Product data sheet
Characteristics

TM3AQ4
module TM3 - 4 analog outputs

Main

Range of product	Modicon TM3
Product or component type	Analog output module
Range compatibility	Modicon M221 Modicon M241 Modicon M251
Analogue output number	4
Analogue output type	- 10...10 V voltage 0...10 V voltage 0...20 mA current 4...20 mA current

Complementary

Analogue input resolution	11 bits + sign 12 bits
Analogue output resolution	11 bits + sign 12 bits
LSB value	3.91 µA, analogue input: 4...20 mA current 4.88 µA, analogue input: 0...20 mA current 4.88 mV, analogue input: - 10...10 V voltage 2.44 mV, analogue input: 0...10 V voltage
Load type	Resistive
Load impedance ohmic	300 Ohm current 1 kOhm voltage
Stabilisation time	1 ms
Conversion time	1 ms + 1 ms per channel + 1 controller cycle time
Absolute accuracy error	+/- 0.2 % of full scale at 25 °C +/- 1 % of full scale
Temperature drift	+/- 0.01 %FS/°C
Repeat accuracy	+/- 0.4 %FS
Non-linearity	+/- 0.2 %FS
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	<= 30 m twisted shielded pairs cable for output circuit
Current consumption	125 mA at 24 V DC (full load) via external supply 50 mA at 24 V DC (no load) via external supply 50 mA at 5 V DC (full load) via bus connector 40 mA at 5 V DC (no load) via bus connector
Local signalling	1 LED green for PWR
Electrical connection	11 x 2.5 mm² removable screw terminal block with pitch 5.08 mm adjustment for outputs and supply
Insulation	500 V AC between output and internal logic 1500 V AC between output and supply
Marking	CE
Surge withstand	1 kV for output 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 power supply with common mode protection conforming to EN/IEC 61000-4-5

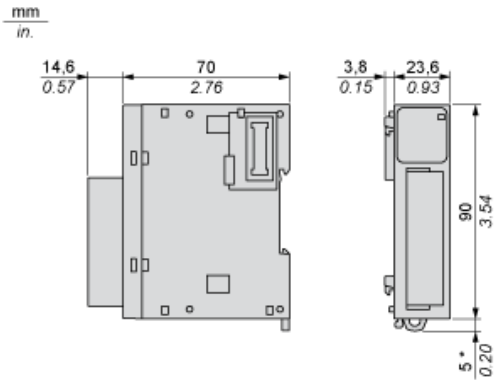
Mounting support	Plate or panel with fixing kit Top hat type TH35-7.5 rail conforming to IEC 60715 Top hat type TH35-15 rail conforming to IEC 60715
Height	90 mm
Depth	70 mm
Width	23.6 mm
Product weight	0.115 kg

Environment

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	1 V/m at 2 GHz...3 GHz conforming to EN/IEC 61000-4-3 3 V/m at 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 10 V/m at 80 MHz...1 GHz conforming to EN/IEC 61000-4-3
Resistance to magnetic fields	30 A/m at 50...60 Hz 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, induced by radio frequency fields	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) 10 V at 0.15...80 MHz conforming to EN/IEC 61000-4-6
Electromagnetic emission	Radiated emissions, test level: 47 dBµV/m QP class A (10 m at 230 MHz...1 GHz) conforming to EN/IEC 55011 Radiated emissions, test level: 40 dBµV/m QP class A (10 m at 30...230 MHz) conforming to EN/IEC 55011
Immunity to microbreaks	10 ms
Ambient air temperature for operation	-10...35 °C (vertical installation) -10...55 °C (horizontal installation)
Ambient air temperature for storage	-25...70 °C
Relative humidity	10...95 % without condensation in storage 10...95 % without condensation in operation
IP degree of protection	IP20
Pollution degree	2
Operating altitude	0...2000 m
Storage altitude	0...3000 m
Vibration resistance	3 gn at 8.4...150 Hz with DIN rail mounting support 3.5 mm at 5...8.4 Hz with DIN rail mounting support
Shock resistance	15 gn during 11 ms

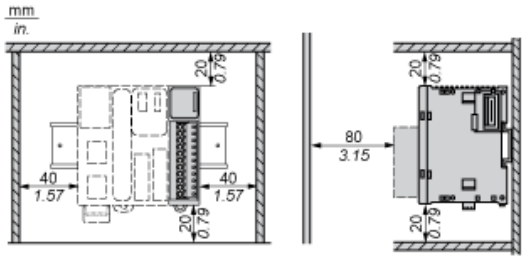
Dimensions Drawings

Dimensions

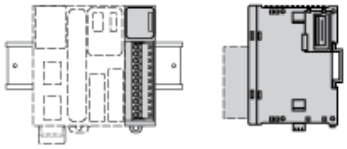


(*) 8.5 mm/0.33 in when the clamp is pulled out.

Spacing Requirements

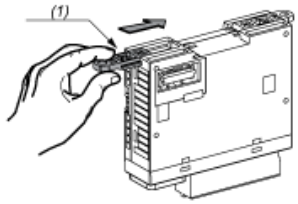


Mounting on a Rail



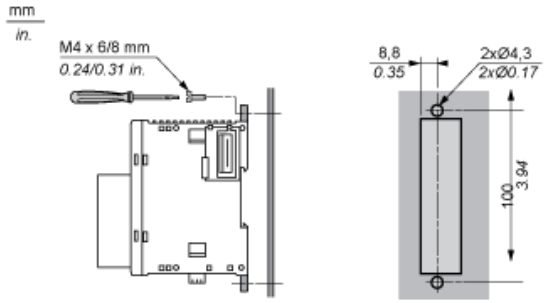
Incorrect Mounting

Mounting on a Panel Surface



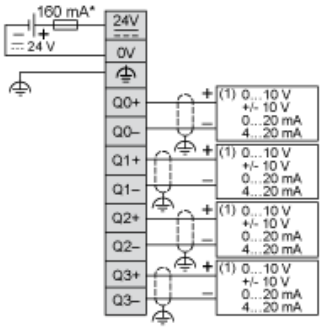
(1) Install a mounting strip

Mounting Hole Layout



Analogue Output Module

Wiring Diagram (Current / Voltage)



(*) Type T fuse
(1) Voltage/current pre-actuator