40 mA at 24 V DC via external supply

Local signalling 1 LED (green) for PWR

Electrical connection 10 x 1.5 mm² removable screw terminal block with pitch 3.81 mm adjustment for inputs and supply

10 x 1.5 mm² 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 IEC 61000-4-5

0.5 kV power supply differential mode conforming to IEC 61000-4-5

1 kV input common mode conforming to 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 IEC 61131-2

Product certifications CE

UKCA

RCM

EAC

cULus

cULus HazLoc

Resistance to electrostatic discharge

8 kV in air conforming to IEC 61000-4-2

4 kV on contact conforming to IEC 61000-4-2

Resistance to electromagnetic fields

10 V/m 80 MHz...1 GHz conforming to IEC 61000-4-3

3 V/m 1.4 GHz...2 GHz conforming to IEC 61000-4-3

1 V/m 2 GHz...3 GHz conforming to IEC 61000-4-3

Resistance to magnetic fields 30 A/m conforming to IEC 61000-4-8

Resistance to fast transients 1 kV (I/O) conforming to IEC 61000-4-4

Resistance to conducted disturbances

10 V 0.15...80 MHz conforming to 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 IEC 55011
Radiated emissions - test level: 47 dB μ V/m QP class A (10 m) at 230...1000 MHz
conforming to 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 7.500 cm
Package 1 Width 10.500 cm
Package 1 Length 12.500 cm
Package 1 Weight 215.000 g